





# **Operational Environmental Management Plan**

Westlink Stage 1

290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek

SSD-9138102



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## Glossary

Aspect	Aspect Environmental Pty Ltd
BAL	Bushfire attack level
BCA	Building Code of Australia
CEMP	Construction Environmental Management Plan
CoC	Condition(s) of consent
CSCS	Community and Stakeholder Communications Strategy
The Development	Westlink Stage 1 (formerly known as the Kemps Creek Logistics Park)
DP	Deposited plan
DPE	Department of Planning and Environment (now DPHI)
DPIE	Department of Planning, Industry and Environment (now DPHI)
DPHI	Department of Planning Housing and Infrastructure
EHG	Environment and Heritage Group
EIS	Environmental impact statement
EMS	Environmental management system
Environmental Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.
EPA	Environment Protection Authority
EPL	Environment protection licence
EP&A Act	Environmental Planning and Assessment Act 1979
ESR	ESR Australia Pty Ltd
HSE	Health, safety and environment
HV	Heavy vehicle
LMP	Landscape Management Plan
LV	Light vehicle
Material Harm	Harm that involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).
MRP	Mamre Road Precinct



Glossary	
NCC	National Construction Code
Non-compliance	An occurrence, set of circumstances, or development that is a breach of the SSD 9138102 Development Consent.
OEMP	Operational Environmental Management Plan
ONVR	Operational Noise Verification Report
OTMP	Operational Traffic Management Plan
OTMoP	Operational Traffic Monitoring Program
OWiMP	Operational Wildlife Management Plan
OWaMP	Operational Waste Management Plan
POEO Act	Protection of the Environment and Operations Act 1997
PCC	Penrith City Council
SEPP	State environmental planning policy
SMP	Stormwater Management Plan
SSD	State significant development
SWC	Sydney Water Corporation
TAG	Transport Access Guide
TfNSW	Transport for New South Wales
WHS	Workplace health, and safety
WOEMP	Warehouse Operational Environmental Management Plan
WTP	Workplace Travel Plan
WWMP	Warehouse Waste Management Plan



## **1** INTRODUCTION

### 1.1 Background

This Operational Environmental Management Plan (OEMP) has been prepared by Aspect Environmental Pty Ltd (Aspect), on behalf of ESR Australia Pty Ltd (ESR), for the purposes of Westlink Stage 1 (formerly known as the Kemps Creek Logistics Park) (the Development).

This OEMP has been prepared with reference to:

- State Significant Development (SSD) 9138102 Development Consent, as consolidated and the included conditions of consent (CoC) dated 21 April 2023 (as modified)
- Amendment Report (Ethos Urban, 15 September 2022)
- Environmental Impact Statement (EIS) (Ethos Urban, 17 June 2021)
- SSD 9138102 Planning Secretary's Environmental Assessment Requirements which were issued in December 2020.

The Development site is approximately 319,800m<sup>2</sup> in area and is irregular in shape (refer to Figure 1-1). The Development comprises the first stage of an industrial estate located within the Penrith City Local Government Area at the location of:

- Lot 111 DP 1296469 63-72 Abbotts Road, Kemps Creek 2178
- Lot 112 DP 1296469 59-62 Abbotts Road, Kemps Creek 2178
- Lot 113 DP 1296469 290-308 Aldington Road, Kemps Creek 2178
- Lot 114 DP 1296469 1050-1064 Mamre Road, Kemps Creek 2178
- Lot 115 DP 1296469 1030-1048 Mamre Road, Kemps Creek 2178
- Lot 10 DP 1296455 285 Aldington Road Kemps Creek 2178.

The Development is managed by ESR, with warehouse tenants operating the warehouses on the site.





Figure 1-1: Site context (EIS, Ethos Urban, June 2021)

## 1.2 Purpose of this OEMP

This OEMP is the overarching guide for the operational environmental management of the Development and has been prepared in accordance with *Environmental Management Plan Guideline – Guideline for infrastructure Projects* (DPIE, 2020) to address: the Development Consent and Applicant's Management and Mitigation Measures included in Appendix 5 of the Development Consent.

This OEMP has been prepared specifically to address requirements of CoC C1, C5, C6 and C7 which require the preparation of an OEMP to the satisfaction and approval of the Planning Secretary prior to commencement of operation.

This OEMP identifies the environmental management measures to be applied to operations across the Development, as described in Section 5, to manage the environmental risks associated with the Development.

## 1.3 Objectives of this OEMP

The objectives of this OEMP are to:

- Identify and implement relevant environmental legal and other regulatory requirements applicable to the operation of the Development
- Identify the environmental aspects and impacts associated with operation of the Development and provide management measures to minimise and manage impacts on the environment and community
- Establish and define operational environmental roles and responsibilities
- Describe procedures to receive, handle, respond, record and resolve complaints, disputes and respond to any non-compliance



- Assign responsibility for the implementation, management and review process of this OEMP
- Provide a consistent and uniform approach to site environmental management such that the required standards for environmental protection are attained and maintained during the operation of the Development
- Provide all operational personnel with sufficient information to undertake their activities in accordance with legal and other relevant environmental requirements
- Provide a framework for training, development and support (systems, procedures, and documentation) necessary to undertake operations.

All ESR employees, warehouse tenants, sub-contractors and visitors are required to comply with the requirements of this OEMP at all times.

## **1.4 Consultation**

The Development Consent does not require this OEMP to be prepared in consultation with stakeholders, however consultation was required during the preparation of three of the OEMP Sub-Plans:

- Workplace Travel Plan (WTP) (under CoC B18)
- Stormwater Management Plan (SMP) (under CoC B30)
- Operational Traffic Management Plan (OTMP) for the Development (under CoC D13).

Details of the consultation is provided in each Sub-Plan and a summary of stakeholder consultation is provided in Table 1-1.

Sub-Plan	Stakeholder	Outcome		
WTP	Transport for NSW (TfNSW)	Consultation with TfNSW was undertaken in May 2024. Comments on the WTP were received and addressed in the WTP. The WTP was resubmitted to TfNSW, at their request, in August 2024. TfNSW confirmed that all comments had been addressed in November 2024.		
SMP	Environment and Heritage Group (EHG)	Consultation with the Environment and Heritage Group was undertaken in May 2023. Comments on the SMP were received and incorporated into the SMP.		
	Sydney Water Corporation (SWC)	Consultation with SWC was undertaken in May 2023. Comments on the SMP were received and incorporated into the SMP.		
	Penrith City Council (PCC)	Consultation with Council was undertaken in May 2023. Comments on the SMP were received and incorporated into the SMP.		
	Department of Planning Housing and Infrastructure (DPHI)	The SMP was submitted to DPHI in January 2024. DPHI responded with comments which were addressed and a revised SMP was submitted for approval in February 2024.		

Table 1-1: Consultation summary



Sub-Plan	Stakeholder	Outcome	
OTMP	TfNSW	Consultation with TfNSW was undertaken in September and October 2024. TfNSW confirmed in November 2024 that it was satisfied with the changes made to the OTMP.	
	PCC	Consultation with PCC was undertaken in September and October 2024. PCC confirmed in November 2024 that it had no objections or concerns with the OTMP.	

## **1.5 Distribution and Availability**

This OEMP will be distributed to staff with specific responsibilities under this OEMP and will also be made available to all operational staff. A hard copy will be kept at the Development site.

A copy of this OEMP and all relevant statutory documentation registers will be available at the Development and will be readily available for relevant regulatory officers.

In accordance with CoC C17, the up-to-date, approved version of this OEMP, along with other information and documents, will be made publicly available on the Development's website, at least 48 hours prior to the commencement of operations and on an ongoing basis.

## **1.6 Document Structure**

The structure of this OEMP is summarised below.

- **Section 1** provides a brief overview of the Development and the purpose of the OEMP.
- Section 2 provides a summary of operations.
- **Section 3** outlines the statutory requirements and obligations which need to be fulfilled during operations.
- Section 4 provides a description of the roles and responsibilities for employees involved in operations. This section also outlines the environmental objectives and targets, and relevant training and inductions required so that employees are aware of their environmental obligations.
- **Section 5** provides the environmental risk analysis which identifies the key environmental risks for operations.
- **Section 6** provides the monitoring, reporting, and auditing requirements and management of any environmental incidents and non-conformance.

In addition, this OEMP includes the Sub-Plans required by CoC C6I and additional environmental management documents as outlined in Table 1-2 and in Figure 1-2.



#### Table 1-2: OEMP Sub-Plans and other documents

Sub-Plan	CoC	Responsible	Notes
Operational Traffic Monitoring Program (OTMoP)	B3	ESR	The OTMoP was prepared by Ason Group and is included as Appendix E
Warehouse 4 OTMP	B3A	ESR	The Warehouse 4 OTMP will be prepared prior to the operation of Warehouse 4.
Workplace Travel Plan (WTP)	B18	ESR	The WTP requires preparation of a Transport Access Guide (TAG) for each warehouse and is included as Appendix F
Stormwater Management Plan (SMP)	B30	ESR	The SMP is included as Appendix G
Landscape Management Plan (LMP)	B38	ESR	The LMP is included as Appendix H in this OEMP
Operational Wildlife Management Plan (OWiMP)	B87	ESR	The OWiMP is included as Appendix I
Operational Waste Management Plan (OWaMP)	B91	ESR	The OWaMP is included as Appendix K
Warehouse Operational Environmental Management Plan (WOEMP)	-	Warehouse Tenant	A template WOEMP for use by warehouse tenants is included in Appendix J
Warehouse Waste Management Plan (WWMP)	B91	Warehouse Tenants	A WWMP will be prepared for each warehouse to address management of specific waste streams generated
Transport Access Guide (TAG)	B18	Warehouse Tenant	A template TAG for use by warehouse tenants is included as an appendix to the WTP
OTMP for the Development	D13	ESR	This OTMP is included as Appendix L.



Figure 1-2: OEMP, Sub-Plans and other document structure



## **1.7 Progressive Application of the OEMP for the Development**

This OEMP and Sub-Plans apply to operations at the Development. Operational areas will come online progressively as warehouse buildings and ancillary office spaces are constructed, commissioned and tenanted for storage or distribution of goods.

As areas become operational, any adjacent construction areas will continue to be managed in accordance with the relevant Construction Environmental Management Plan (CEMP), while operational areas will be managed in accordance with this OEMP.

Until the entire Development is operational, all construction areas will be appropriately identified and demarcated to enable effective management of the interface between any construction areas and operations.

As part of the OEMP review and revision program (Section 6.7), this OEMP and Sub-Plans will be updated with the new operational site layout, while the CEMP and Sub-Plans will be revised to show the reduced area of construction.



## 2 Development Description

## 2.1 Existing Environment

The construction of the Development has removed all previous natural and other features from the site. The Development is being undertaken in accordance with the Westlink Stage 1 (SSD 9138102) Development Consent approved on 21 April 2023 (as consolidated).

The Development involves bulk earthworks including clearing site, levelling, import and compaction of fill material, excavation for installation of drainage and services, preparing the site for construction, subdivision, construction, fit out and operation of a new industrial estate at the site comprising two industrial warehouses and ancillary office space with a total gross floor area of 81,282m<sup>2</sup> (refer Figure 2-1).

The landscaping, construction of internal roads, external road upgrades including to Aldington and Abbotts Road, and a new signalised intersection at Mamre and Abbotts Road, site servicing and stormwater infrastructure works are also included in the development.

The Development site was previously surrounded by rural and rural residential areas, and rural residential lots remain to the east of the Development site. The Development is part of a larger industrial warehouse precinct (the Mamre Road Precinct, MRP) and other warehouse developments are being planned or constructed to the north, south and west of the Development site. The rural and rural residential areas to the north, south and west of the Development site will become warehouse developments in the future.





#### Figure 2-1: Development site layout (SSD 9138102 Development Consent (as consolidated), 21 April 2023)



## 2.2 Development Operational Activities

The Development is operated by ESR and the warehouses will operate on a 24 hours per day/7 days per week basis as allowed under CoC B47 of the Development Consent.

Development operational activities include the operation and maintenance of the following assets:

- Internal roads
- Stormwater drainage including the on-site detention basin
- Utilities within the Development
- Development landscaping
- Warehouse pads prior to the commencement of warehouse construction.

Access to the Development is via Abbotts Road with a three-way signalised intersection at the Abbotts and Aldington Road junction, sized appropriately to cater for B-doubles.

The operation of the two logistic warehousing and distribution centres is the responsibility of the warehouse tenants as outlined in Section 2.3.

#### 2.3 Warehouse Operations

A detailed description of the operations at each warehouse is provided in the relevant WOEMP.

In general, the warehouses will operate as logistics facilities, receiving and storing goods for later dispatch. Heavy and light vehicles would access the warehouses via the main site access off Abbotts Road, light vehicles would park in the allocated parking area adjacent to each warehouse and heavy vehicles would progress to the truck loading/unloading areas alongside each warehouse.

Table 2-1 provides a list of warehouses and their tenant.

Table 2-1: Warehouse tenants in the Development

Warehouse	Tenant
Warehouse 1	Toll
Warehouse 4	ТВА



## 3 LEGAL AND OTHER REQUIREMENTS

The Development is required to comply with all relevant legislation, permits, licences and development approvals during operations.

### 3.1 Legislation

Environmental legislation and its relevance to the operation of the Development are outlined in Appendix A.

This register will be revised and updated in conjunction with the OEMP review outlined in Section 6.7 or when there has been a change to relevant legislation.

In addition to complying with relevant legislation, industry best practice can be achieved through the adherence to relevant Australian Standards and NSW guidelines.

#### 3.2 Development Consent

The Development will be operated under the Development Consent. Compliance with the relevant CoC of the Development Consent is outlined in the compliance matrix in Appendix A.

### **3.3 Permits and Licences**

Permits and licences relevant to operations are detailed in Appendix B. This register will be revised and updated in conjunction with the OEMP review outlined in Section 6.7, or when there has been a change to relevant legislation.

Compliance conditions relating to items listed on this register are incorporated into this OEMP and where relevant in the Sub-Plans.

#### 3.3.1 Environmental protection licence

The operation of the Development will be undertaken in accordance with the requirements of the *Protection of the Environment and Operations Act 1997* (POEO Act). Pursuant to Schedule 1 Clause 39(2)(e), the Development does not comprise works classified as a scheduled activity, therefore an environmental protection licence is not required. If any modification is proposed to the Development Consent for the Development, the need for an environmental protection licence under the POEO Act will be reviewed.

#### 3.3.2 Utilities and road agreements and approvals

If any adjustments or relocations of a public utility are required in the future during operations, approval from the relevant utility service providers will be sought by ESR prior to undertaking the works.

Pre-operations utilities requirements are listed below:

- A Section 73 Compliance Certificate from Sydney Water Corporation for water and sewerage infrastructure will be obtained prior to the commencement of operation, as required by CoC A31.
- Before the issuing of the Occupation Certificate for the Development, ESR will demonstrate that the carrier has confirmed in writing it is satisfied that the fibre-ready facilities are fit-for-purpose, as required by CoC A33.
- Before the issuing of the Occupation Certificate for the first warehouse building, work-as-executed drawings signed by a registered surveyor demonstrating that the street trees, stormwater drainage (including operation and maintenance



management plans) and finished ground levels have been constructed as approved, must be submitted to the Principal Certifier, under CoC A34.

- Prior to the commencement of the operation of the Development, ESR will complete the upgrades to Abbotts Road to the satisfaction of Penrith City Council, as required by CoC B4.
- Prior to the commencement of operation of the first warehouse building, the upgrade works to the Mamre Road and Abbotts Road intersection, Abbotts Road and Aldington Road intersection and internal access roads will be completed to the satisfaction of the relevant roads authority, as required by CoC B11 and B12.
- Prior to the commencement of operation, the Development will be connected to the road drainage infrastructure for the upgraded Aldington and Abbotts Roads, to ensure the Development does not increase flood flows and velocities on adjoining properties for all flood events up to and including the critical 1% Annual Exceedance Probability flow, under CoC B37.

#### 3.3.3 Dangerous Goods

The storage of dangerous goods at the Development and their transport to and from the Development by road will comply with the following:

- *Managing risks of hazardous chemicals in the workplace* (SafeWork NSW, December 2020)
- State Environmental Planning Policy (Resilience and Hazards) 2021
- Hazardous and Offensive Development Guidelines Applying SEPP 33 (Department of Planning, January 2011)
- Storing and Handling of Liquids: Environmental Protection Participant's Manual (Department of Environment and Climate Change, 2007).

At this stage of operations, dangerous goods are expected to be received and stored within both warehouses in accordance with CoC B89 and CoC B90.

Drivers transporting dangerous goods will be appropriately trained and vehicles will have relevant permits in accordance with current legislation. Copies of permits and a register will be maintained on site and will be updated as required.

## 3.4 Guidelines

This OEMP and the Sub-Plans have been prepared in accordance with *Environmental Management Plan Guideline – Guideline for infrastructure Projects* (Department of Planning and Environment, 2020).

The following guidelines will be applied to engineering designs prepared for any alterations or additions to the warehouses or other structures at the Development:

- Design Guidelines for Engineering Works for Subdivisions and Developments (Penrith City Council, 20 November 2013)
- Engineering Construction Specification for Civil Works (Penrith City Council, 31 October 2013)
- Austroads *Guide to Road Design*.



### 4 Environmental Management

## 4.1 Environmental Management System

ESR's Environmental Management System (EMS) sets out the commitment by ESR Group Limited and its subsidiaries to adopt a systematic approach to improving its environmental performance within its business operations.

ESR adopts the Plan-Do-Check-Act model as a structured process for managing its impact on the environment. The tenets of the Plan-Do-Check-Act model are:

- a. Plan Identify the material environmental, sustainability and governance issues relevant to the business. Establish objectives and targets (i.e., short-term and long-term) and develop plan to achieve desired results (e.g. setting a greenhouse gas emissions reduction target over a specified period).
- b. Do Carry out the plan from the previous step (e.g. implement capital expenditure on asset enhancement initiatives to improve efficiency).
- c. Check Measure and monitor actual results against planned objectives, including identifying any non-conformity issues (e.g. track, review and compare actual progress against expected improvements of efficiency initiatives).
- d. Act Correct and improve plan to meet and exceed planned results (e.g. improve or rectify planned asset enhancement initiatives to optimise environmental performance).

The EMS is aligned to AS/ANZ ISO 14001 and this OEMP will be implemented in a manner that is consistent with the requirements of EMS. The environmental management structure that will be implemented by ESR for the Development is shown in Figure 4-1. Warehouse tenants will report to the Senior Project Manager.



Figure 4-1: Environmental management structure (ESR, 2024)



Noting that operations at the Development will commence while construction is ongoing, this environmental management structure will remain in place until construction is complete and a permanent operations management structure is established. This OEMP will be revised to reflect this structure at that time.

## 4.2 Operational Environmental and Sustainability Objectives and Targets

Timefram Objective Target Responsibility e Compliance with relevant No written warning or infringement Operations **NSW Development** CoC and applicable notices. Manager legislation Senior Project Manager No exceedances of air quality, noise, Avoid unacceptable vibration and light spill criteria. impacts on surrounding Senior Project Operations residents and commercial Manager No complaints regarding emissions from stakeholders the Development. Waste storage and recycling facilities to Senior Project be provided for different operational Manager Diversion of waste from recycling streams such as paper, glass, Operations landfill plastics, metals, food waste etc. Warehouse Tenants Implement OWaMP and WWMPs. Senior Project Source potable water alternatives such Manager as rainwater harvesting, grey and black Operations Reduce water usage water treatment for toilets, irrigation and Warehouse truck wash down. Tenants Target a 20% reduction in greenhouse Senior Project gas emissions. Manager Operations Minimise energy use Energy sub-metering for all major uses Warehouse greater than 100kVa; linked to Tenants monitoring system. 100% of complaints to be responded to Senior Project within agreed timeframes of the Minimise social impacts Operations Manager Community Communication Strategy. No complaints regarding operational traffic from local communities. All workers inducted into the WTP and the relevant TAG. Senior Project Reduced car usage by workers Manager travelling to and from the Development. Minimise transport impact Operations Warehouse Bicycle parking and end-of-trip facilities Tenants maintained at all warehouses. Shifts timetabled to avoid peak hour travel. Implement OTMPs.

Table 4-1: Operational environmental and sustainability objectives and targets



Objective	Target	Timefram e	Responsibility
Complement biodiversity values while being suitable	Appropriate native plant species incorporated into landscaping.	Operations	Senior Project Manager
in relation to wildlife management in proximity to the Western Sydney Airport	Landscaping to result in >10% tree canopy cover for the Development.		Warehouse Tenants
	Implement OWiMP.		
Maintain key interfaces with the public domain,	Landscaping maintained in accordance with the LMP.	Operations	Senior Project Manager
adjoining properties and environmentally sensitive lands			Warehouse Tenants
Minimise pollutant discharge to receiving waters	Water sensitive urban design (WSUD) target reductions:	Operations	Senior Project Manger
	• 85% Total Suspended Solids (TSS)		
	60% Total Phosphorus (TP)		
	<ul> <li>45% Total Nitrogen (TN)</li> </ul>		
	• 90% Gross Pollutants (GP).		

## 4.3 Roles and Responsibilities

All personnel undertaking operational activities within the Development are responsible for the implementation of this OEMP and have the responsibility to stop works if there is potential for a safety or environmental incident to occur.

Roles, and responsibilities for environmental management of the Development are outlined in Table 4-2.

Table 4-2: Project roles and responsibilities

Role	Responsibility
NSW Development Manager	<ul> <li>Provides sufficient resources to implement, develop and maintain the OEMP throughout the operating life of the Development</li> </ul>
	<ul> <li>Implements stop work procedures where they believe a work activity to be an actual or potential cause of material harm to the environment anywhere within the Development</li> </ul>
	<ul> <li>Sets, defines and communicates the environmental goals and targets for the Development</li> </ul>
	<ul> <li>Reports relevant environmental matters to personnel and includes them in the agenda of management meetings</li> </ul>
	<ul> <li>Reviews and approves changes to the OEMP</li> </ul>
	• Report incidents to relevant authorities, and other land holders if relevant to land under their ownership.
Senior Project Manager	<ul> <li>Promotes ESR environmental policies and is responsible for their implementation within the areas of responsibility</li> </ul>
Senior Project Manager	<ul> <li>Reviews and approves changes to the OEMP</li> <li>Report incidents to relevant authorities, and other land holders if relevant to land under their ownership.</li> <li>Promotes ESR environmental policies and is responsible for their implementation within the areas of responsibility</li> </ul>



Role	Responsibility
	<ul> <li>Communicates the requirements of the OEMP and environmental obligations to operational team</li> </ul>
	<ul> <li>Authority to stop work processes within the area of responsibility to prevent environmental non-conformances from occurring or continuing</li> </ul>
	Co-ordinates and directs resources to manage responses to incidents
	Reports incidents in accordance with this OEMP
	<ul> <li>Monitors any environmental impacts arising from operational areas adjacent to the Development and report issues to the NSW Development Manager if these impacts raise compliance concerns for this OEMP</li> </ul>
	<ul> <li>Acts as the primary contact point in relation to environmental performance of operations</li> </ul>
	<ul> <li>Defines documents and communicates roles, responsibilities, and authorities of all personnel to facilitate effective HSE management</li> </ul>
	<ul> <li>Provides advice on matters specified in the CoC and other relevant licences and permits relating to the environmental performance and impacts</li> </ul>
	<ul> <li>Reviews and ensures implementation of all operations management plans and monitoring programs required under the CoC and other relevant permits and licences</li> </ul>
	<ul> <li>Reviews revisions to the OEMP and Sub-Plans</li> </ul>
	<ul> <li>Authority and independence to require reasonable steps be taken to avoid or minimise unintended or material environmental harm and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur</li> </ul>
	<ul> <li>Report environmental incidents where required, in accordance with the incident reporting system outlined in this OEMP</li> </ul>
	Acts as the 24-hour EPA contact
	<ul> <li>Monitors operations against the OEMP through regular site inspections to evaluate compliance with the CoC</li> </ul>
	<ul> <li>Receives and responds to complaints and inquiries in relation to the environmental performance of operations</li> </ul>
	<ul> <li>Facilitates the inductions and training program for relevant persons involved with operations</li> </ul>
	<ul> <li>Direct Community Engagement Consultants as required</li> </ul>
	<ul> <li>Act as the 'control tower' for all public communications and will be the central contact to keep nearby residential receivers informed of the Development</li> </ul>
	<ul> <li>Prepares and coordinates content for the Development website, newsletters, factsheets, etc</li> </ul>
	<ul> <li>Monitors, responds to and triages calls and emails relating to operation of the Development</li> </ul>
	<ul> <li>Prepares overarching key messages for operations</li> </ul>
	<ul> <li>Manages the calendar of all communication and engagements activities during operation</li> </ul>
	<ul> <li>Attends the Community Consultative Committee Meetings as a representative of ESR</li> </ul>



Role	Responsibility
Contract Administrator	<ul> <li>Assess whether waste is secured within designated waste storage areas at all times and prevented from leaving the site onto neighbouring public or private properties</li> </ul>
	• Assess whether all liquid and non-liquid wastes to be taken off site are classified in accordance with the latest version of EPA's <i>Waste Classification Guidelines Part 1: Classifying Waste</i> (EPA, 2014) and disposed of to a waste management facility or premises lawfully permitted to accept the waste
	<ul> <li>Inspects measures to manage pests, vermin and declared priority weeds on the Development and to identify whether these measures are working effectively, and that pests, vermin or priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area</li> </ul>
	<ul> <li>Monitors environmental control strategies for deficiencies and implements resolutions and monitors work activities until deficiencies are rectified</li> </ul>
	<ul> <li>Maintains the register of environmental complaints and the subsequent remedial action</li> </ul>
	• Maintains a register of accidents, incidents and potential incidents with actual or potential significant off-site impacts on people or the biophysical environment.
Warehouse tenants	<ul> <li>Responsible for their own environmental performance for operational activities on leased areas in accordance with the relevant WOEMP</li> </ul>
	Must comply with the conditions of their lease or licence
	Reports environmental incidents to Senior Project Manager
	<ul> <li>Track their compliance with the relevant CoC and provide Environmental Compliance Reports to ESR which detail their compliance status.</li> </ul>
All personnel	<ul> <li>Undertake work activities in a manner that minimises the potential for pollution of land, air, water, community amenity, and/or the generation of waste or threatens to cause material harm</li> </ul>
	<ul> <li>Takes all feasible and reasonable steps to comply with the requirements of this OEMP</li> </ul>
	<ul> <li>Complies with lawful management directions to prevent environmental harm or enhance protection of site environmental values</li> </ul>
	<ul> <li>Stops works if there is a potential risk of material harm</li> </ul>
	<ul> <li>Promptly reports to management on any non-conformances, perceived non- compliances, or environmental incidents</li> </ul>
	<ul> <li>Undergoes induction and training in environmental awareness.</li> </ul>

## 4.4 Training and Competence

All personnel are to complete general environmental awareness training and training relevant to their responsibilities under the OEMP; the level of which would be dependent on the exposure to environmental hazards and their involvement in environmental management. Table 4-3 outlines the environmental training requirements.



#### Table 4-3: Environmental training requirements

Level	Topic covered	Relevant employees
Visitor induction	<ul> <li>OEMP awareness</li> <li>ESR's' Environmental and Sustainability Policies</li> <li>Environmental obligations</li> <li>Environmental issues and management relevant to operations</li> <li>Key environmental constraints, including biodiversity offset areas and precautions in relation to the stormwater management infrastructure e.g. rain gardens</li> <li>Evacuation procedures</li> <li>Recognising actual or potential incidents</li> <li>Incident reporting protocols.</li> </ul>	Visitors site induction
General induction	<ul> <li>OEMP awareness</li> <li>ESR Environmental and Sustainability Policies</li> <li>Environmental obligations</li> <li>Roles and responsibilities relating to environmental management for operations</li> <li>Key environmental issues, for example, location of sensitive areas and nearest sensitive receivers</li> <li>Incident response and reporting procedures, including spill control, containment and clean up and protection of stormwater infrastructure</li> <li>Details of environmental protection offences and penalties, and duty to notify of environmental harm</li> <li>Evacuation procedures.</li> </ul>	ESR Contractor personnel Warehouse tenant personnel
Development Management Team training	<ul> <li>Requirements of the OEMP</li> <li>Incident management and emergency response procedures, including:</li> <li>Classification of incidents based on their severity <ul> <li>What emergency services are required?</li> <li>What incidents are reportable to the authorities?</li> <li>Incident reporting procedures in accordance with the OEMP, including internal notification and external notification to authorities and relevant land holders</li> </ul> </li> </ul>	Senior Project Manager Contractor Supervisor Warehouse Manager
Vocational training	<ul> <li>Examples of vocational training include:</li> <li>Environmental monitoring and management (e.g. air, water, soil and noise)</li> <li>Environmental compliance, auditing and inspection</li> <li>Natural resource management</li> <li>Occupational hygiene monitoring (e.g. air, noise and radiation)</li> </ul>	ESR Contractor personnel Warehouse tenant personnel responsible for environmental management



Level	Topic covered	Relevant employees
	<ul> <li>Water supply and treatment, storm and wastewater management</li> <li>Solid and hazardous waste management</li> <li>Site remediation or rehabilitation</li> <li>Resource efficiency (e.g. energy, water and waste auditing).</li> <li>Terminal and warehouse staff handling dangerous goods will be required to have successfully completed appropriate dangerous goods training.</li> </ul>	

## 4.5 Community Consultation and Complaints Management

A *Community and Stakeholder Communications Strategy* (CSCS) (Ethos Urban, May 2023) has been prepared for the Development. This strategy outlines measures to enable effective communication with the community throughout the life cycle of the Development, including operations, to:

- keep the local community and relevant agencies informed about the operation and environmental performance of the Development
- receive, handle, respond to, and record complaints
- resolve any disputes that may arise
- respond to any non-compliance
- respond to emergencies.

The CSCS identifies potential operational traffic, noise, and vibration impacts as the key community issues related to the Development during operations.

A range of communications channels will be used to communicate with the community including:

- The Development website <u>au.esr.com/available-space/westlink/</u>
- The Development hotline 1800 270 980
- The Development email <u>aus\_development@au.esr.com</u>
- Letterbox notifications
- Door knocking
- Media announcements
- Contact register.

ESR's Stakeholder Manager will manage all community liaison in accordance with the CSCS. Complaints will be received via the hotline and email address listed above and will be managed in accordance with the CSCS.

CoC A38 and A39 require ESR to participate in the MRP Working Group until all construction has been completed. As construction and operation may occur concurrently (i.e Warehouse 1 will be completed and will be fully operational while Warehouse 4 is still under construction), ESR's participation may continue after the Development commences operating. These requirements are also addressed in the CSCS.



#### **5 OEMP Implementation**

The Development will be operated in accordance with this OEMP as approved by the Planning Secretary (and as revised and approved by the Planning Secretary from time to time) as required by CoC A7(a).

This section addresses the key risks and environmental performance issues associated with operations and the environmental controls to manage these risks.

Tenants and contractors undertaking activities at the Development will be required to work under this OEMP but may utilise their own business and risk management systems and processes to develop any necessary site-specific safety and environmental management documentation and induction materials, taking into account the activity risk assessment, any relevant mitigation measures and any site / task specific risks that may require other or additional mitigation measures and controls to be applied.

As per Table 4-3, ESR employees, warehouse tenants and contractors are to be trained in the requirements of this OEMP to enable the environmental risks to be managed in accordance with this OEMP and the Development Consent.

#### 5.1 Environmental Aspects and Impacts

Environmental aspects, impacts and opportunities associated with the operation of the Development have been identified and assessed in accordance with the risk assessment matrix (Figure 5-1) as presented in the EIS (Ethos Urban, June 2021) and Amendment Report (Ethos Urban, September 2022). The key environmental aspects and impacts for the Project during operation are listed in Table 5-1.

Significance of	Manageability of impact				
impact	5	4	3	2	1
	Complex	Substantial	Elementary	Standard	Simple
1 – Low	6	5	4	3	2
	(Medium)	(Low/Medium)	(Low/Medium)	(Low)	(Low)
2 – Minor	7	6	5	4	3
	(High/Medium)	(Medium)	(Low/Medium)	(Low/Medium)	(Low)
3 – Moderate	8	7	6	5	4
	(High/Medium)	(High/Medium)	(Medium)	(Low/Medium)	(Low/Medium)
4 – High	9	8	7	6	5
	(High)	(High/Medium)	(High/Medium)	(Medium)	(Low/Medium)
5 – Extreme	10	9	8	7	6
	(High)	(High)	(High/Medium)	(High/Medium)	(Medium)

Figure 5-1: Risk assessment matrix (EIS, Ethos Urban, June 2021)



Aspect	Potential Environmental Impact	Significance of Impact*	Manageability of Impact	Residual Impact
Noise and vibration	Increase in noise and vibration levels during operation	Minor	Standard	Low/Medium
Traffic and parking	Increase in traffic and parking during operation	Moderate	Elementary	Medium
Visual and built form	Visual impact of the development when viewed from adjoining properties and public areas	Minor	Simple	Low
Air and water quality	Potential for reduced air and water quality during operation of industrial activities	Minor	Standard	Low/Medium
Flooding	Potential flooding impacts due to the proposed development	Low	Simple	Low
Heritage	Potential physical and visual impacts on heritage items	Minor	Standard	Low/Medium
	Potential impacts to archaeology and artefacts			
Ecology	Impact on flora and fauna during operation	Minor	Standard	Low/medium

Table 5-1: Key environmental aspects and impacts during operation.

\* Significance of impact was provided in the EIS (Ethos Urban, June 2012).

## 5.2 Environmental Management Measures

Environmental management measures to be implemented during operations to enable compliance with relevant statutory requirements, limits, performance measures and criteria are documented in this OEMP and Sub-Plans.

This OEMP has been prepared in an aspect-based format that details for each environmental aspect, the management measures that are required to be implemented during the operation of the Development, covering where relevant:

- Environmental aspects
- Environmental objectives
- Control measures
- Monitoring.

The key environmental aspects are assessed in the relevant Sub-Plans to this OEMP which detail the management measures that will be implemented to manage the environmental aspects during operations. The Sub-Plans to this OEMP are:

- OTMoP (CoC B3)
- WTP (CoC B18)
- SMP (CoC B30)



- LMP (CoC B38)
- OWiMP (CoC B87)
- OWaMP (CoC B91)
- OTMP for the Development (CoC D13)
- WOEMPs
- WWMPs (CoC B91)
- Warehouse 4 OTMP (CoC B3A).

Table 5-2 provides the management measures that will be implemented to address environmental aspects during the operation of the Development, referencing the Sub-Plans for key environmental aspects and providing detailed management measures or referencing other documents for other environmental aspects.

Table 5-2: Environmental management measures

Mitigation Measure	Responsibility
Aboriginal heritage	
If any item or object of Aboriginal heritage significance is identified during operations:	All personnel Senior Project
<ul> <li>operations in the immediate vicinity of the suspected Aboriginal item or object will cease immediately</li> </ul>	wanager
<ul> <li>a 10m wide buffer area around the suspected item or object will be cordoned off</li> </ul>	
Heritage NSW will be contacted immediately.	
Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the <i>National Parks and Wildlife Act 1974</i> .	Senior Project Manager
Air quality	
All reasonable steps will be undertaken to minimise dust generated during operations.	Senior Project Manager
	Warehouse Tenants
The Development will be operated to prevent the emission of any offensive odour (as defined in the POEO Act).	Senior Project Manager
	Warehouse Tenants
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures	Senior Project Manager
taken.	Warehouse Tenants
Unnecessary idling for vehicles will be avoided with engines bring turned off during periods of inactivity.	Senior Project Manager
	Warehouse Tenants



Mitigation Measure	Responsibility
Confirm truck maintenance is up to date.	Senior Project Manager Warebouse Tenants
Biodiversity	
Implement wildlife management measures detailed in OWiMP	
Bushire	
Any alterations to the warehouses and other structures will comply with:	Senior Project Manager
<ul> <li>the recommendations of the Bushfire Protection Assessment (Australian</li> <li>Design of the Bushfire Protection Assessment (Australian</li> </ul>	Warehouse Tenants
<ul> <li>Bushfire Protection Planners, 3 March 2022)</li> <li>AS2419.1-2005 Fire hydrant installations System design, installation, and</li> </ul>	
commissioning.	
Manage landscaping as an inner protection area (IPA) in accordance with <i>Planning for Bushfire Protection</i> (NSW Rural Fire Service, 2019).	See LMP
Any alterations to the warehouses or other structures will be constructed in accordance with the Bushfire Attack Level (BAL) plan shown in Appendix 4 of the	Senior Project Manager
Development Consent and relevant sections of AS 3959-2018 <i>Construction of buildings in bush fire prone areas</i> or NASH Standard (1.7.14 updated) <i>National Standard Steel Framed Construction in Bushfire Areas – 2014</i> as appropriate, and Section 7.5 of <i>Planning for Bushfire Protection</i> (NSW Rural Fire Service, 2019).	Warehouse Tenants
Lighting	
Development lighting will be maintained so that it does not create a nuisance to surrounding properties or the public road network.	Senior Project Manager
	Warehouse Tenants
Landscaping	
Implement the requirements of the LMP including maintaining the landscaping and vegetation on the Development.	See LMP
Noise and vibration	
Noise generated by operation of the Development to meet the noise limits in CoC B52 of the Development Consent (unless a Noise Agreement is in place under	Senior Project Manager
CoC B56).	Warehouse Tenants
Noise generated by fixed external mechanical plant at the warehouses will not exceed a cumulative sound power level of L <sub>Aeq(15min)</sub> 90 dB(A) (for Warehouse 1)	Senior Project Manager
and $L_{Aeq(15min)}$ 86 dB(A) (for Warehouse 4) and any activity at the Warehouse will not exceed a sound power level of $L_{AMax}$ 115 dB(A) or result in annoying noise characteristics, as determined in accordance with the <i>Noise Policy for Industry</i> (EPA, 2017) and <i>AS</i> 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018).	Warehouse Tenants
Prepare Operational Noise Verification Report (ONVR)	Senior Project Manager



Mitigation Measure	Responsibility
Implement Operational Noise Monitoring Plan	See ONMP
Implement any noise agreements made with eligible receivers.	Senior Project Manager Warebouse Tepants
Non-Aboriginal heritage	
If any non-Aboriginal archaeological relics are identified at the Development during operations:	All personnel Senior Project
<ul> <li>all work in the immediate vicinity of the suspected relic(s) will cease immediately</li> </ul>	Manager
Heritage NSW will be contacted immediately	
<ul> <li>the suspected relic(s) will be evaluated, recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW.</li> </ul>	
Work in the immediate vicinity of any suspected non-Aboriginal archaeological relic(s) must not recommence until this has been authorised by Heritage NSW.	Senior Project Manager
Pests, vermin and priority weed management	
The relevant requirements of the OWiMP will be implemented during operations.	See OWiMP
Plant and equipment	
All plant and equipment used at the Development or used to monitor environmental performance will be maintained in a proper and efficient condition and energiated in a proper and efficient memory.	Senior Project Manager
and operated in a proper and enicient manner.	Warehouse Tenants
Signage	
All Development signage will be maintained in accordance with the Signage Strategy.	Senior Project Manager
	Warehouse Tenants
Sustainability	
Implement Energy Management Plan	See plan
Traffic and parking	
The Development will include sufficient parking facilities on-site in accordance with the MRP Development Control Plan, including for heavy vehicles and for site	Senior Project Manager
personnel, to ensure that traffic associated with the Development does not use public and residential streets or public parking facilities.	Warehouse Tenants
Bicycle parking and end of trip facilities will be maintained in the Development in accordance with AS1742.9:2018 Manual of Uniform Traffic Control Devices –	Senior Project Manager
<i>Bicycle Facilities</i> , and the cycling aspects of Austroads <i>Guide to Road Design</i> . Bicycle parking and storage facilities will be secure, convenient, well lit, physically and visually accessible and within close proximity to the Warehouse entrance in accordance with Austroads <i>Guide to Road Design</i> .	Warehouse Tenants



Mitigation Measure	Responsibility
A minimum of 5% of parking bays at the Development will be maintained with electric vehicle charging, with an additional 5% to be adapted to meet demand.	Senior Project Manager
	Warehouse Tenants
Maintain all internal roads, driveways and parking in accordance with Australian Standards (AS2890.1:2004, AS2890.2:2018 and AS2890.6.2009).	Senior Project Manager
	Warehouse Tenants
The swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, will be in accordance with the relevant Austroads <i>Guide to Road Design</i> .	Senior Project Manager
Implement the Driver Code of Conduct during operations and include in induction training for ESR employees, warehouse tenants and contractors.	Senior Project Manager
	Warehouse Tenants
Vehicles travelling to or from the Development will not queue on the public road network.	Senior Project Manager
	Warehouse Tenants
Heavy vehicles associated with operations will not park on local roads or footpaths in the vicinity of the site.	Senior Project Manager
	Warehouse Tenants
All loading and unloading of materials will be carried out on the Development.	Senior Project Manager
	Warehouse Tenants
All trucks entering or leaving the Development with loads will have their loads covered.	Senior Project Manager
	Warehouse Tenants
Turning areas in the Development car parks will be kept clear of any obstacles, including parked cars, at all times.	Senior Project Manager
	Warehouse Tenants
All vehicles accessing and departing the Development from/to Mamre Road must travel via Abbotts Road and not Bakers Lane, until the completion of the ultimate	Senior Project Manager
upgrade of Aldington Road and delivery of the Southern Link Road.	Warehouse Tenants
Approval from the National Heavy Vehicle Regulator (NHVR) and Penrith City Council's Asset Section will be obtained if the use of a 30m Performance Based	Senior Project Manager
Standard (PBS) Level vehicle on local roads is proposed.	Warehouse Tenants
The WTP will be implemented at the Development, including the preparation of the TAGs and be communicated to ESR, warehouse employees, contractors and visitors.	See WTP
Comply with Driver Code of Conduct.	All personnel and visitors
Implement traffic monitoring detailed in OTMoP.	See OTMoP



Mitigation Measure	Responsibility	
Implement traffic management measures detailed in the OTMP for the Development and the Warehouse 4 OTMP.	See OTMPs	
Implement transport management measures detailed in WTP.	See WTP	
Warehouse and structure alterations		
Any alterations or additions to the warehouses and any other structural changes will be completed in accordance with the relevant requirements of the National Construction Code (NCC)	Senior Project Manager	
	Warehouse Tenants	
Engineering plans for alterations or additions to the warehouses or other structures will be prepared in accordance with the Development Consent, Penrith	Senior Project Manager	
City Council's Design Guidelines for Engineering Works for Subdivisions and Developments and Engineering Construction Specification for Civil Works, and Austroads Guidelines.	Warehouse Tenants	
The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the Building Code of Australia (BCA).	Senior Project Manager	
	Warehouse Tenants	
Any alterations or additions the warehouses and any other structures will retain finished facades and roofs using neutral, recessive colours, non-reflective	Senior Project Manager	
materials and be designed to present an attractive façade to residential areas and to minimise glare.	Warehouse Tenants	
Waste management		
The OWaMP and WWMPs will be implemented during operations.	See OWaMP and WWMPs	
All waste at the Development will be secured and maintained within designated waste storage areas and prevented from leaving the site onto neighbouring public	Senior Project Manager	
or private properties.	Warehouse Tenants	
All liquid and non-liquid wastes to be taken off the Development will be classified in accordance with <i>Waste Classification Guidelines Part 1: Classifying Waste</i>	Senior Project Manager	
(EPA, 2014) and disposed of to waste management facilities or premises lawfully permitted to accept the waste.	Warehouse Tenants	
All waste bins are to be designed and installed with fixed lids and any bulk waste receptacle or communal waste storage area will be contained within enclosures	Senior Project Manager	
that cannot be accessed by wildlife or other pests in accordance with Section 2.11 of the MRP DCP.	Warehouse Tenants	
Water quality and flooding		
The Development will operate in compliance with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.	Senior Project Manager	
	Warehouse Tenants	
All stormwater infrastructure, including bio-retention basins, will remain under the ownership, control and care of ESR. Upstream drainage catchment pipes will be	Senior Project Manager	
located outside of the public road reserve and remain in private ownership, in accordance with Council requirements.	Warehouse Tenants	



Implement the water quality and flooding management measures detailed in the See SMP SMP.

## 5.3 Environmental Incident and Emergency Response

#### 5.3.1 Environmental incidents

An environmental incident is defined in the Development Consent as an:

occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.

Material harm is defined as:

Harm that:

- (a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or
- (b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).

Environmental incidents can be identified by anyone and are to be reported to the NSW Development Manager immediately.

Under CoC C10, ESR must notify the Planning Secretary in writing via the Major Projects website immediately after ESR becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 6 of the Development Consent.

Incident reports (including complaints) of damage to third party property or infrastructure due to operations will be treated as an incident. The initial response will follow the complaints process, as outlined within the CSCS, however investigations and potential rectifications will be undertaken as per the incident management process. Dispute resolution is outlined within the CSCS.

Where a pollution incident causes or threatens material harm to the environment or human health, the following authorities must also be notified immediately (and without delay) under the POEO Act:

- EPA
- Penrith City Council
- The Ministry of Health (via Public Health Units)
- SafeWork NSW (formerly WorkCover)
- Fire and Rescue NSW.

Within 30 days of the date on which the incident occurred (or as otherwise agreed to by the Planning Secretary), ESR must provide the Planning Secretary and any relevant public



authorities (as determined by the Planning Secretary) with a detailed report on the incident, addressing all requirements within Appendix 5 of the Development Consent, and such further reports as may be requested.

#### 5.3.2 Environmental emergencies

An environmental emergency is any event that causes or has the potential to cause material harm to the environment.

ESR have nominated an emergency contact and an alternate contact that are available 24-hours a day, seven days a week. Warehouse tenants will respond to emergencies as detailed in their WOEMP.

For reference, emergency contact details are provided in Table 5-3.

Table 5-3: Emergency contact details

Contact	Phone Number/Email	Address
Ambulance	000	N/A
Fire Brigade	000	N/A
Police	000	N/A
NSW EPA Pollution Hotline	131 555	N/A
DPHI	1300 305 695	N/A
NSW Department of Health	(02) 9391 9000	N/A
Western Sydney Local Health District	(02) 9840 3000	N/A
SafeWork NSW	13 10 50	N/A
Penrith City Council	(02) 4732 7777	601 High St, Penrith NSW 2750
ESR NSW Development Manager	(02) 95061444 0422997889 scott.falvey@esr.com	N/A
Toll Warehouse Manager	0466518010 Esra.Mettoglu@tollgroup.com	N/A



#### 6 Environmental Monitoring and Review

#### 6.1 Environmental Monitoring

Environmental monitoring will be undertaken to assist in the management of the following:

- Operations of the Development in accordance with the Development Consent
- Compliance with all relevant legislative requirements
- The minimisation of potential environmental incidents
- Effectiveness of environmental management measures
- Implementation of this OEMP and Sub-Plans.

Monitoring requirements are included in the relevant Sub-Plans. Where relevant, the Sub-Plans provide detail on the following:

- Responsibility for monitoring
- Relevant standards applicable to the monitoring
- Monitoring technique and location
- Frequency of monitoring
- Data management, review and distribution.

Environmental monitoring requirements are summarised in Table 6-1.

Table 6-1: Summary of environmental monitoring

Aspect	Monitoring	Frequency/ Timing	Responsible	Reference
Noise and vibration	Monitoring of operational noise under the ONMP	Operations	NSW Development Manager	CoC B52, B54 (e) and ONMP
Traffic and parking	Monitoring of vehicle numbers and effectiveness of the traffic management measures under the OTMoP	For a minimum of 12 months of operation	NSW Development Manager	CoC B3 and OTMoP
Waste	Waste generated, disposal methods, recycling and storage under OaWMP and WWMPs	Weekly in first two months of operation and every six months after that	NSW Development Manager and Warehouse Manager	CoC B91, OWaMP and WWMPs
Wildlife	Monitoring of bird, megabats and vegetation under the OWiMP	Operations	NSW Development Manager (contracting a suitably qualified ecologist)	CoC B88 and OWiMP

## 6.2 Environmental Auditing

ESR will undertake an internal Health, Safety, Security and Environment audit of the Development annually. Audits will involve a review of all environmental documents, records and reports to verify compliance with the OEMP to satisfy CoC C7(a).



Key environmental and procedural aspects to be covered by the audit may include:

- Environmental management measures detailed in this OEMP and Sub-Plans
- Adherence to reporting procedures
- Complaint and incident management
- Legislative requirements.

Environmental and operational records include:

- Contact Register
- Incident, non-compliance and corrective action reporting
- Communications with stakeholders
- Records of environmental monitoring
- OEMP and Sub-Plan audit documentation.

Records of auditing and reporting will be maintained to demonstrate compliance.

As per CoC A3, the Planning Secretary may make written directions to the Applicant in relation to an audit being undertaken and approved by the DPHI.

Six-monthly audits will be conducted to check the implementation of waste management measures under the WWMPs. Where audits show that recycling is not carried out effectively, the warehouse tenant will carry out additional staff training, signage re-examination and reviews of the waste management measures.

Under the Energy Management Plan, an energy audit will be conducted for each warehouse on a half yearly basis to ensure employees are following energy saving procedures correctly.

## 6.3 Contingency Management Plan

If monitoring and/or auditing indicate that the management measures required under this OEMP and Sub-Plans are not effective in managing environmental impacts, the actions outlined in the Contingency Plan (Appendix D) will be implemented.

The Contingency Plan (required by CoC C1(e)) will manage any unpredicted impacts and their consequences. The implementation of this plan will allow ESR to reduce ongoing impacts to levels below relevant impact assessment criteria as quickly as possible.

## 6.4 Non-compliance and Actions

A non-compliance is defined in the Development Consent as an:

occurrence, set of circumstances or development that is in breach of this consent.

Potential non-compliances with the CoC, this OEMP and Sub-Plans can be identified by anyone and are to be reported to the Operation Manager as a potential non-compliance.

Non-compliances will be investigated to determine the root cause and any corrective and/or preventative actions arising from the investigation. This will be reported to the NSW Development Manager in a Non-Compliance Report and any corrective and/or preventative actions will be recorded.

In accordance with CoC C11, the Planning Secretary must be notified via the Major Projects website within seven days after ESR becomes aware of any non-compliance. As



per CoC C12, the notification must identify the development and the application number for it, set out the CoC that the development is non-compliant with, the way in which it does not comply, the reasons for the non-compliance (if known), and what actions have been, or will be, undertaken to address the non-compliance.

Note that under CoC C13, a non-compliance which has been notified as an environmental incident does not need to also be notified as a non-compliance.

### 6.5 Environmental Reporting

The reporting of environmental performance during operation will be undertaken as required by the Development Consent. Environmental reporting requirements for the Development as documented in the OEMP and EMPs are summarised in Table 6-2.

Report	Timing/Frequency	Responsibility	Reference
Environmental Review Report	Monthly	NSW Development Manager	Section 6.7
Incident Report	Within 30 days of the date on which the incident occurred	NSW Development Manager	C10
ONVR	Within three months of the commencement of operations	NSW Development Manager (contracting a suitably qualified acoustic specialist)	CoC B57
Traffic Monitoring Report	For a minimum of 12 months of operation	NSW Development Manager	CoC B3 and OTMoP
Waste Management Report	Weekly in first two months of operation and every six months after that	NSW Development Manager and Warehouse Managers	OWaMP and WWMPs
Wildlife Monitoring Report	As required in OWiMP	NSW Development Manager (contracting a suitably qualified ecologist)	OWiMP

Table 6-2: Environmental reporting

It should be noted that several of these reports are required by the CoC to be prepared by individuals with certain qualifications or accreditations, as follows:

- The ONVR must be prepared by a suitably qualified, experienced and independent acoustics consultant
- Monitoring reports under the OWiMP must be prepared by a suitably qualified ecologist.

## 6.6 Document Control and Records

ESR, warehouse tenants and contractors are responsible for maintaining clear environmental records to demonstrate compliance with this OEMP, including where relevant:

- All monitoring records and reports
- Internal audit reports


- Reports of pollution incidents, environmental non-compliances and follow-up actions
- Reports of environmental complaints and follow-up actions
- Minutes of management review meetings, and actions required as a result
- Induction and training records.

All documentation, including environmental records, is to be controlled in accordance with the ESR document control system and contractual requirements.

Warehouse tenants are to make all relevant records available for inspection by ESR and/or the environmental auditor where requested.

# 6.7 OEMP Review and Revision Program

To meet the requirements of CoC C1(d) and (f) for this OEMP and Sub-Plans, ESR will implement a review program to:

- Monitor and report on the:
  - o Impacts and environmental performance of the Development
  - Effectiveness of the management measures included in the OEMP and Sub-Plans
- Investigate and implement ways to improve the environmental performance of the Development over time.

This review will consider the broader management context of the OEMP and Sub-Plans including:

- Phasing of operations as warehouses commence operations
- Changes in operational activities
- Environmental monitoring outcomes
- Progress against objectives and targets
- Changes in standards and legislation
- Any Regulatory Agency or Council input/requirements or response from DPHI
- Any third-party landholder inputs or requirements
- Community complaints received
- Issues raised by stakeholders
- Non-compliances identified and reported
- Incidents and the ESR and warehouse tenant response
- Development management team structure and resourcing
- Recommendations of environmental audits and previous reviews (after the initial review).

This review will be undertaken by the NSW Development Manager, in consultation with the warehouse tenants, on an annual basis following the initial environmental audit. An Environmental Review Report recommending measures to improve the environmental performance of the Development will be produced by the review.



CoC C8 also states that all strategies, plans and programs required under the Development Consent will be reviewed and the Planning Secretary notified of the review within three months of:

- The submission of a Compliance Report under CoC C14 (applies to construction only)
- The submission of an incident report under CoC C10
- The approval of any modification of the conditions of the Development Consent
- The issue of a direction of the Planning Secretary under CoC A2(b) which requires a review.

As per CoC C9, where documents are revised under the above reviews, the revised documents will be sent to the Planning Secretary for approval within six weeks of the review (or as agreed by the Planning Secretary).

All employees and contractors will be informed of any revisions to the OEMP during toolbox talks.



## REFERENCES

AS 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018).

AS 1742.9:2018 Manual of Uniform Traffic Control Devices – Bicycle Facilities (Standards Australia, 2018).

AS 2419.1:2005 Fire hydrant installations System design, installation, and commissioning (Standards Australia, 2005).

AS 2890.1:2004 Parking facilities Off-street car parking (Standards Australia, 2004).

AS 2890.6:2009 Parking facilities Off-street parking for people with disabilities (Standards Australia, 2009).

AS 2890.2:2018 Parking facilities Off-street Commercial Vehicle Facilities (Standards Australia, 2018).

AS 3959:2018 Construction of buildings in bush fire prone areas (Standards Australia, 2018).

Australian Bushfire Protection Planners (3 March 2022) Bushfire Protection Assessment.

Austroads Guide to Road Design.

Department of Environment and Climate Change (2007) *Storing and Handling of Liquids: Environmental Protection – Participants Manual.* 

Department of Planning (January 2011) *Hazardous and Offensive Development Guidelines – Applying SEPP 33*.

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Department of Planning, Industry and Environment (2020) *Environmental Management Plan Guideline – Guideline for infrastructure Projects*.

EPA (2014) Waste Classification Guidelines Part 1: Classifying Waste.

EPA (2017) Noise Policy for Industry.

Ethos Urban (15 September 2022) SSD-9138102: Westlink Stage 1 – Amendment Report.

Ethos Urban (17 June 2021) *Environmental Impact Statement* – 290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek – Westlink Industrial Estate.

Ethos Urban (May 2023) Community and Stakeholder Communications Strategy.

Geoscapes (12 April 2022) ESR – Westlink Stage 1 – SSD 9138102 – Visual Impact Assessment Report.

Landcom (March 2004) *Managing Urban Stormwater: Soils and Construction – Volume 1* (the "Blue Book").

National Association of Steel-Framed Housing (2014) *National Standard – Steel Framed Construction in Bushfire Areas*.

NSW Rural Fire Service (2019) Planning for Bushfire Protection.

Penrith City Council (31 October 2013) *Engineering Construction Specification for Civil Works*.



Penrith City Council (20 November 2013) *Design Guidelines for Engineering Works for Subdivisions and Developments*.

SafeWork NSW (December 2020) *Managing risks of hazardous chemicals in the workplace*.

Sydney Water (December 2022) Mamre Road Stormwater Scheme Plan.

Sydney Water (December 2022) Stormwater Scheme Infrastructure Design Guideline.



Appendix A Development Consent Compliance Matrix



# **Development Consent Compliance Matrix**

Ref	Condition	How addressed
PART	A ADMINISTRATIVE CONDITIONS	
A1	In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.	This OEMP has been developed to prevent/minimise any material harm to the environment
A2	The development may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Planning Secretary; (c) in accordance with the EIS, RTS, ADR and additional information; (d) in accordance with the Development Layout in Appendix 1; and (e) in accordance with the management and mitigation measures in Appendix 5 (f) in accordance with the Modification Assessments.	This OEMP has been developed to comply with the relevant requirements of these documents
A3	Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to: (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and (b) the implementation of any actions or measures contained in any such document referred to in condition A3(a).	Section 6.7 details when revisions of the OEMP may be undertaken including upon written direction by the Planning Secretary
A4	The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c) or A2(e). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c) or A2(e), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.	Noted
A5	This consent lapses five years after the date from which it operates, unless the development has physically commenced on the land to which the consent applies before that date.	Noted

able 1 Maximum GFA of the Developme
Land Use
Warehouse or distribution centres
Ancillary offices

The maximum GFA for development on the site must not exceed the limits in Table 1.

#### 79.031 2,286 81,317 Total The date of commencement of each of the following phases of the development must be notified to the Planning Secretary in A7 Noted writing, at least one month before that date, or as otherwise agreed with the Planning Secretary: (a) construction; (b) operation; and (c) cessation of operations. 8A If the construction or operation of the development is to be staged, the Planning Secretary must be notified in writing, at least Noted one month before the commencement of each stage (or other timeframe agreed with the Planning Secretary), of the date of commencement and the development to be carried out in that stage. A9 Where conditions of this consent require consultation with an identified party, the Applicant must: NA (a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and (b) provide details of the consultation undertaken including: (i) the outcome of that consultation, matters resolved and unresolved; and (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved. A10 With the approval of the Planning Secretary, the Applicant may: NA (a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program); (b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and (c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under

Maximum GFA (m<sup>2</sup>)

#### **Ref** Condition

A6

Notod

Noted



Ref	Condition	How addressed
	this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).	
A11	If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.	NA
A12	If approved by the Planning Secretary, updated strategies, plans or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.	Noted
A13	Before the commencement of construction of the development, the Applicant must: (a) consult with the relevant owner and provider of services that are likely to be affected by the development to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure; (b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and (c) submit a copy of the dilapidation report to the Planning Secretary and Council.	NA
A14	Unless the Applicant and the applicable authority agree otherwise, the Applicant must: (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.	Noted
A15	All demolition must be carried out in accordance with Australian Standard AS 2601-2001 The Demolition of Structures (Standards Australia, 2001).	NA
A16	<ul> <li>All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the NCC.</li> <li><i>Note:</i></li> <li>Under Part 6 of the EP&amp;A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works</li> </ul>	Sections 3.4 and 5.2
	<ul> <li>The EP&amp;A (Development Certification and Fire Safety) Regulation 2021 sets out the requirements for the certification of the development.</li> </ul>	
A17	Engineering plans are to be prepared in accordance with the development consent, Penrith City Council's <i>Design Guidelines for Engineering Works for Subdivisions and Developments, Engineering Construction Specification for Civil Works</i> and Austroads Guidelines.	Section 3.4



A19       Prior to the issuing of Subdivision Certificates for any stage of the development, detailed work-as-executed drawings shall be prepared and signed by a Registered Surveyor, which show the finished surface levels of the access road, internal roads, drainage, street trees and any areas of fill, carried out under this consent. The work-as-executed drawing must be submitted to the Certifier, Council and Sydney Water prior to the issue of a Subdivision Certificate.       NA         A20       Prior to the issuing of Subdivision Certificates for any stage of the development. The work-as-executed drawing must be submitted to the Certifier evidence that all matters required to be registered on title, including easements, have been lodged for registration or registered at the Land Registry Services.       NA         A21       Prior to the issuing of Subdivision Certificates for any stage of the development: (a) a certificate from an electricity and telecommunications provider must be submitted to the Certifier certifying that satisfactory stormwater servicing arrangements for the site have been established.       NA         A22       Prior to tissue of a Subdivision Certificate that proposes the dedication of any internal estate road as a public road: (a) a final inspection of the estate road must be submitted to the certifier certifying that satisfactory stormwater servicing arrangements for the site have been established.       NA         A22       Prior to tissue of a Subdivision Certificate that proposes the dedication of any internal estate road as a public road: (a) a final inspection of the estate road in use to be undertaken by the relevant Roads Authority. In econdance documentation for road and drainage construction of the estate road must be submitted to the relevant Roads Authority. The	A18	All earthworks and retaining walls subject to this development must be contained within the site and not cause any constraint on future development of any adjoining properties, as described in the information titled 'Westlink Stage 1 (SSD-9138102) – Retaining Wall and Earthworks', prepared by ESR and dated 20 April 2023 and supporting attachments.	NA
<ul> <li>A20 Prior to the issuing of Subdivision Certificates for any stage of the development, the Applicant must provide to the Certifier evidence that all matters required to be registered on title, including easements, have been lodged for registration or registered at the Land Registry Services.</li> <li>A21 Prior to the issuing of Subdivision Certificates for any stage of the development:         <ul> <li>(a) a certificate from an electricity and telecommunications provider must be submitted to the Certifier certifying that satisfactory service arrangements to the site have been established; and             (b) a certificate from the Regional Stormwater Authority must be submitted to the Certifier certifying that satisfactory stormwater servicing arrangements for the site have been established.</li> </ul> </li> <li>A22 Prior to issue of a Subdivision Certificate that proposes the dedication of any internal estate road as a public road:         <ul> <li>(a) a final inspection of the estate road is to be undertaken by the relevant Roads Authority. All compliance documentation for road and drainage construction of the estate road must be submitted to the relevant Roads Authority in accordance with the relevant Roads Authority. The value of the bond shall be determined in accordance with Penrith City Council's adopted Fees and Charges.             <ul> <li>(b) Where installation of any regulatory/advisory signage and line marking are proposed, plans are to be lodged with Penrith City Council's adopted Fees and charges.</li> <li>(b) where installation of proposed streen tames must be lodged with and approved by Penrith City Council's adopted Fees and applicable fees.</li> </ul> </li> <li>A23 The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the de</li></ul></li></ul>	A19	Prior to the issuing of Subdivision Certificates for any stage of the development, detailed work-as-executed drawings shall be prepared and signed by a Registered Surveyor, which show the finished surface levels of the access road, internal roads, drainage, street trees and any areas of fill, carried out under this consent. The work-as-executed drawing must be submitted to the Certifier, Council and Sydney Water prior to the issue of a Subdivision Certificate.	NA
<ul> <li>A21 Prior to the issuing of Subdivision Certificates for any stage of the development:         <ul> <li>(a) a certificate from an electricity and telecommunications provider must be submitted to the Certifier certifying that satisfactory service arrangements to the site have been established; and</li> <li>(b) a certificate from the Regional Stormwater Authority must be submitted to the Certifier certifying that satisfactory stormwater servicing arrangements for the site have been established.</li> </ul> </li> <li>A22 Prior to issue of a Subdivision Certificate that proposes the dedication of any internal estate road as a public road:         <ul> <li>(a) a final inspection of the estate road is to be undertaken by the relevant Roads Authority. All compliance documentation for road and drainage construction of the estate road must be submitted to the relevant Roads Authority in accordance with the relevant Roads Authority in accordance with the relevant Roads Authority. The value of the bond shall be determined in accordance with Penrith City Council's adopted Fees and Charges.         <ul> <li>(c) where installation of any regulatory/advisory signage and line marking are proposed, plans are to be lodged with Penrith City Council and the signs erected on-site. The proposed names must be lodged with and approved by Penrith City Council and the signs erected on-site. The proposed names must be lodged with Penrith City Council's Street Naming Policy. Note: Contact Penrith City Council's Engineering Services Department on 4732 7777 for further information on this process and applicable fees.</li> </ul> </li> <li>A23 The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they cantributions plan or agreed by Council), the Applicant must pay contributions to Council as required in acc</li></ul></li></ul>	A20	Prior to the issuing of Subdivision Certificates for any stage of the development, the Applicant must provide to the Certifier evidence that all matters required to be registered on title, including easements, have been lodged for registration or registered at the Land Registry Services.	NA
<ul> <li>A22 Prior to issue of a Subdivision Certificate that proposes the dedication of any internal estate road as a public road:         <ul> <li>(a) a final inspection of the estate road is to be undertaken by the relevant Roads Authority. All compliance documentation for road and drainage construction of the estate road must be submitted to the relevant Roads Authority in accordance with the relevant Roads Authority. The value of the bodged with Penrith City Council for all road and drainage works that are to be dedicated to the relevant Roads Authority. The value of the bond shall be determined in accordance with Penrith City Council's adopted Fees and Charges.</li> <li>(c) where installation of any regulatory/advisory signage and line marking are proposed, plans are to be lodged with Penrith City Council and approved by the Local Traffic Committee</li> <li>(d) an application for proposed street names must be lodged with and approved by Penrith City Council and the signs erected on-site. The proposed names must be in accordance with Penrith City Council's Street Naming Policy. <i>Note: Contact Penrith City Council's Engineering Services Department on 4732 7777 for further information on this process and applicable fees.</i></li> </ul> </li> <li>A23 The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.</li> <li>A24 Prior to the issue of a Subdivision Certificate or Construction Certificate (as required by the contributions plan or agreed by Council), the Applicant must pay contributions to Council as required in accordance with the Penrith City Mamre Road Precinct</li> </ul>	A21	Prior to the issuing of Subdivision Certificates for any stage of the development: (a) a certificate from an electricity and telecommunications provider must be submitted to the Certifier certifying that satisfactory service arrangements to the site have been established; and (b) a certificate from the Regional Stormwater Authority must be submitted to the Certifier certifying that satisfactory stormwater servicing arrangements for the site have been established.	NA
A23The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.Section 4.5A24Prior to the issue of a Subdivision Certificate or Construction Certificate (as required by the contributions plan or agreed by Council), the Applicant must pay contributions to Council as required in accordance with the Penrith City Mamre Road PrecinctNA	A22	<ul> <li>Prior to issue of a Subdivision Certificate that proposes the dedication of any internal estate road as a public road:</li> <li>(a) a final inspection of the estate road is to be undertaken by the relevant Roads Authority. All compliance documentation for road and drainage construction of the estate road must be submitted to the relevant Roads Authority in accordance with the relevant Roads Authorities specifications and requirements.</li> <li>(b) a Maintenance Bond is to be lodged with Penrith City Council for all road and drainage works that are to be dedicated to the relevant Roads Authority. The value of the bond shall be determined in accordance with Penrith City Council's adopted Fees and Charges.</li> <li>(c) where installation of any regulatory/advisory signage and line marking are proposed, plans are to be lodged with Penrith City Council and approved by the Local Traffic Committee</li> <li>(d) an application for proposed street names must be lodged with and approved by Penrith City Council and the signs erected on-site. The proposed names must be in accordance with Penrith City Council's Street Naming Policy.</li> <li>Note: Contact Penrith City Council's Engineering Services Department on 4732 7777 for further information on this process and applicable fees.</li> </ul>	NA
A24 Prior to the issue of a Subdivision Certificate or Construction Certificate (as required by the contributions plan or agreed by NA Council), the Applicant must pay contributions to Council as required in accordance with the Penrith City Mamre Road Precinct	A23	The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.	Section 4.5
	A24	Prior to the issue of a Subdivision Certificate or Construction Certificate (as required by the contributions plan or agreed by Council), the Applicant must pay contributions to Council as required in accordance with the Penrith City Mamre Road Precinct	NA



Ref	Condition	How addressed
	Development Contributions Plan 2022, or any other contributions plan as in force when the later consent takes effect. Note: Subject to agreement between Council and the Applicant, local contributions may be satisfied by a planning agreement or works-in-kind agreement between Council and the Applicant.	
A25	A special infrastructure contribution must be made in accordance with the Environmental Planning and Assessment (Special Infrastructure Contribution – Western Sydney Aerotropolis) Determination 2022 (2022 Determination) as in force when this development consent takes effect. A person may not apply for a subdivision certificate or construction certificate (as the case may require, having regard to the Determination) in relation to the development unless the person provides, with the application, written evidence from the Department of Planning and Environment that the special infrastructure contribution for the development (or that part of the development for which the certificate is sought) has been made or that arrangements are in force with respect to the making of the contribution. More information <i>A request for assessment by the Department of Planning and Environment of the amount of the contribution that is required under this condition can be made through the NSW planning portal (https://www.planningportal.nsw.gov.au/development-assessment/contributions/sic-online-service). Please refer enquiries to SIContributions@planning.nsw.gov.au.</i>	NA
A26	All plant and equipment used on site, or to monitor the performance of the development, must be: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	Section 5.2
A27	The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.	Section 5.2
A28	Prior to the issuing of: (a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and (b) an Occupation Certificate, the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.	NA
A29	The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.	NA
A30	Before the construction of any utility works associated with the development, the Applicant must obtain relevant approvals from service providers.	NA



### Ref Condition

A31	Before the commencement of operation of the development, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing of the site under section 73 of the Sydney Water Act 1994.	Section 3.3.2
A32	Before the issuing of a Subdivision Works or Construction Certificate for any stage of the development, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifier, that arrangements have been made for: (a) the installation of fibre-ready facilities to all individual lots and/or premises in the development to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and (b) the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in the development demonstrated through an agreement with a carrier.	NA
A33	Before the issuing of the Occupation Certificate for the development the Applicant must demonstrate that the carrier has confirmed in writing it is satisfied that the fibre-ready facilities are fit-for-purpose.	Section 3.3.2
A34	Before the issuing of the Occupation Certificate for the first warehouse building, work-as-executed drawings signed by a registered surveyor demonstrating that the street trees, stormwater drainage (including operation and maintenance management plans) and finished ground levels have been constructed as approved, must be submitted to the Principal Certifier.	Section 3.3.2
A35	The Applicant must engage an Environmental Representative (ER) to oversee construction of the development. Unless otherwise agreed to by the Planning Secretary, construction of the development must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant. The approved ER must: (a) be a suitably qualified and experienced person who was not involved in the preparation of the EIS, RTS, ADR, and any additional information for the development and is independent from the design and construction personnel for the development; (b) receive and respond to communication from the Planning Secretary in relation to the environmental performance of the development; (c) consider and inform the Planning Secretary on matters specified in the terms of this consent; (d) consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community; (e) review the CEMP required in Condition C2 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent and if so: (i) make a written statement to this effect before submission of such documents (if those documents are required to be approved by the Planning Secretary); or (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department; (f) regularly monitor the implementation of the CEMP to ensure implementation is being carried out in accordance with the document and the terms of this consent; (g) as may be requested by the Planning Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefi	NA



Ref	Condition	How addressed
	<ul> <li>(h) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints;</li> <li>(i) provide advice to the Applicant on the management and coordination of construction works on the site with adjoining sites in the Mamre Road Precinct in relation to construction traffic management, earthworks and sediment control and noise;</li> <li>(j) attend the Mamre Road Precinct Working Group (see Condition A38) in a consultative role in relation to the environmental performance of the development; and</li> <li>(k) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Quarterly Report providing the information set out in the Environmental Representative Protocol under the heading 'Environmental Representative Quarterly Reports'. The Environmental Representative Quarterly Report must be submitted within seven calendar days following the end of each quarter for the duration of the ER's engagement for the development, or as otherwise agreed with the Planning Secretary.</li> </ul>	
A36	The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in condition A35 (including preparation of the ER monthly report), as well as: (a) the complaints register (to be provided on a daily basis); and (b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).	NA
A37	The Planning Secretary may at any time commission an audit of an ER's exercise of its functions under condition A35. The Applicant must: (a) facilitate and assist the Planning Secretary in any such audit; and (b) make it a term of their engagement of an ER that the ER facilitate and assist the Planning Secretary in any such audit.	NA
A38	<ul> <li>Within three months of the commencement of construction of the development and until all components of the development are constructed and operational, the Applicant must establish and participate in a working group, or join and participate in an existing working group, with relevant consent holders in the MRP, to the satisfaction of the Planning Secretary. The purpose of the working group is to consult and coordinate construction works within the MRP to assist with managing and mitigating potential cumulative environmental impacts. The working group must:</li> <li>(a) comprise at least one representative of the Applicant, the Applicant's ER, and relevant consent holders in the MRP;</li> <li>(b) meet periodically throughout the year to discuss, formulate and implement measures or strategies to improve monitoring, coordination of the approved industrial developments in the MRP;</li> <li>(c) regularly inform Council, TfNSW, Sydney Water and the Planning Secretary of the outcomes of these meetings and actions to be undertaken by the working group;</li> <li>(d) review the performance of approved industrial developments in the MRP and identify trends in the data with respect to cumulative construction traffic, erosion and sediment control, noise, stormwater management and waterway health objectives under the MRP DCP;</li> <li>(e) review community concerns or complaints with respect to environmental management;</li> <li>(f) identify interim traffic safety measures to manage construction traffic and how these measures will be coordinated, communicated, funded and monitored in the MRP; and</li> </ul>	Section 4.6



Ref	Condition	How addressed
	(g) provide the Planning Secretary with an update and strategies, if a review under subclause (d) and (e) identifies additional measures and processes are required to be implemented by the working group.	
A39	Three (3) months prior to completion of construction of all components of the development, the Applicant is eligible to exit the working group required under condition A38. The Applicant must: (a) consult with the Planning Secretary; (b) provide confirmation that all components of the development are operational; and (c) advise on the date of the proposed exit.	Section 4.6
A40	References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.	Section 3
A41	However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.	Noted
AN1	All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.	Section 3.3
PAR	B SPECIFIC ENVIRONMENTAL CONDITIONS	
B1	<ul> <li>Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must: <ul> <li>(a) be prepared by a suitably qualified and experienced person(s);</li> <li>(b) be prepared in consultation with Council and TfNSW;</li> <li>(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction works to:</li> <li>(i) ensure access to the site and road safety and network efficiency is maintained,</li> <li>(ii) manage cumulative construction traffic from other concurrent construction works within the Mamre Road Precinct, and</li> <li>(iii) address necessary interim traffic safety controls and management measures, including consideration of any traffic control measures required to manage traffic entering Mamre Road in the period before Mamre Road/Abbotts Road intersection construction is complete;</li> <li>(d) detail heavy vehicle routes, access and parking arrangements;</li> <li>(e) include a Driver Code of Conduct to:</li> <li>(i) minimise the impacts of earthworks and construction on the local and regional road network;</li> <li>(ii) minimise road traffic noise; and</li> </ul> </li> </ul>	NA



Ref	Condition	How addressed
	<ul> <li>(iv) ensure truck drivers use specified routes, including entering and exiting Mamre Road via Abbotts Road and not Bakers Lane;</li> <li>(f) include a program to monitor the effectiveness of these measures; and</li> <li>(g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.</li> </ul>	
B2	The Applicant must: (a) not commence construction until the Construction Traffic Management Plan required by condition B1 is approved by the Planning Secretary; and (b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.	NA
В3	At the commencement of operation of the development and for a minimum period of 12 months of operation, the Applicant must establish an Operational Traffic Monitoring Program to verify light and heavy vehicle traffic numbers against the predictions in the ADR. The Program must also monitor the effectiveness of the traffic management measures to the satisfaction of the Planning Secretary and include but not be limited to the following: (a) detail the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation; (b) queue monitoring at the Mamre Road/Abbotts Road intersection and background travel counts on Mamre Road and Abbotts Road; (c) verify the predicted traffic numbers and level of service against the actual impacts of the development, and analyse the potential cause of any significant discrepancies; (d) consider the current capacity and efficiency of the existing road network including Mamre Road and Aldington Road; and (e) include procedures for the reporting and monitoring of results to evaluate the traffic performance of the development.	Section 6.1 and OTMoP
B3A	Prior to the commencement of operation of Warehouse 4, the Applicant must prepare an Operational Traffic Management Plan (OTMP) for Warehouse 4 to the satisfaction of the Planning Secretary. The OTMP must form part of the OEMP required by Condition C5 and must: (a) be prepared by a suitably qualified and experienced person(s) (b) detail heavy vehicle routes, access, and parking arrangements; (c) detail the measures that are to be implemented to ensure road safety and network efficiency; (d) include a Traffic Control Plan (TCP) detailing the on-site measures to be implemented to control the manoeuvring of vehicles in designated loading areas and mitigate the potential for on-site vehicle conflict, with regard to the 'SSD-9138102 Mod 2 Transport Statement' and accompanying swept path analysis prepared by Ason Group dated 19 December 2023.	Warehouse 4 OTMP
<del>B</del> 4	Prior to the commencement of operation of the development, the Applicant must complete the construction of the upgrades to Abbotts Road to the satisfaction of Council. The Applicant must obtain approval for the works under section 138 of the Roads Act 1993.	Section 3.3.2



<del>B5</del>	Prior to the commencement of construction works for the Mamre Road/Abbotts Road intersection works and signalised intersection of Abbotts Road and Aldington Road, the Applicant must enter into a Works Authorisation Deed with TfNSW. TfNSW fees for administration, plan checking, civil works inspections and project management shall be paid by the Applicant prior to the commencement of works.	NA
<del>B6</del>	Prior to the commencement of construction of signalised intersection road works, the proposed Traffic Control Signal/s at the intersection of Mamre Road/Abbotts Road and Aldington Road/Abbotts Road must be designed to meet TfNSW requirements. The Traffic Control Signal (TCS) plans shall be drawn by a suitably qualified person and endorsed by a suitably qualified practitioner. The submitted design shall be in accordance with Austroads Guide to Road Design in association with relevant TfNSW supplements (available on www.transport.nsw.gov.au). The certified copies of the TCS design and civil design plans shall be submitted to TfNSW for consideration and approval prior to the release of a Construction Certificate and commencement of signalised intersection road works. Please send all documentation to development.sydney@transport.nsw.gov.au.	NA
<del>-B7</del>	Detailed design plans and hydraulic calculations of any changes to the stormwater drainage system are to be submitted to TfNSW for approval, prior to the commencement of any works referred to in Condition B5. Please send all documentation to is development.sydney@transport.nsw.gov.au. A plan checking fee will be payable and a performance bond may be required before TfNSW approval is issued.	NA
<del>88</del>	The Applicant must be responsible for all public utility adjustment/relocation works, necessitated by the work referred to in Condition B5 and as required by the various public utility authorities and/or their agents. Should any public utility adjustment/relocation works be required adjacent to a classified road, plans are to be submitted to TfNSW for approval, prior to the commencement of any works. Please send all documentation to is development.sydney@transport.nsw.gov.au. A plan checking fee may be payable and a performance bond may be required before TfNSW approval is issued.	NA
<del>89</del>	Any realignment of site boundaries to facilitate the works referred to in Condition B5, inclusive but not limited to drainage, footpaths and batters resulting from the proposed road and construction works, must be dedicated as public road at no cost to the relevant roads authority unless specified otherwise in a planning agreement.	NA
<del>B10</del>	The Applicant must obtain a Road Occupancy Licence (ROL) from TfNSW Transport Management Centre for any works that may impact on traffic flows on Mamre Road during construction activities. A ROL can be obtained through https://myrta.com/oplinc2/pages/security/oplincLogin.jsf.	NA
<del>B11</del>	Prior to the commencement of operation of the first warehouse building, the upgrade works to the Mamre Road and Abbotts Road intersection, and upgrades to Abbotts Road must be completed to the satisfaction of the relevant roads authority for each component of the works.	Section 3.2.2



Ref	Condition	How addressed
<del>B12</del>	Prior to the commencement of operation of the first warehouse building, the Applicant must construct and operate the road works shown in Figure 1 in Appendix 1 to the satisfaction of relevant road authority.	Section 3.2.2
B13	Prior to the commencement of any stage of road construction, detailed design plans showing the provision of passively irrigated street trees within the relevant stage of works must be submitted to the satisfaction of the relevant road authority. The plans must: (a) be prepared in consultation with Council; and (b) demonstrate compliance with the Sydney Water Stormwater Scheme Infrastructure Design Guideline and MRP DCP.	NA
B14	The Applicant must provide sufficient parking facilities on-site in accordance with the MRP DCP, including for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public and residential streets or public parking facilities.	Section 5.2
B15	Prior to the issue of the occupation certificate for the first warehouse building, the development must include bicycle parking and end of trip facilities in accordance with Australian Standard AS 1742.9:2018 <i>Manual of Uniform Traffic Control Devices - Bicycle Facilities, and Cycling Aspects of Austroads Guides.</i> Any bicycle parking and storage facilities must be secure, convenient, well lit, physically and visually accessible and within close proximity to the main in accordance with Austroads guidelines.	Section 5.2
B16	A minimum of 5% of parking bays for each warehouse must provide for electric vehicle charging, with a further 5% constructed as readily adaptable.	Section 5.2
B17	The Applicant must ensure: (a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the development are constructed and maintained in accordance with the latest version of AS 2890.1:2004 Parking facilities Off-street car parking (Standards Australia, 2004), AS 2890.2:2018 Parking facilities Off-street Commercial Vehicle Facilities (Standards Australia, 2018) and AS 2890.6.2009 Parking facilities Off-street parking for people with disabilities (Standards Australia, 2009) (b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant AUSTROADS guidelines; (c) the development does not result in any vehicles queuing on the public road network; (d) heavy vehicles and bins associated with the development are not parked on local roads or footpaths in the vicinity of the site; (e) all vehicles are wholly contained on site before being required to stop; (f) all loading and unloading of materials is carried out on-site; (g) all trucks entering or leaving the site with loads have their loads covered and do not track dirt onto the public road network; (h) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times (i) all vehicles accessing and departing the site from/to Mamre Road must travel via Abbotts Road and not Bakers Lane, until the completion of the ultimate upgrade of Aldington Road and delivery of the Southern Link Road or otherwise acreed in writing by	Section 5.2



the Secretary, Council and TfNSW (j) Use of 30m PBS Level on local roads will require approval from the National Heavy Vehicle Regulator (NHVR) and Council's Asset Section.	
<ul> <li>Prior to the commencement of operation of any part of the development, the Applicant must prepare a Workplace Travel Plan and submit a copy to the Planning Secretary. The Workplace Travel Plan must:</li> <li>(a) be prepared in consultation with TfNSW;</li> <li>(b) outline facilities and measures to promote public transport usage, such as car share schemes and employee incentives; and</li> <li>(c) describe pedestrian and bicycle linkages and end of trip facilities available on-site.</li> </ul>	WTP
The Applicant must implement the most recent version of the Workplace Travel Plan for the duration of the development.	Section 5.2
The Applicant must: (a) ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site; (b) keep accurate records of the volume and type of fill to be used; and (c) make these records available to the Planning Secretary upon request.	NA
Prior to the commencement of earthworks for the development, the Applicant must design and detail the erosion and sediment control measures for the site to ensure the construction phase IWCM controls in the MRP DCP are achieved to the satisfaction of the Planning Secretary. Detailed Erosion and Sediment Control Plans (ESCP) and drawings must: (a) be prepared by a Chartered Professional Erosion and Sediment Control (CPESC) specialist; (b) be prepared in accordance with Managing Urban Stormwater: Soils and Construction – Volume 1:Blue Book (Landcom, 2004) and with the WSUD design principles set out in the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (Technical Guidance) (NSW Government, 2022);	NA
<ul> <li>(i) each major phase of construction work including catchment plans and calculations and sizing for all major drainage and sediment controls for each phase;</li> <li>(ii) the type of sediment basin, details of all functional components and calculations demonstrating compliance with the DCP;</li> <li>(d) demonstrate the construction approach and timing to ensure the construction phase stormwater quality targets can be met;</li> </ul>	
and (e) detail measures to manage external catchment flows and dispersive soils; (f) detail measures to protect passively irrigated street trees during construction works, if these are installed before construction is completed; (g) be included in the CEMP required by Condition C2.	
The Applicant must: (a) not commence earthworks until the Erosion and Sediment Control Plan required by condition B21 is approved by the Planning Secretary; and	NA

Ref Condition

B18

B19

B20

B21

B22



	(b) implement the most recent version of the Erosion and Sediment Control Plan approved by the Planning Secretary for the duration of earthworks and construction.	
B23	The Applicant must ensure delivery and operation of all construction phase erosion and sediment controls on the site is supervised and certified by a CPESC. Monthly audits are to be completed by CPESC and kept on record for the duration of the construction and an additional 12 months following completion of construction works.	NA
B24	The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.	Section 5.2
B25	Within two months of the date of this consent, the Applicant must design the stormwater management system to the satisfaction of the Planning Secretary. The stormwater management system design must: (a) be prepared in consultation with the Environment & Heritage Group, Sydney Water and Council; (b) be prepared and certified by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems, whose appointment has been endorsed by the Planning Secretary; (c) be consistent with the plan shown on Figure 2 in Appendix 1 and the updated Stormwater Management Plan required by Condition B30; (d) include all private, Council and trunk drainage infrastructure within the site including connections to adjacent landholdings; (e) be designed in accordance with the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (Technical Guidance) (NSW Government, 2022) and detail how: (i) the requirements and objectives of the IWCM controls of the DCP will be achieved; (ii) the waterway health objectives and targets set out in the Technical Guidance will be achieved; (iii) levels are resolved to demonstrate the system functions effectively; (v) all stormwater management devices will contain an impermeable liner and all naturalised trunk drainage (or other open drainage) is either lined with an impermeable liner, or ameliorated (i.e., gypsum), and compacted to a suitable depth and topsoiled (AS44119) to limit infiltration to solis; (f) demonstrate the on-site stormwater detention design is free draining; (g) demonstrate that sufficient land is reserved on site for stormwater management purposes (such as irrigation areas and undeveloped areas) as shown on Figure 2 in Appendix 1, to ensure the development meets the controls in the DCP and the waterway health targets in the Technical Guidance, unless an alternative stormwater management strategy has been approved by the Planning Secretary; (i) include landscape drawings that define the design for th	NA



Ref	Condition	How addressed
	professional engineer with experience in modelling, design and supervision of WSUD systems that the design drawings comply with the Technical Guide requirements and the stormwater targets are achieved; and (I) include evidence that the design and mix of WSUD infrastructure has considered ongoing operation and maintenance, including a detailed lifecycle cost assessment (including capital, operation / maintenance and renewal costs over 30 years).	
B26	The Applicant must: (a) not commence earthworks until the design required by Condition B25 is approved by the Planning Secretary; (b) ensure construction of the stormwater management system is supervised and certified by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems; and (c) implement the stormwater management system approved by the Planning Secretary prior to the commencement of operation of the first warehouse building.	Section 5.2
B27	The Applicant must not carry out earthworks or construction, other than those works approved under this consent, on land shown as 'undeveloped land' on Figure 2 in Appendix 1 (including Lots 3 and 4 on DP 250002) unless the site is connected to the Stormwater Scheme or an alternative Stormwater Management System for the site has been approved by the Planning Secretary.	NA
B28	<ul> <li>Within two months of the date of this consent, the Applicant must design the trunk drainage infrastructure on the site, to the satisfaction of the Planning Secretary. The trunk drainage infrastructure must: <ul> <li>(a) be designed in consultation with the Regional Stormwater Authority (Sydney Water);</li> <li>(b) be integrated into the Stormwater Management System required under Condition B25;</li> <li>(c) be designed in accordance with the Mamre Road Stormwater Scheme Plan and Sydney Water's Stormwater Scheme Infrastructure Design Guidelines (draft) 2022, or its latest version, unless otherwise agreed with the Regional Stormwater Authority;</li> <li>(d) be designed so that the naturalised trunk drainage channel is used to carry all overland flows greater than the 5% AEP piped drainage capacity where the catchment upstream of the commencement of the trunk drainage exceeds 15 ha or where overland flows are unsafe to pedestrians and vehicles;</li> <li>(e) be modelled with demonstration of flow modelling using either XP-Rafts (Laurenson's Method) or DRAINS (ILSAX or Laurenson's Methods) with full catchment diagrams – discretised to accurately show development catchments and external catchments. Input data sets shall be fully described and can be provided in spreadsheet form.</li> <li>(f) include access for management and maintenance by the Regional Stormwater Authority as per the Stormwater Scheme Infrastructure Design Guideline (draft) 2022, including provision of an easement in accordance with Condition B32;</li> <li>(g) include appropriate connections from the trunk drainage channel on site to the existing downstream flow paths, until such time as the trunk drainage channel downstream of the site is constructed;</li> <li>(h) ensure any piped infrastructure that intersects or connects into the trunk drainage channel on the site is designed to accommodate the trunk drainage channel design; and</li> <li>(i) include landscape drawings with planting details.</li> </ul> </li> </ul>	NA



Ref	Condition	How addressed
329	The Applicant must: (a) not commence earthworks until the design required by Condition B28 is approved by the Planning Secretary; (b) ensure construction of the trunk drainage infrastructure is supervised and certified by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems; and (c) implement the trunk drainage infrastructure approved by the Planning Secretary prior to the commencement of operation of the first warehouse building.	Section 5.2 and SMP
330	<ul> <li>Within four months of the date of this consent, the Applicant must prepare a separate Water and Stormwater Management Plan (WSMP) to the satisfaction of the Planning Secretary. The WSMP must: <ul> <li>(a) be prepared by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems, whose appointment has been endorsed by the Planning Secretary;</li> <li>(b) comply with the requirements of the Technical Guidance;</li> <li>(c) be consistent with the plan shown on Figure 2 in Appendix 1;</li> <li>(d) be prepared in consultation with the Environment &amp; Heritage Group, Sydney Water, Council and the Department;</li> <li>(e) describe the baseline soil, surface water and groundwater conditions at the site;</li> <li>(f) define how the development will comply with the stormwater targets, including connection to the regional scheme;</li> <li>(g) include MUSIC modelling for each stage of the development in accordance with the Technical Guidance;</li> <li>(h) provide catchments plans, tables and all stormwater management details as per the Technical Guidance;</li> <li>(i) proprietary devices are located on private land and only include including sediment and nutrient removal if certified under SQIDEP;</li> <li>(ii) proprietary devices are located to trunk drainage;</li> <li>(iii) provide catchments are drained to trunk drainage;</li> <li>(iii) provide dustry and stormwater elements are consistent with the design drawings required by Conditions B25 to B27 (including the detailed drawings in appendices to the report);</li> <li>(j) include a protocol for investigation of any non-compliances of the stormwater management system with the IWCM controls in the MRP DCP the waterway health objectives and targets in the Technical Guidance;</li> <li>(k) detail the contingency measures that would be implemented should issues arise;</li> <li>(j) include a Maintenance Plan for the WSUD measures; and</li> <li>(m) detail triggers for a review of the plan, including, but not</li></ul></li></ul>	Section 5.2 and SMP
331	The Applicant must: (a) not commence operation of the first warehouse building until the Stormwater Management Plan required by Condition B30 is approved by the Planning Secretary; and	Section 5.2 and SMP

(b) implement the most recent version of the Stormwater Management Plan approved by the Planning Secretary for the duration of the development.



	Ref	Condition	How addressed
	B32	Prior to the issue of a Compliance Certificate under Section 73 of the Sydney Water Act, 1994, an easement under section 88A and/or restriction or public positive covenant under section 88E of the Conveyancing Act 1919 naming the Regional Stormwater Authority (Sydney Water) as the prescribed authority, which can only be revoked, varied or modified with the consent of the Regional Stormwater Authority and which provides for appropriate access to all trunk drainage land for maintenance at no cost to the Regional Stormwater Authority must be registered on the title of the land.	NA
	B33	The stormwater management system must continue to be operated and maintained in perpetuity for the life of the development in accordance with the final operation and maintenance management plan. Regular inspection records are required to be maintained and made available to Council on request. All necessary improvements are required to be made immediately upon awareness of any deficiencies in the stormwater management systems. Note: This does not include any passively irrigated street trees that may be transferred to the relevant roads authority. This also does not include trunk drainage infrastructure for which maintenance and operation may be transferred to the Regional Stormwater Authority.	Section 5.2 and SMP
	B34	All stormwater infrastructure, including bio-retention basins, shall remain under the ownership, control and care of the registered proprietor of the lots. Upstream drainage catchment pipes are to be located outside of the public road reserve and remain in private ownership, in accordance with Council requirements. Note: This does not include any passively irrigated street trees that may be transferred to the relevant roads authority. This also does not include trunk drainage infrastructure for which maintenance and operation may be transferred to the Regional Stormwater Authority.	Section 5.2 and SMP
_	B35	Prior to the issue of any Occupation Certificate, a restriction on the use of land and positive covenant relating to the permanent stormwater management systems (including on-site stormwater detention and water sensitive urban design), shall be registered on the title of the property. The restriction on the use of land and positive covenant shall be in Penrith City Council's standard wording as detailed in Council's Stormwater Drainage Specification for Building Developments – Appendix F.	NA
_	B36	Prior to commencement of construction of the development, the Applicant must prepare a Dam Decommissioning Strategy to the satisfaction of the Planning Secretary. The Dam Decommissioning Strategy must form part of the CEMP required by Condition C2. The Applicant must implement the most recent version of the Dam Decommissioning Strategy for the duration of construction.	NA
	B37	Prior to the commencement of operation of the development, the Applicant must connect the development to the road drainage infrastructure for the upgraded Aldington and Abbotts Roads, to ensure the development does not increase flood flows and velocities on adjoining properties for all flood events up to and including the critical 1% Annual Exceedance Probability flow.	Section 3.3.2
_	B38	Within six months of the date of this consent, the Applicant must prepare a Landscape Management Plan to manage the revegetation and landscaping works on-site, to the satisfaction of the Planning Secretary. The plan must: (a) detail the species to be planted on-site that:	NA



Ref	Condition	How addressed
	<ul> <li>(i) are consistent with the plant list in Appendix C of the Mamre Road Precinct Development Control Plan; and</li> <li>(ii) are suitable in relation to wildlife management in proximity to the Western Sydney Airport.</li> <li>(b) ensure sufficient deep soil to allow large tree planting is provided in the areas between retaining wall tiers and between retaining walls and the northern property boundary on Lot 1 (as shown in the landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape Concept plan, prepared by Site Image and dated 14 February 2023);</li> <li>(c) ensure adequate planting is implemented to provide screening between the basin and retaining wall on Lot 4 (as shown in the landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plan, prepared by Site Image and dated 14 February 2023);</li> <li>(d) demonstrate that the minimum tree canopy targets are achieved in accordance with the MRP DCP; and</li> <li>(e) describe the monitoring and maintenance measures to manage revegetation and landscaping works.</li> </ul>	
B39	The Applicant must: (a) not commence operation until the Landscape Management Plan is approved by the Planning Secretary; (b) must implement the most recent version of the Landscape Management Plan approved by the Planning Secretary and not commence operation until the landscaping works have been completed in accordance with the plan; and (c) maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by Condition B38 for the life of the development.	Section 5.2 and LMP
B40	Prior to the issue of an Occupation Certificate for each warehouse building, the Applicant must provide the Certifier with written evidence in the form of plans and a report prepared by the project landscape architect confirming that trees identified in the approved document package as contributing to the site's canopy target have been installed and that the trees are capable of reaching maturity in their locations. Where the canopy cover target (in accordance with the MRP DCP) is identified as not being achievable through those trees planted, the report is to detail what measures have been undertaken to address the tree canopy shortfall and a rectification plan is to be provided.	NA
B41	Prior to the commencement of retaining wall construction, the Applicant must submit details of retaining wall materials fronting the public domain demonstrating suitable visual presentation, particularly treatment of higher fill walls visible from the public domain, to the satisfaction of the Planning Secretary.	NA
B42	All structures (foot, batter, tie backs/in and drainage) associated with retaining walls must be within private property and not within the public road reserve and not within any zone of influence.	NA
B43	The Applicant must ensure the finished facades and roofs of the warehouses and office buildings use neutral, recessive colours, non-reflective materials and are designed to present an attractive façade to residential areas and to minimise glare.	Section 5.2
B44	The Applicant must ensure the lighting associated with the development: (a) complies with the latest version of AS 4282-2019 – Control of the obtrusive effects of outdoor lighting (Standards Australia, 2019); and	Section 5.2



Ref	Condition			How addressed
	(b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.			
B45	Prior to the commencement of construction of the first warehouse building, the Applicant must submit a Signage Strategy to the satisfaction of the Planning Secretary. The Signage Strategy must demonstrate that proposed signage is consistent with Chapter 3 of <i>State Environmental Planning Policy (Industry and Employment) 2021</i> and the MRP DCP, including limiting illumination of signage or measures to control lighting impacts from illuminated signs.			NA
B46	All signage must be erected in accordance with the approved Signage Strategy required by Condition B45. Note: This condition does not apply to temporary construction and safety related signage.			Section 5.2
B47	The Applicant must comply with the hore <b>Table 2</b> Hours of Work	urs detailed in Table 2, unless otherv	vise agreed in writing by the Planning Secretary.	Section 2.2
	Activity	Day	Time	
	Forthworks and construction	Monday – Friday	7am to 6pm	
	Earthworks and construction	Saturday	8am to 1pm	
	Operation	Monday – Sunday	24 Hours	
B48	Works outside of the hours identified in condition B47 may be undertaken in the following circumstances: (a) works that are inaudible at the nearest sensitive receivers; (b) works agreed to in writing by the Planning Secretary; (c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or (d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.			NA
B49	The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures in Appendix 5.			NA
B50	<ul> <li>The Applicant must prepare a Construction Noise and Vibration Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must</li> <li>(a) be prepared by a suitably qualified and experienced noise expert(s);</li> <li>(b) be prepared in consultation with owners of adjoining residential properties (including those still occupied for residential use in</li> </ul>			NA

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Ref	Condition				How addressed
	<ul> <li>the MRP), include evidence of this consultation and detail how the plan has responded to any issues raised during consultation;</li> <li>(c) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time);</li> <li>(d) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;</li> <li>(e) include strategies that have been developed with the community for managing high noise generating works; and</li> <li>(f) include a complaints management system that would be implemented for the duration of the development.</li> </ul>				
B51	The Applicant must: (a) not commence earthworks until the Construction Noise and Vibration Management Plan required by condition B50 is approved by the Planning Secretary; and (b) implement the most recent version of the Construction Noise and Vibration Management Plan approved by the Planning Secretary for the duration of earthworks and construction.			NA	
B52	The Applicant must ensure that noise generated by operation of the develop	ment does not ex	ceed the noise lin	nits in Table 3.	Section 5.2
	Table 3 Noise Limits (dB(A))				
	Location	Day L <sub>Aeq(15 minutes)</sub>	Evening L <sub>Aeq(15 minutes)</sub>	Night L <sub>Aeq(15 minutes)</sub>	
	Residential receivers near Medinah Avenue (Luddenham), Mount Vernon Road (Mount Vernon) and Kerrs Road (Mount Vernon)	36	31	27	
	BAPS Temple - Outdoor Use Area (Except Car Parking Area) 33 (When in use)				
	Note: Noise generated by the development is to be measured in accordance procedures and exemptions (including certain meteorological conditions) of may be updated or replaced from time to time). Refer to the plan in Appendix	with the relevant the NSW Noise P x 2 for the location	t monitoring perfor colicy for Industry ( n of residential se	mance ′EPA, 2017) (as nsitive receivers.	
B53	The Applicant must ensure that noise generated by: (a) all fixed external mechanical plant for the warehouse building on Lot 1 do LAeq(15min) 90 dB(A); (b) all fixed external mechanical plant for the warehouse building on Lot 4 do LAeq(15min) 86 dB(A); and	bes not exceed a	cumulative sound cumulative sound	power level of power level of	Section 5.2

(c) any activity on the site does not exceed a sound power level of LAMax 115 dB(A) or result in annoying noise characteristics as determined in accordance with the Noise Policy for Industry (EPA, 2017) and Australian Standard AS 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018).



## Ref Condition

B54	<ul> <li>Within three months of the commencement of earthworks for the development, the Applicant must prepare and submit a Design Noise Verification Report for the development to the satisfaction of the Planning Secretary. The Applicant must not commence construction of any warehouse buildings until the Design Noise Verification Report is approved by the Planning Secretary. The Design Noise Verification Report must: <ul> <li>(a) be prepared by a suitably qualified, experienced and independent acoustic consultant whose appointment has been endorsed by the Planning Secretary;</li> <li>(b) identify and justify the design noise emission scenario, including the adopted engineering safety factor, schedule of all noise generating sources on the site (including but not limited to, all vehicle types, mechanical plant and waste areas), stationary equipment specification and verifiable data of dynamic noise emission activities;</li> <li>(c) demonstrate the noise propagation modelling is capable of accurately predicting noise levels under noise enhancing meteorological conditions to surrounding receivers in Mount Vernon and Luddenham;</li> <li>(d) provide updated noise modelling to verify the predicted performance of the development and the predicted noise levels identified in the report titled ESR Westlink Stage 1, Kemps Creek, NSW, Noise and Vibration Impact Assessment, prepared by RWDI, dated 6 October 2022;</li> <li>(e) develop an Operational Noise Monitoring Plan in accordance with Section 7 of the Noise Policy for Industry to verify the operational performance of the development, including details of the nominated intermediate location and sensitive receivers identified in condition B52;</li> <li>(f) include:</li> <li>(i) an analysis of compliance with noise limits specified in conditions B52 and B53;</li> <li>(ii) an outline of at-source and transmission path mitigation measures required to ensure compliance with the limits specified in conditions B52 and B53;</li> <li>(iii) a description of contingency measures (i</li></ul></li></ul>	ONMP
B55	Should the Design Noise Verification Report identify that the noise limits in Conditions B52 and B53 cannot be achieved through the mitigation measures and contingency measures required to be considered under Condition B54, the Applicant must: (a) offer to enter into noise agreement(s) with eligible receivers outside of the Mamre Road Precinct where noise limits are predicted to be exceeded (b) provide written evidence to the Planning Secretary that an agreement is in place with these receivers.	Section 6.7
B56	If a Noise Agreement is in place with a specific receiver(s) to exceed the noise limits in Condition B52, the noise limits in Table 3 do not apply to that receiver(s).	Section 5.2
B57	Within three months of the commencement of operation of the development, the Applicant must prepare and submit an Operational Noise Verification Report for the development to the satisfaction of the Planning Secretary. The Operational Noise Verification Report must:	Section 6.5



Ref	Condition	How addressed
	<ul> <li>(a) be prepared by a suitably qualified, experienced and independent acoustic consultant whose appointment has been endorsed by the Planning Secretary;</li> <li>(b) demonstrate that noise verification has been carried out in accordance with:</li> <li>(i) the Australian Standard AS 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018); and</li> <li>(ii) the EPA Approved Methods for the Measurement and Analysis of Environmental Noise in NSW (EPA, 2022);</li> <li>(iii) the Operational Noise Monitoring Plan established under condition B54(e);</li> <li>(c) include:</li> <li>(i) an analysis of compliance with noise limits specified in conditions B52 and B53;</li> <li>(ii) an outline of implemented at-source and transmission pathway mitigation measures and their effectiveness at reducing operational noise; and</li> <li>(iii) a description of contingency measures in the event implemented mitigation measures are not effective at reducing noise levels to comply with limits specified in condition B52 and B53 at all times.</li> </ul>	
B58	Prior to the commencement of operation of the development, the Applicant must offer to enter into noise agreement(s) with the eligible receivers shown in Figure 4 in Appendix 3. The Applicant must provide written evidence to the Planning Secretary that an agreement is in place with these receivers.	Section 5.2
B59	The noise agreement required under Condition B58 must be in force until the existing residential use ceases on the land subject to the agreement or a development consent for general industrial or other employment uses applies to the land, whichever is the sooner.	Section 5.2
B60	Prior to the commencement of construction of the development, the Applicant must prepare a Driver Code of Conduct and induction training for the development to minimise road traffic noise. The Applicant must update the Driver Code of Conduct and induction training for construction and operation and must implement the Code of Conduct for the life of the development.	Section 5.2
B61	<ul> <li>Vibration caused by construction at any residence or structure outside the site must be limited to:</li> <li>(a) for structural damage, the latest version of <i>DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures</i> (German Institute for Standardisation, 1999); and</li> <li>(b) for human exposure, the acceptable vibration values set out in the <i>Environmental Noise Management Assessing Vibration: a technical guideline</i> (DEC, 2006) (as may be updated or replaced from time to time).</li> </ul>	NA
B62	Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition B61.	NA
B63	The limits in conditions B61 and B62 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition C2 of this consent.	NA



Ref	Condition	How addressed
B64	Prior to the commencement of earthworks, the Applicant must offer and prepare (if the offer is accepted) a preconstruction dilapidation report for adjoining properties that may be affected by proposed earthworks (including Lot 2 DP 250002, Lots 141 and 142 DP 1033686, Lot 15 DP 253503 and Lot 4132 DP 857093). The report must be submitted to the Planning Secretary and the relevant property owner(s) prior to construction works commencing on the site.	NA
B65	If requested by the property owner, the Applicant must repair, or pay the full costs associated with repairing, any damage to adjoining properties caused by carrying out the development in accordance with the preconstruction dilapidation reports required by Condition B64, unless otherwise agreed by the Planning Secretary.	NA
B66	<ul> <li>Prior to the commencement of earthworks, the Applicant must undertake further soil sampling in areas of the site that were inaccessible during the Detailed Site Investigation prepared by Alliance dated 1 December 2021, to further refine the nature and extent of contamination on the site. The supplementary site investigation must: <ul> <li>(a) be prepared by a suitably qualified and experienced consultant certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme;</li> <li>(b) be prepared in accordance with the relevant guidelines produce or approved under the <i>Contaminated Land Management Act, 1997</i>;</li> <li>(c) define the nature and extent of contamination in areas not previously accessible for sampling; and</li> <li>(d) include an updated Remedial Action Plan that describes the preferred remediation approach to make the site suitable for the intended industrial land use and details the need for any long term management following completion of remediation.</li> </ul> </li> </ul>	NA
B67	The Applicant must remediate the site in accordance with the Remedial Action Plan approved under Condition B66 and relevant guidelines produced or approved under the Contaminated Land Management Act 1997. Remediation works must be undertaken by a suitably qualified and experienced consultant(s) and must be completed prior to the commencement of earthworks.	NA
B68	Within one month of completion of the remediation works for the development, the Applicant must submit a Remediation Validation Report (RVR) to the satisfaction of the Planning Secretary. The RVR must be prepared, or reviewed and approved, by a consultant certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme. The validation report shall demonstrate that: (a) the site is suitable for its intended industrial land use, or (b) the site is suitable for its intended industrial land use with the implementation of an environmental management plan or long term environmental management plan.	NA
B69	The Applicant must ensure that any asbestos encountered during the remediation works for the development is monitored, handled, transported and disposed of by appropriately qualified and licensed contractors in accordance with the requirements of SafeWork NSW and relevant guidelines, including: (a) Work Health and Safety Regulation 2017;	NA



Ref	Condition	How addressed
	<ul> <li>(b) SafeWork NSW Code of Practice – How to Manage and Control Asbestos in the Workplace September 2016;</li> <li>(c) SafeWork NSW Code of Practice – How to Safely Remove Asbestos September 2016; and</li> <li>(d) Protection of the Environment Operations (Waste) Regulation 2014.</li> </ul>	
B70	Prior to the commencement of earthworks, the Applicant must prepare an unexpected contamination finds procedure to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with condition C2 and must ensure any material identified as contaminated is disposed of in accordance with the POEO Act and its associated regulations. Details of the final disposal location and the results of any associated testing must be submitted to the Planning Secretary prior to removal of the contaminated material from the site.	NA
B71	The Applicant shall ensure the development complies with: (a) the relevant provisions of <i>Planning for Bushfire Protection</i> (NSW RFS, 2019); (b) the recommendations of the Bushfire Protection Assessment prepared by Australian Bushfire Protection Planners dated 3 March 2022; and (c) Australian Standard <i>AS2419.1-2005 Fire hydrant installations System design, installation, and commissioning.</i>	Section 5.2
B72	The Applicant must ensure the entire site, including landscaping, is managed as an inner protection area (IPA) in accordance with <i>Planning for Bushfire Protection 2019</i> .	Section 5.2
B73	The Applicant must ensure the warehouse buildings are constructed in accordance with the Bushfire Attack Level (BAL) plan shown in Appendix 4 and relevant sections of the Australian Standard AS3959-2018 <i>Construction of buildings in bush fire prone</i> <i>areas</i> or NASH Standard (1.7.14 updated) <i>National Standard Steel Framed Construction in Bushfire Areas - 2014</i> as appropriate, and Section 7.5 of Planning for Bushfire Protection, 2019.	Section 5.2
B74	The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	Section 5.2
B75	During construction, the Applicant must ensure that: (a) exposed surfaces and stockpiles are suppressed by regular watering; (b) all trucks entering or leaving the site with loads have their loads covered; (c) trucks associated with the development do not track dirt onto the public road network; (d) public roads used by these trucks are kept clean; and (e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.	NA
B76	Prior to the commencement of earthworks, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by condition C2 and must: (a) be prepared by a suitably qualified and experienced person(s); be prepared in consultation with owners of adjoining residential properties (including those still occupied for residential use in the MRP), include evidence of this consultation, details of any issues raised and how the plan has responded to any issues raised during consultation;	NA



Ref	Condition	How addressed
	<ul> <li>(c) detail and rank all emissions from all sources during construction of the development, including particulate emissions;</li> <li>(d) describe a program that is capable of evaluating the performance of the construction and determining compliance with key criteria, including installation of dust deposition gauges at neighbouring existing residences (where agreed by the landowner) or on the site boundary;</li> <li>(e) identify the control measures that will be implemented for each emission source; and</li> <li>(f) nominate the following for each of the proposed controls:</li> <li>(i) key criteria;</li> <li>(ii) monitoring method; and</li> <li>(iii) noning method; and</li> <li>(iii) locations, frequency and duration of monitoring;</li> <li>(g) outline procedures that will be implemented in relation to:</li> <li>(i) record keeping;</li> <li>(ii) complaints register;</li> <li>(iv) response procedures; and</li> <li>(v) compliance monitoring;</li> <li>(h) detail contingency measures to be implemented to reduce any exceedances of relevant performance indicators or criteria and include a timetable for implementation.</li> </ul>	
B77	The Applicant must: (a) not commence earthworks until the CAQMP required by condition B76 is approved by the Planning Secretary; and (b) implement the most recent version of the CAQMP approved by the Planning Secretary for the duration of construction; and (c) offer to enter into an agreement with a neighbouring landowner, that may involve at-property treatment, if a complaint is received from that landowner and a non-compliance is confirmed by dust monitoring. Evidence of any agreement must be provided to the Planning Secretary.	NA
B78	The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).	Section 5.2
B79	Prior to the commencement of earthworks, the Applicant must undertake surface collection of the identified artefacts IF1, IF2 and IF3 as detailed in the Aboriginal Cultural Heritage Assessment Report prepared by Urbis and dated 12 April 2022. The identified artefacts must be registered on the OEH's Aboriginal Heritage Information Management System (AHIMS) Aboriginal Sites Register, prior to construction.	NA
B80	The Applicant must continue to consult with Registered Aboriginal Parties (RAPs) for the duration of construction. The RAPs should be consulted to determine the appropriate management of unexpected finds on the site.	NA
B81	Prior to the commencement of earthworks, the Applicant must prepare and implement Aboriginal cultural heritage induction training for all staff and contractors. The Applicant must involve Aboriginal knowledge holders in the development of the induction training. The training must outline the obligations of staff and contractors under the <i>National Parks and Wildlife Act</i> ,	NA



Ref	Condition	How addressed
	1974 and the conditions of this consent. The Applicant must ensure any new staff or contractors receive the induction training prior to commencing works on the site. The induction training material must form part of the CEMP required by condition C2.	
B82	If any item or object of Aboriginal heritage significance is identified on site: (a) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately; (b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and (c) Heritage NSW must be contacted immediately.	Section 5.2
B83	Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the National Parks and Wildlife Act 1974.	Section 5.2
B84	If any non-Aboriginal archaeological relics are uncovered during any works being carried out for the development: (a) all work in the immediate vicinity of the suspected relic(s) must cease immediately; (b) Heritage NSW must be contacted immediately; and (c) the suspected relic(s) must be evaluated, recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW.	Section 5.2
B85	Work in the immediate vicinity of any suspected non-Aboriginal archaeological relic(s) must not recommence until this has been authorised by Heritage NSW.	Section 5.2
B86	Prior to, and during, construction works, the Applicant must implement the mitigation measures recommended in Section 2.2.5 of the Biodiversity Development Assessment Report prepared by Eco Logical Australia Pty Ltd, dated 14 April 2022.	NA
B87	Prior to the commencement of construction, a Wildlife Management Plan must be prepared in accordance with section 6.2 of the <i>Westlink Industrial Estate Wildlife Management Assessment Report</i> prepared by Eco Logical Australia Pty Ltd dated 14 April 2022, and be submitted to the Planning Secretary.	NA
B88	The Wildlife Management Plan must form part of the CEMP required by Condition C2 and the Applicant must implement the Wildlife Management Plan for the duration of construction and operation.	Section 5.2 and OWiMP
B89	The quantities of dangerous goods stored and handled at the site must be below the threshold quantities listed in the Department's <i>Hazardous and Offensive Development Application Guidelines – Applying SEPP 33</i> at all times.	Section 3.3.3
B90	The Applicant must store all chemicals, fuels and oils used on-site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's <i>Storing and Handling of Liquids: Environmental Protection – Participants Manual</i> (Department of Environment and Climate Change, 2007).	Section 3.3.3



Ref	Condition	How addressed				
B91	<ul> <li>Prior to the commencement of construction of the first warehouse building, the Applicant must update the Waste Management Plan included in the EIS for the development. The Plan must:</li> <li>(a) detail the type and quantity of waste to be generated during construction and operation of the development;</li> <li>(b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the <i>Protection of the Environment Operations Act 1997, Protection of the Environment Operations (Waste) Regulation 2014</i> and the <i>Waste Classification Guideline</i> (Environment Protection Authority, 2014); and</li> <li>(c) detail the materials to be reused or recycled, either on or off site.</li> </ul>	OWaMP and WWMPs				
B92	The Applicant must implement the Waste Management Plan for the duration of construction and operation.	Section 5.2, OWaMP and WWMPs				
B93	Prior to the commencement of construction of the development, the Applicant must obtain agreement from Council for the design of the waste storage area for the development.	NA				
B94	Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.	Section 5.2, OWaMP and WWMPs				
B95	The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's <i>Waste Classification Guidelines Part 1: Classifying Waste</i> (EPA, 2014) and dispose of all wastes to a waste management facility or premises lawfully permitted to accept the waste.	Section 5.2, OWaMP and WWMPs				
B96	The Applicant must: (a) implement suitable measures to manage pests, vermin and declared priority weeds on the site; and (b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area. <i>Note: For the purposes of this condition, priority weed has the same definition of the term in the</i> Biosecurity Act 2015.	Section 5.2 and OWiMP				
PAR	PART C SPECIFIC ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING					
C1	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: (a) detailed baseline data; (b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation	This OEMP and Sub-Plans				



NA

#### **Ref** Condition

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

- (d) a program to monitor and report on the:
- (i) impacts and environmental performance of the development; and
- (ii) effectiveness of the management measures set out pursuant to paragraph (c) above;
- (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce
- to levels below relevant impact assessment criteria as quickly as possible;
- (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
- (g) a protocol for managing and reporting any:
- (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);

(ii) complaint;

(iii) failure to comply with statutory requirements; and

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

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

- C2 The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the development in accordance with NA the requirements of condition C1 and to the satisfaction of the Planning Secretary.
- C3 As part of the CEMP required under condition C2 of this consent, the Applicant must include the following: (a) Construction NA Traffic Management Plan (see condition B1);
  - (b) Erosion and Sediment Control Plan (see condition B21);
  - (c) Dam Decommissioning Strategy (see condition B36);
  - (d) Construction Noise and Vibration Management Plan (see condition B50);
  - (e) Unexpected Finds Protocol (see condition B70);
  - (f) Construction Air Quality Management Plan (see condition B76);
  - (g) Site induction training material (see condition B81);
  - (h) Wildlife Management Plan (see condition B87);

(i) Community Consultation and Complaints Handling.

C4 The Applicant must:

(a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and (b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.



Ref	Condition	How addressed
C5	The Applicant must prepare an Operational Environmental Management Plan (OEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	This OEMP
C6	As part of the OEMP required under condition C5 of this consent, the Applicant must include the following: (a) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development; (b) describe the procedures that would be implemented to: (i) keep the local community and relevant agencies informed about the operation and environmental performance of the development; (ii) receive, handle, respond to, and record complaints; (iii) receive, handle, respond to, and record complaints; (iii) resolve any disputes that may arise; (iv) respond to any non-compliance; (v) respond to emergencies; and (c) include the following environmental management plans: (i) Operational Traffic Monitoring Program (see condition B3); (ii) Workplace Travel Plan (see condition B18); (iii) Stormwater Management Plan (see condition B30); (iv) Landscape Management Plan (see condition B37); (v) Wildlife management Plan (see condition B37); (v) Wildlife management Plan (see condition B37); (vi) Waste Management Plan (see condition B37); (vi) Waste Management Plan (see condition B37); (vi) Waste Management Plan (see condition B37); (vi) Qperational Traffic Management Plan (Condition B3A) (d) detail measures to minimise air emissions during operation.	This OEMP
C7	The Applicant must: (a) not commence operation until the OEMP is approved by the Planning Secretary; and operate the development in accordance with the OEMP approved by the Planning Secretary (and as revised and approved by the Planning Secretary from time to time).	This OEMP
C8	<ul> <li>Within three months of:</li> <li>(a) the submission of a Compliance Report under condition C14;</li> <li>(b) the submission of an incident report under condition C10;</li> <li>(c) the approval of any modification of the conditions of this consent; or</li> <li>(d) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review, the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary must be notified in writing of the outcomes of any review.</li> </ul>	Section 6.7
C9	If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning	Section 6.7



#### Condition How addressed Ref Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review required under condition C8, or such other timing as agreed by the Planning Secretary. Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development. C10 The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes Section 5.3 aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 6. C11 The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes Section 6.3 aware of any non-compliance. C12 A non-compliance notification must identify the development and the application number for it, set out the condition of consent Section 6.3 that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance. C13 A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance. Section 6.3 C14 Within six months after the commencement of construction of the development, and in the same month each subsequent year NA (or such other timing as agreed by the Planning Secretary) for the duration of construction works, the Applicant must submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2020) and must also: (a) identify any trends in the monitoring data; (b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (c) describe what measures will be implemented over the next year to improve the environmental performance of the development. C15 The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning NA Secretary and notify the Planning Secretary in writing at least seven days before this is done. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of Section 6.1

C16 Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of Section 6.1 a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing. *Note: For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a* 



Ref	Condition	How addressed
	periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.	
C17	At least 48 hours before the commencement of construction of the development and for the life of the development, the Applicant must: (a) make the following information and documents (as they are obtained or approved) publicly available on its website: (i) the documents referred to in condition A2 of this consent; (ii) all current statutory approvals for the development; (iii) all approved strategies, plans and programs required under the conditions of this consent; (iv) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent; (v) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; (vi) a summary of the current stage and progress of the development; (vii) contact details to enquire about the development or to make a complaint; (viii) a complaints register, updated monthly; (ix) the Compliance Report of the development; (x) any other matter required by the Planning Secretary; and (b) keep such information up to date, to the satisfaction of the Planning Secretary.	Section 1.5
PART	D EXTERNAL ROAD WORKS	
D1	The External Road Works may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Planning Secretary; (c) in accordance with the Modification Report and Response to Submissions for Modification 5; and (d) in accordance with the plans in Appendix 7.	The OTMP has been developed to comply with the relevant requirements of this condition.
D2	The date of commencement of each of the following phases of the External Road Works must be notified to the Planning Secretary in writing, at least one month before that date, or as otherwise agreed with the Planning Secretary: (a) construction of each stage of the External Road Works, including any sub-stages; (b) operation of the interim traffic signals at the Mamre Road / Abbotts Road intersection; and (c) completion of the External Road Works.	Noted.

- D3 Within 3 months of the date of the consent for SSD-9138102-Mod-5, or as otherwise agreed by the Planning Secretary, the NA Applicant must enter into a Works Authorisation Deed with TfNSW for the Mamre Road/Abbotts Road intersection works, including the installation of the interim signalised intersection of Abbotts Road and Aldington Road. TfNSW fees for



Ref	Condition	How addressed
	administration, plan checking, civil works inspections and project management shall be paid by the Applicant prior to the commencement of works.	
D4	Prior to the commencement of construction of the interim traffic control signals, the proposed Traffic Control Signal/s (TCS) at the intersection of Mamre Road/Abbotts Road and Aldington Road/Abbotts Road must be designed to meet TfNSW requirements and have approval under section 87(4) of the Roads Act, 1993. The TCS plans shall be drawn by a suitably qualified practitioner.	NA
	The submitted design shall be in accordance with Austroads Guide to Road Design in association with relevant TfNSW supplements (available on www.transport.nsw.gov.au). The certified copies of the TCS design and civil design plans shall be submitted to TfNSW for consideration and approval prior to the release of a Construction Certificate and commencement of construction of the traffic control signals. Please send all documentation to development.sydney@transport.nsw.gov.au.	
D5	Detailed design plans and hydraulic calculations of any changes to the stormwater drainage system are to be submitted to TfNSW for approval, prior to the commencement of any works referred to in Condition D3. Please send all documentation to is development.sydney@transport.nsw.gov.au . A plan checking fee will be payable and a performance bond may be required before TfNSW approval is issued.	NA
D6	The Applicant must be responsible for all public utility adjustment/relocation works, necessitated by the work referred to in Condition D3 and as required by the various public utility authorities and/or their agents. Should any public utility adjustment/relocation works be required adjacent to a classified road, plans are to be submitted to TfNSW for concurrence under section 138 of the Roads Act, 1993, prior to the commencement of any works. Please send all documentation to is development.sydney@transport.nsw.gov.au.	NA
	A plan checking fee may be payable and a performance bond may be required before TfNSW approval is issued.	
D7	Any realignment of site boundaries to facilitate the works referred to in Condition D3, inclusive but not limited to drainage, footpaths and batters resulting from the proposed road and construction works, must be dedicated as public road at no cost to the relevant roads authority unless specified otherwise in a planning agreement.	NA
D8	The Applicant must obtain a Road Occupancy Licence (ROL) from TfNSW Transport Management Centre for any works that may impact on traffic flows on Mamre Road during construction activities. A ROL can be obtained through https://myrta.com/oplinc2/pages/security/oplincLogin.jsf	NA
D9	Prior to the commencement of operation of the first warehouse building, the Applicant must construct and operate the east-west internal road works shown in Figure 1 in Appendix 1 to the satisfaction of relevant road authority.	OTMP
D10	Prior to the commencement of operation of warehouse 4, the Applicant must construct and operate the north-south internal road works shown in Figure 1 in Appendix 1 to the satisfaction of the relevant road authority.	OTMP


#### Condition Ref How addressed The Applicant must design and construct the Abbotts Road and Aldington Road widening works in accordance with the D11 Noted requirements of Council and any approval issued under section 138 of the Roads Act 1993. D12 The Applicant is responsible for the upkeep and repair of the operational road pavement of Abbotts Road for its full length within NA the existing road reserve and Aldington Road across the development frontage (full width) during the External Road Works. The repair works must be undertaken to the satisfaction of Council, and be at no cost to Council. Weekly pavement inspections must be undertaken by the Applicant to ensure that the road pavements are safe for all vehicles. Any identified potholes or pavement failures must be reported to Council immediately together with the proposed rectification method and timing for repair. All repairs must be undertaken at no cost to Council. If Council is required to undertakes any repairs to the road works to ensure a safe operating environment for all road users, the cost of such will be paid by the Applicant. OTMP for the D13 Prior to the commencement of operation of warehouse 1, the Applicant must prepare an Operational Traffic Management Plan (OTMP) for the development to the satisfaction of the Planning Secretary. The OTMP must: Development (a) be prepared by a suitably qualified and experienced person(s); (b) be prepared in consultation with TfNSW and Council; (c) detail the measures to be implemented to manage operational traffic from warehouse 1 to ensure that all operational traffic accesses the site from Abbotts Road via a left turn in from Mamre Road and exit the site via Abbotts Road and turn left onto Mamre Road until the interim traffic signals are operational; (d) detail the measures to manage operational traffic with concurrent construction traffic from the site and the External Road Works and other public traffic, to ensure road safety and network efficiency at all times; (e) detail heavy vehicle routes, turning restrictions, access and parking arrangements; (f) include an Operational Driver Code of Conduct to: (i) minimise impacts on the local and regional road network; (ii) minimise conflicts with other road users; (iii) minimise road traffic noise: (iv) inform truck drivers of the site access arrangements, turning restrictions and use of specified routes; (v) include a program to monitor the effectiveness of these measures; and (vi) detail the compliance actions that would be implemented for any vehicles that deviate from approved routes and turning restrictions. D14 The Applicant must: OTMP for the (a) not commence operation of warehouse1 until the OTMP required by condition D11 is approved by the Planning Secretary; Development (b) update the OTMP to reflect any changes to staging, routes or turning restrictions, and submit the updated plan to the Planning Secretary for approval, at least 1 month prior to implementing the changes; and (c) implement the most recent version of the OTMP approved by the Planning Secretary for the duration of the development. D15 The Applicant must lodge an application under section 138 of the Roads Act 1993 to the relevant roads authority to undertake NA the Stage 1 Abbotts Road Widening Works within 1 month of the date of consent of SSD-9138102-Mod5.



Ref	Condition	How addressed
D16	The Applicant must complete the Stage 1 Abbotts Road Widening Works within 4 months of receiving the section 138 Roads Act, 1993 approval for the works, to the satisfaction of the relevant roads authority, unless otherwise agreed by the Planning Secretary.	NA
D17	The Applicant must execute a Voluntary Planning Agreement with Council to complete the remaining stages of the Abbotts and Aldington Road widening works, within 12 months of the date of consent of SSD-9138102-Mod-5 and prior to the issue of an occupation certificate for warehouse 4.	NA
D18	The Applicant must complete the External Road Works to the satisfaction of the relevant roads authorities prior to operation of warehouse 4.	NA
D19	The Applicant must comply with the requirements of TfNSW and Council for all construction and operational vehicle movements, as detailed in Construction Traffic Management Plans approved as part of the WAD and Section 138 Roads Act, 1993 approval processes.	NA
D20	The Applicant must not: (a) undertake any subsequent development, including exempt or complying development, on the Stage 1 site shown in Figure 1 in Appendix 1; and (b) commence operation of warehouse 4; until the External Road Works are completed to the satisfaction of the Planning Secretary.	NA
D21	All External Road Works must be completed, to the satisfaction of the relevant roads authorities, prior to any other buildings on the Stage 1 site receiving occupation certificate(s).	NA
D22	The Applicant must prepare a Community Consultation Plan for the External Road Works to the satisfaction of the Planning Secretary. The Plan must: (a) be approved by the Planning Secretary prior to the commencement of the External Road Works; (b) be implemented for the duration of the External Road Works; (c) assign a central contact person to keep the community regularly informed throughout the works; (d) detail the mechanisms for regularly consulting with the nearest sensitive receivers and wider residential communities, to keep them informed about: (i) upcoming works, duration and any night-time or out of hours works; (ii) changes to property access and details of traffic disruptions; (iii) schedule for high noise generating works and vibration intensive activities, including details of the specific mitigation measures that would be implemented in accordance with the construction noise and vibration management plan approved under Condition D22; (iv) procedures to minimise dust impacts including details of the controls that would be implemented in accordance with the air quality management plan approved under Condition D22;	NA

Ref	Condition	How addressed
	(v) relocation of services including utilities and drainage; and (vi) details of environmental monitoring results; include contact details for key project personnel, relevant regulatory authorities and key community stakeholders:	
	<ul> <li>(e) include contact details for key project personnel, relevant regulatory authorities and key community stakeholders;</li> <li>(f) include a complaints procedure for recording, responding to and managing complaints, including;</li> </ul>	
	(i) website, email, toll-free telephone number and postal address for receiving complaints:	
	(ii) advertising the contact details for complaints prior to and during the works through on-site signage;	
	(iii) a complaints register to record the date, time and nature of the complaint, details of the complainant and any actions taken to address the complaint; and	
	(iv) procedures to resolve any disputes that may arise during the course of the External Road Works.	
D23	The Applicant must:	NA
	(a) not commence construction of the External Road Works until the Community Consultation Plan is approved by the Planning	
	(b) implement the approved Community Consultation Plan for the duration of the External Road Works.	
D24	The Applicant must provide details of the consultation undertaken in accordance with the Community Consultation Plan, to the Planning Secretary on a monthly basis including:	NA
	(a) the outcomes of consultation, matters resolved and unresolved, and (b) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.	
D25	Prior to the commencement of the External Road Works, the Applicant must prepare a Construction Environmental Management Plan (CEMP) for the External Road Works in accordance with the requirements of Condition C1 and to the satisfaction of the Planning Secretary. The CEMP must include the following: (a) be prepared in consultation with Council:	NA
	(b) a traffic management plan prepared in consultation with TfNSW and Council, detailing the measures to ensure road safety	
	and network efficiency during the External Road Works, a Driver Code of Conduct, a program to monitor the effectiveness of the measures and adherence to specified routes, and procedures for notifying residents and local schools of any disruptions to	
	routes;	
	(c) a noise and vibration management plan prepared in accordance with the Construction Noise and Vibration Guideline, TfNSW 2023 and Interim Construction Noise Guideline, DECC 2009, describing measures developed in consultation with	
	affected residents to manage high noise and vibration intensive works, and include an out of hours work protocol. Measures may	
	include notifications, respite periods, scheduling of noisy works, temporary barriers, quieter plant or alternative construction methods, verification monitoring and/or provision of alternative accommodation:	
	(d) an air quality management plan prepared in accordance with the Good Practice Guide for the Assessment and	
	Management of Air Pollution from Road Transport Projects, CASANZ 2023, detailing the location and duration of dust controls,	
	details of monitoring and triggers for implementation of additional dust controls if required; (e) an erosion and sediment control plan prepared in accordance with Managing Urban Stormwater: Soils and Construction	

CDECT



Ref	Condition	How addressed
	<ul> <li>Volume 1: Blue Book (Landcom, 2004) and detail the measures to ensure the construction phase water quality targets in the <i>Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets</i> (Technical Guidance) (NSW Government, 2022) are met;</li> <li>(f) mitigation measures recommended in the Biodiversity Development Assessment Report for the Mamre and Abbotts Road Intersection prepared by Fraser Ecological and dated 3 June 2024;</li> <li>(g) a cultural heritage management plan including an unexpected finds protocol, prepared in consultation with Registered Aboriginal Parties;</li> <li>(h) an unexpected finds procedure to manage any unexpected contamination encountered during the works, including details of testing and off-site disposal in accordance with the POEO Act and associated regulations; and</li> <li>(i) a contingency plan detailing measures to deal with unexpected issues arising during the works, such as excessive dust, noise, traffic, water quality impacts and unfavourable weather conditions.</li> </ul>	
D26	The Applicant must: (a) not commence construction of the External Road Works until the CEMP is approved by the Planning Secretary; and (b) carry out the construction of the External Road Works in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.	NA
D27	Within six months of the commencement of construction of the External Road Works, and every six months thereafter, until completion of the works, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the works. The audits must: (a) be prepared in accordance with the Independent Audit Post Approval Requirements (Department, 2020) (b) be led and conducted by a suitably qualified, experienced and independent expert, including a specialist traffic person, whose appointment has been endorsed by the Planning Secretary (c) assess the environmental performance of the External Road Works; (d) assesses whether the works are complying with the conditions of this consent; and (e) recommends measures or actions to improve the environmental performance of the works; and (f) be submitted to the satisfaction of the Planning Secretary within six weeks of commissioning the Audit (or within another timeframe agreed by the Planning Secretary).	NA
D28	In accordance with the specific requirements in the Independent Audit Post Approval Requirements (Department 2020), the Applicant must: (a) review and respond to each Independent Audit Report prepared under condition D24 of this consent; (b) submit the response to the Planning Secretary and any other NSW agency that requests it, together with a timetable for the implementation of the recommendations; (c) implement the recommendations to the satisfaction of the Planning Secretary; and (d) make each Independent Audit Report and response to it publicly available no later than 60 days after submission to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done.	NA



Ref	Condition	How addressed
D29	The External Road Works must be undertaken during the following hours: (a) 7 am to 6 pm Monday to Friday; (b) 8 am to 1 pm Saturday; and (c) at no time on Sundays or public holidays.	NA
D30	Works outside of the hours identified in condition D26 may be undertaken in the following circumstances: (a) works that are inaudible at the nearest sensitive receivers: (b) works agreed to in writing by the Planning Secretary; (c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or (d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.	NA
D31	Notwithstanding Conditions D26 and Condition D27, the following works may be undertaken out of hours, in accordance with the Out of Hours Works Protocol approved under Condition D22(c): (a) installation of drainage infrastructure; (b) asphalting; and (c) other works required to be completed at night for safety reasons, as detailed in an approved CTMP.	NA
D32	Prior to the commencement of the External Road Works, the Applicant must: (a) undertake building condition surveys for properties located within 25 metres of the works; and (b) prepare a dilapidation survey of the heritage post adjacent to Mamre Road.	NA
D33	The Applicant must repair, or pay the full costs associated with repairing property that is damaged by carrying out the External Road Works.	NA
D34	Vibration caused by external road works at any residence or structure outside the site must be limited to: (a) for structural damage, the latest version of <i>DIN 4150-3 (2016-12) Vibration in Buildings – Part 3: Effects on Structures</i> (German Institute for Standardisation, 2016); and (b) for human exposure, the acceptable vibration values set out in the <i>Environmental Noise Management Assessing Vibration: a</i> <i>technical guideline</i> (DEC, 2006) (as may be updated or replaced from time to time).	NA
D35	Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition D31.	NA
D36	The limits in Conditions D31 and D32 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved under Condition D22 of this consent.	NA



Appendix B Regulatory Framework



# **Regulatory Framework**

Legislation Key Project Requirements		Activity/Aspect
EnvironmentRequirements in relation to protection and management of nationally and internationally important flora, fauna, ecological communities, and heritage places.Conservation Act 1999 (Commonwealth)Requirements in relation to protection and management of nationally and internationally important flora, fauna, ecological communities, and heritage places.		Threatened species and ecological environments
Environment Planning and Assessment Act 1979	Established a system of environmental planning and assessment of proposed developments in NSW.	All
	The Warehouse must comply with the relevant CoC of the Development Consent.	
Biodiversity Conservation Act 2016	Comply with conservation requirements for any identified threatened species.	Threatened species and ecological environments
Protection of the Environment Operations Act 1997	The handling, storage and disposal of all waste streams on site is to be implemented in accordance with the POEO Act. Waste management	
	Aims to aid the protection, restoration and enhancement of the quality of the NSW environment, including emissions to air.	
	Identifies activities for which an Environment Protection Licence is required.	
Protection of the Environment Operations (Noise Control) Regulation 2017	Comply with the requirements of the POEO (Noise Control) Regulation to mitigate the impacts of noise and vibration on sensitive receivers and the environment.	Management and mitigation of noise and vibration produced during operation
Protection of the Environment Operations (Clean Air) Regulation 2021	Identifies criteria for air quality objectives and emissions.	Management of any dust and air pollution emissions produced by operation to promote air quality
Protection of the	Handling, storage, transport and disposal of all	Waste management
Environment Operations (Waste) Regulation 2014	waste streams to be undertaken with consideration for the requirements within the POEO (Waste) Regulation.	Discharge or emissions to air, land, water in accordance with thresholds set by the
	Aims to protect human health and the environment. Identifies the thresholds for Environment Protection Licences.	regulation



Legislation	Key Project Requirements	Activity/Aspect	
Waste Avoidance and Resource Recovery	Aims to promote waste avoidance and resource recovery by:	Waste management	
ACI 2001	<ul> <li>Encouraging efficient use of resources</li> </ul>		
	<ul> <li>Encouraging the avoidance of waste and the reuse and recycling of waste</li> </ul>		
	<ul> <li>Ensuring industry and the community share responsibility in reducing/dealing with waste</li> </ul>		
	<ul> <li>Efficiently funding waste/resource management planning, programs and service delivery.</li> </ul>		
Contaminated Land Management Act 1997	Remediation requirements for management of contaminated lands.	May be applicable in the event of any unexpected find of contaminants/ contamination	
State Environmental Planning Policy (Resilience and Hazards) 2021	Remediation of contaminated lands and consent requirements.	May be applicable in the event of any unexpected find of contaminants/ contamination	
Heritage Act 1977	Protection and recording of Indigenous and non-	May be applicable in the	
National Parks and Wildlife Act 1974	Indigenous heritage values, relics, artefacts, places and other finds/remains.	event of any unexpected find of Aboriginal heritage items	
Managing Urban Stormwater: Soils and Construction – Volume 1 (the "Blue Book") (Landcom, March 2004)	Soil and erosion controls for managing surface water flows onsite and reducing potential for erosion and sedimentation leaving site.	Management of surface water flows onsite	
Technical guidance for achieving Wianamatta- South Creek stormwater management targets (Department of Planning and Environment, September 2022)	In accordance with Water Sensitive Urban Design principles set out in the Technical Guidance.	Specific direction on what modelling to undertake, assumptions to make and which data to use to demonstrate that the stormwater management targets are being achieved	
Mamre Road	Performance of stormwater management	Water cycle management	
Stormwater Scheme Plan (Sydney Water, December 2022)	system in accordance with Integrated Water Cycle Management Controls.	Irrigated street trees	
Stormwater Scheme Infrastructure Design Guideline (Sydney Water, December 2022)	Irrigated street trees.	Design of irrigated street trees	



Appendix C Permits and Licences



### **Permits and Licences**

Permit/Licence	Requirement	Commencement Date	Expiry Date	Responsibility
Biodiversity				
Biosecurity Act 2015 (Noxious Weeds Act 1993 repealed)As an owner/occupier of land, given a weed control notice by a local control authority, or a successor in title to the owner or occupier who has notice of the notice, must not fail to comply with the notice (refer to Division 5, Clause 26).		If required	N/A	Noxious weeds to be controlled as specified under the control category.
Pesticides Act 1999	Any possession of pesticides on the site must be authorised through a permit in accordance with Section 12 of this Act.	If required	lf required	Engage suitably qualified pest controller for the site
	Any application of pesticides in association with the site must be undertaken by a person who is licenced to carry out that type of work in accordance with Part 6 (Section 45) of this Act.			as required.
Contamination				
Contaminated Land Management Act 1997In accordance with Section 60, the EPA must be notified if:• Contaminants exceed thresholds contained in the guidelines or regulations, where contamination has entered or will foreseeably enter neighbouring land, the atmosphere, groundwater or surface water• Contaminants in soil are equal to or exceed guideline levels with respect to the current or approved use of the land• Contamination meets other criteria that may be prescribed by the regulations.		If required	N/A	Notification of the EPA will be undertaken, if required.
Protection of the Environment Operations Act 1997	Notify the EPA immediately of pollution incidents where material harm to the environment is caused or threatened, in accordance with Section 148.	If required	N/A	Notification of the EPA will be undertaken, if required.



Permit/Licence	Requirement	Commencement Date	Expiry Date	Responsibility		
Hazardous Substances	Hazardous Substances					
Dangerous Goods (Road and Rail) Transport Act 2008	In accordance with Section 6, sub-contractors will work under this section for the licensing of vehicles transporting dangerous goods. Copies of permits to be obtained upon engagement of sub-contractors and this register will be updated accordingly.	If required	If required	Ensure an appropriate licence is held and is in place where any transportation of dangerous goods is intended.		
Dangerous Goods (Road and Rail) Transport Act 2008	In accordance with Section 7, sub-contractors will work under this section for the licensing of drivers transporting dangerous goods. Copies of permits to be obtained upon engagement of sub-contractors and this register will be updated accordingly.	If required	If required	Licence requirements will be obtained and briefed to all relevant operational personnel prior to operation.		
Traffic and Transport						
Roads Act 1993	Road occupancy consent/licences under Section 138 of the <i>Roads Act 1993</i> are required for any works that disturb the surface of a public road, require works to be carried out in, on or over a public road, or interfere with a structure, work or tree on a public road.	If required	N/A	Ensure all relevant licences and approvals are sought prior to undertaking works within a public road.		
Heritage						
Heritage Act 1977	Notify Office of Environment and Heritage (OEH) (Heritage Division) on discovery of a relic, in accordance with Section 14A.	If required	N/A	Notify OEH (Heritage Division) on discovery of a relic.		
Bushfire						
Rural Fires Act 1997	If hot works are deemed unavoidable, then relevant hot works permits will be obtained by the Contractor under this Act, in accordance with Section 89.	If required	To be confirmed	Permit requirements will be obtained and briefed to all relevant operational personnel prior to and during operation.		



Permit/Licence	Requirement	Commencement Date	Expiry Date	Responsibility
Waste				
Protection of the Environment Operations Act 1997	Waste is to be transported to a facility that can lawfully accept the waste, in accordance with Section 143.	For waste disposal, as required	As required	A s143 Agreement Notice and proof of waste classification must be provided prior to the acceptance of material at the Facility.



Appendix D Contingency Plan



# **Contingency Plan**

Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Air Quality				
Dust or Odour Complaints	Trigger	No complaints received during operation.	An air-quality related complaint is received from a nearby resident.	Further complaints are received after the additional mitigation measures have been implemented.
	Response	Continue implementing OEMP.	Record all air quality related complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record measures taken. Make Contact Register available to relevant authorities (Council, EPA, DPHI).	Conduct real time air quality monitoring at the complaint location including meteorology if required. This monitoring should be conducted in consultation with a suitably qualified air quality professional.
			Review and investigate operational activities and improve management measures, where appropriate.	
Biodiversity				
Biodiversity Management	Trigger	No impacts to biodiversity identified.	Minor biodiversity impacts identified on-site.	Significant biodiversity impacts identified.
	Response	No response required.	Review effectiveness of management measures.	Stop operations causing biodiversity impact.
			Implement additional measures to manage impacts.	As for Condition Amber.
Wildlife Management	Trigger	Minimal occurrence of common strike species at the site.	Common strike species occur regularly at the site.	Common strike species occurring at the site in large numbers.
	Response	No response required.	Review effectiveness of management measures.	As for Condition Amber.
			Consider implementing additional measures to manage species as listed in OWiMP.	



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red	
Bushfire					
Bushfire	Trigger	No or 'Watch' bushfire warning covering the Development.	'Watch and Act' bushfire warning covering the Development.	'Emergency' bushfire warning covering the Development.	
	Response	Check fire warnings to stay updated.	Take action to protect workers and equipment.	Evacuate the site as directed by Fire+Rescue NSW.	
Community					
Submission	Trigger	General feedback/comment (no complaint or query).	Enquiry made by formal or informal channels.	Complaint made by formal or informal channels.	
	Response	Implement CSCS.	Implement CSCS.	Implement CSCS.	
Disruption to the community due	Trigger	No impacts on residents from operational noise and traffic	Minor impacts on residents from operational	Major impact on residents from operational noise and traffic aspects.	
to operational activities		aspects		Various complains are lodged.	
	Response	Implement CSCS	Implements CSCS	Implement CSCS and enter into noise agreement(s) with eligible receivers.	
Noise and vibrati	on				
Noise Impacts at Sensitive Receiver	Trigger	Noise levels do not exceed operational noise limits	Noise levels exceed applicable operational noise limits identified in CoC B52.	Noise levels exceed operational noise limit at a greater threshold that those identified in CoC B52.	
				Operational noise complaints are received from sensitive receivers.	



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	Continue implementing existing measures in accordance with the OEMP.	Implement every practical and logical mitigation and management strategy to keep operational noise within limits identified in CoC B52.	Implement every practical and logical mitigation and management strategy to reduced operational noise levels by making sure:
				<ul> <li>all fixed external mechanical plant for the warehouse building on Lot 1 does not exceed a cumulative sound power level of LAeq(15min) 90 dB(A);</li> </ul>
				<ul> <li>all fixed external mechanical plant for the warehouse building on Lot 4 does not exceed a cumulative sound power level of LAeq(15min) 86 dB(A); and</li> </ul>
				<ul> <li>any activity on the site does not exceed a sound power level of LAMax 115 dB(A) or result in annoying noise characteristics as determined in accordance with the Noise Policy for Industry (EPA, 2017) and Australian Standard AS 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018).</li> </ul>
				<ul> <li>If operational noise limits cannot be achieved ESR to offer to enter into noise agreement(s) with eligible receivers outside of the Mamre Road Precinct.</li> </ul>



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Traffic and parkin	ıg			
Operational Movements – Risks to Persons and/or Property	Trigger	Visual monitoring of all traffic movements within the Development does not detect unsafe movement of traffic and risk to persons and/or property.	NA	Monitoring of all traffic movements within the Development detects unsafe movement of traffic and risk to persons and/or property.
	Response	Visual monitoring to continue daily as part of an ongoing procedures.	NA	Review needed to address persistent unsafe movements.
				Modification of traffic controls to self- enforce appropriate vehicle manoeuvres within the Development.
Operational Movements – Adverse Weather	Trigger	Following periods of adverse weather conditions (e.g. a significant heavy rain event), internal roads/aisles have been inspected prior to vehicle traffic use and no issues found.	NA	Internal roads/aisles have been inspected following adverse weather conditions and minor issues found (small potholes, dirt/debris, or pooling water).
	Response	No further action required until next adverse weather event.	NA	Any impediments to access roads will be cleared.
				Maintenance teams to repair any potholes for internal roads and remove excess water when expected traffic volumes are lowest.
	Trigger	Parking occupancy less than provided on-site capacity.	Parking bay requirements are within 90% of the provided spaces.	NA



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Operational Movements – Parking	Response	Continue monitoring program.	Review and investigate parking rates and where appropriate, implement additional remediation measures such as:	NA
			<ul> <li>Undertake additional parking reviews to determine cause of higher limit parking space issues in more detail</li> </ul>	
			<ul> <li>Review OTMP and update where necessary</li> </ul>	
			<ul> <li>Provide additional training to tenants to provide information on lowering parking demands.</li> </ul>	
Operational Movements –	Tigger	No unsafe pedestrian movements identified.	NA	Pedestrian behaviour identified to be risky and unsafe.
recestilaris	Response	Continue monitoring program.	NA	Review needed to address persistent unsafe movements.
				Modification of traffic controls to self- enforce appropriate vehicle manoeuvres within the Development.
	Trigger	Service bays are not restricted and being used as intended.	NA	Vehicles other than service vehicles are stopped within the service area



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red	
Operational Movements – Service Bays	Response	Continue monitoring program.	NA	Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:	
				<ul> <li>Drivers be provided with additional training and an extra copy of the Driver Code of Conduct</li> </ul>	
				<ul> <li>Provision of additional training to the tenants should be provided to ensure the most appropriate schedule can be created.</li> </ul>	
Cumulative Operational Movements	Trigger	Both road network peak hour and daily Cumulative Operational Traffic Volumes are in accordance with forecast traffic volumes, as outlined within Ason TMAP:	Cumulative Operational Traffic Volumes exceed the forecast traffic volumes, as outlined within Ason TMAP, for the external road network peak hours BUT are within permissible daily volumes as outlined within the Ason TMAP:	Cumulative Operational Traffic Volumes exceed the forecast traffic volumes for the external road network peak hours AND the forecast daily volumes as outlined within Ason TMAP; AND	
		<ul> <li>Daily: 1,678 light vehicle (LV) and 618 heavy vehicle (HV) Movements per day</li> </ul>	<ul> <li>Daily: 1,678 LV and 618 HV HV Movements per day</li> <li>Peak Hour: 138 LV and 51 HV Movements in Peak Periods.</li> </ul>	drops below the acceptable level (Level of Service E) as a direct result of the Development:	
		<ul> <li>Peak Hour: 138 LV and 51 HV Movements in Peak Periods.</li> </ul>		<ul> <li>Daily: 1,678 LV and 618 HV HV Movements per day</li> <li>Peak Hour: 138 LV and 51 HV Movements in Peak Periods.</li> </ul>	



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	No response required. Continue implementing OTMP.	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Implementing a specific delivery schedule to reduce operational traffic volumes during the peak hours.</li> <li>Review shift patterns to reduce operational traffic volumes during the peak hours.</li> </ul>	<ul> <li>As with Condition Amber, plus;</li> <li>Investigate alternative arrangements to increase capacity at the key Mamre Road/Abbotts Road intersection (i.e. modify signal phasing or investigate physical measures such as increase in turning lanes).</li> </ul>
Development Operational Movements	Trigger	<ul> <li>Both the road network peak hour and daily Warehouse 1 Operational Traffic Volumes are in accordance with traffic volumes, as outlined within the Ason TMAP:</li> <li>Daily: 1,303 LV and 480 HV Movements per day</li> <li>Peak Hour: 107 LV and 40 HV Movements in Peak Periods.</li> </ul>	<ul> <li>Warehouse 1 Operational Traffic Volumes exceed the forecast traffic volumes BUT are within forecast daily volume constraints as outlined within the Ason TMAP:</li> <li>1,303 LV and 480 HV Movements per day.</li> </ul>	<ul> <li>Warehouse 1 Operational Traffic Volumes exceed forecast volumes:</li> <li>1,303 LV and 480 HV Movements per day;</li> <li>AND:</li> <li>The performance of key intersections drops below the acceptable level (Level of Service E) as a direct result of the Estate.</li> </ul>



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	No response required. Continue implementing OTMP.	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Implementing a specific delivery schedule to reduce operational traffic volumes during the peak hours</li> <li>Review shift patterns to reduce operational traffic volumes during the peak hours</li> <li>Review the need for the introduction of a deceleration lane in accordance with Part 6 of Austroads Standards Guide to Traffic Management.</li> </ul>	<ul> <li>As with Condition Amber, plus;</li> <li>Investigate alternative arrangements to increase capacity at the key Mamre Road/Abbotts Road intersection (i.e. modify signal phasing or investigate physical measures such as increase in turning lanes).</li> </ul>
Traffic queuing	Trigger	No queuing identified.	Queuing identified within the Development, but not on public roads.	Queuing identified on public roads.
	Response	No response required. Continue implementing OTMP.	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Implementing a specific delivery schedule to avoid queuing on the road network.</li> </ul>	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Implementing a specific delivery schedule to avoid queuing on the road network.</li> </ul>
Road works and closures	Trigger	Changes to local traffic conditions.	Disturbances to road users resulting in community complaints.	Increasing local traffic. Safety risks to road users. Disturbances to users from operational traffic and numerous complaints received from community.



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	Implement measures in the	Implement measures in the OTMP.	Implement measures from the OTMP.
		OTMP.	Implement CSCS and provide notification to community on procedures.	Review WOEMP and update where necessary, provide additional training.
			Provide detour signage.	If it is concluded that operations activities were directly responsible for the exceedance, submit an incident report to government agencies.
Unexpected finds	5			
Unexpected Contamination Find	Trigger	No contamination uncovered during operations.	Areas of possible contamination uncovered during operations.	Areas of potentially hazardous substance identified during operations.
	Response	Continue to implement existing measures in accordance with OEMP.	Stop work in the area and initiate investigations and clean up.	Stop work in the area and initiate investigations and clean up.
Unexpected Heritage Find	Trigger	No Aboriginal or historical artefacts found during operations.	Unanticipated archaeological items uncovered during operations.	Potential human remains discovered during operations.
	Response	Continue to implement existing measures in accordance with OEMP.	Stop work in the area and initiate investigations.	Stop work in the area and contact Police.
Waste manageme	ent			
Waste	Trigger	Monitoring identifies no waste from operations outside of dedicated waste storage areas.	Monitoring identifies minimal waste from operations outside of dedicated waste storage areas.	Monitoring identifies large quantities of waste from operations outside of dedicated waste storage areas.
				Complaints received regarding waste management.



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	Continue to implement existing measures in accordance with OWaMP and WWMPs.	Clean up the waste immediately and dispose according to OWaMP and WWMP requirements.	Clean up the waste immediately and dispose according to OWaMP and WWMP requirements.
			Toolbox talk with all workers to discuss waste management requirements.	Toolbox talk with all workers to discuss waste management requirements.
Water quality and	flooding			
Water Management Structures	Trigger	Water management structures are managed in accordance with the MRP DCP.	Water management structures are in minor non-compliance with the SMP and MRP DCP.	Failure of the water management structures (discharging outside of site of boundary and/or water quality does not meet required criteria).
	Response	Continue to implement existing measures in accordance with SMP.	A suitably trained person to inspect the site and review adequacy of water management structures.	A suitably trained person to inspect the site.
				Remediate as soon as practical.
			Remediate as appropriate.	Review of engineering design and SMP.
Flooding	Trigger	No evidence of flood hazard, flood levels or risk to property.	Slight increase in flood hazard, flood levels and risk to properties.	Significant increase in flood hazard, flood levels and risk to properties.
	Response	Continue implementing SMP.	Monitor weather conditions and stay up to date.	Revaluate the flood levels, velocities and hazard assessment under SMP.
			Continue implementing SMP.	Review of engineering design and SMP.
Sediment laden	Trigger	No evidence of sediment laden runoff from operational activities.	Minor evidence of sediment runoff from	Degradation of local watercourses.
runoff from operation and construction			operational activities contained within the operational footprint.	Damage to off site flora and fauna habitat and aquatic ecology.
works				Not compliant with discharge criteria.
(vegetation clearing, removal				Community impacts.



Key Elements	Trigger/ Response	Condition Green	Condition Amber	Condition Red
of soil, placement of fill) leaving site.	Response	Continue implementing SMP.	Continue implementing management measures in the SMP.	Review of engineering design and SMP. If it is concluded that operations activities were directly responsible for the exceedance, submit an incident report to government agencies.



Appendix E Operational Traffic Monitoring Plan



# **Framework Operational Traffic Monitoring Program**

Westlink Stage 1

Mamre Road Precinct 15/03/2024 P1323Br01



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# Glossary

Acronym	Description
AGRD	Austroads Guide to Road Design
AGTM	Austroads Guide to Traffic Management
The Estate	Stage 1 Westlink Industrial Estate
Council	Penrith City Council
DCP	Development Control Plan
DPE	Department of Planning and Environment
GFA	Gross Floor Area
MRV	Medium Rigid Vehicle (as defined by AS2890.2:2018)
MRP	Mamre Road Precinct
OTMP	Operational Traffic Monitoring Program
RTA Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
SSD	State Significant Development
TfNSW	Transport for New South Wales
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)

# Reference

Abbreviation	Document
Ason TMAP	Stage 1 Westlink, Mamre Road Precinct –State Significant Development Application (SSD-9138102) Transport management and Accessibility Plan prepared by Ason Group, dated 19 October 2022



# **1** Introduction

## 1.1 Background

Ason Group has been engaged by ESR to prepare the framework for the Operational Traffic Monitoring Program (OTMP) required for Westlink Industrial Estate Stage 1 (the Estate), which is located within the Mamre Road Precinct (MRP).

Westlink Stage 1 is currently subject to a Stage 1 Masterplan which was approved by the Department of Planning and Environment (DPE) on 21 April 2023 (reference: SSD- 9138102). This framework for the future OTMP has been established pursuant to the Conditions of Consent accompanying SSD-9138102 for the operational development.

The intent of this document is to set the framework for the OTMP, which is proposed to keep an accurate record of the vehicle arrivals / departures against approved volumes for Stage 1, as well as monitoring road network performance.

It is noted that Warehouse 1 (the Site) of Stage 1 is currently under construction and will be the first development operational within the Westlink Industrial Estate, with completion due by late 2024. Therefore, while Warehouse 1 will be the first warehouse to be subject to a monitoring process, the Conditions of Consent will require monitoring to be undertaken for each stage of the Estate. The stage-specific monitoring will need to be developed at the appropriate time to reflect the cumulative operational activities on the Site. However, for the purposes of this framework, the intent of the monitoring will remain the same.

### 1.2 Authority Requirements

The Conditions of Consent relevant to the OTMP are reproduced in **Table 1**.

TABLE 1: SSD-9138102 REQUIREMENTS				
Condition No.	Requirement	Document Reference		
В3	At the commencement of operation of the development and for a minimum period of 12 months of operation, the Applicant must establish an Operational Traffic Monitoring Program to verify light and heavy vehicle traffic numbers against the predictions in the ADR. The Program must also monitor the effectiveness of the traffic management measures to the satisfaction of the Planning Secretary and include but not be limited to the following:	-		
(a)	detail the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation	Section 3.2, 3.3 and, 3.4.		
(b)	queue monitoring at the Mamre Road/Abbotts Road intersection and background travel counts on Mamre Road and Abbotts Road;	Section 3.2, 3.3 and, 3.4.		
(c)	verify the predicted traffic numbers and level of service against the actual impacts of the development, and analyse the potential cause of any significant discrepancies;	Section 3.2, 3.3 and, 3.4.		
(d)	consider the current capacity and efficiency of the existing road network including Mamre Road and Aldington Road; and	Section 3.2, 3.3 and, 3.4.		
(e)	include procedures for the reporting and monitoring of results to evaluate the traffic performance of the development.	Section 3.2, 3.3 and, 3.4.		

## P1323Br01v1 Framework OTMP\_ Westlink Stage 1, Kemps Creek.docx



# **2 Project Details**

# 2.1 Site Context

The Site is located within the Westlink Industrial Estate on 59-63 Abbotts Road, Kemps Creek and is legally known as 11/-/DP253503 and12/-/DP253503.

The Estate is located approximately 4 km north-west of the future Western Sydney International (Nancy-Bird Walton) Airport (WSA), 13 km south-east of the Penrith CBD and 40 km west of the Sydney CBD.

The Site has direct frontage to Abbotts Road. The location of the Site is presented below in Figure 1.



Figure 1: Site Location

## 2.2 Heavy Vehicle Access Routes

The existing heavy vehicle access routes are by way of Mamre Road via Abbotts Road and not Bakers Lane, to avoid conflict with the School peak periods. The current heavy vehicle routes are therefore as per the below. The existing Mamre Road / Abbotts Road intersection is subject to LILO traffic movement restrictions during construction; the current heavy vehicle routes are therefore as per the below.





Figure 2: Existing Heavy Vehicle Site Access

It is noted the Mamre Road / Abbotts Road intersection is to be upgraded to a signalised intersection. Once, upgraded, the expected key heavy vehicle routes are shown by **Figure 3**.





Figure 3: Operational Heavy Vehicle Access

# 2.3 Approved development

#### 2.3.1 Stage 1 Masterplan

In relation to Warehouse 1 which forms the basis for operation monitoring, the relevant approval history is as follows.



- Stage 1 Masterplan inclusive of 2 warehouse developments, detention basin and internal roads, including connection Abbotts Road;
- Construction of 2 industrial warehouse buildings comprising:
  - A total warehouse Gross Floor Area (GFA) of 78,906 m<sup>2</sup> (including battery charging chamber GFA of 850m<sup>2</sup>)
  - A total ancillary and dock office GFA of 2,736m<sup>2</sup>
  - Provision of 381 parking spaces
  - Associated site landscaping
  - 1 x detention basin

#### 2.3.2 Stage 1 Development

Warehouse 1, which is the subject of operational monitoring is approved for the following:

- Warehouse development comprising:
  - A total warehouse Gross Floor Area (GFA) of 61,271m<sup>2</sup>
  - A total ancillary and dock office GFA of 1,736m<sup>2</sup>
  - Provision of 300 parking spaces
  - Associated site landscaping

The Stage 1 development presented is in Figure 4.





Figure 4: SSD-9138102 Architectural Masterplan

The Warehouse 1 development is presented in Figure 5.




Figure 5: Warehouse 1 Architectural Plan

The traffic generation associated with the Estate is provided below based on the trip rates adopted for assessment (as per the Ason TMAP).

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Stage	Approved GFA (m <sup>2</sup> )	Period	Approved Trip Rates	Trip Generation
		AM Peak	0.23	181
Stage 1 Masterplan	78,906 <sup>Note 1</sup>	PM Peak	0.24	189
		Daily	2.91	2,296
		AM Peak	0.23	141
Warehouse 1	61,271 Note 1	PM Peak	0.24	147
		Daily	2.91	1,783

Note 1: Approved maximum GFA per SSD-9138102 Consolidated Consent



#### 2.3.3 Warehouse 1 Operation

Warehouse 1 will be occupied by Toll Group and will be subject to the following operations:

- Operation as warehouse and distribution centre 24 hours a day, 7 days a week;
- Access by way of 3 driveways (as per Figure 6), including:
  - 1 x light vehicle access on Access Road 01;
  - 1 x heavy vehicle driveways entry on Access Road 01; and
  - 1 x heavy vehicle driveways exit on Access Road 01.



Figure 6: Operational Heavy Vehicle Movement Plan



# **3 Monitoring Framework**

# 3.1 Scope

The OTMP will monitor the operational traffic generation of the development, provide a comparison of the actual and predicted development traffic generation and, determine the impact of the operational development trips.

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

- identify any trends in the monitoring data over the duration of the monitoring program;
- identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies;
- identify any discrepancies between the predicted and actual performance of the Mamre Road / Abbotts Road intersection; and
- identify any discrepancies between the predicted and actual performance along Mamre Road and Aldington Road; and
- describe what measures will be implemented over the next year to improve the environmental performance of the development, if required.

# 3.2 Period of Reporting

It is envisaged that operational traffic monitoring program is required for a minimum period of 12 months of operation per Condition B3 of approved consent accompanying SSD- 9138102. The final OTMP reporting is be prepared at the end of the 12-month period and provide recommendations for changes, as required.

As per the below, data collection will be undertaken every 2 months. Beyond the OTMP report, a summary of the total traffic generation of the Estate will be presented using a suitable database platform (such as Tableau) to present a live snapshot of the ongoing traffic generation the Site and wider Estate (see **Figure 7**).





Figure 7: Sample of Operational Truck Generation Survey Result

# 3.3 Data Collection

The following operational development and background traffic data is proposed to be monitored on a bimonthly basis, for a total duration of 12 months from commencement of Warehouse 1 operation:

- 7-day, 24-hour tube count at all light and heavy vehicle site accesses, surveyed traffic counts are to be separated per Austroads Vehicle Classification;
- 24-hour camera survey of all light and heavy vehicle site accesses to establish routes to and from the site, surveyed traffic counts are to be separated per Austroads Vehicle Classification;
- Peak hour traffic and pedestrian count survey of the Mamre Road and Abbotts Road intersection, identifying vehicle routes. It is proposed to survey between the hours 06:00am-10:00am and: 03:00pm-07:00pm; and
- 7-day, 24-hour tube count at Mamre Road and Aldington Road within vicinity of Estate Access.
- Intersection surveys are to be undertaken on a typical weekday (not within two weeks before or after school holidays).

The location of the proposed data collection points are provided in the figure below.







Figure 8: Proposed Operational Traffic Data Survey Location

# 3.4 Data Analysis

Data collection in accordance with this framework and carrying out surveys using methodology specified above enables a comparative assessment of traffic accessing the site and growth in operational activities for the Estate. Within the report, the data should be presented to provide a comparison between the current sixmonth period and preceding period.

Upon receipt of the above surveyed operational traffic data, data analysis will be conducted to determine the following:

- Traffic volumes for the AM and PM peak periods of the operational development.
- The road network peak periods for the AM and PM and the relevant traffic volumes.
- A comparison of the surveyed peak period volumes against the projected operational traffic volumes outlined in the Ason TMAP.
- Analysis of the change in traffic volumes on Mamre Road and Aldington Road.
- SIDRA intersection analysis of the Mamre Road / Abbotts Road intersection to establish the impact of the Estate on performance of the intersection.



In the instances where the following is met, ESR (in the capacity of the Estate landowner) shall follow the mitigation methods as outlined in the Contingency Plan in **Section 3.5**:

- 1. The traffic generation of the Estate (i.e. Warehouse 1) is higher than predicted than (Table 2); AND
- 2. The SIDRA analysis indicates that the Estate traffic flows result in an unacceptable level of performance as stipulated by TfNSW guidance provided within the RTA Guide.

# 3.5 Contingency Plan

A contingency plan has been developed to mitigate the impact of operational traffic in the event where excessive development traffic have been identified accessing the Site. **Table 3** outlines a plan to be undertaken by the applicant in the event that the monitoring program identifies the requirement in managing the operational traffic impacts.

TABLE 3: CONTINGENCY PLAN				
Risk		Condition Green	Condition Amber	Condition Red
Cumulative Operational Movements	Trigger	<ul> <li>Both road network peak hour and daily Cumulative Operational Traffic Volumes are in accordance with forecast traffic volumes, as outlined within Ason TMAP:</li> <li>Daily: 1,678 LV &amp; 618 HV HV Movements per day;</li> <li>Peak Hour: 138 LV &amp; 51 HV Movements in Peak Periods</li> </ul>	Cumulative Operational Traffic Volumes exceed the forecast traffic volumes, as outlined within Ason TMAP, for the external road network peak hours BUT are within permissible daily volumes as outlined within the Ason TMAP: • Daily: 1,678 LV & 618 HV HV Movements per day; • Peak Hour: 138 LV & 51 HV Movements in Peak Periods	Cumulative Operational Traffic Volumes exceed the forecast traffic volumes for the external road network peak hours AND the forecast daily volumes as outlined within Ason TMAP; AND The performance of key intersections drops below the acceptable level (LOS E) as a direct result of the Estate. • Daily: 1,678 LV & 618 HV HV Movements per day; • Peak Hour: 138 LV & 51 HV Movements in Peak Periods
	Response	No response required	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Implementing a specific delivery schedule to reduce operational traffic volumes during the peak hours.</li> <li>Review shift patterns to reduce</li> </ul>	<ul> <li>As with Condition Amber, plus;</li> <li>Investigate alternative arrangements to increase capacity at the key Mamre Road / Abbotts Road intersection (i.e., modify signal phasing or investigate physical measures such as</li> </ul>



			operational traffic volumes during the peak hours.	increase in turning lanes.
Development Operational Movements	Trigger	<ul> <li>Both the road network peak hour and daily</li> <li>Warehouse 1</li> <li>Operational Traffic</li> <li>Volumes are in accordance with traffic volumes, as outlined</li> <li>within the Ason TMAP.</li> <li>Daily: 1,303 LV &amp; 480 HV Movements per day; Peak Hour: 107 LV &amp; 40 HV Movements in Peak Periods;</li> </ul>	<ul> <li>Warehouse 1</li> <li>Operational Traffic</li> <li>Volumes exceed the forecast traffic volumes</li> <li>BUT are within forecast daily volume constraints as outlined within the Ason TMAP.</li> <li>1,303 LV &amp; 480 HV Movements per day;</li> </ul>	<ul> <li>Warehouse 1</li> <li>Operational Traffic</li> <li>Volumes exceed</li> <li>forecast volumes.</li> <li>(1,303 LV &amp; 480 HV Movements per day;</li> <li>AND:</li> <li>The performance of key intersections drops</li> <li>below the acceptable</li> <li>level (LOS E) as a direct</li> <li>result of the Estate.</li> </ul>
	Response	No response required	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Implementing a specific delivery schedule to reduce operational traffic volumes during the peak hours.</li> <li>Review shift patterns to reduce operational traffic volumes during the peak hours.</li> <li>Review shift patterns to reduce operational traffic volumes during the peak hours.</li> <li>Review the need for the introduction of a deceleration lane in accordance with Part 6 of Austroads Standards Guide to Traffic Management.</li> </ul>	As with Condition Amber, plus; Investigate alternative arrangements to increase capacity at the key Mamre Road / Abbotts Road intersection (i.e., modify signal phasing or investigate physical measures such as increase in turning lanes.
Queuing	Trigger	No queuing identified	Queuing identified within site, but not on to public road	Queuing identified on the public road.
	Response	No response required Continue monitoring program	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Implementing a specific delivery schedule to avoid queuing on the road network</li> </ul>	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Implementing a specific delivery schedule to avoid queuing on the road network</li> </ul>





Appendix F Workplace Travel Pan







# **Workplace Travel Plan**

Westlink Stage 1

290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek

SSD-9138102

# **DOCUMENT TRACKING**

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Source of cover image: ESR – Westlink Stage 1 – SSD 9138102 – Visual Impact Assessment Report (Geoscapes, 12 April 2022)



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# Appendices

- Appendix A Evidence of Consultation
- Appendix B Template Travel Access Guide (TAG)
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Glossary	
CoC	Condition of Consent
DP	Deposited Plan
EoT	End of trip
MRP DCP	Mamre Road Precinct Development Control Plan
OEMP	Operational Environmental Management Plan
SSD	State significant development
TAG	Transport Access Guide
TfNSW	Transport for New South Wales
The Development	Stage 1 of the Westlink industrial estate (formerly known as the Kemps Creek Logistics Park)
TDM team	Transport for NSW Travel Demand Management team
TMAP	Transport Management and Accessibility Plan
WTP	Workplace Travel Plan



# **1. INTRODUCTION**

# 1.1.Background

This Workplace Travel Plan (WTP) has been prepared by Aspect Environmental Pty Ltd (Aspect), on behalf of ESR Australia Pty Ltd (ESR), for the purposes of Stage 1 of an industrial estate known as Westlink (formerly known as the Kemps Creek Logistics Park) (the Development).

This WTP is a sub-plan of the Operational Environmental Management Plan (OEMP) and has been prepared with reference to:

- State significant development (SSD) 9138102 Development Consent (the Development Consent) and the included conditions of consent (CoC) (21 April 2023)
- Transport Management and Accessibility Plan Stage 1 Westlink, Mamre Road Precinct (Ason Group, 31 August 2022)
- Westlink Stage 1 Amendment Report (Ethos Urban, 15 September 2022)
- Environmental Impact Statement (Ethos Urban, 17 June 2021)
- SSD 9138102 Planning Secretary's Environmental Assessment Requirements (December 2020).

The Development site is approximately 319,800m<sup>2</sup> in area and is irregular in shape (refer Figure 1-1). The Development comprises the first stage of an industrial estate located within the Penrith City Local Government Area (LGA) at the location of:

- Lot 13 DP 253503- 290-308 Aldington Road, Kemps Creek 2178
- Lot 12 DP 253503- 59-62 Abbotts Road, Kemps Creek 2178
- Lot 11 DP 253503- 63 Abbotts Road, Kemps Creek 2178
- Lot 3 DP 250002- 1030-1048 Mamre Road, Kemps Creek 2178 and
- Lot 4 DP 250002- 1050-1064 Mamre Road, Kemps Creek 2178.





Figure 1-1: Development context (Environmental Impact Statement, Ethos Urban, June 2021)

The Development is being undertaken in accordance with the Development Consent and includes the construction and operation of a new industrial estate, comprising two industrial warehouses and ancillary office space with a total gross floor area of 81,317m<sup>2</sup> (see Figure 1-2).

The landscaping, internal roads, external road upgrades including to Aldington and Abbotts Road, a new signalised intersection at Mamre and Abbotts Road and site servicing and stormwater infrastructure works are also included in the Development.





Figure 1-2: Stage 1 Development Layout (Development Consent, April 2023)



# 1.2. Purpose of this WTP

This WTP has been prepared to address CoC B18 and B19 of the Development Consent (see Table 1-1) which require the preparation of a WTP and submission to the Planning Secretary prior to the commencement of operation.

Table 1-1: Development Consent compliance

CoC	Requirement	WTP Section
B18	Prior to the commencement of operation of any part of the development, the Applicant must prepare a Workplace Travel Plan and submit a copy to the Planning Secretary. The Workplace Travel Plan must:	This WTP
B18(a)	Be prepared in consultation with TfNSW;	This WTP
B18(b)	Outline facilities and measures to promote public transport usage, such as car share schemes and employee incentives; and	Section 2.3 Appendix B
B18(c)	Describe pedestrian and bicycle linkages and end of trip facilities available on-site.	Sections 2.2.2 and 2.2.3
B19	The applicant must implement the most recent version of the Workplace Travel Plan for the duration of the development.	This WTP

This WTP provides measures intended to inform and encourage the use of sustainable transport options for travel to and from the Development, and make recommendations for the use of active transport modes such as walking and cycling, as well as public transport options that service the area.

It is noted that the use of active and public transport options is largely determined by the location of residence of staff and proximity and accessibility to an efficient and connective public transport network.

The most recent approved version of this WTP will be implemented during operation to guide and inform employees' travel to and from the Development.

# **1.3.Objectives and Targets for Workplace Travel**

Table 1-2 outlines the objectives and targets set out for the Development for managing workplace travel during operations and are consistent with the requirements of the Development Consent.



#### Table 1-2: Workplace travel objectives and targets

Objective	Target	Timeframe	Accountability	
Promote alternatives to car use by	All workers inducted into the WTP and the relevant Transport Access Guide (TAG).	Operations	Senior Project Manager	
encouraging walking, cycling and public transport	Bicycle parking and end-of-trip facilities maintained at all warehouses.	Operations	Warehouse Tenants	
Limit unnecessary car trips and reduce the need to travel especially in peak periods	Reduced car usage by workers travelling to and from the Development. Shifts timetabled to avoid peak hour travel.	Operations	Senior Project Manager Warehouse Tenants	

### 1.4. Consultation

This WTP has been developed in consultation with Transport for New South Wales (TfNSW) as required by CoC B18. A summary of the consultation outcomes is provided in Table 1-3 with further details provided in Appendix A.

Table 1-3: Consultation summary

Agency	Date	Person Contacted	Comment	Status
	02/05/2024	Development Sydney	Document was submitted to TfNSW for consultation via email.	Closed
	29/05/2024	Heather Trengove Principal Transport Planner	Travel Demand Management (TDM) team provided comments and recommendations as detailed in Appendix A.	Closed
TfNSW	05/06/2024	Heather Trengove Principal Transport Planner	Aspect sought TfNSW clarification the comments received on 29/05/2024.	Closed
	06/06/2024	Sophia Grieve Travel Demand Project Manager	TfNSW provided clarification on the items and closed out those comments.	Closed
	04/10/2024	Heather Trengove Principal Transport Planner	TDM team provided comments and recommendations as detailed in Appendix A.	Closed
	11/11/2024	Heather Trengove Principal Transport Planner	TfNSW advised all comments were now closed.	Closed



# 2. IMPLEMENTATION PLAN

# 2.1. Existing Transport Provisions

This section addresses the existing travel provisions that will service the Development during operations and the workplace travel controls that facilitate implementation of the WTP. Figure 2-1 illustrates the current bus routes which service the Development and the location for the proposed Metro stations at Luddenham and the Airport Business Park.

Figure 2-1: Current bus routes and the proposed Metro station



#### 2.1.1. Buses and trains

The Development is accessible via three bus routes:

- Bus Route 779
- Bus Route 801
- Bus Route 813.

These bus routes provide the closest access to the Development.

There are limited train routes for employees to reach the Development. The nearest stations are St Marys Station, 11km and a 17-minute drive from the Development, or Liverpool Station, 17km and a 24-minute drive away.

Due to the poor proximity to the Development (see Figure 2-1), current bus stops and train stations do not provide feasible options for workers to travel to and from work.



A summary of the service details for each public transport service operating for best accessibility of the Development is provided in Table 2-1.

Mode	Stop/Station	Route Description	Significant Destinations on Route	Service Frequency
Bus	James Erskine Drive before Quarry Road at Erskine Park	Route 779, St Marys to Erskine Park	St Marys Station, St Marys Community Centre, Our Lady of the Rosary Primary School, St Marys RSL Club	30 mins (peak) 1.5 hours-2 hours (off -peak)
Bus	Kerrs Road before Mamre Road at Mount Vernon	Route 801, Liverpool Station to Mount Vernon	Liverpool Station, Cabramatta Golf Club, Mount Pritchard Community Hall, Freeman Catholic College	Once per day at 3pm
Bus	Mt Vernon Road after Mamre Road	Route 813, Bonnyrigg T- Way to Fairfield Station	Bonnyrigg T-Way, Fairfield Station	Three times per day 7:07am, 12:32pm and 3:36pm
Train	Liverpool Station	T2 Inner West and Leppington Line	Strathfield, Sydney CBD, Leppington, Parramatta	15 mins (peak) 30 mins (off-peak)
			Via Bankstown	10 mins (peak) 30 mins (off-peak)
Train	Liverpool Station	T3 Bankstown Line	Lidcombe, Bankstown, Sydney CBD	15 mins (peak) 30 mins (off-peak)
Train	St Marys Station	T1 Line	Parramatta, Blacktown	10 mins (peak) 15 mins (off -peak)

Table 2-1: Public transport routes for the Development

In relation to future transport, Figure 2-1 also shows the proposed Metro stations at Luddenham and the Airport Business Park. The Metro and potential new bus routes would provide workers with improved access to public transport and increase efficiency and convenience for accessing the Development. The Airport Business Park station will be situated only 4km from the Development.

### 2.1.2. Cyclist and pedestrian infrastructure

Current cycle paths in the vicinity of the Development are shown in Figure 2-2.

Off-road cycle paths are accessible on Erskine Park Road and Lenore Drive, both north of the Development. One path on Old Wallgrove Road extends south towards the Development, but the closest cycle path to the Development is 9km from Abbotts Road. These paths link to the Westlink M7 toll road east of the Development. The closest point to the Development from this cycle path is at Elizabeth Drive, 6.8km away.

Current access to the Development from these off-road cycle paths would be via Elizabeth Drive or Mamre Road. However these are extremely busy roads, and the



lack of proper cycling infrastructure or safe cycle paths means that their use for travel to the Development is not recommended.



Figure 2-2: Existing and proposed cycle paths

Similarly, pedestrian access to the Development is not good, with no footpaths currently available along Mamre Road or Abbotts Road.

The proposed upgrades of Mamre Road and Elizabeth Drive (see Section 2.2) include active transport links that will better serve the Development, as outlined in the Transport Management and Accessibility Plan (Ason Group, August 2022). The upgraded roads will feature off-road shared bicycle and pedestrian paths (see Figure 2-2) to promote active transport.

### 2.2. Mamre Road Upgrade

The Mamre Road Upgrade outlined in the Transport Management and Accessibility Plan (Ason Group, August 2022) aims to improve the transport network near the Development by:

- Reducing future road transport costs by improving corridor performance
- Supporting economic growth and productivity by increasing the road capacity for freight and general traffic volumes
- Improving road safety in line with the NSW Road Safety Strategy (NSW Government, 2012)
- Improving sustainable transport options by creating more bike paths and pedestrian paths and reducing overall emissions resulting from the carbon footprint of developments in the area



- Delivering good urban design outcomes
- Minimising environmental impact.

Projected to be completed by 2025, this will create greater opportunity for cyclists and pedestrians to safely access the Development via designated cycling and pedestrian paths along Mamre Road. Consequently, accessibility to the Development using public transport will also improve via the new pedestrian paths. This WTP will be reviewed and updated at that time to reflect these improvements.

# 2.3. Westlink Transport Provisions

#### 2.3.1. Car parking provisions

Parking rate requirements for the Development have been adopted from the Transport Management & Accessibility Plan (Ason Group, August 2022). These requirements are provided in Table 2-2.

Land use	Minimum Parking Rate
Warehouse	1 space per $300m^2$ or 1 space per 4 employees, whichever is the greater
Factory	1 space per 200m <sup>2</sup> of gross floor area or 1 space per 2 employees, whichever is the greater
Office	1 space per 40m <sup>2</sup>
Neighbourhood Shops	1 space per 40m <sup>2</sup>

Table 2-2: Car parking rate requirements (Ason Group, August 2022)

Table 2-3 details the specific car parking requirements for the Development, based on the parking rates detailed above, and the car parking provided. In total, the Development requires 331 car parking spaces and 390 car parking spaces are provided.

Table 2-3: Car parking requirements and provision (Ason Group, August 2022)

Warehouse	Land use	GFA (m²)	Requirement	Provided
Warehouse 1	Warehouse	61,271	207	
	Office	1,736	43	
	Subtotal	63,007	250	294
Warehouse 4	Warehouse	16,785	56	
	Office	1000	25	
	Subtotal	17,785	81	96
Total	-	81,642	331	390

CoC B16 requires that a minimum of 5% of parking bays for each warehouse must provide for electric vehicle charging, with a further 5% constructed as readily adaptable. This requirement has been met, with Warehouse 1 and 4 providing 14



and 5 parking bays for electric vehicles, respectively, with an equivalent number of parking bays readily adaptable. Priority parking spaces are to be reserved, and well located, for those who carpool, for visitors, and for those working shifts outside normal business/office hours.

### 2.3.2. Bicycle parking and end of trip facilities

CoC B15 requires bicycle parking and end of trip (EoT) facilities to be provided at the Development in accordance with AS1742/9:2018 Manual of Uniform Traffic Control Devices- Bicycle Facilities, and the Cycling Aspects of Austroads Guides. In addition, any bicycle parking and storage facilities must be secure, convenient, well lit, physically and visually accessible and within close proximity to the main entrance in accordance with Austroads guidelines.

Bicycle parking rates from the Mamre Road Precinct Development Control Plan (MRP DCP, November 2021) have been adopted to determine the bicycle parking requirements for the Development. The requirements for the Development are provided in Table 2-4.

Land use	Minimum bicycle parking rate
Warehouse	1 space per 1000m <sup>2</sup> of gross floor area of industrial activities (over 2000m <sup>2</sup> gross floor area).
Office	1 space per 600m <sup>2</sup> of gross floor area of office and retail space (over 1200m <sup>2</sup> gross floor area).

Table 2-4: Bicycle parking rate requirements (Ason Group, August 2022)

Table 2-5 details the specific bicycle parking requirements for the Development, based on the parking rates detailed above and the bicycle parking provided. In total, the Development requires 83 bicycle parking spaces to be provided.

Warehouse	GFA (m²)	Requirement	Provided
Warehouse 1	61,271	65	66
Warehouse 4	17,785	18	18
Total	79,056	83	84

Table 2-5: Bicycle parking requirements and provision (Ason Group, August 2022)

In terms of EoT facilities, the requirements of the MRP DCP have been considered and are provided in Table 2-6. To meet these requirements, shower cubicles and ancillary change rooms have been provided in each warehouse.



 Table 2-6: EOT facility requirements (Ason Group, August 2022)

Land use	EOT facility requirement
Office	For ancillary office and retail space with a gross floor area over 2500m <sup>2</sup> , at least 1 shower cubicle with ancillary change rooms.
Warehouse	For industrial activities with a gross floor area over 4000m <sup>2</sup> , at least 1 shower cubicle with ancillary change rooms.

#### 2.3.3. Traffic generation

The Development is expected to generate 1,886 traffic trips daily, with 139 trips in the AM peak and 122 trips in the PM peak (Ason Group, August 2022). Deliveries to and from warehouses will generally be made by semi-trailers and rigid truck, which are anticipated to be scheduled during the middle of the day, while the majority of deliveries made by B-doubles are anticipated outside the general network AM and PM peak hours.

#### 2.3.4. Mode shares

The current active transport modes and provision of public transport and pedestrian/cyclist network for the Development are detailed in Section 2.1. The public and active transport services and infrastructure in the vicinity of the Development is not considered to be adequate.

The Development, however, does provide for full integration with the future public and active transport provisions planned for the Mamre Road Precinct. These include the operation of local and sub-regional bus services providing connectivity to railway stations and other public transport interchanges; and shared paths along Mamre Road connecting to the future sub-regional shared (cycle) path network.

The Transport Management and Accessibility Plan (TMAP, Ason Group, 2022), included in Appendix K of the ESR Westlink Stage 1 RtS, provided a summary of key travel modes for those travelling to the locality for work. The private vehicle (car) was the overwhelming preferred as the mode of choice for commuters travelling to work in in the area. The TMAP indicated that 95% travel to work by car with 92% as the driver and 3% as passenger i.e. car pooling.

The TMAP proposed mode share targets for the Mamre Road Precinct similar to those for the nearby Badgerys Creek Precinct (i.e. 20% mode share target for public and active transport and 80% target for car transport by 2056), while at least maintaining the existing car pooling mode share of 3%. Table 2-7 details the different travel modes, existing mode shares for the precinct (i.e. the baseline mode share on the commencement of operations in the absence of the proposed measures and improvements to transport infrastructure), the proposed mode share targets for 2026 and 2056 and the changes from the existing mode shares that these would reflect.



Travel Mode	Existing Mode Share	Proposed Targets (2026)	Relative Change	Proposed Targets (2056)	Relative Change
Car as driver	92%	88%	-4%	82%	-10%
Car as passenger	3%	3%	-	3%	-
Train	0%	0%	-	0%	-
Bus	2%	4%	+2%	10%	+8%
Walked only	1%	1%	-	1%	-
Motorbike/ Scooter	0%	1%	+1%	1%	+1%
Bicycle	0%	1%	+1%	1%	+1%
Тахі	1%	1%	-	1%	-
Other Modes	1%	1%	-	1%	-

#### Table 2-7: Proposed 2026 and 2056 Mode Share Targets (Ason Group, 2022)

### 2.4. Roles and Responsibilities

Key roles and responsibilities for implementation of this WTP are presented in Table 2-8.

Role	Responsibilities		
Senior Project Manager	<ul> <li>Initiate staff travel surveys</li> <li>Annual reporting of employee numbers and travel modes</li> <li>Review and update of the WTP as required.</li> </ul>		
Warehouse Managers	<ul> <li>Maintenance of EoT facilities</li> <li>Develop, update and distribute the TAG to warehouse employees</li> <li>Maintenance of currency of WTP measures in induction processes</li> <li>Compile staff travel surveys to inform review of WTP.</li> </ul>		

### 2.5. Management Measures

Based on the existing transport network, this section identifies the potential travel patterns that might be anticipated for the Development during operations and identifies opportunities to promote public transport usage by staff and visitors.

This section also provides a summary of the travel behaviour change program measures that will be implemented to encourage the use of sustainable transport modes for staff throughout operations.



Responsibility for implementing and funding these measures sits with either ESR, as the owner of the Development, or with the warehouse tenants, as the operators of the warehouses.

#### 2.4.1. Transport access guides

A TAG describes ways to access a Development by walking, cycling or public transport. It simplifies the process of trip planning for both staff and visitors; and assists in facilitating the proportion of trips made to the Development through public and active transport modes.

The template TAG (Appendix B) has been prepared to provide guidance to warehouse tenants that are required to prepare warehouse-specific TAGs. Additional guidance on the preparation of the TAGs is available at:

https://www.mysydney.nsw.gov.au/travelchoices/tdm

The TAGs will provide information on:

- The location of bicycle parking and end-of-trip facilities and how to access these facilities
- Nearest public transport stops and stations
- Bus routes and train services to the precinct and the frequency of these services
- Useful applications and travel information websites
- Car share pods near the precinct.

TAGs will be updated as changes to access arrangements occur, particularly following the upgrade of Mamre Road.

#### 2.4.2. Management measures

Table 2-9 details the management measures which will be implemented at the Development under this WTP. These measures are intended to inform and encourage the use of sustainable transport options for travel to and from the Development.

These management measures will be reviewed and updated as public transport infrastructure (e.g. new bus routes) and active transport infrastructure (e.g. cycleways and pedestrian paths) becomes available for use in the vicinity of the site.



#### Table 2-9: Management measures

ID	Management Measure	Timing	Responsibility
Genera	d second s		
WT1	Staff will be inducted on the WTP and the sustainable transport options and facilities that are available to them.	Operations	Warehouse Managers
WT2	Staff travel surveys will be undertaken annually. Example staff survey questions are included in Appendix C.	Annually during Operations	Senior Project Manager Warehouse Managers
Pedest	rian and cyclist access and safety		
WT3	EoT facilities will be clearly marked across the Development.	Operations	Warehouse Managers
WT4	Effective internal wayfinding signage to direct staff to bicycle parking and EoT facilities will be installed and maintained across the Development.	Operations	Warehouse Managers
WT5	Appropriate warning signage and traffic control will be installed and maintained to ensure that vehicles enter and exit the Development in a manner that does not impact on the safety of pedestrians and cyclists.	Operations	Senior Project Manager
WT6	Utilise staff notice boards, newsletters and social media opportunities to inform staff of available sustainable transport options and facilities and allow them to sign onto initiatives such as carpooling/car-share schemes.	Ongoing during Operations, updated bi- annually	Senior Project Manager



ID	Management Measure	Timing	Responsibility
WT7	<ul> <li>Maintain a warehouse-specific TAG that effectively informs staff of the following:</li> <li>Safe and accessible cycling routes as well as end-of-trip facilities provided within the facility</li> <li>Public transport modes and routes</li> <li>Surrounding facilities nearby, including food, entertainment and shopping</li> <li>Promote the cost savings of car share over commuting via private vehicle to staff of the Development.</li> </ul>	Ongoing during Operations, updated annually	Warehouse Managers
	TAGs will be updated annually at a minimum, or as required, to keep the information accurate and up to date.		



### 3. MONITORING, REPORTING AND REVIEW

### **3.1. Monitoring and Reporting**

Monitoring and reporting requirements applicable to this WTP are outlined in Table 3-1.

Table 3-1: WTP monitoring and reporting requirements

Requirement	Responsibility	Frequency
Reporting of employee numbers	Senior Project Manager Warehouse Manager	Annually after operations commence, and for up to 5 years from warehouse occupation
Reporting of staff travel surveys	Senior Project Manager Warehouse Manager	Annually
Heavy and light vehicle monitoring (under the Operational Traffic Monitoring Program required by CoC B3)	Senior Project Manager	At least 12 months after the start of operations
Bicycle parking and EoT monitoring to encourage active transport to/from the Development	Warehouse Manager	Monthly

### 3.2. Review and Improvement

Review and improvement of this WTP and TAGs will be undertaken annually, or as required under the following circumstances:

- As changes to bus services occur following outcomes of negotiations with the relevant authority
- Response to annual travel surveys, if applicable
- When construction, maintenance, or emergency work impacts accessibility
- In accordance with the CoCs and Section 6.2 of the OEMP
- Once Mamre Road has been upgraded and public transport, cyclist and pedestrian access to the Development has improved.

Continuous improvement will be achieved by the ongoing evaluation of performance and effectiveness of this WTP. A copy of the updated WTP and changes will be distributed to all relevant stakeholders.

### 3.3.Incidents

Section 5.3 of the OEMP details environmental incidents and the response to environmental emergencies for the Development. This includes the reporting, notification and investigation of environmental incidents. Emergency contact details are also provided.

In the event of an environmental incident or emergency related to the implementation of this WTP, the responses detailed in the OEMP will be implemented.



# 3.4. Complaints

Section 6.6 of the OEMP details the control of documents and records related to the handling of complaints. ESR, warehouse tenants and contractors are responsible for maintaining clear environmental records which involve the reporting of all environmental complaints against the Development, and the follow-up actions taken will also be recorded.

### 3.5. Non-Compliance

Section 6.4 of the OEMP details the Development team's response following the identification of a non-compliance with the CoC, the OEMP and Sub-Plans. This includes the reporting, investigation and notification of non-compliances. Non-compliances with this WTP will be addressed as required by the OEMP.



### 4. REFERENCES

Ason Group (31 August 2022) Transport Management and Accessibility Plan – Stage 1 Westlink, Mamre Road Precinct – 59-63 Abbotts Road & 290-308 Aldington Road, Kemps Creek

Ethos Urban (17 June 2021) Environmental Impact Statement – 290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road – Kemps Creek Westlink Industrial Estate

Ethos Urban (15 September 2022) SSD-9138102: Westlink Stage 1 – Amendment Report – 290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek – ESR Australia

NSW Road Safety Strategy 2012-2021, NSW Government- Transport for NSW.



Appendix A – Evidence of Consultation

Outlook

#### RE: SSD-9138102 ESR Westlink Stage 1 - Workplace Travel Plan

From Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au> Date Mon 11/11/2024 14:34

- To Rob Salisbury <Rob@aspectenvironmental.com.au>; Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>; Heather Trengove <Heather.Trengove@transport.nsw.gov.au>
- Cc Justin Crameri <Justin.Crameri@esr.com>; Rebecca Butler-Madden <Rebecca.BMadden@asongroup.com.au>; Kedar Ballurkar <Kedar.Ballurkar@asongroup.com.au>; Heywood Cheung <Heywood.Cheung@esr.com>

Hi Rob,

We have reviewed the updated WTP, and the responses and updated sections of the WTP. We are now comfortable all our previous comments have been addressed, and closing comments are provided in the updated spreadsheet to close these out.

There now won't be a need to meet.

Kind Regards,

Heather Trengove Principal Transport Planner Customer Journey Planning Coordinator-General Division Transport for NSW

231 Elizabeth Street, Sydney 2000 Note: I work Mon, Tue, Wed

Project:	ESR WESTLI	NK - OEMP & Subplans		TfNSW comments recevied	29/05/2024 04/10/2024 11/11/2024
				REV WORKING DATE	05 11/11/2024
DATE 29/05/2024	PLAN WTP	TfNSW COMMENT <u>1. Comment:</u> We have prepared a response to the Workplace Travel Plan - SSD9138102 -	RESPONSE Conditions of Consent (CoC) B18 and CoC B19 of the Consolidated Consent (SSD-9138102) for Westlink Industrial Estate	WHERE ADDRESSED IN WTP NA	STATUS Closed
		Westlink Stage 1 - Kemps Creek dated May 2024 prepared by Aspect Environmental and ESR.	Stage 1 requirs the preparation of a Workplace Travel Plan (WTP) to outline facilities and measures to promote public transport usage and describe pedestrian and bicycle linkages and end of trip facilities available on-site.		
		Recommendation: Please find our Travel Demand Management team (TDM) response for	Transport for NSW (TfNSW) has reviewed the WTP (Rev03) and has recommended that the plan address a range of		
		the workplace Travel Plan - SUSTSBUZ - Westlink Stage 1 - Kemps Creek dated May 2024 prepared by Aspect Environmental and ESR. We provide the following recommendations:	matters. As described below, the WTP has been revised to address some of these matter, however it is considered that the WTP does not need to address other matters or could address them in the future once Mamre Road is upgrades and while and active transport infortune time made available donce to the Dowelanmont.		
			public and active d'ansport ministructure is made avanable cluser to the Development.		
29/05/2024	WTP	2. Parking: The GTP currently includes 391 new car parks for this proposed development	The car-parking provided at the Development is described in Section 2.3.1 and has been provided in to meet the	Section 2.3.1.	Closed
		and the Transport for NSW (TfNSW) Travel Demand Management (TDM) Team recommend this number should be reduced to encourage the adoption of more sustainable modes of	requirmments of CoC B14 of the Development Consent, which references the requirments of the Mamre Road Precinct Development Control Plan.		
		transport, supported by a parking management strategy. Travel demand measures suggested in this email provide viable and proven solutions to reducing car parks.	See responses to comments regarding a parking management strategy and travel demand measures provided below.		
20/05/2024		<b>3 b</b> 1		C. 17. 19.24	a. 1
29/05/2024	WIP	3. Parking management strategy: ITNSW IDM I earn recommend that management of the parking be considered including prioritising parking on a needs basis, for example, priority parking spaces are to be reserved and well located for those who carrool for visitors and	The WTP does not include a parking management strategy. All car parking spaces are designed to be located in close proximity to the warehouses, with parking spaces for disabled drivers located closest to warehouse offices.	Section 2.3.1.	Closed
		for those working shifts outside normal business/office hours.	Section 2.3.1 has been revised to include the requirement for priority parking spaces to be reserved, and well located, for those who car-pool, for visitors, and for those working shifts outside normal business/office hours.		
29/05/2024	WTP	4. Mode Shares: The TfNSW TDM team ask for a qualified traffic and transport consultant to provide short and long term mode shares for sustainable transport modes for employees	Section 2.3.4 has been included in the WTP to address current and future mode shares for the Development. This section references the mode shares included in the Traffic Management and Accessibility Plan (TMAP) (Ason Group,	Section 2.3.4.	Closed
		as part of this WTP. Short term mode shares could include car-pooling, and/or shuttle buses to and from the site. Longer term mode shares should include METRO trips via	2022) included in Appendix K of the Response to Submission.		
29/05/2024	WTP	Luddenham and Airport Business Park and tuture active transport intrastructure. 5 Biovele parking and End of Trin Facilities (FoT). The TDM team appreciate biovele parking	As discussed in Section 2.3.7 of the WTP the ourrent biowle and on of trin facilities have been provided within the	Section 3.1	Closed
		spaces (83), and that EoT (showers and locker rooms) are to be provided for the site prior to occupation. TfNSW ask that any bicycle parking and EoT should be monitored over time	Development based on AS1742/9:2018 Manual of Uniform Traffic Control Devices- Bicycle Facilities, and the Cycling Aspects of Austroads Guides. The WTP details bicycle parking and storage facilities to be secure, convenient, well lit,		
		to ensure sufficient supply to encourage active transport both to/from and around the site. Some further guidance on bicycle parking and end of trip facilities can be found in the	physically and visually accessible and within close proximity to the main entrance in accordance with Austroads guidelines .		
		cycleway design toolkit. The EOT facilities in your workplace plan will need to be completed ready for Day 1 of occupancy.	The WTP Section 3.1 Monitoring and Reporting Section has been revised to include bicycle parking and EoT monitoring		
29/05/2024	WTP	6. Implementation Plan: The team appreciate the Management Measures (Table 2-8). The	over time to ensure sufficient supply to encourage active transport both to/trom and around the site. Section 2 of the WTP details the implementation plan applicable to the Development.	Section 2.	Closed
		team would ask that a detailed Implementation Plan (ready to implement from Day 1 of occupancy) be prepared, including the person/s responsible for completion of the task,	The Management Measures table (Table 2-8) already highlights person(s) responsible for implementing the WTP		
		completion date and the anticipated costs.	management measures along with timing for when the measures will be implemented. Further clarifications regarding timing have been provided in Table 2-8.		
			At this time there are no additional operating costs anticipated for the implementation of management measures. ESR		
			ades not intend to include cost information in the WTP.		
29/05/2024	WTP	7. Travel Survey: The TDM Team appreciates the Travel Survey (Appendix C) included in the WTP to be distributed 3 months post-occupancy. The survey does not need to be carried	Appendix C of the WTP has been revised to remove questions regarding personal circumstances.	Appendix C	Closed
		out before that time, only the proposed survey questions need to be included. The team advise that the purpose of the Travel Survey is to understand how people travel to work			
		currently, their postcodes they are travelling from and to promote any potential initiatives that the applicant is offering to encourage sustainable transport journeys. The current			
29/05/2024	WTP	questions are targeting employees regarding their personal circumstances which is not required. 8. Travel Access Guide - TfNSW appreciates that a Travel Access Guide (TAG) has been	Section 2.5 of the WTP describes the Transport Access Guide (TAG) for the development and a template TAG is provided	Appendix B	Closed
		included. The TAG will need to be further developed and updated on a regular basis as any more infrastructure comes into existence. For further helpful information – please check	in Appendix B. The template TAG includes items listed in this comment: - overall maps		
		this link How to Create a Travel Access Guide doc here. The TAG should also: • Provide an overall map of all of the active and public transport options coming in and out of the site (heath any used where fit way upgrade the algorithm).	<ul> <li>- information advising staff and visitors about service routes and timetables for buses to and from the site is available on the Trip Planner at transportnsw.info/</li> </ul>		
		Provide information advising staff and visitors about service routes and timetables for buses to and from the site is available on the Trio Planner at transportnsw.info/	The template TAG has been revised to promote car pooling programs .		
		Promote car pooling programs instead of promoting "driving".			
29/05/2024	WTP	<u>9. Governance</u> : The WTP will need to be appropriately funded and otherwise resourced, by the applicant, for a period of at least 5 years, or via an appropriate appointed entity, such as	As listed in Table 1-1, CoC B19 requires the Applicant and each occupant/operator to implement the most recent version of the WTP for the duration of the Development. The funding of the implementation of the WTP is not considered	Section 1.	Closed
		a body corporate. The body corporate should be appointing Traver Pian Coordinators for the implementation of the GTP for a period of 5 years post-occupancy, including for management of oneoine travel demand initiatives that will require resourcing. The TDM	relevant for the plan itself. This WTP provides measures intended to inform and encourage the use of sustainable transport options for travel to and	Section 2.4	
		Team would advise that the applicant will need to determine a strategy for the body corporate to administrate the changeover of different Travel Plan Coordinators, making it	from the Development, and make recommendations for the use of active transport modes such as walking and cycling, as well as public transport options that service the area. The roles and responbilties for implementation of this WTP are		
		clear to the tenants that there are requirements to try and achieve sustainable transport mode shares for the site, as a condition of the development, for its lifecycle. Given the	presented in Section 2.4 of the WTP. These responsibilities have been allocated in the plan based on ESR's and the warehouse tenant's operational staff.		
		initiatives in this WTP, the WTP Travel Plan Coordinator position should be established and ready to go from Day 1 of occupancy with a committee also put into place			
29/05/2024	WTP	10. Submission: The applicant will need to provide a revised GTP to the TDM Team via development.ctmp.cjp@transport.nsw.gov.au with enough time to review prior to	The WTP (Rev 03) was submitted to TfNSW for consultation on 02/05/24, Comments on the WTP were received from TfNSW on 29/05/24. Clarification on comments from TfNSW was recieved on 06/06/2024.	NA	Closed
		occupancy	The WTP has been revised to address TfNSW's comment where relevant and the revised WTP (Rev04) will be submitted		
			to TfNSW with these responses.		
04/10/2024	WTP	Mode Shares:	10 or vir wind abo the submitted to primition information prior to the commencement of operations as required by Coc     818.     Table 2-7 of the WTP has been updated to refect information sourced from the TMAP (Ason Group, 2027) where-	Section 2.2.4	Closed
		TfNSW TDM Team (3/10/2024) would advise that mode shares both short and long term are still too high for this site. Short term mode shares could include car pooling and shuttle	- the 'Mode Share of Existing Employees' column represents existing travel behaviour - this was a 'baseline' (not target)		
		buses. Short term could also include active transport mode shares such as the new cycleways coming onboard (2025), and new bus services could also be a public transport and a bare. Shattle human to be the could be a service to be the service of	which was assumed the be mode share on 'Day 1' if there were no initiatives or improvements to transport infrastructure.		
		moue share. Shuttle buses to metro Stations could also be included here.	<ul> <li>- use roupused largets were snort-term targets for the year 2026 i.e. what was considered could be reasonably achieved with limited transport infrastructure and initiatives.</li> <li>- long-term targets for 2056 were based on the broader environment target for the Associationality</li> </ul>		
			This approach has been taken as:		
			- the high car mode share (especially in the short-term) was a consequence of the lack of demand (or critical mass) to		
			introduce bus service(s) this might also apply to a privately run shuttle bus service, and it is assumed that this would not be commercially viable		
			Initiality for active transport, it is reasonable to assume that few if any workers would reside within a walkable or cyclable catching to the Development for some time ust		
			<ul> <li>for other initiatives (e.g. car pooling), these are likely to have limited effectiveness since the parking requirments under the DCP aim to meet parking demands (rather than restrict parking in order to discourage driving).</li> </ul>		
			· · · · · ·		
04/10/2024	WTP	Implementation Plan: TRSW TDM Team 3/10 – The Implementation Plan should include measures on how the applicate will meet active and public transport mode observe adviced above	I ne lack or public and active transport intrastructure currently available in the vicinity of the Development means that implementing measures at the commencement of warehouse operations would likely be unsuccessful. The need to undate the WP once this indication that an indication is Section 2.2 In addition, this is now interactive is Section 2.	section 2	Closed
04/10/2024	WTP	Travel Survey:	2.2.4. Question removed from survey.	Appendix C	Closed
		TfNSW TDM Team 3/10 – The team would ask that the question about free parking spaces be removed.			
04/10/2024	WTP	I raver access Guide: TRSW TDM Team 710 would ask that the TAG is developed into a TAG that is a bit more easy to comprehend at the moment there is a bit of text (many like a second which).	I ne remprate LAG has been prepared to provide guidance to the warehouse tenants who are responsible for developing warehouse-specific TAGs. As a template, it includes the required information (or flags where it is required to be provided) and the warehouse tonants will use it to develop and format no constraints TAG. If the later (	Appendix B	Closed
		reasy to comprementa, at the moment there is a lot or text (more like a report) which employees may find difficult to digest. Please see our attached TAG to see how this can be designed.	province of one the wateriouse tenants will use it to develop and format an appropriate TAG for their teams. In addition, a reference to https://www.mysvitney.new.env.au/travelchnices/inim.has have included in Cartino 2.4.1	Secton 2.4.1	
04/10/2024	WTP	Governance:	Statement regarding funding of management measures included in Section 2.5	Section 2.5	Closed
, 10, 2024		TINSW TDM Team 3/10 do not require actual costings for this WTP of each initiative to be disclosed. We would require that the applicant is able to state who would be providing the			-10300
		funding for each initiative in the Implementation Plan.			

DATE	PLAN	TÍNSW COMMENT	RESPONSE	WHERE ADDRESSED IN WTP	STATUS
04/10/2024	WTP	Submission:	The WTP (Rev 03) was submitted to TfNSW for consultation on 02/05/24, Comments on the WTP were received from	NA	Closed
		The applicant will need to provide a revised GTP to the TDM Team via	TfNSW on 29/05/24. Clarification on comments from TfNSW was recieved on 06/06/2024.		
		development.ctmp.cjp@transport.nsw.gov.au with enough time to review prior to			
		occupancy.	The WTP was revised to address TfNSW's comment where relevant and the revised WTP (Rev04) was submitted to		
			TfNSW with the responses to the comments.		
			The WTP (Rev04) was submitted to DPHI for information prior to the commencement of operations as required by CoC		
			818.		
			The WTP (RevOS) will also be submitted to DPHI for information prior to the commencement of operations as required		
			hy CoC B18.		
			-,		
			As requested, the WTP (Rev05) will be submitted to TfNSW prior to occupancy, with responses to these additional		
			comments.		
11/11/2024	WTP	We have reviewed the updated WTP, and the responses and updated sections of the WTP.	NA	NA	Closed
		We are now comfortable all our previous comments have been addressed, and closing			
		comments are provided in the updated spreadsheet to close these out.			


Appendix B – Template Travel Access Guide (TAG)



# **Template Travel Access Guide (TAG)**

### Your guide to accessing the Westlink Stage 1 Development

The Development is accessible by public transport, but all bus and train options will need to be combined with other transport options, such as walking, cycling, carpooling or another viable mode of travel.

Check the maps included below for your options.

### Walking

If living in close proximity to the Development, walking is recommended and is a good way to increase daily physical activity.

### Get on your bike

Improve your health by cycling from home or combine cycling with public transport for part of your journey. Secure bicycle parking and end-of-trip facilities (i.e. change rooms and showers) are available within the Warehouse – see plan included below.

### **Public transport options**

The 801 bus service leaves at 3pm every day from Liverpool Station and may be a convenient means of travelling home after work for Westlink staff. The closest stop to the Development is Stand F on Kerrs Road before Mamre Road, at Mount Vernon. It should take a 31-minute walk to reach this stop from the Development, although a 3 minute ride by carpooling will be quicker.

The 779 bus service from St Marys Station to James Erskine Drive at Erskine Park operates more frequently, every 30 minutes in peak time or up to 1.5-2 hours during non-peak time. This bus departs from St Marys Station at Stand B on Station Street, and the closest stop to the Development on this route is James Erskine Drive before Quarry Road. This bus route should be supplemented with walking or car-pooling.

The closest train stations are St Marys and Liverpool stations, where St Marys is 11km and Liverpool is 17km from the Development. Due to the extensive travel time, these are not the primary recommended mode of travel, unless supplemented with car-pooling with colleagues.

Mode	Stop/Station	Route Description	Significant Destinations on Route	Service Frequency
Bus	James Erskine Drive before Quarry Road at Erskine Park	Route 779, St Marys to Erskine Park	St Marys Station, St Marys Community Centre, Our Lady of the Rosary Primary School, St Marys RSL Club	30 mins (peak) 1.5 hours-2 hours (off -peak)
Bus	Kerrs Road before Mamre Road at Mount Vernon	Route 801, Liverpool Station to Mount Vernon	Liverpool Station, Cabramatta Golf Club, Mount Pritchard Community Hall, Freeman Catholic College	Once per day at 3pm



Mode	Stop/Station	Route Description	Significant Destinations on Route	Service Frequency
Bus	Mt Vernon Road after Mamre Road	Route 813, Bonnyrigg T- Way to Fairfield Station	Bonnyrigg T-Way, Fairfield Station	Three times per day 7:07am, 12:32pm and 3:36pm
Train	Liverpool Station	T2 Inner West and Leppington Line	Strathfield, Sydney CBD, Leppington, Parramatta	15 mins (peak) 30 mins (off-peak)
			Via Bankstown	10 mins (peak) 30 mins (off-peak)
Train	Liverpool Station	T3 Bankstown Line	Lidcombe, Bankstown, Sydney CBD	15 mins (peak) 30 mins (off-peak)
Train	St Marys Station	T1 Line	Parramatta, Blacktown	10 mins (peak) 15 mins (off -peak)

## Trip planning

Visit transport.nsw.info or call 131500 to plan your trip and access up-to-date service timetables and route maps, or use the TripView app to select a public transport service to and from work.

### **Tickets and passes**

Opal cards make travelling on multiple public transport types easy. Keep your Opal card topped up and tap on and off as you start and end your trip. You can purchase single trip Opal cards from train station ticket machines and bus drivers. Alternatively, you can tap on with your debit card or phone at the Opal gates.

Visit opal.com.au for more information.

### **Car-Pooling Programs**

There are plenty of spaces to park your car at the Development. If you would like to reduce your travel costs, consider car-pooling with colleagues, also contributing to better workplace culture by enhancing connections with your workmates.





### Current and proposed cycle routes close to the Development

### Current and proposed public transport options close to the Development









# End-of-trip facilities in your workplace

[Warehouse-specific plan to be provided]



Appendix C – Example Staff Travel Survey Questions



## Example Staff Travel Survey Questions

### First, where do you travel from each day

### 1. What postcode do you live in?

(Free text)

### Your journey to and from work

### 2. In an average week, how many days do you commute for work?

One | Two | Three | Four | Five | More than five | I predominantly work from home or remotely

### 3. Which warehouse/facility do normally work at?

(Free text)

### 4. Which department / business unit do you work for?

We ask this to identify travel trends within your organisation. If you do not wish to answer, please choose "Other".

(Drop down list)

### 5. What time do you typically arrive at work?

(Adjust as needed to include relevant shifts)

Before 06:00 | 06:00-06:29 | 06:30-06:59 | 07:00-07:29 | 07:30-07:59 | 08:00-08:29 | 08:30-08:59 | 09:00-09:29 | 09:30-09:59 | 10:00 or later

### 6. What time do you usually travel home?

(Adjust as needed to include relevant shifts)

Before 15:00 | 15:00-15:29 | 15:30-15:59 | 16:00-16:29 | 16:30-16:59 | 17:00-17:29 | 17:30-17:59 | 18:00-18:29 | 18:30-18:59 | 19:00 or later

# 7. What is your main mode of transport when travelling to and from work? Please choose the mode that you use for the greatest distance.

Bicycle | Bus | Car (as driver/sole occupancy) | Car (as driver with passengers) | Car (as passenger) | Car-pool | Motorbike or Moped | Taxi or Rideshare (e.g. Uber) | Train | Walk or run

### 8. Do you ever work from home?

Yes | No

### 9. On average, how many times do you work from home in one month?

(Free Text)

### Your potential for behaviour change

Significant improvements are being made across the transport network in Sydney. These changes may have an impact on your journey to work. To improve your journey, how likely is it that you will do the following to make your journey more comfortable and reliable?

# 10. Choose another mode to travel to work, e.g. switching from driving to public transport or from public transport to walking or cycling.

Very likely | Likely | Neutral | Unlikely | Very unlikely | Not possible

# 11. Change the timing of the journeys you make to avoid the busiest periods if possible, given your work conditions.

Very likely | Likely | Neutral | Unlikely | Very unlikely | Not possible

# 12. Reduce the number of times you travel to the office, e.g. by working from home if possible given your work conditions.

Very likely | Likely | Neutral | Unlikely | Very unlikely | Not possible



### 13. Reroute the way you take to and from work to avoid the busiest areas.

Very likely | Likely | Neutral | Unlikely | Very unlikely | Not possible

### Your comments and interest in updates

14. Do you have any general comments on how you currently travel or how you would like to travel?

(Free text)

15. Would you like to receive updates from the Travel Plan team bringing you relevant travel advice (e.g. information on new services)?

Yes | No

16. If yes, please enter your email address to receive the updates you requested.

(Free text)



Appendix G Stormwater Management Plan



# Westlink Industrial Estate, Kemps Creek

# Stage 1 Water and Stormwater Management Plan

ESR Development (Australia) Pty Ltd MAY 2024 20-748

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### **Document Registration**

Document Title	Westlink Industrial Estate – Stage 1 Water and Stormwater Management Plan
Document File Name	R008-11-20-748- Stage 1 Water and Stormwater Management Plan
Section	Civil Engineering
Document Author	Tim Michel & Lucas Buncle

Issue	Description	Date	Author	Checked	Approved
01	Issue for Approval	16-05-23	Tim Michel	$\square$	
02	Issue for Approval	19-05-23	Tim Michel	$\square$	$\square$
03	Issue for Approval	12-07-23	Tim Michel	$\square$	$\square$
04	Re-Issued for Approval	24-07-23	Tim Michel	$\boxtimes$	$\square$
05	Re-Issued for Mod 1 Approval	01-11-23	Tim Michel		
06	Re-issue for DPE Approval	31-01-24	Tim Michel & Lucas Buncle	$\square$	$\square$
07	Re-issue for DPE Approval	07-02-24	Tim Michel & Lucas Buncle	$\boxtimes$	
08	Re-issue for DPE Approval	18-03-24	Tim Michel	$\square$	$\square$
09	Re-issue for DPE Approval	22-04-24	Tim Michel	$\boxtimes$	
10	Re-issue for DPE Approval	06-05-24	Tim Michel		
11	Re-issue for DPE Approval	14-05-24	Tim Michel		

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Civil Engineers | Project Managers | Water Servicing Coordinators | Infrastructure Planners and Advisers

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# 1. Response to Conditions of Consent

This Water and Stormwater Management Plan (WSMP) has been prepared to respond to Conditions B25 and B30 of the Westlink Stage 1 (SSD-9138102) consent. Comments and Recommendations were received from the Department of Planning and Environment (DPE) and Environment and Heritage Group (EHG) within a letter dated 10<sup>th</sup> August 2023. Table 1 below responds to this letter and highlights how all conditions within B25 and B30 are addressed for this application.

### Table 1- Response to Conditions to B25 & B30

Condition	Response/Comments	Addressed
B25 (a) Within two months of the date of this consent, the Applicant must design the stormwater management system to the satisfaction of the Planning Secretary . The stormwater management system design must be prepared in consultation with the Environment & Heritage Group, Sydney Water and Council	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans have also been prepared in consultation with the nominated Authorities post August 2023 and deemed compliant	Yes
B25 (b) ATL letter states Tim Michel (CPEng NER 2333079) of AT&L prepared the report and drawings. Tim needs to certify the report and drawings in a letter and sign the design drawings confirming Conditions B25 and B30 is achieved.	Certification letter provided. Reference CER002-01-20-748 Condition B25b B30a Certificate dated 24 <sup>th</sup> April 2024	Yes
B25 (c) Be consistent with the plan shown on Figure 2 in Appendix 1 and the updated Stormwater Management Plan required by Condition B30	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans are still consistent with Figure 2 so deemed compliant	Yes
B25 (d) Include all private, Council and trunk drainage infrastructure within the site including connections to adjacent landholdings	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans include all private, Council and trunk drainage infrastructure within the site and deemed compliant	Yes
<ul> <li>B25 (e)</li> <li>Be designed in accordance with the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (Technical Guidance) (NSW Government, 2022) and detail:</li> <li>i) the requirements and objectives of the IWCM controls of the DCP will be achieved.</li> <li>ii) the waterway health objectives and targets set out in the Technical Guidance will be achieved</li> </ul>	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. All updated plans have still been designed in accordance with the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets	Yes

B25 (e) iii) levels are resolved to demonstrate the system functions effectively DPE comment (10 <sup>th</sup> August 2023) - Details of level and function have been provided on the AT&L drawings which seems appropriate. However, the levels are not the same as the levels provided on the JWP trunk drain drawings. Furthermore, a range of details relating to drainage and levels on the AT&L drawings require review and update	AT&L drawings issued January 2024 updated to suit comments and coordinated with JWP trunk drainage drawings.	Yes
B25 (e) iv) the development will ultimately connect to the MRP Stormwater Scheme and interim measures to meet the waterway health objectives and targets will be decommissioned	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans are indicated to still ultimately connect to the MRP Stormwater scheme with interim measures. As such deemed compliant	Yes
B25 (e) v) all stormwater management devices will contain an impermeable liner and all naturalised trunk drainage (or other open drainage) is either lined with an impermeable liner, or ameliorated (ie gypsum) and compacted to a suitable depth and topsoiled (AS44119) to limit infiltration to soils	Refer to Civil Drawings 20-748 C13070, 13071 and 13072 for details and specification of impermeable liner	Yes
B25 (f) Demonstrate the on-site stormwater detention design is free draining	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans still demonstrate the OSD basin is free draining. Refer to Civil Drawings 20-748 C13070, 13071 and 13072.	Yes
B25 (g) Demonstrate maintenance access driveways to water storage or bio-retention basins are designed in accordance with Council's specifications	Refer Drawing 20-748 C13072 for cross section through basins. Refer Drawing 20-748 C13121 to C13128 (Pavement and Surface Treatment Plans) for pavement specification of access to basin Refer Drawing 20-748-C13175 for vehicle turn paths for 8.8m long service vehicle to access the basin to meet Penrith City Council's specifications. All driveways designed to Council's industrial driveway specification (PCC DWG SD1004).	Yes
B25 (h) Demonstrate that sufficient land is reserved on site for stormwater management purposes (such as irrigation areas and undeveloped areas) as	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans still indicate sufficient land is	Yes

shown on Figure 2 in Appendix 1, to ensure the development meets the controls in the DCP and the waterway health targets in the Technical Guidance, unless an alterative stormwater management strategy has been approved by the Planning Secretary	reserved on site for stormwater management purposes and deemed compliant.	
<ul> <li>B25 (i)</li> <li>Include civil design drawings that define the design of the WSUD system in accordance with the Technical Guidance and the requirements of Sydney Water and Council</li> <li>DPE Comment (10th August 2023) The drawings are a functional design level only. Suitable civil design drawings to facilitate civil construction have not been provided.</li> <li>As noted by JWP, further design details will be developed and presented in the detailed construction stage documentation for these works</li> </ul>	Refer to all Civil Drawings 20-748 C13000 series issued in January 2024 for all details. Of note refer to Drawings 20-748 - C13070, 13071, 13072, 54435.C.02.10.GA and 54534.F.01.10.GA for WSUD details	Yes
B25 (j) Include landscape drawings that include planting and hardscape details of the WSUD systems DPE Comment (10th August 2023) Landscape drawings are planting only and do not include mulch details. Also the plans are missing the pump, disinfection treatment (if required), irrigated land and any irrigation details, soil and landscape treatments that are required for that zone	Landscape drawings provided by Site Image Pump and pressure main specification provided on Drawing 20-748 C13070 and Sparks and Partners Drawings C-SK-Pump Plan and Section Mark up (PG 1/5 to 5/5) dated 15/04/2024 Soil Assessment Report Westlink Stage 1 Soil Assessment J004954 April 2024 prepared by SESL Aust provides advice on suitability of irrigating the existing topsoil and Lot 5 area.	Yes
<ul> <li>B25 (k)</li> <li>Include certification (and appropriate designed checklists) of the civil and landscape drawings by suitably qualified chartered professional engineer with experience in modelling, design and supervision of SWUD systems that the design drawings comply with the Technical Guide requirements and the stormwater targets are achieved.</li> <li>DPE Comments (10th August 2023) JWP have provided a certification that the drawings are appropriate to facilitate bulk earthworks. This is agreed.</li> <li>However further development of the drawings is required (as noted by JWP) and the drawings need</li> </ul>	Refer to all Civil Drawings 20-748 C13000 series issued in January 2024 for development of drawings.	Yes

to be certified and signed by the engineers or landscape architects		
B25 (I) Include evidence that the design and mix of WSUD infrastructure has considered on going operation and maintenance, including a detailed lifecycle cost assessment (including capital, operation/ maintenance and renewal costs over 30 years)	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans haven't altered the WSUD infrastructure proposed from the original plans. All operation and maintenance procedures are still the same as described within this report.	Yes
B30 (a) Within four months of the date of this consent, the Applicant must prepare a separate Water and Stormwater Plan (WSMP) to the satisfaction of the Planning Secretary. The WSMP must be prepared by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems, whose appointment has been endorsed by the Planning Secretary	Certification letter provided. Reference CER002-01-20-748 Condition B25b B30a Certificate dated 18 <sup>th</sup> January 2024	Yes
B30 (b) Comply with the requirements of the Technical Guidance	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. All updated plans maintain compliance with the requirements of the Technical Guidance	Yes
B30 (c) Be consistent with the plan shown in Figure 2 in Appendix 1	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. All updated plans are still consistent with the plan shown in Figure 2.	Yes
B30 (d) Be prepared in consultation with the Environment & Heritage Group, Sydney Water, Council and the Department	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans have been prepared in consultation with the nominated Authorities post August 2023 and deemed compliant	Yes
B30 (e) Describe the baseline soil, surface water and groundwater conditions at the site	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans still describe these conditions as per this report.	Yes
B30 (f) Define how the development will comply with the stormwater targets, including connection to the regional scheme	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans still define how the development will comply with stormwater targets.	Yes

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B30 (g) Include MUSIC modelling for each stage of the development in accordance with the Technical Guidance	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. All updated plans include Music modelling for each stage.	Yes
B30 (h) Provide catchment plans, tables and all stormwater management details as per the Technical Guidance	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. All updated plans provide catchment plans and tables as per the original approved plans.	Yes
<ul> <li>B30 (i)</li> <li>I. Proprietary devices are located on private land and only include sediment and nutrient removal if certified under SQIDEP</li> <li>ii. Ensure external catchments are drained to trunk drainage</li> <li>iii. ensure all catchment areas are accounted for in the MUSIC modelling and post processing tool and there are no inconsistencies</li> <li>iv. the strategy and stormwater elements are consistent with the design drawings required by Conditions B25 to B27 (including the detailed drawings in appendices to the report)</li> </ul>	This condition was satisfied in the previous approved plans as per letter dated 10 <sup>th</sup> August 2023. The updated plans indicate all proprietary devices are located on private lands and external catchments drain to the trunk drainage as per the original approved plans.	Yes
B30 (j) Include a protocol for investigation of any non- compliances of the stormwater management system with the IWCM controls in the MRP DCP and waterway health objectives and targets in the Technical Guidance	Refer Section 8 (Inspection and Maintenance) and 9 (Contingency Management) of this report for details	Yes
B30 (k) Detail the contingency measures that would be implemented should issues arise	Refer Section 8 (Inspection and Maintenance) and 9 (Contingency Management) of this report for details	Yes
B30 (I) Include a Maintenance Plan for the WSUD measures	Refer Section 8 (Inspection and Maintenance) and 9 (Contingency Management) of this report for details	Yes
B30 (m) Detail triggers for a review of the plan, including, but not limited to a review of the plan within 6 months of the Stormwater Scheme being available for the site to connect to	Refer Section 8 (Inspection and Maintenance) and 9 (Contingency Management) of this report for details	Yes

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# 2. Introduction

This Water and Stormwater Management Plan (WSMP) has been prepared by AT&L on behalf of ESR Australia in support of a State Significant Development Application (SSD-9138102) MOD 1 for the proposed development of the site located at 290-308 Aldington Road and 59-63 Abbotts Road, Kemps Creek (the Site).

## 2.1. Site Description

The extent of the site is presented in Figure 1.



Figure 1: Site Extent (imagery from nearmap, dated 17 February 2022)

The site is located in the suburb of Kemps Creek, within the Penrith Local Government Area (LGA), and approximately 15 km south-east of the Penrith CBD and 5 km north-east of the under-construction Western Sydney Airport. The site is made up of the following allotments:

- Lot 11 DP253503 (63 Abbotts Road, Kemps Creek)
- Lot 12 DP253503 (59-62 Abbotts Road, Kemps Creek)
- Lot 13 DP253503 (290-308 Aldington Road, Kemps Creek)
- Lots 3 and 4 DP250002 (1030-1064 Mamre Road, Kemps Creek)

The total area of the site is approximately 53.8 hectares, including the residual land to the east and south not being developed as part of this SSD.

The site is currently characterised as rural land and comprises residential dwellings, agricultural areas, sheds, greenhouses and some farm dams.

In June 2020, the site was rezoned *IN1 – General Industrial* under the *State Environmental Planning Policy* (Western Sydney Employment Area) 2009. The site is also located in the Mamre Road Precinct and is therefore subject to controls outlined in the Mamre Road Precinct Development Control Plan 2021.

# 2.2. Supporting Documentation

The following documentation is referred to throughout and should be read in conjunction with this report:

- Civil Drawings (AT&L), 20-748-C11000 (Infrastructure) submitted separately
- Stormwater Management Layout Plan 20-748-C11075 in Appendix 1
- Pre-Development hydrology parameters and assumptions letter (LTR007-02)- refer to Appendix 2
- Life Cycle Costings, and O&M Manuals from Landcon & SPEL refer to Appendix 3
- CPESC Report by LENECO Environmental Management
- Trunk Drainage Drawings and associated report by J.Wyndham Prince
- Westlink Industry Park Response to Agency Comments Condition B25 and B30 Table August 2023

# 3. Site Characteristics

## 3.1. Existing Topography and Catchments

The Site in its existing condition is characterised by undulating topography. The ground slope across most of the site has a general fall from the east to west towards Abbotts Road with existing levels ranging from RL92.5 in the southeast, RL 87.5 in the north-east, RL 58.5 in the north west and RL51.0 at the intersection of Abbotts Road and Aldington Road.

The eastern portion of the site consists of four ridgelines that are generally aligned in an east-west direction. Ground slopes off these ridgelines towards local gullies within the site are typically between 10% and 15%. The western portion of the site adjacent to Aldington Road and Abbotts Road is generally flatter than the eastern portion, with ground slopes typically in the range of between 2% and 8%.

Most of the site in its existing condition is pervious, other than some residential dwellings, sheds and access driveways.

Delineation of the existing internal drainage catchments and external catchment that drain through the site is presented as Figure 2.



Figure 2: Catchment extents under existing conditions

A summary of the internal catchments under existing conditions is presented in Table 2. The total catchment area internal to the site boundaries is 53.80ha.

Catchment ID	Area (ha)	Description
А	28.82	Discharges towards Mamre Road via residual land 1030-1064 Mamre Rd.
В	24.47	Discharges towards the eastern boundary of 1016-1028 Mamre Road (Lot 2 DP250002) and ultimately into a catch drain that runs along the southern edge of Abbotts Road.
С	6.09	Discharges towards the intersection of Abbotts Road and Aldington Road.
D	0.33	Discharges in a north-easterly direction towards 19-105 Capitol Hill Drive Mount Vernon (Lot 4132 DP857093)
E	0.45	Discharges in a northerly direction towards 272 Aldington Road (Lot 15 DP253053)
F	0.75	
G	3.46	Discharges into a shared existing farm dam, which overflows into the 1066- 1074 Mamre Rd property to the south.

Table 2: Description of internal and external catchments under existing conditions

# 3.2. Existing Drainage Lines

Based on large-scale topographic mapping (1:25,000 from NSW Six Maps), there are two mapped overland drainage lines within the site, refer to Figure 3.



Figure 3: Topographic mapping showing drainage lines in the vicinity of the site (Source: NSW SIX Maps)

The Mamre Road Precinct Waterway Assessment (CTEnvironmental, April 2020), contained in the Mamre Road Flood, Riparian Corridor, and Integrated Water Cycle Management Strategy (Sydney Water, October 2020) presents the extents of waterways in the Mamre Road Precinct that have been the subject of a desktop review and field assessment to confirm the presence of mapped and unmapped waterways. An extract of mapping showing the extents of waterways in the Mamre Road Precinct is presented as Figure 4. This shows an unnamed tributary of Kemps Creek within the site.



Figure 4: Extract of waterway mapping (CTEnvironmental, April 2020)

Results of the inspection of the unnamed tributary of Kemps Creek are described in the *Mamre Road Precinct Waterway Assessment* (CTEnvironmental, April 2020), and are summarised below:

- Two first order watercourses were evident in the headwaters which run to the north and south of the recently demolished house on 59-62 Abbotts Road.
- A clear flow path was evident below the confluence of the two first order watercourses, which validated the presence of a second order watercourse.
- The flow path did not have defined bed and banks, likely due to the presence of three upstream farm dams.
- From a point approximately 200 metres downstream (west) of the confluence of the first order watercourses, the flow path was observed to be heavily modified and formed into a drainage channel that runs parallel to and on the southern side of Abbotts Road. The flow path continues to Mamre Road.
- The section of mapped watercourse downstream of the Westlink Industrial Estate was not present, refer to Figure 5.
- Due to the lack of vegetation along the upper section of the headwater and significant modification to the drainage channel in the lower section, the watercourse had minimal ecological value.



Figure 5: Field validated flow paths and watercourses within and downstream of the site

# 3.3. Existing Geology

Based on the Preliminary Geotechnical Investigation undertaken by Douglas Partners (reference: 92352.00, dated August 2019) for 59-63 Abbotts Road and the Geotechnical Investigation Report prepared by Alliance Geotechnical (reference: 9687-GR-1-1, dated October 2019) for 290-308 Aldington Road, the following inferred sub surface soils were encountered across the site:

- TOPSOIL / topsoil filling to depths of 0.1 0.6m
- FILL to depths of 2.3m over parts of the site
- Residual Soil variably stiff to hard silty clay, to depths in the range 2.5-3.5m
- BEDROCK initially extremely low to very low strength shale or sandstone at first contact at depths of 0.7

## 3.4. Post-Development Catchment Extents



A post-development catchment plan based on the proposed site grading is presented as Figure 6.

Figure 6: Catchment extents under proposed conditions

The post developed catchment extents are proposed to drain into 3 different catchments as highlighted in Figure 6 and below dot points:

- OSD Basin Catchment includes all of developed Lot 1 and 4, B1, B3, external catchment EX.C1 north of Lot 1 (temporary only until the northern site is developed) and road reserves as part of the Stage 1.
- 20m wide naturalised trunk drainage channel includes catchment Residual Lot 3, B2, EX.B1, and the trunk drainage reserve.
- Bypass Catchments include:
  - o EX.C2 bypassing into Aldington Road
  - o Catchments D, EX.D1, EX.D2 which drain to the west of future stage 2
  - Catchment G and EX.G which currently drain to the south. G will be captured by future stage 2 while EX.G will be diverted into its naturally draining catchment.

All flows into the naturalised trunk drainage channel are assumed undeveloped catchments for this Stage 1 development. Once these catchment are developed, detention measures within future allotments will be required to be implemented to ensure peak post flows into the open channel do not exceed the pre-developed flows. This will need to be determined as part of the Development Applications on each of these lots.

The outlet from the OSD basin will discharge into the naturalised trunk drainage channel via a controlled outlet at the north western end of the channel to discharge into the stormwater network within Abbots Road. These flows will be directed into the downstream naturalised trunk drainage channel when it is constructed in the future. The OSD basin spillway is set at a level higher than the open trunk drainage channel's 1% AEP peak water level to ensure water will not overtop the open channel into the OSD basin for all storm events up to the 1% AEP. Flows from catchment D and G to the south will have a separate discharge point to the stage 2 naturalised trunk drainage channel.

# 4. Stormwater Drainage

# 4.1. Stormwater Drainage Design Criteria

Design criteria and requirements for the proposed site stormwater management and stormwater drainage are outlined in the following documents:

- AS 3500.3 Plumbing and drainage Stormwater drainage
- Commonwealth of Australia (Geoscience Australia), *Australian Rainfall and Runoff: A guide to flood estimation*, 2019.
- NSW Department of Planning, Industry and Environment (DPIE), *Mamre Road Precinct Development Control Plan 2021*.
- NSW Department of Planning, Industry and Environment (DPIE), MUSIC Modelling Toolkit Wianamatta, 2 August 2021.
- Penrith City Council, Design Guidelines for Engineering Works for Subdivisions and Developments, as amended 20 November 2013.
- Penrith City Council, *Water Sensitive Urban Design (WSUD) Policy*, December 2013.
- Penrith City Council, WSUD Technical Guidelines, Version 4 October 2020.

### 4.2. Proposed Site Stormwater Drainage

The proposed drainage network within the estate has been designed to safely convey major and minor flows prior to discharging to neighbouring properties to the south and west. The following criteria have been adopted for the proposed drainage system:

- Major system (pit and pipe network, overland flow paths and channels): 1% AEP
- Minor system (pit and pipe network): minimum 5% AEP and increased where required to address major system design requirements.
- Flood Impacts from external catchments are to be minimised to an acceptable level for all floods up to the PMF.

The internal site stormwater drainage has been designed to drain towards the proposed detention basin located on the southern side of Abbotts Road. The basin will discharge into a new stormwater drainage line that will be constructed on the southern side of Abbotts Road, which will connect to future stormwater drainage that will ultimately drain towards Mamre Road.

## 4.3. Trunk Drainage Infrastructure

The *Mamre Road Precinct DCP* includes indicative locations of trunk drainage infrastructure across the precinct, refer to Figure 7. A 20m width naturalised trunk drainage line is situated within the ESR Westlink site, which would drain in a westerly direction on the southern side of Abbotts Road and ultimately towards Mamre Road. J. Wyndham Prince has investigated the hydraulics and spatial design of the trunk drainage in stage 1.



#### Figure 7: Trunk drainage infrastructure identified in the Mamre Road Precinct DCP

Due to the site topography and the proposed built landform, pits, pipes and a future 20m naturalized trunk drainage channel will be implemented within the Westlink Industrial Estate for trunk drainage infrastructure. Confirmation has been received in discussions with Sydney Water in June 2023 that the naturalized trunk drainage channel within the development can be reduced in width from 25m (as per the Precinct DCP) to 20m. As such all documentation refers to the naturalized trunk drainage channel being 20m wide. There will be two major drainage lines within Road 01:

Minor system drainage (minimum 5% AEP capacity) to capture and convey stormwater runoff from the
proposed Lots 1 and 4 and Road 01. This line will discharge to the detention basin on proposed Lot 2,
with outflow from the basin draining to the naturalised trunk drain on the southern side of Abbotts Road.
(which in the interim will flow back into an existing pipe in the downstream Abbotts Road)

- Major system drainage (minimum 1% AEP capacity) to capture and convey stormwater runoff from Lot 1, 4 and the road reserves. Stormwater in the piped system is conveyed to the Abbot's Rd basin where flows from the 50% to the 1% AEP storms are attenuated to the existing catchment flows. Future allotments are to provide their own OSD and drain directly into the naturalised trunk drain.
- During stage 1 works, the external catchments to the east of the site and residual catchments in future lot 3 and lot 5 are directed into the open trunk drainage channel.

This open channel is to form the naturalised trunk drainage network as per the DCP and ultimately connect into the future Sydney Water open channel to the west of the site, south of Abbots Road. The open trunk drainage channel within the Westlink Estate has been designed by JWP in collaboration with Sydney Water.

At this stage there is no detailed design of this downstream naturalised trunk drainage channel so the channel within the Estate has been drawn indicative only on the civil plans. Refer to Drawing 20-748 C11071 for location of proposed channel. Detailed design of the channel is being undertaken by JWP based on consultation with SWC. In the future, all external catchments to the east of the site will be conveyed through this naturalised trunk drainage channel ultimately draining under Mamre Road. Reference is made to Penrith City Council's submission on the SSDA documentation in their letter to DPIE dated 21 July 2021, which states: '*No objections are raised to the proposed methodology to separate internal treated stormwater flows from external catchment flows*'.

# 5. Water Management Strategy

This section summarises the proposed water management strategy for the site, including details of the proposed stormwater management measures and characterisation of water quality, quantity and flow volume at the points of discharge at the site boundary against the controls outlined in the Mamre Road Precinct DCP.

# 5.1. Water Management Strategy Objectives and Controls

The main objectives pertaining to the management of stormwater within the proposed development site are outlined in Section 2.4 of the Mamre Road Precinct DCP. Controls relating to stormwater quantity management and the requirement to attenuate peak flow rates are outlined in Section 2.5 of the DCP.

Specific controls relating to water management, as well as a response to these controls, is summarised below in Table 3.

Response **DCP** Controls Waterway health and Water Sensitive Urban Design 1) Development applications must demonstrate Performance of the proposed water management compliance with the stormwater quality targets in strategy against the stormwater guality targets is Table 4 (DCP) and the stormwater flow targets during presented in Table 11. construction and operation phases in Table 5 (DCP) Performance against the construction phase and Table 6 (DCP) at the lot or estate scale to ensure stormwater flow targets is presented within the NSW Government's waterway objectives (flow and Certified Professional in Erosion and Sediment water quality) for the Wianamatta-South Creek Control (CPESC) report prepared by LENECO catchment are achieved (see Appendix D). Where the Environmental Management. strategy for waterway management is assessed at an Performance of the proposed water management estate level, the approval should include for individual strategy against the operational stormwater flow buildings within the estate, which may be the subject targets is presented in Table 13. of future applications.

Table 3: Response to DCP controls relating to water management

DCP Controls	Response
2) The stormwater flow targets during operation phase (Table 5) include criteria for a mean annual runoff volume (MARV) flow-related option and a flow duration-related option. Applicants must demonstrate compliance with either option.	Performance of the proposed water management strategy against the operational stormwater flow targets is presented in Table 13.
3) Development applications must include a Water Management Strategy (WMS) detailing the proposed Water Sensitive Urban Design (WSUD) approach, how the WMS complies with stormwater targets (i.e., MUSIC modelling), and how these measures will be implemented, including ongoing management and maintenance responsibilities. Conceptual designs of the stormwater drainage and WSUD system must be provided to illustrate the functional layout and levels of the WSUD systems to ensure the operation has been considered in site levels and layout.	The Water Management Strategy for the site is outlined in Section 5, and includes the approach to WSUD for the site, performance of the proposed stormwater management measures against the DCP targets, and description of delivery, ongoing management and maintenance of each proposed measure. Design drawings showing the layout and levels of the proposed stormwater management elements are included in the AT&L civil package.
4) The design and mix of WSUD infrastructure shall consider ongoing operation and maintenance. Development applications must include a detailed lifecycle cost assessment (including capital, operation/maintenance, and renewal costs over 30 years) and Maintenance Plan for WSUD measures.	Ongoing management and maintenance considerations are addressed in Section 7 All costs associated with the delivery, operation and maintenance of the estate-based water management measures will be borne by the proponent.
5) WSUD infrastructure may be adopted at a range of scales (i.e., allotment, street, estate, or sub-precinct scale) to treat stormwater, integrate with the landscape and maximise evaporative losses to reduce development flow runoff. Vegetated WSUD measures, naturalised trunk drainage and rainwater/stormwater reuse are preferred. Acceptable WSUD measures to retain stormwater within the development footprint and subdivision are shown in Table 7 (DCP).	A summary of the proposed WSUD infrastructure adopted in the water management strategy is presented in Table 4.
6) Development must not adversely impact soil salinity or sodic soils and shall balance the needs of groundwater dependent ecosystems.	Refer to Geotechnical Investigation Reports prepared by Douglas Partners (for 59-63 Abbotts Road) and Alliance Geotechnical (for 290-308 Aldington Road) for details of soil salinity, sodicity and groundwater.
7) Infiltration of collected stormwater is generally not supported due to anticipated soil conditions in the catchment. All WSUD systems must incorporate an impervious liner unless a detailed Salinity and Sodicity Assessment demonstrates infiltration of stormwater will not adversely impact the water table and soil salinity (or other soil conditions).	The proposed water management strategy does not incorporate infiltration of collected stormwater.
8) Where development is not serviced by a recycled water scheme, at least 80% of its non-potable demand is to be supplied through allotment rainwater tanks.	Refer to Section 5.5.4 for details of proposed rainwater tanks and demand statistics.

DCP Controls	Response
<ul> <li>9) Where a recycled water scheme (supplied by stormwater harvesting and/or recycled wastewater) is in place, development shall:</li> <li>Be designed in a manner that does not compromise waterway objectives, with stormwater harvesting prioritised over reticulated recycled water;</li> <li>Bring a purple pipe for recycled water to the boundary of the site, as required under Clause 33G of the WSEA SEPP. Not top up rainwater tanks with recycled water unless approved by Sydney Water; and</li> <li>Design recycled water reticulation to standards required by the operator of the recycled water scheme.</li> </ul>	Stormwater harvesting in the form of rainwater tanks on the proposed lots will form one of the components of the Interim Arrangement. Rainwater tanks would not be required under the Ultimate Arrangement. Any tanks constructed on Lots 1 and 4 would be required to be decommissioned upon completion of recycled water mains within the Precinct which this Estate will utlitise.
Trunk Drainage Infrastructure	
10) Indicative naturalised trunk drainage paths are shown in Figure 4 (DCP)	Reproduced in this report for context as Figure 7.
<ul> <li>11) Naturalised trunk drainage paths are to be provided when the:</li> <li>Contributing catchment exceeds 15ha; or</li> <li>1% AEP overland flows cannot be safely conveyed overland as described in Australian Rainfall and Runoff – 2019;</li> <li>unless otherwise agreed by the consent authority.</li> </ul>	Details of the proposed trunk drainage infrastructure are included in Section 4.3. Refer to Drawing 20-748 C11071 and C11221 for proposed location of naturalised trunk drainage path proposed within the Estate Trunk drains are not provided in the undeveloped portion of the site to the south with fully natural catchments.
12) The design and rehabilitation of naturalised trunk drainage paths is to be generally in accordance with NRAR requirements (refer to Section 2.3) that replicates natural Western Sydney streams. An example of a naturalised trunk drainage path is shown in Figure 3.	Based on discussions with Sydney Water there is no detailed design on the naturalised trunk channel downstream of the Estate. It is proposed at detailed design to coordinate with Sydney Water on the design and rehabilitation of the naturalised trunk drainage channel to match into any downstream open channels
<ul> <li>13) Naturalised trunk drainage paths shall be designed to:</li> <li>Contain the 50% AEP flows from the critical duration event in a low flow natural invert;</li> <li>Convey 1% AEP flows from the critical duration event with a minimum 0.5m freeboard to applicable finished floor levels and road/driveway crossings; and</li> <li>Provide safe conveyance of flows up to the 1% AEP flood event.</li> </ul>	As described above, trunk drainage infrastructure in the form of a pit and pipe system and open channel is proposed to be provided within the site. This system will have sufficient capacity to capture and convey flows up to the 1% AEP design event and with freeboard.

DCP Controls	Response
<ul> <li>14) Where naturalised trunk drainage paths traverse development sites, they may be realigned to suit the development footprint, provided that they:</li> <li>Comply with the performance requirements for flow conveyance and freeboard;</li> <li>Are designed to integrate with the formed landscape and permit safe and effective access for maintenance;</li> <li>Do not have adverse flood impacts on neighbouring properties; and</li> <li>Enter and leave the development site at the existing points of flow entry and exit.</li> </ul>	<ul> <li>The proposed trunk drainage lines within the site will:</li> <li>Comply with requirements for flow conveyance and freeboard.</li> <li>Incorporate sufficient access points for maintenance – maximum spacing of pits will not exceed 75 metres, which is consistent with Penrith City Council's <i>Design Guidelines for Engineering Works for Subdivisions and Developments</i> (considered an appropriate reference in the absence of any specific Sydney Water guideline or standard).</li> <li>Have sufficient capacity to capture and convey flow from the external catchments to the east of the Westlink Industrial Estate, and will therefore not result in adverse flood impacts on neighbouring properties. This is currently being confirmed by a flood impact assessment underway.</li> <li>Discharge from the Westlink Industrial Estate to a point of discharge within the Abbotts Road reserve, to proposed drainage that will be constructed as part of the upgrade of Abbotts Road.</li> </ul>
15) Trunk drainage paths shall remain in private ownership with maintenance covenants placed over them to the satisfaction of Council (standard wording for positive covenants is available from Council). Easements will also be required to benefit upstream land.	The proposed naturalised trunk drainage channel and upstream pipework is within private land south of Abbotts Road. The need or otherwise for maintenance covenants to be placed over the proposed stormwater drainage will be confirmed subject to further discussion and coordination with the road authority (Penrith City Council) and the Waterway Manager (Sydney Water).
16) Where pipes/ culverts are implemented in lieu of naturalised trunk drainage paths, they must remain on private land and not burden public roads, unless otherwise accepted by Council.	The only pipe which may be considered trunk is to connect to the downstream drainage outside of private land and hence cannot be kept within private land.
17) High vertical walls and steep batters shall be avoided. Batters shall be vegetated with a maximum batter slope 1V:4H. Where unavoidable, retaining walls shall not exceed 2.0m in cumulative height.	All slopes are graded at maximum 1:4 grades. The only exception is the under-water portion of the interim reuse pond, with 1:2 batters.
18) Raingardens and other temporary water storage facilities may be installed online in naturalised trunk drainage paths to promote runoff volume reductions.	Not applicable to the Westlink Industrial Estate.
19) Subdivision and development are to consider the coordinated staging and delivery of naturalised trunk drainage infrastructure. Development consent will only be granted to land serviced by trunk drainage	The proposed naturalised trunk drainage infrastructure will be staged and delivered commensurate with the staging of earthworks and infrastructure across the estate.

The naturalised trunk drainage infrastructure will form a critical component of the site water

Civil Engineers | Project Managers | Water Servicing Coordinators | Infrastructure Planners and Advisers

infrastructure where suitable arrangements are in

place for the delivery of trunk infrastructure (to the

DCP Controls	Response
satisfaction of the relevant Water Management Authority).	management strategy throughout construction and will be incorporated into the Erosion and Sediment Control Plan and Construction Environmental Management Plan. The final form of the trunk drainage lines, including connections to infrastructure downstream of the Westlink Industrial Estate, will be undertaken at a suitable stage of development and will be subject to further consultation with the Sydney Water (the nominated Waterway Manager).
20) Stormwater drainage infrastructure, upstream of the trunk drainage, is to be constructed by the developer of the land considered for approval.	All stormwater drainage upstream of the proposed trunk drainage lines will be designed and delivered by the proponent.
21) All land identified by the Water Management Authority as performing a significant drainage function and where not specifically identified in the Contributions Plan, is to be covered by an appropriate "restriction to user" and created free of cost to the Water Management Authority.	Noted – subject to further consultation with Sydney Water (the nominated Waterway Manager).
<ul> <li>22) All proposed development submissions must clearly demonstrate via 2-dimensional flood modelling that:</li> <li>1) Overland flow paths are preserved and accommodated through the site;</li> <li>2) Runoff from upstream properties (post development flows) are accommodated in the trunk drainage system design;</li> <li>3) Any proposed change in site levels or drainage works are not to adversely impact and upstream or downstream, or cause a restriction to flows from upstream properties;</li> <li>4) There is no concentration of flows onto an adjoining property; and</li> <li>5) No flows have been diverted from their natural catchment to another.</li> </ul>	Refer to Section 7 for details of overland flow flooding through the site. Refer to the Stantec "Flood Impact Assessment Westlink Industrial Estate – Stage 1 290-308 Aldington Road, Kemps Creek" report for further detail on how Stage 1 satisfies these criteria.
Overland Flow Flooding	
10) Development should not obstruct overland flow paths. Development is required to demonstrate that any overland flow is maintained for the 1% AEP overland flow with consideration for failsafe of flows up to the PMF.	The proposed major and minor system drainage has been designed such that development within the estate will not obstruct any overland flow paths. Suitable allowance for overland flow has been made within the design of the major and minor system. The bypass pipe built for future external flows is to be designed to intercept

DCP Controls	Response
	overland flows at existing flows. Any future development in the external catchments must be attenuated to this flow regime. The flood impact assessment will address storms above the 1% AEP.
11) Where existing natural streams do not exist, naturalised drainage channels are encouraged to ensure overland flows are safely conveyed via vegetated trunk drainage channels with 1% AEP capacity plus 0.5m freeboard. Any increase in peak flow must be offset using on-site stormwater detention (OSD) basins.	Refer to Section 4.3 for details of the proposed trunk drainage infrastructure. Refer to Section 5.5.2 for details of the proposed detention basin that will attenuate peak flows within the estate prior to discharge across the estate boundary and into the proposed drainage system in Abbotts Road.
12) OSD is to be accommodated on-lot, within the development site, or at the subdivision or estate level, unless otherwise provided at the catchment level to the satisfaction of the relevant consent authority.	The location of the proposed detention basin within the estate is presented on drawing 20-748- C11071. On site detention is provided on an estate level, not an allotment level.
13) Stormwater basins are to be located above the 1% AEP.	The site is not subject to mainstream flooding, and therefore the proposed detention basins will be located outside the extent of 1% AEP mainstream flooding.
14) Post-development flow rates from development sites are to be the same or less than pre-development flow rates for the 50% to 1% AEP events.	The performance of the proposed detention basin against the stormwater quantity targets in the Mamre Road Precinct DCP is summarised in Table 12.
15) OSD must be sized to ensure no increase in 50% and 1% AEP peak storm flows at the Precinct boundary or at Mamre Road culverts. OSD design shall compensate for any local roads and/or areas within the development site that does not drain to OSD.	As demonstrated in Table 12, the proposed detention basin has been sized to ensure no increase in peak flows at the discharge point from the estate. All bypass flows are considered in the attenuation requirements.

# 5.2. Water Management Strategy Overview

Since the release and adoption of the Mamre Road Precinct DCP in November 2021, AT&L has been working with several landowners in the Mamre Road Precinct, Government, other Industry Bodies, and experts in water management to resolve practical solutions that will address the stormwater flow targets that have been adopted in the final DCP.

The Mamre Road Flood, Riparian Corridor and Integrated Water Cycle Management Report (FRCIWCM) (Sydney Water, 2023) addresses links between waterway health, hydrology and water quality targets. The stormwater management objectives outlined in the FRCIWCM Report, which have ultimately been adopted in the Mamre Road Precinct DCP, were developed by applying the Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions (NSW OEH, 2017). The effects-based assessment outlined in the FRCIWCM Report addressed three metrics relating to waterway health and stormwater management:

1. Flow volume – mean annual runoff volume (MARV), measured in ML/ha/year. The target adopted in the Mamre Road Precinct DCP is 2 ML/ha/year (revised from 1.9 ML/ha/year in the Draft DCP). The outcomes for the Westlink Industrial Estate are summarised in Section 5.9.

2. Seasonal pulses – as shown by flow duration curves. The targets and outcomes demonstrated by a flow duration curve under post-development conditions is presented in Section 5.9.

*3. Water quality – as indicated by stormwater pollution reduction.* The targets and outcomes demonstrated as reduction in average annual pollutant load are summarised in Section 5.7. Note that as this design contains significant natural catchment, we have adopted the concentration targets as provided in the 20/04/2022 "MUSIC MODELLING TOOLKIT – WIANAMATTA" produced by DPE.

In the FRCIWCM, Sydney Water also discussed the potential for regional facilities to be implemented to satisfy the stormwater flow objectives for the Mamre Road Precinct. The FRCIWCM report states:

"It is noted that the most cost-effective way to achieve stormwater volume load reductions is via open water bodies and these have a maintenance implication for developers and a wildlife risk.

Through master planning of the Wianamatta South Creek precinct, it will be possible to integrate regional wetlands and water bodies and offset the need for wetlands and open water to be distributed through the Precinct on private lands.

This centralised management of water is preferable as it provides a more appropriate scale of WSUD assets for more cost-effective maintenance and management outcomes."

The Water Management Strategy for Stage 1 has been developed to satisfy the flow targets fully without the regional solution being in place. It is important to note that for the full site to satisfy the flow duration and MARV arrangements, the stage 1 measures may need to be altered, particularly by retrofitting the detention basin. By the time that the future stages are under assessment, it may also be the case that the regional scheme is further progressed, and these measures may be reduced. This report focuses on the "Estate" level flow duration and MARV strategies.

A summary of the proposed stormwater management measures that would be required to satisfy stormwater quality, quantity and flow controls under both the "Estate" and "Regional" Arrangements is presented in Table 4.
	Estate Arrangement (Stage 1) (prior to implementation of regional stormwater management scheme)	Regional Arrangement (with regional stormwater scheme to be operated by Sydney Water)
Rainwater tanks for non-potable reuse (refer to Section 5.5.4 for further details)	<ul> <li>Assumed to be required for proposed Lots 1 and 4 to comply with the following DCP control: Where development is not serviced by a recycled water scheme, at least 80% of its non- potable demand is to be supplied through allotment rainwater tanks.</li> </ul>	<ul> <li>Rainwater tanks would not be required under the Ultimate Arrangement. Any tanks constructed on Lots 1 and 4 would be required to be decommissioned upon completion of recycled water mains within the Precinct which this Estate will utlitise.</li> </ul>
Gross pollutant traps (GPTs) (refer to Section 5.5.1 for further details)	<ul> <li>GPTs to be installed upstream of the proposed detention basin as a pre-treatment measure for the regional stormwater management scheme. May only be modelled with pollutant treatments if SQIDEP approved model is available.</li> </ul>	✓ GPTs with capacity for hydrocarbon and sediment removal (SPEL Stormceptor® or equivalent) to be installed upstream of the proposed detention basin as a pre- treatment measure for the regional stormwater management scheme. The proposed SPEL Filter chamber which is required in the Interim case of no regional basin to connect into, is only a temporary measure to ensure water way health targets are met. Once the regional basins are in place and connected into this SPEL filter chamber will be decommissioned.
Detention basin (refer to Section 5.5.2 for further details)	<ul> <li>Required to satisfy stormwater quantity controls.</li> </ul>	<ul> <li>Required to satisfy stormwater quantity controls.</li> </ul>
Residual Irrigation Pond (refer to Section 4.5.3 for further details)	<ul> <li>Required to satisfy stormwater flow controls and stormwater quality treatment.</li> </ul>	<ul> <li>Will not be required on the basis that stormwater flow controls and stormwater quality treatment will be incorporated into the regional stormwater management scheme. Stage 1 tanks to be decommissioned.</li> </ul>

Table 4: Proposed water management measures under the Estate and Regional Arrangements

#### 5.2.1. Technical Guidance for achieving Wianamatta-South Creek stormwater management targets

In September 2022 The Department of Planning and Environment released a *Technical guidance for achieving Wianamatta-South Creek stormwater management targets.* This guideline was prepared to give advice on modelling to undertake, assumptions to make and which data is to be used to demonstrate that the water targets are being achieved. It also provided a range of example WSUD strategies that could be utilised to meet the water quantity targets.

Refer to Figure 8 below for extract from the Technical Guidelines (page 14) which indicates typical WSUD measures which could be implemented to meet the required water quantity targets.





For this SSD all the dot points as noted within Figure 8 with the exception of a wetland are being incorporated into the civil design to ensure the water quantity targets are met. Refer to Section 4.5 for additional details.

## 5.3. Hydrological and Hydraulic Modelling

DRAINS modelling software has been used to calculate the Hydraulic Grade Line (HGL) of the proposed estatewide stormwater network, including pits, pipes, overland flow paths and detention basins. DRAINS is a software package used for designing and analysing urban stormwater drainage systems and catchments. It is widely accepted by Council's across NSW as the basis for stormwater design and has been confirmed by Penrith City Council as the preferred stormwater software analysis package.

A summary of the key hydrological and hydraulic design parameters adopted in DRAINS can be found within Appendix 2 of this report and summaries as follows:

- Minor system (pit and pipe) drainage has been designed to accommodate the 5% AEP storm event.
- The combined pit and pipe drainage and overland flow paths have been designed to accommodate the 1% AEP storm event.
- Where trapped low points are unavoidable and potential for flooding private property is a concern, an
  overland flow path capable of carrying the total 1% AEP storm event has been provided. Alternatively, the
  pipe and inlet system has been upgraded to accommodate the 1% AEP storm event.
- Rainfall intensities have been adopted using the Bureau of Meteorology Design Rainfall Data System (2016).
- Times of concentration for each sub catchment have been determined using the kinematic wave equation.
- The width of flow in the gutter does not exceed 2.5 metres and pits are spaced no further than 75 metres apart.
- Velocity x depth product shall not exceed 0.4 m<sup>2</sup>/s for all storms up to and including the 1% AEP event.
- Bypass from any pit on grade shall not exceed 15% of the total flow at the pit.

- Blockage factors of 20% and 50% shall be adopted for on-grade and sag pits respectively.
- A hydraulic grade line HGL design method shall be adopted for all road pipe drainage design.
- Pipelines in roadways shall have a minimum diameter of 375mm.
- A desirable minimum grade of 1% for all pipelines is preferred for self-cleansing under low flow velocities. An absolute minimum grade of 0.5% has been adopted.
- The minimum cover over pipes shall be 450mm in grassed areas and 600mm within carriageways.
- Where minimum cover cannot be achieved due to physical constraints the pipe class shall be suitably increased.
- All pipes in trafficable areas will be Reinforced Concrete Pipes (RCP) or Fibre Reinforced Cement (FRC) equivalent.
- Pipes discharging to an overland flow path shall adopt a minimum tailwater level equivalent to respective overland flow level.
- Pit Loss coefficients have been calculated in accordance with the Hare Charts as documented in the Queensland Urban Drainage Manual.
- A minimum 150mm freeboard has been maintained between pit HGL and pit surface levels for the minor design storm event (5% AEP).
- Overland flow paths maintain a minimum of 300mm freeboard to all habitable floor levels.

## 5.4. Stormwater Quality Modelling

The proposed stormwater treatment train has been modelled using the MUSICX software package (Version 1.1.0). Modelling has been undertaken in accordance with the *MUSIC Modelling Toolkit – Wianamatta* (NSW DPIE, 2021).

#### Rainfall and evaporation data

Penrith City Council's MUSIC-link climate data (rainfall and evapotranspiration) was adopted in the MUSIC model, which aligns with the *MUSIC Modelling Toolkit - Wianamatta*. The default meteorological data includes:

- Pluviometer data (six-minute rainfall intensity and evapotranspiration) for Penrith Lakes AWS (Station 67113) for the period between 1999 and 2008 inclusive (average annual rainfall over this period = 691mm).
- Monthly potential evapotranspiration (PET) as per the MUSIC Modelling Toolkit Wianamatta Table 7

#### Rainfall-runoff parameters

The rainfall-runoff parameters adopted in the MUSIC model are consistent with the parameters adopted in *MUSIC Modelling Toolkit – Wianamatta*, refer to Table 5.

#### Table 5: Rainfall-runoff parameters adopted in MUSIC

Parameter	Unit	Value
Impervious area parameters		
Rainfall Threshold	mm/day	1.0
Pervious area parameter		
Soil Storage Capacity	mm	150
Initial Storage	% of Capacity	30
Field Capacity	mm	130
Infiltration Capacity Coefficient $\alpha$	-	175

Parameter	Unit	Value
Infiltration Capacity Coefficient $\beta$	-	2.5
Groundwater properties		
Initial Depth (groundwater)	mm	10
Daily Recharge Rate	%	25
Daily Baseflow Rate	%	1.4
Daily Seepage Rate	%	0.0

Source nodes and pollutant generation

Pollutant events mean concentrations (EMCs) for base flow and storm flow scenarios have been adopted from Table 6 of Blacktown City Council's WSUD developer handbook (consistent with the *MUSIC Modelling Toolkit - Wianamatta*). The EMC values are applied to source nodes in the MUSIC model to estimate annual pollutant loads exported from the site under the proposed ultimate development scenario. The adopted pollutant EMCs for various catchment types are summarised in Table 6.

#### Table 6: Stormwater quality parameters for MUSIC source nodes

Landuse category		log10 T	log10 TSS (mg/l)		log10 TP (mg/l)		log10 TN (mg/l)	
		Base flow	Storm flow	Base flow	Storm flow	Base flow	Storm flow	
Roof areas	Mean	1.20	1.30	-0.85	-0.89	0.11	0.30	
	Std dev	0.17	0.32	0.19	0.25	0.12	0.19	
Road areas	Mean	1.20	2.43	-0.85	-0.30	0.11	0.34	
	Std dev	0.17	0.32	0.19	0.25	0.12	0.19	
Pervious areas	Mean	1.20	2.15	-0.85	-0.60	0.11	0.30	
	Std dev	0.17	0.32	0.19	0.25	0.12	0.19	

## 5.5. Proposed Stormwater Management Measures

A series of stormwater quantity and quality control measures are proposed to be adopted within the site to satisfy the stormwater management strategy objectives listed in Section 5.2. A general description of the proposed stormwater treatment train components is presented in the following sections.

#### 5.5.1. Gross Pollutant Traps

The proposed stormwater treatment train under the Interim Arrangement would consist of a gross pollutant trap (GPT) upstream of the proposed detention basin as a means of primary stormwater treatment. GPTs are designed to capture litter, debris, coarse sediment, as well as some oils and greases.

The high-flow bypass for the GPT has been modelled as 1.8m<sup>3</sup>/s which is between the incoming 4EY flow and the 1EY flow. Design flows for the GPTs and their final configuration would be confirmed at the detailed design phase.

Note that currently GPTs are not considered to treat anything other than gross pollutants within the MUSIC model as there are no SQIDEP approved models. A SPEL SVO.1600 off-line model has been specified for the purposes of life cycle costing and spatial considerations.

#### 5.5.2. Detention Basins

As discussed in Section 3.1, the site in its existing condition is broadly divided into six internal catchments, with external catchments draining through the site via the northern and eastern boundaries of the site.

Surface water runoff from the proposed lots and within the internal roads is proposed to be collected via pits and pipes and discharge into the proposed detention basin. Refer to drawings 20-748-C11070 to C11072 inclusive for the layout of the proposed internal stormwater drainage and C11081 for Post-developed catchment plan.

Surface water runoff from the external catchments is proposed to be managed as follows for Stage 1:

- External catchment EX.B1 to be collected via a catch drain on the eastern boundary into the ultimate bypass pipes within the private road and naturalised trunk drainage channel (all EX.B-catchments will drain here in the ultimate design).
- Existing catchments B2, B4 & EX.B2– to be collected via a catch drain into trunk pipework within the private road to be conveyed into the naturalised trunk drainage channel.
- External catchment EX. C1 to be collected adjacent to within the northern boundary of Lot 1 and connected into the Lot drainage to ultimately drain into the OSD basin. Note this catchment is temporary only but allowed for in the sizing of the OSD basin and Music modelling. Once the northern neighbour develops their land this catchment will be captured within the developed northern lots and not drain through the Westlink Estate.
- Existing catchment ex. C2 assumed to drain to the west and north of the site and drain into Aldington Road to the west
- Existing Catchments E1, E2 & E3 Bypass the site to the north east as per existing conditions (until further future development occurs) These are not considered in the pre-developed flow requirements for stage 1.
- Catchments D, EX.D1, EX.D2, G Catchments remain in existing conditions and bypass the Stage 1 development. These are not considered in the pre-developed flow requirements for stage 1.

For the post-development scenario, it is proposed to maintain the existing points of discharge as close as possible and to design a solution where post-development peak flow rates are no greater than predevelopment peak flow rates for all storm events up to and including the 1% AEP events. Controlled outlets from the detention basin will include surcharge pits connected to subsurface drainage pipes (for low flows) and an emergency spillway across the basin crests (for high flows). Refer to drawing 20-748-C11071 for the detention basin details.

A summary of the key detention basin parameters and DRAINS model results for the major and minor system flow is presented in Table 7.

Parameter	Unit	Basin A
Base level	mAHD	50.05
Pond Still Water Level	mAHD	53.05
Low Flow outlet pipe Invert	mAHD	53.05
Low Flow outlet diameter (piped headwall)	mm	225
Mid Flow outlet Invert level	mAHD	53.05
Mid Flow outlet diameter (orifice plate on side of pit)	mm	525
High Flow Grated Pit Inlet Level	mAHD	54.98
High Flow Grated Pit size	m	4 x 1.2m x 1.2m
Spillway level	mAHD	55.30

#### Table 7: Key detention basin parameters and DRAINS model results

Parameter	Unit	Basin A
Spillway width	m	10
Embankment Level (minimum)	mAHD	55.60
5% AEP		
Inflow	m³/s	5.48
Outflow through pit and pipe	m³/s	1.91
Outflow over spillway	m³/s	0.00
Peak basin water level	mAHD	55.14
Peak basin storage	m <sup>3</sup>	5649
1% AEP		
Inflow	m³/s	7.63
Outflow through pit and pipe	m³/s	4.13
Outflow over spillway	m³/s	0.15
Peak basin water level	mAHD	55.33
Peak basin storage	m <sup>3</sup>	6381

#### 5.5.3. Stormwater Harvesting for Irrigation

As per the Technical guidance for achieving Wianamatta-South Creek stormwater management targets stormwater harvesting and reuse is another effective way to reduce stormwater flow volumes from frequent flows events to achieve the water quantity targets.

Water runoff from the developed lots is proposed to be stored in a pond beneath the detention volume of the basin. Refer to Drawings 20-748 C13070, C13071, C13072 and C13075 for details and layout. Water from this reuse basin will be stored and used as irrigation in the residual lands within the Estate (4ha set out from Future Lot 6). Refer to Drawing 20-748 C13075 for extent of residual lands to be irrigated via this basin. It is noted this basin arrangement is interim only to be used before the regional basins are constructed. A total of 4.0 hectares of residual land is to be irrigated at a rate of 600mm/year.

Refer to Hydraulic Drawings C-SK\_PUMP PLAN & SECTION MARK UP (PF 1/5 to 5/5) by Sparks and Partners for pump details and refer Westlink Stage 1 Soil Assessment Report J004954\_2\_ April 2024 prepared by SESL AUST for soil assessment report of the irrigated areas. Upon completion and connection into the regional basin to be constructed by Sydney Water, this basin pond may be filled in.

A summary of the pond volume sizing for all reuse purposes adopted in MUSIC is presented in Table 8.

#### 5.5.4. Rainwater Tanks

Rainwater tanks retain a significant proportion of stormwater that falls on roof areas. Given the large-scale industrial development proposed on the site, rainwater tanks can provide a significant contribution to the objective of minimising the total volume of runoff discharging from the site.

A rainwater tank reuse system on individual lots can be installed in many different configurations, including placing the tank above or below ground and using gravity or pressure systems (pumps) to supply rainwater for non-potable domestic uses. These uses typically include toilet flushing, laundry, hot water installations, car washing and irrigation.

The MUSIC model was developed to estimate the rainwater tank volume required to satisfy the Mamre Road Precinct DCP requirement. To determine the tank volume required to meet at least 80% of non-potable demand on individual lots, the following assumptions have been made:

- Non-potable demand of 15L/person/day at 25 persons/ha has been adopted as per the Wianamatta Creek MUSIC modelling guidelines. This has been calculated on a gross hectares basis
- 50% of the total warehouse roof area would drain to the rainwater tanks.

A summary of the rainwater tanks total sizing for all reuse purposes adopted in MUSIC is presented below in Table 8. Note that this will vary with roof catchment available in more detailed design. As per Table 4 these rainwater tanks are incorporated in the Stage 1 design to meet the waterway health guidelines. Once the regional Sydney Water basins are constructed and recycled water is available for the Estate it is proposed the on lot tanks will be decommissioned. Rainwater tanks would not be required under the Ultimate Arrangement. Any tanks constructed on Lots 1 and 4 would be required to be decommissioned upon completion of recycled water mains within the Precinct which this Estate will utilitise.

Lot	Total Lot Area (ha)	Roof area to rainwater tank (ha)	Estimated annual irrigation demand (kL/yr)	Estimated Toilet reuse demand (kL/day)	Rainwater storage required (kL)
1	11.08	3.25	3708	4.155	250 (TANK)
4	3.16	0.92	888	1.158	60 (TANK)
BASIN	N/A	N/A	22440	N/A	2810 (POND)
POND					

 Table 8: Summary of Stormwater Harvesting parameters under the Stage 1 Arrangement

#### 5.5.5. SPEL Filter

To satisfy the concentration based stormwater treatment requirements, 60 SPEL Filter cartridges in concrete tanks are required to be placed downstream of the detention basin & pond before the outlet to the naturalised channel. The SPEL Filter cartridges are SQIDEP approved and all values for MUSIC are in line with the SQIDEP review document.

The proposed SPEL Filter chamber which is required in the Interim case of no regional basin to connect into, is only a temporary measure to ensure water way health targets are met. Once the regional basins are in place and connected into this SPEL filter chamber will be decommissioned.

Design of the SPEL Filter chamber has been coordinated with tailwater levels within the channel through consultation with JWP and Atlan (the supplier). RL 52.35 is the maximum tailwater for the 4EY storm based on advice received from JWP as designers of the open trunk drainage channel under ultimate conditions (no headwall). SPELFilter system (as shown in Figure 9 below) is proposed with base RL52.35, above the 4EY storm to ensure full treatment of the flows. Advice from Atlan's engineers in July 2023 was that while treatment outcomes reduce when tailwater extends above the invert levels, damage to the cartridges could only occur if the hydraulic head of the downstream channel is significantly higher than the basin head. In this case, the rarer AEP water levels within the basin is significantly higher than in the channel, avoiding this situation. Refer to plan C11072 for cross sections showing levels design.

Each SPEL Filter Cartridge has a treatable flow of 3L/s. 60 cartridges have been specified for a total of 180L/s treatable flow. Excess flow will spill over an 850mm tall weir within the tanks, with detailed design to be confirmed with the supplier. If a model of GPT becomes SQIDEP approved, it would be possible that the treatment rates of the GPT will reduce the number of filters required to meet the concentration based flow targets, however for now the GPT is assumed to treat no TSS, TP or TN. Note that high basin outflows will bypass this system altogether.



Figure 9: SPEL Filter Typical Arrangement

#### 5.5.6. Passively Irrigated Street Trees

Advice received from Sydney Water are that passively irrigated street trees are an important component of their Regional stormwater drainage scheme. These street trees need to be designed to the Sydney Water Stormwater Scheme Infrastructure and Council's approval.

As the time of writing this report (May 2024) it is our understanding SWC and Penrith City Council have prepared a draft design for the passively irrigated street tree (PIST) which is on exhibition for comments. Whilst no design of the PIST are including within street infrastructure of Westlink Estate as yet these trees will be incorporated into the street infrastructure design once finalised. These trees will be included within all public road reserves as per Sydney Water's requirements.

#### 5.6. Scenario Modelling



Figure 10: Post-development MUSIC model layout (Stage 1 Arrangement)

A MUSIC model was created to simulate post-development mean annual loads under the Stage 1 scenario. The post-development model has been created based upon the proposed post-development catchment extents presented in Figure 6. Source nodes for each of the proposed lots have been adopted based on typical large-scale industrial land uses, including those depicted in the Estate Plan prepared by Nettleton Tribe. The layout of the post-development scenario is presented in Figure 10.

Note that natural catchments draining externally are not included in the MUSIC modelling or in per hectare targets.

Source node properties are below in Table 9: MUSIC

The proposed land use breakdown for the proposed lots under the post-development scenario is presented in Table 10. This table is to be read in conjunction with drawing 20-748 C11081.

#### Table 9: MUSIC Modelling Catchments

Catchment	Total Area (ha)	Impervious Area (ha)	Pervious Area (ha)
LOT 1 50% ROOF	3.25	3.25	-
LOT 1 OTHER 50% ROOF	3.25	3.25	-
LOT 1 HARDSTAND	3.34	3.34	-
LOT 1 PERVIOUS	1.24	-	1.24
LOT 4 50% ROOF	0.92	0.92	-
LOT 4 OTHER 50% ROOF	0.92	0.92	-
LOT 4 HARDSTAND	0.93	0.93	-
LOT 4 PERVIOUS	0.39	-	0.39
ACCESS ROADS	1.917	1.534	0.383
BATTERS TO ROAD (B1 & B3)	0.72	-	0.72
BASIN CATCHMENT	0.662	0.331	0.331
NATURALISED TRUNK RESERVE	0.519	0.104	0.415
B2, Lot 3 AND INTERNAL PART OF EX.B1	7.62	-	7.62
SOUTHERN CATCHMENTS D & G	27.94	-	27.94
ACCESS ROAD BYPASS	0.269	0.215	0.054
TOTAL INTERNAL	53.89	14.79	39.09
CATCHMENT C1 PASSING THROUGH LOT 1 <sup>2</sup>	1.02	-	1.02

#### Table 10: Post-development scenario land use breakdown under the Interim Arrangement

Catchment	Total Area (ha)	Roof area to rainwater tanks (ha)	Other impervious area (ha)	Pervious area (ha)	% Pervious area
Lot 1	11.08	3.25	6.59	1.24	11.2
Lot 4	3.16	0.92	1.85	0.39	12.3
Basin	0.66	-	0.33 <sup>1</sup>	0.33	50
Access Roads	2.19	-	1.75	0.44	20
Drainage Reserve	0.52	-	0.10	0.42	80
Stage 1 Developed Areas	18.01	4.17	10.94	2.90	15.9
Residual lands and external catchment draining into trunk drainage channel and bypassing OSD basin <sup>2</sup>	13.29			13.29	100
Residual catchments draining through southern land	27.94	-	-	27.94	100

<sup>1</sup> Pond area is considered impervious area

<sup>2</sup> "CATCHMENT C1 PASSING THROUGH LOT 1" Has been included in the MUSIC model for generating pollutants and water balance only. It has not been included in areas for the flow duration curve or per hectare pollutant generation.

Note: Catchment G, EX,G, E1, E2 and E3 are not considered as contributing to the pre-developed catchments for attenuation purposes as they naturally drain away from the Westlink discharge points.

Residual and External catchments are assumed to represent existing greenfield flows and not included within the Music modelling for flow duration or stormwater quality management, as agreed with EH&G in the consultation period.

The post-development scenario model under the Interim Arrangement incorporates the following stormwater management measures:

- Pervious landscape target of 15% as per Clause 4.2.3 (4) of the Mamre Road DCP s achieved as the total % pervious area for Stage 1 equates to 15.9% (refer Table 10)
- Rainwater tanks, as per the parameters presented in Section 5.5.4.
- GPTs, as per the parameters described in Section 5.5.1.
- Detention basins, as per the parameters described in Section 5.5.2.
- Stormwater harvest basin for irrigation, as per the parameters presented in Section 5.5.3
- Landscape irrigation, at 3.0ML/ha of pervious space (600mm/year with 50% of area irrigated).
- Residual land irrigation at 6.0ML/ha (600mm/year with 100% of area irrigated)
- Baseflow from pervious residual land surfaces is assumed to drain directly to the receiving node over time (red dashed arrows in Figure 10)
- SPEL Filter before discharge into the trunk drainage channel as presented in Section 5.5.5.

The attributes for each of the proposed stormwater management measures have been determined such that they will satisfy the stormwater quality, quantity and flow targets outlined in Section 5.1.

## 5.7. Performance against stormwater quality targets

The "MUSIC MODELLING TOOKIT – WIANAMATTA" Published on 20/04/2022 by DPE, supplied to "support assessments and development of proposals for State Significant Development", provides two options for operational phase stormwater quality targets. The first option is the traditional "reduction in mean annual load from unmitigated development", while the new Option 2 provides an allowable mean annual load. For this development, due to the high amount of residual land, the allowable mean annual load target has been selected.

MUSIC model results presented as mean annual loads per hectare per year at the receiving node indicate that the adopted stormwater quality target reductions are achieved, as shown in Table 11.

Parameter	Proposed Layout Source Load (kg/ha/yr)	Proposed Layout Residual Load for Stage 1 (kg/ha/yr)	Target allowable Mean Annual Load (kg/ha/yr)
TSS (kg/ha/yr)	310.7	75.88	80.00
TP (kg/ha/yr)	0.63	0.19	0.30
TN (kg/ha/yr)	4.33	1.76	3.50
Gross Pollutants (kg/ha/yr)	49.3	1.43	16

 Table 11: Summary of MUSIC modelling results against stormwater quality targets (kg/ha/year)

The MUSIC model results presenting treatment train effectiveness shows that while the adequately satisfies the allowable mean annual loads (Option 2). Due to the large proportion of un-developed land contributing to the treatment train, the reduction targets are less feasible than in a fully developed estate assessment.

Under the Sydney Water Regional strategy, stormwater quality management measures would be incorporated into the regional stormwater management scheme to be designed, delivered and operated by Sydney Water. In this case, the SPEL Filter, residual irrigation, rainwater tanks, and storage ponds are expected to become redundant, with treatment targets met by Sydney Water centralised assets.

## 5.8. Performance against stormwater quantity targets

Table 12 presents the pre-development and post development flow rates, generated by hydrologic and hydraulic modelling in DRAINS, for a range of events between and including the 50% AEP and 1% AEP design storm events at the discharge points from the site. The predevelopment catchments have been modelled with the Initial Loss – Continuing Loss method. (Note this has been updated from early revisions to reflect the latest best practice from AR&R2019). Refer to Appendix 2 for summary letter prepared to Sydney Water Corporation for the summary of the stormwater design parameters.

Design Storm Event	Pre-Development Peak Flow Rate (m³/s)	Post-Development Peak Flow Rate (m³/s) – Site Discharge
50% AEP	1.41	1.08
20% AEP	2.14	2.14
10% AEP	2.99	2.59
5% AEP	3.97	3.83
2% AEP	5.85	5.15
1% AEP	7.43	7.22

Table 12: Pre-development and post-development peak flow rates (Interim and Ultimate Arrangements)

Post developed flow rates are provided at the discharge point of the site at the western end of the naturalised trunk channel. This includes outlet flows from the OSD basin plus the flows within the naturalised trunk drainage channel.

The DRAINS model results demonstrate that the post-development peak flow rates would be less than or equal to pre-development peak flow rates for a range of storm events between (and including) the 50% AEP and 1% AEP design events. Therefore, the stormwater drainage system and detention basins as proposed would satisfy the development controls relating to stormwater quantity management.

The OSD basin is sized such that the estimated fully developed future catchment will satisfy the predevelopment peak flow rate requirements with OSD required on each future allotment. Similarly, the naturalised trunk drain must be designed for the ultimate catchment flows.

## 5.9. Performance against stormwater flow targets

MUSIC model results demonstrating performance of the proposed stormwater management measures in the Interim Arrangement against the stormwater flow targets are presented below in Table 13. The resultant flow duration curve is presented as Figure 11.

Parameter	Result	DCP Target	Complies with	DCP target
			DCP Option 1 (MARV approach)	DCP Option 2 (Flow Duration Curve approach)
Mean annual runoff volume (ML/ha/yr)	1.43	2.0	Yes	n/a
95%ile flow (L/ha/day)	18,197	3000 to 15000	n/a	No
90%ile flow (L/ha/day)	2,922	1000 to 5000	Yes	Yes
75%ile flow (L/ha/day)	333	100 to 1000	n/a	Yes
50%ile flow (L/ha/day)	59	5 to 100	Yes	Yes
10%ile flow (L/ha/day)	0.1	0	Yes*	n/a
Cease to flow*	15%*	10% to 30%	n/a	Yes*

Table 13: Summary of MUSIC model results against stormwater flow targets (Interim Arrangement)



#### Figure 11: Flow duration curve for the proposed stormwater management measures

The results presented in Table 13 demonstrate the proposed stormwater management measures that will be implemented under the Interim Arrangement satisfy the Option 1 DCP stormwater flow targets for the site. The 10 percentile flow of 0.1L/ha/day & cease to flow of under 10% are not cause for concern. Note that the MUSIC model for Stage 1 rounds off at below 0.05L/ha/day, whereas the benchmark examples from Wianamatta MUSIC guidelines show cease to flow occurring at 1L/ha/day. Using this benchmark, Westlink achieves 15% cease to flow. The large amount of residual land and therefore baseflows are what has caused this fine resolution & lower bounded cease to flow.

# 6. Site Water Balance

## 6.1. Water Balance Overview

Potable water supplies in the Sydney area are in recognised short supply with projected population increases, potential climate change and periods of extended drought. It is acknowledged that any development in the Sydney region places greater demand on an already limited water supply. As a result, government bodies, together with Sydney Water have encouraged sustainable development by the implementation of an integrated approach to water cycle management (potable water, sewerage, stormwater and rainwater) to minimise potable water demand and maximise the potential for non-potable water sources to replace potable water demand where possible.

With the appointment of Sydney Water as the regional Waterway Manager and the announcement of a regional stormwater management scheme, opportunities for water reuse within the Mamre Road Precinct will include regional stormwater harvesting and reticulated recycled water.

## 6.2. Water Requirements

Water requirements within the Westlink Industrial Estate will be typical of large format warehouses and distribution centres. Sources of demand for water within the proposed allotments and public domain will include:

- Office amenities (kitchen, bathrooms)
- Landscape irrigation
- Dust suppression (depending on end user requirements)

## 6.3. Water Sources

The primary source of water to the Westlink Industrial Estate will be Sydney Water's potable water reticulation network.

A "third-pipe" reticulated recycled water network will supply non-potable water throughout the Mamre Road Precinct. Non-potable water will be supplied from two sources:

- Stormwater harvested within precinct-wide wetlands / ponds, to be delivered and operated by Sydney Water as part of a regional stormwater management scheme.
- Recycled water from the planned Upper South Creek Advanced Recycled Water Centre.

## 6.4. Water Use Minimisation

Sydney Water provides a wide range of advice and guidance relating to water use minimisation and water efficiency. Whilst warehouses and distribution centres are relatively low water users in comparison to other industrial users, the following water use minimisation principles will apply to development within the Westlink Industrial Estate:

- Avoid using water where possible, such as sweeping hard surfaces instead of washing them.
- Reduce water use by installing water-efficient appliances and equipment (e.g., toilets, urinals, shower heads).
- Reuse water from manufacturing or cooling processes to toilet flushing, landscape irrigation and dust suppression.

# 7. Overland Flow Flooding

The site is located outside the extent of the Flood Planning Area identified in the *Penrith Local Environment Plan 2010*, refer to Figure 12.



Figure 12: Extract of flood planning land map (Penrith LEP 2010)

Mapping of the 1% AEP flood extent from local catchments within the Mamre Road Precinct is presented in the *Mamre Road Flood, Riparian Corridor and Integrated Water Cycle Management Strategy* (Sydney Water, October 2020), and is reproduced as Figure 13. This mapping shows the extent and depth of overland flow from local catchments within the site.



Figure 13: 1% AEP flood depth from local catchments under existing conditions (Sydney Water, 2020)

The proposed development of the site, including bulk earthworks, construction of a major and minor drainage system and construction of the proposed detention basin, will satisfy the development controls related to flood prone land outlined in Section 2.5 of the Mamre Road Precinct DCP.

The design of major system drainage elements is consistent with the principles of the NSW Government *Floodplain Development Manual* and Penrith City Council's *Stormwater Drainage Specification for Building Developments*. Under the post-development scenario, overland flow will be safely contained within the proposed road reserve and within trunk drainage infrastructure that has been incorporated into the design of the subdivision works.

As presented in Table 12, the post-development peak flow rates will be less than the pre-development peak flow rates at each of the discharge points for all design storm events between (and including) the 50% AEP and the 1% AEP event.

Refer to "Flood Impact Assessment Westlink Industrial Estate – Stage 1 290-308 Aldington Road, Kemps Creek" by Stantec for further details including 2D flood modelling of downstream impacts.

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# 8. Inspection and Maintenance Plan

## 8.1. Maintenance and Operations

Inspection and maintenance of the stormwater management measures that will be implemented under Stage 1 Phase 1 conditions shall be undertaken at the minimum frequency as outlined in Table 14. The majority of these requirements have been derived from the Penrith City Council guideline titled <u>Water sensitive urban</u> <u>design (WSUD) inspection and maintenance guidelines</u> (Version 1.0, 2022).

Refer to Appendix 3 for Inspection and Maintenance Sheets for each of the stormwater management elements that will be owned, operated and maintained by the Property Owner (or representatives), including:

- Rainwater tanks
- On-lot stormwater drainage
- Gross pollutant traps
- OSD Basin

#### Table 14 - Inspection and monitoring requirements

Inspection / Monitoring Requirement	spection / Monitoring Responsibility equirement		References / Notes	
1. On-lot stormwater drai	nage (including rainwater ta	anks)		
Eaves / box guttering system and downpipes	ESR as current property manager	At least once every six months	Refer to Inspection and Maintenance Sheets for rainwater tanks in Appendix 3.	
On-lot stormwater drainage – grates and pits	ESR as current property manager	At least once every year	Refer to Inspection and Maintenance Sheets for on-lot stormwater	
On-lot stormwater pits and pipes (by CCTV)	ESR as current property manager	At least once every three years	drainage in Appendix 3.	
Rainwater tank (first flush device, external inspection of tank and fittings)	ESR as current property manager	At least once every six months	Refer to Inspection and Maintenance Sheets for rainwater tanks and Maintenance Manual provided by Atlan Stormwater (Appendix 3).	
Rainwater tank – internal inspection and cleaning of tank, pumps, pipework and fittings	ESR as current property manager	At least once every year		
2. Gross pollutant traps				
GPT components (lids and surrounds, inlet, outlet, sump, screens, oil baffles)	ESR as current property manager	At least once every six months	Refer to Vortceptor Operation and Maintenance Manual provided by Atlan Stormwater (Appendix 3).	

Inspection / Monitoring Requirement	ection / Monitoring Responsibility Timing / Frequency uirement		References / Notes
3. Estate-wide stormwate	r drainage (within road rese	erve)	
Stormwater drainage elements visible at ground level (grates, lintels, headwalls)	Stormwater drainage Penrith City Council To be determined by elements visible at Penrith City Council ground level (grates, intels, headwalls)		Assets to be incorporated into Council's asset management system
Stormwater pits and pipes (by CCTV)	Penrith City Council	To be determined by Penrith City Council	
4. OSD Basin			
Basin inlet and outlet (blockage, scour, erosion)	ESR as current property manager	At least once every six months	Refer to Inspection and Maintenance Sheets for OSD Basin in
Basin discharge control pit (grates, orifices, screens)	ESR as current property manager	At least once every six months	Appendix 3.
Basin embankments (erosion, vegetation cover, litter, rock protection at spillway)	ESR as current property manager	At least once every six months	-
5. Stormwater Pump Stati	on and Irrigation Rising Ma	in	
Pre-packaged pump station	ESR as current property manager	At least once every six months	To be confirmed with Pump Manufacturers
Rising Main	ESR as current property manager	At least once every six months	
Irrigation sprinkler system	ESR as current property manager	At least once every six months	-
6. Open Trunk Drainage C	hannel		
Irrigation of landscaped elements	Sydney Water and ESR as current property manager	Monthly during establishment. TBC with Sydney Water	Assumed SWC will maintain open trunk drainage channel. To be
Visual inspections after more than 5mm of rainfall	Sydney Water and ESR as current property manager	Monthly and/or after 5mm of rainfall during establishment	confirmed with ESR as current property manager how hand over
Debris/Blockage removal	Sydney Water and ESR as current property manager	Monthly during establishment. TBC with Sydney Water	
Weed Management and Plant replacement	Sydney Water and ESR as current property manager	Monthly during establishment. TBC with Sydney Water	-
Soil / Rock Protection inspections	Sydney Water and ESR as current property manager	Monthly during establishment. TBC with Sydney Water	-

## 8.2. Monitoring

Elements of the stormwater management measures that will be monitored will be limited to general condition of each of the measures, which will be recorded on the Inspection and Maintenance Sheets for each measure (refer to Appendix 3).

## 8.3. Reporting and Auditing

Reporting and auditing of the stormwater management measures that will be incorporated under Stage 1 Phase 1 conditions will require completion of Inspection Sheets and Maintenance Sheets at the minimum interval recommended in Table 14. Inspection and Maintenance Sheets for each of the measures are included in Appendix 3 and have been either:

- Reproduced from the Penrith City Council WSUD inspection and maintenance guideline; or
- Produced using a similar format to the sheets incorporated in Council's guideline.

Completed Inspection Sheets and Maintenance Sheets for all stormwater management measures that will be owned, monitored and implemented by the Property Owner will be incorporated in an asset register and retained for the purpose of monitoring and environmental audit reporting that is required under <u>Division 9.4 of</u> <u>Part 9 of the Environmental Planning and Assessment Act 1979</u>.

# 9. Contingency Management

In the event that this SMP is not effective in managing potential environmental impacts, specific contingency actions will be implemented. Table 15 lists actions to be implemented if inspections, monitoring or auditing indicate that the stormwater management measures listed in Section 5 and any specialist management plans are not effective in managing environmental impacts.

The Contingency Plan categorises conditions as follows:

- Condition Green considered to be normal operating condition.
- Condition Amber minor non-compliance that should be rectified as soon as practical.
- Condition Red non-compliance that should be rectified as a matter of urgency.

Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Water quality monitoring	Trigger	No visible indicators within the Westlink Estate (oil / grease, turbidity). No complaints from property owners downstream of the Westlink Estate	Visible indicators within the Westlink Estate. Complaints from property owners downstream of the Westlink Estate	Prolonged poor water quality within ponds and downstream of the Westlink Estate.
	Response by ESR as current property manager	Continue SMP / OEMP implementation	Water quality sampling and testing to be undertaken to ensure results are just an anomaly and not a trend.	Appropriate rectification measures are implemented (e.g., aeration, additional filtration).

#### Table 15 - Contingency measures relating to operational stormwater management

Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
				Follow up water quality monitoring is undertaken to ensure parameters meet the ambient water quality objectives for the Wianamatta-South Creek catchment.
Flooding	Trigger	Stormwater drainage	N/A	Inundation of lots.
(Inundation of lots, surcharge of stormwater drainage)		system and riparian corridor functioning as per design intent (no exceedance of capacity, no surcharge in road network or inundation of lots)		Surcharge of stormwater drainage within road reserve.
	Response by ESR as current property manager	Continue SMP / OEMP implementation	N/A	Check for blockages within stormwater drainage network (sediment, debris, OSD Basin inlet and outlet structures). Rectify when required.
OSD Basin – Dam Safety	Trigger	OSD Basin functioning as intended – no visible damage to basin embankments, spillway or discharge control pit, no flow over spillway during events as frequent as the 5% AEP event.	Minor defects within OSD Basin (e.g., scour of embankment, blockage at discharge control pit).	Major defects within OSD Basin (e.g., failure of the discharge control pit, scour of the spillway or embankments)
	Response by ESR as current property manager	Continue SMP / OEMP implementation	Undertake short-term rectification works to address defects.	Undertake urgent works to address defects.
Pumped	Trigger	Pumped Irrigation system functions as intended- no visible damage to pumps or pressure mains.	Minor defects to Pump and pressure main but pump still operating	Major defects with pump and pressure main. Pump broken and not operating
Irrigation System	Response by ESR as current property manager	Continue SMP/OEMP implementation	Undertake minor repairs	Undertake urgent works to address defects

# 10. Lifecycle Costs

## 10.1. OSD Basin

Lifecycle costs associated with the OSD basin will be in accordance with Landcom Water Sensitive Urban Design Book 4 – Maintenance as indicated in Figure 14.

The costs within Figure 14 are based off 2003-2004 rates so would need to be indexed off 2023 prices (According to Rawlinsons 2022, 2003 to 2021 indexation is + 93% is a conservative estimate) and based off current rates provided by Civil and Landscape contractors for all associated WSUD works. These prices would be confirmed during Detailed Design and civil/landscaping tendering periods.

LIFE CYCLE COST ELEMENT	BIORETENTION	WETLANDS	PONDS & SEDIMENTATION BASINS
Life cycle	25 to 50 years	15 to 80 years (with 50 years used as the default in MUSIC) Wetlands are designed to have an infinite life span. However, to determine a life cycle cost, a finite number needs to be set	5 year (sedimentation basins) 50 years (ponds)
Total acquisition cost (TAC) (per m²)	387.4 x (A) <sup>0.7673</sup> \$1000/m <sup>2</sup> for first 20 m <sup>2</sup> (\$200/m <sup>2</sup> for remaining area)	1911 x (A) <sup>2,6435</sup> The treatment area used in defining the total acquisition cost is the combined inlet and macrophyte zone area	685.1 x (A) <sup>0.7893</sup>
Total annual maintenance (TAM) (%TAC)	48.87 x (TAC) <sup>0.4410</sup>	6.831 x (A) <sup>0.8634</sup>	185.4 x (A) <sup>0.4780</sup> The annual maintenance cost considers the volume of material likely to be removed from the basin per year (referred in MUSIC as the size attribute, V). The size attribute is the sum of gross pollutants, coarse sediment and total suspended solids (TSS) that are trapped in the basin / pond per year
Renewal period (years)	25	20 Renewal considerations include replanting and recontouring of the macrophyte zone	1 year (default in MUSIC due to lack of evidence). 10 years based on available data
Renewal costs (%TAC p.a.)	2.0%	0.52%	1.4% Costs associated with access ramps and contouring Limited data available
Decommisioning costs (% TAC)			38% - only applicable to sedimentation basins

Figure 14 - Lifecycle Costs from Landcom

## 10.2. 60 Cartridge SPELFilter system

SPEL has provided a life cycle costing to AT&L for the 60 cartridge SPELFilter system, which has a design life of 8 years:

	Cost	Unit and notes
Construction Costs	210,000	\$ for supply and install
Periodic Cleaning	5,000	\$ Per Annum
Annualised average life cycle cost	31,250	\$ Per Annum

## 10.3. SPEL SVO.1600 Vortceptor GPT

SPEL has provided a life cycle costing table to AT&L for SVO.1600 Vortceptor GPT and Weir Pit, which has a design life of 100 years:

	Cost	Unit and notes
Construction Costs	240,000	\$ for supply and install
Periodic Cleaning	8,000	\$ Per Annum
Annualised average life cycle cost	10,400	\$ Per Annum

## 10.4. Pumping and Landscape Irrigation System

Pumping spec and life cycle cost will be confirmed by the Hydraulic Engineer. Refer to Sparks and Partners Drawings C-SK-Pump Plan and Section Mark up (PG 1/4) for further detail.

# APPENDIX 1 – STORMWATER MANAGEMENT LAYOUT PLAN



# APPENDIX 2 – STORMWATER HYDROLOGY SUMMARY



Level 7 153 Walker Street North Sydney NSW 2060 P 02 9439 1777 F 02 9923 1055 E info@atl.net.au ABN 96 130 882 405

www.atl.net.au

Sydney Wat	er	Your Ref:	ТВС
PO Box 399 Parramatta	NSW 2124	Our Ref:	LTR007-02 -20-748 Westlink Industrial Estate Hydrology
Attention: Dear John,	John Molteno	Email:	ТВС
	Westlink Industrial Estate Hydrology		
1. (	General		

#### This letter summarises the hydrological assumptions being utilised by AT&L across the Mamre Road Precinct to establish predevelopment and post development flow rates.

#### 2. Existing Available Information

The following list of documents provide historical hydrological estimation methods within the Wianamatta South Creek Catchment:

- Flood Study Report, South Creek' (Department of Water Resources, 1990). .
- South Creek Floodplain Management Study' (Willing and Partners Pty Ltd, 1991).
- ADI St Mary's Watercycle & Soil Management Study Final Study Report' (Sinclair Knight Merz, 1998). -
- Austral Floodplain Risk Management Study and Plan' (Perrens Consultants, 2003).
- South Creek Floodplain Risk Management Study and Plan' (Bewsher Consulting, 2004). .
- Upper South Creek Flood Study' (WMA Water, 2012). .
- Upper South Creek Floodplain Risk Management Study and Plan' (Cardno, 2014).
- Updated South Creek Flood Study' (WorleyParsons, 2015). .
- South Creek Floodplain Risk Management Study and Plan' (Advisian, 2020).
- Wianamatta-South Creek Catchment Flood Study Existing Conditions (Advisian, 2022).
- Stormwater Scheme Infrastructure Design Guidelines Draft (Sydney Water, 2022).

We note that the hydrological methods for establishing existing conditions across the Wianamatta South Catchment in the reports above vary greatly and range from RAFTS, RORB, WBNM and ILSAX.

#### 3. Predevelopment Hydrology Assumptions

AT&L have been consistent with the Stormwater Scheme Infrastructure Design Guidelines Draft (Sydney Water,

04 July 2023

2022) and utilised the ARR2019 IL-CL methodology to establish existing conditions across the development. We note that the *Wianamatta-South Creek Catchment Flood Study Existing Conditions* by Advisian utilised ARR1987 rainfall values in combination with RAFTS to calibrate flows to an existing Flood Frequency Analysis (FFA) for the area.

## 3.1. Rainfall Data

Rainfall Data was derived from ARR Datahub for the area.

- Coordinates: Longitude: 150.792 Latitude: -33.845
- Rainfall IFD (2019) data
- NSW median pre-burst rainfalls were derived from ARR Datahub.

## 3.2. IL - CL values

The IL-CL values were derived from the Stormwater Scheme Infrastructure Design Guidelines Draft (2022)

- Pervious Areas IL: 37.1mm
   CL: 0.94mm
- Impervious Areas IL: 1.00mm
   CL: 0.00mm

No Bx value was nominated as the RAFTS (Laurenson) method for calculating flows was not used.

## 3.3. Catchment Perviousness

The following Assumptions have been made for catchment perviousness.

- Effective Impervious Area: 5% of total catchment area to account for waterbodies and directly connected roads.
- Remaining Impervious Area: Not utilised
- Pervious Area: 95% remainder of site. We note a sensitivity test was run on perviousness of 100% and 90% and found changes in the order of +- 5%.

## 3.4. Time of Concentration

Time of concentration estimation was determined through a combination of the following methods:

- Friend's equation: at the most upstream ends of the catchment to estimate sheet flow (*dependent on Horton's roughness and slope*). A comparative assessment of kinematic wave vs friends equation was undertaken with JWP and AT&L, results indicated time of concentration is similar in both instances for catchment lengths less than 30m. For catchment lengths greater than 30m the a typical manning's open channel equation was utilised with an assumed velocity ranging between 1.5m/s-3m/s dependant on flow rate.
- Manning's Open Channel Flow: where sheet flow ends and becomes concentrated.
- Manning's Pipe Flow: Where open channel flow ends and enters a culvert.

Time of concentration typically ranged between 15 minutes – 28 minutes.

# 4. Post Development Hydrology

AT&L have been consistent with the industry standards for estimating flows in urban catchments and utilised the ILSAX methodology to establish post development conditions across the local site.

## 4.1. Rainfall Data

Rainfall Data was derived from ARR Datahub for the area.

- Coordinates: Longitude: 150.792 Latitude: -33.845
- Rainfall IFD (2019) data
- NSW median pre-burst rainfalls were derived from ARR Datahub.

#### 4.2. Soil Depression Storage

The ILSAX values were derived from the Stormwater Scheme Infrastructure Design Guidelines Draft (2022)

- Paved (impervious) area depression storage: 1 mm
- Grassed (pervious) area depression storage: 5 mm
- Soil type: 3

#### 4.3. Catchment Perviousness

Catchment perviousness was established based on land use as follows:

- IN2 Land 85% imperviousness and 15% perviousness (to be measured at detailed design).
- Roads 85% imperviousness and 15% perviousness (to be measured at detailed design)
- Water Courses 5% imperviousness and 95% perviousness.

#### 4.4. Time of Concentration

Time of concentration estimation was determined through a combination of the following methods:

- Friend's equation: at the most upstream ends of the catchment to estimate sheet flow (*dependent on Horton's roughness and slope*).
- Manning's Pipe Flow: Where open channel flow ends and enters a culvert.

*Time of concentration typically ranged between 6 minutes – 15 minutes. Generally, lots scales along with pit and pipe data results in a fast-reacting catchment.* 

Yours sincerely,

Darren Galia Senior Civil Engineer 0433 759 556

# APPENDIX 3 – INSPECTION, MAINTANCE AND OPERATIONS GUIDELINES

# **REFERENCE SHEET -** Rainwater tank



Functi comp	nctional Part C Required Good (condition score - 1) Moderate (condition score - 2 pmponent (months)		Poor (condition score - 3)			
1	Roof, gutte	ers and a	downpipe	es la	'	
la	Roof and gutters	25	6	Stable roof and guttering with minimal rust. Minimal leaf litter present on roof and in gutter. No impact on inflow into tank.	Roof or guttering has minor damage and/or areas of rust. Damage is not posing a safety risk. Leaf litter present on roof and/or in gutters and may impede flows into tank. No or minimal impact on inflow into tank.	Roof or guttering has major damage and/or extensive areas of rust. Damage is posing a risk to safety. Build-up of leaf litter on roof and/or in gutters. Major impact on inflow into tank.
lb	Downpipes and screens (rainhead)	8	6	Secure downpipe. No holes or leaks. Downpipe and screen (rainhead) are clear of leaf litter and debris.	Downpipe showing signs of wear and/or has holes or leaks. Downpipe and screen (rainhead) has some leaf litter and debris present but water can still enter tark	
lc	First flush device	12	6	Minimal blockage. Water can easily enter the first flush device.	Some blockages. Water can still enter the first flush device at a reduced rate.	Major blockage stopping most water from entering the first flush device.
2	Tank inlets	3	-			
2a	Screen	26	6	Water from roof delivered into tank correctly. No holes or damage to the screen. No blockages.	Water from roof delivered into tank through screen at a reduced rate. Some small holes/light damage. Can still function to remove most gross pollutants. Minor blockages.	Pipe from roof not delivering water to the tank correctly. Large holes/heavy damage to the screen. Gross pollutants can enter the tank. Severe blockages at the inlet.
3	Tank				· -	
3а	Overflow	19	6	Overflow is free of blockages and is directly connected to the stormwater system. No erosion or scour at the overflow outlet.	Overflow is partially blocked and/or is indirectly connected to the stormwater system (via overland flow path). Minor erosion or scour at the overflow outlet.	Overflow is entirely blocked and/or completely disconnected from the stormwater system. Major erosion or scour at the overflow outlet.
3b	Body integrity	4	6	No damage to the body of the tank. No surrounding areas that suggest leakage.	Some small holes/cracks present in the tank body. Surrounds suggest that minor leakage could be occurring.	Tank body integrity is undermined by extensive holes and/or cracks.
3c	Base stability	2	6	Tank is stable with no damage to base.	Tank base is not completely stable, but unlikely to move. Some cracks and signs of wear on the footings and/or foundation.	Tank base is unstable, likely to move and posing a safety risk. Major cracking and wear of footings and/or foundation.
3d	Sludge	28	6	No sediment present in outflow. Water flowing from tank is clear.	Water is clear with small amounts of sediment present in outflow.	Water is discoloured and/ or carries large amounts of sediment.
4	Pumps, filt	ers and	valves			
4a	Pump	24	12	Pump working correctly and clear of dust and debris.	Pump working but requires adjustment. Pump has accumulated dust and debris.	Pump not working or requires replacement. Produces an unusual noise or vibration when operating.
4b	Filter	11	12	Filter is clean and in good condition.	Filter requires cleaning or replacement.	Filter damaged or failed.
4c	Valves	32	12	Valves working correctly.	Valves working but require adjustment.	Valve systems are not working or require replacement.

# **REFERENCE SHEET -** Rainwater tank



Sheet 2 of 2

PENRITH

**CITY COUNCIL** 

# **INSPECTION SHEET -** Rainwater tank



Date	 Pur	pose of visit
Location		Inspection
Asset name		Response to complaint
Asset ID		Other (specify)
Inspected by		

#### **Rainfall conditions**

- Rainfall today (\_\_\_\_mm)
- □ Rainfall in last 3 days (\_\_\_\_m)
- □ No recent rainfall

Functional component		Condition score and evidence Circle the score 1, 2, 3 or NA (not applicable) for each functional component based on good (1), moderate (2), or poor (3) conditions as noted in the reference sheet. Write why the score was given in the 'Notes' section.
1	Roof, gutte	rs and downpipes
la	Roof and gutters	1 2 3 NA Notes:
lb	Downpipes and screens (rainhead)	1 2 3 NA Notes:
lc	First flush device	1 2 3 NA Notes:
2	Tank inlets	
2a	Screen	1 2 3 NA Notes:
3	Tank	
3a	Overflow	1 2 3 NA Notes:
3b	Body integrity	1 2 3 NA Notes:
3с	Base stability	1 2 3 NA Notes:
3d	Sludge	1 2 3 NA Notes:
4	Pumps, filt	ers and valves
4a	Pump	1 2 3 NA Notes:
4b	Filter	1 2 3 NA Notes:
4c	Valves	1 2 3 NA Notes:

Sheet 1 of 2

# **INSPECTION SHEET -** Rainwater tank



Functional component		Condition score and evidence Circle the score 1, 2, 3 or NA (not applicable) for each functional component based on good (1), moderate (2), or poor (3) conditions as noted in the reference sheet. Write why the score was given in the 'Notes' section.
5	Mains bac	kup, flow meter and backflow
5a	Potable mains backup device	1 2 3 NA Notes:
5b	Backflow prevention device	1 2 3 NA Notes:
5c	Flow meter	1 2 3 NA Notes:

Other:

Sheet 2 of 2

REFERENCE SHEET - On-lot stormwater drainage												
Functional component		Required frequency (months)	Good (condition score - 1)	Moderate (condition score - 2)	Poor (condition score - 3)							
1	Downpipes											
1a	Connection to subsurface drainage	36	Secure downpipes. No holes or leaks.	Downpipes showing signs of wear and/or damage (holes, cracks, leaking joints).	Downpipes are unstable and/or not discharging flow to subsurface drainage.							
2	Stormwater pits											
2a	Grates / covers	12	Grates / covers are in place not blocked and do not pose a safety hazard.	Grates / covers require adjustment or clearing of blockage.	Grates / covers require repair or replacement due to damage.							
2b	Internal	36	No damage or blockage evident.	Minor blockage or evidence of damage (cracking, spalling).	Significant blockage causing loss of conveyance capacity. Damage to pit that poses a risk to structural integrity, safety or function of stormwater system.							
3	Stormwa	ter pipes /	culverts									
3a	Structural condition	36	No defects or blockage evident	Minor defects evident (e.g., hairline cracks)	Major defects requiring repair (e.g., cracks, concrete spalling, displacement at joints, pipe collapse).							
3b	Debris / blockage	36	No blockage evident.	Minor blockage (<15% of pipe / culvert cross- sectional area)	Significant blockage affecting pipe conveyance capacity (>15% of cross- sectional area).							

INSPECTION SHEET - On-lot stormwater drainage												
Date:						Purpose of visit			Rainfall conditions			
Location:							Inspection			Rainfall today (mm)		
Asset Name:							Response to o	complaint		Rainfall in last 3 days (mm)		
Asset ID:							Other (specify	()		No recent rainfall		
Inspected by:						_						
(name / company)												
Functional		Condition score and evidence										
component		Circle the score 1, 2, 3 or N/A (not applicable) for each functional component based on good (1), moderate (2) or poor (3) conditions as noted in the reference sheet. Write why the score was given in the Notes section.										
1	Downpipes											
1a	Connection to subsurface drainage	1	2	3	NA	Notes:						
2	Stormwater	pits										
2a	Grates / covers	1	2	3	NA	Notes:						
2b	Internal	1	2	3	NA	Notes:						
3	Stormwater	r pipes / culverts										
3a	Structural condition	1	2	3	NA	Notes:						
3b	Debris / blockage	1	2	3	NA	Notes:						
<b>MAINTENANCE SHEET - On-lot stormwater drainag</b>	<u>se</u>											
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Date		Pu	rpose of visit	Rainfall conditions
	Location:		Inspection	Rainfall today (mm)
	Asset Name:		Response to complaint	Rainfall in last 3 days (mm)
	Asset ID:		Other (specify)	No recent rainfall
	Inspected by:			_
(n	ame / company)			
Functional component		Maintenance response and in	formation	Maintenance completed
1	Downpipes			
1a	Connection to subsurface drainage	Response: Information:		Y N NA Notes:
2	Stormwater	r pits		
2a	Grates / covers	Response: Information:		Y N NA Notes:
2b	Internal	Response: Information:		Y N NA Notes:
3	Stormwate	r pipes / culverts		
3a	Structural condition	Response: Information:		Y N NA Notes:
3b	Debris / blockage	Response: Information:		Y N NA Notes:

## **REFERENCE SHEET** – Gross pollutant trap (GPT)

Functional component		Part C number	Required frequency (months)	Good (condition score - 1)	Moderate (condition score - 2)	Poor (condition score - 3)
	Surrounds o	and oth	er infrastı	ructure		
	Damage or removal of structures	6	6	Stable structures. No damage to structure or surrounding infrastructure. No safety risks.	Minor damage. Does not pose risk to structural integrity or asset function.	Major damage. Poses risk to structural integrity, public safety or asset function.
1	Inlet	-	-		-	
la	Blockage	3	6	No accumulated solids or minimal solids with no obvious impacts.	Partial blockage of inlet causing some obstruction of flows or requiring removal.	Blockage of inlet preventing or significantly obstructing flows.
2	GPT sump					
2a	Debris, sediment and oil accumulation	7	6	None, or minimal accumulated solids/oil (<10% capacity).	Some accumulated solids/oil (>50% capacity).	Accumulated sediment/oil is reaching capacity (>75% capacity).
3	Screens					
3a	Damage	5	6	No holes or damage to the screen.	Some small holes/light damage. Can still function to filter most gross pollutants.	Large holes/heavy damage to the screen. Gross pollutants can pass through. Screen not securely attached to wall.
3b	Blockage	3	6	No accumulated solids or minimal solids with no obvious impacts.	Partial blockage of screen causing some obstruction of flows or requiring removal.	Blockage of screen preventing or significantly obstructing flows.
4	Outlet					
4a	Blockage	3	6	No blockage.	Partial blockage of outlet causing some obstruction of outflows or requiring removal.	Blockage of outlet preventing or significantly obstructing outflows.

Sheet 1 of 1

PENRITH CITY COUNCIL

## **INSPECTION SHEET -** Gross pollutant trap (GPT)



Date		F
Location		0
Asset name		0
Asset ID		0
Inspected by (name/company)	)	

#### Purpose of visit

#### □ Inspection

- Response to complaint
- Other (specify)

#### Rainfall conditions

- □ Rainfall today (\_\_\_ mm)
- □ Rainfall in last 3 days (\_\_\_\_m)
- □ No recent rainfall

Functional component		Condition score and evidence Circle the score 1, 2, 3 or NA (not applicable) for each functional component based on good (1), moderate (2), or poor (3) conditions as noted in the reference sheet. Write why the score was given in the 'Notes' section.		
	Surrounds a	nd other infrastructure		
	Damage or removal of structures	1 2 3 NA Notes:		
1	Inlet			
la	Blockage	1 2 3 NA Notes:		
2	GPT sump			
2a	Debris, sediment and oil accumulation	1 2 3 NA Notes:		
3	Screens			
3a	Damage	1 2 3 NA Notes:		
3b	Blockage	1 2 3 NA Notes:		
4	Outlet			
4a	Blockage	1 2 3 NA Notes:		

Other:

Sheet 1 of 1

### **REFERENCE SHEET** - On-site stormwater detention (OSD)



Sheet 1 of 1

PENRITH

CITY COUNCIL

### OSD BASIN

## **INSPECTION SHEET -** On-site stormwater detention (OSD)

Date	Pur	pose of visit	Rair	nfall conditions
Location		Inspection		Rainfall today ( mm)
Asset name		Response to complaint		Rainfall in last 3 days (mm)
Asset ID		Other (specify)		No recent rainfall
Inspected by (name/company)				

component		Condition score and evidence Circle the score 1, 2, 3 or NA (not applicable) for each functional component based on good (1), moderate (2), or poor (3) conditions as noted in the reference sheet. Write why the score was given in the 'Notes' section.			
	Surrounds a	nd other infrastructure			
	Damage or removal of structures	1 2 3 NA Notes:			
1	Inlet				
la	Blockage	1 2 3 NA Notes:			
lb	Erosion	1 2 3 NA Notes:			
2	Storage area				
2a	Storage volume	1 2 3 NA Notes:			
2b	Sediment accumulation	1 2 3 NA Notes:			
2c	Standing water or boggy conditions	1 2 3 NA Notes:			
3	Outlet (disch	narge control pit)			
3a	Blockage	1 2 3 NA Notes:			
3b	Screen	1 2 3 NA Notes:			
3с	Sediment accumulation	1 2 3 NA Notes:			
4	Overflow				
4a	Blockage	1 2 3 NA Notes:			
4b	Erosion	1 2 3 NA Notes:			

Other:

Sheet 1 of 1

### OSD BASIN

## MAINTENANCE SHEET - On-site stormwater detention (OSD)

Date	P <sup>,</sup>	urp	pose of visit	Rair	nfall conditions
Location	C		Maintenance		Rainfall today ( mm)
Asset name	C		Response to complaint		Rainfall in last 3 days (mm)
Asset ID			Other (specify)		No recent rainfall
Maintained by (name/company)					

Functional component		Maintenance response and information	Maintenance completed Circle Y (yes), N (no) or NA (not applicable) and write what maintenance was done in the 'Notes' section.		
	Surrounds a	nd other infrastructure			
	Damage or removal of structures	<b>Response:</b> Rectification works for structural issues to be undertaken immediately. Information: Refer to Works as Executed plans for specifications for structural repairs.	Y N NA Notes:		
1	Inlet				
la	Blockage	<b>Response:</b> Inspect via manhole, pit or inlet. Remove litter, debris and sediment by hand, shovel or machinery.	Y N NA Notes:		
		Information: Ensure that water can enter the system freely. Forks and tongs may be used for litter pick ups. Waste must be transported to a waste facility that is appropriately licensed to accept such waste (if there is no opportunity for reuse on-site). A pit is considered a confined space, requiring safety equipment and training.			
1b	Erosion	Response: Re-profiling using hand tools or light machinery. Replant if required.	Y N NA Notes:		
2	Storage area	1			
2a	Storage volume	<b>Response:</b> Remove any litter, debris and sediment by hand, shovel or machinery. <b>Information:</b> Ensure that the detention volume is maintained as per design. May require personnel with confined space	Y N NA Notes:		
		clearance to carry out maintenance tasks. If detention volume is occupied by something else, reconstruct and replace the volume lost. Notify council of proposal.			
2b	Sediment accumulation	<b>Response:</b> If accumulated sediment is present on the surface, remove using a flat shovel and dispose.	Y N NA Notes:		
		<b>Information:</b> Waste must be transported to a waste facility that is appropriately licensed to accept such waste (if there is no opportunity for reuse on-site). A pit is considered a confined space, requiring safety equipment and training.			
2c	Standing water	Response: System should be desilted and screens cleaned.	Y N NA Notes:		
	conditions	Information: Water should drain away within hours after rain events.			
3	Outlet (discharge control pit)				
3а	Blockage	<b>Response:</b> Inspect via manhole, pit or inlet. Remove litter, debris and sediment by hand, or shovel.	Y N NA Notes:		
		Information: Waste must be transported to a waste facility that is appropriately licensed to accept such waste (if there is no opportunity for reuse on-site). A pit is considered a confined space, requiring safety equipment and training.			
3b	Screen	<b>Response:</b> Use a broom, hose or high pressure hose to clean screen of debris. Replace screen if required.	Y N NA Notes:		
		Information: Remove grate and screen and examine for rust or corrosion, especially at corners or welds.			

PENRITH CITY COUNCIL OSD BASIN

## MAINTENANCE SHEET - On-site stormwater detention (OSD)

Functional component		Maintenance response and information	Maintenance completed Circle Y (yes), N (no) or NA (not applicable) and write what maintenance was done in the 'Notes' section.
3с	Sediment <b>Response:</b> If accumulated sediment is present on the surface, cumulation remove using a flat shovel and dispose.		Y N NA Notes:
		<b>Information:</b> Waste must be transported to a waste facility that is appropriately licensed to accept such waste (if there is no opportunity for reuse on-site). A pit is considered a confined space, requiring safety equipment and training.	
4	Overflow		
4a	Blockage	<b>Response:</b> Unblock outlet pipes. Remove sediment from outflow areas.	Y N NA Notes:
		<b>Information:</b> Waste must be transported to a waste facility that is appropriately licensed to accept such waste (if there is no opportunity for reuse on-site). A pit is considered a confined space, requiring safety equipment and training.	
4b	Erosion Response: Re-profiling using hand tools or light machinery. Replant if required.		Y N NA Notes:
		Information: Typically required after heavy rainfall.	

Other:

Sheet 2 of 2

PENRITH CITY COUNCIL



## **Operation & Maintenance Manual**

# Spel Filter®

## **Cartridge Filter For Tertiary Stormwater Treatment**



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2

## Introduction

Understanding how to correctly and safely maintain the SPELFilter is essential for the preservation of the filter's condition and its operational effectiveness. The SPELFilter is a highly engineered stormwater filtration device designed to remove sediments, heavy metals, nitrogen and phosphorus from stormwater runoff.

The filters can be housed in either a concrete or fibreglass structure that evenly distributes the flow between cartridges. Flow through the filter cartridges is gravity driven and self-regulating, which makes the SPELFilter system a low maintenance, high performance stormwater treatment device.

This Guide will provide the necessary steps that are to be taken to correctly and efficiently ensure the life of the SPELFilter product





Figure 1 - SPELFilters in a concrete chamber / vault

## **Features**



Figure 2 - Diagram of water flow through SPELFilter

The SPELFilter has a patented design that facilitates influent flow over the entire surface area of the media, providing consistent pollutant removal within a small footprint.

The SPELFilter provides highly effective media filtration using gravity flow conditions, without the need for moving parts or floating valves. This eliminates the risk of mechanical failure, such as stuck valves and seizing components during its service life. This provides highly robust treatment performance.

Hydraulic head provided by a suitably sized weir in the filter vault forces stormwater through the filter media via the inlet ports underneath the filter cartridge. Refer to the table below for minimum head required for the SPELFilter cartridges to assist in sizing the weir. The water to be treated enters the SPELFilter cartridge via an upwards direction as the water level builds up around the SPELFilter. This 'up flow' reduces the amount of sediment that could enter the media cartridge, as the sediment is allowed to drop to the vault floor under gravity. Any remaining sediment in the water is introduced through the filter media under hydraulic pressure and is filtered.

Water is filtered through the media, where dissolved and particulate Total Nitrogen and Total Phosphorus are removed via reaction with the media, in addition to the removal of Total Suspended Solids / sediment.

#### SPELFilter Media Self-Backwash feature

A one-way air release valve located at the top of the filter cartridge allows air to escape as the cartridge fills up with water. This creates a siphonic flow condition as the air is completely evacuated from inside the SPELFilter cartridge. Siphonic flow conditions are maintained until such time the water level outside of the cartridge falls beneath the inlet ports underneath the filter. At this moment, the water level inside the SPELFilter cartridge is higher than the surrounding water level. The water inside the SPELFilter cartridge is then expelled upon the break of the siphon, and the water flows down and out of the inlet ports under gravity, onto the vault floor.

This is a highly effective backwash of the media and allows the expulsion of a high proportion of sediment out from the SPELFilter media. The expelled sediment can be removed either manually or with a vacuum from the vault floor.

This backwash effect allows the media to remain highly conductive and is the key to the industry leading longevity of the SPELFilter cartridge system, which does not need replacement for at least 5 years, and typically will achieve up to 6-8years of service, subject to the SPELFilter being regularly maintained in accordance with this guideline and in accordance with the specific needs of the catchment.



Figure 3 - Typical Outlet Weir Wall



## **Features**

#### Self Supporting Feet

Each SPELFilter cartridge stands on 4 feet, which negates the need for the construction of a false floor in the vault. The feet are bolted to the vault floor with the supplied stainless steel angles and M10 bolts. The feet allow a clear height from the vault floor up to the inlet ports of 240mm. The absence of a false floor allows plenty of room for backwashed sediment to evacuate from underneath the cartridges and thereby avoid blocking the inlet ports to the SPELFilter from sediment buildup. It is for this reason that SPEL recommended the sediment buildup not exceed 150mm above the vault floor, so as to avoid blocking the inlet ports of the SPELFilter. Blockage of the inlet ports due to sediment accumulation in the vault floor will cause the SPELFilter to go into bypass and be ineffective. Hence it is important to keep up to date with monitoring and maintaining the SPELFilter vault.



Figure 4 - Bolting the feet



Figure 5 - Underside of the SPELFilter showing the screened inlet ports and the connection for the outlet pipe in the middle



Figure 6 - the top of the SPELFilter showing the location of the one way air valve



SPEL Stormwater manufactures two height cartridges for varying site constraints as shown below. Each cartridge is designed to treat stormwater at a flow rate of 1.47 Litres per second and 2.83 Litres per second for the half-height cartridge (model No. SF.15-EMC-M) and full-height cartridge (model No. SF.30-EMC-M) respectively.

	Full Height SF.30-EMC -M	Half height SF.15–EMC-M
SPELFilter total height	874mm	560mm
SPELFilter Diameter	726mm	726mm
Minimum Head required	850mm	450mm
Treatment flow rate	2.83 L/s	1.47 L/s
Height of inlet ports above vault floor	240mm	240mm
Filtered water collection pipe diameter	50mm	50mm

#### SPELFilter Full Height- SF.30-EMC-M

SPELFilter Half Height - SF.15-EMC-M





## **System Configuration**

SPELFilter cartridges are installed in concrete or fibreglass tanks commonly referred to as 'vaults'. The vault selection and configuration are based on site characteristics and/or constraints; computational stormwater quality modelling; and selected SPELFilter models. Typical SPELFilter system configurations are shown below.



## **Health and Safety**

#### A. Personal Health & Safety

When carrying out the necessary installation operations of the SPEL Filter all contractors and staff personnel must comply with all current workplace health and safety legislation.

The below measures should be adhered to as practically as possible.

- Comply with all applicable laws, regulations and standards
- All those involved are informed and understand their obligations in respect of the workplace health and safety legislation.
- Ensure responsibility is accepted by all employees to practice and promote a safe and healthy work environment.

#### **B.** Personal Protective Equipment / Safety equipment

When carrying out the necessary installation operations of the SPEL Filter, wearing the appropriate personal protective equipment and utilising the adequate safety equipment is vital to reducing potential hazards.

Personal protective equipment / safety equipment in this application includes:

- Eye protection
- Safety apron
- Fluorescent safety vest
- Form of skin protection
- Puncture resistant gloves
- Steel capped safety boots
- Ear muffs
- Hard hat/s
- Sunscreen

#### C. Confined space

In the event access is required into the vault, confined space permits will be required which is not covered in this Guide. Typical equipment required for confined space entry include:

- Harness
- Gas detector
- Tripod
- Spotter

#### **D. Traffic Control**

It is not uncommon for SPEL Filter cartridges to be installed underneath trafficable areas. Minimum traffic control measures will need to be put in place in accordance with traffic control plans set out by respective local and state road authorities.





Vaults are to be treated as confined space. Entry by permit only.



Monitor weather conditions prior to operation maintenance. Do not enter a vault during an episode of heavy rain as this can create a risk of drowning.







## **Maintenance Frequency**

The SPELFilter's design allows for a greater life span when frequently maintenance. Maintenance is broken up into three categories which include: standard inspection; general cleaning; and cartridge replacement.

#### **Standard inspection**

Standard inspections are conducted at regular fourmonth intervals. At this time, an approved trained maintenance officer or SPEL representative shall undertake all measures outlined in Maintenance Procedure, Standard Inspection.

#### **General Cleaning**

At the end of each standard inspection, trigger measures will identify if general cleaning is required. General cleaning will need to be executed immediate during standard inspections if the follow triggers are satisfied:

- Build-up of debris/pollutants within the vault greater than 150mm;
- Accumulation of debris/pollutants on the outlet chamber of the SPELFilter vault;
- After large storm events, tidal or flooding impacts at the request of the owner;

#### **Cartridge Replacement**

Stormwater treatment is dependent on the effectiveness of the SPELFilter cartridge system. As the SPELFilter ages, pollutants will inundate the cartridge and ultimately reduce the treatment flow rate. At this point, a SPELFilter flow test apparatus will be utilities to determine if replacement cartridges are required.

Based on the [site] concept modelling (MUSIC) and previous industry experience, we estimate the life of the SPELFilter to be between 6 - 8 years. As a minimum requirement, each SPELFilter cartridge should be replaced within 10 years.

The life cycle of the SPELFilter can be impacted if standard inspections and general maintenance is not undertaken in accordance with this operation and maintenance Guide. Other factors that will affect the above life cycle of the SPELFilter include:

- Installation of cartridge system during construction phase and impacted by construction sediment loads;
- Neglecting to install pre-treatment using an industry approved GPT or a surface inlet pit trash bag such as the SPEL StormSack.
- Unforeseen environmental hazards affecting the SPELFilter functionality.

## **Maintenance Procedures**

Stormwater pollutants captured and retained by the SPELFilter system need to be periodically removed to ensure environmental values are upheld. All associated maintenance works is heavily dependent on the site's operational activities and generated stormwater pollutants. To ensure the longevity of the installed SPELFilter treatment system, it is imperative that the procedures detailed in this Guide are followed and all appropriate measures are actioned immediately.

#### **Standard inspection**

The standard inspection requires personal experience of SPEL products to visual inspection the vault and filter conditions.

Confined space requirements may not be required if a full inspection and assessment of each SPELFilter can be achieved at surface level without being deemed a confined space entry.

The standard inspection requires personal experience of SPEL products to visual inspection the vault and filter conditions.

Confined space requirements may not be required if a full inspection and assessment of each SPELFilter can be achieved at surface level without being deemed a confined space entry.

#### **Site Inspection Procedures**

#### 1. Implement Pre-start safety measures.

Ensure that the area in which operational works are to be carried out is cordoned off, to prevent unauthorised access. Adequate safety barriers must be erected. Area in which work is to be carried out must be clean, safe and hazard free. (Refer to figure 4.)

#### 2. Set-up Gantry Tri-pod above Manhole.

Assemble and position the gantry above the manhole safely and as practically as possible. Attach the winch or chain block to the gantry for lifting the SPEL Filters. Perform safety procedures ie. Attach harnesses etc. (if confined space).

#### 3. Open manhole lid.

Once you have sent up the Gantry and ensured that the area is safe to operate in, you can proceed to open the manhole lid, using lid lifters.

#### 4. Conduct Gas tests.

(If tank is classed confined space)

Once the lids have been removed to a safe distance to prevent tripping, you must then proceed to conduct gas tests. Perform necessary gas tests according to the confined space regulations.

## 5. Once confined space has been deemed safe to operate in, enter tank safely.

Once you have carried out the required gas test and the work area is deemed safe, you may then enter the pit via a ladder or winch system to assess the work area you will be operating in. Ensure all confined space

#### 6. SPELFilter system assessment.

Perform a review of the SPELFilter system using the SPELFilter assessment report/checklist. Sign off and forward a copy of the report to property manager and SPEL representative.

#### 7. Reinstate SPELFilter system and disposal.

At the completion of the site inspection, ensure the site is reinstated back to its initial state and all pollutants are removed from the site in line with pollutant disposal procedures.

## 8. Sign off and forward a copy of the report to property manager and SPEL representative.

## **General Cleaning**

Vacuum out of Filter tank, removal, and disposal of pollutants at the completion of a standard inspection, general cleaning may be deemed necessary immediately or scheduled for a future date. Steps undertaken for general cleaning should be in general accordance with the procedure outlined below but not limited.

#### 1. Implement Pre-start safety measures.

Ensure that the area in which operational works are to be carried out is cordoned off, to prevent unauthorised access. Adequate safety barriers must be erected. Area in which work is to be carried out must be clean, safe and hazard free. (Refer to figure 4.)

#### 2. Set-up Gantry Tri-pod above Manhole.

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#### 6. SPELFilter system assessment.

Perform a review of the SPELFilter system using the SPELFilter assessment report/checklist.

#### 7. Pollutant removal from tank.

Perform clean-up using a licenced vacuum truck contractor or wet/dry vacuum, depending on level of sediment built up and/or tank size.

#### 8. Reinstate SPELFilter system and disposal.

At the completion of the site inspection, ensure the site is reinstated back to its initial state and all pollutants are removed from the site in line with pollutant disposal procedures.

## 9. Sign off and forward a copy of the report to property manager and SPEL representative.

## Cartridge Recycling and Replacement

SPELFilter cartridges can be swapped out for new cartridges. The spent SPELFilter cartridges can be collected from site and sent to SPEL Stormwater's facilities – where the spent media will be removed from the cartridge in factory conditions and disposed of in accordance with environmental regulations.

The SPELFilter cartridge will be recharged with new media – thereby recycling and repurposing the cartridge.

SPEL Filter replacement procedures may vary depending on the configuration of the SPEL Filters, the type of vault and engineers' specs. Replacement instructions for manhole SPEL Filter systems and precast vault SPEL Filter systems are contained in this section.

At the completion of a standard inspection, SPEL Filter replacement may be deemed necessary immediately or scheduled for a future date. Steps undertaken for cartridge replacement should be in general accordance with the procedure outlined below but not limited.

#### 1. Implement Pre-start safety measures.

Ensure that the area in which operational works are to be carried out is cordoned off, to prevent unauthorised access. Adequate safety barriers must be erected. Area in which work is to be carried out must be clean, safe and hazard free.

#### 2. Set-up Gantry Tri-pod above Manhole.

Assemble and position the gantry above the manhole safely and as practically as possible. Attach the winch or chain block to the gantry for lifting the SPEL Filters. Perform safety procedures ie. Attach harnesses etc. (if confined space).

#### 3. Open manhole lid.

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## **5.** Once confined space has been deemed safe to operate in, enter tank safely.

Once you have carried out the required gas test and the work area is deemed safe, you may then enter the pit via a ladder or winch system to assess the work area you will be operating in. Ensure all confined space procedures are followed.

#### 6. Remove exhausted cartridges.

Disconnect all internal pipe work from inside the vault. Un-bolt anti-floatation measures and remove cartridges from the vault using Gantry Tri-pod method.

#### 7. Pollutant removal.

Using a wet/dry vacuum or sucker truck, suck out all the residual pollutant from the vault.

#### 8. Install pipework and SPEL Filters.

Please refer to the below standard install diagrams for the SPEL Filters. Then refer to your site specific drawings, as site requirements may require something different to the standard layout. Lower filters into tank, position into place, connect filter outlet pipework with the supplied fittings.

#### 9. Install anti-floatation system.

Please refer to the detailed drawings showing how the Anti – Floatation (Anchor) bars are to be installed.

10. Sign off and forward a copy of the report to property manager and SPEL representative.



#### 



## Site Exit & Clean Up

At the end of the scheduled maintenance, approved contractors or SPEL maintenance crew are required to reinstate the site to pre-existing conditions. Steps included but limited to are:

- Ensure all access covers are securely inserted back into their frames;
- Remove and dispose collected pollutants from the site in accordance with local regulator authorities;
- Retrieve all traffic control measures and maintenance tools; and
- Return all exhausted and/or damaged SPEL products to SPEL Stormwater to begin recycling program.







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SPEL Stormwater accepts no responsibility for any loss or damage resulting from any person acting on this information. The details and dimensions contained in this document may change, please check with SPEL Stormwater for confirmation of current specifications.



### Design/Safety Factor used for 100 Year Design Life on SPEL FRP Tanks

#### As per BS4994:1987;

**1.**  $K = 3 \cdot K_1 \cdot K_2 \cdot K_3 \cdot K_4 \cdot K_5$ 

#### Where:

The factor 3 represents a constant which allows for the reduction of material strength for long term loading, and  $K_1$  to  $K_5$  represent factors determined by the method of manufacture and operating conditions. No vessel or tank shall have a design factor K of less than 8.

#### For SPEL:

**2.** K<sub>1</sub> = 1

1.5 - Relates to the method of manufacture.

Method of manufacture	Factor k <sub>1</sub>							
Handwork	1.5							
Machine-controlled filament winding	1.5							
Machine-controlled spray application	1.5							
Hand-held spray application	3.0							

#### From Table 6 of BS4994:1987

> Based upon SPEL tanks manufactured using machine-controlled Filament winding machinery.

**3.**  $K_2 = 1.493$  - Relates to the chemical environment and allowable temperature. Appendix E of BS4994:1987.

> Based upon SPEL tanks long term case history and resin manufacturers media compatibility.

**4.**  $K_3 = 1.0$  - Relates to the HDT = 95°C and design temperature = 30°C.



Based upon SPEL tank resin system selected and design temperature of 30°C

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**5.** K<sub>4</sub> = 1.1 - Relates to cyclic loading and expected operation of equipment.



> SPEL conservatively assumes 3 No. cycles every year for 100 years, resulting in 300 cycles.

**6.** K<sub>5</sub> = 1.3 - No post cure.

> On standard SPEL tanks where the media is not aggressive, no post cure is required from a design perspective or media/resin compatibility perspective.

#### Resulting in a design factor of:

**7.**  $K = 3 \cdot K_1 \cdot K_2 \cdot K_3 \cdot K_4 \cdot K_5 = 9.605$ 

> SPEL uses a design factor of 9.605 for their equipment.

## SPEL Filter & Stormsack Product Warranty

The SPEL Filter & Stormsack Product Warranty

#### Manufacturer's Warranty

Solely a warranty on the structural integrity of the supplied SPEL Filters & Stormsacks. This warranty is automatic with supply and last 5 years on Spel Filters and 2 years on Spel Stormsacks

### **Operational Warranty**

For as long as the SPEL products were commissioned at the time of construction completion and there is an active maintenance contract currently in place with SPEL, SPEL warrants that the operating components of the SPEL Stormwater treatment system are in full operatable condition.

#### SPELFilter Operational Warranty Caveats;

 Warranty will not apply if SPELFilters are subjected to construction silt load
Warranty only applied to projects that have StormSacks fitted in all upstream pits or a SPEL approved GPT

3. SPEL have an active maintenance contract in place for the site

#### StormSack Operational Warranty Caveats;

- 1. Warranty does not apply to StormSack bags damaged by cigarette butt burns
- 2. Warranty doesn't apply to damage caused by vandalism
- 3. Warranty doesn't apply if SPEL does not have an active maintenance contract in place

Commissioning is a standard requirement of the Operational Warranty and is intended to ensure that all SPEL products are installed correctly and they are in a clean operatable condition at the time of site hand over/ construction completion. As part of the Commissioning process, a SPEL representative will attend the site, inspect and provide a report of approval. This report can be provided to any involved parties for their general records. This report of approval is also generally used by the installer as a record to say that they have installed as per manufacturer's specifications and requirements. If the client chooses to forfeit the SPEL onsite Commissioning, SPEL has no operational warranty obligation in this instance.

The SPEL Maintenance Contract is a maintenance program offered by SPEL for all sites and all SPEL products and is also a standard requirement of the Operational Warranty. Included in the maintenance program, SPEL technicians conduct scheduled periodic maintenance inspections to ensure the SPEL products are operating in accordance with their requirements and provide a report on their findings. Based on the report will further action added to the contract be required if there are repairs, rectifications, or extensive cleans, etc needed to restore the SPEL products to full operating conditions. For as long as there is an active maintenance contract in place with SPEL, SPEL will guarantee that the SPEL products are operating in their designed manner. If the client chooses to tender out/award the Maintenance and Operational Warranty to another service provider, this is fine with SPEL and it is now the new service provider's responsibility to warrant that the operating components of the SPEL Stormwater treatment system are in full operatable condition. SPEL has no operational warranty obligation in this instance.



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# SPELSTORMWATER

## SPEL Vortceptor

OUTLET

**Operation & Maintenance Manual** 

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### Introduction

This operation and maintenance manual has been written to assist asset owners and maintenance staff understand how the Vortceptor GPT works, and how to maintain their asset to ensure it performs optimally throughout its life cycle.

The Vortceptor is a vortex type Gross Pollutant Trap that provides robust, high performing, and reliable primary stormwater treatment. It is able to remove litter, sediment, oil, and particulate bound nutrient pollutants out of stormwater. The Vortceptor has no moving parts, which reduces the risk of moving part malfunctions. It is constructed out of a FRP (fibreglass) body, and 316 stainless steel screens that has been specifically engineered to withstand the tough demands of stormwater and wastewater applications. FRP is resistant to the most demanding of conditions and can exceed the durability of conventional precast concrete and cast in situ concrete construction.

### **Design Life**

The Vortceptor has been engineered to provide 100 year design life.

## Manufacture

The Vortceptor is manufactured in Penrith NSW Australia.

### Why FRP?

Glass fibre reinforced polymer (FRP) or fibreglass is a composite material of high strength glass fibre reinforcement in a polymer resin matrix. The glass fibres provide the main load bearing function of the material, and can be woven and aligned specifically for strength. Glass fibre reinforcing provides ideal engineering properties of linear elastic behaviour until failure, and extremely high strength that can exceed that of steel in tension. The matrix has 4 important functions: 1. It holds the glass fibre reinforcing in place 2. It transfers forces to and between the fibres, 3. Prevents buckling of the fibres 4. it provides the beneficial protection from the environment. The resin is specifically formulated to ensure resistance to harsh stormwater environments, that can exceed the durability that of concrete.

This material stands up to the harshest environments, commonly found in stormwater, wastewater, acid sulfate soils, and saltwater.

Fibreglass is becoming a material that is enjoying increased adoption in civil structural engineering applications worldwide due to its light weight, high strength, and its ability to resist degradation.

The ability of fibreglass to achieve high strength with low weight means that the Vortceptor can be fabricated and delivered to site in a substantially assembled state. The treatment chamber is mostly one-piece, with the other sections being any risers, covers, and a precast concrete diversion chamber. One-piece construction means there are no joints to be made on site for the treatment chamber, which eliminates the potential for leaking joints, and risk of backfill and subgrade degradation from water egress through leaking joints. This means that the Vortceptor will provide a more reliable and watertight body, than one made from precast concrete components that are joined and sealed onsite. This is especially important as joints must be able to withstand tremendous hydrostatic pressures. The Vortceptor takes away this risk by eliminating joints, using a single piece FRP body.



### Structural strength of FRP

The Vortceptor has been engineered to withstand the forces associated with structures that are buried and carry vehicular loads. The Vortceptor has been engineered to withstand vehicular loadings to Class D rating per AS3996. A cast in situ concrete cover slab that is 600mm larger than the diameter of the FRP Vortceptor separation chamber, and 200mm thick is required to support a dynamic T44 traffic load. The precast concrete diversion chamber is rated to carry Class D traffic loads without the need for the additional concrete cover slab. Refer to SPEL Environmental Vertical Tank installation guide for further details.



## **Safety Precautions**

The Vortceptor is an underground structure that retains water. Ensure that adequate safety equipment and procedures are in place to avoid personnel falling into the Vortceptor, as there is a severe risk of drowning

The Vortceptor is deemed a confined space. It is not necessary to enter the Vortceptor during maintenance, however in the rare event that entry is required, it should only be done so by suitably qualified and equipped personnel, working in accordance with strict OH&S laws, regulations and procedures.

Pollution captured by the Vortceptor can be hazardous to health. Do not make contact with the pollutant material. Ensure personnel are fully equipped with PPE to avoid contact and have procedures in place for first aid.



## Operation

The Vortceptor is comprised of two chambers:

## The Separation treatment chamber

Stormwater enters this chamber by being directed by a weir into a chute and is then circulated into the screening area. A vortex flow pattern forms as a result of flow velocity and head. Pollutants are removed via screening, and via centrifugal and gravitational forces acting to separate sediment and other particles. Pollutants are captured and are stored in a sump area separate to the screening area. The shear cone separates the screening area and the sump, and acts to create quiescent conditions in the sump. This is what allows the Vortceptor to avoid resuspension of captured pollutants. The sump resides directly below the screening area and is conveniently accessible from the manhole for vacuum cleaning.

Storage of pollutants away from the screening area ensures that the Vortceptor can provide a consistent treatment flow rate, that does not diminish according to the level of pollutants stored. This is a key advantage over other GPTs that store pollutants in the screening area.

Floating pollutants are kept at the top of the screening area, but do not impede flow rate. An oil baffle acts to contain oil and hydrocarbons within the treatment chamber. The captured floatable pollution remains inside the Vortceptor until the time it is cleaned.

The vortex action of flow acts to create a shear force across the face of the 316 stainless steel vortex separation screen. The flow is tangential to the screen, which acts to create a self-cleaning effect and prevents the screen from blinding.

Treated flows are then discharged into the diversion chamber via the outlet chute and then discharged from the diversion chamber outlet into the drainage network.

## The Diversion chamber pit

This chamber allows interface of the Vortceptor with the pipe or culvert drainage network. A weir goes across the width of the diversion chamber and is angled so that it is aligned with the entry chute to the separation treatment chamber. The Diversion chamber is sized to allow bypass of flows exceeding the treatment flow rate over the weir.

Inline Vortceptor models have a small diversion chamber integrated over the separation treatment chamber, to provide a unit that is packaged into a compact footprint.



Figure 1 - Offline Vortceptor

SECTION B-B



Figure 2 - Offline Vortceptor Plan view showing Separation treatment chamber (Circle) and diversion chamber (rectangle)



## **Offline and Online**

The Vortceptor GPT comes in an offline and online configuration. Offline – the treatment separation chamber is adjacent to the diversion chamber.

Online – The diversion chamber and the separation treatment chamber are integrated together.



Figure 4 - Online Vortceptor in Plan view showing the diversion chamber and separation chamber in line

Figure 3 - Online Vortceptor in Elevation view

### **Cleaning options**

The following cleaning options allow asset owners to choose the best option available for ongoing maintenance and the required cleaning frequency with the right cleaning services and resources available. Depending on the size, access, and depth of the system, the three following methods can be used to clean the SPEL Vortceptor.



## **Vacuum Suction Cleaning**

Equipment needed – eductor truck

Personnel needed - 2

Suction cleaning is used for most proprietary GPT's. This is by far the most convenient and safest method but does require specialist machinery to achieve. There are several specialist companies that offer vacuum suction cleaning of GPTs. Costs are usually based on the total volume of pollutants disposed, as well as water removed. Asset owners should enquire with cleaning contractors if the option to decant captured water back into the Vortceptor is possible, to reduce disposal fees.



## **Grab Cleaner**

Equipment needed – truck with mounted crane and grab attachment

Personnel needed - 1 to 2

The Grab Cleaner can be carried out without dewatering the system. However, this operation is limited to the larger Vortceptor models with larger screen internal diameters. This option is practically only available for the SVO.530 and above as they have screen internal diameters of 2m. Care must be taken by the operator to ensure that the grab does not make contact with the stainless steel screen, and the shear cone underneath the screen area.

The grab truck cleaning option offers the removal of 80 - 90% of the pollution stored in a sump. It can be a cheaper option than vacuum suction cleaning. However, the asset owner must still allow for an annual vacuum clean, to remove accumulated sediment in the sump and behind the screens.





## **Removable Basket**

Truck with mounted crane

Personnel – 1 to 2

If a removal waste basket is fitted, it can be lifted at any time, without the need for dewatering. This is the fastest and the most cost-effective option but comes at the sacrifice of sump capacity. The basket will not impede flow rate.

The smaller sump capacity that results from using a basket may lead to the need for more frequent maintenance activities. But this is offset by the ease and ability to carry out the cleaning activity in house.

An annual vacuum clean to thoroughly dewater and remove accumulated sediment will be recommended for this approach.



### **Tidal and Backwater affected Vortceptors**

Gross pollutant traps, including the Vortceptor, may from time to time, be required in tidal and backwater affected locations. The designer should consider specifying a penstock or stop valve on the outlet side of the Vortceptor, so that the Vortceptor can be isolated from tidal and backwater, and effectively dewatered and cleaned. It will be critical for the maintenance crew to re-open the penstock or stop valve after they have finished maintaining the Vortceptor. Failure to re-open the penstock or valve can lead to catastrophic flooding.

## Increasing the Vortceptor Sump capacity to spread out the cleaning intervals

Vortceptor sump capacities can be increased over and above the standard capacities listed in Table 1 below. It is recommended that the designer carefully estimate the expected pollution load volumes from their catchment and target a sump capacity to match a desired cleaning frequency. Extending the sump is only possible during the desktop design stage, before the Vortceptor is manufactured, so good early planning and design is essential.

### **SPEL Vortceptor Maintenance Capacities & Dimensions**

Table 1 - Vortceptor Maintenance Capacities and Dimensions

Models	Treatable Flow rate (L/s)	Depth be- low invert (mm)	Screen Internal diameter (mm)	Screen Height (mm)	Sump depth (mm)	Internal Diameter of Vortceptor (mm)	Manhole Size	Sump Capacity (m <sup>3</sup> )	Light Liquid Volume (L)	Floatables Volume (m³)	
IN-LINE SERIES											
SVI.025	25	1400	500	600	770	1370	600x600	0.6	110	0.05	
SVI.055	55	1650	700	800	770	1850	900x900	1.4	246	0.22	
SVI.055.M	55	1585	700	800	770	2200	900x900	1.9	394	0.15	
OFFLINE SERIES											
SVO.096	96	2160	1000	900	1150	1500	900x900	2.0	239	0.39	
SVO.140	140	2580	1000	1200	1320	1500	900x900	2.3	239	0.39	
SVO.180	180	2940	1000	1500	1380	1500	900x900	2.5	239	0.39	
SVO.220	220	2940	1500	1500	1430	2200	900x900	4.3	515	1.1	
SVO.360	360	3430	1500	1800	1570	2200	900x900	6.0	515	1.1	
SVO.530	530	3130	2000	1800	1270	3000	900x900	8.5	1263	2.8	
SVO.800	800	4130	2000	2800	1270	3000	900x900	8.5	1263	2.8	
SVO.810	810	3400	3000	1800	1540	4000	900x900	19.3	2155	5.65	
SVO.1200	1200	4030	3000	2400	1540	4000	900x900	19.3	2155	5.65	
SVO.1600	1600	4710	3000	3000	1560	4000	900x900	19.3	2155	5.65	

### Maintenance

The SPEL Vortceptor requires regular inspections and cleaning. There are no consumable parts on the SPEL Vortceptor throughout its operating life.

The regularity of inspections and cleaning of the Vortceptor is contingent on the features and properties of the catchment area. Good monitoring and record keeping systems by the asset owner will allow them to optimally schedule cleaning activities for each individual Vortceptor. The section below provides asset owners some guidance to the frequencies for maintaining the Vortceptor.



### Inspection

Routine inspection is the key to effective maintenance. Pollutant transportation and deposition may vary from catchment to catchment. Regular routine inspections will help the asset owner assess the rate of pollutant capture for that specific location.

At a minimum, routine inspections should be performed twice per year. The suggested inspection frequency in the first year of operation is 3 months. This interval can be extended to 6 months at the discretion of the asset owner.

The routine visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet, outlet, and separation screen. The routine inspection should also quantify the accumulation of floating trash, and sediment in the sump. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. All inspections should be recorded. A sample inspection report is attached to this manual. Furthermore, it is recommended that the Vortceptor be inspected after every major rain event, with a focus on ensuring there are no blockages to the inlet and outlets of the Vortceptor and the diversion chamber.

## Access for Maintenance

#### **Separation Treatment chamber**

The separation treatment chamber has adequate access for maintenance. Vortceptor models up to SVO.360 have single manhole access, whereas the larger Vortceptor models SVO.530 and above have 2 manholes, consisting of Class D cast iron lids. The lid in the centre of the separation chamber provides access into the screen and sump area.

The single round lid as pictured below provides access behind the screen, so that sediment can be extracted using a vacuum.

The lids are locked with bolts. The lids can be lifted using standard manhole cover lifters.

#### **Separation Treatment chamber**

As described above, an additional Class D manhole cover allows access to the clean water side of the screen, or otherwise called the area 'behind the screen'. This area can have some level of sediment deposition over time. This manhole allows convenient access, by allowing the vacuum hose to be dropped down vertically to the area behind the screen. It is recommended that the area behind the vortex separation screen be cleaned annually, to avoid buildup of sediment. Alternatively, access behind the screen can be gained by inserting the vacuum hose from the outlet side of the diversion chamber, and into the outlet of the separation treatment chamber.






#### **Diversion chamber**

There are access manholes above the diversion chamber, with a lid situated either above the inlet side and/or the outlet side of the chamber. These manholes allow for visual inspection to the treatment chamber inlet and outlet chutes, and if required, access for cleaning.

## **Access for Maintenance**

Pollution removal performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to reaching maximum sump capacity for easier removal of sediment. The level of sediment is easily determined by measuring from the finished surface level down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile.

Method to calculate the % sump capacity filled with pollutants

- 1. Determine the water depth that is above the sediment layer. This is done by taking two measurements with a measuring staff: one measurement from the finished surface level (ie manhole opening level) to the top of the sediment pile and the other from the manhole opening to the water surface.
- 2. If the difference between these measurements is less than the Depth from water level to top of sump in table 2, the system should be cleaned out. If the water depth to the sediment is less than the water depth to the top of sump, this means the sediment level is above the sump.
- 3. If the water depth to sediment is greater than the depth from water level to top of sump, calculate the % of sump that contains sediment by the following method:

Height of sediment = Depth of Water level to top of sump + Sump depth - water depth to sediment

Sump % full = height of sediment / height of sump x 100

A work sheet is attached to the end of this manual to assist with calculating and recording the sump levels.



Models	Sump depth (mm)	Depth from Water level to top of sump	Sump Capacity (m <sup>3</sup> )	Light Liquid Volume (L)	Floatables Volume (m³)				
IN-LINE SERIES									
SVI.025	25	1400	500	600	770				
SVI.055	55	1650	700	800	770				
SVI.055.M	55	1585	700	800	770				
OFFLINE SERIES									
SVO.096	1150	1010	2.0	239	0.39				
SVO.140	1320	1260	2.3	239	0.39				
SVO.180	1380	1560	2.5	239	0.39				
SVO.220	1430	1510	4.3	4.3 515					
SVO.360	1570	1860	6.0	515	1.1				
SVO.530	1270	1860	8.5	1263	2.8				
SVO.800	1270	2860	8.5	1263	2.8				
SVO.810	1540	1860	19.3	2155	5.65				
SVO.1200	1540	2490	19.3	2155	5.65				
SVO.1600	1560	3150	19.3	2155	5.65				

Table 2 - Sump depth dimensions



# Cleaning

Cleaning of the Vortceptor system should be done during dry weather conditions when little or no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump.

The system should be completely drained down and the sump fully evacuated of sediment, and a final hose down of the screen and sump.

# **Disposal of material**

The material captured by the Vortceptor could include hazardous material, such as syringes, chemicals, and sharp objects. Care must be taken by cleaning crews and they must work in accordance with a specific job safety plan. PPE such as gloves, protective wear, boots should be mandatory. Disposal of material must be done in accordance with all environmental regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins.

# Inspection and cleaning frequencies

The frequency of cleaning will depend on the pollutant loads of the catchment, so inspections are recommended to confirm the maintenance intervals, which could be either three, six or twelve months.

#### Visual inspection and cleaning frequencies

	After every major storm	3 months	6 months	12 months
Visual inspection of treatment chamber		visually inspect every 3 months. Measure the amount of pollut- ants in the sump		
Visual inspection of diversion chamber	Check inlet and outlet pipe or culvert for blockages		visually inspect the diversion chamber for any signs of blockage and sedi- ment build up	visually inspect the diversion chamber for any signs of blockage and sedi- ment build up
Regular Clean – Removal of captured pollutant material from the Vortceptor separation chamber				
			Primarily to remove floatables and sump contents contents. Note Cleaning interval is every 6 months on average but may need to be adjusted according to site specific conditions. Interval frequency can be reduced if extended sump has been installed	
Full dewater and clean				Full sump pump out, jet screen and sump
Clean behind screen				In conjunction with full dewater and clean
Visual inspection of Vortex separation screen				Note the condition of the screen – note down signs of damage if any
Clean diversion chamber			Visual inspection	Remove sediment buildup if required.

# **Repairs and replacement**

The Vortceptor does not have any consumable parts that require replacement throughout its design life of the unit. However, in the unlikely event that the Vortceptor requires repair due to damage, the following provides guidance on repairing the Vortceptor.

All repairs should be conducted by suitably qualified personnel, following OH&S requirements for working in confined spaces.

All repairs should be conducted in dry weather and should be conducted after the Vortceptor has been dewatered and emptied.

#### **Vortex Separation Screen**

The vortex separation screen is comprised of 316 stainless steel. The Screen is not a consumable item. In the unlikely event that the screen is damaged, specific sections of the screen can be removed by cutting them out. Replacement screens can be riveted into the fibreglass body, and tack welded to the neighbouring screens. The installer must ensure that the screen is installed such that the screen aperture is facing the correct direction. The way to check this is to run a hand over the surface of the screen. Ensure you are wearing gloves. The screen is smooth when stroking in one direction, and rough when stroking in the opposite direction. The smooth direction indicates the direction

that the vortex will flow. Ensure that the replaced screen is in the same direction as of the screens next to them. Replacement screens are available from SPEL Stormwater, as well as specialist on site support from SPEL Stormwater's maintenance team.

#### Shear cone

The shear cone is not a consumable item. The only practical way it will be damaged is if a grab makes contact. Vortceptors up to SVO.360 have FRP shear cones, and the units from SVO.530 and above have 316 stainless steel shear cones. Replacement of the shear cone has been designed for easy replacement. First completely dewater the unit, then gain access, noting that it is a confined space. Undo bolts and replace the damaged shear cone section. The shear cone is divided into 4 separate sections, so that only the damaged section needs to be replaced. Replacement shear cone sections are available from SPEL Stormwater as well as specialist on site support from SPEL Stormwater's maintenance team.

#### **Cast iron Manhole covers**

Cast iron manhole covers are not consumable items. However in the event they are damaged, they are readily available on the market as standard covers are used for the Vortceptor.

#### Precast concrete Diversion chamber

The diversion chamber is made of min 40Mpa concrete. Damage or cracks can be repaired with a concrete mortar such as Rapidset, Xypex, Parchem. 2-part epoxy and flexible fillers such as Sikaflex are also widely available. Refer to the manufacturers for specialist details on repairing precast concrete for water retaining structures.

#### **Fibreglass components**

One of the many benefits of using FRP/fibreglass over conventional materials such as concrete is its ease and durability of repairs. The material to repair fibreglass is readily and widely available.

#### Safety

Ensure the work area is well ventilated as the resin fumes can be harmful, especially in a confined space area.

Resins, acetone, and FRP dust are flammable. Peroxides (catalyst) are strong oxidizing agents and can ignite fuels. Follow MSDS instructions, including PPE prior to commencement of repair work.

#### Repairs to Fibreglass

A key principle of repairs to fibreglass is that the repair will differ from the original fibreglass primary structure. The original resin and glass reinforcing fabric in the primary structure has cured and bonded chemically and physically with each other, forming the primary bond. Repairs to a damaged fibreglass part is referred to as secondary bonds, that are attached to the primary structure. The repair relies on the physical bond to the primary structure, and the resin must have strong adhesive properties. Increasing the surface area of the bond to the primary structure will increase the strength and durability of the repair.



#### **Parts for Repair**

1.Resin – Polyester resin or Vinyl ester resin

2. Catalyst / Hardener – MEKP (Butanox M50 or equivalent)

3. Fibreglass matt – 450g/m2 chopped strand mat

4. Acetone - for cleaning the bond surface

5.Hot Coat – finishing layer (resin mixed with 1% solution of 8% wax in styrene can be used for this purpose)

6.Paint brush and or roller – for applying resin to fibreglass mat

Commercial fibreglass repair kits are widely available and can be used to repair the Vortceptor.

#### **Identify the Damaged Area**

Identify the damage and draw the boundary of the damage. An easy inspection method is to tap a solid material, like a coin, and listen for any differences in the sound of the tap. Mark out suspect areas. Damage could be cracks, holes, puncture, and delamination.

#### **Trimming and cutting**

Cut out the damaged area if you cannot patch over the area. Otherwise grind the surface as described below. Most concrete or masonry cutting tools are compatible to cut FRP. Note that high speed cutting tools for metals are not suitable for FRP.

#### Surface cleaning and grinding

Grind approximately 20mm or more of surface area from the damaged area to promote adhesion of the repair. Grind surface using abrasive methods. Recommended equipment are 4 inch grinder with 34 grit sanding disc, or an orbital sander with a low grit number such as 60 grit. Do not use chemical primers. Grind the surface until the glossy finish of the resin is no longer visible, surface is even and uniform with no high or low spots. A slight taper in the surface will assist with locking in the repair.

Clean the surface of dust, water, oil. Brush or vacuum to remove dust, then wipe the surface with clean acetone. The surface should not be wet and must be dried.

The surface must be prepared again if the repair has not been performed within 24 hours of the surface preparation, or if the surface is contaminated with oil or water.

#### **Resin preparation**

Mix resin and catalyst in small batches. Catalyst should be between 1.25% to 2.5% of the resin weight. The reaction of the resin and catalyst will cause high amount of heat when curing. Refer to the resin and catalyst manufacturer's instructions.

#### **Applying Fibreglass layers**

Wet the bonding surface with catalysed resin. Apply fibreglass mat in layers, and completely cover with resin. Minimise the layer thickness to no more than 7mm, to avoid generating excess heat. Build up the layers until it matches or exceeds the thickness of the primary structure. Press the layers together to avoid the formation of air pockets between the layers, by using a roller.

#### Finishing the Fibreglass repair

After all layers are applied, a final coat of 'Hot Coat' is to be applied. The Hot coat can be applied while the top layer is still wet.

# **Further Assistance**

Thank you for choosing the SPEL Vortceptor GPT. We are confident that it will faithfully carry out the essential task of keeping our waterways clean of pollution and do so in a robust and hassle-free manner for years to come. Our confidence in the product is backed by our 25 year warranty. Engineering and maintenance support are at hand for all asset owners. Contact SPEL Stormwater on 1300 773 500 or email maintenance@spel.com.au





### **Inspection & Maintenance Log**

SPEL Model:

Location:

Date	Depth from manhole to top of sediment (1)	Depth from manhole to top of water level (2)	Water depth to sediment (1) – (2) (3)	Water Depth top of sump (from table 2) (4)	Is the water Depth (3) less than water depth to sump (4) Yes/No If yes, orga- nize clean	% sump capacity full	Describe Mainte- nance Performed	Comments

a. The water depth to sediment is determined by taking two measurements with a measuring staff: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface.

b. Obtain the Water depth to top of sump for the specific Vortceptor model from table 2 of this manual

c. Compare the Water Depth to Sediment (3) to the Water Depth to top of sump (4). If the water depth to the sediment is less than the water depth to the top of sump, this means the sediment level is above the sump.

d. If the water depth to sediment is greater than the depth from water level to top of sump, calculate the % of sump that contains sediment by the following method:

Height of sediment = Depth of Water level to top of sump + Sump depth - water depth to sediment

Sump % full = height of sediment / height of sump x 100

e. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.



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#### MELBOURNE

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Appendix H Landscape Management Plan

### SITE IMAGE



# Westlink Stage 1 290-308 Aldington Rd, Kemps Creek NSW 2178

# LANDSCAPE MANAGEMENT PLAN (LMP)

Prepared by	Site Image NSW Pty Ltd	
Prepared for	ESR	
Project number	SS20-4546	
Date	31.10.2024	
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01	Appendix Added	31.10.2024
02	Revised For Comments	07.11.2024

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- Appendix G DPHI Comments and Responses

#### 1.1 Landscape Scope

Please refer to landscape plans for scope.

Relevant Landscape Drawings:

Toll Westlink WH1	Westlink WH3
SS24-5307_000	SS24-5372_000
SS24-5307_001	SS24-5372_101
SS24-5307_100	SS24-5372_102
SS24-5307_101	SS24-5372_103
SS24-5307 102	SS24-5372 104
SS24-5307_103	SS24-5372_201
SS24-5307 104	SS24-5372 501
SS24-5307_105	SS24-5372_LSP
SS24-5307_106	SS24-5372_WH3_SK001
SS24-5307_107	
SS24-5307_108	
SS24-5307_109	
SS24-5307_110	
SS24-5307_501	
SS24-5307_LS01	
SS24-5307 WH1 SK0	01

Trunk Drainage
SS20-4546_TD_000
SS20-4546_TD_101
SS20-4546_TD_102
SS20-4546_TD_103
SS20-4546_TD_104
SS20-4546_TD_501
SS20-4546_TD_601

#### OSD Basin

SS20-4546\_DB\_000 SS20-4546\_DB\_101 SS20-4546\_DB\_501

#### **1.2** Conditions of Consent

Relevant Conditions of the Development Consent:

SSD-9138102	
Condition	Relevant Section
B38. Within six months of the date of this consent, the Applicant must prepare a Landscape Management Plan to manage the revegetation and landscaping works on-site, to the satisfaction of the Planning Secretary. The plan must:	
(a) detail the species to be planted on-site that:	Refer to the relevant landscape drawings listed in section 1.0 'Scope' of the LMP.
(i) are consistent with the plant list in Appendix C of the Mamre Road Precinct Development Control Plan; and	Refer to section 2.3 'Plants' and the relevant landscape drawings listed in section 1.0 'Scope'.
(ii) are suitable in relation to wildlife management in proximity to the Western Sydney Airport.	Refer to section 2.3 'Plants' and the relevant landscape drawings listed in section 1.0 'Scope'.
(b) ensure sufficient deep soil to allow large tree planting is provided in the areas between retaining wall tiers and between retaining walls and the northern property boundary on Lot 1 (as shown in the landscape plans titled <i>Kemps Creek Logistics Park SSDA Report</i> <i>Landscape Concept plan</i> , prepared by Site Image and dated 14 February 2023);	Refer to section 2.3 'Plants' and the relevant landscape drawings listed in section 1.0 'Scope'.
(c) ensure adequate planting is implemented to provide screening between the basin and retaining wall on Lot 4 (as shown in the landscape plans titled <i>Kemps Creek Logistics Park SSDA Report</i> <i>Landscape Concept Plan</i> , prepared by Site Image and dated 14 February 2023);	Not a part of the Lot 1 works covered by the scope of this Landscape Management Plan.
(d) demonstrate that the minimum tree canopy targets are achieved in accordance with the MRP DCP; and	Refer to the tree canopy plan listed in section 1.0 'Scope' of the LMP.
(e) describe the monitoring and maintenance measures to manage revegetation and landscaping works.	Refer to the relevant landscape drawings for scope, listed in section 1.0 'Scope' of the LMP. Refer to the various sections of the LMP for the monitoring and maintenance measures for the landscape works.
<ul><li>B39. The Applicant must:</li><li>(c) maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by condition B38 for the life of the development.</li></ul>	Refer to the section 2.1 'Generally' that states that the landscaping and vegetation must be maintained for the life of the development.

C1. Management plans required under this consent must be prepared	
in accordance with relevant guidelines, and include:	
(a) detailed baseline data;	
(b) details of:	
(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Refer to section 2.19 'Relevant Standards' of the LMP. Refer to section 2.21 'Management
(ii) any relevant limits or performance measures and criteria; and	Requirements of the LMF.
(ii) any relevant limits of performance measures and chiefla, and	Refer to the various sections of the LMP.
to judge the performance of, or guide the implementation of, the development or any management measures;	
(c) a description of the measures to be implemented to comply with	Refer to the various sections of the LMP.
the relevant statutory requirements, limits, or performance measures and criteria;	Refer to section 2.21 'Management Requirements' of the LMP.
(d) a program to monitor and report on the:	
(i) impacts and environmental performance of the development; and	Refer to section 2.16 'Periodic Review' of the LMP.
(ii) effectiveness of the management measures set out pursuant to	Refer to section 2.16 'Periodic Review' of the
paragraph (c) above;	LMP.
(e) a contingency plan to manage and unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Refer to section 2.15 'Unpredicted Impacts and Impact Assessment' of the LMP.
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Refer to section 2.16 'Periodic Review' of the LMP.
(g) a protocol for managing and reporting any:	
(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	Refer to section 2.17 'Failure to Comply' of the LMP.
(ii) complaint;	Refer to section 2.17 'Failure to Comply' of the LMP.
(iii) failure to comply with statutory requirements; and	Refer to section 2.17 'Failure to Comply' of the LMP.
(h) a protocol for periodic review of the plan.	Refer to section 2.16 'Periodic Review' of the LMP.

#### 2.0 Maintenance Activities

#### 2.1 Generally

The Landscape Contractor shall rectify defects during installation and that become apparent in the works under normal use for the duration of the contract Defects Liability Period (DLP).

After the DLP, the implemented landscape treatments must be managed for the life of the development as per this Landscape Management Plan as stated in Condition B**39.(c)** of the Development Consent. Identified Asset protection zones are to be maintained in perpetuity to the requirements of Appendix 4 of Planning for Bushfire Protection 2019, as stated in the Applicant's Management and Mitigation Measures.

The landscape maintenance works shall include, but not be limited to, the following:

- Replacing failed plants;
- Pruning;
- Insect and pest control;
- Fertilising;
- Maintaining mulch;
- Mowing;
- Watering;
- Weeding;
- Rubbish removal; and
- Cleaning of the surrounding areas.

#### 2.2 Logbook

Keep a Maintenance Logbook recording when and what maintenance work has been done and what materials, including chemical materials, have been used.

The records shall show when and where identified chemicals were used and why.

Submit the initial logbook for inspection prior to Practical Completion and again at the end of the Defects Liability Period as a prerequisite for granting Practical and Final Completion Certificates.

Record all major events and activities in the logbook.

Make the logbook available for inspection on request.

#### 2.3 Plants

Trees, shrubs and groundcovers shall at all times display healthy vigorous growth. Spent flower heads or stalks shall be removed immediately following flowering.

**Replace failed plants:** A "failed" plant may not mean complete death of soft tissue but failure due to poor growth, appearance, or unacceptable time for plant to re-establish new growth following damage or vandalism.

Replacement plants shall be in a similar size and quality and identical species or variety to the plant that has failed.

Replacement of plants shall be at the cost of the Landscape Contractor unless advised otherwise. If the cause of the failure is due to a controllable situation then correct the situation prior to replacing plants.

Failure of a plant shall be at the sole discretion of the Landscape Architect.

Refer to drawing SS24-5307\_001 for the plant schedule and the relevant landscape drawings for information, including quantities, species and expected mature sizes. This schedule also details the plant species listed in the DCP and Aerotropolis plant lists.

#### 2.4 Pruning

Whatever pruning work is requested by the Landscape Architect shall be performed, including any pruning of damaged growth or miscellaneous pruning considered as beneficial to the condition of the plants.

Pruning works within the APZ to be carried out to as per Section 2.18 Management Requirements.

All pruning works shall be undertaken in a manner equal to acceptable horticultural practice.

#### 2.5 Spraying

Avoid spraying:

- if ever possible;
- in wet weather;
- if wet weather is imminent;
- if target plants are still wet after rain;
- in windy weather; and
- if adjacent desirable species are too close to the target plants to be avoided.

Immediately report to the Project Manager any evidence of intensive weed infestation, insect attack or disease amongst plant material. Submit all proposals to apply chemicals and obtain approval before starting this work.

When approved, spray with herbicide, insecticide, fungicide as appropriate in accordance with the manufacturers' recommendations. Record in the logbook all relevant details of spraying activities including:

- Product brand / manufacturer's name,
- Chemical / product name,
- Chemical contents,
- Application quantity and rate,
- Date of application and location,
- Results of application, and
- Use approval authority.

#### 2.6 Fertilising

Fertilise gardens with a proprietary slow release fertiliser applied in accordance with the manufacturer's directions and recommendations. Record in the logbook all relevant details of fertilising including:

• Product brand / manufacturer's name,

- Fertiliser / product name,
- Application quantity and rate, and
- Date of application and location.

#### 2.7 Stakes and Ties

Adjust and replace as required to ensure plants remain correctly staked. Remove those not required at the end of the planting establishment period (Defects Liability Period).

#### 2.8 Mulched Surfaces

Maintain the surface in a clean, tidy and weed free condition and reinstate the mulch as necessary to ensure correct depth as before specified.

#### 2.9 Mowing and Top Dressing

Mow the turf to maintain a grass height of between 30-50mm. Do not remove more than one third of the grass height at any one time. Remove grass clippings from the site after each mowing.

Top dress to a maximum of 10mm as necessary to fill depressions and hollows in the surface.

#### 2.10 Irrigation and Watering

Maintain the irrigation system to sure that each individual plant receives the required amount of water to maintain healthy and vigorous growth, adjust and rectify as required.

Provide additional watering, if necessary.

#### 2.11 Erosion Control Measures

Where necessary, maintain the erosion control devices in a tidy and weed free condition and reinstate as necessary to ensure control measures are effective where deemed necessary.

#### 2.12 Weeding and Rubbish Removal

During the plant establishment period remove by hand, rubbish and weed growth that may occur or re-occur throughout all planted, mulched and paved areas.

The contractor shall target weeds that are capable of producing a major infestation of unwanted plants by seed distribution.

Whenever possible, time weed removal to precede flowering and seed set.

Weeding and rubbish removal works within the APZ to be carried out to as per Section 2.18 Management Requirements.

#### 2.13 Urgent Works

Notwithstanding anything to the contrary in the Contract, the Project Manager may instruct the Landscape Contractor to perform urgent maintenance works that place the completed contract works at risk.

If the Landscape Contractor fails to carry out the work within seven (7) days of such notice, the Project Manager (or representative) reserves the right without further notice to employ others to carry out such urgent and specified work and charge the cost to the Landscape Contractor.

Such work shall include but not limited to the inspection and clearing of drains in the pavement and gardens.

#### 2.14 Completion

A final inspection shall be made by the Project Manager, Landscape Contractor and Landscape Architect before the completion of the Plant Establishment Maintenance Period (Defects Liability Period).

Any items requiring rectification shall be repaired before completion of the relevant works and finally approved prior to certification.

#### 2.15 Unpredicted Impacts and Impact Assessment

Impact assessment reviews are to take place directly following any unpredicted impacts and/or consequences of activities described in this document to ensure that ongoing impacts are reduced to level below relevant impact assessment criteria as quickly as possible.

#### 2.16 Periodic Review

A periodic review of the Landscape Management plan shall be conducted every 12 months by the Property Manager in consultation with relevant personnel including maintenance and landscape staff as required.

This review will look at the following:

- The impacts and environmental performance of the development
- The effectiveness of the management measures

Any improvements to the environmental performance are to be investigated and implemented as part of the ongoing review of this document.

#### 2.17 Failure to Comply

In the event of a failure to comply with the requirements of this Landscape Management Plan, a complaint or failure to comply with the relevant statutory requirements, it will be the responsibility of the Property Manager to contact the landscape contractor. Outstanding works to be rectified within three business days.

#### 2.18 Appendices

#### 2.19 Relevant Standards

All landscape works shall be carried out in accordance with the following Australian Standards:

AS 1628 Water supply - Metallic gate, globe and non-return valves

AS 2033 Installation of polyethylene pipe systems

AS 2129 Flanges for pipes, valves and fittings

AS 2303 Tree stock for landscaping use

AS 2698 Plastic pipes and fittings for irrigation and rural applications - Polyethylene micro-irrigation pipe

AS 2845 Water supply - Backflow prevention devices

AS 3500 National plumbing and drainage code

AS 4373 Pruning of amenity trees

AS 4454 Composts, soil conditioners and mulches

Noxious and environmental weed control handbook by the NSW Department of Primary Industries NATSPEC GUIDE Specifying Trees – a guide to the assessment of tree quality

#### 2.20 Maintenance Schedule

Table 7.2	ACTIVITY	FREQUENCY			ACTION			
		D	W	2W	3W	Μ	3 or 6M	Daily, Weekly, Monthly
1	Logbook	+		+		+		Complete a logbook entry every day at site and at least every two weeks. All actions listed below require a logbook entry. Upon request, make the logbook available for inspection. Submit copies of new entries in the logbook to the Contract Administrator on a monthly basis. Please note that more frequent, short, occasional inspection should result in less maintenance work when problems are observed earlier than they might otherwise have been seen.
2	Plant replacement			+		+		Inspect and replace failed plants within 2 weeks of observation of failure. Match species, size (original) and location of new with old.
3	Mulch			+		+		Inspect and replace mulch deficiencies within 2 weeks of observation. Prior to placing new mulch aerate the soil by fork turning to a depth of at least 100mm, roughly level the soil and then place mulch. Do not disturb major plant roots while aerating soil.
4	Erosion control			+				Inspect every two weeks and repair ground, soil and mulch immediately. Maintain erosion control device as necessary.
5	Stakes and ties			+				Inspect every two weeks, adjust and/or replace as necessary but remove as plants mature and are able to support themselves.
6	Weed and rubbish removal			+				Inspect and remove immediately upon observation. Leave no waste on site. Dispose of waste material at a designated waste disposal site.
7	Pruning			+				Inspect every 2 weeks and prune as necessary to remove dead wood, improve plant shape and promote healthy vigorous new growth.
8	Spraying			+				Inspect every 2 weeks and action as necessary. Do not spray if other non-chemical methods will satisfy the need to remove insects. Spray for disease control only when absolutely necessary.
9	Urgent works		+					Complete within 1 week (7 days) of notification. Inspect and clear drains.
10	Planting and fertilising			+			3m+	Inspect every 2 weeks and remove spent flowers and dead stalks as they become apparent. Fertilise gardens every 3 months or other frequency in accordance with fertiliser manufacturer's directions.
11	Watering	+		+				Water when and where necessary every day at site and at least every 2 weeks generally. Do not allow soil and plants to dehydrate. Allow for prolonged rain, windy and dry periods. Water in the early morning or late afternoon to avoid excessive evaporation during the heat of the day.
12	Mowing, top- dressing and edging			+		+	6m+	Summer fortnightly. Winter monthly. Top-dress 6 monthly.

#### 2.21 Management Requirements

The following are the requirements to be **maintained** in perpetuity as stated in Appendix 4 of Planning for Bushfire Protection 2019 for all identified Asset Protection Zones as stated in the Applicant's Management and Mitigation Measures.

Trees:

- tree canopy cover should be less than 15% at maturity;
- trees at maturity should not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above the ground;
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

#### Shrubs:

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass:

- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

# Appendix A

Toll Westlink WH1 Landscape plans

# Toll Westlink WH1 290-308 Aldington Road, Kemps Creek NSW 2178 CONSTRUCTION

# DRAWING SCHEDULE

Dwg No.	Drawing Title	Scale
000	Landscape Coversheet	N/A @ A1
001	Plant Schedule	N/A @ A1
100	Landscape Masterplan	1:1000 @ A1
101	Landscape Plan - Sheet 1	1:200 @ A1
102	Landscape Plan - Sheet 1	1:200 @ A1
103	Landscape Plan - Sheet 1	1:200 @ A1
104	Landscape Plan - Sheet 1	1:200 @ A1
105	Landscape Plan - Sheet 1	1:200 @ A1
106	Landscape Plan - Sheet 1	1:200 @ A1
107	Landscape Plan - Sheet 1	1:200 @ A1
108	Landscape Plan - Sheet 1	1:200 @ A1
109	Landscape Plan - Sheet 1	1:200 @ A1
110	Landscape Plan - Sheet 1	1:200 @ A1
501	Landscape Details	As Shown @ A1
Sch No.	Schedule Title	
LS01	Landscape Specification	N/A

NOT FOR CONSTRUCTION



Site Plan | 1:2500 @ A1

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В	Civil Coordination	LH	NM	05.03.2024
А	Issue for CC	LH	NM	20.02.2024
Issue	Revision Description	Drawn	Check	Date



Client ESR

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## Project Toll Westlink WH1 290-308 Aldington Rd, Kemps Creek NSW 2178

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# CONSTRUCTION

Drawing Name
Landscape Coversheet

SHEET

Scale n/a Job Number SS24-5307

Drawing Number

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Plant S	Schedule Lot 1							
	Botanic Name	Common Name	Mature Size	Pot Size	Density	Qty	DCP	Aerotropolis
	T							
۸b	Acer huergerienum	Trident Manle	6 x 3	1001	As Shown	4		
AD	Acer buergenanum	Grey Box	20 x 10	100L		20		
AC Do	Brochychiten populacus	Kurraiong	10 × 5	100L		14		
Бр	Conmbia magulata	Forest Red Cum	10 X 3	100L	As Shown	54		
		Mooning Bottlobruch	25 X 15	100L	As Shown	15		
Em			0 X 4.0	100L	As Shown	24		
Emi	Eucaryptus moluccana	Blockbutt	20 x 0	100L	As Shown	10		
Ері			30 x 10	100L	As Shown	10		
Epu	Eucalyptus punctata	Grey Gum	25 X 8	100L	As Shown	20		
Et	Eucalyptus tereticornis		35 x 12	100L	As Shown	48		
Md	Melaleuca decora	Feather Honeymyrtle	12 x 5m	100L	As Shown	25		
Ms	Melaleuca styphelioides	Prickly Paperbark	10 x 4m	100L	As Shown	51		
Wfl	Waterhousea floribunda	Weeping Lilly Pilly	10 x 8	100L	As Shown	8		
	Shrubs							
An	Atriplex nummularia	Old Man Salt Bush	2.5 x 1.5	300mm	As Shown	462		
Bs	Bursaria spinosa	Blackthorn	4 x 3	300mm	As Shown	361		
Cc	Callistemon citrinus	Crimson Bottlebrush	3 x 2	300mm	As Shown	356		
Са	Correa alba	White Correa	1 x 1	300mm	As Shown	775		
Dv	Dodenea viscosa	Giant Hop Bush	3 x 3	300mm	As Shown	283		
la	Indigofera australis	Australian Indigo	1.5 x 1.5	300mm	As Shown	363		
	Ore and Ore under une							
0		Valley, Dytteres	0.5.4.0.0	150mm	As Chaum	2605		
Сар	Chrysocephaium apiculatum	Plus Flee Like	0.5 x 0.9	150mm	As Shown	2095		
DC	Dianella caerulea		0.75 X 0.75	150mm	As Shown	0705		
HS	Hibbertia scandens		0.2 x 2	150mm	As Shown	2785		
Ju	Juncus usitatus	Common Rush	0.4 x 0.5	150mm	As Shown	1287	-	
LI	Lomandra longifolia	Mat Rush	0.75 x 1	150mm	As Shown	3548		
Мр	Myoporum parvifolium	Creeping Boobialla	0.3 x 1	150mm	As Shown	1364		
PI	Poa labillardieri	Poa	1 x 0.5	150mm	As Shown	3915		
	MP1 - Groundcover Planting Matrix							
Сар	Chrysocephalum apiculatum	Yellow Buttons	0.5 x 0.9	150mm	As Shown	1493		
Hs	Hibbertia scandens	Snake Vine	0.2 x 2	150mm	As Shown	1493		
Мр	Myoporum parvifolium	Creeping Boobialla	0.3 x 1	150mm	As Shown	1493		
	MP2 Northorn Boundary Buffor Dia	nting Matrix						
	Atriplex nummularia	Old Man Salt Rush	25×15	200mm	As Shown	675		
Bo		Plackthern	2.5 × 1.5	200mm	As Shown	120		
Bs	Bursana spinosa		4 X 3	200mm	As Shown	139		
	Carros albo	White Correct	3 X Z	200mm	As Shown	744		
				Zuumm	As Shown	1074		
Hs	Hibbertia scandens		0.2 x 2	/ omm tube	As Shown	12/1		
Hv	Hardenbergia Violacea	Purple Coral Pea	0.2 x 3	/ 5mm tube	As Shown	12/1		
LI	Lomandra longifolia	Mat Rush	0.75 x 1	75mm tube	As Shown	1271		
PI	Poa labillardien	Poa	1 x 0.5	75mm tube	As Shown	609		
	MP3 - Northern Boundary Buffer Pla	inting Matrix						
Hs	Hibbertia scandens	Snake Vine	0.2 x 2	75mm tube		292		
Hv	Hardenbergia violacea	Purple Coral Pea	0.2 x 3	75mm tube	5/m2	292		
LI	Lomandra longifolia	Mat Rush	0.75 x 1	75mm tube	5/112	292		
PI	Poa labillardieri	Роа	1 × 0.5	75mm tube		292		

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CONSTRUCTION

Drawing Name Plant Schedule

SHEET

<sup>Scale</sup> n/a Job Number SS24-5307

Drawing Number





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Drawing Name Landscape Masterplan

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Aldington Road

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# CONSTRUCTION

Drawing Name Landscape Plan Sheet 1



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# CONSTRUCTION

## Drawing Name Landscape Plan Sheet 2

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CONSTRUCTION

Drawing Name Landscape Plan Sheet 3



Scale 1:200 @ A1 Job Number SS24-5307



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Mulch

Groundcover Planting Matrix

Northern Boundary Buffer Planting Matrix

Northern Boundary Buffer

Key Plan

MP1

MP2-

MP3

E Construction



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JW NM 29.08.2024



Key Plan

E Construction



Client ESR

Project Toll Westlink WH1 290-308 Aldington Rd, Kemps Creek NSW 2178

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# CONSTRUCTION

Drawing Name Landscape Plan Sheet 5

> SHEET 0 1 2 4 6 10m Drawing Number Issue 105 Ε

Scale 1:200 @ A1 Job Number SS24-5307



# NOT FOR CONSTRUCTION





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Warehouse 1

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Northern Boundary Buffer Low Planting Matrix

Key Plan



Client ESR

Project Toll Westlink WH1 290-308 Aldington Rd, Kemps Creek NSW 2178





SITE IMAGE

# CONSTRUCTION

Drawing Name Landscape Plan Sheet 7



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Scale 1:200 @ A1 Job Number SS24-5307





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ADJOINS

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ADJOINS PAGE 103

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Warehouse 1

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ADJOINS PAGE 104

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# SITE IMAGE

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# CONSTRUCTION

## Drawing Name Landscape Plan Sheet 9

Scale 1:200 @ A1

SS24-5307

Job Number

SHEET 0 1 2 4 6 10m Drawing Number Issue 109 E



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Construction	JW	NM	29.08.2024
Bushfire Amendments MP3 Low Matrix Added	JW I	NM	27.08.2024
Architectural Coordination	JW	NM	17.06.2024
Issue for CC	LH	NM	20.02.2024
Revision Description	Drawn	Check	Date
	Construction Bushfire Amendments MP3 Low Matrix Added Architectural Coordination Issue for CC Revision Description	ConstructionJWBushfire Amendments MP3 Low Matrix AddedJWArchitectural CoordinationJWIssue for CCLHRevision DescriptionDrawn	ConstructionJWNMBushfire Amendments MP3 Low Matrix AddedJWNMArchitectural CoordinationJWNMIssue for CCLHNMRevision DescriptionDrawnCheck



Northern Boundary Buffer Low Planting Matrix

Key Plan

MP3



Client ESR

Project Toll Westlink WH1 290-308 Aldington Rd, Kemps Creek NSW 2178

Level 1, 3-5 Baptist Street Redfern NSW 2016 Australia



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# CONSTRUCTION

Drawing Name Landscape Plan Sheet 10

> SHEET 0 1 2 4 6 10m Drawing Number Issue 110 D

Scale 1:200 @ A1 Job Number SS24-5307

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# NOT FOR CONSTRUCTION

Scheduled planting

90mm upvc slotted inspection pipe extended from below slab with geotextile filter sleeve and theaded cap.

Selected mulch Soil mix type A (Horizon A) with fertiliser as specified. - Walls refer plans

Soil mix type B (Horizon B) with fertiliser as specified. Adjacent surfaces vary as shown on plans © 2021 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

C Bushfire Amendments MP3 Low Matrix Added JW NM 27.08.2024

JW NM 29.08.2024

LH NM 05.03.2024

LH NM 20.02.2024

Drawn Check Date

D Construction

A Issue for CC

B Civil Coordination

Issue Revision Description

Structural slab by others - Drainage outlet by others

Waterproof membrane to the entire inner wall and floor surface of the planter bed Drainage cell

- Geotextile filter fabric

- Double washed coarse river sand

I Structure		
— 19 Hv		
— 19 LI		
— 2 Bs		

– 2 Cc

- 10 An

- 9 PI

— 11 Са — 19 Hs

Client ESR

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# CONSTRUCTION

Drawing Name Landscape Details

SHEET

Scale as shown @ A1 Job Number SS24-5307

**Drawing Number** 501

Issue D





# Toll Westlink WH1 290-308 Aldington Rd, Kemps Creek NSW 2178

# LANDSCAPE SPECIFICATION

Prepared by	Site Image NSW Pty Ltd	
Prepared for	ESR	
Project number	SS24-5307	
Date	20.02.2024	
Document Issue/Rev	Description	Date
Α	Preliminary	20.02.2024

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# 1.0 GENERAL NOTES

## 1.1 Contacts and Definitions

Project contacts are listed below. Terms used in this Landscape Specification shall have the meanings assigned to them in the referenced standards and as defined below.

CONSULTANT	ORGANISATION	TELEPHONE	EMAIL
Project Manager			
Architect			
Landscape Architect	Site Image NSW Pty Ltd	02 8332 5600	mail@siteimage.com.au
Civil Engineer			
Structural Engineer			
Hydraulic Engineer			
Electrical Engineer			
Surveyor			

DEFINITIONS	MEANING
Approved	Shall mean as approved in writing by the Project Manager
Equal to	Shall mean equivalent in performance, quality and price to that specified and shall be approved in writing by the Project Manager. Substitutions shall be submitted in writing to the Project Manager
ТВА	To Be Approved
TBS	To be Specified or Selected
TBC	To Be Confirmed

#### 1.2 Cross References

Where applicable, this Specification shall be read in conjunction with the General Conditions of Contract included in the general building works specification.

The various sections of this specification describe the works depicted on the landscape drawings.

The landscape Contractor shall have read the whole specification and understood that the complete works are described by all the documents. Where conflict occurs the Landscape Contractor shall seek clarification before progressing the works.

The contacts list in Section 1.1 above includes all the consultant disciplines involved in the project who have some degree of involvement in the outcome of the installed landscape works.

The Landscape Contractor shall have obtained information from all consultants in the way of written instructions and advice, specifications and drawings that impact on the landscape works.

The Landscape Contractor shall have coordinated their works with those trades associated with each discipline to ensure the timely installation of the landscape design in accordance with the Builder's construction program.

The landscape drawings include cross references on plans, sections and elevations to details on other landscape drawings.

Where no cross reference is evident and the available information is considered insufficient to proceed, the Landscape Contractor shall seek advice from the Landscape Architect in a timely manner to ensure that there is no delay to the contract caused by the absence of information.

#### 1.3 Interpretation of Drawings

The Landscape Contractor shall check all relevant dimensions on site before proceeding with the work. Under no circumstances shall dimensions be scaled from the drawings.

No claim for extras arising from failure to obtain measurements and other information on site will be allowed.

The origin of levels is generally to the Australian Height Datum (AHD) or as otherwise shown on the drawings.

#### 1.4 Workmanship and Materials

The whole of the landscape works shall be carried out by a competent Landscape Contractor who is experienced in horticultural practices, landscape construction and planting techniques.

The Landscape Contractor shall hold a current Building Contractors License and / or be a financial member of the Master Landscapers Association in the state in which the project is located.

All work shall be faithfully carried out in the most tradesperson-like manner in accordance with applicable trade and Australian Standards, and best horticultural industry practice.

All materials shall be new and of the best quality and shall be approved for use before installation.

#### 1.5 Quality Assurance

The Landscape Contractor is to implement and maintain a quality assurance system aligned with Australian Standard AS/NZS ISO 9001:2008 Quality Management Systems – Requirements (including Amend.1). The Landscape Contractor's quality management system shall include as a minimum the following elements including:

- Quality manual;
- Technical procedures;
- Sample forms; and
- Check lists.

The Landscape Contractor shall have in place a system of maintaining records related to material being used on the project. Supply copies of information upon request. The information record system shall include the following information.

- Descriptions of the materials supplied;
- The source of landscape materials;
- MSDS for all materials that are likely to be requested due to the nature of the material.
- Methods of installation and placement of materials and products; and
- Certification of compliance of materials to relevant Australian Standards and other authority requirements.

#### 1.6 Standards

Wherever reference is made to Australian and International Standards and Codes, and any amendments current at the date of commencement of the works shall apply to the relevant materials, products and installation methods they shall be deemed to be incorporated into this Specification.

The Landscape Contractor, if requested, shall furnish a certificate from the manufacturer/supplier that the materials or products delivered to the project meet the requirements of the relevant standards.

However, such certification shall not relieve the Landscape Contractor of the responsibility to comply with added requirements of this specification.

All materials, installations and workmanship shall comply with the Building Code of Australia and relevant authority requirements.

#### 1.7 Site Conditions

The Landscape Contractor and his sub-contractors shall visit the site and compare the contract documents with the area of the works before tendering to ascertain for themselves the actual extent and nature of the work to be done and the nature of the ground into which the designed landscape is to be installed.

No claim related to this matter will be accepted if the Landscape Contractor or his sub-contractors failure to do so. It is the responsibility of the Landscape Contractor to check all aspects of the required work and report any discrepancy to the Project Manager for direction before proceeding with the works or any part of the works.

#### 1.8 Access to Premises and Secure Storage

The Landscape Contractor is required to make arrangements with the Project Manager (or representative) for access to the site (including material handling) to carry out the installation of the landscape works.

Attendance at a safety induction meeting for all landscape contractor staff is mandatory.

Working hours shall comply with the local authority requirements and the conditions of development consent which are available from the site office.

Where possible, install materials directly in place. Do not store materials and tools on site if they cannot be locked in a secure location.

Do not store plants on site unless a secure maintained nursery space can be established whether one is required or not required by the contract.

The theft of materials and tools shall not be considered a valid monetary claim.

Any secure storage or nursery location on site shall be approved by the Project Manager.

Any costs associated with the establishment of a secure nursery or storage shall be borne by the Landscape Contractor.

#### 1.9 Material Ordering Lead Times

The tenderers shall allow appropriate lead times for the ordering of materials.

Lead times vary from material to material due to their manufacturing process or the place where they are made.

Imported materials and products may have up to 3 months lead time for fabrication and/or transport before they reach site.

Other material such as Australian made precast concrete pavers may have 6 to 8 weeks lead time for manufacturing.

Tenderers shall identify lead times for specified materials and products that may be problematic and not fit into the project programme time frame. Alternative materials and products may have to be selected and orders placed for new selections at an early date and not delay the project or force a rushed decision and lessen the quality of the design outcome.

Also, refer to 4.3 Ordering Plants where orders for plant stock are required within 14 days of award of contract.

#### 1.10 Reinstatement

Any injury or damage to property, both public and private, including buildings, services, roads, footways, paving, ground levels, retaining walls, fencing, passing and /or parked vehicles, existing vegetation including shrubs and trees and other property, shall be reinstated or made good by the Landscape Contractor at their own cost.

Reinstatement shall match similar adjacent work and the whole of the works left in a condition equal to that at the commencement of works.

#### 1.11 Cleaning site

All areas affected by the landscape works are to be kept clean at all times.

Site cleaning shall include but not be limited to collecting all empty plant containers, plant labels and other rubbish on a daily basis during installation.

Dispose of collected rubbish and waste material appropriately and recycle materials whenever possible.

Do not burn or bury any waste material or rubbish on site.

All empty containers and debris shall be removed from site prior to Practical Completion being certified.

# 2.0 SITE PREPARATION

#### 2.1 Scope

The works included in this section include:

- Environmental protection;
- Tree removal or protection; and
- Site clearing.

#### 2.2 Quality

Give sufficient notice so that inspection may be made of:

- Trees identified and marked to be removed or retained; and
- Tree protection zone enclosures for retained trees.

Submit samples of materials to be recycled, including:

- Vegetation to be cleared for mulching when approved; and
- Excavated material suitable for fill or processing for site soil if approved.

Submit the methods to be used and equipment required for the minor earthworks, including:

- Dewatering and groundwater control and disposal of surface water;
- Stockpiling of approved excavated material and any remediation required by the approval to reuse;
- Control of site erosion, contamination and sedimentation on site, surrounding areas and drainage systems serving the site; and
- Dust and noise control as required by authority approvals.

#### 2.3 Environmental Protection

Plan and carry out the work so as to avoid erosion, contamination, and sedimentation of the site, surrounding areas, and drainage systems.

Temporary erosion control measures to include:

- Staging operations, such as clearing and stripping;
- Progressively restoring disturbed areas;
- Providing temporary drains and catch drains;
- Diverting and dispersing concentrated flows to points where the water can pass through the site without damage;
- Dispersing concentrated runoff with spreader banks or other structures;
- · Constructing and maintaining silt traps to prevent discharge of scoured material to downstream areas;
- Installing temporary grassing;
- Installing temporary fencing;
- Inspecting, cleaning and repairing if required temporary erosion and sediment control works after each rain; and
- Removing temporary erosion control measures when they are no longer required.

Maintain dewatering measures on site. Keep groundwork free of water. Provide and maintain slopes, crowns and drains on excavations and embankments to ensure free drainage. Place construction, including fill, masonry, concrete and services, on ground from which free water has been removed. Prevent water flow over freshly laid work.

Coordinate any environmental protection work carried out by the Landscape Contractor with the head contract protection works.

## 2.4 Trees to be Retained and Protected

Trees to be retained are as shown on the landscape drawings, and are to be protected prior to and during construction activities on the site. Identify and mark trees and shrubs to be retained using a suitable non-injurious, easily visible and removable means of identification.

Protect from damage the trees and shrubs to be retained, including those beyond the site area, both above and below the ground. If a tree becomes damaged during the works or it is proposed to perform work on a tree, give written notice immediately and obtain instructions.

Trees to be retained shall be protected in accordance with the latest edition of AS 4970. Generally, this includes, but is not limited to, the installation of tree protection fencing at the perimeter of the Tree Protection Zone. The fencing shall, as a minimum,

consist of 1.8m high temporary chain wire panels supported by steel stakes, fastened together and supported to prevent movement, with a lockable opening for access. The fencing shall be maintained in good condition during the construction works period.

Display a warning sign in a prominent position at each entrance to the site, at 10 metre intervals along the tree protection fencing, and where the tree protection fence changes direction. Each sign shall advise Tree Protection Zone, No Access, and contact details. The signs shall be a minimum size of 600mm x 500mm using lettering in accordance with AS 1319 and AS 4970.

Remove fencing and signs on completion of all construction works only.

## 2.5 Work within the Tree Protection Zone TPZ

Keep the area of the Tree Protection Zone free from construction activities that may cause damage to the tree, including:

- Modification of soil levels;
- Excavation and trenching;
- Cultivation of the soil;
- Mechanical removal of vegetation;
- Soil disturbance;
- Movement of natural rock;
- Storage of materials, plant, or equipment;
- Erection of site sheds;
- Affixing signage or hoarding to the trees;
- Preparation of building materials;
- Disposal of waste materials and chemicals;
- Movement of pedestrian or vehicular traffic; and
- Temporary or permanent location of services, or the works required for their installation.

If encroachment is required into the tree protection zone, give notice and obtain instructions.

## 2.6 Existing Services

**Dial Before You Dig.** Before commencing any earth works, locate and mark existing underground services in the areas which will be affected by the earth works operations including clearing, excavation and trenching.

Do not excavate by machine within 1000mm of existing underground services.

#### 2.7 Site Clearing

Where the site has not already been cleared by the Builder for other construction purposes clear only the following works:

- Areas to be occupied by works such as roads, buildings, structures, walls, paving, excavation, regrading and landscaping;
- Other areas designated to be cleared; and
- Extent of area necessary for the performance of the works.

Remove everything on or above the site surface, including rubbish, scrap, grass, vegetable and organic debris, scrub, trees (except trees to be retained), stumps, boulders and rubble. Grub out stumps and roots over 75mm diameter to a minimum depth of 500mm below sub-grade under buildings, embankments or paving, or 300mm below finished surface in unpaved areas. Remove grass to a depth just sufficient to include the root zone. Remove old works, including slabs, foundations, paving, drains and manholes found on the surface.

Identify materials that may be approved for reuse on site. Refer to 2.9 Spoil and Material Approved for Reuse.

#### 2.8 Weed Eradication

Eradicate weeds using environmentally acceptable methods, such as non-residual glyphosate herbicide in any of its registered formulae, at the recommended maximum rate.

Regularly remove, by hand, rubbish and weed growth throughout grassed, planted and mulched areas. Remove weed growth from an area 750mm diameter around the base of the trees in grassed areas. Continue eradication throughout the course of the works and during the planting establishment period.

#### 2.9 Spoil and Materials Approved for Reuse

Remove surplus excavated material and surplus site clearance material from the site.

Seek approval from the Landscape Architect / Project Manager to reuse vegetative material found on site that could be processed as specified below as mulch.

Vegetation approved for reuse on site shall be chipped to a fine consistency no larger than 20–40mm with consistency equal to ANL Forest Blend or ANL Forest Fines or ANL Leaf Litter or ANL Eucy Mulch. Stockpile the chippings on site for re-use as mulch and secure stockpiles so that the material is not transported by wind or water or theft.

Do not bury boulders, concrete fragments and the like on site. Selected and approved excavated boulders may be reused on site as decorative elements where shown on plan.

# 3.0 HARDSCAPE ELEMENTS

#### 3.1 Scope

The works included in this section shall include the supply of labour and materials to install and/or construct:

- Fences; and
- Edging.

#### 3.2 Inspections

Give sufficient notice so that inspection may be made of the following:

- Completed sub-grade, sub-base and base course preparation;
- Set-out of walls and fences;
- Completed trial set-out for all paving types;
- Completed pavements; and
- Set-out of edging.

#### 3.3 Ordering Materials

Place orders for materials on a progressive basis coordinated with the works program in order that materials are delivered: 1. on a timely basis so that they are:

- o not ordered too soon that they stand on site for prolonged periods of time;
- o not ordered too late that their delivery delays the works; and

2. when onsite transport and lifting facilities are scheduled to be available.

Ensure that ordered materials are:

- 3. delivered, when specified, in sealed containers; and
- 4. true to specified brand, type, quantity, volume, size and quality.

## 3.4 Submit and Prepare Samples

Submit samples of the following materials and finishes, showing the full range of texture and colour of the material:

Sample	Details
Concrete blocks	One of each type where the material is a coloured block or has a special finish
Wall capping	One sample of each type, precast concrete, stone, other
Paving types	One sample of each type of hard paver, precast concrete, stone, other
Stepping stones	One sample of each type, precast concrete, stone, other
Decomposed granite	One kilogram bag of each specified colour with stabiliser mixed in
Tactile indicators	One sample of each type, warning, directional as applicable
Timber decking	One metre length of each type of board in the specified colour and finish
Decorative stones	One sample of each large element and/or one kilogram bag of each smaller type
Garden edging	One metre length of each type specified, steel, timber, other

Prepare minimum 1000 x 1000mm or 1000mm long sample or reviewable panels or assemblies of each of the specified materials and finishes, inclusive of joint, junction and trim details. Sample panels may become part of the works if considered satisfactory and contiguous with the specified and details works.

Material	Details
Concrete slab	Surface finish, edge and junction details
Masonry wall	Complete with capping where specified
Paving types	Joint pattern, edge and junction details
Decomposed granite	Edge restraint
Timber decking	Fixings, edge and junction details
Fences	Posts, rails, panels and junctions of each type specified
Handrails	Posts, rails, supports and junctions of each type specified
Balustrades	Posts, rails, panels and junctions of each type specified

#### **Substitute Materials**

Substitute materials must be submitted with written verification from the manufacturer/supplier that they comply with the requirements of this specification and achieve the expected design outcome. All substitute materials must be approved by the Landscape Architect prior to procurement and installation.

#### 3.5 Planter Walls and Fences, Preparation and Set-out

Refer to section **2.0 Site Preparation** for earth works related to planter wall and fence construction including the clearing of vegetation within 1 metre of the wall alignment. Grub out stumps and roots of removed trees and shrubs and trim the grass to ground level, but do not remove topsoil or disturb trees and shrubs designated for retention.

Verify that other trades have vacated the works area prior to set out so that set out markers are not disturbed.

Set-out the alignment and mark the position of planter walls, fences and fence posts as shown on the drawings.

Report any anomalies in the design set out that require review prior to commencing work to construct the walls.

#### 3.6 Fencing

Excavate post holes with vertical sides and a firm, compacted, base. Place mass concrete around posts and finish with a minimum 100mm below finished ground level. All concrete and footing sizes to engineer's details.

Erect posts vertically. Set heights to follow the top of wall lines or contours of the natural finished ground levels as appropriate. Ensure rails are installed horizontally.

Gates are to match the fence in terms of appearance, materials, finish, colour, with suitable and appropriate hardware including at least two (2) stainless steel hinges to ensure smooth operation, childproof locks, mortise locks and handles as detailed below.

Supply and install the following fence/gate types:

Fence Type F1	Palisade Fence Medium Security
Location	As shown on the drawings, generally at boundary
Supplier / Product	Equal to ARC, Diplomat
Material	Galvanised steel
Finish	Powder-coat gloss
Colour	All members and fixings Black
Panel Height	2100mm above ground level
Pickets	25 x 25 x 1.2 @ 140 centres, through rails, black capped
Rails	40 x 40 x 1.6, 40 x 40 rail flange fixing to posts with Tek screws
Posts	65 x 65 x 2.0 @ 3000 centres, 2700 in ground height, black capped
Gates	To match fence in appearance with drop bolts, lugs, chain, striker, ball bearing hinges
Gate Width	Nominally 2400 wide in 2 leaves
Footings	Mass concrete to engineer's details

#### 3.7 Materials and Components

Supply labour and materials to complete the specified works. Materials and components shall incorporate the following details for all paving on ground, structure and on steps and furniture as appropriate.

Subgrade	Details
Parent Material	Remove topsoil containing grass roots, stones and the like
Action	Fill and compact as necessary to similar stiffness throughout
Moisture Level	Loosen to 200mm depth and adjust moisture content before compaction
Fill Material	Clean sand, gravel or quarried material free of organic, manufactured or deleterious material
Density	98% minimum dry density in accord with AS1289.5.2.1
Depth Tolerance	-5mm
Level Tolerance	-25mm
_	
Base-course	Details
Material	Well graded crushed rock or gravel, free of organic, manufactured or deleterious material
Particle size	Uniformly graded particle size 25mm maximum
Clay content	6% by mass maximum
Density	98% minimum dry density in accord with AS1289.5.2.1
Depth tolerance	-5mm
Level tolerance	-0,+25mm except at existing structures where -0, +10mm shall be achieved
Bedding Sand	Details
Material	Coarse, well-graded, washed sand, free of organic, manufactured and deleterious material,
	soluble salts and other contaminants liable to cause efflorescence or reduce slip resistance
Grading	4.75mm maximum particle size and not more than 30% passing 0.3mm sieve
Stabilized Bodding	Detaile
Stabilised Beduling	Details
Sand material	Coarse, weil-graded, wasned sand, iree of organic, manufactured and deleterious material,
Grading	4 75mm maximum partials size and not mere than 20% passing 0.2mm sizes
Grading	4. 75mm maximum parucie size and normore man 30% passing 0.3mm sieve
Cement	1 ype GP to A53912

Insitu Concrete	Details
Standards	AS 1379 and AS 3600

	Avoid:
	<ul> <li>adding excessive volumes of water to the mix.</li> </ul>
	<ul> <li>using high salt content sands</li> </ul>
Admixtures	Include an admixture to concrete which inhibits the movement of water containing calcium hydroxide
	to the surface of the pavement.
References	Details to be read in conjunction with engineer's specification and details
Thickness	To engineer's detail, but generally:
	100mm for light traffic, and 150mm for medium traffic
Reinforcing	To engineer's detail, but generally:
	F62 mesh with 30mm minimum cover for pedestrian areas
	F82 mesh placed centrally for vehicular areas
Aggregate	Standard: 10mm graded basalt
	Washed: 70% 10mm basalt, 30% 10mm Cowra Quartz
Joints	To engineer's detail, but generally:
	expansion joints at maximum 6m centres
	<ul> <li>junctions with fixed structures and other paving finishes</li> </ul>
	control joints at maximum 2m centres
Margins	50mm wide steel tooled for exposed pavement slabs.
Washed finish	Steel trowelled smooth surface, washed after final set with clean water and brushed to remove the surface
	film of mortar until the aggregate is uniformly exposed without undercutting of the matrix. Avoid using
	excessive volumes of water.
Oxide finish	Oxides shall be integrated into the concrete mix at the mixing plant by weight in accordance with
	manufacturer's recommendations. Oxide is to be mixed thoroughly and uniformly to prevent discolouration
	and patching. Finish the concrete with wood float or broom as scheduled
Broom finish	Wood float and broom using a moistened nylon broom 500mm wide moved across the concrete to give an
	even textured parallel pattern slip-resistant surface
Wood float or cove finish	Wood float moved across the concrete in a circular or figure '8' motion, always in the same direction to
	produce a textured sup-resistant surface pattern
Finished surface tolerance	Unitorm in appearance, with a texture depth of 2 – 2.5mm free from depressions in which water can lie

Asphaltic Concrete	Details
Standard	AS 2734
Mixes	AC10: 10mm nominal maximum aggregate size, AC3: 3mm nominal aggregate size
Bitumen binder class	170, except 320 for areas with high ambient temperature
Compaction	While above 140°C
Site density	95% of the 50 blow Marshall density of the laboratory compacted mix (minimum)
Level tolerance	±10mm

Precast concrete	Details
Standard	AS/NZS 4455
Admixtures	Pavers shall contain an admixture to inhibit the movement of water containing calcium hydroxide to the
	surface of the pavers.
Dimensional category	DPA1 and DPB1
Thickness	40mm minimum
Abrasion index	1.2 minimum
Salt resistance	Exposure
Unconfined CS	Unconfined compression strength: 12 MPa
Breaking load	2 kN
Surface deviation	10mm under a 3m straight edge laid in any direction on the finished surface
	2mm across junctions between adjacent pavement surfaces

Jointing sand	Details
Sand material	Proprietary, clean, fine, washed and screened bedding sand products which include modified polymer additives to strength joints and reduce weed growth.

Drainage and sealing	Details	
Under all pavers on slab	Ensure that drainage under paving beds incorporates a puddle flange outlet cast into the slab.	
Paver joints	Allow to only fill paver joints to 20-25mm below the top surface of paving.	
Sealing	Allow to pre-seal all pavers unless advised otherwise. Pre-seal pavers all round before laying. Reseal cut and drilled paver surfaces before laying. Typically, these pavers include natural stone, precast concrete and clay unit paving where specified.	
-		

Paver pedestals	Details
Reference	Pedestal Supported Paving section of this specification

# 3.8 Sub-grade Preparation

Determine the depth required to achieve the design levels of finished surfaces. Trim and remove topsoil containing grass and plant roots, rocks and stones.

Where levels have been reduced below required depths fill and compact as necessary as specified above in 3.9 Paving Materials and Components.

Ensure soft spots are removed so that the sub-grade strength and stiffness is similar throughout, including service trenches. Where there is an inconsistence in the sub-grade moisture content, loosen the sub-grade to a depth of 200mm and adjust the moisture content before compaction. Do not sterilise the sub-grade.

#### 3.9 Base-course Installation

Spread the base-coarse material over the sub-grade to correct loose thickness of 100mm by approved mechanical means. Do not transport new material over uncompacted material unless prior approval is given. Compact the base-coarse material by approved mechanical means. Bring the base-course materials to the optimum moisture content prior to and during placement.

Do not add water during compaction except for light sprinkling if necessary to replace evaporation loss.

Bring the compacted base-coarse to the required levels within a tolerance from the level indicated on plans. Any required contours of the pavement will be achieved by shaping the base-coarse. During compaction all soft or yielding, and other unsuitable material shall be removed and replaced with approved material. Grade the base course to provide 1-2% cross fall to all paved surfaces to drain toward garden beds and away from buildings.

#### 3.10 Separation of Different Paving

Where movement between different paving types can be anticipated or is indicated on plan or evident in the work that precedes landscape paving, supply and install separation strips as necessary to control cracking and trip hazards in the finished surface or where the design includes a feature strip for aesthetic reasons.

Refer to engineers details to determine where movement joints are required or refer to hardscape plans for locations.

#### 3.11 Paving Separation Strip Installation

Paving separation strips may consist of metal, timber or other compressible or expanding material depending on the detail. Refer to the Material Schedule for selection.

Install any separation strips for the full length of junctions between different pavement finishes or materials, with the top edge to be set flush with the proposed finished pavement levels.

Fix strips in place so that they cannot be dislodged during the work of subsequent trades.

Unless otherwise stated, separation strips shall be installed by the trade installing the finished paving material.

#### 3.12 Graffiti Protection Coatings

There are three types of graffiti protection that may be required depending on the surface type to be protected. These coatings are:

- 1. Sacrificial;
- 2. Semi sacrificial; and
- 3. Permanent.

Some coatings are factory applied while others are applied on site. The selection of the most appropriate coating system will depend on the location, finish and expected longevity of the coating.

Supply and install anti-graffiti coatings to all walls, fences, timber decking, balustrades, handrails, and furniture in accordance with manufacturer's recommendations. Manufacturers' of suitable products include but are not limited to:

- Dulux;
- Easy-on;
- Murobond; and
- Taubmans.

Furniture suppliers/makers may specify protective products made by other anti-graffiti coating manufacturers and these will be acceptable. Where other products are preferred by the contractor, these may be approved after submitting product information to the Project Manager, for approval and acceptance to proceed.

#### 3.13 Paving Sealer

Landscape Specification

Supply and apply a water based penetrating sealer on all pavers and, where noted on the drawings, other stone and masonry surfaces where the potential for staining is apparent. The sealer shall be selected as the most appropriate for the type of stone to be laid and its location related to the types of staining that are likely to occur. Where pre-sealed pavers are cut, re-seal the cut edges prior to laying. Apply the selected sealer in accordance with manufacturer's recommendations.

Pavers shall be pre-sealed all round in the factory prior to delivery to site. Where pavers are cut on site reseal cut edges with the same sealer used to pre-seal the pavers.

Product and method statement: The Contractor shall submit a preferred product and method of application for review prior to delivery of the stone material to site.

Cleaning: Thoroughly clean the surfaces to be sealed prior to application of the sealer. Preferred sealer: Equal to Aqua Mix or similar water based penetrating sealers.

> Aqua Mix Australia 30/16 Bernera Road, Prestons, NSW, 2170, Australia 1300 AQUA MIX (1300278264) 02 9620 5189

Sample: The Contractor shall supply a sample paver with the preferred sealer applied for review prior to commencing the general application of the sealer to ensure that the sealer and the method of application is satisfactory.

#### 3.14 General Painting

Where shown on the drawings or required for base material protection from weathering and abrasion supply all materials and labour to paint timber, metal and other paintable materials to prolong their predicted life and intended appearance.

Paint Surface	Paint System	
Timber rough sawn	Cabots Timber colour opaque colour water based paint or equal	
Timber DAR	Cabots Timber colour opaque colour water based paint or equal	
Steel	White Knight, Rust Guard, 1 coat Metal Primer, 2 coats Epoxy Enamel or equal	
Galvanised steel	White Knight, Rust Guard, 1 coat Metal Primer, 2 coats Epoxy Enamel or equal	
Colours	TBS	
Products	Equal to DULUX, Cabots, White Knight, Taubmans	

#### 3.15 Edging

Edging shall be used as a separation between gardens (including tree planting) and lawns.

Supply and install edging as follows:

Concrete Edge CE	Details	
Location	As shown on the drawings	
Material	'Kwik Kerb' extruded concrete edge	
Colour	Charcoal	
Dimensions	150 x 150mm at nominal lengths, 'Square' profile	
Installation	Laid insitu by supplier on compacted subgrade base course to engineer's specification	

#### 3.16 Completion of Hardscape Trade Work

Upon the completion of any hardscape trade work described by this specification leave the completed areas clear of off-cuts, waste material, rubbish, litter and the like, and clean on completion, ready for the next trade to commence work.

# 4.0 SOFTSCAPE ELEMENTS

#### 4.1 Scope

The works included in this section shall include the supply of labour and materials to install, prepare and/or implement:

- Site preparation;
- Soil works;
- Soil preparation for planting;
- Plant installation;
- Mulch; and
- Turf.

#### 4.2 Inspections

Give sufficient notice so that inspection may be made of the following:

- Set-out;
- Sub-grades cultivated or prepared for placing topsoil;
- Topsoil spread before planting or turfing;
- Plant holes excavated and prepared for planting;
- Plant material set-out before planting;
- Planting, staking and tying completed; and
- Turf completed.

#### 4.3 Ordering Plants

Place orders for all plants with approved nurseries and provide evidence of order within fourteen (14) days of being awarded the contract. All plant material shall be obtained from approved suppliers. Approved suppliers include those registered with Nursery & Garden Industry NSW & ACT.

A warranty shall be provided by the plant supplier declaring that plants:

- 1. are the correct size for their containers;
- 2. have not recently been potted-on;
- 3. are true to the specified species;
- 4. are free from diseases, pests, weeds and the like; and
- 5. have the provenance specified where applicable.

## 4.4 Submit Samples

Submit representative samples of each of the following materials, packed to prevent contamination and labelled to indicate source and content.

Samples	Details
Soil	Mix types, chemical composition, supplier
Mulch	Types, supplier
Plants	One of each type in the plant schedule, suppliers, plant provenance where applicable
Other	Root barrier, stakes and ties and other products as specified where a sample may reasonably and easily be procured

#### 4.5 Site Soil Testing

#### General

The contractor shall allow in their tender to undertake soil testing as described below. This specification only relates the need for soil testing of site soil that is either to be used as:

- 1. a secondary growing medium, expected to influence plant root systems in the short term as the "B" horizon by being at shallow depth below an imported "A" horizon; or
- 2. a primary growing medium, designed to become the "A" horizon soil growing media after amelioration.

All site soils approved for reuse on site shall be tested before amelioration.

If the drawings indicate the site soil is a secondary growing medium only, by having an imported A Horizon soil overlaid, allow to test the subject site soil being used as the B Horizon with Test Type 1.

If the drawings indicate that site soil is to be used as the primary growing medium throughout, by its use as the A Horizon, then allow for Test Type 2 on the site soil being used as the A Horizon.

If site soil is to be used in one location as the primary growing medium and elsewhere as the primary growing medium then allow for both Soil Tests 1 and 2 as above.

If the project landscape design is wholly upon structure whether it's a built structure or natural impervious structure then no site soil testing is required. In these situations, soils shall be imported. There is no requirement to test imported soil as it should comply with the soil details scheduled and described by this specification.

#### Aim

The aim shall be to achieve successful, healthy, vigorous plant growth, over an indeterminate extended period of time, of all plants listed in the Plant Schedule.

#### Test Type 1 - Site Soil Testing at Site

Test Type 1 shall be exercised using a clay dispersal in water test and a simple soil pH test kit.

Where plants are to be installed in natural site soil or in imported soil but that the project design implies that plant root systems will, in the short term, populate the site soil beneath, undertake a simple soil test, for each visibly different soil type on site, to determine:

- approximately how much clay is present and therefore the drainage characteristics of that soil; and
- the pH of the soil to determine its acidity and therefore what needs to be done to reach the preferred pH of the proposed plants.

If the site soil is heavy clay then add calcium sulphate (gypsum) to improve aeration and reduce compaction. If the soil being tested is loamy or sandy do not add gypsum.

If there are extremes of pH range < 5.4 or > 6.8, the contractor shall undertake corrections needed to achieve a standard midlevel pH range to meet the optimum growing conditions of the plants in the plant schedule.

Implement any corrections during the initial ripping of the site soil below gardens and lawns.

If the soil is too acid, raise the pH by the addition of calcium carbonate (agricultural lime) or if the soil is too alkaline lower the pH by the addition of organic matter or sulphate of iron or sulphate of ammonium.

The target pH range is > 5.4 to < 6.8 but the desired pH range may extend up to 7.5 or 8.0 where turf or wet gardens are to be installed.

#### Test Type 2 - Site Soil Laboratory Testing

Test Type 2 is a full comprehensive laboratory scientific site soil testing process as described in AS 4419 Appendix A.

Obtain at least two (2) soil samples or the number indicated as sample locations shown on the drawings.

Provide results and recommendations to adjust the physical and chemical properties of the site soil to achieve an appropriate planting medium for the selected plants.

Employ the services of a certified testing laboratory to provide complete physical and chemical composition test results and recommendations for amelioration to achieve the aim.

If laboratory soil testing is required, the following is the recommended provider:

Soil	Tosting	Laboratory	
501	LESUIU		

Soli resting Laboratory		
Company	Sydney Environment and Soil Laboratory (SESL)	
Address	16 Chilvers Road, Thornleigh NSW 2120	
Contact	T. 1300 30 40 80 E. online@sesl.com.au	

If site soil testing has been carried out, thoroughly mix in materials required to be incorporated into the tested soil as recommended in the soil testing results and to manufacturer's recommendations.

If no site soil testing has been specified and heavy clay is encountered at tangible depths, add horticultural gypsum to the reduced levels before final cultivation in accordance with the manufacturer's recommendations.

#### 4.6 Subsoil Drainage

Provide and install subsoil drainage equal to Vinidex  $65mm\emptyset$  (min) Draincoil with filter sock at the base of slopes, on the high side of paths, at the base behind retaining walls and where water is likely to accumulate at depth in the soil. Connect all subsoil drainage to the nearest downstream stormwater pit to ensure that subsoil water is managed and channelled to a stormwater

drainage system. On sites with cross fall of less than 1:50 install subsoil drains to remove excess water from the subsoil in areas where water is likely to accumulate and may not penetrate lower strata naturally. Rip the sub-base surface 150mm deep before placing any soil. Install drainage pipes in subsoil trenches backfilled with 10mm blue metal (basalt) equal to ANL Blue Metal.

Coordinate the connection of subsoil drains to stormwater pits with the Civil or Hydraulic contractor.

#### 4.7 Soil Profile as Horizons

For the purpose of this specification the following soil profile convention shall apply. Various areas may consist of differing combinations of horizons depending on the site conditions and required design outcomes. The following table describes the general arrangement of soil profiles as horizons.

Soil Horizons Table		
Horizon	Description	
0	Organic or inorganic mulch layer or soil insulation (highest layer)	
A	Top soil or upper depth of soil below horizon O for gardens and below turf areas	
В	Subsoil or the prepared site subsoil or the soil below horizon A	
С	Sub-base being weathered rock, clay, undisturbed existing base site soil or built structure below horizon B	
R	Base material, regolith or parent material or rock below horizon C	

Excavate the site soil to create the subsoil level to achieve finished design topsoil levels of horizons O and A.

#### 4.8 Mulch – Horizon O

Garden mulch shall be free of deleterious and extraneous matter such as soil, weeds, sticks, rubbish, litter, stones, plastic and the vegetative reproductive parts, including seed, of undesirable plants.

In addition, organic mulch shall conform to AS4454.

All mulch material shall be equal to products supplied by Australian Native Landscapes (ANL) or other approved suppliers or approved processed site material.

Mulch from any other source may be rejected.

Mulch Type		Description
01	Horticultural pine bark	15mm approx. graded pine bark recycled from plantation timber production.

Before placing mulch ensure that soil depths are correct and that the soil surface is even and ready to receive mulch as a consistent layer.

After all plants have been installed, place mulch in all garden beds to a depth of 75mm.

Mulch shall be clear of all plant stems, and raked to an even surface flush with the surrounding finishes and evenly graded between design surface levels.

The specified depth shall be achieved after the mulch has settled. If mulch is mechanically blown onto gardens, as opposed to being placed, it shall precede planting to avoid plant damage.

#### 4.9 Topsoils – Horizon A

Garden topsoil shall conform to AS4454 and be free of deleterious and extraneous matter such as weeds, sticks, rubbish, litter, stones, plastic and the vegetative reproductive parts of undesirable plants.

Where indigenous / endemic plants are included in the plant schedule a soil low in phosphorus shall be used where these plants are located.

In the process of spreading topsoil for turf and mulched areas an allow for natural compaction by setting the top of horizon A soil flush with adjoining surfaces such that over the initial establishment period the turf and mulch may settle under their own weight.

All imported soil material shall be equal to products supplied by Australian Native Landscapes (ANL) or other approved or other approved suppliers or approved processed site material.

Soil from any other source will be rejected. Horizon A soil shall consist of soil as scheduled below.

Table A - Horizon A - Topsoil Product Schedule		
Soil	Туре	Description
A1	TurfUnderlay	A blend of sand, soil, composted organics

A2	Garden Soil	A blend of soil, coarse sand, graded ash, coco peat and composted organics
A3	Turf Top Dressing	A blend of sand, soil, and fine rich compost, used for topdressing, or as a turf
		underlay when installed above sandy soils

#### Horizon A1 – Turf Underlay

The A1 horizon soil for passive amenity turf shall consist of sandy loam 'turf underlay' topsoil mix 100mm deep (min) designed to provide moderate resistance to compaction and a moderate degree of soil moisture retention.

The physical and fertiliser requirements of this soil type are tabulated below.

Table A1- Turf Underlay	Physical components		
Medium-coarse grade washed sand	30–50% by volume	Example	
Sandy loam soil or site soil (if specified)	40–60% by volume	5 parts washed sand 4 parts site soil loam	
Composted soil conditioner (to AS4454)	10% by volume	1 part AS4454 compost	
		Fertilisers	
Lime and/or dolomite	2 kg/m3 at mixing	Example	
Balanced compound NPK turf starter fertiliser	0.5 kg/m3 or 50 g/m2 after placement	+ Lime and/or dolomite + NPK	
Minor and trace elements	300 g/m3 at mixing	+ Trace elements	

Spread the soil over the prepared subsoil and grade evenly to achieve design levels. Compact lightly and uniformly. Avoid differential subsidence and excess compaction and produce a finished soil surface which is:

- Finished to design levels, allowing for turf, finished flush with adjoining surfaces (paths and edges);
- Smooth and free from stones or lumps of soil;
- Graded to drain freely, without ponding, to catchment points;
- Graded evenly to adjoining surfaces; and
- Ready for turf.

#### Horizon A2 – Garden Soil

The garden soil is intended for mass planting of grasses, woody and herbaceous perennials in gardens other than on structure. Garden soil shall be used where it will not be subject to compaction under foot traffic shall consist of sandy loam to clay loam topsoil mix. Drainage is an essential requirement of this heavier soil mix. Subsoil drains shall be installed into the lower levels of the soil profile to collect excess subsoil water. This soil is intended to be direct tube and pot specimen planted up to 45 litre and should have the characteristics listed in Table A2 below.

Table A2	Physical components	
Sandy loam soil or site won topsoil	70–100% by volume	Example
Composted soil conditioner (conforming to AS4454)	0-30% by volume	8 parts washed sand 2 parts sandy loam 1 part AS4454 compost
		Fertilisers
Lime and/or dolomite	2 kg/m3 at mixing	Example
Balanced compound NPK turf starter fertiliser	0.5 kg/100m2 after placement	+ Lime and/or dolomite + NPK
Minor and trace elements	300 g/m3 at mixing	+ Trace elements

#### Horizon A3 – Turf Top Dressing

Turf top dressing shall consist of a blend of sandy soil and fine rich compost. This soil is intended to act as a filler to raise depressions in turf by encouraging grass growth into any depression that the soil fills. The top dressing soil shall be spread to about 10mm to 15mm deep where required. Rake the soil into the turf. Re-apply only once after observing a growth response in any one growing season. Gradually lift turf levels to an even grade over time.

#### 4.10 Subsoils – Horizon B

Shape the subsoil to fall to subsoil drains where possible. Do not excavate within the drip line of trees to be retained and near existing services. If necessary cultivate these sensitive areas by hand.

Cultivate the created subsoil surfaces to a further depth of 100mm minimum to encourage infiltration of water.

Remove stones exceeding 25mm, clods of earth that resist breaking, weeds, rubbish or other deleterious material brought to the surface during cultivation.

Supply and install 90mm  $\varnothing$  socked subsoil drains to all garden areas to drain excessive ground water volumes. Connect subsoil drains to the nearest downstream stormwater collection pit or piped stormwater system.

Subsoils or the "B" horizon generally shall conform to the following details.

#### Horizon B1 – Subsoil

The 'B1' horizon subsoil shall be an open granular well-drained growing media with a saturated density of less than 2400 kg/m<sup>3</sup> (2.4 kg/L). This soil shall be used below Horizon A or the top 300mm of any deeper planter boxes, containers and garden beds.

Soil for the 'B' horizon shall have the properties of a potting media. The physical and fertiliser requirements of this soil type are tabulated in Table B1 below.

Table B1 - Subsoil	Physical components
Sandy loam soil or site won topsoil (if specified)	10-30% by volume
Horticultural ash, perlite, or similar lightweight low density mineral matter or mixtures of these	30 – 50% by volume
Composted 10 mm pine bark	20 – 40% by volume
Composted soil conditioner (conforming to AS4454)	< 20% by volume
	Fertilisers
Lime and/or dolomite	2 kg/m <sup>3</sup> at mixing
Balanced compound NPK turf starter fertiliser	3.0 kg/100m <sup>2</sup> after placement
Minor and trace elements	300 g/m <sup>3</sup> at mixing

Spread the soil over the prepared sub-base and grade evenly to achieve design levels. Compact lightly and uniformly in 150mm layers. Avoid differential subsidence and excess compaction and produce a finished soil surface which is:

- Smooth and free from stones or lumps of soil;
- Graded evenly to drain freely, without ponding, to catchment points; and
- Ready for spreading horizon A.

#### 4.11 Sub-Base – Horizon C

The Sub-Base may consist of weathered rock, clay, undisturbed existing base site soil or built structure which may be ripped.

Trim any undisturbed sub-base, weathered rock or clay as necessary to achieve the depth of soil specified and detailed. Do not disturb built structure. Where horizon C is impervious, other than built structure, rip the surface to 150 mm deep before placing the designed soil profile. If the sub-base, other than built structure, cannot be ripped then refer to **Garden and Turf Drainage** in following clauses. At all times ensure that top surface of trimmed Horizon C is self-draining before overlaying any upper soil horizon.

#### 4.12 Base Material – Horizon R

The Base Material may consist of regolith, parent material or rock which offers solid resistance to excavation.

For the purpose of tendering assume that solid rock will not be encountered on site within the landscape work-zone depth. Provide tender rates for solid rock excavation and proposal for reuse or transport of the material should it be encountered.

#### 4.13 Garden and Turf Drainage on Built Structure and Impervious Natural Ground

For the purposes of this clause "Structure" shall refer equally to built structure and natural ground such as solid rock or other impervious strata.

On built structure supply and install drainage in the form of drainage cell draining water to outlets in the slab floor of the gardens.

On natural structure or impervious ground an alternate drainage system that replaces drainage cell with an aggregate layer and subsoil drain may be approved. Seek approval to change.

If specified that the Landscape Contractor is responsible for water proofing garden walls, inspect the installed waterproof membrane to verify that the specified waterproofing is complete without breaks or inadequacies prior to commencing the installation of planter drainage. Make any repairs prior to proceeding. Protect the membrane from mechanical damage.

Where the membrane is installed by others seek written approval from the Project Manager stating that the waterproofing is complete and that the landscape installation may proceed. Notify the Project Manager of any breaks or inadequacies observed so that any necessary repairs can be made prior to continuing with the landscape work.

Supply and install a polypropylene cellular drainage cell equal to 'Atlantis' drainage cell complete with a continuous geotextile filter fabric liner to all planting areas on structure, in accordance with manufacturer's instructions and details. Drainage cell and filter fabric shall extend across the base of planters on structure and up planter side walls to the underside of the mulch layer.

Geotextile filter fabric is to be installed over all drainage cell material. Allow to tape the fabric over the top of the planter walls to ensure soil mix does not escape into drainage outlets/holes. Trim excess fabric later. Install a minimum 50mm depth of double washed coarse river sand over all horizontal geotextile lining prior to installation of soil mix.

In gardens install a 90mm Ø slotted PVC pipe with geotextile sleeve and matching screw cap in a vertical configuration to provide visual access and flushing capability directly over drainage outlets at the base of soil in planters. Ensure that the pipe runs directly from a level below the mulch down to the drainage cell at the outlet point, with the geo-fabric turned up and secured around the base of the pipe prior to filling the planter with the specified soil profiles and sand layer.

Fit a PVC flange collar to the bottom end of the slotted pipe in a position above the drainage cell to stop the pipe dropping into the waste outlet. Do not block water from entering the outlet in the structure. Back filing the soil over the flange prevents the pipe assembly from being pulled out of the soil.

#### 4.14 Additional Fertiliser

Apart from the fertiliser specified for soil mixes, provide proprietary fertilisers delivered to the site in sealed containers or bags marked to show the name of the manufacturer, weight, fertiliser type, N:P:K ratio, recommended uses and application rates. Additional fertiliser shall be in the form of a slow release granulated or pelletised fertiliser appropriate to the provenance of the plants being native or exotic and related to trees, shrubs and turf. Apply at the rates and periods specified by the manufacturer. Allow for at least 2 applications during the 12 month establishment maintenance period.

#### 4.15 Embankment Stabilisation

As shown on the drawings and where necessary to prevent soil erosion or soil movement, stabilise embankments with erosion control fabric and planting or turf as described in the following table. Refer to drawings for the extent of this work.

Embankment Stabilisation	
Gradient	Method of stabilisation
Steeper than 1:2 (50%) 26.6°	To engineer's design and detail
Equal to 1:2 (50%) but steeper than or equal to 1:3 (33%) 18.5°	Jute mesh
Shallower than 1:3 (33%) but steeper than or equal to 1:5 (20%) 11.3°	Jute mesh or turf
Shallower than 1:5 (20%) 11.3°	Turf
Areas of high volume stormwater flow of any gradient	Jute mesh and large rocks according to detail

Stabilise embankments using biodegradable fibre reinforced heavy duty polymer mesh equal to Jutemaster Thick as supplied by Geofabrics. Install the mesh in accordance with manufacturer's specification from top to bottom of slopes and include:

- 300 mm wide x 300 mm deep anchor trenches at top and bottom.
- Backfill trenches with soil after placing and pinning mesh and compact the soil on completion.
- Mesh overlaps shall be minimum 100 mm wide with the free edge running downstream with the anticipated overland flow (not against the flow).
- Install U-shaped galvanised steel pins at 1000 mm centres generally and 300 mm centres at overlaps.
- Plant through cuts in the mesh after the embankment stabilisation mesh has been installed or pre-seed the slope before installing mesh.

Where gradients permit turf to be used to stabilise embankments refer to the Turf clause in this specification.

#### 4.16 Plants

Supply plants which have the following characteristics in accordance with the landscape drawings and schedules:

Plant characteris	stics
Root systems	Large healthy root systems, with no evidence of root curl, restriction or damage
Plant health	Vigorous, well established, free from disease and pests, of good form consistent with the species or variety specified
Acclimatisation	Hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site, and in shade and full sun conditions
Container	Grown in their final containers for not less than twelve weeks and free from weeds
Leaders	Trees, unless required to be multi-stemmed, shall have a single leading shoot
Plant size	Plants shall be an appropriate size in relation to their container size

All plant specimens are to be true to name and variety listed in the plant schedules on the landscape drawings. Make no substitutions of species type or container size unless approved by the Landscape Architect and Project Manager.

Plants shall not exhibit signs of having been stressed at any stage during their development and delivery due to inadequate watering, excessive shade/sunlight, physical damage or have restricted growth due to nursery conditions.

## 4.17 Tree Procurement

Procure large specimen trees from specialised supply nurseries having a reputation for best quality control based upon AS 2303:2015 Tree Stock for Landscape Use. Seek a verified copy of the supplier's tree inspection forms for the plant stock being supplied and submit them to the project manager prior to delivery. Inspect the trees upon delivery and determine that they have the characteristics that the inspection form indicates they should have. Ensure that the trees being delivered have identity tags that match the inspection form information submitted when the trees arrive on site. Check that the reference information matches the tags and sign the forms accordingly to verify conformity. If any specimen does not match the inspection form information form information to the project manager that the specimen or specimens are to be rejected and replaced with stock that is conforming.

## 4.18 Lifting Trees

Larger specimen trees shall be crane lifted when required in order that they are placed correctly and in the shortest possible time from truck to soil. Lift trees by their root ball taking the full load of the tree weight. Only strap the trunk to stabilise the plant when lifting. DO NOT LIFT THE FULL WEIGHT OF TREES BY THEIR TRUCK.

## 4.19 Plant Delivery and Labelling

Plants are to be delivered to site in a covered vehicle to prevent wind damage. Plants are to be placed in the vehicle in a manner that prevents them from moving and sustaining any damage.

Plants damaged on delivery shall be rejected and replaced at the Landscape Contractor's cost. Deliver plant material to the site on a day to day basis and plant immediately after delivery.

Do not store plants on site for a period that may invite theft or expose the plants to adverse weather while they are in containers.

Label at least one plant of each species or variety in a batch with a durable, legible tag. Maintain the tags for the plant establishment period.

## 4.20 Installation of Plants

Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. In other than sandy soils, suspend excavation when the soil is wet, or during frost periods.

Do not vary the plant locations from those shown on the drawings unless otherwise directed. If it appears necessary to vary the locations and spacing to avoid service lines, or to cover the area uniformly, or for other reasons, apply for directions. Allow for sufficient notice for approval by the Landscape Architect and Project Manager of the location of mature and feature trees and plants.

For tree plantings, excavate a hole to twice the diameter of the root ball and at least 200mm deeper than the root ball. Break up the base of the hole to a further depth of 100mm, and loosen compacted sides of the hole to prevent confinement of root growth.

If, after excavation of the planting holes the soil is found to be hydrophobic, apply a wetting agent pre-mixed with water in accordance with the manufacturer's recommendations. Apply the wetting agent to the bottom of each planting hole.

Thoroughly water the plants before planting, immediately after planting, and as required to maintain growth rates free of stress. No plant material shall show signs of water stress at any time.

When placing, remove the plant from the container with minimum disturbance to the root ball. Ensure that the root ball is moist and place it in its final position, in the centre of the hole and plumb, and with the top soil level of the plant root ball level with the finished surface of the surrounding soil. All plants are to be positioned in the centre of their planting hole.

In planting beds and individual plantings, apply fertiliser pellets, as recommended in the soil testing results and in accordance with the manufacturer's recommendations around the plants at the time of planting. Provide proprietary fertilisers, delivered to the site in sealed containers displaying manufacturer or vendor's name, weight, fertiliser type, N:P:K ratio, recommended uses and application rates.

Backfill the planting holes with topsoil mixture. Lightly tamp and water to eliminate air pockets. Ensure the topsoil is not placed over the top of the rootball, so that the plant stem remains the same height above the ground as it was in the container.

#### 4.21 Root Barriers

Supply and install root control barriers to all new tree plantings, where their proximity poses a threat to the stability of inground services, road kerbs, road paving and footpaths and other hard landscape elements such as walls, fences, steps, and garden edging.

As a minimum root barriers should be installed where trees are located within 2 metres of the element, and are to extend along the element for 2 metres either side of the tree trunk or as far as the diameter of the foliage canopy crosses the protected element, whichever is the greater.

As required install either, 600mm, 900mm or 1200mm width sheets to adequately protect the potentially affected element. The root barrier width shall always be wider than the depth of the planted tree rootball.

Root barriers shall be equal to Root Wall, as supplied by Geofabrics Australasia under the brand name Treemax.

#### Stakes and Ties

Stakes shall be durable hardwood, straight, free from knots or twists, pointed at one end, in the following quantities and sizes for each of the various plant pot sizes:

Staking Schedule									
Plant Size	No. of stakes	No. of ties	Stake size						
Plants > 25 It	1	1	25 x 25 x 1500mm						
Semi-advanced plants > 75 It	2	2	38 x 38 x 1800mm						
Advanced plants > 100 It	3	3	50 x 50 x 1800mm						

Drive stakes into the ground a minimum one third of their length, making sure they are plumb, equal in height and avoids damage to the plants root system.

Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant, allowing a small degree of movement but not affording any damage to the stem.

Ties shall be 50 mm wide hessian webbing or strap stapled at the stake with a loop twisted before looping around the stem. Each tie stabilises the stem to one stack.

Only use stakes when the plants need support and when it is obvious that they are or could be exposed to extremes of wind speed and where habit correction needs to be exercised. Remove stakes when plants have established stability in their root system and strength in their stem to withstand the exposure.

#### 4.22 Turf

Unless otherwise specified or directed turf shall be the species listed below and equal to turf supplied by Windsor Turf, Gate 6 Cornwallis Road, Windsor NSW 2756 T. 02 4577 2550 or other approved specialist grower of cultivated turf.

i urf Supply									
Botanic name	Common name	Climate	Shade tolerance	Water demand					
Stenotaphrum secundatum	Sir Walter Soft-leaf Buffalo	Warm	High	Low					

Deliver turf to site in 25mm minimum thick cut rolls within 24 hours of being cut. Lay the turf within 24 hours of delivery. Prevent it from drying out between cutting and laying. Turf shall be of even thickness, free from weeds and other foreign matter.

Lay the turf in stretcher pattern with the joints staggered and close butted, parallel with the long sides of level areas, and with contours on slopes. After tamping the turf shall be flush with adjacent finished surfaces of ground, paving edges, timber edges and the like.

Lightly tamp to an even surface immediately after laying. Do not use a roller or plate compactor.

Water the turf immediately after placement and as necessary to keep the topsoil moist to a depth of 100 mm. Protect new turf areas against damage by pedestrians and vehicular traffic until grass is established by installing temporary fencing. Temporary fencing shall consist of star pickets and safety barrier mesh or similar device to help keep the turf in a healthy condition.

Fertilise within two weeks after laying with approved lawn fertiliser to manufacturer's recommendations. Apply additional fertiliser as required to maintain healthy grass cover.

When established, top dress the turf to a maximum depth of 10mm with coarse washed river sand to remove any depressions or irregular areas. Rub the dressing well into the joints and correct any unevenness in the turf surfaces. Mow the turf to maintain a grass blade height of between 30-50mm.

#### 4.23 Summary of Required Actions, Submissions and Documentation

Provide	the following:
1	Provide sufficient notice to inspect as scheduled
2	Evidence of plant order within 14 days of contract award

3	Plant supplier's warranty for true to species stock
4	Submit the listed material samples
5	If required, obtain and test soil samples
6	When required, submit soil test results
7	Provide tender rates for solid rock excavation

# 5.0 IRRIGATION

#### 5.1 Scope

The works included in this section shall include all the necessary components to:

- Design, supply, install, balance and commission multiple permanent irrigation systems;
- Prepare and submit irrigation design documents and plans for relevant authority and project approval that fully describe the system to be installed;
- Conform to Water Board and other relevant authorities' approvals, rules and regulations; and
- Supply and install all necessary pipes, fittings, equipment, tanks and pumps to provide a separate automatic system for irrigating all garden and turf areas in the public domain, private open space and private space in the proposed development.

The final irrigation design and installed system shall take into account:

- The requirements to comply with water use restrictions dictated by authorities,
- Water saving and conservation components,
- Using a drip system rather than the use of sprinklers,
- Using on-site irrigation storage tanks for irrigation reticulation and/or connection to potable water supply throughout the site,
- Controlling water flow to deliver only the necessary volume to sustain plant vigour, and
- Reducing water delivery rates, volumes and frequencies as plants mature and find their own water sources in the soil and lower strata.

Areas to be irrigated shall include all landscape areas, including individual tree plantings, mass garden beds, planting on slab, and lawn areas.

#### 5.2 Quality

Give sufficient notice so that inspection may be made of the following:

- Work ready for specified testing,
- Underground or enclosed work ready to be covered up or concealed, and
- Final testing of the completed system.

#### 5.3 Detailed Drawings

Prepare and submit detailed drawings and a full performance schedule for the required irrigation systems, including, but not limited to:

- Control panel;
- Irrigation pipes and fittings;
- Layout and irrigation controllers;
- Valve locations; and
- All other components of the design

Drawings shall be prepared by a qualified person expert in irrigation design. Submit the drawings electronically in DWG and PDF format to the Project Manager and Landscape Architect for review, coordination and approval prior to the supply and installation of the works.

Prepare and furnish to the Project Manager before the date of practical completion, 'work as executed' drawings of the installed irrigation system, in DWG and PDF format, showing the locations of:

- Control panel;
- All pipes and fittings;
- Actual depths of underground pipework;
- Position of control valves; and
- All other installed components.

Provide written instructions for the operation and maintenance of the automatic irrigation system to be included in the overall project maintenance manual prepared by others.

## 5.4 System Design

A water delivery rate of 25mm/m<sup>2</sup>/week of planter or garden soil and lawn area is suggested for areas that have similar rainfall expectancy as that experienced in Sydney (approximately 1200mm/annum ± 200mm). The design shall provide the necessary flow rate for the actual site location which may be more or less than the Sydney district. Also, the design shall detail any on-site water storage proposed as detailed in **5.5 Materials and Components - Water supply** in this specification.

The designed system shall be:

- Centrally controlled by an electronic, multi-zone, timed control system panel located:
  - o a locked waterproof cabinet internally in a secure space; or
  - in a locked waterproof cabinet externally in a convenient but discrete location.
- Appropriate to the type of plant material to be installed and the water flow rate required for the site environment.
- Automatic with the ability to operate multiple zones over variable time frames on a seasonal basis.
- Fitted with fixed drip or controlled spray emitters activated by soil moisture sensors.
- Fully adjustable so that it may be tuned to account for changes in climate, plant growth and natural water uptake by plants over time.
- Fully serviceable to ensure that the irrigation system does not fall into disuse because of a lack of maintenance or the inability to easily replace components.
- Provide each individual plant with the required amount of water to sustain healthy, vigorous growth.
- Designed to be component theft, vandalism free.
- Free from over-spray which may wet paths and building facades.

#### 5.5 Materials and Components

The system shall incorporate the following components:

• Valve boxes

All water supply points and timers shall be housed in lockable in-ground valve boxes for easy access. The valve boxes shall be manufactured from high density thermos-plastic polypropylene. The valve lid is to incorporate a locking mechanism.

#### Automatic control valves

All valves shall be 24V solenoid actuated hydraulic valves providing flow control to a maximum operating pressure of approximately 1MPa. All metal parts shall be stainless steel and able to be serviced without removal from the pipeline. Provide a gate valve of the same size immediately upstream of each automatic control valve. House both valves in a valve box as previously specified at finished ground level allowing for mulch to be overlayed.

#### Quick coupling valves

Provide DN 20 double lugged bronze quick coupling valves with neoprene seats mounted on DN 20 copper risers offset at least 150mm from the supply pipe. Provide valve boxes and covers set flush with the finished surface.

#### • Pressure regulating valves

Provide pressure regulating valves at take-off points, which are adjustable between 100-700 kPa. Provide an 800µm in-line filter sized to suit the flow immediately upstream from the pressure regulating valve. Include gate valves upstream from the filter and downstream from the pressure regulating valve. Mount the assembly in an accessible position in a valve box, access pit or adjacent building.

#### Backflow Prevention

Supply and install a reduced pressure zone device RPZ valve to every irrigation to main or potable water supply connection point in accordance with local water supply authority regulations. Ensure that the valves are readily accessible but concealed from general view or access to limit vandalism.

#### Soil moisture sensors

Provide fixed ceramic moisture sensors as required by the design and connect them via wiring to the irrigation controller via moisture control units.

#### Control wiring

Connect the automatic control valves and soil moisture sensors to the controller with double insulated cables laid in conduits alongside piping. Install wiring without joints except at valves, sensors and branches of common wiring with waterproof connectors and expansion loops at changes of direction and at wire junctions.

#### Irrigation controllers

The irrigation control panel shall be automatic being manually set to cycle through a predetermined watering regime. It shall provide individual or simultaneous multi-zone operation with manual on/off override without loss of programme. The panel shall be connected to a 240V, 10A power supply installed by others to provide 24V output capable of operating at least 2 control valves simultaneously. Include a 24 hour battery programme backup and power surge protection device. Mount the controller in a waterproof lockable cabinet as previously specified.

#### • Water supply

Water for the system shall be provided either from:

- Main town water reticulation; and/or
- On-site stored water tanks; and/or
- Recycled water supply if available.

If from recycled water source ensure that the irrigation design has accommodated the available pressure and required connection valve components determined by the water supply authority.

Water supply from town water sources maybe be supplemented by on-site storage to maintain a continuous water supply in times when main pressure is not available, for example, when mandatory water restrictions are in force.

Conversely, if the on-site storage is large enough to be the main source of irrigation water it may be topped up from town water supply if the local water authority approves of such a connection.

As a guide only, the volume of on-site water storage to maintain a garden and lawn of  $1000m^2$  for one week without top up supply equals 25,000 It or a tank  $3730\% \times 2550$  total height, based upon  $25mm/m^2/week$ . Tank size may vary depending on available predictable top up supplies. The irrigation design shall provide all water storage calculations in order that a full assessment of the impact of a water tank on the landscape may be determined.

#### 5.6 Installation

Work shall be done by or under the direct supervision of appropriately licensed personnel who are expert in the methods of irrigation installation.

The final installation of the system shall include the following features:

- All components except the visible top of pop-up sprinklers shall be installed in a manner that is concealed below ground or below mulch;
- All tubing below mulch shall be pinned into place with galvanised steel spikes to prevent the tubing bending up through the mulch layer;
- All valve boxes shall be supported in the ground on brickwork;
- Valve box lids shall be set level with garden mulch levels and in concealed locations;
- All control fittings such as valves and the like shall be fully accessible within concealed valve boxes in the landscaping;
- All mainline and lateral pipework shall be concealed from view;
- Where water supply pipes traverse the underside of concrete paths use Class B copper piping;
- Where the irrigation tubing traverses the underside of concrete paths it shall be within uPVC conduit;
- No tube junctions shall be placed in conduits or under slabs where access is not possible;
- All joints shall be fitted tightly, sealed and made leak proof, with no internal projections, burrs or obstructions;
- Each separate system shall be controlled by one control panel located as previously specified;

- Back flow and master valve assemblies shall be sized as follows:
  - Flow rate 10-17 I/m use 25mm backflow and master valve assembly,
  - Flow rate 71-150 I/m use 40mm backflow and master valve assembly, or
  - Flow rate 151-240 I/m use 50mm backflow and master valve assembly.
- Space dripline tubing at maximum 450mm centres and maximum 200mm from garden edges; and
- Pipework shall be in accordance with AS 1477 and AS 2032.
- Flush the system with clean water at a velocity sufficient to remove foreign matter until only clean water is discharged at tube ends. Then terminate each tube flushing end/junction to complete the tube installation. Leave the system pipes and tubing free of foreign matter on completion. If need be, open the system again to re-flush if blockages are apparent and re-seal tube ends.

#### 5.7 Commissioning

The entire system shall be tuned and tested to deliver an adequate amount of water to all plants and turf. Test the system in the presence of the Landscape Architect and/or irrigation designer to facilitate the issue of a Certificate of Practical Completion.

Maintain the system for the duration of the establishment maintenance period as detailed elsewhere in the specification. Replace any faulty, broken or stolen components. Leave the system operating as if it was newly installed upon acceptance of the completed work.

# 6.0 PLANT ESTABLISHMENT AND MAINTENANCE

#### 6.1 Generally

The Landscape Contractor shall rectify defects during installation and that become apparent in the works under normal use for the duration of the contract Defects Liability Period.

The Landscape Contractor shall maintain the contract areas by the implementation of industry accepted horticultural practices for 52 weeks. The landscape maintenance works shall include, but not be limited to, the following:

- Replacing failed plants;
- Pruning;
- Insect and pest control;
- Fertilising;
- Maintaining mulch;
- Mowing;
- Watering;
- Weeding;
- Rubbish removal; and
- Cleaning of the surrounding areas.

#### 6.2 Logbook

Keep a Maintenance Logbook recording when and what maintenance work has been done and what materials, including chemical materials, have been used.

The records shall show when and where identified chemicals were used and why.

Submit the initial logbook for inspection prior to Practical Completion and again at the end of the Defects Liability Period as a prerequisite for granting Practical and Final Completion Certificates.

Record all major events and activities in the logbook.

Make the logbook available for inspection on request.

#### 6.3 Plants

Trees, shrubs and groundcovers shall at all times display healthy vigorous growth. Spent flower heads or stalks shall be removed immediately following flowering.

**Replace failed plants:** A "failed" plant may not mean complete death of soft tissue but failure due to poor growth, appearance, or unacceptable time for plant to re-establish new growth following damage or vandalism.

Replacement plants shall be in a similar size and quality and identical species or variety to the plant that has failed.

Replacement of plants shall be at the cost of the Landscape Contractor unless advised otherwise. If the cause of the failure is due to a controllable situation then correct the situation prior to replacing plants.

Failure of a plant shall be at the sole discretion of the Landscape Architect.

#### 6.4 Pruning

Whatever pruning work is requested by the Landscape Architect shall be performed, including any pruning of damaged growth or miscellaneous pruning considered as beneficial to the condition of the plants.

All pruning works shall be undertaken in a manner equal to acceptable horticultural practice.

#### 6.5 Spraying

Avoid spraying:

- if ever possible;
- in wet weather;
- if wet weather is imminent;
- if target plants are still wet after rain;
- in windy weather; and
- if adjacent desirable species are too close to the target plants to be avoided.

Immediately report to the Project Manager any evidence of intensive weed infestation, insect attack or disease amongst plant material. Submit all proposals to apply chemicals and obtain approval before starting this work.

When approved, spray with herbicide, insecticide, fungicide as appropriate in accordance with the manufacturers' recommendations. Record in the logbook all relevant details of spraying activities including:

- Product brand / manufacturer's name,
- Chemical / product name,
- Chemical contents,
- Application quantity and rate,
- Date of application and location,
- · Results of application, and
- Use approval authority.

#### 6.6 Fertilising

Fertilise gardens with a proprietary slow release fertiliser applied in accordance with the manufacturer's directions and recommendations. Record in the logbook all relevant details of fertilising including:

- Product brand / manufacturer's name,
- Fertiliser / product name,
- Application quantity and rate, and
- Date of application and location.

#### 6.7 Stakes and Ties

Adjust and replace as required to ensure plants remain correctly staked. Remove those not required at the end of the planting establishment period (Defects Liability Period).

#### 6.8 Mulched Surfaces

Maintain the surface in a clean, tidy and weed free condition and reinstate the mulch as necessary to ensure correct depth as before specified.

#### 6.9 Mowing and Top Dressing

Mow the turf to maintain a grass height of between 30-50mm. Do not remove more than one third of the grass height at any one time. Remove grass clippings from the site after each mowing.

Top dress to a maximum of 10mm as necessary to fill depressions and hollows in the surface.

#### 6.10 Irrigation and Watering

Maintain the irrigation system to sure that each individual plant receives the required amount of water to maintain healthy and vigorous growth, adjust and rectify as required.

Provide additional watering, if necessary.

#### 6.11 Erosion Control Measures

Where necessary, maintain the erosion control devices in a tidy and weed free condition and reinstate as necessary to ensure control measures are effective where deemed necessary.

#### 6.12 Weeding and Rubbish Removal

During the plant establishment period remove by hand, rubbish and weed growth that may occur or re-occur throughout all planted, mulched and paved areas.

The contractor shall target weeds that are capable of producing a major infestation of unwanted plants by seed distribution.

Whenever possible, time weed removal to precede flowering and seed set.

#### 6.13 Urgent Works

Landscape Specification

Notwithstanding anything to the contrary in the Contract, the Project Manager may instruct the Landscape Contractor to perform urgent maintenance works that place the completed contract works at risk.

If the Landscape Contractor fails to carry out the work within seven (7) days of such notice, the Project Manager (or representative) reserves the right without further notice to employ others to carry out such urgent and specified work and charge the cost to the Landscape Contractor.

Such work shall include but not limited to the inspection and clearing of drains in the pavement and gardens.

#### 6.14 Completion

A final inspection shall be made by the Project Manager, Landscape Contractor and Landscape Architect before the completion of the Plant Establishment Maintenance Period (Defects Liability Period).

Any items requiring rectification shall be repaired before completion of the relevant works and finally approved prior to certification.

# 7.0 Appendices

# 7.1 Referenced Standards

Standard	Name
AS 1289.5.2.1	Method of testing soils for engineering purposes – Soil compaction and density tests
AS 1319	Safety signs the occupational environment
AS 1379	Specification and supply of concrete
AS 1428.1 (All)	Design for access and mobility
AS 1428.3	Requirements for children and adolescents with physical disabilities
AS NZS 1428.4.1	Means to assist the orientation of people with vision impairment – Tactile ground surface indicators
AS 1428.5	Communications for people who are deaf or hearing impaired
AS 1477	PVC pipes and fittings for pressure applications
AS 1604	Specification for preservative treatment – Sawn and round timber
AS 1720	Timber structures – Design methods
AS 2032	Installation of PVC pipe systems
AS 2082	Timber – Hardwood – Visually stress-graded for structural purposes
AS 2303	Tree stock for landscape use
AS 2734	Asphalt (hot mix) paving – Guide to good practice
AS 2890.1 (All)	Off-street car parking
AS 2890.2	Commercial vehicles off-street parking
AS 2890.3	Bicycle parking
AS 2890.5	On-street parking
AS 2890.6	Off-street parking for people with disabilities
AS 3600	Concrete structures
AS 3610	Formwork for concrete
AS 3660	Protection of buildings from subterranean termites
AS 3850.1	Tilt-up concrete and precast concrete elements for use in buildings
AS 3972	General purpose and blended cements
AS 4373	Pruning of amenity trees
AS 4419	Soils for landscape and garden use
AS 4419	Appendix 1 Soils for landscape and garden use - sampling
AS 4454	Composts, soil conditioners and mulches
AS 4970	Protection of trees on development sites

## 7.2 Maintenance Schedule

Table	ACTIVITY	FREQUENCY			ACTION			
		П	w	2W	3W	м	3 or 6M	Daily Weekly Monthly
1	Logbook	+		+	500	+		Complete a logbook entry every day at site and at least every two weeks. All actions listed below require a logbook entry. Upon request, make the logbook available for inspection. Submit copies of new entries in the logbook to the Contract Administrator on a monthly basis. Please note that more frequent, short, occasional inspection should result in less maintenance work when problems are observed earlier than they might otherwise have been seen.
2	Plant replacement			+		+		Inspect and replace failed plants within 2 weeks of observation of failure. Match species, size (original) and location of new with old.
3	Mulch			+		+		Inspect and replace mulch deficiencies within 2 weeks of observation. Prior to placing new mulch aerate the soil by fork turning to a depth of at least 100mm, roughly level the soil and then place mulch. Do not disturb major plant roots while aerating soil.
4	Erosion control			+				Inspect every two weeks and repair ground, soil and mulch immediately. Maintain erosion control device as necessary.
5	Stakes and ties			+				Inspect every two weeks, adjust and/or replace as necessary but remove as plants mature and are able to support themselves.
6	Weed and rubbish removal			+				Inspect and remove immediately upon observation. Leave no waste on site. Dispose of waste material at a designated waste disposal site.
7	Pruning			+				Inspect every 2 weeks and prune as necessary to remove dead wood, improve plant shape and promote healthy vigorous new growth.
8	Spraying			+				Inspect every 2 weeks and action as necessary. Do not spray if other non-chemical methods will satisfy the need to remove insects. Spray for disease control only when absolutely necessary.
9	Urgent works		+					Complete within 1 week (7 days) of notification. Inspect and clear drains.
10	Planting and fertilising			+			3m+	Inspect every 2 weeks and remove spent flowers and dead stalks as they become apparent. Fertilise gardens every 3 months or other frequency in accordance with fertiliser manufacturer's directions.
11	Watering	+		+				Water when and where necessary every day at site and at least every 2 weeks generally. Do not allow soil and plants to dehydrate. Allow for prolonged rain, windy and dry periods. Water in the early morning or late afternoon to avoid excessive evaporation during the heat of the day.
12	Mowing, top-dressing and edging			+		+	6m+	Summer fortnightly. Winter monthly. Top-dress 6 monthly.

# Appendix B

Toll Westlink WH1 Canopy plan



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The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

> A WH1 Amendments Issue Revision Description

JW NM 01.10.2024

Drawn Check Date





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CANOPY COVER								
	Area	Required Canopy Cover	Current Canopy Cover					
Lot 1	110,793	11,079	13,164	12%				
Lot 4 & Detention Basin			4,009					
Trunk Drainage			1,269					
Lot 4 inc. Bio Retention	43,398	4,340	5,279	12%				
	454.404	45 440	10.110	400/				
Total (Excluding Estate Road)	154,191	15,419	18,443	12%				
Estate Rd	20,379	2,038	10,759.95	53%				
Total Site (Excluding Residual)	174,570	17,457	29,203	17%				
NOTE: Trunk Drainage zone canopy cover indicatively based off Sydney Water								
Guidelines and is subject to detailed design.								

ESR

Project: Proposed Industrial Estate Abbots Road Kemps Creek

# PRELIMINARY

Scale: Job Number: SS24-5372

Drawing Name:

Tree Canopy Plan

Drawing Number: Issue: WH1\_SK001 A

# Appendix C

Westlink WH3 Landscape plans

# Proposed Industrial Estate - Lot 3 Abbotts Road, Kemps Creek **Construction Certificate**

# Drawing Schedule

Drawing Title	Scale
Landscape Coversheet	N/A
Landscape Plan: Ground Floor	1:250
Landscape Plan: Lower Ground Floor	1:250
Landscape Details	As Shown
	Drawing Title Landscape Coversheet Landscape Plan: Ground Floor Landscape Plan: Ground Floor Landscape Plan: Ground Floor Landscape Plan: Lower Ground Floor Landscape Details

		0		D (C)	D. 11	<u>c</u> .	<b>D</b> .0-5	A
	Botanic Name	Common Name	Mature Size	Pot Size	Density	Qty	DCP	Aerotropolis
	Trees							
Bp	Brachychiton populneus	Kurraiong	10 x 5	100L	As Shown	6		
Cv	Callistemon viminalis	Weeping Bottlebrush	8 x 4.5	100L	As Shown	1		
Cm	Corymbia maculata	Forest Red Gum	25 x 15	100L	As Shown	25		
Et	Eucalyptus tereticornis	Forest Red Gum	35 x 12	100L	As Shown	9		
Em	Eucalyptus moluccana	Grey Box	25 x 8	100L	As Shown	4		
Wfl	Waterhousea floribunda	Weeping Lilly Pilly	10 x 8	100L	As Shown	1		
	Shrubs							
An	Atriplex nummularia	Old Man Salt Bush	2.5 x 1.5	300mm	As Shown	76		
Bs	Bursaria spinosa	Blackthorn	4 x 3	300mm	As Shown	15		
Са	Correa alba	White Correa	1 x 1	300mm	As Shown	305		
Cc	Callistemon citrinus	Crimson Bottlebrush	3 x 2	300mm	As Shown	48		
Dv	Dodenea viscosa	Giant Hop Bush	3 x 3	300mm	As Shown	50		
la	Indigofera australis	Australian Indigo	1.5 x 1.5	300mm	As Shown	94		
Cap Dc								
	Grasses and Groundcovers	Vallaw Duttana	0.5 × 0.0	150ma ma	E (ma C)	1007		
Сар	Dispelle seguride	Y ellow Buttons	0.5 X 0.9	150mm	5/m2	7007		
DC	Dianella caerulea		0.75 x 0.75	150mm	5/m2	74		
HS	Hibbertia scandens		0.2 X 2	150mm	5/m2	283		
LI	Lomandra longitolla		0.75 X 1	150mm	5/m2	507		
мр	Myoporum parvitolium		0.3 X 1	150mm	5/m2	00		
PI	Poa labillardien	Poa	1 X U.5	150mm	5/m2	004		
	Planting Matrix 1							
Сар	Chrysocephalum apiculatum	Yellow Buttons	0.5 x 0.9	150mm	5/m2	105		
Hs	Hibbertia scandens	Snake Vine	0.2 x 2	150mm	5/m2	105		
Mp	Myoporum parvifolium	Creeping Boobialla	0.3 x 1	150mm	5/m2	105		
-								
	Planting Matrix 2							
Сар	Chrysocephalum apiculatum	Yellow Buttons	0.5 x 0.9	150mm	5/m2	90		
Hs	Hibbertia scandens	Snake Vine	0.2 x 2	150mm	5/m2	90		
LI	Lomandra longifolia	Mat Rush	0.75 x 1	150mm	5/m2	90		
Мр	Myoporum parvifolium	Creeping Boobialla	0.3 x 1	150mm	5/m2	90		
ΡI	Poa labillardieri	Poa	1 x 0.5	150mm	5/m2	90		
	Boundary Planting Matrix							
Сар	Chrysocephalum apiculatum	Yellow Buttons	0.5 x 0.9	150mm	5/m2	96		
Dc	Dianella caerulea	Blue Flax Lily	0.75 x 0.75	150mm	5/m2	96		
Hv	Hardenbergia violacea	Purple Coral Pea	0.2 x 3	150mm	5/m2	96		
Hs	Hibbertia scandens	Snake Vine	0.2 x 2	150mm	5/m2	96		
Ju	Lomandra longifolia	Mat Rush	0.75 x 1	150mm	5/m2	96		
LI	Lomandra longifolia	Mat Rush	0.75 x 1	150mm	5/m2	96		
Мр	Myoporum parvifolium	Creeping Boobialla	0.3 x 1	150mm	5/m2	96		
		_						



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04	Revised for Comments	JW	NM	18.10.202
03	Architectural Coordination	CS	NM	15.10.202
02	Architectural Coordination	CS	NM	19.09.202
01	Construction Certificate	CS	NM	09.09.202
ssue	Revision Description	Drawn	Check	Date

LEGEND



Client: ESR

# Proposed Industrial Estate Abbotts Road Kemps Creek

Level 1, 3-5 Baptist Street Redfern NSW 2016

Australia

SITE IMAGE

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# CONSTRUCTION CERTIFICATE

Drawing Name: Landscape Cover Sheet Lot 3

Scale Job Number:

Drawing Numb

SS204-5372



# NOT FOR CONSTRUCTION

	Trunk drainage subject to separate documentation.	
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Client: ESR

Project: Proposed Industrial Estate Abbotts Road Kemps Creek

Level 1, 3-5 Baptist Street Redfern NSW 2016 Australia

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# CONSTRUCTION CERTIFICATE

Drawing Name:

Landscape Plan: Ground Floor Lot 3

<sup>Scale:</sup> 1:250 @ A1 Job Number:



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CONSTRUCTION CERTIFICATE

Drawing Name:

Landscape Plan: Ground Floor Lot 3

Scale: 1:250 @ A1 Job Number:



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## CONSTRUCTION CERTIFICATE

Drawing Name:

Landscape Plan: Ground Floor Lot 3

Scale: 1:250 @ A1 Job Number:



SS204-5372



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# CONSTRUCTION CERTIFICATE

Drawing Name:

Landscape Plan: Ground Floor Lot 3

Scale: 1:250 @ A1 Job Number:



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Project: Proposed Industrial Estate Abbotts Road Kemps Creek

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CONSTRUCTION CERTIFICATE

Drawing Name:

Landscape Plan: Lower Ground Floor Lot 3

Scale: 1:250 @ A1 Job Number:



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A1

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02 Revised for Comment JW NM 18.10.2024 01 Construction Certificate CS NM 09.09.2024 Issue Revision Description Drawn Check Date

Client: ESR

Project: Proposed Industrial Estate Abbotts Road Kemps Creek

Level 1, 3-5 Baptist Street Redfern NSW 2016 Australia

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# CONSTRUCTION CERTIFICATE

Drawing Number:

Drawing Name: Landscape Details

Scale: As Shown Job Number:

SS204-5372

501 02

Issue:





## Proposed Industrial Estate – Lot 3 Abbots Road, Kemps Creek

## LANDSCAPE SPECIFICATION

Prepared by	Site Image NSW Pty Ltd	
Prepared for	ESR	
Project number	SS24-5372	
Date	09.09.2024	
Document Issue/Rev	Description	Date
A	Preliminary	09.09.2024

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### 1.0 GENERAL NOTES

#### 1.1 Contacts and Definitions

Project contacts are listed below. Terms used in this Landscape Specification shall have the meanings assigned to them in the referenced standards and as defined below.

CONSULTANT	ORGANISATION	TELEPHONE	EMAIL
Architect	Pace Architects	02 9425 1400	ppace@pacearchitects.com.au
Landscape Architect	Site Image NSW Pty Ltd	02 8332 5600	mail@siteimage.com.au
DEFINITIONS	MEANING		
Approved	Shall mean as approved in writing by the Project Manager		
Equal to	Shall mean equivalent in performance, quality and price to that specified and shall be approved in		
	writing by the Project Manager. Substitutio	ns shall be submitt	ed in writing to the Project Manager
ТВА	To Be Approved		
TBS	To be Specified or Selected		
TBC	To Be Confirmed		

#### 1.2 Cross References

Where applicable, this Specification shall be read in conjunction with the General Conditions of Contract included in the general building works specification.

The various sections of this specification describe the works depicted on the landscape drawings.

The landscape Contractor shall have read the whole specification and understood that the complete works are described by all the documents. Where conflict occurs the Landscape Contractor shall seek clarification before progressing the works.

The contacts list in Section 1.1 above includes all the consultant disciplines involved in the project who have some degree of involvement in the outcome of the installed landscape works.

The Landscape Contractor shall have obtained information from all consultants in the way of written instructions and advice, specifications and drawings that impact on the landscape works.

The Landscape Contractor shall have coordinated their works with those trades associated with each discipline to ensure the timely installation of the landscape design in accordance with the Builder's construction program.

The landscape drawings include cross references on plans, sections and elevations to details on other landscape drawings.

Where no cross reference is evident and the available information is considered insufficient to proceed, the Landscape Contractor shall seek advice from the Landscape Architect in a timely manner to ensure that there is no delay to the contract caused by the absence of information.

#### 1.3 Interpretation of Drawings

The Landscape Contractor shall check all relevant dimensions on site before proceeding with the work. Under no circumstances shall dimensions be scaled from the drawings.

No claim for extras arising from failure to obtain measurements and other information on site will be allowed.

The origin of levels is generally to the Australian Height Datum (AHD) or as otherwise shown on the drawings.

#### 1.4 Workmanship and Materials

The whole of the landscape works shall be carried out by a competent Landscape Contractor who is experienced in horticultural practices, landscape construction and planting techniques.

The Landscape Contractor shall hold a current Building Contractors License and / or be a financial member of the Master Landscapers Association in the state in which the project is located.

All work shall be faithfully carried out in the most tradesperson-like manner in accordance with applicable trade and Australian Standards, and best horticultural industry practice.

All materials shall be new and of the best quality and shall be approved for use before installation.

#### 1.5 Quality Assurance

The Landscape Contractor is to implement and maintain a quality assurance system aligned with Australian Standard AS/NZS ISO 9001:2008 Quality Management Systems – Requirements (including Amend.1). The Landscape Contractor's quality management system shall include as a minimum the following elements including:

- Quality manual;
- Technical procedures;
- Sample forms; and
- Check lists.

The Landscape Contractor shall have in place a system of maintaining records related to material being used on the project. Supply copies of information upon request. The information record system shall include the following information.

- Descriptions of the materials supplied;
- The source of landscape materials;
- MSDS for all materials that are likely to be requested due to the nature of the material.
- Methods of installation and placement of materials and products; and
- Certification of compliance of materials to relevant Australian Standards and other authority requirements.

#### 1.6 Standards

Wherever reference is made to Australian and International Standards and Codes, and any amendments current at the date of commencement of the works shall apply to the relevant materials, products and installation methods they shall be deemed to be incorporated into this Specification.

The Landscape Contractor, if requested, shall furnish a certificate from the manufacturer/supplier that the materials or products delivered to the project meet the requirements of the relevant standards.

However, such certification shall not relieve the Landscape Contractor of the responsibility to comply with added requirements of this specification.

All materials, installations and workmanship shall comply with the Building Code of Australia and relevant authority requirements.

#### 1.7 Site Conditions

The Landscape Contractor and his sub-contractors shall visit the site and compare the contract documents with the area of the works before tendering to ascertain for themselves the actual extent and nature of the work to be done and the nature of the ground into which the designed landscape is to be installed.

No claim related to this matter will be accepted if the Landscape Contractor or his sub-contractors failure to do so. It is the responsibility of the Landscape Contractor to check all aspects of the required work and report any discrepancy to the Project Manager for direction before proceeding with the works or any part of the works.

#### **1.8** Access to Premises and Secure Storage

The Landscape Contractor is required to make arrangements with the Project Manager (or representative) for access to the site (including material handling) to carry out the installation of the landscape works.

Attendance at a safety induction meeting for all landscape contractor staff is mandatory.

Working hours shall comply with the local authority requirements and the conditions of development consent which are available from the site office.

Where possible, install materials directly in place. Do not store materials and tools on site if they cannot be locked in a secure location.

Do not store plants on site unless a secure maintained nursery space can be established whether one is required or not required by the contract.

The theft of materials and tools shall not be considered a valid monetary claim.

Any secure storage or nursery location on site shall be approved by the Project Manager.

Any costs associated with the establishment of a secure nursery or storage shall be borne by the Landscape Contractor.

### 1.9 Material Ordering Lead Times

The tenderers shall allow appropriate lead times for the ordering of materials.

Lead times vary from material to material due to their manufacturing process or the place where they are made.

Imported materials and products may have up to 3 months lead time for fabrication and/or transport before they reach site.

Other material such as Australian made precast concrete pavers may have 6 to 8 weeks lead time for manufacturing.

Tenderers shall identify lead times for specified materials and products that may be problematic and not fit into the project programme time frame. Alternative materials and products may have to be selected and orders placed for new selections at an early date and not delay the project or force a rushed decision and lessen the quality of the design outcome.

Also, refer to 4.3 Ordering Plants where orders for plant stock are required within 14 days of award of contract.

#### 1.10 Reinstatement

Any injury or damage to property, both public and private, including buildings, services, roads, footways, paving, ground levels, retaining walls, fencing, passing and /or parked vehicles, existing vegetation including shrubs and trees and other property, shall be reinstated or made good by the Landscape Contractor at their own cost.

Reinstatement shall match similar adjacent work and the whole of the works left in a condition equal to that at the commencement of works.

#### 1.11 Cleaning site

All areas affected by the landscape works are to be kept clean at all times.

Site cleaning shall include but not be limited to collecting all empty plant containers, plant labels and other rubbish on a daily basis during installation.

Dispose of collected rubbish and waste material appropriately and recycle materials whenever possible.

Do not burn or bury any waste material or rubbish on site.

All empty containers and debris shall be removed from site prior to Practical Completion being certified.

### 2.0 SITE PREPARATION

#### 2.1 Scope

The works included in this section include:

- Environmental protection;
- Tree removal or protection; and
- Site clearing.

#### 2.2 Quality

Give sufficient notice so that inspection may be made of:

- Trees identified and marked to be removed or retained; and
- Tree protection zone enclosures for retained trees.

Submit samples of materials to be recycled, including:

- Vegetation to be cleared for mulching when approved; and
- Excavated material suitable for fill or processing for site soil if approved.

Submit the methods to be used and equipment required for the minor earthworks, including:

- Dewatering and groundwater control and disposal of surface water;
- Stockpiling of approved excavated material and any remediation required by the approval to reuse;
- Control of site erosion, contamination and sedimentation on site, surrounding areas and drainage systems serving the site; and
- Dust and noise control as required by authority approvals.

#### 2.3 Environmental Protection

Plan and carry out the work so as to avoid erosion, contamination, and sedimentation of the site, surrounding areas, and drainage systems.

Temporary erosion control measures to include:

- Staging operations, such as clearing and stripping;
- Progressively restoring disturbed areas;
- Providing temporary drains and catch drains;
- Diverting and dispersing concentrated flows to points where the water can pass through the site without damage;
- Dispersing concentrated runoff with spreader banks or other structures;
- Constructing and maintaining silt traps to prevent discharge of scoured material to downstream areas;
- Installing temporary grassing;
- Installing temporary fencing;
- Inspecting, cleaning and repairing if required temporary erosion and sediment control works after each rain; and
- Removing temporary erosion control measures when they are no longer required.

Maintain dewatering measures on site. Keep groundwork free of water. Provide and maintain slopes, crowns and drains on excavations and embankments to ensure free drainage. Place construction, including fill, masonry, concrete and services, on ground from which free water has been removed. Prevent water flow over freshly laid work.

Coordinate any environmental protection work carried out by the Landscape Contractor with the head contract protection works.

#### 2.4 Trees to be Retained and Protected

Trees to be retained are as shown on the landscape drawings, and are to be protected prior to and during construction activities on the site. Identify and mark trees and shrubs to be retained using a suitable non-injurious, easily visible and removable means of identification.

Protect from damage the trees and shrubs to be retained, including those beyond the site area, both above and below the ground. If a tree becomes damaged during the works or it is proposed to perform work on a tree, give written notice immediately and obtain instructions.

Trees to be retained shall be protected in accordance with the latest edition of AS 4970. Generally, this includes, but is not limited to, the installation of tree protection fencing at the perimeter of the Tree Protection Zone. The fencing shall, as a minimum, consist of 1.8m high temporary chain wire panels supported by steel stakes, fastened together and supported to prevent movement, with a lockable opening for access. The fencing shall be maintained in good condition during the construction works period.

Display a warning sign in a prominent position at each entrance to the site, at 10 metre intervals along the tree protection fencing, and where the tree protection fence changes direction. Each sign shall advise Tree Protection Zone, No Access, and contact details. The signs shall be a minimum size of 600mm x 500mm using lettering in accordance with AS 1319 and AS 4970.

Remove fencing and signs on completion of all construction works only.

### 2.5 Work within the Tree Protection Zone TPZ

Keep the area of the Tree Protection Zone free from construction activities that may cause damage to the tree, including:

- Modification of soil levels;
- Excavation and trenching;
- Cultivation of the soil;
- Mechanical removal of vegetation;
- Soil disturbance;
- Movement of natural rock;
- Storage of materials, plant, or equipment;
- Erection of site sheds;
- Affixing signage or hoarding to the trees;
- Preparation of building materials;
- Disposal of waste materials and chemicals;
- Movement of pedestrian or vehicular traffic; and
- Temporary or permanent location of services, or the works required for their installation.

If encroachment is required into the tree protection zone, give notice and obtain instructions.

#### 2.6 Existing Services

**Dial Before You Dig.** Before commencing any earthworks, locate and mark existing underground services in the areas which will be affected by the earthworks operations including clearing, excavation and trenching.

Do not excavate by machine within 1000mm of existing underground services.

### 2.7 Site Clearing

Where the site has not already been cleared by the Builder for other construction purposes clear only the following works:

- Areas to be occupied by works such as roads, buildings, structures, walls, paving, excavation, regrading and landscaping;
- Other areas designated to be cleared; and
- Extent of area necessary for the performance of the works.

Remove everything on or above the site surface, including rubbish, scrap, grass, vegetable and organic debris, scrub, trees (except trees to be retained), stumps, boulders and rubble. Grub out stumps and roots over 75mm diameter to a minimum depth of 500mm below sub-grade under buildings, embankments or paving, or 300mm below finished surface in unpaved areas. Remove grass to a depth just sufficient to include the root zone. Remove old works, including slabs, foundations, paving, drains and manholes found on the surface.

Identify materials that may be approved for reuse on site. Refer to 2.9 Spoil and Material Approved for Reuse.

#### 2.8 Weed Eradication

Eradicate weeds using environmentally acceptable methods, such as non-residual glyphosate herbicide in any of its registered formulae, at the recommended maximum rate.

Regularly remove, by hand, rubbish and weed growth throughout grassed, planted and mulched areas. Remove weed growth from an area 750mm diameter around the base of the trees in grassed areas. Continue eradication throughout the course of the works and during the planting establishment period.

### 2.9 Spoil and Materials Approved for Reuse

Remove surplus excavated material and surplus site clearance material from the site.

Seek approval from the Landscape Architect / Project Manager to reuse vegetative material found on site that could be processed as specified below as mulch.

Vegetation approved for reuse on site shall be chipped to a fine consistency no larger than 20–40mm with consistency equal to ANL Forest Blend or ANL Forest Fines or ANL Leaf Litter or ANL Eucy Mulch. Stockpile the chippings on site for re-use as mulch and secure stockpiles so that the material is not transported by wind or water or theft.

Do not bury boulders, concrete fragments and the like on site. Selected and approved excavated boulders may be reused on site as decorative elements where shown on plan.

### 3.0 HARDSCAPE ELEMENTS

### 3.1 Scope

The works included in this section shall include the supply of labour and materials to install and/or construct:

Edging.

#### 3.2 Inspections

Give sufficient notice so that inspection may be made of the following:

- Completed sub-grade, sub-base and base course preparation;
- Set-out of walls and fences;
- Completed trial set-out for all paving types;
- Completed pavements; and
- Set-out of edging.

### 3.3 Ordering Materials

Place orders for materials on a progressive basis coordinated with the works program in order that materials are delivered:

- 1. on a timely basis so that they are:
  - $\circ$  ~ not ordered too soon that they stand on site for prolonged periods of time;
  - $\circ$  not ordered too late that their delivery delays the works; and
- 2. when onsite transport and lifting facilities are scheduled to be available.

Ensure that ordered materials are:

- 3. delivered, when specified, in sealed containers; and
- 4. true to specified brand, type, quantity, volume, size and quality.

#### 3.4 Submit and Prepare Samples

Submit samples of the following materials and finishes, showing the full range of texture and colour of the material:

Sample	Details
Concrete blocks	One of each type where the material is a coloured block or has a special finish
Wall capping	One sample of each type, precast concrete, stone, other
Paving types	One sample of each type of hard paver, precast concrete, stone, other
Stepping stones	One sample of each type, precast concrete, stone, other
Decomposed granite	One kilogram bag of each specified colour with stabiliser mixed in
Tactile indicators	One sample of each type, warning, directional as applicable
Timber decking	One metre length of each type of board in the specified colour and finish
Decorative stones	One sample of each large element and/or one kilogram bag of each smaller type
Garden edging	One metre length of each type specified, steel, timber, other

Prepare minimum 1000 x 1000mm or 1000mm long sample or reviewable panels or assemblies of each of the specified materials and finishes, inclusive of joint, junction and trim details. Sample panels may become part of the works if considered satisfactory and contiguous with the specified and details works.

Material	Details
Concrete slab	Surface finish, edge and junction details
Masonry wall	Complete with capping where specified
Paving types	Joint pattern, edge and junction details
Decomposed granite	Edge restraint
Timber decking	Fixings, edge and junction details
Fences	Posts, rails, panels and junctions of each type specified
Handrails	Posts, rails, supports and junctions of each type specified
Balustrades	Posts, rails, panels and junctions of each type specified

#### Substitute Materials

Substitute materials must be submitted with written verification from the manufacturer/supplier that they comply with the requirements of this specification and achieve the expected design outcome. All substitute materials must be approved by the Landscape Architect prior to procurement and installation.

### 3.5 Planter Walls and Fences, Preparation and Set-out

Refer to section **2.0 Site Preparation** for earth works related to planter wall and fence construction including the clearing of vegetation within 1 metre of the wall alignment. Grub out stumps and roots of removed trees and shrubs and trim the grass to ground level, but do not remove topsoil or disturb trees and shrubs designated for retention.

Verify that other trades have vacated the works area prior to set out so that set out markers are not disturbed.

Set-out the alignment and mark the position of planter walls, fences and fence posts as shown on the drawings.

Report any anomalies in the design set out that require review prior to commencing work to construct the walls.

#### 3.6 Waterproofing to Retaining and Planter Walls

The waterproof membrane specified here is not a building integrity membrane. It is only intended to control the movement of soil moisture in constructed planters built on structure or other impervious ground surface where drainage is provided at the base of the garden soil.

The waterproof membrane product shall be an applied liquid with a bitumen base similar to Tremco® Pabkote. Other products may be acceptable upon submission of product details. The membrane shall not be installed where hydrostatic pressure exists, for example, in ponds where water is to be held. Refer to specific details and specification clauses for ponds, dams and water feature membranes where they exist in the project.

Apply the waterproof membrane to the back of retaining walls, planter walls and top of concrete slabs in planters to prevent soil moisture from leaving the planter and causing damp marks on the exposed face of the planter walls. Apply the membrane in accordance with the manufacturer's recommendations.

All surfaces within the planter must be coated

Follow the manufacturer's installation instructions in order that any warrantees and guarantees are not void. The waterproofing product shall be fully warranted for a period of 20 years or more. Installation of the waterproofing shall be fully guaranteed for a minimum of 15 years or more.

#### 3.7 Materials and Components

Supply labour and materials to complete the specified works. Materials and components shall incorporate the following details for all paving on ground, structure and on steps and furniture as appropriate.

Subgrade	Details
Parent Material	Remove topsoil containing grass roots, stones and the like
Action	Fill and compact as necessary to similar stiffness throughout
Moisture Level	Loosen to 200mm depth and adjust moisture content before compaction
Fill Material	Clean sand, gravel or quarried material free of organic, manufactured or deleterious material
Density	98% minimum dry density in accord with AS1289.5.2.1
Depth Tolerance	-5mm
Level Tolerance	-25mm

Base-course	Details
Material	Well graded crushed rock or gravel, free of organic, manufactured or deleterious material
Particle size	Uniformly graded particle size 25mm maximum
Clay content	6% by mass maximum
Density	98% minimum dry density in accord with AS1289.5.2.1
Depth tolerance	-5mm
Level tolerance	-0,+25mm except at existing structures where -0, +10mm shall be achieved

Bedding Sand	Details	
Material	Coarse, well-graded, washed sand, free of organic, manufactured and deleterious material,	
	soluble salts and other contaminants liable to cause efflorescence or reduce slip resistance	
Grading	4.75mm maximum particle size and not more than 30% passing 0.3mm sieve	

Stabilised Bedding	Details
Sand material	Coarse, well-graded, washed sand, free of organic, manufactured and deleterious material,
	soluble salts and other contaminants liable to cause efflorescence or reduce slip resistance
Grading	4.75mm maximum particle size and not more than 30% passing 0.3mm sieve
Cement	Type GP to AS3972

Insitu Concrete	Details
Standards	AS 1379 and AS 3600 Avoid: adding excessive volumes of water to the mix. using high salt content sands

Admixtures	Include an admixture to concrete which inhibits the movement of water containing calcium	
	hydroxide to the surface of the pavement.	
References	Details to be read in conjunction with engineer's specification and details	
Thickness	To engineer's detail, but generally:	
	100mm for light traffic, and 150mm for medium traffic	
Reinforcing	To engineer's detail, but generally:	
	F62 mesh with 30mm minimum cover for pedestrian areas	
	F82 mesh placed centrally for vehicular areas	
Aggregate	Standard: 10mm graded basalt	
	Washed: 70% 10mm basalt, 30% 10mm Cowra Quartz	
Joints	To engineer's detail, but generally:	
	expansion joints at maximum 6m centres	
	<ul> <li>junctions with fixed structures and other paving finishes</li> </ul>	
	control joints at maximum 2m centres	
Margins	50mm wide steel tooled for exposed pavement slabs.	
Washed finish	Steel trowelled smooth surface, washed after final set with clean water and brushed to remove the	
	surface film of mortar until the aggregate is uniformly exposed without undercutting of the matrix. Avoid	
	using excessive volumes of water.	
Oxide finish	Oxides shall be integrated into the concrete mix at the mixing plant by weight in accordance with	
	manufacturer's recommendations. Oxide is to be mixed thoroughly and uniformly to prevent	
	discolouration and patching. Finish the concrete with wood float or broom as scheduled	
Broom finish	Wood float and broom using a moistened nylon broom 500mm wide moved across the concrete to give	
	an even textured parallel pattern slip-resistant surface	
Wood float or cove finish	Wood float moved across the concrete in a circular or figure '8' motion, always in the same direction to	
	produce a textured slip-resistant surface pattern	
Finished surface tolerance	Uniform in appearance, with a texture depth of 2 – 2.5mm free from depressions in which water can lie	

Asphaltic Concrete	Details
Standard	AS 2734
Mixes	AC10: 10mm nominal maximum aggregate size, AC3: 3mm nominal aggregate size
Bitumen binder class	170, except 320 for areas with high ambient temperature
Compaction	While above 140°C
Site density	95% of the 50 blow Marshall density of the laboratory compacted mix (minimum)
Level tolerance	±10mm

Precast concrete	Details	
Standard	AS/NZS 4455	
Admixtures	Pavers shall contain an admixture to inhibit the movement of water containing calcium hydroxide to the	
	surface of the pavers.	
Dimensional category	DPA1 and DPB1	
Thickness	40mm minimum	
Abrasion index	1.2 minimum	
Salt resistance	Exposure	
Unconfined CS	Unconfined compression strength: 12 MPa	
Breaking load	2 kN	
Surface deviation	10mm under a 3m straight edge laid in any direction on the finished surface	
	2mm across junctions between adjacent pavement surfaces	

Jointing sand	Details
Sand material	Proprietary, clean, fine, washed and screened bedding sand products which include modified polymer
	additives to strength joints and reduce weed growth.
Sand material	additives to strength joints and reduce weed growth.

Drainage and sealing	Details
Under all pavers on slab	Ensure that drainage under paving beds incorporates a puddle flange outlet cast into the slab.
Paver joints	Allow to only fill paver joints to 20-25mm below the top surface of paving.
Sealing	Allow to pre-seal all pavers unless advised otherwise. Pre-seal pavers all round before laying. Reseal cut and drilled paver surfaces before laying. Typically, these pavers include natural stone, precast concrete and clay unit paving where specified.
Paver pedestals	Details
Reference	Pedestal Supported Paving section of this specification

### 3.8 Sub-grade Preparation

Determine the depth required to achieve the design levels of finished surfaces. Trim and remove topsoil containing grass and plant roots, rocks and stones.

Where levels have been reduced below required depths fill and compact as necessary as specified above in 3.9 Paving Materials and Components.

Ensure soft spots are removed so that the sub-grade strength and stiffness is similar throughout, including service trenches. Where there is an inconsistence in the sub-grade moisture content, loosen the sub-grade to a depth of 200mm and adjust the moisture content before compaction. Do not sterilise the sub-grade.

#### 3.9 Base-course Installation

Spread the base-coarse material over the sub-grade to correct loose thickness of 100mm by approved mechanical means. Do not transport new material over uncompacted material unless prior approval is given. Compact the base-coarse material by approved mechanical means. Bring the base-course materials to the optimum moisture content prior to and during placement.

Do not add water during compaction except for light sprinkling if necessary to replace evaporation loss.

Bring the compacted base-coarse to the required levels within a tolerance from the level indicated on plans. Any required contours of the pavement will be achieved by shaping the base-coarse. During compaction all soft or yielding, and other unsuitable material shall be removed and replaced with approved material. Grade the base course to provide 1-2% cross fall to all paved surfaces to drain toward garden beds and away from buildings.

#### 3.10 Separation of Different Paving

Where movement between different paving types can be anticipated or is indicated on plan or evident in the work that precedes landscape paving, supply and install separation strips as necessary to control cracking and trip hazards in the finished surface or where the design includes a feature strip for aesthetic reasons.

Refer to engineers details to determine where movement joints are required or refer to hardscape plans for locations.

#### 3.11 Paving Separation Strip Installation

Paving separation strips may consist of metal, timber or other compressible or expanding material depending on the detail. Refer to the Material Schedule for selection.

Install any separation strips for the full length of junctions between different pavement finishes or materials, with the top edge to be set flush with the proposed finished pavement levels.

Fix strips in place so that they cannot be dislodged during the work of subsequent trades.

Unless otherwise stated, separation strips shall be installed by the trade installing the finished paving material.

### 3.12 General Painting

Where shown on the drawings or required for base material protection from weathering and abrasion supply all materials and labour to paint timber, metal and other paintable materials to prolong their predicted life and intended appearance.

Paint Surface	Paint System
Timber rough sawn	Cabots Timber colour opaque colour water based paint or equal
Timber DAR	Cabots Timber colour opaque colour water based paint or equal
Steel	White Knight, Rust Guard, 1 coat Metal Primer, 2 coats Epoxy Enamel or equal
Galvanised steel	White Knight, Rust Guard, 1 coat Metal Primer, 2 coats Epoxy Enamel or equal
Colours	TBS
Products	Equal to DULUX, Cabots, White Knight, Taubmans

#### 3.13 Edging

Edging shall be used as a separation between gardens (including tree planting) and lawns.

Supply and install edging as follows:

Concrete Edge CE	Details
Location	As shown on the drawings
Installation	Laid insitu by supplier
Туре	150mm x 150mm 'Square' profile 'Kwik Kerb'
Colour	Charcoal
Base Course	150mm compacted roadbase

### 3.14 Completion of Hardscape Trade Work

Upon the completion of any hardscape trade work described by this specification leave the completed areas clear of offcuts, waste material, rubbish, litter and the like, and clean on completion, ready for the next trade to commence work.

### 4.0 SOFTSCAPE ELEMENTS

#### 4.1 Scope

The works included in this section shall include the supply of labour and materials to install, prepare and/or implement:

- Site preparation;
- Soil works;
- Soil preparation for planting;
- Plant installation;
- Mulch;

#### 4.2 Inspections

Give sufficient notice so that inspection may be made of the following:

- Set-out;
- Sub-grades cultivated or prepared for placing topsoil;
- Topsoil spread before planting or turfing;
- Plant holes excavated and prepared for planting;
- Plant material set-out before planting;
- Planting, staking and tying completed; and
- Turf completed.

#### 4.3 Ordering Plants

Place orders for all plants with approved nurseries and provide evidence of order within fourteen (14) days of being awarded the contract. All plant material shall be obtained from approved suppliers. Approved suppliers include those registered with Nursery & Garden Industry NSW & ACT.

A warranty shall be provided by the plant supplier declaring that plants:

- 1. are the correct size for their containers;
- 2. have not recently been potted-on;
- 3. are true to the specified species;
- 4. are free from diseases, pests, weeds and the like; and
- 5. have the provenance specified where applicable.

#### 4.4 Submit Samples

Submit representative samples of each of the following materials, packed to prevent contamination and labelled to indicate source and content.

Samples	Details
Soil	Mix types, chemical composition, supplier
Mulch	Types, supplier
Plants	One of each type in the plant schedule, suppliers, plant provenance where applicable
Other	Root barrier, stakes and ties and other products as specified where a sample may reasonably and easily be procured

#### 4.5 Site Soil Testing

#### General

The contractor shall allow in their tender to undertake soil testing as described below. This specification only relates the need for soil testing of site soil that is either to be used as:

- 1. a secondary growing medium, expected to influence plant root systems in the short term as the "B" horizon by being at shallow depth below an imported "A" horizon; or
- 2. a primary growing medium, designed to become the "A" horizon soil growing media after amelioration.

All site soils approved for reuse on site shall be tested before amelioration.

If the drawings indicate the site soil is a secondary growing medium only, by having an imported A Horizon soil overlaid, allow to test the subject site soil being used as the B Horizon with Test Type 1.

If the drawings indicate that site soil is to be used as the primary growing medium throughout, by its use as the A Horizon, then allow for Test Type 2 on the site soil being used as the A Horizon.

If site soil is to be used in one location as the primary growing medium and elsewhere as the primary growing medium then allow for both Soil Tests 1 and 2 as above.

If the project landscape design is wholly upon structure whether it's a built structure or natural impervious structure then no site soil testing is required. In these situations, soils shall be imported. There is no requirement to test imported soil as it should comply with the soil details scheduled and described by this specification.

#### Aim

The aim shall be to achieve successful, healthy, vigorous plant growth, over an indeterminate extended period of time, of all plants listed in the Plant Schedule.

#### Test Type 1 - Site Soil Testing at Site

Test Type 1 shall be exercised using a clay dispersal in water test and a simple soil pH test kit.

Where plants are to be installed in natural site soil or in imported soil but that the project design implies that plant root systems will, in the short term, populate the site soil beneath, undertake a simple soil test, for each visibly different soil type on site, to determine:

- approximately how much clay is present and therefore the drainage characteristics of that soil; and
- the pH of the soil to determine its acidity and therefore what needs to be done to reach the preferred pH of the proposed plants.

If the site soil is heavy clay then add calcium sulphate (gypsum) to improve aeration and reduce compaction. If the soil being tested is loamy or sandy do not add gypsum.

If there are extremes of pH range < 5.4 or > 6.8, the contractor shall undertake corrections needed to achieve a standard mid-level pH range to meet the optimum growing conditions of the plants in the plant schedule.

Implement any corrections during the initial ripping of the site soil below gardens and lawns.

If the soil is too acid, raise the pH by the addition of calcium carbonate (agricultural lime) or if the soil is too alkaline lower the pH by the addition of organic matter or sulphate of iron or sulphate of ammonium.

The target pH range is > 5.4 to < 6.8 but the desired pH range may extend up to 7.5 or 8.0 where turf or wet gardens are to be installed.

#### Test Type 2 - Site Soil Laboratory Testing

Test Type 2 is a full comprehensive laboratory scientific site soil testing process as described in AS 4419 Appendix A.

Obtain at least two (2) soil samples or the number indicated as sample locations shown on the drawings.

Provide results and recommendations to adjust the physical and chemical properties of the site soil to achieve an appropriate planting medium for the selected plants.

Employ the services of a certified testing laboratory to provide complete physical and chemical composition test results and recommendations for amelioration to achieve the aim.

If laboratory soil testing is required, the following is the recommended provider:

Soil Testing Laboratory

Con resting Eaboratory		
Company	Sydney Environment and Soil Laboratory (SESL)	
Address	16 Chilvers Road, Thornleigh NSW 2120	
Contact	T. 1300 30 40 80 E. online@sesl.com.au	

If site soil testing has been carried out, thoroughly mix in materials required to be incorporated into the tested soil as recommended in the soil testing results and to manufacturer's recommendations.

If no site soil testing has been specified and heavy clay is encountered at tangible depths, add horticultural gypsum to the reduced levels before final cultivation in accordance with the manufacturer's recommendations.

#### 4.6 Subsoil Drainage

Provide and install subsoil drainage equal to Vinidex 65mm $\emptyset$  (min) Draincoil with filter sock at the base of slopes, on the high side of paths, at the base behind retaining walls and where water is likely to accumulate at depth in the soil. Connect

all subsoil drainage to the nearest downstream stormwater pit to ensure that subsoil water is managed and channelled to a stormwater drainage system. On sites with cross fall of less than 1:50 install subsoil drains to remove excess water from the subsoil in areas where water is likely to accumulate and may not penetrate lower strata naturally. Rip the sub-base surface 150mm deep before placing any soil. Install drainage pipes in subsoil trenches backfilled with 10mm blue metal (basalt) equal to ANL Blue Metal.

Coordinate the connection of subsoil drains to stormwater pits with the Civil or Hydraulic contractor.

#### 4.7 Soil Profile as Horizons

For the purpose of this specification the following soil profile convention shall apply. Various areas may consist of differing combinations of horizons depending on the site conditions and required design outcomes. The following table describes the general arrangement of soil profiles as horizons.

Soil Horizons Table		
Horizon	Description	
0	Organic or inorganic mulch layer or soil insulation (highest layer)	
Α	Top soil or upper depth of soil below horizon O for gardens and below turf areas	
В	Subsoil or the prepared site subsoil or the soil below horizon A	
С	Sub-base being weathered rock, clay, undisturbed existing base site soil or built structure below horizon B	
R	Base material, regolith or parent material or rock below horizon C	

Excavate the site soil to create the subsoil level to achieve finished design topsoil levels of horizons O and A.

#### 4.8 Mulch – Horizon O

Garden mulch shall be free of deleterious and extraneous matter such as soil, weeds, sticks, rubbish, litter, stones, plastic and the vegetative reproductive parts, including seed, of undesirable plants.

In addition, organic mulch shall conform to AS4454.

All mulch material shall be equal to products supplied by Australian Native Landscapes (ANL) or other approved suppliers or approved processed site material.

Mulch from any other source may be rejected.

#### Mulch Selection Schedule

Mulch	Туре	Description
04	Horticultural pine bark	15mm approx. graded pine bark recycled from plantation timber production.

Before placing mulch ensure that soil depths are correct and that the soil surface is even and ready to receive mulch as a consistent layer.

After all plants have been installed, place mulch in all garden beds to a depth of 75mm.

Mulch shall be clear of all plant stems, and raked to an even surface flush with the surrounding finishes and evenly graded between design surface levels.

The specified depth shall be achieved after the mulch has settled. If mulch is mechanically blown onto gardens, as opposed to being placed, it shall precede planting to avoid plant damage.

#### 4.9 Topsoils – Horizon A

Garden topsoil shall conform to AS4454 and be free of deleterious and extraneous matter such as weeds, sticks, rubbish, litter, stones, plastic and the vegetative reproductive parts of undesirable plants.

Where indigenous / endemic plants are included in the plant schedule a soil low in phosphorus shall be used where these plants are located.

In the process of spreading topsoil for turf and mulched areas an allow for natural compaction by setting the top of horizon A soil flush with adjoining surfaces such that over the initial establishment period the turf and mulch may settle under their own weight.

All imported soil material shall be equal to products supplied by Australian Native Landscapes (ANL) or other approved or other approved suppliers or approved processed site material.

Soil from any other source will be rejected. Horizon A soil shall consist of soil as scheduled below.

#### Table A - Horizon A - Topsoil Product Schedule

-			
Soi	I Туре	Description	
A1	Planter Box Garden Topsoil	A blend of soil, graded ash, coarse sand, Nepean sand, composted sawdust,	
		composted humus mix and composted pine bark	
A5	Low Density Planter Soil	Light weight growing media, sandy loam, ash, composted pine bark and	
		composted soil conditioner	
A6	Garden Soil	A blend of soil, coarse sand, graded ash, coco peat and composted organics	

#### Horizon A1 – Planter Box Garden Topsoil

Planter box garden topsoil in gardens on structure shall be an open granular well-drained growing media with a saturated density of less than 2400 kg/m<sup>3</sup> (2.4 kg/L). This soil shall be used as the top 300mm (min) of any deeper planter boxes, containers and garden beds.

Horizon A1 shall maintain its structure and porosity over extended periods, and avoid slumping and volume loss over time. The media shall have the properties of a potting media. The physical and fertiliser requirements of this soil type are tabulated below.

Table A1 – Planter Box Garden Topsoil	Physical components
Sandy loam soil or site won topsoil (where approved for use after testing)	20 - 40% by volume
Horticultural ash, perlite, or similar lightweight low density mineral matter or mixtures of these	30 - 60% by volume
Composted soil conditioner (conforming to AS4454)	20 - 30% by volume
	Fertilisers
Lime and/or dolomite	2 kg/m³ at mixing
Balanced compound NPK turf starter fertiliser	3.0 kg/100m <sup>2</sup> after placement
Minor and trace elements	300 g/m³ at mixing

Spread the topsoil over the prepared subsoil and grade evenly to design levels. Compact lightly and uniformly in 150mm layers. Avoid differential subsidence and excess compaction and produce a finished topsoil surface which is:

- Finished to design levels, allowing for mulch, finished flush with adjoining surfaces ( paths and edges);
- Smooth and free from stones or lumps of soil;
- Graded to drain freely, without ponding, to catchment points;
- Graded evenly to adjoining surfaces; and
- Ready for planting.

#### Horizon A5 – Low Density Planter Soil (Roof Gardens)

Horizon A5 low-density soil shall be used in containers, planter boxes and on structure situations including roof gardens where weight is a structural loading issue. It consists of a lightweight growing media with a saturated density of less than 1800 kg/m3 (1.8 kg/L) with the characteristics listed in Table A5 below. Due to the high porosity of the mix, it may be used as both the A and B horizons in contained gardens on structure.

Table A5 – Low Density Planter Soil	Physical components
Sandy or sandy loam soil	< 20% by volume
Horticultural ash, perlite, or similar lightweight low density mineral matter or mixtures of these	30 – 60% by volume
Composted 10 mm pine bark	20 – 30% by volume
Composted soil conditioner (conforming to AS4454)	10 - 30% by volume
	Fertilisers
Lime and/or dolomite	2 kg/m <sup>3</sup> at mixing
Balanced compound NPK turf starter fertiliser	3.0 kg/100m <sup>2</sup> after placement
Minor and trace elements	300 g/m <sup>3</sup> at mixing

Spread the soil over the prepared C horizon and grade evenly to achieve finished design levels. Compact lightly and uniformly. Avoid differential subsidence and excess compaction and produce a finished soil surface which is:

- Finished to design levels, allowing for turf or mulch to be finished flush with adjoining surfaces (paths and edges);
- Smooth and free from stones or lumps of soil;
- Graded to drain freely, without ponding, to catchment points;
- Graded evenly to adjoining surfaces; and
- Ready for turfing or planting.

#### Horizon A6 – Garden Soil

The garden soil is intended for mass planting of grasses, woody and herbaceous perennials in gardens other than on structure. Garden soil shall be used where it will not be subject to compaction under foot traffic shall consist of sandy

loam to clay loam topsoil mix. Drainage is an essential requirement of this heavier soil mix. Subsoil drains shall be installed into the lower levels of the soil profile to collect excess subsoil water. This soil is intended to be direct tube and pot specimen planted up to 45 litre and should have the characteristics listed in Table A6 below.

Table A6		Physical components
Sandy loam soil or site won topsoil	70–100% by volume	Example
Composted soil conditioner (conforming to AS4454)	0-30% by volume	3 parts washed sand 2 parts sandy loam 1 part AS4454 compost
		Fertilisers
Lime and/or dolomite	2 kg/m3 at mixing	Example
Balanced compound NPK turf starter fertiliser	0.5 kg/100m2 after placement	+ Lime and/or dolomite + NPK
Minor and trace elements	300 g/m3 at mixing	+ Trace elements

### 4.10 Subsoils – Horizon B

Shape the subsoil to fall to subsoil drains where possible. Do not excavate within the drip line of trees to be retained and near existing services. If necessary cultivate these sensitive areas by hand.

Cultivate the created subsoil surfaces to a further depth of 100mm minimum to encourage infiltration of water.

Remove stones exceeding 25mm, clods of earth that resist breaking, weeds, rubbish or other deleterious material brought to the surface during cultivation.

Supply and install 90mm  $\emptyset$  socked subsoil drains to all garden areas to drain excessive ground water volumes. Connect subsoil drains to the nearest downstream stormwater collection pit or piped stormwater system.

Subsoils or the "B" horizon generally shall conform to the following details.

#### Horizon B1 – Subsoil

The 'B1' horizon subsoil shall be an open granular well-drained growing media with a saturated density of less than 2400 kg/m<sup>3</sup> (2.4 kg/L). This soil shall be used below Horizon A or the top 300mm of any deeper planter boxes, containers and garden beds.

Soil for the 'B' horizon shall have the properties of a potting media. The physical and fertiliser requirements of this soil type are tabulated in Table B1 below.

Table B1 - Subsoil	Physical components
Sandy loam soil or site won topsoil (if specified)	10–30% by volume
Horticultural ash, perlite, or similar lightweight low density mineral matter or mixtures of these	30 – 50% by volume
Composted 10 mm pine bark	20 – 40% by volume
Composted soil conditioner (conforming to AS4454)	< 20% by volume
	Fertilisers
Lime and/or dolomite	2 kg/m³ at mixing
Balanced compound NPK turf starter fertiliser	3.0 kg/100m <sup>2</sup> after placement
Minor and trace elements	300 g/m <sup>3</sup> at mixing

Spread the soil over the prepared sub-base and grade evenly to achieve design levels. Compact lightly and uniformly in 150mm layers. Avoid differential subsidence and excess compaction and produce a finished soil surface which is:

- Smooth and free from stones or lumps of soil;
- Graded evenly to drain freely, without ponding, to catchment points; and
- Ready for spreading horizon A.

#### Horizon B2 – Structural Support Soil

Structural support soil is intended for use in relation to tree planting in road verges, median strips, paved plazas and the like. This soil system is comprised of two components, a stone lattice for strength and structural support (load bearing) filler soil to service the horticultural needs of the plants. The system shall be engineered to maintain a high degree of porosity after installation and compaction and should have the characteristics listed in Table B2 below.

Table B2 – Structural Support Soil (SSS)	Physical components
Nominal 63mm hard rock aggregate (usually basalt, diorite or granite)	1 m <sup>3</sup>
Filler soil (preferably loam to clay loam	200 L
Test methods	

	AS 1141.11(2009)	AS sieve mm	% passing sieve
		63.0	100
		53	85 - 100
		37.5	20 - 65
		26.5	0 - 20
		19.0	0 - 5
		13.2	0 – 2
		4.75	0 - 1
loss)	AS 1141.24(1997)	Sodium sulphate soundness (total weight %	Max. 9
		Aggregate to filler soil ratio*	4.5 – 5.5

\* The aggregate to filler soil ratio test method will be:

1. Pack mixed SSS into a calibrate 10 or 20 L bucket compacting well.

2. Pass the entire SSS sample from the bucket over a 4.75 mm sieve.

3. Measure the volume of fine material by pouring into a 2 L plastic measuring cylinder and dumping to firm down by dropping from 5 cm 10 times.

4. Calculate the aggregate to filler soil ratio by dividing the total volume by the measured volume of filler soil.

	Fertilisers
Filler soil clay loam, sandy clay or clay	80 – 90% v/v
Composted soil conditioner conforming to AS 4454	10 – 20% v/v
Gypsum	500 g/m <sup>3</sup> of filler soil
Urea	500 g/m <sup>3</sup> of filler soil
Iron sulphate	1.5 kg/m <sup>3</sup> of filler soil
Magnesium sulphate	400 g/m <sup>3</sup> of filler soil
Lime or dolomite	600 g/m <sup>3</sup> of filler soil
Potassium nitrate	500 g/m <sup>3</sup> of filler soil
Superphosphate	500 g/m³ of filler soil
Trace element mix	300 g/m <sup>3</sup> of filler soil
8 – 9 month controlled release	2 kg/m <sup>3</sup> of filler soil

The ratio of filler soil to aggregate is critical in achieving the engineering and horticultural objective. The 'aggregate', 'filler soil' and blending ratio of the two shall be as specified and carefully validated. Generally, the ratio of aggregate to filler soil shall be an amount of filler soil equal to half the void space of the compacted aggregate. If the aggregate has a void space of 40% the ratio will be 10 parts aggregate by volume to 2 parts filler soil.

It should be noted that the total volume of SSS is determined by the volume of aggregate only because adding filler soil does not increase the overall volume. The filler soil takes up void space only but must be calculated as cost factor of SSS.

SSS must be a uniformly blended mixture of aggregate and filler soil and are prone to being segregated during handling at the source and during transport. Particular care must be taken to ensure that all structural soil is thoroughly mixed before placement and compaction. To assist this, and to prevent segregation, ensure that the mixture remains moist at all times during mixing, transport, storage and placement.

### 4.11 Sub-Base – Horizon C

The Sub-Base may consist of weathered rock, clay, undisturbed existing base site soil or built structure which may be ripped.

Trim any undisturbed sub-base, weathered rock or clay as necessary to achieve the depth of soil specified and detailed. Do not disturb built structure. Where horizon C is impervious, other than built structure, rip the surface to 150 mm deep before placing the designed soil profile. If the sub-base, other than built structure, cannot be ripped then refer to **Garden and Turf Drainage** in following clauses. At all times ensure that top surface of trimmed Horizon C is self-draining before overlaying any upper soil horizon.

#### 4.12 Base Material – Horizon R

The Base Material may consist of regolith, parent material or rock which offers solid resistance to excavation.

For the purpose of tendering assume that solid rock will not be encountered on site within the landscape work-zone depth. Provide tender rates for solid rock excavation and proposal for reuse or transport of the material should it be encountered.

### 4.13 Garden and Turf Drainage on Built Structure and Impervious Natural Ground

For the purposes of this clause "Structure" shall refer equally to built structure and natural ground such as solid rock or other impervious strata.

On built structure supply and install drainage in the form of drainage cell draining water to outlets in the slab floor of the gardens.

On natural structure or impervious ground an alternate drainage system that replaces drainage cell with an aggregate layer and subsoil drain may be approved. Seek approval to change.

If specified that the Landscape Contractor is responsible for water proofing garden walls, inspect the installed waterproof membrane to verify that the specified waterproofing is complete without breaks or inadequacies prior to commencing the installation of planter drainage. Make any repairs prior to proceeding. Protect the membrane from mechanical damage.

Where the membrane is installed by others seek written approval from the Project Manager stating that the waterproofing is complete and that the landscape installation may proceed. Notify the Project Manager of any breaks or inadequacies observed so that any necessary repairs can be made prior to continuing with the landscape work.

Supply and install a polypropylene cellular drainage cell equal to 'Atlantis' drainage cell complete with a continuous geotextile filter fabric liner to all planting areas on structure, in accordance with manufacturer's instructions and details. Drainage cell and filter fabric shall extend across the base of planters on structure and up planter side walls to the underside of the mulch layer.

Geotextile filter fabric is to be installed over all drainage cell material. Allow to tape the fabric over the top of the planter walls to ensure soil mix does not escape into drainage outlets/holes. Trim excess fabric later. Install a minimum 50mm depth of double washed coarse river sand over all horizontal geotextile lining prior to installation of soil mix.

In gardens install a 90mm Ø slotted PVC pipe with geotextile sleeve and matching screw cap in a vertical configuration to provide visual access and flushing capability directly over drainage outlets at the base of soil in planters. Ensure that the pipe runs directly from a level below the mulch down to the drainage cell at the outlet point, with the geo-fabric turned up and secured around the base of the pipe prior to filling the planter with the specified soil profiles and sand layer.

Fit a PVC flange collar to the bottom end of the slotted pipe in a position above the drainage cell to stop the pipe dropping into the waste outlet. Do not block water from entering the outlet in the structure. Back filing the soil over the flange prevents the pipe assembly from being pulled out of the soil.

#### 4.14 Additional Fertiliser

Apart from the fertiliser specified for soil mixes, provide proprietary fertilisers delivered to the site in sealed containers or bags marked to show the name of the manufacturer, weight, fertiliser type, N:P:K ratio, recommended uses and application rates. Additional fertiliser shall be in the form of a slow release granulated or pelletised fertiliser appropriate to the provenance of the plants being native or exotic and related to trees, shrubs and turf. Apply at the rates and periods specified by the manufacturer. Allow for at least 2 applications during the 12 month establishment maintenance period.

#### 4.15 Embankment Stabilisation

As shown on the drawings and where necessary to prevent soil erosion or soil movement, stabilise embankments with erosion control fabric and planting or turf as described in the following table. Refer to drawings for the extent of this work.

Empankment Stabilisation	
Gradient	Method of stabilisation
Steeper than 1:2 (50%) 26.6°	To engineer's design and detail
Equal to 1:2 (50%) but steeper than or equal to 1:3 (33%) 18.5°	Jute mesh
Shallower than 1:3 (33%) but steeper than or equal to 1:5 (20%) 11.3°	Jute mesh or turf
Shallower than 1:5 (20%) 11.3°	Turf
Areas of high volume stormwater flow of any gradient	Jute mesh and large rocks according to detail

#### **Embankment Stabilisation**

Stabilise embankments using biodegradable fibre reinforced heavy duty polymer mesh equal to Jutemaster Thick as supplied by Geofabrics. Install the mesh in accordance with manufacturer's specification from top to bottom of slopes and include:

- 300 mm wide x 300 mm deep anchor trenches at top and bottom.
- Backfill trenches with soil after placing and pinning mesh and compact the soil on completion.
- Mesh overlaps shall be minimum 100 mm wide with the free edge running downstream with the anticipated overland flow (not against the flow).
- Install U-shaped galvanised steel pins at 1000 mm centres generally and 300 mm centres at overlaps.
- Plant through cuts in the mesh after the embankment stabilisation mesh has been installed or pre-seed the slope before installing mesh.

Where gradients permit turf to be used to stabilise embankments refer to the Turf clause in this specification.

#### 4.16 Plants

Supply plants which have the following characteristics in accordance with the landscape drawings and schedules:

Plant characteris	stics
Root systems	Large healthy root systems, with no evidence of root curl, restriction or damage
Plant health	Vigorous, well established, free from disease and pests, of good form consistent with the species or variety specified
Acclimatisation	Hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site, and in shade and full sun conditions
Container	Grown in their final containers for not less than twelve weeks and free from weeds
Leaders	Trees, unless required to be multi-stemmed, shall have a single leading shoot
Plant size	Plants shall be an appropriate size in relation to their container size

All plant specimens are to be true to name and variety listed in the plant schedules on the landscape drawings. Make no substitutions of species type or container size unless approved by the Landscape Architect and Project Manager.

Plants shall not exhibit signs of having been stressed at any stage during their development and delivery due to inadequate watering, excessive shade/sunlight, physical damage or have restricted growth due to nursery conditions.

#### 4.17 Tree Procurement

Procure large specimen trees from specialised supply nurseries having a reputation for best quality control based upon *AS 2303:2015 Tree Stock for Landscape Use.* Seek a verified copy of the supplier's tree inspection forms for the plant stock being supplied and submit them to the project manager prior to delivery. Inspect the trees upon delivery and determine that they have the characteristics that the inspection form indicates they should have. Ensure that the trees being delivered have identity tags that match the inspection form information submitted when the trees arrive on site. Check that the reference information matches the tags and sign the forms accordingly to verify conformity. If any specimen does not match the inspection form information, do not verify conformity. In this event recommend to the project manager that the specimen or specimens are to be rejected and replaced with stock that is conforming.

#### 4.18 Lifting Trees

Larger specimen trees shall be crane lifted when required in order that they are placed correctly and in the shortest possible time from truck to soil. Lift trees by their root ball taking the full load of the tree weight. Only strap the trunk to stabilise the plant when lifting. DO NOT LIFT THE FULL WEIGHT OF TREES BY THEIR TRUCK.

#### 4.19 Plant Delivery and Labelling

Plants are to be delivered to site in a covered vehicle to prevent wind damage. Plants are to be placed in the vehicle in a manner that prevents them from moving and sustaining any damage.

Plants damaged on delivery shall be rejected and replaced at the Landscape Contractor's cost. Deliver plant material to the site on a day to day basis and plant immediately after delivery. Do not store plants on site for a period that may invite theft or expose the plants to adverse weather while they are in

containers.

Label at least one plant of each species or variety in a batch with a durable, legible tag. Maintain the tags for the plant establishment period.

#### 4.20 Installation of Plants

Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. In other than sandy soils, suspend excavation when the soil is wet, or during frost periods.

Do not vary the plant locations from those shown on the drawings unless otherwise directed. If it appears necessary to vary the locations and spacing to avoid service lines, or to cover the area uniformly, or for other reasons, apply for directions. Allow for sufficient notice for approval by the Landscape Architect and Project Manager of the location of mature and feature trees and plants.

For tree plantings, excavate a hole to twice the diameter of the root ball and at least 200mm deeper than the root ball. Break up the base of the hole to a further depth of 100mm, and loosen compacted sides of the hole to prevent confinement of root growth.

If, after excavation of the planting holes the soil is found to be hydrophobic, apply a wetting agent pre-mixed with water in accordance with the manufacturer's recommendations. Apply the wetting agent to the bottom of each planting hole.

Thoroughly water the plants before planting, immediately after planting, and as required to maintain growth rates free of stress. No plant material shall show signs of water stress at any time.

When placing, remove the plant from the container with minimum disturbance to the root ball. Ensure that the root ball is moist and place it in its final position, in the centre of the hole and plumb, and with the top soil level of the plant root ball level with the finished surface of the surrounding soil. All plants are to be positioned in the centre of their planting hole.

In planting beds and individual plantings, apply fertiliser pellets, as recommended in the soil testing results and in accordance with the manufacturer's recommendations around the plants at the time of planting. Provide proprietary fertilisers, delivered to the site in sealed containers displaying manufacturer or vendor's name, weight, fertiliser type, N:P:K ratio, recommended uses and application rates.

Backfill the planting holes with topsoil mixture. Lightly tamp and water to eliminate air pockets. Ensure the topsoil is not placed over the top of the rootball, so that the plant stem remains the same height above the ground as it was in the container.

#### 4.21 Root Barriers

Supply and install root control barriers to all new tree plantings, where their proximity poses a threat to the stability of inground services, road kerbs, road paving and footpaths and other hard landscape elements such as walls, fences, steps, and garden edging.

As a minimum root barriers should be installed where trees are located within 2 metres of the element, and are to extend along the element for 2 metres either side of the tree trunk or as far as the diameter of the foliage canopy crosses the protected element, whichever is the greater.

As required install either, 600mm, 900mm or 1200mm width sheets to adequately protect the potentially affected element. The root barrier width shall always be wider than the depth of the planted tree rootball.

Root barriers shall be equal to Root Wall, as supplied by Geofabrics Australasia under the brand name Treemax.

#### Stakes and Ties

Stakes shall be durable hardwood, straight, free from knots or twists, pointed at one end, in the following quantities and sizes for each of the various plant pot sizes:

Staking Schedule						
Plant Size	No. of stakes	No. of ties	Stake size			
Plants > 25 lt	1	1	25 x 25 x 1500mm			
Semi-advanced plants > 75 It	2	2	38 x 38 x 1800mm			
Advanced plants > 100 lt	3	3	50 x 50 x 1800mm			

Drive stakes into the ground a minimum one third of their length, making sure they are plumb, equal in height and avoids damage to the plants root system.

Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant, allowing a small degree of movement but not affording any damage to the stem.

Ties shall be 50 mm wide hessian webbing or strap stapled at the stake with a loop twisted before looping around the stem. Each tie stabilises the stem to one stack.

Only use stakes when the plants need support and when it is obvious that they are or could be exposed to extremes of wind speed and where habit correction needs to be exercised. Remove stakes when plants have established stability in their root system and strength in their stem to withstand the exposure.

#### 4.22 Summary of Required Actions, Submissions and Documentation

Provide	Provide the following:			
1	Provide sufficient notice to inspect as scheduled			
2	Evidence of plant order within 14 days of contract award			
3	Plant supplier's warranty for true to species stock			
4	Submit the listed material samples			
5	If required, obtain and test soil samples			
6	When required, submit soil test results			
7	Provide tender rates for solid rock excavation			

### 5.0 IRRIGATION

### 5.1 Scope

The works included in this section shall include all the necessary components to:

- Design, supply, install, balance and commission multiple permanent irrigation systems;
- Prepare and submit irrigation design documents and plans for relevant authority and project approval that fully describe the system to be installed;
- Conform to Water Board and other relevant authorities' approvals, rules and regulations; and
- Supply and install all necessary pipes, fittings, equipment, tanks and pumps to provide a separate automatic system for irrigating all garden and turf areas in the public domain, private open space and private space in the proposed development.

The final irrigation design and installed system shall take into account:

- The requirements to comply with water use restrictions dictated by authorities,
- Water saving and conservation components,
- Using a drip system rather than the use of sprinklers,
- Using on-site irrigation storage tanks for irrigation reticulation and/or connection to potable water supply throughout the site,
- Controlling water flow to deliver only the necessary volume to sustain plant vigour, and
- Reducing water delivery rates, volumes and frequencies as plants mature and find their own water sources in the soil and lower strata.

Areas to be irrigated shall include all landscape areas, including individual tree plantings, mass garden beds, planting on slab, and lawn areas.

#### 5.2 Quality

Give sufficient notice so that inspection may be made of the following:

- Work ready for specified testing,
- Underground or enclosed work ready to be covered up or concealed, and
- Final testing of the completed system.

#### 5.3 Detailed Drawings

Prepare and submit detailed drawings and a full performance schedule for the required irrigation systems, including, but not limited to:

- Control panel;
- Irrigation pipes and fittings;
- Layout and irrigation controllers;
- Valve locations; and
- All other components of the design

Drawings shall be prepared by a qualified person expert in irrigation design. Submit the drawings electronically in DWG and PDF format to the Project Manager and Landscape Architect for review, coordination and approval prior to the supply and installation of the works.

Prepare and furnish to the Project Manager before the date of practical completion, 'work as executed' drawings of the installed irrigation system, in DWG and PDF format, showing the locations of:

- Control panel;
- All pipes and fittings;
- Actual depths of underground pipework;
- Position of control valves; and
- All other installed components.

Provide written instructions for the operation and maintenance of the automatic irrigation system to be included in the overall project maintenance manual prepared by others.

### 5.4 System Design

A water delivery rate of 25mm/m<sup>2</sup>/week of planter or garden soil and lawn area is suggested for areas that have similar rainfall expectancy as that experienced in Sydney (approximately 1200mm/annum ± 200mm). The design shall provide the necessary flow rate for the actual site location which may be more or less than the Sydney district. Also, the design shall detail any on-site water storage proposed as detailed in **5.5 Materials and Components - Water supply** in this specification.

The designed system shall be:

- Centrally controlled by an electronic, multi-zone, timed control system panel located:
  - o a locked waterproof cabinet internally in a secure space; or
  - o in a locked waterproof cabinet externally in a convenient but discrete location.
- Appropriate to the type of plant material to be installed and the water flow rate required for the site environment.
- Automatic with the ability to operate multiple zones over variable time frames on a seasonal basis.
- Fitted with fixed drip or controlled spray emitters activated by soil moisture sensors.
- Fully adjustable so that it may be tuned to account for changes in climate, plant growth and natural water uptake by plants over time.
- Fully serviceable to ensure that the irrigation system does not fall into disuse because of a lack of maintenance or the inability to easily replace components.
- Provide each individual plant with the required amount of water to sustain healthy, vigorous growth.
- Designed to be component theft, vandalism free.
- Free from over-spray which may wet paths and building facades.

#### 5.5 Materials and Components

The system shall incorporate the following components:

#### Valve boxes

All water supply points and timers shall be housed in lockable in-ground valve boxes for easy access. The valve boxes shall be manufactured from high density thermos-plastic polypropylene. The valve lid is to incorporate a locking mechanism.

#### Automatic control valves

All valves shall be 24V solenoid actuated hydraulic valves providing flow control to a maximum operating pressure of approximately 1MPa. All metal parts shall be stainless steel and able to be serviced without removal from the pipeline. Provide a gate valve of the same size immediately upstream of each automatic control valve. House both valves in a valve box as previously specified at finished ground level allowing for mulch to be overlayed.

#### • Quick coupling valves

Provide DN 20 double lugged bronze quick coupling valves with neoprene seats mounted on DN 20 copper risers offset at least 150mm from the supply pipe. Provide valve boxes and covers set flush with the finished surface.

#### • Pressure regulating valves

Provide pressure regulating valves at take-off points, which are adjustable between 100-700 kPa. Provide an 800µm in-line filter sized to suit the flow immediately upstream from the pressure regulating valve. Include gate valves upstream from the filter and downstream from the pressure regulating valve. Mount the assembly in an accessible position in a valve box, access pit or adjacent building.

#### Backflow Prevention

Supply and install a reduced pressure zone device RPZ valve to every irrigation to main or potable water supply connection point in accordance with local water supply authority regulations. Ensure that the valves are readily accessible but concealed from general view or access to limit vandalism.

#### • Soil moisture sensors

Provide fixed ceramic moisture sensors as required by the design and connect them via wiring to the irrigation controller via moisture control units.

#### Control wiring

Connect the automatic control valves and soil moisture sensors to the controller with double insulated cables laid in conduits alongside piping. Install wiring without joints except at valves, sensors and branches of common wiring with waterproof connectors and expansion loops at changes of direction and at wire junctions.

#### Irrigation controllers

The irrigation control panel shall be automatic being manually set to cycle through a predetermined watering regime. It shall provide individual or simultaneous multi-zone operation with manual on/off override without loss of programme. The panel shall be connected to a 240V, 10A power supply installed by others to provide 24V output capable of operating at least 2 control valves simultaneously. Include a 24 hour battery programme backup and power surge protection device. Mount the controller in a waterproof lockable cabinet as previously specified.

#### • Water supply

Water for the system shall be provided either from:

- Main town water reticulation; and/or
- On-site stored water tanks; and/or
- $\circ \quad \mbox{Recycled water supply if available.}$

If from recycled water source ensure that the irrigation design has accommodated the available pressure and required connection valve components determined by the water supply authority.

Water supply from town water sources maybe be supplemented by on-site storage to maintain a continuous water supply in times when main pressure is not available, for example, when mandatory water restrictions are in force.

Conversely, if the on-site storage is large enough to be the main source of irrigation water it may be topped up from town water supply if the local water authority approves of such a connection.

As a guide only, the volume of on-site water storage to maintain a garden and lawn of  $1000m^2$  for one week without top up supply equals 25,000 It or a tank  $3730\% \times 2550$  total height, based upon  $25mm/m^2/week$ . Tank size may vary depending on available predictable top up supplies. The irrigation design shall provide all water storage calculations in order that a full assessment of the impact of a water tank on the landscape may be determined.

#### 5.6 Installation

Work shall be done by or under the direct supervision of appropriately licensed personnel who are expert in the methods of irrigation installation.

The final installation of the system shall include the following features:

- All components except the visible top of pop-up sprinklers shall be installed in a manner that is concealed below ground or below mulch;
- All tubing below mulch shall be pinned into place with galvanised steel spikes to prevent the tubing bending up through the mulch layer;
- All valve boxes shall be supported in the ground on brickwork;
- Valve box lids shall be set level with garden mulch levels and in concealed locations;
- All control fittings such as valves and the like shall be fully accessible within concealed valve boxes in the landscaping;
- All mainline and lateral pipework shall be concealed from view;
- Where water supply pipes traverse the underside of concrete paths use Class B copper piping;
- Where the irrigation tubing traverses the underside of concrete paths it shall be within uPVC conduit;
- No tube junctions shall be placed in conduits or under slabs where access is not possible;

- All joints shall be fitted tightly, sealed and made leak proof, with no internal projections, burrs or obstructions;
- Each separate system shall be controlled by one control panel located as previously specified;
- Back flow and master valve assemblies shall be sized as follows:
  - Flow rate 10-17 I/m use 25mm backflow and master valve assembly,
  - o Flow rate 71-150 l/m use 40mm backflow and master valve assembly, or
  - Flow rate 151-240 l/m use 50mm backflow and master valve assembly.
- Space dripline tubing at maximum 450mm centres and maximum 200mm from garden edges; and
- Pipework shall be in accordance with AS 1477 and AS 2032.
- Flush the system with clean water at a velocity sufficient to remove foreign matter until only clean water is discharged at tube ends. Then terminate each tube flushing end/junction to complete the tube installation. Leave the system pipes and tubing free of foreign matter on completion. If need be, open the system again to re-flush if blockages are apparent and re-seal tube ends.

#### 5.7 Commissioning

The entire system shall be tuned and tested to deliver an adequate amount of water to all plants and turf. Test the system in the presence of the Landscape Architect and/or irrigation designer to facilitate the issue of a Certificate of Practical Completion.

Maintain the system for the duration of the establishment maintenance period as detailed elsewhere in the specification. Replace any faulty, broken or stolen components. Leave the system operating as if it was newly installed upon acceptance of the completed work.

## 6.0 PLANT ESTABLISHMENT AND MAINTENANCE

#### 6.1 Generally

The Landscape Contractor shall rectify defects during installation and that become apparent in the works under normal use for the duration of the contract Defects Liability Period.

The Landscape Contractor shall maintain the contract areas by the implementation of industry accepted horticultural practices for 52 weeks. The landscape maintenance works shall include, but not be limited to, the following:

- Replacing failed plants;
- Pruning;
- Insect and pest control;
- Fertilising;
- Maintaining mulch;
- Mowing;
- Watering;
- Weeding;
- Rubbish removal; and
- Cleaning of the surrounding areas.

#### 6.2 Logbook

Keep a Maintenance Logbook recording when and what maintenance work has been done and what materials, including chemical materials, have been used.

The records shall show when and where identified chemicals were used and why.

Submit the initial logbook for inspection prior to Practical Completion and again at the end of the Defects Liability Period as a prerequisite for granting Practical and Final Completion Certificates.

Record all major events and activities in the logbook.

Make the logbook available for inspection on request.

#### 6.3 Plants

Trees, shrubs and groundcovers shall at all times display healthy vigorous growth. Spent flower heads or stalks shall be removed immediately following flowering.

**Replace failed plants:** A "failed" plant may not mean complete death of soft tissue but failure due to poor growth, appearance, or unacceptable time for plant to re-establish new growth following damage or vandalism.

Replacement plants shall be in a similar size and quality and identical species or variety to the plant that has failed.

Replacement of plants shall be at the cost of the Landscape Contractor unless advised otherwise. If the cause of the failure is due to a controllable situation then correct the situation prior to replacing plants.

Failure of a plant shall be at the sole discretion of the Landscape Architect.

#### 6.4 Pruning

Whatever pruning work is requested by the Landscape Architect shall be performed, including any pruning of damaged growth or miscellaneous pruning considered as beneficial to the condition of the plants.

All pruning works shall be undertaken in a manner equal to acceptable horticultural practice.

### 6.5 Spraying

Avoid spraying:

- if ever possible;
- in wet weather;
- if wet weather is imminent;
- if target plants are still wet after rain;
- in windy weather; and
- if adjacent desirable species are too close to the target plants to be avoided.

Immediately report to the Project Manager any evidence of intensive weed infestation, insect attack or disease amongst plant material. Submit all proposals to apply chemicals and obtain approval before starting this work.

When approved, spray with herbicide, insecticide, fungicide as appropriate in accordance with the manufacturers' recommendations. Record in the logbook all relevant details of spraying activities including:

- Product brand / manufacturer's name,
- Chemical / product name,
- Chemical contents,
- Application quantity and rate,
- Date of application and location,
- Results of application, and
- Use approval authority.

#### 6.6 Fertilising

Fertilise gardens with a proprietary slow release fertiliser applied in accordance with the manufacturer's directions and recommendations. Record in the logbook all relevant details of fertilising including:

- Product brand / manufacturer's name,
- Fertiliser / product name,
- Application quantity and rate, and
- Date of application and location.

#### 6.7 Stakes and Ties

Adjust and replace as required to ensure plants remain correctly staked. Remove those not required at the end of the planting establishment period (Defects Liability Period).

#### 6.8 Mulched Surfaces

Maintain the surface in a clean, tidy and weed free condition and reinstate the mulch as necessary to ensure correct depth as before specified.

#### 6.9 Mowing and Top Dressing

Mow the turf to maintain a grass height of between 30-50mm. Do not remove more than one third of the grass height at any one time. Remove grass clippings from the site after each mowing.

Top dress to a maximum of 10mm as necessary to fill depressions and hollows in the surface.

#### 6.10 Irrigation and Watering

Maintain the irrigation system to sure that each individual plant receives the required amount of water to maintain healthy and vigorous growth, adjust and rectify as required.

Provide additional watering, if necessary.

#### 6.11 Erosion Control Measures

Where necessary, maintain the erosion control devices in a tidy and weed free condition and reinstate as necessary to ensure control measures are effective where deemed necessary.

#### 6.12 Weeding and Rubbish Removal

During the plant establishment period remove by hand, rubbish and weed growth that may occur or re-occur throughout all planted, mulched and paved areas.

The contractor shall target weeds that are capable of producing a major infestation of unwanted plants by seed distribution.

Whenever possible, time weed removal to precede flowering and seed set.

### 6.13 Urgent Works

Notwithstanding anything to the contrary in the Contract, the Project Manager may instruct the Landscape Contractor to perform urgent maintenance works that place the completed contract works at risk.

If the Landscape Contractor fails to carry out the work within seven (7) days of such notice, the Project Manager (or representative) reserves the right without further notice to employ others to carry out such urgent and specified work and charge the cost to the Landscape Contractor.

Such work shall include but not limited to the inspection and clearing of drains in the pavement and gardens.

#### 6.14 Completion

A final inspection shall be made by the Project Manager, Landscape Contractor and Landscape Architect before the completion of the Plant Establishment Maintenance Period (Defects Liability Period).

Any items requiring rectification shall be repaired before completion of the relevant works and finally approved prior to certification.

## 7.0 Appendices

### 7.1 Referenced Standards

Standard	Name
AS 1289.5.2.1	Method of testing soils for engineering purposes – Soil compaction and density tests
AS 1319	Safety signs the occupational environment
AS 1379	Specification and supply of concrete
AS 1428.1 (All)	Design for access and mobility
AS 1428.3	Requirements for children and adolescents with physical disabilities
AS NZS 1428.4.1	Means to assist the orientation of people with vision impairment – Tactile ground surface indicators
AS 1428.5	Communications for people who are deaf or hearing impaired
AS 1477	PVC pipes and fittings for pressure applications
AS 1604	Specification for preservative treatment – Sawn and round timber
AS 1720	Timber structures – Design methods
AS 2032	Installation of PVC pipe systems
AS 2082	Timber – Hardwood – Visually stress-graded for structural purposes
AS 2303	Tree stock for landscape use
AS 2734	Asphalt (hot mix) paving – Guide to good practice
AS 2890.1 (All)	Off-street car parking
AS 2890.2	Commercial vehicles off-street parking
AS 2890.3	Bicycle parking
AS 2890.5	On-street parking
AS 2890.6	Off-street parking for people with disabilities
AS 3600	Concrete structures
AS 3610	Formwork for concrete
AS 3660	Protection of buildings from subterranean termites
AS 3850.1	Tilt-up concrete and precast concrete elements for use in buildings
AS 3972	General purpose and blended cements
AS 4373	Pruning of amenity trees
AS 4419	Soils for landscape and garden use
AS 4419	Appendix 1 Soils for landscape and garden use - sampling
AS 4454	Composts, soil conditioners and mulches
AS 4970	Protection of trees on development sites

### 7.2 Maintenance Schedule

Table	ACTIVITY	FREQUENCY						ACTION
		D	W	2W	3W	Μ	3 or 6M	Daily, Weekly, Monthly
1	Logbook	+		+		+		Complete a logbook entry every day at site and at least every two weeks. All actions listed below require a logbook entry. Upon request, make the logbook available for inspection. Submit copies of new entries in the logbook to the Contract Administrator on a monthly basis. Please note that more frequent, short, occasional inspection should result in less maintenance work when problems are observed earlier than they might otherwise have been seen.
2	Plant replacement			+		+		Inspect and replace failed plants within 2 weeks of observation of failure. Match species, size (original) and location of new with old.
3	Mulch			+		+		Inspect and replace mulch deficiencies within 2 weeks of observation. Prior to placing new mulch aerate the soil by fork turning to a depth of at least 100mm, roughly level the soil and then place mulch. Do not disturb major plant roots while aerating soil.
4	Erosion control			+				Inspect every two weeks and repair ground, soil and mulch immediately. Maintain erosion control device as necessary.
5	Stakes and ties			+				Inspect every two weeks, adjust and/or replace as necessary but remove as plants mature and are able to support themselves.
6	Weed and rubbish removal			+				Inspect and remove immediately upon observation. Leave no waste on site. Dispose of waste material at a designated waste disposal site.
7	Pruning			+				Inspect every 2 weeks and prune as necessary to remove dead wood, improve plant shape and promote healthy vigorous new growth.
8	Spraying			+				Inspect every 2 weeks and action as necessary. Do not spray if other non-chemical methods will satisfy the need to remove insects. Spray for disease control only when absolutely necessary.
9	Urgent works		+					Complete within 1 week (7 days) of notification. Inspect and clear drains.
10	Planting and fertilising			+			3m+	Inspect every 2 weeks and remove spent flowers and dead stalks as they become apparent. Fertilise gardens every 3 months or other frequency in accordance with fertiliser manufacturer's directions.
11	Watering	+		+				Water when and where necessary every day at site and at least every 2 weeks generally. Do not allow soil and plants to dehydrate. Allow for prolonged rain, windy and dry periods. Water in the early morning or late afternoon to avoid excessive evaporation during the heat of the day.
12	Mowing, top- dressing and edging			+		+	6m+	Summer fortnightly. Winter monthly. Top-dress 6 monthly.
## Appendix D

Westlink WH3 Canopy plan



B Layout Amendments A WH3 Amendments Issue Revision Description



JW NM 07.11.2024 JW NM 02.09.2024 Drawn Check Date

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CANOPY COVER						
	Area	Required Canopy Cover	Current Canop Cover			
Lot 1	110,793	11,079	13164	12%		
Lot 4 & Detention Basin			4009			
Trunk Drainage			1269			
Lot 4 inc. Bio Retention	43,398	4,340	5279	12%		
Total (Excluding Estate Road)	154,191	15,419	18,443	1 <b>2</b> %		
Estate Rd	20,379	2,038	10,759.95	53%		
Total Site (Excluding Residual)	174,570	17,457	29,203	17%		

NOTE: Trunk Drainage zone canopy cover indicatively based off Sydney Water Guidelines and is subject to detailed design.

ESR

Project: Proposed Industrial Estate Abbots Road Kemps Creek

## PRELIMINARY

Scale: Job Number: SS24-5372

Drawing Name:

Tree Canopy Plan

Drawing Number: Issue: WH3\_SK001 B

## Appendix E

## Trunk Drainage Landscape plans

# Proposed Industrial Estate - Trunk Drainage Abbotts Road, Kemps Creek Landscape Development Application

## Drawing Schedule

Drawing Number	Drawing Title	Scale
TD-000	Landscape Coversheet - Trunk Drainage	N/A
TD-101	Landscape Plan - Trunk Drainage	1:100
TD-102	Landscape Plan - Trunk Drainage	1:100
TD-103	Landscape Plan - Trunk Drainage	1:100
TD-104	Landscape Plan - Trunk Drainage	1:100
TD-501	Landscape Details	As Show
TD-601	Landscape Sections	As Show

Plant Sch	edule - Trunk Drainage						
Code	Botanic Name	Common Name	Mature Size	Pot Size	Spacing	RSTDG	Qty
Riparian	Edge Planting						
•							
Trees							
Af	Angophora floribunda	Rough Barked Apple	20 x 6	75L	As Shown		9
Cm	Corymbia maculata	Spotted Gum	30 x 10	75L	As Shown		5
Ea	Eucalyptus amplifolia	Cabbage Gum	30 x 10	75L	As Shown		3
Ecr	Eucalyptus crebra	Narrow Leafed Ironbark	15 x 8	75L	As Shown		6
Ef	Eucalyptus fibrosa	Broad Leafed Ironbark	20 x 8	75L	As Shown		5
Mli	Melaleuca linariifolia	Flax Leafed Paperbark	10 x 4	75L	As Shown		8
Ms	Melaleuca styphelioides	Prickly Leaved Paperbark	10 x 3	75L	As Shown		9
Shrubs &	Accents						
Af	Acacia falcata	Wattle	3 x 2	300mm	1/50m2		5
As	Acmena smithii	Lilly Pilly	3 x 2	300mm	1/50m2		4
Во	Brevnia oblonaifolia	Coffee Bush	1.5 x 1.5	300mm	1/50m2		4
la	Indigofera australis	Australian Indigo	2.5 x 2	300mm	1/50m2		5
	3,7						
Grasses &	& Groundcovers						
DI	Dianella longifolia	Blue Flax-lily	0.8 x 0.8	Tube	4/m2		399
lc	Imperata cylindrica	Imperata	0.4 x 1	Tube	4/m2		399
Lf	Lomandra filiformis	Mat Rush	0.2 x 0.2	Tube	4/m2		399
Pl	Poa labillardieri	Роа	0.5 x 0.5	Tube	4/m2		399
Та	Themeda australis	Kangaroo Grass	1 x 0.4	Tube	4/m2		399
Dr	Dichondra repens	Kidney Weed	0.15 x spreading	Tube	4/m2		399
Gh	Goodenia hederacea	Ivy Goodenia	0.2 x 1	Tube	4/m2		399
Hv	Hardenbergia violacea	Native Sarsaparilla	0.3 x Spreading	Tube	4/m2		399
Рр	Pratia pedunculata	Trailing Pratia	0.2 x 1	Tube	4/m2		399
Hv	Hardenbergia violacea	Native Sarsaparilla	0.3 x Spreading	Tube	4/m2		399
Wg	Wahlenbergia gracillis	Australian Bluebell	0.8 x 0.2	Tube	4/m2		399
Upper Ba	ank Ephemeral Planting						
DI	Dianella longifolia	Blue Flax-lily	0.8 x 0.8	Tube	4/m2		814
Dm	Dichondra micrantha	Kidney Weed	0.15 x spreading	Tube	4/m2		814
Dr	Dichondra repens	Kidney Weed	0.15 x spreading	Tube	4/m2		814
kҮ	Imperata cylindrica 'Yalba"	Imperata	0.4 x 1	Tube	4/m2		814
Lf	Lomandra filiformis	Mat Rush	0.2 x 0.2	Tube	4/m2		814
Ms	Microleana stipoides	Weeping Grass	0.4 x 0.4	Tube	4/m2		814
Pl	Poa labillardieri	Роа	0.5 x 0.5	Tube	4/m2		814
Lower Ba	ank Ephemeral Planting						
Ca	Carex appressa	Tall Sedge	0.5 x 0.5	Tube	4/m2		869
Fn	Ficinia nodosa	Club Rush	1 x 1	Tube	4/m2		869
Ju	Juncus usitatus	Common Rush	1 x 0.5	Tube	4/m2		869
11	Lomandra longifolia	MatRush	1 x1	Tube	4/m2		869

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C For Comment B For Comment A For Comment Issue Revision Description

CS	NM	14.07.2023
CS	NM	30.06.2023
CS	NM	23.06.2023
Drawn	Check	Date





ESR

Proposed Industrial Estate Abbotts Road Kemps Creek

Drawing Name: Landscape Plan Trunk Drainage

## PRELIMINARY

Job Number: SS20-4546 Drawing Number: TD-000 C



Issue Revision Description

Drawn Check Date

SS20-4546

TD-101 C



A1

A For Comment Issue Revision Description CS NM 23.06.2023

Drawn Check Date

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SS20-4546

TD-102 C



Drawn Check Date



SS20-4546

TD-103 C





A1

Drawn Check Date

## Abbots Road





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ESR

Project: Proposed Industrial Estate Abbotts Road Kemps Creek

Drawing Name: Landscape Details

PRELIMINARY

Job Number: SS20-4546 Drawing Number: Issue: TD-501 A



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ESR

Project: Proposed Industrial Estate Abbotts Road Kemps Creek

Drawing Name: Landscape Sections

PRELIMINARY

Job Number: SS20-4546 Drawing Number: Issue: TD-601 A

## Appendix F

## OSD Basin Landscape plans

# Proposed Industrial Estate - OSD Basin Abbotts Road, Kemps Creek Landscape Development Application

## Drawing Schedule

Drawing Number	Drawing Title	Scale
DB-000	Landscape Coversheet - Detention Basin	N/A
DB-101	Landscape Plan - Detention Basin	1:250
DB-501	Landscape Details	As Shown

Plant Schedule - Detention Basin

Mature Size Pot Size Spacing Qty DCP Aerotropolis Botanic Name Common Name

	Trees					
Em	Eucalyptus moluccana	Grey Box	20 x 8	100L	As Shown	9
Et	Eucalyptus tereticornis	Forest Red Gum	30 x 8	100L	As Shown	7
Md	Melaleuca decora	Feather Honeymyrtle	12 x 5	100L	As Shown	19
Ms	Melaleuca styphelioides	Prickly Paperbark	10 x 4	100L	As Shown	19
	Shrubs					
Bs	Bursaria spinosa	Blackthorn	4 x 3	300mm	As Shown	57
Cc	Callistemon citrinus	Crimson Bottlebrush	3 x 2	300mm	As Shown	75
Са	Correa alba	White Correa	1.5 x 1.5	300mm	As Shown	202
Dv	Dodenea viscosa	Giant Hop Bush	3 x 3	300mm	As Shown	87
	Grasses and Groundcovers					
Сар	Chrysocephalum apiculatum	Yellow Buttons	0.5 x 0.9	150mm	5/m2	562
Dc	Dianella caerulea	Blue Flax Lily	0.75 x 0.75	150mm	5/m2	562
Ηv	Hardenbergia violacea	Purple Coral Pea	0.2 x 3	150mm	5/m2	562
Hs	Hibbertia scandens	Snake Vine	0.2 x 2	150mm	5/m2	562
Ju	Juncus usitatus	Common Rush	0.4 x 0.5	150mm	5/m2	562
LI	Lomandra longifolia	Mat Rush	0.75 x 1	150mm	5/m2	562
Мр	Myoporum parvifolium	Creeping Boobialla	0.3 x 1	150mm	5/m2	562
PI	Poa labillardieri	Poa	1 x 0.5	150mm	5/m2	562
	Detention Basin Matrix					
Сарр	Carex appressa	Tall Sedge	0.8 x 0.7	Tube	8/m2	5544
lc	Imperata cylindrica	Blady Grass	1 x 0.3	Tube	8/m2	5544
In	Isolepis nodosa	Knobby Club Rush	0.6 x 0.6	Tube	8/m2	5544
Ju	Juncus usitatus	Common Rush	0.4 x 0.5	Tube	8/m2	5544
LI	Lomandra longifolia	Mat Rush	0.75 x 1	Tube	8/m2	5544



Site Plan | 1:750

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02	For Comment	CS	NM	30.06.2023
01	For Comment	JW	NM	25.05.2023
Issue	Revision Description	Drawn	Check	Date

LEGEND





## Proposed Industrial Estate Abbotts Road Kemps Creek

Level 1, 3-5 Baptist Street



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Redfern NSW 2016

Australia



## PRELIMINARY

Drawing Name:

Landscape Cover Sheet **OSD** Basin

Scale: Job Number:

SS20-4546





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## Project: Proposed Industrial Estate Abbotts Road Kemps Creek

Level 1, 3-5 Baptist Street Redfern NSW 2016 Australia

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## PRELIMINARY

Drawing Name:

Landscape Plan OSD Basin

Scale: 1:250 @ A1 Job Number:

SS20-4546



Lot 4





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01 For Comment Issue Revision Description

JW NM 25.05.2023 Drawn Check Date

Client:

Project:

Proposed Industrial Estate Abbotts Road Kemps Creek

ESR



SITE IMAGE

Landscape Architects

# PRELIMINARY

Drawing Number:

Drawing Name:

Landscape Details

Scale: As Shown

Job Number:

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SS20-4546

DB-501 01

Issue:

## Appendix G

## **DPHI Comments and Responses**

## Appendix G – DPHI Comments and Responses

DPHI Comments 03.10.2024				
DPHI Comment	SI Response			
Clarify how the Landscape Management Plan (LMP) relates to the LMP prepared by Aspect Environmental submitted as part of the OEMP under PA-58.	The applicant (ESR) has confirmed that the LMP prepared by Aspect Environmental is now superseded by this LMP prepared by Site Image.			
Provide a copy of the landscape drawings referred to in Section 1.1 of the LMP.	These drawings have been combined with this file.			
Ensure the plan also addresses the relevant requirements of Condition C1.	Condition C1 has been added to section 1.2 'Conditions of consent' of this LMP.			
Confirm in the LMP that the selected plant species are all consistent with the plant list in Appendix C of the Mamre Road Precinct Development Control Plan in accordance with Condition B38(a)(i).	The LMP and plant schedule on the landscape plans show that only plants from the DCP and Aerotropolis plant lists have been proposed.			
Clarify how plant selection and landscape design was considered with regard to suitability of the landscaping in relation to wildlife management in proximity to the Western Sydney Airport, as required by Condition B38(a)(ii).	The LMP and plant schedule on the landscape plans show that only plants from the DCP and Aerotropolis plant lists have been proposed.			
Provide further detail to confirm sufficient deep soil is provided for all landscaped areas and species proposed, including in proximity to retaining walls and other civil infrastructure in accordance with Condition B38(b).	As discussed, all tree planting shall be planting in sufficient depth and volume of soil as per tree planting on grade details on sheet 501 of the relevant landscape plans.			
The Landscape Concept Report at Appendix A of the LMP is not the most recent version of this plan and is not consistent with the detailed on-lot landscape plans prepared by Site Image that have been submitted previously.	The most recent drawings have been provided.			
Correct the reference to D39(c) in Section 2.1 to B39(c).	This has been corrected in section 1.2 'Conditions of Consent' of this LMP.			
Section 4.2 of the LMP states that the development achieves 21% tree canopy cover. This is not consistent with the most recent canopy cover plan submitted for Mod 2. The cover calculation cannot also include street trees as per section 4.2.3 of the MRP DCP.	I am not sure where this is referencing, however we have provided updated canopy cover plans with the street trees excluded. Refer to appendix B and D of this LMP.			

1



Appendix I Operational Wildlife Management Plan







## **Operational Wildlife Management Plan**

Westlink Stage 1

290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek

SSD-9138102



## **DOCUMENT TRACKING**

Version No.	Document No.	Description	Prepared By	Approved By	Date
Rev01	J1935230922.01	Draft for client review	D Barlass	R Salisbury	22/09/2023
Rev02	J1935240424.02	Draft for client review	Z Ahmed	R Salisbury	24/04/2024
Rev03	J1935240503.03	Final for submission	Z Ahmed	R Salisbury	03/05/2024
Rev04	J1935240828.04	Updated to address DPHI comments	Z Ahmed	R Salisbury	28/08/2024
Rev 05	J1935240925.05	Updated to address ER comments	Z Ahmed	R Salisbury	25/09/2024

## AUTHOR(S) DETAILS

Author Details	Qualifications
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	3 years of experience in environmental research, planning and assessment.

## **APPROVER DETAILS**

Approver Details	Qualifications
Rob Salisbury	BSc DipEnvStud MSc Over 30 years of environmental management experience in the transport, industrial, water, energy, communications and other sectors.

Source of cover image: ESR – Westlink Stage 1 – SSD 9138102 – Visual Impact Assessment Report (Geoscapes, 12 April 2022)



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Glossary	
Aspect	Aspect Environmental Pty Ltd
CEMP	Construction Environmental Management Plan
CoC	Condition(s) of consent
DP	Deposited plan
DPE	Department of Planning and Environment (formally DPIE)
EIS	Environmental impact statement
ESR	ESR Australia Pty Ltd
OEMP	Operational Environmental Management Plan
OWMP	Operational Wildlife Management Plan
SSD	State significant development
The Development	Stage 1 of the Westlink industrial estate (formerly known as the Kemps Creek Logistics Park)
WSA	Western Sydney Airport



#### **1. INTRODUCTION**

#### 1.1.Background

This Operational Wildlife Management Plan (OWMP) has been prepared by Aspect Environmental Pty Ltd (Aspect), on behalf of ESR Australia Pty Ltd (ESR), for the purposes of Stage 1 of an industrial estate known as Westlink (formerly known as the Kemps Creek Logistics Park) (the Development).

This OWMP is a Sub-Plan of the Operational Environmental Management Plan (OEMP) and has been prepared with reference to:

- State significant development (SSD) 9138102 Development Consent dated 21 April 2023, as consolidated and the included conditions of consent (CoC)
- Amendment Report (Ethos Urban, 15 September 2022)
- Environmental Impact Statement (Ethos Urban, 17 June 2021)
- SSD 9138102 Planning Secretary's Environmental Assessment Requirements which were issued in December 2020.

The Development site is approximately 319,800m<sup>2</sup> in area and is irregular in shape (refer Figure 1-1). The Development comprises the first stage of an industrial estate located within the Penrith City Local Government Area (LGA) at the location of:

- Lot 111 DP 1296469 63-72 Abbotts Road, Kemps Creek 2178
- Lot 112 DP 1296469 59-62 Abbotts Road, Kemps Creek 2178
- Lot 113 DP 1296469 290-308 Aldington Road, Kemps Creek 2178
- Lot 114 DP 1296469 1050-1064 Mamre Road, Kemps Creek 2178
- Lot 115 DP 1296469 1030-1048 Mamre Road, Kemps Creek 2178
- Lot 10 DP 1296455 285 Aldington Road Kemps Creek 2178.

Figure 1-1: Site context (EIS, Ethos Urban, June 2021)





### **1.2. Purpose of this OWMP**

This OWMP has been prepared to address CoC B87 and B88 of the Development Consent and to provide methods to monitor and manage impacts to biodiversity and wildlife strike risk during the operation of the Development.

All personnel are responsible for the implementation of this OWMP and have the responsibility to stop works if there is the potential for a safety or environmental incident to occur.

Roles and responsibilities for environmental management of the Development are outlined in Table 4-2 of the OEMP.

### 1.3. Objectives of this OWMP

The objectives of this OWMP are:

- Identify and implement relevant environmental legal and other regulatory requirements applicable to the operation of the Development.
- Identify the environmental aspects and impacts associated with operation of the Development and provide management measures to minimise and manage wildlife impacts on the environment and community.
- Establish and define operational environmental roles and responsibilities.
- Describe procedures to receive, handle, respond, record and resolve complaints, disputes and respond to any non-compliance.
- Assign responsibility for the implementation, management and review process of this OWMP.
- Provide all operational personnel with sufficient information to undertake their activities in accordance with legal and other relevant environmental requirements.

All ESR employees, warehouse tenants, sub-contractors and visitors are required to comply with the requirements of this OWMP during operations.

#### **1.4. Consultation**

The Development Consent did not require this OWMP to be prepared in consultation with stakeholders.

#### **1.5. Distribution and Availability**

This OWMP will be distributed to staff with specific responsibilities under this OWMP and will also be made available to all operational staff. A hard copy will be kept at the Development site.

A copy of this OWMP and all relevant statutory documentation registers will be available at the Development and will be readily available for relevant regulatory officers.

In accordance with CoC C17, the up-to-date, approved version of this OWMP, along with other information and documents, will be made publicly available on the Development's website, at least 48 hours prior to the commencement of operations and on an ongoing basis.



#### **1.6. Document Structure**

The structure of this OWMP is summarised below.

- **Section 1** provides a brief overview of the Development and the purpose of the OEMP.
- Section 2 provides a summary of operations.
- **Section 3** outlines the statutory requirements and obligations which need to be fulfilled during operations.
- Section 4 provides a description of the roles and responsibilities for employees involved in operations. This section also outlines the environmental objectives and targets, and relevant training and inductions required so that employees are aware of their environmental obligations.
- Section 5 provides the environmental risk analysis which identifies the key environmental risks for operations.
- **Section 6** provides the monitoring, reporting, and auditing requirements and management of any environmental incidents and non-conformance.

#### **1.7. Progressive Application of the OWMP for the Development**

This OWMP applies to operations at the Development. Operational areas will come online progressively as warehouse buildings and ancillary office spaces are constructed, commissioned and tenanted for storage or distribution of goods.

As areas become operational, any adjacent construction areas will continue to be managed in accordance with the relevant Construction Environmental Management Plan (CEMP) and Sub-Plans, while operational areas will be managed in accordance with the OEMP and Sub-Plans.

Until the entire Development is operational, all construction areas will be appropriately identified and demarcated to enable effective management of the interface between any construction areas and operations.

As part of the OEMP review and revision program (Section 6.7 of the OEMP), the OEMP and this OWMP will be updated with the new operational site layout, while the CEMP and Sub-Plans will be revised to show the reduced area of construction.



#### 2. DEVELOPMENT DESCRIPTION

#### 2.1. Existing Environment

A *Biodiversity Development Assessment Report* (Eco Logical Australia, April 2022) was prepared for the site and included habitat assessments for fauna within the Development site. The dominant habitat features identified on site included dams/aquatic vegetation, native vegetation and open grassland as described in Table 2-1.

Habitat feature	Category	Wildlife attraction risk	Justification of potential risk rating
Dams/aquatic vegetation	Farm dam	High	The large dams across the Development site provide foraging habitat for ibis, ducks, wading birds and microbats. Dense wetland vegetation is limited.
Native vegetation	Conservation area (dryland)/ Natural areas	Moderate	Native vegetation within the Development site provides potential foraging and roosting habitat for a variety of species including, megabats (foraging only), and a wide variety of birds including raptors, crows and parrots.
Open grassland	Intensive Livestock Agriculture	Moderate	Open native and exotic grassland provides potential habitat for an array of native and non-native birds including raptors, lapwings, crows, galahs/cockatoos and parrots.

 Table 2-1: Habitat Features and Risk Ratings (Eco Logical Australia, April 2022)

The farm dams within the site were the highest attracting habitat for wildlife as they provided resources for fauna to drink, forage and nest/shelter within the banks of the dams. This was especially important for fauna in a landscape which was becoming increasingly urbanised.

The native flowering canopy species within the site provided foraging habitat for native and non-native bird species and also provided habitat for microbats to forage and mega bats such as the Grey-headed Flying Fox.

The large open expanses of native and exotic grassland within the area also provided many bird species foraging or nesting habitat. Open grassland areas also provided habitat for larger mammals such as kangaroos, wallabies and smaller rodents such as rabbits, mice, and rats. This in turn attracted predators such as raptors and owls, and pest species like foxes.

The Development site has now been developed for warehousing and the former habitat has been replaced with warehouses and their surrounding hardstand and landscaped areas. Previously, seven farm dams with water were identified in the Development site and two of these dams contained some aquatic vegetation. The Development could have resulted in an alteration in water flow due to change in land use and topography which is why a detention basin was proposed. The on-site detention basin located in the south-west corner of the Development has been constructed to manage water flow on site.

The Development is being undertaken in accordance with the Westlink Stage 1 (SSD 9138102) Development Consent approved on 21 April 2023, as consolidated.



The Development involves bulk earthworks (including clearing site, levelling, import and compaction of fill material, excavation for installation of drainage and services, preparing the site for construction), subdivision, construction, fit out and operation of a new industrial estate at the site comprising two industrial warehouses, ancillary office space with a total gross floor area of 81,282m<sup>2</sup> (refer Figure 2-1).

The landscaping, construction of internal roads, external road upgrades including to Aldington and Abbotts Road, and a new signalised intersection at Mamre and Abbotts Road, site servicing and stormwater infrastructure works are also included in the development.



Figure 2-1: Stage 1 site layout (SSD 9138102 Development Consent, 21 April 2023, as consolidated)

The Development site was previously surrounded by rural and rural residential areas, and rural residential lots remain to the east of the Development site. The Development is part of a larger industrial warehouse precinct (the Mamre Road Precinct) and other warehouse developments are being planned or constructed to the north, south and west of the Development site. The rural and rural residential areas to the north, south and west of the Development site will become warehouse developments in the future.

## 2.2. Development Operational Activities

Development operational activities include the operation and maintenance of the following assets:

- Internal roads
- Stormwater drainage including the on-site detention (OSD) basin



- Utilities within the Development
- Development landscaping
- Warehouse pads prior to the commencement of warehouse construction.

Access to the Development is via Abbotts Road with a three-way signalised intersection at the Abbotts and Aldington Road junction, sized appropriately to cater for B-doubles.

The operation of the two logistic warehousing and distribution centres is the responsibility of the warehouse tenants as outlined in Section 2.3.

#### 2.3. Warehouse Operations

In general, heavy and light vehicles would access the warehouses via the main site access off Abbotts Road, light vehicles would park in the allocated parking area adjacent to each warehouse and heavy vehicles would progress to the truck loading/unloading areas alongside each warehouse.

A detailed description of the operations at each warehouse is provided in the relevant Warehouse Operational Environmental Management Plan.



#### 3. LEGAL AND OTHER REQUIREMENTS

#### 3.1. Legislation

The regulatory framework for the Development is summarised in Section 3 of the OEMP, which identifies relevant legislative instruments, including legislative and voluntary obligations, permits and licences, and their key objectives and relevance to the Development.

Relevant legislative instruments for management of biodiversity and wildlife for this development is summarised in Table 3-1 below.

Legislation	Key Requirements	Activity/Aspect
Environment Planning and Assessment Act 1979	Establishes a system of environmental planning and assessment of proposed developments in NSW.	All
	The Development must comply with the Development Consent.	
Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)	Requirements in relation to protection and management of nationally and internationally important flora, fauna, ecological communities, and heritage places.	Threatened species and ecological environments
Biodiversity Conservation Act 2016	Comply with conservation requirements for any identified threatened species.	Threatened species and ecological environments

Table 3-1: Legislative and related instruments relevant to the Development

#### **3.2. Development Consent**

The Development will be operated in accordance with the Development Consent and in accordance with the relevant CoC. The conditions which apply to biodiversity are identified in Table 3-2.

SSD 9138	102 CoC	WMP Section			
Biodivers	Biodiversity				
B87	Prior to the commencement of construction, a Wildlife Management Plan must be prepared in accordance with Section 6.2 of the <i>Westlink Industrial</i> <i>Estate Wildlife Assessment Report</i> prepared by Eco Logical Australia Pty Ltd dated 14 April 2022, and be submitted to the Planning Secretary.	Section 3.1 Table 3-2			
B88	The Wildlife Management Plan must form part of the OEMP required by Condition C2 and the Applicant must implement the Wildlife Management Plan for the duration of construction and operation.	Noted			
Managem	nent Plan Requirements				
C1	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	This Plan			
(a)	detailed baseline data;	Section 2.1			
(b)	details of:				
	<ul> <li>the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> </ul>	Section 3			
	(ii) any relevant limits or performance measures and criteria; and	Section 4 Section 4			



SSD 913	3102 CoC	WMP Section
	<ul> <li>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</li> </ul>	
(c)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 4
(d)	a program to monitor and report on the:	Section 5.1
	<ul> <li>(i) impacts and environmental performance of the development; and</li> <li>(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;</li> </ul>	
(e)	a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 5.3
(f)	a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 5.2
(g)	<ul> <li>a protocol for managing and reporting any:</li> <li>(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);</li> <li>(ii) complaint;</li> <li>(iii) failure to complete with statutory requirements, and</li> </ul>	Section 5.5
	(iii) failure to comply with statutory requirements, and	Castion 5 7
		Section 5.7
unnecess	ary or unwarranted for management plans	Noted
C5	The Applicant must prepare an Operational Environmental Management Plan (OEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	OEMP
C6	As part of the OEMP required under condition C5 of this consent, the Applicant must include the following:	
(a)	Describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;	OEMP
(b)	Describe the procedures that would be implemented to:	OEMP
	<ul> <li>(i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;</li> <li>(ii) receive, handle, respond to, and record complaints;</li> <li>(iii) resolve any disputes that may arise;</li> <li>(iv) respond to any non-compliance;</li> <li>(v) respond to emergencies; and</li> </ul>	
(c)	Include the following environmental management plans:	This Plan
	 (v) Wildlife management plan (see condition B87) 	

#### **3.3. Permits and Licences**

Permits and licences relevant to wildlife management are detailed in Table 3-3. This table will be revised and updated in conjunction with the management review outlined in Section 6.7 of the OEMP, or when there has been a change to relevant legislation.



Table 3-3: Environmental licences and	d permits relevant to this OWMP
---------------------------------------	---------------------------------

Permit/Licence	Requirement	Timing	Responsibility
Biodiversity			
Biosecurity Act 2015 (Noxious Weeds Act 1993 repealed)	As an owner/occupier of land, given a weed control notice by a local control authority, or a successor in title to the owner or occupier who has notice of the notice, must not fail to comply with the notice (refer to Division 5, Clause 26).	If required	Noxious weeds to be controlled as specified under the control category.
Pesticides Act 1999	Any possession of pesticides on the site must be authorised through a permit in accordance with Section 12 of this Act.	If required	Engage suitably qualified pest controller for the site as required.
	Any application of pesticides in association with the site must be undertaken by a person who is licenced to carry out that type of work in accordance with Part 6 (Section 45) of this Act.		

### 3.4. Guidelines

This OWMP has been prepared in accordance with *Environmental Management Plan Guideline – Guideline for infrastructure Projects* (DPE, 2020).



#### 4. OWMP IMPLEMENTATION

### 4.1. Operational Wildlife Management Objectives and Targets

The objectives and targets of this OWMP are summarised in Table 4-1.

Table 4-1: Objectives and targets for this OWMP

Objectives	Targets	Timeframe	Responsibility
Complement biodiversity values while being suitable in relation to wildlife management in proximity to the Western Sydney Airport.	Appropriate native plant species incorporated into landscaping. Landscaping to result in >10% tree canopy cover for the Development.	Operations	Senior Project Manager Warehouse Tenants
Avoid attraction of common strike species to the Development site.	No common aircraft strike species using the Development site.	Operations	Senior Project Manager

#### 4.2. Biodiversity Management Measures

The measures for the management of biodiversity during operations are detailed in Section 2.2.5 of the *Biodiversity Development Assessment Report* (Eco Logical Australia, 14 April 2022) and in Table 4-2. These measures are consistent with the relevant measures included in Appendix 5 of the Development Consent.



#### Table 4-2: Biodiversity management measures

ID	Measure	Action	Timing	Responsibility
BD1	Prevent impacts of light spill on fauna species.	Position Development lights to minimise shine into vegetation. Streetlights should use ecologically sensitive designs including use of shields and timers.	During operation	Senior Project Manager
BD2	Development inductions and training will communicate environmental features to be protected and measures to be implemented.	Development employees and contractors and warehouse tenants will be made aware of any sensitive biodiversity values present and environmental procedures such as:	During operation	Senior Project Manager
		<ul> <li>Site environmental procedures (vegetation management, sediment and erosion control, exclusion fencing and weeds)</li> <li>What to do in case of environmental emergency (chemical spills, fire, injured fauna)</li> <li>Key contacts in case of an environmental emergency.</li> <li>Inductions/training will be kept up to date.</li> </ul>		
BD3	Provide for ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on the Development.	Maintain Development landscaping in accordance with the Landscape Management Plan.	During operation	Senior Project Manager
BD4	Manage pests, vermin and declared priority weeds on the site.	Implement suitable measures to manage pests, vermin and declared priority weeds on the site.	During operation	Senior Project Manager
	Note: For the purposes of this measure, priority weed has the same definition of the term in the <i>Biosecurity Act 2015</i> .	Inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.		



#### 4.3. Wildlife Management

A wildlife risk assessment was undertaken as part of the *Westlink Industrial Estate Wildlife Management Assessment Report* (Eco Logical Australia, 14 April 2022), utilising the wildlife hazard assessment process set out in the *Aerotropolis Aviation Wildlife Safeguarding Framework* (Appendix B of that report). Given that the Development is within the area of the Western Sydney Airport (WSA), the assessment compared the wildlife attraction of the existing environment with the potential wildlife attraction associated to the Development to ascertain the impact to the risk of engine strike the Development poses to air traffic at the WSA. The outcomes of the risk assessment are summarised below.

- Megabats were considered to pose the greatest potential of being involved in a strike incident and have potential to cause significant damage.
- Ibis, Galahs and Lapwings were considered to have moderate potential to be involved in a bird strike incident and cause damage.

The wildlife management measures to be implemented for the Development are detailed in Table 4-3. As required by CoC B87 these measures have been sourced from the *Westlink Industrial Estate Wildlife Management Assessment Report* (Eco Logical Australia, 14 April 2022). The outcomes identify the trigger points for additional management measures linked to the presence of common strike species to reduce the wildlife attractant properties of the Development.



#### Table 4-3: Wildlife management measures

ID	Measure	Action	Timing	Responsibility
WL1	Nocturnal megabat surveys to be undertaken for the landscaping and street trees.	Monitoring of nocturnal megabat species to be carried out by a suitably qualified ecologist.	Annually, during summer	Contract Administrator
WL2	Monitoring of landscaping during operations for habitat availability for common strike species.	Monitoring of vegetation to be carried out by a suitably qualified ecologist.	Six-monthly	Contract Administrator
WL3	Diurnal bird surveys to be undertaken for water management infrastructure (i.e. on-site detention basin and rain gardens).	Monitoring of diurnal bird species, including common strike species, to be carried out by a suitably qualified ecologist.	Six-monthly, after a rainfall event, once infrastructure is operational	Contract Administrator
WL4	Implement additional management measures if monitoring identifies the ongoing use of the site by common strike species.	<ul> <li>Monitoring outcomes will inform the need for additional management measures.</li> <li>The following additional measures will be considered: <ul> <li>Netting of waterbodies</li> <li>Installation of bird deterrents, including sonic and visual deterrents</li> <li>Vegetation management including the removal of fruits, nests, perches and replacement of landscaping/street trees</li> <li>Installation of exclusionary devices such as netting or anti-perching spikes</li> <li>Egg oiling and relocation of common strike species.</li> </ul> </li> </ul>	During operation	Senior Project Manager


### 4.4. Environmental Incident and Emergency Response

Section 5.3 of the OEMP details environmental incidents and the response to environmental emergencies for the Development. This includes the reporting, notification and investigation of environmental incidents. Emergency contact details are also provided.

In the event of an environmental incident or emergency related to the implementation of this OWMP, the responses detailed in the OEMP will be implemented.



### 5. MONITORING AND REVIEW

In addition to the monitoring outlined in Table 5-1, ongoing environmental monitoring and reporting for the Development is detailed in Section 6 of the OEMP. The monitoring and review actions relevant to this OWMP are provided below.

### 5.1. Environmental Monitoring

Environmental monitoring is summarised in Section 6.1 of the OEMP and will be undertaken to assist in the management of the following:

- Operations of the Development in accordance with the Development Consent
- Compliance with all relevant legislative requirements
- The minimisation of potential environmental incidents
- Effectiveness of environmental management measures
- Implementation of the OEMP and Sub-Plans.

Monitoring required in this OWMP is detailed in Table 5-1 and will be undertaken by a suitably qualified ecologist.

#### Table 5-1: Summary of environmental monitoring

Monitoring	Frequency/ Timing	Responsible	Reference
Monitoring of diurnal bird species, including common strike species, to be carried out by a suitably qualified ecologist.	Six-monthly, once WSA is operational	Contract Administrator	CoC B87
Monitoring of nocturnal megabat species to be carried out by a suitably qualified ecologist.	Annually, during summer	Contract Administrator	CoC B87
Monitoring of vegetation to be carried out by a suitably qualified ecologist.	Six-monthly	Contract Administrator	CoC B87
Monitoring of diurnal bird species, including common strike species, to be carried out by a suitably qualified ecologist.	Six-monthly, after a rainfall event, once infrastructure is operational	Contract Administrator	CoC B87

### **5.2. Environmental Auditing**

Environmental auditing is described in Section 6.2 of the OEMP. ESR will undertake an internal Health, Safety, Security and Environment audit of the Development annually. Audits will involve a review of all environmental documents, records and reports to verify compliance with the OEMP (and this OWMP) to satisfy CoC C16.

Key environmental and procedural aspects to be covered by the audit may include:

- Environmental management measures detailed in this OWMP
- Adherence to reporting procedures
- Complaint and incident management
- Legislative requirements.

Environmental and operational records include:

- Contact Register
- Incident, non-compliance and corrective action reporting
- Communications with stakeholders



- Records of environmental monitoring
- OEMP and Sub-Plan audit documentation.

Records of auditing and reporting will be maintained to demonstrate compliance.

### 5.3. Contingency Management Plan

If monitoring and/or auditing indicate that the management measures required under this OWMP are not effective in managing environmental impacts, the responses outlined in Table 5-2 will be implemented. These responses will manage any unpredicted impacts and their consequences. This plan would manage ongoing impacts to reduce them to levels below relevant impact assessment criteria as quickly as practical.

Element	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Biodiversity management	Trigger	No impacts to biodiversity identified.	Minor biodiversity impacts identified on- site.	Significant biodiversity impacts identified.
	Response	No response required.	Review effectiveness of management measures. Implement additional measures to manage impacts.	Stop works causing biodiversity impact. As for Condition Amber.
Wildlife management	Trigger	Minimal occurrence of common strike species at the site.	Common strike species occur regularly at the site.	Common strike species occurring at the site in large numbers.
	Response	No response required.	Review effectiveness of management measures. Consider implementing additional measures to manage species as listed in Table 4-2 WL4.	As for Condition Amber.

Table 5-2: OWMP contingency management plan

This contingency management plan for the OWMP is consolidated in Appendix D of the OEMP to form the Contingency Plan for the Development.

### 5.4. Non-compliances and Actions

Section 6.4 of the OEMP details the Development team's response following the identification of a non-compliance with the CoC, the OEMP and Sub-Plans. This includes the reporting, investigation and notification of non-compliances. Non-compliances with this OWMP will be addressed as required by the OEMP.

### 5.5. Environmental Reporting

The reporting of environmental performance during operations will be undertaken as required by the Development Consent. Environmental reporting requirements for the Development are documented in Section 6.5 of the OEMP and reports relevant to this OWMP are listed in Table 5-3.



Table 5-3: Summary of environmental reporting for the OWMP

Report	Timing/ Frequency	Responsibility	CoC
Wildlife Monitoring Report	Six-monthly	Contract Administrator (contracting a suitably qualified ecologist)	B87
Incident Report	Within 30 days of the date on which the incident occurred	Senior Project Manager	C10 Appendix 6

# 5.6. Document Control and Records

ESR, warehouse tenants and contractors are responsible for maintaining clear environmental records to demonstrate compliance with this OWMP, including where relevant:

- All monitoring records and reports
- Internal audit reports
- Reports of pollution incidents, environmental non-compliances and follow-up actions
- Reports of environmental complaints and follow-up actions
- Minutes of management review meetings, and actions required as a result
- Induction and training records.

All documentation, including environmental records, is to be controlled in accordance with the ESR document control system and contractual requirements.

Warehouse tenants are to make all relevant records available for inspection by ESR and/or the environmental auditor where requested.

### 5.7.OWMP Review and Revision Process

As described in Section 6.7 of the OEMP, ESR will implement a review program to meet the requirements of CoC C1(d) and (f) for the OEMP and Sub-Plans and to:

- Monitor and report on the:
  - Impacts and environmental performance of the Development
  - Effectiveness of the management measures included in the OEMP and Sub-Plans
- Investigate and implement ways to improve the environmental performance of the Development over time.

This review will consider the broader management context of the OEMP and Sub-Plans including:

- Phasing of operations as warehouses commence operations
- Changes in operational activities
- Environmental monitoring outcomes
- Progress against objectives and targets
- Changes in standards and legislation
- Any Regulatory Agency or Council input/requirements or response from DPE
- Any third-party landholder inputs or requirements
- Community complaints received
- Issues raised by stakeholders



- Non-compliances identified and reported
- Incidents and the ESR and warehouse tenant response
- Development management team structure and resourcing
- Recommendations of environmental audits and previous reviews (after the initial review).

This review will be undertaken by the Senior Project Manager, in consultation with the warehouse tenants, on an annual basis following the initial environmental audit. An Environmental Review Report recommending measures to improve the environmental performance of the Development will be produced by the review.

CoC C8 also states that all strategies, plans and programs required under the Development Consent will be reviewed and the Planning Secretary notified of the review within three months of:

- the submission of a Compliance Report under CoC C14 (not relevant to operations)
- the submission of an incident report under CoC C10
- the approval of any modification of the conditions of the Development Consent or
- the issue of a direction of the Planning Secretary under CoC A2(b) which requires a review.

As per CoC C9, where documents are revised under the above reviews the revised documents will be submitted to the Planning Secretary for approval within six weeks of the review.

All employees and contractors will be informed of any revisions to the OWMP inductions and ongoing training.



### 6. REFERENCES

DPE (2020) Environmental Management Plan Guideline – Guideline for infrastructure *Projects*.

Ecological Australia (April 2022) *SSD-9138102: Westlink Stage 1 – Biodiversity Development Assessment Report – 290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek.* 

Ethos Urban (June 2021) *Environmental Impact Statement* – 290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek – Westlink Industrial Estate.

Ethos Urban (April 2022) *Submissions and Amendment Report – 290-308 Aldington Road, 59-62 Abbotts Road and 63 Abbotts Road, Kemps Creek – Westlink Industrial Estate.* 

Ethos Urban (September 2022) *SSD-9138102: Westlink Stage 1 – Amendment Report – 290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek.* 



Appendix J Template Warehouse Operational Environmental Management Plan







# Warehouse Operational Environmental Management Plan – Warehouse [No.]

Westlink Stage 1

290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek

SSD-9138102



# **DOCUMENT TRACKING**

Revision	Document No.	Description	Prepared By	Approved By	Date
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Rev04	J1935240828.04	Updated to address DPHI comments	Z Ahmed	R Salisbury	28/08/2024

# **AUTHOR(S) DETAILS**

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Qualifications

# **APPROVER DETAILS**

Approver Details

Qualifications

Source of cover image: ESR – Westlink Stage 1 – SSD 9138102 – Visual Impact Assessment Report (Geoscapes, 12 April 2022)

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affect the opinions expressed in this report, Aspect Environmental Pty Ltd reserves the right to review such information and, if warranted, to modify the opinions accordingly



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# Appendices

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- Appendix B Regulatory Framework
- Appendix C Permits and Licences



Glossary	
CoC	Condition(s) of consent
CSCS	Community and Stakeholder Communications Strategy
DCP	Development control plan
DG	Dangerous goods
DP	Deposited plan
DPE	Department of Planning and Environment (formerly DPIE)
EIS	Environmental impact statement
Environmental Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.
EP&A Act	Environmental Planning and Assessment Act 1979
EPL	Environment protection licence
Material Harm	Harm that involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).
MRP	Mamre Road Precinct
NCC	National Construction Code
Non-compliance	An occurrence, set of circumstances, or development that is a breach of the SSD 9138102 Development Consent.
OEMP	Operational Environmental Management Plan
ONMP	Operational Noise Monitoring Plan
OTMP	Operational Traffic Monitoring Plan
OWMP	Operational Wildlife Management Plan
OWaMP	Operational Waste Management Plan
POEO Act	Protection of the Environment and Operations Act 1997
SEPP	State environmental planning policy
SMP	Stormwater Management Plan
SSD	State significant development
TAG	Transport Access Guide
The Development	Stage 1 of the Westlink industrial estate (formerly known as the Kemps Creek Logistics Park)
Warehouse	Warehouse [No.] of Westlink Kemps Creek Stage 1
WOEMP	Warehouse Operational Environmental Management Plan
WWMP	Warehouse Waste Management Plan



#### **1 INTRODUCTION**

[Note –Tenant-specific and/or Warehouse-specific information is required as indicated in square brackets. Delete in final version of WOEMP if not relevant.]

### 1.1 Background

This Warehouse Operational Environmental Management Plan (WOEMP) has been prepared by [Author], on behalf of [Tenant], for the purpose of the management of the operations of Warehouse [No.] (the Warehouse) of the Westlink Stage 1 development (the Development).

This WOEMP has been prepared with reference to:

- Westlink Stage 1 Operational Environmental Management Plan (OEMP) and Sub-Plans
- State Significant Development (SSD) 9138102 Development Consent as consolidated and the included conditions of consent (CoC) dated 21 April 2023
- Amendment Report (Ethos Urban, 15 September 2022)
- Environmental Impact Statement (Ethos Urban, 17 June 2021)
- SSD 9138102 Planning Secretary's Environmental Assessment Requirements which were issued in December 2020.

The Warehouse site is approximately [Area]m<sup>2</sup> in area (refer Figure 1-1). The Warehouse is located within the first stage of an industrial estate located within the Penrith City Local Government Area at the location of:

- Lot 111 DP 1296469 63-72 Abbotts Road, Kemps Creek 2178
- Lot 112 DP 1296469 59-62 Abbotts Road, Kemps Creek 2178
- Lot 113 DP 1296469 290-308 Aldington Road, Kemps Creek 2178
- Lot 114 DP 1296469 1050-1064 Mamre Road, Kemps Creek 2178
- Lot 115 DP 1296469 1030-1048 Mamre Road, Kemps Creek 2178
- Lot 10 DP 1296455 285 Aldington Road Kemps Creek 2178.

The Warehouse is operated by [Tenant] and the Development is managed by ESR. The site plan for Warehouse [No.] is shown in Figure 1-1.



#### Figure 1-1: Development site layout (SSD 9138102 Development Consent, as consolidated, 21 April 2023)

#### [Indicate Warehouse on figure]





Figure 1-2 Warehouse [No.] site plan [Site plan of the warehouse to be inserted]



### **1.2 Purpose**

This WOEMP is the guide for the operational environmental management of the Warehouse and has been prepared in accordance with *Environmental Management Plan Guideline – Guideline for infrastructure Projects* (DPIE, 2020) to address the relevant requirements of:

- Westlink Stage 1 OEMP and Sub-Plans:
  - Operational Traffic Monitoring Program (OTMP\_
  - Workplace Travel Plan (WTP)
  - Stormwater Management Plan (SMP)
  - Landscape Management Plan (LMP)
  - Operational Wildlife Management Plan (OWMP)
  - o Operational Waste Management Plan (OWaMP).
- The Development Consent, including Appendix 5 Applicant's Management and Mitigation Measures.

This WOEMP identifies the environmental management measures to be applied to the operation of the Warehouse, as described in Section 5, to manage the environmental risk of operation. The WOEMP includes the following documents:

- Warehouse Waste Management Plan (WWMP)
- Transport Access Guide (TAG) for the Warehouse.

### **1.3 Objectives**

The objectives of this WOEMP are:

- Identify and implement relevant environmental legal and other regulatory requirements applicable to the operation of the Warehouse.
- Identify the environmental activities and impacts associated with operation of the Warehouse and provide management measures to minimise and manage impacts on the environment and community.
- Establish and define environmental roles and responsibilities.
- Develop procedures to receive, handle, respond, record and resolve complaints, disputes and respond to any non-compliance.
- Assign responsibility for the implementation, management, and review process of the WOEMP.
- Provide a consistent and uniform approach to site environmental management such that the required standards for environmental protection are attained and maintained for the duration of the operation of the Warehouse.
- Provide all operational personnel with sufficient information to undertake their activities in accordance with legal and other relevant environmental requirements.
- Provide a framework for training, development, and support (systems, procedures, and documentation) necessary to undertake operations.



All [Tenant] employees, sub-contractors and visitors are required to comply with the requirements of this WOEMP at all times.

## **1.4 Consultation**

This WOEMP has been prepared in consultation with ESR, the managers of the Development.

# **1.5 Distribution and Availability**

This WOEMP will be distributed to staff with specific responsibilities under this WOEMP and will also made available to all Warehouse operational staff. A hard copy will be kept in the Warehouse.

### **1.6 Document Structure**

The structure of this WOEMP is summarised below:

- Section 1 provides a brief overview of the Warehouse and the purpose of this WOEMP.
- Section 2 provides a summary of Warehouse operations.
- **Section 3** outlines the statutory requirements and obligations which need to be fulfilled during operations.
- Section 4 provides a description of the roles and responsibilities for employees involved in operations. This section also outlines the environmental objectives and targets, and relevant training and inductions required so that employees and others are aware of their environmental obligations.
- **Section 5** provides the environmental risk analysis which identifies the key environmental risks for Warehouse operations.
- **Section 6** provides the monitoring, reporting, and auditing requirements and management of any environmental incidents and non-compliance.

The WOEMP includes the WWMP and TAG for the Warehouse.



### 2 WAREHOUSE [No.] OPERATIONS

#### 2.1 Warehouse Operations

The Warehouse is operated by [Tenant]. The Warehouse will operate on a 24 hours per day/7 days per week basis as allowed under CoC B47 of the Development Consent.

[Describe Warehouse design and operations, including:

- Address
- Total operational area and Gross Floor Area
- Internal storage design (e.g. racks)
- Operational activities
- Operational equipment
- Transport details (e.g. vehicle types and daily movements)
- Ancillary facilities (e.g. stormwater management, wastewater management, waste management facilities)
- Whether dangerous goods will be stored on-site

Refer to Figure 2-1.]

Figure 2-1: Warehouse [No.] layout

[insert figure showing Warehouse design layout]

#### **2.2 Interface of Operation and Construction Areas**

The operation of the Development will be progressive, and as such, the Warehouse will be adjacent to construction areas and other warehouses. The construction areas will be delineated by fencing and will be subject to approved Construction Environmental Management Plans. All warehouses will also be fenced and will operate under a warehouse-specific WOEMP. If [Tenant] suspects that the construction or operational activities being undertaken by others are affecting the implementation of this WOEMP, this will be reported to ESR for resolution.



### **3 STATUTORY REQUIREMENTS**

The operation of the Warehouse is required to comply with all relevant legislation, permits, licences and development approvals applicable to the Development.

A copy all relevant statutory documentation registers is available at the Warehouse and will be readily available for relevant regulatory officers, the Certifying Authority and operational staff.

### 3.1 Development Approvals

The operation of the Development, including the Warehouse, is approved by the Development Consent granted under the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Development Consent includes general CoC and CoC relevant to operations. Compliance with the relevant CoC is outlined in the compliance matrix in Appendix A.

### 3.2 Legislation

The regulatory framework to identify relevant legislative instruments, their key objectives and relevance to the operation of the Warehouse are outlined in Appendix B.

This list will be revised and updated in conjunction with the WOEMP review outlined in Section 6.6 or when there has been a change to relevant legislation.

As noted in CoC A16, an occupation certificate will be obtained under Part 6 of the EP&A Act prior to the occupation of the Warehouse.

In addition to complying with relevant legislation, industry best practice can be achieved through the adherence to relevant Australian Standards and NSW guidelines.

### **3.3 Permits and Licences**

Permits and licences relevant to Warehouse operations are detailed in Appendix C. This register will be revised and updated in conjunction with the management review outlined in Section 6.6, or when there has been a change to relevant legislation.

Compliance conditions relating to items listed on this register are incorporated into this WOEMP.

#### 3.3.1 Environmental Protection Licence

The operation of the Warehouse will be undertaken in accordance with the requirements of the *Protection of the Environment and Operations Act 1997* (POEO Act). Pursuant to Schedule 1 Clause 39(2)(e), the Warehouse does not include works classified as a scheduled activity, therefore an environmental protect licence (EPL) is not required. If any modification to the operation of the Warehouse resulting in the need for an EPL, this WOEMP will be updated to address requirements.

#### 3.3.2 Utilities and roadworks agreements and approvals

If any adjustments or relocations of a public utility are required during operations, approval from the relevant utility service providers will be sought by [Tenant] prior to undertaking the works.



Pre-operations utilities requirements are listed below:

- A Section 73 Compliance Certificate from Sydney Water Corporation for water and sewerage infrastructure will be obtained prior to the commencement of operation, as required by CoC A31.
- Before the issuing of the Occupation Certificate for the Warehouse, ESR will demonstrate that the carrier has confirmed in writing it is satisfied that the fibre-ready facilities are fit-for-purpose, as required by CoC A33.
- Before the issuing of the Occupation Certificate for the first warehouse building, workas-executed drawings signed by a registered surveyor demonstrating that the street trees, stormwater drainage (including operation and maintenance management plans) and finished ground levels have been constructed as approved, must be submitted to the Principal Certifier, under CoC A34.
- Prior to the commencement of the operation of the Development, ESR will complete the upgrades to Abbotts Road to the satisfaction of Penrith City Council, as required by CoC B4.
- Prior to the commencement of operation of the first warehouse building, the upgrade works to the Mamre Road and Abbotts Road intersection, Abbotts Road and Aldington Road intersection and internal access roads will be completed to the satisfaction of the relevant roads authority, as required by CoC B11 and B12.
- Prior to the commencement of operation, the Development will be connected to the road drainage infrastructure for the upgraded Aldington and Abbotts Roads, to ensure the Development does not increase flood flows and velocities on adjoining properties for all flood events up to and including the critical 1% Annual Exceedance Probability flow, under CoC B37.

#### 3.3.3 Dangerous Goods

#### [This section can be deleted if DG storage is not proposed.]

The storage of any dangerous goods (DG) at the Warehouse and their transport to or from the Warehouse by road will comply with the following:

- *Managing risks of hazardous chemicals in the workplace* (SafeWork NSW, December 2020)
- State Environmental Planning Policy (Resilience and Hazards) 2021
- Hazardous and Offensive Development Guidelines Applying SEPP 33 (Department of Planning, January 2011)
- Storing and Handling of Liquids: Environmental Protection Participants Manual (Department of Environment and Climate Change, 2007).

DG will be received and stored within the Warehouse in accordance with CoC B89 and CoC B90.

Drivers transporting dangerous goods will be appropriately trained and vehicles will have relevant permits in accordance with current legislation. Copies of permits and a register will be maintained on site and will be updated as required.



# 3.4 Guidelines

This WOEMP has been prepared in accordance with *Environmental Management Plan Guideline – Guideline for infrastructure Projects* (DPE, 2020).

The following guidelines will be applied to engineering designs prepared for any alterations or additions to the Warehouse or other structures:

- Design Guidelines for Engineering Works for Subdivisions and Developments (Penrith City Council, 20 November 2013)
- Engineering Construction Specification for Civil Works (Penrith City Council, 31 October 2013)
- Austroads Guide to Road Design.



### 4 ENVIRONMENTAL MANAGEMENT

### 4.1 [Tenant] Environmental Management System

[Outline Tenant EMS and how it will apply to Warehouse operations.

Include new Section 4.2 outlining Tenant sustainability commitments and approach as it applies to Warehouse operations.]

### 4.2 [Tenant] Sustainability Framework

[Outline Tenant Sustainability Framework and how it will apply to Warehouse operations.

This section could be combined with Section 4.1 if the Tenant has an integrated management system covering environment, health safety and quality.]

Refer to Figure 4-1.]

Figure 4-1 Tenant Sustainability Framework

[insert figure showing Warehouse design layout]

### 4.3 Operational Environmental and Sustainability Objectives and Targets

Operational environmental and sustainability objectives and targets for the Development are set in the OEMP. Table 4-1 lists the objectives and targets relevant to the operations of the Warehouse.

[Complete table, adding any Tenant- and Warehouse-specific objectives and targets]

Table 4-1: Operational environmental and sustainability objectives and targets

Objectives	Targets	Timeframe	Responsibility	Monitoring Method

### 4.4 Roles and Responsibilities

The interaction between the organisations involved in the operation of the Warehouse is shown in Figure 4-2.

[Update figure as required.]



Figure 4-2: Organisations involved in Warehouse operations

#### [Include organisation chart]

All personnel undertaking operational activities at the Warehouse are responsible for the implementation of this WOEMP and have the responsibility to stop works if there is potential for a safety or environmental incident to occur. In addition, certain operational roles have specific responsibilities under this WOEMP as detailed in Table 4-2.

[Update table as required – all responsibilities should be assigned to a Tenant operational role.]

#### Table 4-2: Warehouse roles and responsibilities

Role	Responsibilities
Warehouse Manager	<ul> <li>Responsible for the environmental performance of Warehouse operations and compliance with all consents, licences and permits and the conditions of tenancy agreements</li> </ul>
	<ul> <li>Track compliance with the relevant requirements and provide compliance reports to ESR as required</li> </ul>
	<ul> <li>Provides sufficient resources to implement, develop and maintain the WOEMP throughout the operating life of the Warehouse</li> </ul>
	<ul> <li>Reviews and approves changes to the WOEMP</li> </ul>
	<ul> <li>Promotes [Tenant's] environmental policies and is responsible for their implementation within the areas of responsibility</li> </ul>
	<ul> <li>Communicates the requirements of the WOEMP and environmental obligations to operational team</li> </ul>
	<ul> <li>Reports relevant environmental matters to personnel and include them in the agenda of management meetings</li> </ul>
	<ul> <li>Implements stop work procedures where they believe a work activity to be an actual or potential cause of material harm or pollution to the environment anywhere within the Warehouse</li> </ul>
	<ul> <li>Notifies ESR and relevant authorities, and other land holders if relevant, of reportable environmental and pollution incidents</li> <li>Supports ESR in communications with stakeholders and the community as requested.</li> </ul>
Area Managers	<ul> <li>Stops operational processes within the area of responsibility to prevent environmental non-compliances from occurring or continuing</li> </ul>
	<ul> <li>Co-ordinates and directs resources to manage responses to incidents</li> </ul>
	<ul> <li>Monitors operations against the requirements of the WOEMP and CoC and takes action to resolve issues where required</li> </ul>
	<ul> <li>Where required, implements changes to operational processes to manage ongoing compliance</li> </ul>
	<ul> <li>Reports incidents to the Warehouse Manager in accordance with the WOEMP</li> </ul>
	<ul> <li>Monitors any environmental impacts arising from construction areas adjacent to Warehouse and reports issues to the Warehouse Manager if these impacts raise compliance concerns for this WOEMP.</li> </ul>
Warehouse Health Safety &	Acts as the primary contact point in relation to environmental performance of Warehouse operations



Role	Responsibilities
Environment (HSE) Manager	<ul> <li>Defines documents and communicates roles, responsibilities and authorities of all personnel to facilitate effective HSE management</li> </ul>
	<ul> <li>Provides advice on matters specified in the CoC and other relevant licenses and permits relating to the environmental performance and impacts</li> </ul>
	<ul> <li>Reviews and ensures implementation of the WOEMP and monitoring programs required under the CoC and other relevant permits and licences</li> </ul>
	Revises the WOEMP as required
	• Has the authority and independence to require reasonable steps be taken to avoid or minimise unintended or material environmental harm and failing the effectiveness of such steps, to direct that relevant operational processes be ceased immediately should an adverse impact on the environment be likely to occur
	<ul> <li>Reports environmental incidents to Area Manager and Warehouse Manager where required, in accordance with the incident reporting system outlined in the WOEMP</li> </ul>
	Acts as the 24-hour EPA contact
	<ul> <li>Monitors operations against the WOEMP through regular site inspections to evaluate compliance</li> </ul>
	<ul> <li>Monitors environmental control strategies for deficiencies and implements resolutions and monitors work activities until deficiencies are rectified</li> </ul>
	<ul> <li>Receives and responds to complaints and inquiries in relation to the environmental performance of Warehouse operations</li> </ul>
	<ul> <li>Facilitates the inductions and training program for relevant persons involved with operations</li> </ul>
	<ul> <li>Maintains the register of environmental complaints and the subsequent remedial action</li> </ul>
	<ul> <li>Maintains a register of accidents, incidents and potential incidents with actual or potential significant off-site impacts on people or the biophysical environment.</li> </ul>
All operational personnel	<ul> <li>Undertake operational activities in a manner that minimises the potential for pollution of land, air, water, community amenity, and/or the generation of waste or threatens to cause material harm</li> </ul>
	<ul> <li>Take all feasible and reasonable steps to comply with the requirements of this WOEMP</li> </ul>
	<ul> <li>Comply with lawful management directions to prevent environmental harm or enhance protection of site environmental values</li> </ul>
	Stop works if there is a potential risk of material harm to the environment
	<ul> <li>Promptly report to management on any perceived or actual non-compliances, or environmental incidents</li> </ul>
	• Attend inductions and environmental awareness training as required.

### 4.5 Training and Competence

All Warehouse personnel and visitors are to complete inductions, general environmental awareness training and training relevant to their responsibilities under the WOEMP; the level of which would be dependent on the exposure to environmental hazards and their involvement in environmental management. Table 4-3 outlines environmental training requirements.



# [Update table as required – all responsibilities should be assigned to a Tenant operational role.]

Table 4-3: Environmenta	l training	requirements
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Training	Content	Trainees
General induction	<ul> <li>OEMP awareness</li> <li>[Tenant's] Environmental [and Sustainability] Policy</li> <li>Environmental obligations</li> <li>Roles and responsibilities relating to environmental management for operations</li> <li>Key environmental issues, for example, location of sensitive areas and nearest sensitive receivers</li> <li>Incident response and reporting procedures, including spill control, containment and clean up and protection of stormwater infrastructure</li> <li>Details of environmental protection offences and penalties, and duty to notify of environmental harm</li> <li>Evacuation procedures.</li> </ul>	Operations personnel (staff and contractors)
Environmental training	<ul> <li>Examples of environmental training include:</li> <li>Environmental monitoring and management (e.g. air, water, soil and noise)</li> <li>Environmental compliance, auditing and inspection</li> <li>Natural resource management</li> <li>Occupational hygiene monitoring (e.g. air, noise and radiation)</li> <li>Water supply and treatment, storm and wastewater management</li> <li>Solid and hazardous waste management</li> <li>Site remediation or rehabilitation</li> <li>Resource efficiency (e.g. energy, water and waste auditing)</li> <li>Dangerous goods training will be required for personnel handling dangerous goods.</li> </ul>	Operations personnel with specific environmental management responsibilities
Visitor induction	<ul> <li>WOEMP awareness</li> <li>[Tenant's] Environmental [and Sustainability] Policy</li> <li>Environmental obligations</li> <li>Environmental issues and management relevant to operations</li> <li>Key environmental constraints</li> <li>Evacuation procedures</li> <li>Recognising actual or potential incidents</li> <li>Incident reporting protocols.</li> </ul>	Warehouse visitors

#### 4.6 Community and Stakeholder Communications

A Community and Stakeholder Communications Strategy (CSCS) (Ethos Urban, May 2023) has been prepared for the Development. This strategy outlines measures to enable effective communication with the community throughout the life cycle of the Development, including operations, to:

- keep the local community and relevant agencies informed about the operation and environmental performance of the Development
- receive, handle, respond to, and record complaints



- resolve any disputes that may arise
- respond to any non-compliance
- respond to emergencies.

The CSCS identifies potential traffic and noise impacts as the key community issues related to the Development during operations.

A range of communications channels will be used to communicate with the community including:

- The Development website au.esr.com/available-space/westlink/
- The Development hotline 1800 270 980
- The Development email <u>aus\_development@au.esr.com</u>
- Letterbox notifications
- Door knocking
- Media announcements
- Contact register.

The ESR Stakeholder Manager will manage all community liaison in accordance with the CSCS. Complaints will be received via the hotline and email address listed above and will be managed in accordance with the CSCS.

[Tenant] will support ESR to implement the CSCS, as required, and in particular the management of complaints and damage to third-party property or infrastructure.



#### **5 WOEMP IMPLEMENTATION**

The Warehouse will be operated in accordance with this WOEMP.

This section addresses the key environmental aspects and impacts associated with Warehouse operations and details the measures that will be implemented to manage environmental risks.

Contractors and service providers undertaking Warehouse operational activities on behalf of [Tenant] will be required to work under this WOEMP but may use their own business and risk management systems and processes to develop any necessary site-specific environmental management documentation and induction materials, taking into account the activity risk assessment, any relevant mitigation measures and any site / task specific risks that may require other or additional mitigation measures and controls to be applied.

As per Section 4.5, Warehouse personnel and contractors are to be trained in the requirements of this WOEMP to enable the environmental risks to be managed as required.

### **5.1 Environmental Aspects and Impacts**

Environmental aspects, impacts and opportunities associated with the Development were identified and assessed in the EIS (Ethos Urban, June 2021) and Amendment Report (Ethos Urban, September 2022). The key environmental aspects and impacts for the development during operations are listed in Table 5-1.

Aspect	Potential Environmental Impact	Significance of Impact*	Manageability of Impact	Residual Impact
Air and water quality	Potential for reduced air and water quality during operation of industrial activities	Minor	Standard	Low/Medium
Ecology	Impact on flora and fauna during operation	Minor	Standard	Low/medium
Flooding	Potential flooding impacts to the proposed development	Low	Simple	Low
Heritage	Potential physical and visual impacts on heritage items	Minor	Standard	Low/Medium
	Potential impacts to archaeology and artefacts			
Noise and vibration	Increase in noise levels during operation	Minor	Standard	Low/Medium
Traffic and parking	Increase in traffic and parking during operation	Moderate	Elementary	Medium
Visual and built form	Visual impact of the development when viewed from adjoining properties and public areas	Minor	Simple	Low

Table 5-1: Key environmental aspects and impacts during operation

\* Significance of impact was provided in the EIS (Ethos Urban, June 2012).



### **5.2 Environmental Management Measures**

Environmental management measures to be implemented during Warehouse operations are documented in Table 5-2. The implementation of these measures will enable compliance with relevant statutory requirements, limits, performance measures and criteria, and the management of environmental aspects and impacts for the Warehouse in accordance with the requirements of the OEMP and Sub-Plans.

[Include responsibilities in table]



Responsibility

#### Table 5-2: Environmental management measures

#### Mitigation Measure

Aboriginal heritage

If any item or object of Aboriginal heritage significance is identified at the Warehouse during operations:

- operations in the immediate vicinity of the suspected Aboriginal item or object will cease immediately
- a 10m wide buffer area around the suspected item or object will be cordoned off
- Heritage NSW will be contacted immediately.

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

#### Air quality

All reasonable steps will be undertaken to minimise dust generated during Warehouse operations.

The Warehouse will be operated to prevent the emission of any offensive odour (as defined in the POEO Act).

Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.

Unnecessary idling for vehicles will be avoided with engines being turned off during periods of inactivity.

Confirm truck maintenance is up to date

**Biodiversity** 

The relevant requirements of the Operational Wildlife Management Plan (OWMP) will be implemented during Warehouse operations.

#### **Bushfire**

Any alterations to the Warehouse will comply with:

- the relevant provisions of *Planning for Bushfire Protection* (NSW RFS, 2019)
- the recommendations of the Bushfire Protection Assessment (Australian Bushfire Protection Planners, 3 March 2022)
- AS2419.1-2005 Fire hydrant installations System design, installation, and commissioning.

Manage Warehouse landscaping as an inner protection area (IPA) in accordance with *Planning for Bushfire Protection* (NSW Rural Fire Service, 2019).

Any alterations to the Warehouse will be constructed in accordance with the Bushfire Attack Level (BAL) plan shown in Appendix 4 of the Development Consent and relevant sections of AS 3959-2018 *Construction of buildings in bush fire prone areas* or NASH Standard (1.7.14 updated) *National Standard Steel Framed Construction in Bushfire Areas – 2014* as appropriate, and Section 7.5 of *Planning for Bushfire Protection* (NSW Rural Fire Service, 2019).



#### **Mitigation Measure**

#### Responsibility

#### Lighting

Warehouse lighting will be maintained so that it does not create a nuisance to surrounding properties or the public road network.

#### Landscaping

Implement the requirements of the LMP relevant to the Warehouse including maintaining the landscaping and vegetation on the Warehouse site.

#### Noise and vibration

Noise generated by operation of the Warehouse will enable the Development to meet the noise limits in CoC B52 of the Development Consent (unless a Noise Agreement is in place under CoC B56).

Noise generated by fixed external mechanical plant at the Warehouse will not exceed a cumulative sound power level of  $L_{Aeq(15min)}$  90 dB(A) [for Warehouse 1]  $L_{Aeq(15min)}$  86 dB(A) [for Warehouse 4] and any activity at the Warehouse will not exceed a sound power level of  $L_{AMax}$  115 dB(A) or result in annoying noise characteristics, as determined in accordance with the *Noise Policy for Industry* (EPA, 2017) and *AS 1055:2018 Acoustics – Description and measurement of environmental noise* (Standards Australia, 2018).

#### **Non-Aboriginal heritage**

If any non-Aboriginal archaeological relics is identified at the Warehouse during operations:

- all work in the immediate vicinity of the suspected relic(s) will cease immediately
- Heritage NSW will be contacted immediately
- the suspected relic(s) will be evaluated, recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW.

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

#### Pests, vermin and priority weed management

The relevant requirements of the OWMP will be implemented during Warehouse operations.

#### Plant and equipment

All plant and equipment used at the Warehouse or used to monitor environmental performance will be maintained in a proper and efficient condition and operated in a proper and efficient manner.

#### Signage

All Warehouse signage will be maintained in accordance with the Signage Strategy.



Responsibility

#### **Mitigation Measure**

#### Traffic

The Warehouse will include sufficient parking facilities on-site in accordance with the Mamre Road Precinct Development Control Plan (MRP DCP), including for heavy vehicles and for site personnel, to ensure that traffic associated with the Warehouse does not use public and residential streets or public parking facilities.

Bicycle parking and end of trip facilities will be maintained in the Warehouse in accordance with AS1742.9:2018 Manual of Uniform Traffic Control Devices – Bicycle Facilities, and the cycling aspects of Austroads Guide to Road Design. Bicycle parking and storage facilities will be secure, convenient, well lit, physically and visually accessible and within close proximity to the Warehouse entrance in accordance with Austroads Guide to Road Design.

A minimum of 5% of parking bays at the Warehouse will be maintained with electric vehicle charging, with an additional 5% to be adapted to meet demand.

Maintain all internal roads, driveways and parking in accordance with Australian Standards (AS 2890.1:2004, AS 2890.2:2018 and AS 2890.6.2009).

The swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, will be in accordance with the relevant Austroads *Guide to Road Design*.

Implement the Driver Code of Conduct during Warehouse operations and include in induction training for Warehouse employees and contractors.

Vehicles travelling to or from the Warehouse will not queue on the public road network.

Heavy vehicles and/or bins associated with Warehouse operations will not park on local roads or footpaths in the vicinity of the site.

All loading and unloading of materials will be carried out on the Warehouse site.

All trucks entering or leaving the Warehouse with loads will have their loads covered.

Turning areas in the Warehouse car park will be kept clear of any obstacles, including parked cars, at all times.

All vehicles accessing and departing the Warehouse from/to Mamre Road must travel via Abbotts Road and not Bakers Lane, until the completion of the ultimate upgrade of Aldington Road and delivery of the Southern Link Road.

Approval from the National Heavy Vehicle Regulator (NHVR) and Penrith City Council's Asset Section will be obtained if the use of a 30m Performance Based Standard (PBS) Level vehicle on local roads is proposed.

The WTP will be implemented at the Warehouse, including the preparation of the TAG and its communication to Warehouse employees and visitors.



Responsibility

#### **Mitigation Measure**

#### Warehouse and structure alterations

Any alterations or additions to the Warehouse and any other structures will be constructed in accordance with the relevant requirements of the National Construction Code (NCC).

Engineering plans for alterations or additions to the Warehouse or other structures will be prepared in accordance with the Development Consent, Penrith City Council's *Design Guidelines for Engineering Works for Subdivisions and Developments* and *Engineering Construction Specification for Civil Works*, and Austroads Guidelines.

The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the Building Code of Australia (BCA).

Any alterations or additions the warehouses and any other structures will retain finished facades and roofs using neutral, recessive colours, non-reflective materials and be designed to present an attractive façade to residential areas and to minimise glare.

#### Waste management

The OWaMP and the WWMP will be implemented during Warehouse operations, including:

- Securing and maintaining waste within designated waste storage areas and preventing waste leaving the site onto neighbouring public or private properties
- Classifying all liquid and non-liquid wastes to be taken off site in accordance with Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) and disposing of all wastes to waste management facilities or premises lawfully permitted to accept the waste
- All waste bins are to be designed and installed with fixed lids and any bulk waste receptacle or communal waste storage area will be contained within enclosures that cannot be accessed by wildlife in accordance with section 2.11 of the MRP DCP.

#### Water quality and flooding

The Warehouse will operate in compliance with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.

Implement the relevant requirements of the Stormwater Management Plan (SMP).



# 5.3 Environmental Incident and Emergency Response

#### 5.3.1 Environmental incidents

An environmental incident is defined in the Development Consent as an:

occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.

Material harm is defined as:

Harm that:

- (a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or
- (b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).

Environmental incidents can be identified by anyone and are to be reported to the Warehouse Manager immediately. The Warehouse Manager will then notify ESR immediately.

Under CoC C10, ESR must notify the Planning Secretary in writing via the Major Projects website immediately after ESR becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 6 of the Development Consent.

Incident reports (including complaints) of damage to third party property or infrastructure due to operations will be treated as an incident. The initial response will follow the complaints process, as outlined within the CSCS, however investigations and potential rectifications will be undertaken as per the incident management process. Dispute resolution is outlined within the CSCS.

Where a pollution incident causes or threatens material harm to the environment or human health, the following authorities must also be notified immediately under the POEO Act:

- EPA
- Penrith City Council
- The Ministry of Health (via Public Health Units)
- SafeWork NSW (formerly WorkCover)
- Fire and Rescue NSW.

Within 30 days of the date on which the incident occurred (or as otherwise agreed to by the Planning Secretary), ESR must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident, addressing all requirements within Appendix 5 of the Development Consent, and such further reports as may be requested.

[Describe Tenant's incident review and reporting procedure to enable ESR to meet the requirements of CoC C10 and Appendix 6 of the Development Consent.]



#### 5.3.2 Environmental emergencies

An environmental emergency is any event that causes or has the potential to cause material harm to the environment.

#### [Describe Tenant's emergency response procedure and update table]

For reference, emergency contact details are provided in Table 5-3. ESR have nominated an emergency contact and an alternate contact that are available 24-hours a day, seven days a week.

Contact	Phone Number	Address
Ambulance	000	N/A
Fire Brigade	000	N/A
Police	000	N/A
NSW EPA Pollution Hotline	131 555	N/A
DPE	1300 305 695	N/A
NSW Department of Health (local Public Health Unit)	9391 9000	N/A
SafeWork NSW	13 10 50	N/A
Penrith City Council	4732 7777	601 High St, Penrith NSW 2750
ESR Development Manager		
Warehouse Manager		
Warehouse HSE Manager		

Table 5-3: Emergency contact details



### 6 ENVIRONMENTAL MONITORING AND REVIEW

### 6.1 Environmental Monitoring

Environmental monitoring will be undertaken to assist in the management of the following:

- Operation of the Warehouse in accordance with the relevant conditions of the Development Consent
- Compliance with relevant legislative requirements
- The minimisation of potential environmental incidents
- Effectiveness of environmental management measures
- Implementation of this WOEMP.

Monitoring requirements for Warehouse operations are detailed in Table 6-1. References are provided to the relevant CoC and the OEMP and Sub-Plans (that include details of the monitoring required).

[Tenant to update table with responsibilities.]

Aspect	Monitoring required	Frequency/ Timing	Responsible	Reference
Noise and vibration	Monitoring of operational noise under the Operational Noise Monitoring Plan (ONMP)	Operations		CoC B52 and B54(e) and ONMP
Traffic	Monitoring of vehicle numbers and effectiveness of the traffic management measures to the satisfaction of the Planning Secretary under the Operational Traffic Monitoring Plan (OTMP)	For a minimum of 12 months of operation		CoC B 3A and OTMP
Waste	Waste generated, disposal methods, recycling and storage under WWMP	Weekly in first two months of the operation and every six months after that		CoC B91, PWWMP and WWMP
Wildlife	Monitoring of bird, megabats and vegetation under the OWMP	Operations		CoC B88 and OWMP
[Other?]				

Table 6-1: Warehouse environmental monitoring requirements

### 6.2 Environmental Auditing and Inspections

#### 6.2.1 Environmental audit requirements

ESR will undertake an internal Health, Safety, Security and Environment audit of the Development annually. Audits will involve a review of all environmental documents, records and reports to evaluate compliance with the Development Consent, OEMP and Sub-Plans.

[Tenant] will make operational staff available for these internal audits and provide operational records as requested by ESR, including:


- Records of contact with the community and stakeholders
- Incident, non-compliance and corrective action records
- Environmental monitoring records
- Waste management records and reports
- WOEMP audit documentation.

[Add details of Tenant internal audit requirements.]

## 6.2.2 Environmental inspections

[Add details of Tenant environmental inspections.]

## 6.3 Non-compliance and Actions

A non-compliance is defined in the Development Consent as an:

occurrence, set of circumstances or development that is in breach of the consent.

Potential non-compliances with the CoC, the OEMP and Sub-Plans can be identified by anyone and are to be reported to ESR as a potential non-compliance. ESR must report non-compliances and potential non-compliances to the Planning Secretary immediately.

Non-compliances will be investigated to determine the root cause and any corrective and/or preventative actions arising from the investigation. A Non-Compliance Report will be prepared and any corrective and/or preventative actions will be recorded.

In accordance with CoC C11, the Planning Secretary will be notified via the Major Projects website within seven days after ESR becomes aware of any non-compliance. As per CoC C12, the notification must identify the development and the application number for it, set out the CoC that the development is non-compliant with, the way in which it does not comply, the reasons for the non-compliance (if known), and what actions have been, or will be, undertaken to address the non-compliance.

Note that under CoC C13, a non-compliance which has been notified as an environmental incident does not need to also be notified as a non-compliance.

[Tenant] will report non-compliances and potential non-compliances to ESR immediately and support ESR during the investigation of non-compliances to meet the timeframes required by the Development Consent.

[Add details of Tenant non-compliance reporting and investigation requirements.]

## 6.4 Environmental Reporting

The reporting of environmental performance during Warehouse operation will be undertaken as required by the Development Consent, OEMP and Sub-Plans. Environmental reporting required for the Warehouse is detailed in Table 6-2.

### [Add responsibilities in table]

Report	Timing/Frequency	Responsibility	Reference
Incident Report	Within 20 days of the date on which the incident occurred		C10
Noise and Vibration	Monitoring of operational noise		CoC B52, B54 (e)

#### Table 6-2: Environmental reporting



Report	Timing/Frequency	Responsibility	Reference
Monitoring Report	under the ONMP		and ONMP
Traffic Monitoring Report	For a minimum of 12 months of operation		CoC B3A and OTMP
Waste Monitoring Report	Weekly in first two months of operation and every six months after that		CoC B91, PWWMP and WWMPs
Wildlife Monitoring Report	As required in OWMP		CoC B88 and OWMP
[Other?]			

## 6.5 Document Control and Records

[Tenant] and warehouse contractors are responsible for maintaining clear environmental records to demonstrate compliance with this WOEMP, including where relevant:

- All monitoring records and reports
- Internal audit reports
- Reports of pollution incidents, environmental non-compliances and follow-up actions
- Reports of environmental complaints and follow-up actions
- Minutes of relevant meetings, and actions required as a result
- Induction and training records.

All documentation, including environmental records, is to be controlled in accordance with the [Tenant] document control system and contractual requirements.

[Tenant] will make all relevant records available for inspection by ESR and/or an environmental auditor where requested.

## 6.6 WOEMP Review and Revision Program

To meet the requirements of CoC C1(d) and (f) for the OEMP and Sub-Plans, ESR will implement a review program to:

- Monitor and report on the:
  - o Impacts and environmental performance of the Development
  - $\circ~$  Effectiveness of the management measures included in the OEMP and Sub-Plans
- Investigate and implement ways to improve the environmental performance of the Development over time.

This review will be undertaken by ESR, in consultation with warehouse tenants, on an annual basis following the initial environmental audit. An Environmental Review Report recommending measures to improve the environmental performance of the Development will be produced by the review.



CoC C8 also states that all strategies, plans and programs required under the Development Consent will be reviewed and the Planning Secretary notified of the review within three months of:

- The submission of a Compliance Report under CoC C14 (applies to construction only)
- The submission of an incident report under CoC C10
- The approval of any modification of the conditions of the Development Consent
- The issue of a direction of the Planning Secretary under CoC A2(b) which requires a review.

Although this WOEMP is not specifically required by the Development Consent, [Tenant] will review this WOEMP following:

- The approval of the Operational Noise Verification Report under CoC B57
- The receipt of an Environmental Review Report from ESR
- The submission of an incident report under CoC C10
- The approval of any modification of the conditions of the Development Consent
- The issue of a direction of the Planning Secretary under CoC A2(b) which requires a review.

All employees and contractors will be informed of any revisions to the WOEMP during toolbox talks.



## REFERENCES

[Tenant to add additional references as appropriate.]

AS 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018).

AS 2419.1:2005 Fire hydrant installations System design, installation, and commissioning (Standards Australia, 2005).

AS 2890.1:2004 Parking facilities Off-street car parking (Standards Australia, 2004).

AS 2890.6:2009 Parking facilities Off-street parking for people with disabilities (Standards Australia, 2009).

AS 2890.2:2018 Parking facilities Off-street Commercial Vehicle Facilities (Standards Australia, 2018).

AS 3959:2018 Construction of buildings in bush fire prone areas (Standards Australia, 2018).

Australian Bushfire Protection Planners (3 March 2022) Bushfire Protection Assessment.

Austroads Guide to Road Design.

Department of Environment and Climate Change (2007) *Storing and Handling of Liquids: Environmental Protection – Participants Manual.* 

Department of Planning (January 2011) *Hazardous and Offensive Development Guidelines – Applying SEPP 33*.

Department of Planning and Environment (September 2022) *Technical guidance for achieving Wianamatta-South Creek stormwater management targets*.

Department of Planning, Industry and Environment (2020) *Environmental Management Plan Guideline – Guideline for infrastructure Projects*.

EPA (2014) Waste Classification Guidelines Part 1: Classifying Waste.

EPA (2017) Noise Policy for Industry.

Ethos Urban (15 September 2022) SSD-9138102: Westlink Stage 1 – Amendment Report.

Ethos Urban (17 June 2021) *Environmental Impact Statement – 290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek – Westlink Industrial Estate.* 

Ethos Urban (May 2023) Community and Stakeholder Communications Strategy.

Geoscapes (12 April 2022) ESR – Westlink Stage 1 – SSD 9138102 – Visual Impact Assessment Report.

Landcom (March 2004) *Managing Urban Stormwater: Soils and Construction – Volume 1* (the "Blue Book").



National Association of Steel-Framed Housing (2014) *National Standard – Steel Framed Construction in Bushfire Areas*.

NSW Rural Fire Service (2019) Planning for Bushfire Protection.

Penrith City Council (31 October 2013) *Engineering Construction Specification for Civil Works*.

Penrith City Council (20 November 2013) *Design Guidelines for Engineering Works for Subdivisions and Developments*.

SafeWork NSW (December 2020) *Managing risks of hazardous chemicals in the workplace*.

Sydney Water (December 2022) Mamre Road Stormwater Scheme Plan.

Sydney Water (December 2022) Stormwater Scheme Infrastructure Design Guideline.



Appendix ADevelopment Consent Compliance Matrix



# **Development Consent Compliance Matrix**

Ref	Condition	How addressed		
Part	Part A ADMINISTRATIVE CONDITIONS			
A1	In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.	This WOEMP has been developed to prevent/minimise any material harm to the environment		
A2	The development may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Planning Secretary; (c) in accordance with the EIS, RTS, ADR and additional information; (d) in accordance with the Development Layout in Appendix 1; and (e) in accordance with the management and mitigation measures in Appendix 5;and (f) in accordance with the Modification Assessment	This WOEMP has been developed to comply with the relevant requirements of these documents		
A3	Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to: (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and (b) the implementation of any actions or measures contained in any such document referred to in condition A3(a).	Section 6.6 details when revisions of the WOEMP may be undertaken including upon written direction by the Planning Secretary		
A4	The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c) or A2(e). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c) or A2(e), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.	Noted		
A5	This consent lapses five years after the date from which it operates, unless the development has physically commenced on the land to which the consent applies before that date.	Noted		

#### Ref Condition

Land Use

A7

8A

A9

A10

A6 The maximum GFA for development on the site must not exceed the limits in Table 1.

 Table 1 Maximum GFA of the Development

Warehouse or distribution centres 79.031 Ancillary offices 2,286 81,317 Total The date of commencement of each of the following phases of the development must be notified to the Planning Secretary in writing, at least one month before that date, or as otherwise agreed with the Planning Secretary: (a) construction; (b) operation; and (c) cessation of operations. If the construction or operation of the development is to be staged, the Planning Secretary must be notified in writing, at least one month before the commencement of each stage (or other timeframe agreed with the Planning Secretary), of the date of commencement and the development to be carried out in that stage. Where conditions of this consent require consultation with an identified party, the Applicant must: (a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and (b) provide details of the consultation undertaken including: (i) the outcome of that consultation, matters resolved and unresolved; and (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved. With the approval of the Planning Secretary, the Applicant may: (a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program); (b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and (c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under

Maximum GFA (m<sup>2</sup>)

.....

Noted

Noted

Noted

NA

NA

How addressed

ASPECT



Ref	Condition	How addressed
	this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).	
A11	If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.	NA
A12	If approved by the Planning Secretary, updated strategies, plans or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.	Noted
A13	Before the commencement of construction of the development, the Applicant must: (a) consult with the relevant owner and provider of services that are likely to be affected by the development to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure; (b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and (c) submit a copy of the dilapidation report to the Planning Secretary and Council.	NA
A14	Unless the Applicant and the applicable authority agree otherwise, the Applicant must: (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.	Noted
A15	All demolition must be carried out in accordance with Australian Standard AS 2601-2001 The Demolition of Structures (Standards Australia, 2001).	NA
A16	<ul> <li>All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the NCC.</li> <li>Note:</li> <li>Under Part 6 of the EP&amp;A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works</li> </ul>	Sections 3.2 and 5.2
	• The EP&A (Development Certification and Fire Safety) Regulation 2021 sets out the requirements for the certification of the development.	
A17	Engineering plans are to be prepared in accordance with the development consent, Penrith City Council's <i>Design Guidelines for Engineering Works for Subdivisions and Developments, Engineering Construction Specification for Civil Works</i> and Austroads Guidelines.	Section 3.4



A18	All earthworks and retaining walls subject to this development must be contained within the site and not cause any constraint on future development of any adjoining properties, as described in the information titled 'Westlink Stage 1 (SSD-9138102) – Retaining Wall and Earthworks', prepared by ESR and dated 20 April 2023 and supporting attachments.	NA
A19	Prior to the issuing of Subdivision Certificates for any stage of the development, detailed work-as-executed drawings shall be prepared and signed by a Registered Surveyor, which show the finished surface levels of the access road, internal roads, drainage, street trees and any areas of fill, carried out under this consent. The work-as-executed drawing must be submitted to the Certifier, Council and Sydney Water prior to the issue of a Subdivision Certificate.	NA
A20	Prior to the issuing of Subdivision Certificates for any stage of the development, the Applicant must provide to the Certifier evidence that all matters required to be registered on title, including easements, have been lodged for registration or registered at the Land Registry Services.	NA
A21	Prior to the issuing of Subdivision Certificates for any stage of the development: (a) a certificate from an electricity and telecommunications provider must be submitted to the Certifier certifying that satisfactory service arrangements to the site have been established; and (b) a certificate from the Regional Stormwater Authority must be submitted to the Certifier certifying that satisfactory stormwater servicing arrangements for the site have been established.	NA
A22	<ul> <li>Prior to issue of a Subdivision Certificate that proposes the dedication of any internal estate road as a public road:</li> <li>(a) a final inspection of the estate road is to be undertaken by the relevant Roads Authority. All compliance documentation for road and drainage construction of the estate road must be submitted to the relevant Roads Authority in accordance with the relevant Roads Authorities specifications and requirements.</li> <li>(b) a Maintenance Bond is to be lodged with Penrith City Council for all road and drainage works that are to be dedicated to the relevant Roads Authority. The value of the bond shall be determined in accordance with Penrith City Council's adopted Fees and Charges.</li> <li>(c) where installation of any regulatory/advisory signage and line marking are proposed, plans are to be lodged with Penrith City Council and approved by the Local Traffic Committee</li> <li>(d) an application for proposed street names must be lodged with and approved by Penrith City Council and the signs erected on-site. The proposed names must be in accordance with Penrith City Council's Street Naming Policy.</li> <li>Note: Contact Penrith City Council's Engineering Services Department on 4732 7777 for further information on this process and applicable fees.</li> </ul>	NA
A23	The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.	Section 4.5
A24	Prior to the issue of a Subdivision Certificate or Construction Certificate (as required by the contributions plan or agreed by Council), the Applicant must pay contributions to Council as required in accordance with the Penrith City Mamre Road Precinct	NA

Ref

Condition



Ref	Condition	How addressed
	Development Contributions Plan 2022, or any other contributions plan as in force when the later consent takes effect. Note: Subject to agreement between Council and the Applicant, local contributions may be satisfied by a planning agreement or works-in-kind agreement between Council and the Applicant.	
A25	A special infrastructure contribution must be made in accordance with the Environmental Planning and Assessment (Special Infrastructure Contribution – Western Sydney Aerotropolis) Determination 2022 (2022 Determination) as in force when this development consent takes effect. A person may not apply for a subdivision certificate or construction certificate (as the case may require, having regard to the Determination) in relation to the development unless the person provides, with the application, written evidence from the Department of Planning and Environment that the special infrastructure contribution for the development (or that part of the development for which the certificate is sought) has been made or that arrangements are in force with respect to the making of the contribution. More information <i>A request for assessment by the Department of Planning and Environment of the amount of the contribution that is required under this condition can be made through the NSW planning portal (https://www.planningportal.nsw.gov.au/development-assessment/contributions/sic-online-service). Please refer enquiries to SIContributions@planning.nsw.gov.au.</i>	NA
A26	All plant and equipment used on site, or to monitor the performance of the development, must be: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	Section 5.2
A27	The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.	Section 5.2
A28	Prior to the issuing of: (a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and (b) an Occupation Certificate, the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.	NA
A29	The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.	NA
A30	Before the construction of any utility works associated with the development, the Applicant must obtain relevant approvals from service providers.	NA

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#### Condition Ref How addressed Before the commencement of operation of the development, the Applicant must obtain a Compliance Certificate for water and A31 Section 3.3.2 sewerage infrastructure servicing of the site under section 73 of the Sydney Water Act 1994. Before the issuing of a Subdivision Works or Construction Certificate for any stage of the development, the Applicant (whether or NA A32 not a constitutional corporation) is to provide evidence, satisfactory to the Certifier, that arrangements have been made for: (a) the installation of fibre-ready facilities to all individual lots and/or premises in the development to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and (b) the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in the development demonstrated through an agreement with a carrier. A33 Before the issuing of the Occupation Certificate for the development the Applicant must demonstrate that the carrier has Section 3.3.2 confirmed in writing it is satisfied that the fibre-ready facilities are fit-for-purpose. A34 Before the issuing of the Occupation Certificate for the first warehouse building, work-as-executed drawings signed by a Section 3.3.2 registered surveyor demonstrating that the street trees, stormwater drainage (including operation and maintenance management plans) and finished ground levels have been constructed as approved, must be submitted to the Principal Certifier. The Applicant must engage an Environmental Representative (ER) to oversee construction of the development. Unless NA A35 otherwise agreed to by the Planning Secretary, construction of the development must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant. The approved ER must: (a) be a suitably qualified and experienced person who was not involved in the preparation of the EIS, RTS, ADR, and any additional information for the development and is independent from the design and construction personnel for the development; (b) receive and respond to communication from the Planning Secretary in relation to the environmental performance of the development: (c) consider and inform the Planning Secretary on matters specified in the terms of this consent; (d) consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community; (e) review the CEMP required in Condition C2 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent and if so: (i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department); (f) regularly monitor the implementation of the CEMP to ensure implementation is being carried out in accordance with the document and the terms of this consent: (g) as may be requested by the Planning Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefings, and site visits;



Ref	Condition	How addressed
	<ul> <li>(h) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints;</li> <li>(i) provide advice to the Applicant on the management and coordination of construction works on the site with adjoining sites in the Mamre Road Precinct in relation to construction traffic management, earthworks and sediment control and noise;</li> <li>(j) attend the Mamre Road Precinct Working Group (see Condition A38) in a consultative role in relation to the environmental performance of the development; and</li> <li>(k) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Quarterly Report providing the information set out in the Environmental Representative Protocol under the heading 'Environmental Representative Quarterly Reports'. The Environmental Representative Quarterly Report must be submitted within seven calendar days following the end of each quarter for the duration of the ER's engagement for the development, or as otherwise agreed with the Planning Secretary.</li> </ul>	
A36	The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in condition A35 (including preparation of the ER monthly report), as well as: (a) the complaints register (to be provided on a daily basis); and (b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).	NA
A37	The Planning Secretary may at any time commission an audit of an ER's exercise of its functions under condition A35. The Applicant must: (a) facilitate and assist the Planning Secretary in any such audit; and (b) make it a term of their engagement of an ER that the ER facilitate and assist the Planning Secretary in any such audit.	NA
A38	<ul> <li>Within three months of the commencement of construction of the development and until all components of the development are constructed and operational, the Applicant must establish and participate in a working group, or join and participate in an existing working group, with relevant consent holders in the MRP, to the satisfaction of the Planning Secretary. The purpose of the working group is to consult and coordinate construction works within the MRP to assist with managing and mitigating potential cumulative environmental impacts. The working group must: <ul> <li>(a) comprise at least one representative of the Applicant, the Applicant's ER, and relevant consent holders in the MRP;</li> <li>(b) meet periodically throughout the year to discuss, formulate and implement measures or strategies to improve monitoring, coordination of the approved industrial developments in the MRP;</li> <li>(c) regularly inform Council, TfNSW, Sydney Water and the Planning Secretary of the outcomes of these meetings and actions to be undertaken by the working group;</li> <li>(d) review the performance of approved industrial developments in the MRP and identify trends in the data with respect to cumulative construction traffic, erosion and sediment control, noise, stormwater management and waterway health objectives under the MRP DCP;</li> <li>(e) review community concerns or complaints with respect to environmental management;</li> <li>(f) identify interim traffic safety measures to manage construction traffic and how these measures will be coordinated, communicated, funded and monitored in the MRP; and</li> </ul></li></ul>	NA



Ref	Condition	How addressed
	(g) provide the Planning Secretary with an update and strategies, if a review under subclause (d) and (e) identifies additional measures and processes are required to be implemented by the working group.	
A39	Three (3) months prior to completion of construction of all components of the development, the Applicant is eligible to exit the working group required under condition A38. The Applicant must: (a) consult with the Planning Secretary;	NA
	(b) provide confirmation that all components of the development are operational; and (c) advise on the date of the proposed exit.	
A40	References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.	Section 3
A41	However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.	Noted
AN1	All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.	Section 3.3
Part	3 Specific Environmental Conditions	
B1	Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must: (a) be prepared by a suitably qualified and experienced person(s); (b) be prepared in consultation with Council and TfNSW; (c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction works to: (i) ensure access to the site and road safety and network efficiency is maintained, (ii) manage cumulative construction traffic from other concurrent construction works within the Mamre Road Precinct, and (iii) address necessary interim traffic safety controls and management measures, including consideration of any traffic control measures required to manage traffic entering Mamre Road in the period before Mamre Road/Abbotts Road intersection construction is complete; (d) detail heavy vehicle routes, access and parking arrangements; (e) include a Driver Code of Conduct to: (i) minimise the impacts of earthworks and construction on the local and regional road network;	NA
	(ii) minimise conflicts with other road users; (iii) minimise road traffic noise; and	



Ref	Condition	How addressed
	<ul> <li>(iv) ensure truck drivers use specified routes, including entering and exiting Mamre Road via Abbotts Road and not Bakers Lane;</li> <li>(f) include a program to monitor the effectiveness of these measures; and</li> <li>(g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.</li> </ul>	
B2	The Applicant must: (a) not commence construction until the Construction Traffic Management Plan required by condition B1 is approved by the Planning Secretary; and (b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.	NA
Β3	At the commencement of operation of the development and for a minimum period of 12 months of operation, the Applicant must establish an Operational Traffic Monitoring Program to verify light and heavy vehicle traffic numbers against the predictions in the ADR. The Program must also monitor the effectiveness of the traffic management measures to the satisfaction of the Planning Secretary and include but not be limited to the following: (a) detail the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation; (b) queue monitoring at the Mamre Road/Abbotts Road intersection and background travel counts on Mamre Road and Abbotts Road; (c) verify the predicted traffic numbers and level of service against the actual impacts of the development, and analyse the potential cause of any significant discrepancies; (d) consider the current capacity and efficiency of the existing road network including Mamre Road and Aldington Road; and (e) include procedures for the reporting and monitoring of results to evaluate the traffic performance of the development.	Section 6.1 and OTMP
B3A	Prior to the commencement of operation of Warehouse 4, the Applicant must prepare an Operational Traffic Management Plan (OTMP) for Warehouse 4 to the satisfaction of the Planning Secretary. The OTMP must form part of the OEMP required by Condition C5 and must: (a) be prepared by a suitably qualified and experienced person(s) (b) detail heavy vehicle routes, access, and parking arrangements; (c) detail the measures that are to be implemented to ensure road safety and network efficiency; (d) include a Traffic Control Plan (TCP) detailing the on-site measures to be implemented to control the manoeuvring of vehicles in designated loading areas and mitigate the potential for on-site vehicle conflict, with regard to the 'SSD-9138102 Mod 2 Transport Statement' and accompanying swept path analysis prepared by Ason Group dated 19 December 2023	OTMP
<del>B</del> 4	Prior to the commencement of operation of the development, the Applicant must complete the construction of the upgrades to Abbotts Road to the satisfaction of Council. The Applicant must obtain approval for the works under section 138 of the Roads Act 1993.	Section 3.3.2



<del>B5</del>	Prior to the commencement of construction works for the Mamre Road/Abbotts Road intersection works and signalised intersection of Abbotts Road and Aldington Road, the Applicant must enter into a Works Authorisation Deed with TfNSW. TfNSW fees for administration, plan checking, civil works inspections and project management shall be paid by the Applicant prior to the commencement of works.	NA
<del>B6</del>	Prior to the commencement of construction of signalised intersection road works, the proposed Traffic Control Signal/s at the intersection of Mamre Road/Abbotts Road and Aldington Road/Abbotts Road must be designed to meet TfNSW requirements. The Traffic Control Signal (TCS) plans shall be drawn by a suitably qualified person and endorsed by a suitably qualified practitioner. The submitted design shall be in accordance with Austroads Guide to Road Design in association with relevant TfNSW supplements (available on www.transport.nsw.gov.au). The certified copies of the TCS design and civil design plans shall be submitted to TfNSW for consideration and approval prior to the release of a Construction Certificate and commencement of signalised intersection road works. Please send all documentation to development.sydney@transport.nsw.gov.au.	NA
<del>B7</del>	Detailed design plans and hydraulic calculations of any changes to the stormwater drainage system are to be submitted to TfNSW for approval, prior to the commencement of any works referred to in Condition B5. Please send all documentation to is development.sydney@transport.nsw.gov.au. A plan checking fee will be payable and a performance bond may be required before TfNSW approval is issued.	NA
88	The Applicant must be responsible for all public utility adjustment/relocation works, necessitated by the work referred to in Condition B5 and as required by the various public utility authorities and/or their agents. Should any public utility adjustment/relocation works be required adjacent to a classified road, plans are to be submitted to TfNSW for approval, prior to the commencement of any works. Please send all documentation to is development.sydney@transport.nsw.gov.au. A plan checking fee may be payable and a performance bond may be required before TfNSW approval is issued.	NA
<del>B9</del>	Any realignment of site boundaries to facilitate the works referred to in Condition B5, inclusive but not limited to drainage, footpaths and batters resulting from the proposed road and construction works, must be dedicated as public road at no cost to the relevant roads authority unless specified otherwise in a planning agreement.	NA
<del>B10</del>	The Applicant must obtain a Road Occupancy Licence (ROL) from TfNSW Transport Management Centre for any works that may impact on traffic flows on Mamre Road during construction activities. A ROL can be obtained through https://myrta.com/oplinc2/pages/security/oplincLogin.jsf.	NA
<del>B11</del>	Prior to the commencement of operation of the first warehouse building, the upgrade works to the Mamre Road and Abbotts Road intersection, Abbotts Road and Aldington Road intersection, and upgrades to Abbotts Road must be completed to the satisfaction of the relevant roads authority for each component of the works.	Section 3.2.2



Ref	Condition	How addressed
<del>B12</del>	Prior to the commencement of operation of the first warehouse building, the Applicant must construct and operate the road works shown in Figure 1 in Appendix 1 to the satisfaction of relevant road authority.	Section 3.2.2
B13	Prior to the commencement of any stage of road construction, detailed design plans showing the provision of passively irrigated street trees within the relevant stage of works must be submitted to the satisfaction of the relevant road authority. The plans must: (a) be prepared in consultation with Council; and (b) demonstrate compliance with the Sydney Water Stormwater Scheme Infrastructure Design Guideline and MRP DCP.	NA
B14	The Applicant must provide sufficient parking facilities on-site in accordance with the MRP DCP, including for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public and residential streets or public parking facilities.	Section 5.2
B15	Prior to the issue of the occupation certificate for the first warehouse building, the development must include bicycle parking and end of trip facilities in accordance with Australian Standard AS1742.9:2018 <i>Manual of Uniform Traffic Control Devices - Bicycle Facilities, and Cycling Aspects of Austroads Guides.</i> Any bicycle parking and storage facilities must be secure, convenient, well lit, physically and visually accessible and within close proximity to the main in accordance with Austroads guidelines.	Section 5.2
B16	A minimum of 5% of parking bays for each warehouse must provide for electric vehicle charging, with a further 5% constructed as readily adaptable.	Section 5.2
B17	The Applicant must ensure: (a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the development are constructed and maintained in accordance with the latest version of AS 2890.1:2004 Parking facilities Off-street car parking (Standards Australia, 2004), AS 2890.2:2018 Parking facilities Off-street Commercial Vehicle Facilities (Standards Australia, 2018) and AS 2890.6.2009 Parking facilities Off-street parking for people with disabilities (Standards Australia, 2009) (b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant AUSTROADS guidelines; (c) the development does not result in any vehicles queuing on the public road network; (d) heavy vehicles and bins associated with the development are not parked on local roads or footpaths in the vicinity of the site; (e) all vehicles are wholly contained on site before being required to stop; (f) all loading and unloading of materials is carried out on-site; (g) all trucks entering or leaving the site with loads have their loads covered and do not track dirt onto the public road network; and (h) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times (i) all vehicles accessing and departing the site from/to Mamre Road must travel via Abbotts Road and not Bakers Lane, until the completion of the ultimate upgrade of Aldington Road and delivery of the Southern Link Road or otherwise agreed in writing by	Section 5.2



	the Secretary, Council and TfNSW (j) Use of 30m PBS Level on local roads will require approval from the National Heavy Vehicle Regulator (NHVR) and Council's Asset Section.	
B18	<ul> <li>Prior to the commencement of operation of any part of the development, the Applicant must prepare a Workplace Travel Plan and submit a copy to the Planning Secretary. The Workplace Travel Plan must:</li> <li>(a) be prepared in consultation with TfNSW;</li> <li>(b) outline facilities and measures to promote public transport usage, such as car share schemes and employee incentives; and</li> <li>(c) describe pedestrian and bicycle linkages and end of trip facilities available on-site.</li> </ul>	WTP
B19	The Applicant must implement the most recent version of the Workplace Travel Plan for the duration of the development.	Section 5.2
B20	The Applicant must: (a) ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site; (b) keep accurate records of the volume and type of fill to be used; and (c) make these records available to the Planning Secretary upon request.	NA
B21	Prior to the commencement of earthworks for the development, the Applicant must design and detail the erosion and sediment control measures for the site to ensure the construction phase IWCM controls in the MRP DCP are achieved to the satisfaction of the Planning Secretary. Detailed Erosion and Sediment Control Plans (ESCP) and drawings must: (a) be prepared by a Chartered Professional Erosion and Sediment Control (CPESC) specialist; (b) be prepared in accordance with Managing Urban Stormwater: Soils and Construction – Volume 1:Blue Book (Landcom, 2004) and with the WSUD design principles set out in the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (Technical Guidance) (NSW Government, 2022); (c) include: (i) each major phase of construction work including catchment plans and calculations and sizing for all major drainage and sediment controls for each phase; (ii) the type of sediment basin, details of all functional components and calculations demonstrating compliance with the DCP; (d) demonstrate the construction approach and timing to ensure the construction phase stormwater quality targets can be met; and (e) detail measures to manage external catchment flows and dispersive soils; (f) detail measures to protect passively irrigated street trees during construction works, if these are installed before construction is completed; (g) be included in the CEMP required by Condition C2.	NA
B22	The Applicant must: (a) not commence earthworks until the Erosion and Sediment Control Plan required by condition B21 is approved by the Planning Secretary: and	NA



#### Ref Condition

(b) implement the most recent version of the Erosion and Sediment Control Plan approved by the Planning Secretary for the duration of earthworks and construction.

B23	The Applicant must ensure delivery and operation of all construction phase erosion and sediment controls on the site is supervised and certified by a CPESC. Monthly audits are to be completed by CPESC and kept on record for the duration of the construction and an additional 12 months following completion of construction works.	NA

- B24 The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly Section 5.2 provided for in an EPL.
- B25 Within two months of the date of this consent, the Applicant must design the stormwater management system to the satisfaction NA of the Planning Secretary. The stormwater management system design must:
  - (a) be prepared in consultation with the Environment & Heritage Group, Sydney Water and Council;

(b) be prepared and certified by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems, whose appointment has been endorsed by the Planning Secretary;

- (c) be consistent with the plan shown on Figure 2 in Appendix 1 and the updated Stormwater Management Plan required by Condition B30;
- (d) include all private, Council and trunk drainage infrastructure within the site including connections to adjacent landholdings;
- (e) be designed in accordance with the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management
- Targets (Technical Guidance) (NSW Government, 2022) and detail how:
- (i) the requirements and objectives of the IWCM controls of the DCP will be achieved;
- (ii) the waterway health objectives and targets set out in the Technical Guidance will be achieved;
- (iii) levels are resolved to demonstrate the system functions effectively;
- (iv) the development will ultimately connect to the MRP Stormwater Scheme and interim measures to meet the waterway health objectives and targets will be decommissioned;
- (v) all stormwater management devices will contain an impermeable liner and all naturalised trunk drainage (or other open drainage) is either lined with an impermeable liner, or ameliorated (i.e., gypsum), and compacted to a suitable depth and topsoiled (AS44119) to limit infiltration to soils;
- (f) demonstrate the on-site stormwater detention design is free draining;
- (g) demonstrate maintenance access driveways to water storage or bio-retention basins are designed in accordance with Council's specifications;
- (h) demonstrate that sufficient land is reserved on site for stormwater management purposes (such as irrigation areas and undeveloped areas) as shown on Figure 2 in Appendix 1, to ensure the development meets the controls in the DCP and the waterway health targets in the Technical Guidance, unless an alternative stormwater management strategy has been approved by the Planning Secretary;
- (i) include civil design drawings that define the design for the WSUD systems in accordance with the Technical Guidance and the requirements of Sydney Water and Council;
- (j) include landscape drawings that include planting and hardscape details of the WSUD systems; and
- (k) include certification (and appropriate designed checklists) of the civil and landscape drawings by suitably qualified chartered



Ref	Condition	How addressed
	professional engineer with experience in modelling, design and supervision of WSUD systems that the design drawings comply with the Technical Guide requirements and the stormwater targets are achieved; and (I) include evidence that the design and mix of WSUD infrastructure has considered ongoing operation and maintenance, including a detailed lifecycle cost assessment (including capital, operation / maintenance and renewal costs over 30 years).	
B26	The Applicant must: (a) not commence earthworks until the design required by Condition B25 is approved by the Planning Secretary; (b) ensure construction of the stormwater management system is supervised and certified by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems; and (c) implement the stormwater management system approved by the Planning Secretary prior to the commencement of operation of the first warehouse building.	NA
B27	The Applicant must not carry out earthworks or construction, other than those works approved under this consent, on land shown as 'undeveloped land' on Figure 2 in Appendix 1 (including Lots 3 and 4 on DP 250002) unless the site is connected to the Stormwater Scheme or an alternative Stormwater Management System for the site has been approved by the Planning Secretary.	NA
B28	<ul> <li>Within two months of the date of this consent, the Applicant must design the trunk drainage infrastructure on the site, to the satisfaction of the Planning Secretary. The trunk drainage infrastructure must: <ul> <li>(a) be designed in consultation with the Regional Stormwater Authority (Sydney Water);</li> <li>(b) be integrated into the Stormwater Management System required under Condition B25;</li> <li>(c) be designed in accordance with the Mamre Road Stormwater Scheme Plan and Sydney Water's Stormwater Scheme Infrastructure Design Guidelines (draft) 2022, or its latest version, unless otherwise agreed with the Regional Stormwater Authority;</li> <li>(d) be designed so that the naturalised trunk drainage channel is used to carry all overland flows greater than the 5% AEP piped drainage capacity where the catchment upstream of the commencement of the trunk drainage exceeds 15 ha or where overland flows are unsafe to pedestrians and vehicles;</li> <li>(e) be modelled with demonstration of flow modelling using either XP-Rafts (Laurenson's Method) or DRAINS (ILSAX or Laurenson's Methods) with full catchment diagrams – discretised to accurately show development catchments and external catchments. Input data sets shall be fully described and can be provided in spreadsheet form.</li> <li>(f) include access for management and maintenance by the Regional Stormwater Authority as per the Stormwater Scheme Infrastructure Design Guideline (draft) 2022, including provision of an easement in accordance with Condition B32;</li> <li>(g) include appropriate connections from the trunk drainage channel on site to the existing downstream flow paths, until such time as the trunk drainage channel downstream of the site is constructed;</li> <li>(h) ensure any piped infrastructure that intersects or connects into the trunk drainage channel on the site is designed to accommodate the trunk drainage channel design; and</li> <li>(i) include landscape drawings with planting details.</li> </ul> </li> </ul>	NA



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Ref	Condition	How addressed
B29	The Applicant must: (a) not commence earthworks until the design required by Condition B28 is approved by the Planning Secretary; (b) ensure construction of the trunk drainage infrastructure is supervised and certified by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems; and (c) implement the trunk drainage infrastructure approved by the Planning Secretary prior to the commencement of operation of the first warehouse building.	NA
B30	<ul> <li>Within four months of the date of this consent, the Applicant must prepare a separate Water and Stormwater Management Plan (WSMP) to the satisfaction of the Planning Secretary. The WSMP must: <ul> <li>(a) be prepared by a suitably qualified chartered professional engineer with experience in modelling, design and supervision of WSUD systems, whose appointment has been endorsed by the Planning Secretary;</li> <li>(b) comply with the requirements of the Technical Guidance;</li> <li>(c) be consistent with the plan shown on Figure 2 in Appendix 1;</li> <li>(d) be prepared in consultation with the Environment &amp; Heritage Group, Sydney Water, Council and the Department;</li> <li>(e) describe the baseline soil, surface water and groundwater conditions at the site;</li> <li>(f) define how the development will comply with the stormwater targets, including connection to the regional scheme;</li> <li>(g) include MUSIC modelling for each stage of the development in accordance with the Technical Guidance;</li> <li>(h) provide catchments plans, tables and all stormwater management details as per the Technical Guidance;</li> <li>(i) proprietary devices are located on private land and only include including sediment and nutrient removal if certified under SQIDEP;</li> <li>(ii) ensure external catchments are drained to trunk drainage;</li> <li>(iii) ensure all catchment areas are accounted for in the MUSIC modelling and post processing tool and there are no inconsistencies;</li> <li>(iv) the strategy and stormwater elements are consistent with the design drawings required by Conditions B25 to B27 (including the detailed drawings in appendices to the report);</li> <li>(j) include a protocol for investigation of any non-compliances of the stormwater management system with the IWCM controls in the MRP DCP the waterway health objectives and targets in the Technical Guidance;</li> <li>(k) detail the contingency measures that would be implemented should issues arise;</li> <li>(l) include a Maintenance Plan for the WSUD measure</li></ul></li></ul>	Section 5.2 and SMP
B31	The Applicant must: (a) not commence operation of the first warehouse building until the Stormwater Management Plan required by Condition B30 is approved by the Planning Secretary; and (b) implement the most recent version of the Stormwater Management Plan approved by the Planning Secretary for the duration of the development.	Section 5.2 and SMP



Ret	Condition	How addressed
B32	Prior to the issue of a Compliance Certificate under Section 73 of the Sydney Water Act, 1994, an easement under section 88A and/or restriction or public positive covenant under section 88E of the Conveyancing Act 1919 naming the Regional Stormwater Authority (Sydney Water) as the prescribed authority, which can only be revoked, varied or modified with the consent of the Regional Stormwater Authority and which provides for appropriate access to all trunk drainage land for maintenance at no cost to the Regional Stormwater Authority must be registered on the title of the land.	NA
B33	The stormwater management system must continue to be operated and maintained in perpetuity for the life of the development in accordance with the final operation and maintenance management plan. Regular inspection records are required to be maintained and made available to Council on request. All necessary improvements are required to be made immediately upon awareness of any deficiencies in the stormwater management systems. <i>Note: This does not include any passively irrigated street trees that may be transferred to the relevant roads authority. This also does not include trunk drainage infrastructure for which maintenance and operation may be transferred to the Regional Stormwater Authority.</i>	Section 5.2 and SMP
B34	All stormwater infrastructure, including bio-retention basins, shall remain under the ownership, control and care of the registered proprietor of the lots. Upstream drainage catchment pipes are to be located outside of the public road reserve and remain in private ownership, in accordance with Council requirements. Note: This does not include any passively irrigated street trees that may be transferred to the relevant roads authority. This also does not include trunk drainage infrastructure for which maintenance and operation may be transferred to the Regional Stormwater Authority.	SMP
B35	Prior to the issue of any Occupation Certificate, a restriction on the use of land and positive covenant relating to the permanent stormwater management systems (including on-site stormwater detention and water sensitive urban design), shall be registered on the title of the property. The restriction on the use of land and positive covenant shall be in Penrith City Council's standard wording as detailed in Council's Stormwater Drainage Specification for Building Developments – Appendix F.	NA
B36	Prior to commencement of construction of the development, the Applicant must prepare a Dam Decommissioning Strategy to the satisfaction of the Planning Secretary. The Dam Decommissioning Strategy must form part of the CEMP required by Condition C2. The Applicant must implement the most recent version of the Dam Decommissioning Strategy for the duration of construction.	NA
B37	Prior to the commencement of operation of the development, the Applicant must connect the development to the road drainage infrastructure for the upgraded Aldington and Abbotts Roads, to ensure the development does not increase flood flows and velocities on adjoining properties for all flood events up to and including the critical 1% Annual Exceedance Probability flow.	Section 3.3.3
B38	Within six months of the date of this consent, the Applicant must prepare a Landscape Management Plan to manage the revegetation and landscaping works on-site, to the satisfaction of the Planning Secretary. The plan must: (a) detail the species to be planted on-site that:	NA



Ref	Condition	How addressed
	<ul> <li>(i) are consistent with the plant list in Appendix C of the Mamre Road Precinct Development Control Plan; and</li> <li>(ii) are suitable in relation to wildlife management in proximity to the Western Sydney Airport.</li> <li>(b) ensure sufficient deep soil to allow large tree planting is provided in the areas between retaining wall tiers and between retaining walls and the northern property boundary on Lot 1 (as shown in the landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape Concept plan, prepared by Site Image and dated 14 February 2023);</li> <li>(c) ensure adequate planting is implemented to provide screening between the basin and retaining wall on Lot 4 (as shown in the landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape plans titled Kemps Creek Logistics Park SSDA Report Landscape Concept plan, prepared by Site Image and dated 14 February 2023);</li> <li>(d) demonstrate that the minimum tree canopy targets are achieved in accordance with the MRP DCP; and</li> <li>(e) describe the monitoring and maintenance measures to manage revegetation and landscaping works.</li> </ul>	
B39	The Applicant must: (a) not commence operation until the Landscape Management Plan is approved by the Planning Secretary; (b) must implement the most recent version of the Landscape Management Plan approved by the Planning Secretary and not commence operation until the landscaping works have been completed in accordance with the plan; and (c) maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by Condition B38 for the life of the development.	Section 5.2 and LMP
B40	Prior to the issue of an Occupation Certificate for each warehouse building, the Applicant must provide the Certifier with written evidence in the form of plans and a report prepared by the project landscape architect confirming that trees identified in the approved document package as contributing to the site's canopy target have been installed and that the trees are capable of reaching maturity in their locations. Where the canopy cover target (in accordance with the MRP DCP) is identified as not being achievable through those trees planted, the report is to detail what measures have been undertaken to address the tree canopy shortfall and a rectification plan is to be provided.	NA
B41	Prior to the commencement of retaining wall construction, the Applicant must submit details of retaining wall materials fronting the public domain demonstrating suitable visual presentation, particularly treatment of higher fill walls visible from the public domain, to the satisfaction of the Planning Secretary.	NA
B42	All structures (foot, batter, tie backs/in and drainage) associated with retaining walls must be within private property and not within the public road reserve and not within any zone of influence.	NA
B43	The Applicant must ensure the finished facades and roofs of the warehouses and office buildings use neutral, recessive colours, non-reflective materials and are designed to present an attractive façade to residential areas and to minimise glare.	Section 5.2
B44	The Applicant must ensure the lighting associated with the development: (a) complies with the latest version of AS 4282-2019 – Control of the obtrusive effects of outdoor lighting (Standards Australia, 2019); and	Section 5.2



NA

Section 5.2

Section 2.1

NA

NA

NA

#### Condition Ref (b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network. B45 Prior to the commencement of construction of the first warehouse building, the Applicant must submit a Signage Strategy to the satisfaction of the Planning Secretary. The Signage Strategy must demonstrate that proposed signage is consistent with Chapter 3 of State Environmental Planning Policy (Industry and Employment) 2021 and the MRP DCP, including limiting illumination of signage or measures to control lighting impacts from illuminated signs. All signage must be erected in accordance with the approved Signage Strategy required by Condition B45. B46 Note: This condition does not apply to temporary construction and safety related signage. The Applicant must comply with the hours detailed in Table 2, unless otherwise agreed in writing by the Planning Secretary. B47 Works outside of the hours identified in condition B47 may be undertaken in the following circumstances: B48 (a) works that are inaudible at the nearest sensitive receivers: (b) works agreed to in writing by the Planning Secretary; (c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or (d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm. The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction B49 Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures in Appendix 5. B50 The Applicant must prepare a Construction Noise and Vibration Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must (a) be prepared by a suitably qualified and experienced noise expert(s); (b) be prepared in consultation with owners of adjoining residential properties (including those still occupied for residential use in the MRP), include evidence of this consultation and detail how the plan has responded to any issues raised during consultation; (c) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC. 2009) (as may be updated or replaced from time to time); (d) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers:

(e) include strategies that have been developed with the community for managing high noise generating works; and (f) include a complaints management system that would be implemented for the duration of the development.

B51 The Applicant must:

(a) not commence earthworks until the Construction Noise and Vibration Management Plan required by condition B50 is approved by the Planning Secretary; and

NA



Ref	Condition	How addressed
	(b) implement the most recent version of the Construction Noise and Vibration Management Plan approved by the Planning Secretary for the duration of earthworks and construction.	
B52	The Applicant must ensure that noise generated by operation of the development does not exceed the noise limits in Table 3. Note: Noise generated by the development is to be measured in accordance with the relevant monitoring performance procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (EPA, 2017) (as may be updated or replaced from time to time). Refer to the plan in Appendix 2 for the location of residential sensitive receivers.	Section 5.2
B53	The Applicant must ensure that noise generated by: (a) all fixed external mechanical plant for the warehouse building on Lot 1 does not exceed a cumulative sound power level of LAeq(15min) 90 dB(A); (b) all fixed external mechanical plant for the warehouse building on Lot 4 does not exceed a cumulative sound power level of LAeq(15min) 86 dB(A); and (c) any activity on the site does not exceed a sound power level of LAMax 115 dB(A) or result in annoying noise characteristics as determined in accordance with the Noise Policy for Industry (EPA, 2017) and Australian Standard AS 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018).	Section 5.2
B54	<ul> <li>Within three months of the commencement of earthworks for the development, the Applicant must prepare and submit a Design Noise Verification Report for the development to the satisfaction of the Planning Secretary. The Applicant must not commence construction of any warehouse buildings until the Design Noise Verification Report is approved by the Planning Secretary. The Design Noise Verification Report must: <ul> <li>(a) be prepared by a suitably qualified, experienced and independent acoustic consultant whose appointment has been endorsed by the Planning Secretary;</li> <li>(b) identify and justify the design noise emission scenario, including the adopted engineering safety factor, schedule of all noise generating sources on the site (including but not limited to, all vehicle types, mechanical plant and waste areas), stationary equipment specification and verifiable data of dynamic noise emission activities;</li> <li>(c) demonstrate the noise propagation modelling is capable of accurately predicting noise levels under noise enhancing meteorological conditions to surrounding receivers in Mount Vernon and Luddenham;</li> <li>(d) provide updated noise modelling to verify the predicted performance of the development and the predicted noise levels identified in the report titled ESR Westlink Stage 1, Kemps Creek, NSW, Noise and Vibration Impact Assessment, prepared by RWDI, dated 6 October 2022;</li> <li>(e) develop an Operational Noise Monitoring Plan in accordance with Section 7 of the Noise Policy for Industry to verify the operational performance of the development, including details of the nominated intermediate monitoring locations, reference noise levels at each intermediate location, and noise level relationship between each intermediate location and sensitive receivers identified in condition B52;</li> <li>(f) include:</li> <li>(i) an analysis of compliance with noise limits specified in conditions B52 and B53;</li> <li>(ii) an outline of at-source and transmission path mitigation measures require</li></ul></li></ul>	ONMP



Ref	Condition	How addressed
	(iii) a description of contingency measures (including specific measures to manage noise generating activities during the night time period) in the event management actions are not effective at reducing noise levels to comply with limits specified in conditions B52 and B53.	
B55	Should the Design Noise Verification Report identify that the noise limits in Conditions B52 and B53 cannot be achieved through the mitigation measures and contingency measures required to be considered under Condition B54, the Applicant must: (a) offer to enter into noise agreement(s) with eligible receivers outside of the Mamre Road Precinct where noise limits are predicted to be exceeded (b) provide written evidence to the Planning Secretary that an agreement is in place with these receivers.	Section 6.6
B56	If a Noise Agreement is in place with a specific receiver(s) to exceed the noise limits in Condition B52, the noise limits in Table 3 do not apply to that receiver(s).	Section 5.2
B57	<ul> <li>Within three months of the commencement of operation of the development, the Applicant must prepare and submit an Operational Noise Verification Report for the development to the satisfaction of the Planning Secretary. The Operational Noise Verification Report must: <ul> <li>(a) be prepared by a suitably qualified, experienced and independent acoustic consultant whose appointment has been endorsed by the Planning Secretary;</li> <li>(b) demonstrate that noise verification has been carried out in accordance with:</li> <li>(i) the Australian Standard AS 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018); and</li> <li>(ii) the EPA Approved Methods for the Measurement and Analysis of Environmental Noise in NSW (EPA, 2022);</li> <li>(iii) the Operational Noise Monitoring Plan established under condition B54(e);</li> <li>(c) include:</li> <li>(i) an analysis of compliance with noise limits specified in conditions B52 and B53;</li> <li>(ii) an outline of implemented at-source and transmission pathway mitigation measures are not effective at reducing noise levels to comply with limits specified in condition B52 and B53 at all times.</li> </ul> </li> </ul>	Section 6.6
B58	Prior to the commencement of operation of the development, the Applicant must offer to enter into noise agreement(s) with the eligible receivers shown in Figure 4 in Appendix 3. The Applicant must provide written evidence to the Planning Secretary that an agreement is in place with these receivers.	NA
B59	The noise agreement required under Condition B58 must be in force until the existing residential use ceases on the land subject to the agreement or a development consent for general industrial or other employment uses applies to the land, whichever is the sooner.	NA



Ref	Condition	How addressed
B60	Prior to the commencement of construction of the development, the Applicant must prepare a Driver Code of Conduct and induction training for the development to minimise road traffic noise. The Applicant must update the Driver Code of Conduct and induction training for construction and operation and must implement the Code of Conduct for the life of the development.	Section 5.2
B61	Vibration caused by construction at any residence or structure outside the site must be limited to: (a) for structural damage, the latest version of <i>DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures</i> (German Institute for Standardisation, 1999); and (b) for human exposure, the acceptable vibration values set out in the <i>Environmental Noise Management Assessing Vibration: a</i> <i>technical guideline</i> (DEC, 2006) (as may be updated or replaced from time to time).	NA
B62	Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition B61.	NA
B63	The limits in conditions B61 and B62 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition C2 of this consent.	NA
B64	Prior to the commencement of earthworks, the Applicant must offer and prepare (if the offer is accepted) a preconstruction dilapidation report for adjoining properties that may be affected by proposed earthworks (including Lot 2 DP 250002, Lots 141 and 142 DP 1033686, Lot 15 DP 253503 and Lot 4132 DP 857093). The report must be submitted to the Planning Secretary and the relevant property owner(s) prior to construction works commencing on the site.	NA
B65	If requested by the property owner, the Applicant must repair, or pay the full costs associated with repairing, any damage to adjoining properties caused by carrying out the development in accordance with the preconstruction dilapidation reports required by Condition B64, unless otherwise agreed by the Planning Secretary.	NA
B66	<ul> <li>Prior to the commencement of earthworks, the Applicant must undertake further soil sampling in areas of the site that were inaccessible during the Detailed Site Investigation prepared by Alliance dated 1 December 2021, to further refine the nature and extent of contamination on the site. The supplementary site investigation must:</li> <li>(a) be prepared by a suitably qualified and experienced consultant certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme;</li> <li>(b) be prepared in accordance with the relevant guidelines produce or approved under the <i>Contaminated Land Management Act, 1997</i>;</li> <li>(c) define the nature and extent of contamination in areas not previously accessible for sampling; and</li> <li>(d) include an updated Remedial Action Plan that describes the preferred remediation approach to make the site suitable for the intended industrial land use and details the need for any long term management following completion of remediation.</li> </ul>	NA



by a suitably qualified and experienced consultant(s) and must be completed prior to the commencement of earthworks.	
B68 Within one month of completion of the remediation works for the development, the Applicant must submit a Remediation NA Validation Report (RVR) to the satisfaction of the Planning Secretary. The RVR must be prepared, or reviewed and approved, by a consultant certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme. The validation report shall demonstrate that: <ul> <li>(a) the site is suitable for its intended industrial land use, or</li> <li>(b) the site is suitable for its intended industrial land use with the implementation of an environmental management plan or long term environmental management plan.</li> </ul>	
<ul> <li>B69 The Applicant must ensure that any asbestos encountered during the remediation works for the development is monitored, handled, transported and disposed of by appropriately qualified and licensed contractors in accordance with the requirements of SafeWork NSW and relevant guidelines, including: <ul> <li>(a) Work Health and Safety Regulation 2017;</li> <li>(b) SafeWork NSW Code of Practice – How to Manage and Control Asbestos in the Workplace September 2016;</li> <li>(c) SafeWork NSW Code of Practice – How to Safely Remove Asbestos September 2016; and</li> <li>(d) Protection of the Environment Operations (Waste) Regulation 2014.</li> </ul> </li> </ul>	
B70 Prior to the commencement of earthworks, the Applicant must prepare an unexpected contamination finds procedure to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with condition C2 and must ensure any material identified as contaminated is disposed of in accordance with the POEO Act and its associated regulations. Details of the final disposal location and the results of any associated testing must be submitted to the Planning Secretary prior to removal of the contaminated material from the site.	
<ul> <li>B71 The Applicant shall ensure the development complies with:</li> <li>(a) the relevant provisions of <i>Planning for Bushfire Protection</i> (NSW RFS, 2019);</li> <li>(b) the recommendations of the Bushfire Protection Assessment prepared by Australian Bushfire Protection Planners dated 3 March 2022; and</li> <li>(c) Australian Standard <i>AS2419.1-2005 Fire hydrant installations System design, installation, and commissioning.</i></li> </ul>	tion 5.2
B72 The Applicant must ensure the entire site, including landscaping, is managed as an inner protection area (IPA) in accordance Sect with <i>Planning for Bushfire Protection 2019</i> .	tion 5.2
B73 The Applicant must ensure the warehouse buildings are constructed in accordance with the Bushfire Attack Level (BAL) plan Sect shown in Appendix 4 and relevant sections of the Australian Standard AS3959-2018 Construction of buildings in bush fire prone	tion 5.2



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areas or NASH Standard (1.7.14 updated) *National Standard Steel Framed Construction in Bushfire Areas - 2014* as appropriate, and Section 7.5 of Planning for Bushfire Protection, 2019.

B74	The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	Section 5.2
B75	During construction, the Applicant must ensure that: (a) exposed surfaces and stockpiles are suppressed by regular watering; (b) all trucks entering or leaving the site with loads have their loads covered; (c) trucks associated with the development do not track dirt onto the public road network; (d) public roads used by these trucks are kept clean; and (e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.	NA
B76	Prior to the commencement of earthworks, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by condition C2 and must: (a) be prepared by a suitably qualified and experienced person(s); be prepared in consultation with owners of adjoining residential properties (including those still occupied for residential use in the MRP), include evidence of this consultation, details of any issues raised and how the plan has responded to any issues raised during consultation; (c) detail and rank all emissions from all sources during construction of the development, including particulate emissions; (d) describe a program that is capable of evaluating the performance of the construction and determining compliance with key criteria, including installation of dust deposition gauges at neighbouring existing residences (where agreed by the landowner) or on the site boundary; (e) identify the control measures that will be implemented for each emission source; and (f) nominate the following for each of the proposed controls: (i) key criteria; (ii) monitoring method; and (iii) locations, frequency and duration of monitoring; (g) outline procedures that will be implemented in relation to: (i) record keeping; (ii) compliants register; (iv) response procedures; and (v) compliance monitoring; (h) detail contingency measures to be implemented to reduce any exceedances of relevant performance indicators or criteria and include a timetable for implementation.	NA

B77 The Applicant must:

(a) not commence earthworks until the CAQMP required by condition B76 is approved by the Planning Secretary; and (b) implement the most recent version of the CAQMP approved by the Planning Secretary for the duration of construction; and

NA



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	(c) offer to enter into an agreement with a neighbouring landowner, that may involve at-property treatment, if a complaint is received from that landowner and a non-compliance is confirmed by dust monitoring. Evidence of any agreement must be provided to the Planning Secretary.	
B78	The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).	Section 5.2
B79	Prior to the commencement of earthworks, the Applicant must undertake surface collection of the identified artefacts IF1, IF2 and IF3 as detailed in the Aboriginal Cultural Heritage Assessment Report prepared by Urbis and dated 12 April 2022. The identified artefacts must be registered on the OEH's Aboriginal Heritage Information Management System (AHIMS) Aboriginal Sites Register, prior to construction.	NA
B80	The Applicant must continue to consult with Registered Aboriginal Parties (RAPs) for the duration of construction. The RAPs should be consulted to determine the appropriate management of unexpected finds on the site.	NA
B81	Prior to the commencement of earthworks, the Applicant must prepare and implement Aboriginal cultural heritage induction training for all staff and contractors. The Applicant must involve Aboriginal knowledge holders in the development of the induction training. The training must outline the obligations of staff and contractors under the National Parks and Wildlife Act, 1974 and the conditions of this consent. The Applicant must ensure any new staff or contractors receive the induction training prior to commencing works on the site. The induction training material must form part of the CEMP required by condition C2.	NA
B82	If any item or object of Aboriginal heritage significance is identified on site: (a) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately; (b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and (c) Heritage NSW must be contacted immediately.	Section 5.2
B83	Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the National Parks and Wildlife Act 1974.	Section 5.2
B84	If any non-Aboriginal archaeological relics are uncovered during any works being carried out for the development: (a) all work in the immediate vicinity of the suspected relic(s) must cease immediately; (b) Heritage NSW must be contacted immediately; and (c) the suspected relic(s) must be evaluated, recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW.	Section 5.2
B85	Work in the immediate vicinity of any suspected non-Aboriginal archaeological relic(s) must not recommence until this has been authorised by Heritage NSW.	Section 5.2



Ref	Condition	How addressed
B86	Prior to, and during, construction works, the Applicant must implement the mitigation measures recommended in Section 2.2.5 of the Biodiversity Development Assessment Report prepared by Eco Logical Australia Pty Ltd, dated 14 April 2022.	NA
B87	Prior to the commencement of construction, a Wildlife Management Plan must be prepared in accordance with section 6.2 of the <i>Westlink Industrial Estate Wildlife Management Assessment Report</i> prepared by Eco Logical Australia Pty Ltd dated 14 April 2022, and be submitted to the Planning Secretary.	NA
B88	The Wildlife Management Plan must form part of the CEMP required by Condition C2 and the Applicant must implement the Wildlife Management Plan for the duration of construction and operation.	Section 5.2 and OWMP
B89	The quantities of dangerous goods stored and handled at the site must be below the threshold quantities listed in the Department's <i>Hazardous and Offensive Development Application Guidelines – Applying SEPP</i> 33 at all times.	Section 3.3.3
B90	The Applicant must store all chemicals, fuels and oils used on-site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's <i>Storing and Handling of Liquids: Environmental Protection</i> – <i>Participants Manual</i> (Department of Environment and Climate Change, 2007).	Section 3.3.3
B91	<ul> <li>Prior to the commencement of construction of the first warehouse building, the Applicant must update the Waste Management Plan included in the EIS for the development. The Plan must:</li> <li>(a) detail the type and quantity of waste to be generated during construction and operation of the development;</li> <li>(b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the <i>Protection of the Environment Operations Act 1997, Protection of the Environment Operations (Waste) Regulation 2014</i> and the <i>Waste Classification Guideline</i> (Environment Protection Authority, 2014); and</li> <li>(c) detail the materials to be reused or recycled, either on or off site.</li> </ul>	WWMP
B92	The Applicant must implement the Waste Management Plan for the duration of construction and operation.	Section 5.2 and WWMP
B93	Prior to the commencement of construction of the development, the Applicant must obtain agreement from Council for the design of the waste storage area for the development.	NA
B94	Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.	Section 5.2 and WWMP
B95	The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) and dispose of all wastes to a waste management facility or premises lawfully permitted to accept the waste.	Section 5.2 and WWMP

B96	The Applicant must: (a) implement suitable measures to manage pests, vermin and declared priority weeds on the site; and (b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area. Note: For the purposes of this condition, priority weed has the same definition of the term in the Biosecurity Act 2015.	Section 5.2 and OWMP
Part	C Specific Environmental Management, Reporting and Auditing	
C1	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: (a) detailed baseline data; (b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; (c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; (d) a program to monitor and report on the: (i) impacts and environmental performance of the development; and (ii) effectiveness of the management measures set out pursuant to paragraph (c) above; (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible; (f) a program to investigate and implement ways to improve the environmental performance of the development over time; (g) a protocol for managing and reporting any: (ii) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); (iii) failure to comply with statutory requirements; and (h) a protocol for periodic review of the plan. Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans	NA
C2	The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	NA
C3	As part of the CEMP required under condition C2 of this consent, the Applicant must include the following: (a) Construction Traffic Management Plan (see condition B1);	NA



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- (b) Erosion and Sediment Control Plan (see condition B21);
- (c) Dam Decommissioning Strategy (see condition B36);
  (d) Construction Noise and Vibration Management Plan (see condition B50);
- (e) Unexpected Finds Protocol (see condition B70);
- (f) Construction Air Quality Management Plan (see condition B76);
- (g) Site induction training material (see condition B81);
- (h) Wildlife Management Plan (see condition B87);
- (i) Community Consultation and Complaints Handling.

C4	The Applicant must: (a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and (b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.	NA
C5	The Applicant must prepare an Operational Environmental Management Plan (OEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	NA
C6	As part of the OEMP required under condition C5 of this consent, the Applicant must include the following: (a) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development; (b) describe the procedures that would be implemented to: (i) keep the local community and relevant agencies informed about the operation and environmental performance of the development; (ii) receive, handle, respond to, and record complaints; (iii) resolve any disputes that may arise; (iv) respond to any non-compliance; (v) respond to emergencies; and (c) include the following environmental management plans: (i) Operational Traffic Monitoring Program (see condition B3); (ii) Workplace Travel Plan (see condition B18); (iv) Landscape Management Plan (see condition B30); (v) Wildlife management Plan (see condition B37); (v) Wildlife management Plan (see condition B37); (vi) Waste Management Plan (see condition B37); (vi) Waste Management Plan (see condition B37); (vi) Qperational Traffic Management Plan (Condition B3A) (d) detail measures to minimise air emissions during operation.	NA



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C7	The Applicant must: (a) not commence operation until the OEMP is approved by the Planning Secretary; and operate the development in accordance with the OEMP approved by the Planning Secretary (and as revised and approved by the Planning Secretary from time to time).	OEMP and this WOEMP
C8	Within three months of: (a) the submission of a Compliance Report under condition C14; (b) the submission of an incident report under condition C10; (c) the approval of any modification of the conditions of this consent; or (d) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review, the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary must be notified in writing of the outcomes of any review.	Section 6.6
C9	If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review required under condition C8, or such other timing as agreed by the Planning Secretary. <i>Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.</i>	Section 6.6
C10	The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 6.	Section 5.3
C11	The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.	Section 6.3
C12	A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.	Section 6.3
C13	A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	Section 6.3
C14	Within six months after the commencement of construction of the development, and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary) for the duration of construction works, the Applicant must submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval	NA



Ref	Condition	How addressed
	<ul> <li>Requirements (Department 2020) and must also:</li> <li>(a) identify any trends in the monitoring data;</li> <li>(b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and</li> <li>(c) describe what measures will be implemented over the next year to improve the environmental performance of the development.</li> </ul>	
C15	The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least seven days before this is done.	NA
C16	Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing. <i>Note: For the purposes of this condition, as set out in the EP&amp;A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.</i>	Section 6.1
C17	At least 48 hours before the commencement of construction of the development and for the life of the development, the Applicant must: (a) make the following information and documents (as they are obtained or approved) publicly available on its website: (i) the documents referred to in condition A2 of this consent; (ii) all current statutory approvals for the development; (iii) all approved strategies, plans and programs required under the conditions of this consent; (iv) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent; (v) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; (vi) a summary of the current stage and progress of the development; (vii) contact details to enquire about the development or to make a complaint; (viii) a complaints register, updated monthly; (ix) the Compliance Report of the development; (x) any other matter required by the Planning Secretary; and (b) keep such information up to date, to the satisfaction of the Planning Secretary.	NA



D1	The External Road Works may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Planning Secretary; (c) in accordance with the Modification Report and Response to Submissions for Modification 5;and (d) in accordance with the plans in Appendix 7.	The OTMP has been developed to comply with relevant requirement of this condition
D2	The date of commencement of each of the following phases of the External Road Works must be notified to the Planning Secretary in writing, at least one month before that date, or as otherwise agreed with the Planning Secretary: (a) construction of each stage of the External Road Works, including any sub-stages; (b) operation of the interim traffic signals at the Mamre Road / Abbotts Road intersection; and (c) completion of the External Road Works.	OTMP
D3	Within 3 months of the date of the consent for SSD-9138102-Mod-5, or as otherwise agreed by the Planning Secretary, the Applicant must enter into a Works Authorisation Deed with TfNSW for the Mamre Road/Abbotts Road intersection works, including the installation of the interim signalised intersection of Abbotts Road and Aldington Road. TfNSW fees for administration, plan checking, civil works inspections and project management shall be paid by the Applicant prior to the commencement of works.	NA
D4	Prior to the commencement of construction of the interim traffic control signals, the proposed Traffic Control Signal/s (TCS) at the intersection of Mamre Road/Abbotts Road and Aldington Road/Abbotts Road must be designed to meet TfNSW requirements and have approval under section 87(4) of the <i>Roads Act, 1993</i> . The TCS plans shall be drawn by a suitably qualified practitioner.	NA
	The submitted design shall be in accordance with Austroads Guide to Road Design in association with relevant TfNSW supplements (available on <u>www.transport.nsw.gov.au</u> ). The certified copies of the TCS design and civil design plans shall be submitted to TfNSW for consideration and approval prior to the release of a Construction Certificate and commencement of construction of the traffic control signals. Please send all documentation to development.sydney@transport.nsw.gov.au.	
D5	Detailed design plans and hydraulic calculations of any changes to the stormwater drainage system are to be submitted to TfNSW for approval, prior to the commencement of any works referred to in Condition D3. Please send all documentation to is <u>development.sydney@transport.nsw.gov.au</u> . A plan checking fee will be payable and a performance bond may be required before TfNSW approval is issued.	NA
D6	The Applicant must be responsible for all public utility adjustment/relocation works, necessitated by the work referred to in Condition D3 and as required by the various public utility authorities and/or their agents. Should any public utility adjustment/relocation works be required adjacent to a classified road, plans are to be submitted to TfNSW for concurrence	NA


Ref	Condition	How addressed
	under section 138 of the <i>Roads Act, 1993</i> , prior to the commencement of any works. Please send all documentation to is <u>development.sydney@transport.nsw.gov.au</u> .	
	A plan checking fee may be payable and a performance bond may be required before TfNSW approval is issued.	
D7	Any realignment of site boundaries to facilitate the works referred to in Condition D3, inclusive but not limited to drainage, footpaths and batters resulting from the proposed road and construction works, must be dedicated as public road at no cost to the relevant roads authority unless specified otherwise in a planning agreement.	NA
D8	The Applicant must obtain a Road Occupancy Licence (ROL) from TfNSW Transport Management Centre for any works that may impact on traffic flows on Mamre Road during construction activities. A ROL can be obtained through <a href="https://myrta.com/oplinc2/pages/security/oplincLogin.jsf">https://myrta.com/oplinc2/pages/security/oplincLogin.jsf</a>	NA
D9	Prior to the commencement of operation of the first warehouse building, the Applicant must construct and operate the east-west internal road works shown in Figure 1 in Appendix 1 to the satisfaction of relevant road authority.	Section 2.2
D10	Prior to the commencement of operation of warehouse 4, the Applicant must construct and operate the north-south internal road works shown in Figure 1 in Appendix 1 to the satisfaction of the relevant road authority.	Section 2.2
D11	The Applicant must design and construct the Abbotts Road and Aldington Road widening works in accordance with the requirements of Council and any approval issued under section 138 of the <i>Roads Act 1993</i> .	NA
D12	The Applicant is responsible for the upkeep and repair of the operational road pavement of Abbotts Road for its full length within the existing road reserve and Aldington Road across the development frontage (full width) during the External Road Works. The repair works must be undertaken to the satisfaction of Council, and be at no cost to Council. Weekly pavement inspections must be undertaken by the Applicant to ensure that the road pavements are safe for all vehicles. Any identified potholes or pavement failures must be reported to Council immediately together with the proposed rectification method and timing for repair. All repairs must be undertaken at no cost to Council. If Council is required to undertakes any repairs to the road works to ensure a safe operating environment for all road users, the cost of such will be paid by the Applicant.	NA
D13	<ul> <li>Prior to the commencement of operation of warehouse 1, the Applicant must prepare an Operational Traffic Management Plan (OTMP) for the development to the satisfaction of the Planning Secretary. The OTMP must:</li> <li>(a) be prepared by a suitably qualified and experienced person(s);</li> <li>(b) be prepared in consultation with TfNSW and Council;</li> <li>(c) detail the measures to be implemented to manage operational traffic from warehouse 1 to ensure that all operational traffic accesses the site from Abbotts Road via a left turn in from Mamre Road and exit the site via Abbotts Road and turn left onto Mamre Road until the interim traffic signals are operational;</li> <li>(d) detail the measures to manage operational traffic with concurrent construction traffic from the site and the External Road Works and other public traffic, to ensure road safety and network efficiency at all times;</li> </ul>	OTMP

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	<ul> <li>(e) detail heavy vehicle routes, turning restrictions, access and parking arrangements;</li> <li>(f) include an Operational Driver Code of Conduct to:</li> <li>(i) minimise impacts on the local and regional road network;</li> <li>(ii) minimise conflicts with other road users;</li> <li>(iii) minimise road traffic noise;</li> <li>(iv) inform truck drivers of the site access arrangements, turning restrictions and use of specified routes;</li> <li>(v) include a program to monitor the effectiveness of these measures; and</li> <li>(vi) detail the compliance actions that would be implemented for any vehicles that deviate from approved routes and turning restrictions.</li> </ul>	
D14	The Applicant must: (a) not commence operation of warehouse1 until the OTMP required by condition D11 is approved by the Planning Secretary; (b) update the OTMP to reflect any changes to staging, routes or turning restrictions, and submit the updated plan to the Planning Secretary for approval, at least 1 month prior to implementing the changes; and (c) implement the most recent version of the OTMP approved by the Planning Secretary for the duration of the development.	OTMP
D15	The Applicant must lodge an application under section 138 of the Roads Act 1993 to the relevant roads authority to undertake the Stage 1 Abbotts Road Widening Works within 1 month of the date of consent of SSD-9138102-Mod5.	NA
D16	The Applicant must complete the Stage 1 Abbotts Road Widening Works within 4 months of receiving the section 138 <i>Roads Act, 1993</i> approval for the works, to the satisfaction of the relevant roads authority, unless otherwise agreed by the Planning Secretary.	NA
D17	The Applicant must execute a Voluntary Planning Agreement with Council to complete the remaining stages of the Abbotts and Aldington Road widening works, within 12 months of the date of consent of SSD-9138102-Mod-5 and prior to the issue of an occupation certificate for warehouse 4.	NA
D18	The Applicant must complete the External Road Works to the satisfaction of the relevant roads authorities prior to operation of warehouse 4.	NA
D19	The Applicant must comply with the requirements of TfNSW and Council for all construction and operational vehicle movements, as detailed in Construction Traffic Management Plans approved as part of the WAD and Section 138 <i>Roads Act, 1993</i> approval processes.	NA
D20	The Applicant must not: (a) undertake any subsequent development, including exempt or complying development, on the Stage 1 site shown in Figure 1 in Appendix 1; and	NA



Ref	Condition	How addressed
	(b) commence operation of warehouse 4; until the External Road Works are completed to the satisfaction of the Planning Secretary.	
D21	All External Road Works must be completed, to the satisfaction of the relevant roads authorities, prior to any other buildings on the Stage 1 site receiving occupation certificate(s).	NA
D22	The Applicant must prepare a Community Consultation Plan for the External Road Works to the satisfaction of the Planning Secretary. The Plan must: (a) be approved by the Planning Secretary prior to the commencement of the External Road Works; (b) be implemented for the duration of the External Road Works; (c) assign a central contact person to keep the community regularly informed throughout the works; (d) detail the mechanisms for regularly consulting with the nearest sensitive receivers and wider residential communities, to keep them informed about: (i) upcoming works, duration and any night-time or out of hours works; (ii) ochanges to property access and details of traffic disruptions; (iii) schedule for high noise generating works and vibration intensive activities, including details of the specific mitigation measures that would be implemented in accordance with the construction noise and vibration management plan approved under Condition D22; (iv) procedures to minimise dust impacts including details of the controls that would be implemented in accordance with the air quality management plan approved under Condition D22; (v) relocation of services including utilities and drainage; and (vi) details of environmental monitoring results; include contact details for key project personnel, relevant regulatory authorities and key community stakeholders; (e) include contact details for key project personnel, relevant regulatory authorities and key community stakeholders; (f) include a complaints procedure for recording, responding to and managing complaints, including: (ii) website, email, toll-free telephone number and postal address for receiving complaints: (ii) advertising the contact details for complaints prior to and during the works through on-site signage; (iii) a complaints register to record the date, time and nature of the complaint, details of the complaint and any actions taken to address the complaint; and (iv) procedures to resolve any disputes that may arise during the course of the External Road	NA
D23	The Applicant must: (a) not commence construction of the External Road Works until the Community Consultation Plan is approved by the Planning Secretary; (b) implement the approved Community Consultation Plan for the duration of the External Road Works.	NA
D24	The Applicant must provide details of the consultation undertaken in accordance with the Community Consultation Plan, to the Planning Secretary on a monthly basis including: (a) the outcomes of consultation, matters resolved and unresolved; and	NA



#### Ref Condition

How addressed

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

D25 Prior to the commencement of the External Road Works, the Applicant must prepare a Construction Environmental Management NA Plan (CEMP) for the External Road Works in accordance with the requirements of Condition C1 and to the satisfaction of the Planning Secretary. The CEMP must include the following:

(a) be prepared in consultation with Council;

(b) a traffic management plan prepared in consultation with TfNSW and Council, detailing the measures to ensure road safety and network efficiency during the External Road Works, a Driver Code of Conduct, a program to monitor the effectiveness of the measures and adherence to specified routes, and procedures for notifying residents and local schools of any disruptions to routes;

(c) a noise and vibration management plan prepared in accordance with the *Construction Noise and Vibration Guideline*, *TfNSW 2023 and Interim Construction Noise Guideline*, DECC 2009, describing measures developed in consultation with affected residents to manage high noise and vibration intensive works, and include an out of hours work protocol. Measures may include notifications, respite periods, scheduling of noisy works, temporary barriers, quieter plant or alternative construction methods, verification monitoring and/or provision of alternative accommodation;

(d) **an air quality management plan** prepared in accordance with the *Good Practice Guide for the Assessment and Management of Air Pollution from Road Transport Projects*, CASANZ 2023, detailing the location and duration of dust controls, details of monitoring and triggers for implementation of additional dust controls if required;

(e) **an erosion and sediment control plan** prepared in accordance with *Managing Urban Stormwater: Soils and Construction – Volume 1: Blue Book* (Landcom, 2004) and detail the measures to ensure the construction phase water quality targets in the *Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets* (Technical Guidance) (NSW Government, 2022) are met;

(f) mitigation measures recommended in the Biodiversity Development Assessment Report for the Mamre and Abbotts Road Intersection prepared by Fraser Ecological and dated 3 June 2024;

(g) **a cultural heritage management plan** including an unexpected finds protocol, prepared in consultation with Registered Aboriginal Parties;

(h) **an unexpected finds procedure** to manage any unexpected contamination encountered during the works, including details of testing and off-site disposal in accordance with the POEO Act and associated regulations; and

(i) **a contingency plan** detailing measures to deal with unexpected issues arising during the works, such as excessive dust, noise, traffic, water quality impacts and unfavourable weather conditions.

D26 The Applicant must:

(a) not commence construction of the External Road Works until the CEMP is approved by the Planning Secretary; and (b) carry out the construction of the External Road Works in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

D27 Within six months of the commencement of construction of the External Road Works, and every six months thereafter, until NA completion of the works, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of

NA



Ref	Condition	How addressed
	<ul> <li>an Independent Environmental Audit of the works. The audits must:</li> <li>(a) be prepared in accordance with the Independent Audit Post Approval Requirements (Department, 2020)</li> <li>(b) be led and conducted by a suitably qualified, experienced and independent expert, including a specialist traffic person, whose appointment has been endorsed by the Planning Secretary</li> <li>(c) assess the environmental performance of the External Road Works;</li> <li>(d) assesses whether the works are complying with the conditions of this consent; and</li> <li>(e) recommends measures or actions to improve the environmental performance of the works; and</li> <li>(f) be submitted to the satisfaction of the Planning Secretary within six weeks of commissioning the Audit (or within another timeframe agreed by the Planning Secretary).</li> </ul>	
D28	In accordance with the specific requirements in the Independent Audit Post Approval Requirements (Department 2020), the Applicant must: (a) review and respond to each Independent Audit Report prepared under condition D24 of this consent; (b) submit the response to the Planning Secretary and any other NSW agency that requests it, together with a timetable for the implementation of the recommendations; (c) implement the recommendations to the satisfaction of the Planning Secretary; and (d) make each Independent Audit Report and response to it publicly available no later than 60 days after submission to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done.	NA
D29	The External Road Works must be undertaken during the following hours: (a) 7 am to 6 pm Monday to Friday; (b) 8 am to 1 pm Saturday; and (c) at no time on Sundays or public holidays.	NA
D30	Works outside of the hours identified in condition D26 may be undertaken in the following circumstances: (a) works that are inaudible at the nearest sensitive receivers: (b) works agreed to in writing by the Planning Secretary; (c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or (d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.	NA
D31	Notwithstanding Conditions D26 and Condition D27, the following works may be undertaken out of hours, in accordance with the Out of Hours Works Protocol approved under Condition D22(c): (a) installation of drainage infrastructure; (b) asphalting; and (c) other works required to be completed at night for safety reasons, as detailed in an approved CTMP.	NA



Ref	Condition	How addressed
D32	Prior to the commencement of the External Road Works, the Applicant must: (a) undertake building condition surveys for properties located within 25 metres of the works; and (b) prepare a dilapidation survey of the heritage post adjacent to Mamre Road.	NA
D33	The Applicant must repair, or pay the full costs associated with repairing property that is damaged by carrying out the External Road Works.	NA
D34	Vibration caused by external road works at any residence or structure outside the site must be limited to: (a) for structural damage, the latest version of <i>DIN 4150-3 (2016-12) Vibration in Buildings – Part 3: Effects on Structures</i> (German Institute for Standardisation, 2016); and (b) for human exposure, the acceptable vibration values set out in the <i>Environmental Noise Management Assessing Vibration: a</i> <i>technical guideline</i> (DEC, 2006) (as may be updated or replaced from time to time).	NA
D35	Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition D31.	NA
D36	The limits in Conditions D31 and D32 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved under Condition D22 of this consent.	NA



Appendix B Regulatory Framework



Legislation	Key Project Requirements	Activity/Aspect
Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	Requirements in relation to protection and management of nationally and internationally important flora, fauna, ecological communities, and heritage places.	Threatened species and ecological environments
Environment Planning and Assessment Act 1979	Established a system of environmental planning and assessment of proposed developments in NSW. The Warehouse must comply with the relevant CoC of the Development Consent.	All
Biodiversity Conservation Act 2016	Comply with conservation requirements for any identified threatened species.	Threatened species and ecological environments
Protection of the Environment Operations Act 1997	The handling, storage and disposal of all waste streams on site is to be implemented in accordance with the POEO Act.	Waste management Discharges or emissions to air, land and water
	Aims to aid the protection, restoration and enhancement of the quality of the NSW environment, including emissions to air. Identifies activities for which an Environment Protection Licence is required.	
Protection of the Environment Operations (Noise Control) Regulation 2017	Comply with the requirements of the POEO (Noise Control) Regulation to mitigate the impacts of noise and vibration on sensitive receivers and the environment.	Management and mitigation of noise and vibration produced during operation
Protection of the Environment Operations (Clean Air) Regulation 2021	Identifies criteria for air quality objectives and emissions.	Management of any dust and air pollution emissions produced by operation to promote air quality
Protection of the Environment Operations (Waste) Regulation 2014	Handling, storage, transport and disposal of all waste streams to be undertaken with consideration for the requirements within the POEO (Waste) Regulation. Aims to protect human health and the environment. Identifies the thresholds for Environment Protection Licences.	Waste management Discharge or emissions to air, land, water in accordance with thresholds set by the regulation
Waste Avoidance and Resource Recovery Act 2001	<ul> <li>Aims to promote waste avoidance and resource recovery by:</li> <li>Encouraging efficient use of resources</li> <li>Encouraging the avoidance of waste and the reuse and recycling of waste</li> <li>Ensuring industry and the community share responsibility in reducing/dealing with waste</li> <li>Efficiently funding waste/resource management planning, programs and service delivery.</li> </ul>	Waste management
Contaminated Land Management Act 1997	Remediation requirements for management of contaminated lands.	May be applicable in the event of any unexpected find of contaminants/ contamination



Legislation	Key Project Requirements	Activity/Aspect
State Environmental Planning Policy (Resilience and Hazards) 2021	Remediation of contamination lands and consent requirements.	May be applicable in the event of any unexpected find of contaminants/ contamination
<i>Heritage Act 1977 National Parks and Wildlife Act 1974</i>	Protection and recording of Indigenous and non- Indigenous heritage values, relics, artefacts, places and other finds/remains.	May be applicable in the event of any unexpected find of Aboriginal heritage items
Managing Urban Stormwater: Soils and Construction – Volume 1 (the "Blue Book") (Landcom, March 2004)	Soil and erosion controls for managing surface water flows onsite and reducing potential for erosion and sedimentation leaving site.	Management surface water flows onsite
Technical guidance for achieving Wianamatta- South Creek stormwater management targets (DPE, September 2022)	In accordance with Water Sensitive Urban Design principles set out in the Technical Guidance.	Specific direction on what modelling to undertake, assumptions to make and which data to use to demonstrate that the stormwater management targets are being achieved
<i>Mamre Road Stormwater Scheme Plan</i> (Sydney Water, December 2022)	Performance of stormwater management system in accordance with Integrated Water Cycle Management Controls.	Water cycle management Irrigated street trees
Stormwater Scheme Infrastructure Design Guideline (Sydney Water, December 2022)	Irrigated street trees.	Design of irrigated street trees



# Appendix C Permits and Licences



Permit/Licence	Requirement	Commencement Date	Expiry Date	Responsibility
Biodiversity				
<i>Biosecurity Act 2015 (Noxious Weeds Act 1993 repealed)</i>	As an owner/occupier of land, given a weed control notice by a local control authority, or a successor in title to the owner or occupier who has notice of the notice, must not fail to comply with the notice (refer to Division 5, Clause 26).	If required	N/A	Noxious weeds to be controlled as specified under the control category.
Pesticides Act 1999	Any possession of pesticides on the site must be authorised through a permit in accordance with Section 12 of this Act.	If required	If required	Engage suitably qualified pest controller for the site
	Any application of pesticides in association with the site must be undertaken by a person who is licenced to carry out that type of work in accordance with Part 6 (Section 45) of this Act.			as required.
Contamination				
Contaminated Land Management Act 1997	<ul> <li>In accordance with Section 60, the EPA must be notified if:</li> <li>Contaminants exceed thresholds contained in the guidelines or regulations, where contamination has entered or will foreseeably enter neighbouring land, the atmosphere, groundwater or surface water</li> <li>Contaminants in soil are equal to or exceed guideline levels with respect to the current or approved use of the land</li> <li>Contamination meets other criteria that may be prescribed by the regulations.</li> </ul>	If required	N/A	Notification of the EPA will be undertaken, if required.
Protection of the Environment Operations Act 1997	Notify the EPA immediately of pollution incidents where material harm to the environment is caused or threatened, in accordance with Section 148.	If required	N/A	Notification of the EPA will be undertaken, if required.
Hazardous Substances				
Dangerous Goods (Road and Rail) Transport Act 2008	In accordance with Section 6, sub-contractors will work under this section for the licensing of vehicles transporting dangerous goods. Copies of permits to be obtained upon engagement of sub-contractors and this register will be updated accordingly.	To be confirmed (commencement of operational works)	To be confirmed	Ensure an appropriate licence is held and is in place where any transportation of dangerous goods is intended.



Permit/Licence	Requirement	Commencement Date	Expiry Date	Responsibility
Dangerous Goods (Road and Rail) Transport Act 2008	In accordance with Section 7, sub-contractors will work under this section for the licensing of drivers transporting dangerous goods. Copies of permits to be obtained upon engagement of sub-contractors and this register will be updated accordingly.	To be confirmed (commencement of operational works)	To be confirmed	License requirements will be obtained and briefed to all relevant operational personnel prior to operation.
Traffic and Transport				
Roads Act 1993	Road occupancy consent/licences under Section 138 of the <i>Roads Act 1993</i> are required for any works that disturb the surface of a public road, require works to be carried out in, on or over a public road, or interfere with a structure, work or tree on a public road.	To be confirmed (commencement of operational works)	N/A	Ensure all relevant licenses and approvals are sought prior to undertaking works within a public road.
Heritage				
Heritage Act 1977	Notify Office of Environment and Heritage (OEH) (Heritage Division) on discovery of a relic, in accordance with Section 14A.	If required	N/A	Notify OEH (Heritage Division) on discovery of a relic.
Bushfire				
Rural Fires Act 1997	If hot works are deemed unavoidable, then relevant hot works permits will be obtained by the Contractor under this Act, in accordance with Section 89.	To be confirmed (commencement of operational works)	To be confirmed	Permit requirements will be obtained and briefed to all relevant operational personnel prior to and during operation.
Waste				
Protection of the Environment Operations Act 1997	Waste is to be transported to a facility that can lawfully accept the waste, in accordance with Section 143.	To be confirmed (commencement of operational works)	To be confirmed	A s143 Agreement Notice and proof of waste classification must be provided prior to the acceptance of material at the Facility.



Appendix K Operational Waste Management Plan







# **Operational Waste Management Plan**

# Westlink Stage 1

290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek

SSD-9138102



# **DOCUMENT TRACKING**

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Source of cover image: ESR – Westlink Stage 1 – SSD 9138102 – Visual Impact Assessment Report (Geoscapes, 12 April 2022)

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Glossary	
AMMMs	Applicant's Management and Mitigation Measures
BCA	Building Code of Australia
CEMP	Construction Environmental Management Plan
CoC	Condition(s) of consent
CSCS	Community and Stakeholder Communications Strategy
DCP	Development control plan
EIS	Environmental impact Statement
EPA	Environmental Protection Authority
LEP	Local environmental plan
OEMP	Operational Environmental Management Plan
OWMP	Operational Waste Management Plan
POEO Act	Protection of the Environment Operations Act 1997
SSD	State significant development
The Development	Westlink Stage 1 Industrial Estate (formerly known as the Kemps Creek Logistics Park)
WMP	Waste Management Plan
WOEMP	Warehouse Operational Environmental Management Plan
WWMP	Warehouse Waste Management Plan



#### **1** INTRODUCTION

#### 1.1 Background

This Operational Waste Management Plan (OWMP) has been prepared by Aspect Environmental Pty Ltd (Aspect), on behalf of ESR Australia Pty Ltd (ESR) for the purpose of an industrial estate known as Westlink (formerly known as the Kemps Creek Logistics Park) (the Development).

This OWMP is a Sub-Plan of the Operational Environmental Management Plan (OEMP) and has been prepared with reference to:

- State significant development (SSD) 9138102 Development Consent (the Development Consent) dated 21 April 2023, as consolidated and the Applicant's Management and Mitigation Measures (AMMMs) included in Appendix 5 of the Development Consent
- Amendment Report (Ethos Urban, 15 September 2022)
- Environmental Impact Statement (Ethos Urban, 17 June 2021) including the Waste Management Plan (WMP, SLR, December 2020)
- SSD 9138102 Planning Secretary's Environmental Assessment Requirements which were issued in December 2020.

The Development site is approximately 319,800m<sup>2</sup> in area and is irregular in shape (refer Figure 1-1). The Development comprises the first stage of an industrial estate located within the Penrith City Local Government Area (LGA) at the location of:

- Lot 111 DP 1296469 63-72 Abbotts Road, Kemps Creek 2178
- Lot 112 DP 1296469 59-62 Abbotts Road, Kemps Creek 2178
- Lot 113 DP 1296469 290-308 Aldington Road, Kemps Creek 2178
- Lot 114 DP 1296469 1050-1064 Mamre Road, Kemps Creek 2178
- Lot 115 DP 1296469 1030-1048 Mamre Road, Kemps Creek 2178
- Lot 10 DP 1296455 285 Aldington Road Kemps Creek 2178.



Figure 1-1 Site context (EIS, Ethos Urban, June 2021)



#### **1.2 Purpose of OWMP**

This OWMP has been prepared to address CoC B91 and CoC B92 of the Development Consent and provide methods to monitor and manage impacts arising from waste being generated on site during operational activities and its disposal.

This OWMP provides waste management measures to manage impacts occurring in nonwarehouse areas on the Development site and is to be read in conjunction with the Warehouse Operational Waste Management Plans (WWMPs) prepared for waste management at each warehouse. The WWMPs are Sub-Plans of the Warehouse Operational Environmental Management Plan (WOEMP) prepared for each warehouse.

All personnel are responsible for the implementation of this OWMP and have the responsibility to stop works if there is the potential for a safety or environmental incident to occur.

## **1.3 Objectives of the OWMP**

The objectives of this OWMP are:

- Update the WMP included in the EIS in accordance with CoC B91
- Provide details of the type and quantity of waste to be generated during operation of the development, in accordance with Coc B91(a)
- Describe the handling, storage and disposal requirements for all waste streams generated on site, consistent with the *Protection of the Environment Operations Act* 1997 (POEO Act), *Protection of the Environment Operations (Waste) Regulation* 2014 and the Waste Classification Guideline (Environment Protection Authority, 2014) and other regulatory requirements in accordance with CoC B91(b)



- Provide details of the materials to be reused or recycled, either on or off-site including e-waste in accordance with CoC B91(c)
- Identify requirements to secure and maintain waste within designated waste storage areas at all times and avoid waste leaving the Development site onto neighbouring public or private properties in accordance with CoC B94
- Assess and classify all liquid and non-liquid waste to be taken off site for disposal to a waste management facility or premises lawfully permitted to accept the waste in accordance with CoC B95
- Identify the activities and impacts associated with operational waste management at the Development site and provide management measures to minimise and manage impacts on the environment and community
- Establish and define waste management roles and responsibilities
- Assign responsibility for the implementation, management, and review process of the OWMP
- Provide a consistent and uniform approach to waste management such that the required standards are attained and maintained for the duration of the operation of the Development
- Provide all operational personnel with sufficient information to undertake their activities in accordance with legal and other relevant waste management requirements and encourage the minimisation of waste production and maximisation of resource recovery
- Provide a framework for training, development, and support (systems, procedures, and documentation) necessary to undertake operations.

All ESR employees, warehouse tenants, sub-contractors and visitors are required to comply with the requirements of this OWMP during operations.

#### **1.4 Consultation**

The Development Consent did not require this OWMP to be prepared in consultation with any stakeholders.

#### **1.5 Distribution and Availability**

This OWMP will be distributed to staff with specific responsibilities under this OWMP and will also be made available to all operational staff and operations and maintenance contractors. A hard copy will be kept at the Development site.

A copy of this OWMP and all relevant statutory documentation registers will be available at the Development and will be readily available for relevant regulatory officers.

In accordance with CoC C17, the up-to-date, approved version of this OWMP, along with other information and documents, will be made publicly available on the Development's website, at least 48 hours prior to the commencement of operations and on an ongoing basis.



#### **1.6 Document Structure**

The structure of this OWMP is summarised below:

- Section 1 provides a brief overview of the Development and the purpose of this OWMP.
- Section 2 provides a summary of operations.
- **Section 3** outlines the statutory requirements and obligations which need to be met during operations.
- Section 4 provides a description of the roles and responsibilities for employees involved in operations. This section also outlines the waste management objectives and targets, and relevant training and inductions required so that employees and others are aware of their environmental obligations.
- **Section 5** provides the waste management hierarchy and waste management measures for operations.
- **Section 6** provides the monitoring, reporting, and auditing requirements and management of any environmental incidents and non-compliance.

#### **1.7 Progressive Application the OWMP for the Development**

This OWMP applies to operations at the Development. Operational areas will come online progressively as warehouse buildings and ancillary office spaces are constructed, commissioned and tenanted for storage or distribution of goods, and as the construction and landscaping of non-warehouse areas of the Development are completed.

As areas become operational, any adjacent construction areas will continue to be managed in accordance with the relevant Construction Environmental Management Plan (CEMP) and Sub-Plans, while operational areas will be managed in accordance with the OEMP and Sub-Plans.

Until the entire Development is operational, all construction areas will be appropriately identified and demarcated to enable effective management of the interface between any construction areas and operations.

As part of the OEMP review and revision program (Section 6.7 of the OEMP), the OEMP and this OWMP will be updated with the new operational site layout, while the CEMP and Sub-Plans will be revised to show the reduced area of construction.



### 2 DEVELOPMENT DESCRIPTION

### 2.1 Existing Environment

The Development is being operated in accordance with the Development Consent.

The Development involves bulk earthworks (including clearing site, levelling, import and compaction of fill material, excavation for installation of drainage and services, preparing the site for construction), subdivision, construction, fit out and operation of a new industrial estate at the site comprising two industrial warehouses, ancillary office space with a total gross floor area of 81,282m<sup>2</sup> (refer Figure 2-1).

The landscaping, construction of internal roads, external road upgrades including to Aldington and Abbotts Road, and a new signalised intersection at Mamre and Abbotts Road, site servicing and stormwater infrastructure works are also included in the development.

The Development site was previously surrounded by rural and rural residential areas, and rural residential lots remain to the east of the Development site. The Development is part of a larger industrial warehouse precinct (the Mamre Road Precinct, MRP) and other warehouse developments are being planned or constructed to the north, south and west of the Development site. The rural and rural residential areas to the north, south and west of the Development site will become warehouse developments in the future.

Figure 2-1 Stage 1 site layout (SSD 9138102 Development Consent, 21 April 2023, as consolidated)





Once operational the Development site will be used as a warehouse and distribution centre, anticipated to operate 24 hours a day, seven days per week. ESR will be responsible for the operation and maintenance of the non-warehouse areas of the Development and will engage contractors to undertake the activities required to operate and maintain these areas.

#### 2.2 Waste Streams and Classifications

This OWMP covers waste generated in non-warehouse areas through the following waste streams:

- Garden organic waste from landscaped areas
- General waste from operation and maintenance activities
- Domestic waste generated by employees and contractors.

As the non-warehouse areas have become operational on the Development site, ESR and its contractors will implement this OWMP to manage the specific waste streams generated by the operations and maintenance activities being undertaken.

A summary of all waste types generated during operations on the Development site, along with their waste classifications and management methods, has been provided in Table 2-1. The NSW EPA website provides further information on managing commercial and industrial waste and classifying waste types.

Waste Type	NSW EPA Waste Classification	Management Methods
General Operation		
Clean office paper	General solid (non-putrescible) waste	Paper recycling at off-site licensed facility
Cardboard including bulky cardboard boxes	General solid (non-putrescible) waste	Cardboard recycling at off-site licensed facility
Recyclable beverage containers, glass and plastic bottles, aluminium cans, steel cans	General solid (non-putrescible) waste	NSW container deposit scheme 'Return and Earn', container recycling at off-site licensed facility
Food waste	General solid (putrescible) waste	Compost on or off-site or dispose to landfill with general garbage
Batteries	Hazardous waste	Off-site recycling, alternatively contact the Australian Battery Recycling Initiative for more information
Mobile Phones	Hazardous waste	Off-site recycling; can be taken to the Mobile Muster program.
		Contact Mobile Muster for more information
Bulky polystyrene	General solid (non-putrescible) waste	Off-site recycling or disposal at landfill
Furniture	General solid (non-putrescible) waste	Off-site reuse or disposal to landfill
E-waste	Hazardous waste	Off-site recycling

Table 2-1: Waste types, classification and management methods



Waste Type	NSW EPA Waste Classification	Management Methods
General garbage, including non-recyclable plastics	General solid (putrescible and non-putrescible) waste	Disposal at landfill
Metal	General solid (non-putrescible) waste	Off-site recycling
Timber (including pallets)	Building and demolition waste	Off-site recycling
Soft Plastics	General solid (non-putrescible) waste	Off-site recycling
Ink & Toner Printer Cartridges	General solid (non-putrescible) waste	Supplier take back where applicable
Maintenance		
Glass, other than containers	General solid (non-putrescible) waste	Off-site recycling
Light bulbs and fluorescent tubes	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle11 or Lamp Recyclers12 for more information
Cleaning chemicals, solvents, area wash downs, empty oil, grease or paint drums, chemical containers	Hazardous waste if containers used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if containers cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility
Garden organics – lawn mowing, tree branches, hedge cuttings, leaves, etc	General solid (non-putrescible) waste	Reuse on-site or contractor removal for recycling at licensed facility
Oil, grease and fuel from plant, equipment and vehicles, including spill clean ups	Hazardous waste if containers used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility

#### 2.3 Estimated Waste Types and Quantities

The major type of waste that will be generated during the operation and maintenance of the non-warehouse areas will be garden organic waste, estimated to be 9 m<sup>3</sup> of waste generated on site each month.

The annual quantities of other waste types generated during the operation and maintenance of the non-warehouse areas, including maintenance of roads and other infrastructure, are expected to be negligible given the low frequency of the maintenance requirements. Nonetheless, all waste generated during the operation and maintenance of the non-warehouse areas of the Development will be managed in accordance with the waste management measures detailed in Section 4.2.



## 3 LEGAL AND COMPLIANCE REQUIREMENTS

## 3.1 Waste Regulatory Framework

The legislation and guidance outlined in Table 3-1 should be referred to during the operational phase of the Development.

Table 3-1:	Legislation ar	nd guidance
------------	----------------	-------------

Legislation and Guidance	Objectives				
Council Instruments and G	Council Instruments and Guidelines				
Penrith Local Environmental Plan (LEP) 2015	The Penrith LEP came into force for the entire Penrith local government area on 25 February 2015 and provides the legal framework of the Penrith Development Control Plan, including land use and development permitted in a set zone. The LEP also contains provisions to conserve local heritage and protect sensitive land.				
Penrith Development Control Plan (DCP) 2014	The Penrith DCP came into effect on 17 April 2015 and supports provision of the LEP planning controls by providing detailed planning and design guidelines. The DCP has been prepared in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i> .				
	One of the objectives of the DCP is to assist in reducing Penrith's ecological footprint by encouraging the diversion of waste from landfill. This WMP specifically addresses Part C5 – Waste Management of the DCP and the Waste Management Guidelines for Industrial, Commercial and Mixed Use.				
Waste Strategy 2017-2026 Penrith City Council	Council's waste strategy sets out the waste management targets for the Penrith local government area including working towards reduced waste generation and increased landfill diversion.				
	The strategy was prepared in consultation with the community and informed by waste audit results. The strategy defines the actions required to reach the targets, including actions for waste diversion from landfill, resource recovery, technology innovation, community education and resource recovery facilities.				
Mamre Road Precinct DCP	The Mamre Road Precinct DCP was released on 10 November 2020. This DCP applies to the Mamre Road Precinct within State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA-SEPP). Penrith LEP 2010 (and other Penrith local environmental planning instruments) and the Penrith DCP 2014 do not apply to land to which this DCP applies, except where specifically referred to in the WSEA SEPP and this DCP.				
State and National legislati	on and guidelines				
Building Code of Australia (BCA) and relevant Australian Standards	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.				
Council of Australian Governments National Construction Code 2019	The National Construction Code 2016 sets the minimum requirements for the design, construction, and performance of buildings throughout Australia.				
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates in Australia.				



Legislation and Guidance	Objectives
NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027	Replacing the NSW Waste Avoidance and Resource Recovery Strategy (2014-21), the NSW Waste and Sustainable Materials Strategy 2041 focuses on the transition of NSW to a circular economy. The strategy focuses on minimising what is thrown away, and to use and reuse resources more efficiently, making them as productive as possible. The strategy identifies the need to identify infrastructure needs, the mandating of separation of some organic waste streams, and incentivising biogas generation from waste materials.
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions under the POEO (Waste) Regulation 2014 for a range of waste that may be recovered for beneficial re-use. These waste types typically include those from demolition and construction works, as well as operational waste such as food waste.
	Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use.
	Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.
NSW EPA's Waste Classification Guidelines 2014	The NSW EPA Waste Classification Guidelines assists waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the POEO Act 1997 and its associated regulations.
Protection of the Environment Operations Act (POEO Act) 1997 and POEO Amendment Act 2011	The POEO Act 1997 and POEO Amendment Act 2011 are administered by the NSW Environment Protection Authority (NSW EPA) to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of waste generated during the demolition, construction and operational phases of a development, as well as the system for licensing waste transport and disposal.
Work Health and Safety Regulation 2017	The Work Health and Safety Regulation 2017 provides detailed actions and guidance associated with the topics discussed in The <i>Work Health and Safety Act 2011</i> . The primary aim of the regulation is to protect the health and safety of workers and ensure that risks are minimised in work environments. Workplaces are to ensure that they are compliant with the requirements specified in the regulations. The regulations discuss items such as actions that are prohibited or obligated in work environments, the requirements for obtaining licences and registrations, and the roles and responsibilities of staff in workplaces.
Waste Avoidance and Resource Recovery Act 2001	<ul> <li>The Waste Avoidance and Resource Recovery Act 2001 aims to promote waste avoidance and resource recovery. Specific objectives of the act include:</li> <li>Encouraging efficient use of resources</li> <li>Minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste</li> <li>Ensuring industry and the community share responsibility in reducing/dealing with waste, and</li> <li>Efficiently funding of waste/resource management planning, programs and service delivery.</li> <li>As of 2016, the addition of Part 5 to the Act defined the legislative framework for the "Return and Earn Container Deposit Scheme" whereby selected beverage containers can be returned to State Government authorities for a monetary refund.</li> </ul>



#### 3.2 Development Consent

The operation of the Development is approved by the Development Consent granted under the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This OWMP addresses the following CoC (Table 3-2) relevant to waste management during the operation of the non-warehouse areas of the Development.

Table 3-2: Summary of relevant CoC

SSD 9	OWMP Section				
Waste	Waste Management Plan				
B92	The Applicant must implement the Waste Management Plan for the duration of construction and operation.	Section 4.2			
Waste	Storage and Processing				
B94	Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.	Section 4.2			
Statut	ory Requirements				
B95	The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's <i>Waste Classification Guidelines Part 1: Classifying Waste</i> (EPA, 2014) and dispose of all wastes to a waste management facility or premises lawfully permitted to accept the waste.	Section 2.2			
Manag	gement Plan Requirements				
C1	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	Section 1.2			
	(a) detailed baseline data	Section 2.1			
	<ul><li>(b) details of:</li><li>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li></ul>	Section 3.1			
	(ii) any relevant limits or performance measures and criteria; and	Section 5.7			
	(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 5.7			
	(c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 5.7			
	<ul><li>(d) a program to monitor and report on the:</li><li>(i) impacts and environmental performance of the development; and</li></ul>	Section 5.4			
	(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;	Section 4.2			
	(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 5.5			
	(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 5.7			



SSD 9138102 CoC		OWMP Section
	<ul><li>(g) a protocol for managing and reporting any:</li><li>(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);</li></ul>	Section 5.3 Section 5.2
	(ii) complaint;	Section 4.3
	(iii) failure to comply with statutory requirements; and	Section 5.3
	(h) a protocol for periodic review of the plan.	Section 5.7
	<i>Note:</i> The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans	Noted
C6	As part of the OEMP required under condition C5 of this consent, the Applicant must include the following:	
	 (c) include the following environmental management plans: 	This OWMP
	(vi) Waste Management Plan (see condition B91).	



#### **4 OWMP IMPLEMENTATION**

#### 4.1 Waste Management Hierarchy

The waste management measures for the non-warehouse areas of the Development have been prepared in accordance with the AMMMs, Penrith City Council's Waste Hierarchy and C5 – Waste Management – Penrith DCP 2014, which addresses the objectives of the *Waste Avoidance and Resource Recovery Act 2001* (Figure 4-1) and NSW EPA waste management signage (Figure 4-2).



Figure 4-1: Waste management hierarchy (Penrith City Council DCP, 2014)

Figure 4-2: NSW EPA waste management signage



#### 4.2 Waste Management Measures

Waste avoidance measures, which eliminate or reduce waste generation, and waste reuse, recycling and disposal measures to be employed on site are provided in Table 4-1.

As outlined in the AMMMs and Penrith DCP 2014, waste materials produced are to be separated at the source and stored separately on site. Waste separation, storage and servicing measures to be implemented on site are provided in Table 4-2.



Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties. As outlined in Table 4-3 waste management initiatives and management measures should be clearly communicated to building managers, owners, employees, customers and cleaners. Signs which clearly identify waste management procedures and provisions to staff and visitors will be posted around the Development.



Table 4-1: Waste avoidance, reuse, recycling and disposal measures

ID	Mitigation Measure	Responsibility		
Waste a	Waste avoidance			
WM 1	The development should implement where possible the operational waste management strategies and recommendations provided in Section 6 of the Waste Management Plan prepared by SLR Consulting at Appendix O of the Amendment Report (Ethos Urban, 15 September 2022).	ESR		
WM 2	Participating in take-back services to suppliers to reduce waste further along the supply chain.	ESR/Contractors		
WM 3	Presenting all waste reduction initiatives to staff as part of their induction program.	ESR/Contractors		
Waste r	euse, recycling and disposal			
WM 4	Where possible, assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) and dispose of all wastes to a waste management facility or premises lawfully permitted to accept the waste.	ESR		
WM 5	Waste management initiatives and management measures should be clearly communicated to contractors, building managers, owners, employees, customers and cleaners.	ESR		
WM 6	All staff are to be trained in correct waste separation and management procedures.	ESR/Contractors		
WM 7	Provide directional signage to show location of and routes to waste storage area.	ESR		
WM 8	General waste and co-mingled recycling bins should be clearly labelled and colour-coded to ensure no cross contamination, where applicable.	ESR		
WM 9	Repair signs and labels promptly to avoid breakdown of communications.	ESR		
WM 10	Garden organics waste will be taken by a landscaping contractor who will dispose of it at an off-site licensed facility.	ESR/Contractors		

#### Table 4-2: Waste storage and servicing measures

ID	Mitigation Measure	Responsibility
Waste s	storage areas	
WM 11	Waste must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.	ESR/Contractors



ID	Mitigation Measure	Responsibility	
WM 12	The waste storage area must be large enough to adequately store all quantities of operational waste and recycling between collections.	ESR/Contractors	
WM 13	Storage areas should be well lit, well-ventilated, fully enclosed, walled with adequate vermin prevention measures.	ESR	
WM 14	Reduce potential noise and odour impacts and enhance safety for the public.	ESR/Contractors	
WM 15	Be connected to a water outlet for washing purposes and equipped with a hot and cold tap-based water supply centralised mixing valve.	ESR	
WM 16	Floor graded to a central drainage point which is connected to the sewer and have water discharge from washing flow to a sewer.	ESR	
WM 17	Provide signage to ensure appropriate use, be screened from public areas, preferably with landscape buffer planting, to reduce the impacts of noise, odour and visual amenity, and flexible in design to allow for future changes in operation, tenancies and uses.	ESR	
WM 18	All waste bins to be designed and installed with fixed lids and any bulk waste receptacle or communal waste storage area will be contained within enclosures that cannot be accessed by wildlife in accordance with Section 2.11 of the MRP DCP.	ESR	
Waste servicing			
WM 19	Waste will be removed regularly; arrangements should be in place so that the waste and recycling storage rooms are not accessible to the public.	ESR	
WM 20	Collection vehicles must be able to enter and exit the collection area in a forward direction.	ESR	
WM 21	A 0.5m unobstructed clearance is required from all obstructions for the vehicle's ingress and egress manoeuvres.	ESR	
WM 22	Access for the collection vehicles must be separate from the entry and exit driveway of any car parking areas to and from public areas.	ESR	



#### Table 4-3: Communication strategies and signage

ID	Mitigation Measure	Responsibility			
Commu	Communication Strategies				
WM 23	Waste management initiatives and management measures should be clearly communicated to contractors, owners, employees, customers and cleaners.	ESR			
WM 24	Use consistent signage and colour coding throughout the Development.	ESR			
WM 25	All staff are to be trained in correct waste separation and management procedures.	ESR/Contractors			
WM 26	Provide directional signage to show location of and routes to waste storage area.	ESR			
WM 27	General waste and co-mingled recycling bins should be clearly labelled and colour-coded to ensure no cross contamination, where applicable.	ESR			
WM 28	Employees and cleaners should adhere to the WMP for compliance, in consultation with management.	ESR			
WM 29	Repair signs and labels promptly to avoid breakdown of communications.	ESR			
Signage					
WM 30	Signs which clearly identify waste management procedures and provisions to staff and visitors should be distributed around the Development.	ESR			
WM 31	Clear and correct labelling on all waste and recycling bins, indicating the correct type or types of waste that can be placed into a given bin.	ESR			
WM 32	Signposts and directions to location of waste storage areas.	ESR			
WM 33	Clear signage in all waste storage areas to instruct users how to correctly separate waste and recycling.	ESR			
WM 34	Maintaining a consistent style colour scheme and system for signs throughout the Development.	ESR			
WM 35	Emergency contact information for reporting issues associated with waste or recycling management.	ESR			
WM 36	Provide directional signage to show location of and routes to waste storage area.	ESR			



### 4.3 Community and Stakeholder Communications

Section 4.5 of the OEMP describes the Community and Stakeholder Communications Strategy (CSCS) (Ethos Urban, May 2023) which outlines measures to enable effective communication with the community throughout the life cycle of the Development including operations.

The ESR Stakeholder Manager will manage all community liaison in accordance with the CSCS. Complaints will be received via the hotline and Development email address and will be managed in accordance with the CSCS.

#### 4.4 Environmental Incident and Emergency Response

Section 5.3 of the OEMP details environmental incidents and the response to environmental emergencies for the Development. This includes the reporting, notification and investigation of environmental incidents. Emergency contact details are also provided. In the event of an environmental incident or emergency related to the implementation of this OWMP, the responses detailed in the OEMP will be implemented.



### 5 WASTE MONITORING AND REVIEW

#### 5.1 Waste Monitoring

Waste monitoring will be undertaken to assist in the management of the following:

- Operation of the Development in accordance with the relevant conditions of the Development Consent
- Compliance with relevant legislative requirements
- The minimisation of potential environmental incidents
- · Effectiveness of waste management measures
- Implementation of this OWMP.

Monitoring requirements for the Development operations are detailed in Table 5-1. References are provided to the relevant CoC.

Table 5-1: Non-warehouse areas waste monitoring requirements

Aspect	Monitoring required	Frequency/Timing	Responsible	Reference
Waste	Records of waste generated, disposal methods, recycling and storage	Operations	ESR/Contractors	CoC B91

#### **5.2 Environmental Auditing**

Environmental auditing is described in Section 6.2 of the OEMP. ESR will undertake an internal Health, Safety, Security and Environment audit of the Development annually. Audits will involve a review of all environmental documents, records and reports to verify compliance with the OEMP (and this OWMP) to satisfy CoC C16.

Key environmental and procedural aspects to be covered by the audit may include:

- Environmental management measures detailed in this OWMP
- Adherence to reporting procedures
- Complaint and incident management
- Legislative requirements.

Environmental and operational records include:

- Contact Register
- Incident, non-compliance and corrective action reporting
- Communications with stakeholders
- Records of environmental monitoring
- OEMP and Sub-Plan audit documentation.

Waste audits will be conducted on a half-yearly basis to ensure this OWMP is being implemented at the Development. Records of waste disposal and recycling (including dockets, receipts and other physical records) will be reviewed to determine quantities of waste disposed and recycled at the Development.


# 5.3 Non-compliances and Actions

Section 6.4 of the OEMP details the Development team's response following the identification of a non-compliance with the CoC, the OEMP and Sub-Plans. This includes the reporting, investigation and notification of non-compliances. Non-compliances with this OWMP will be addressed as required by the OEMP.

## 5.4 Waste Management Reporting

The reporting of environmental performance (including waste management) during operations will be undertaken as required by the Development Consent, OEMP and this OWMP. The following waste management reports are required for the Development:

- reporting of the results of waste management inspections (weekly in first two months of operation and then six-monthly after that)
- waste management audit reports
- incident reports related to waste management incidents.

All contaminated or hazardous wastes, if any is found on site, should be removed and disposed off site at an appropriately licensed landfill facility.

### 5.5 Contingency Management Plan

If monitoring, auditing or inspections indicate that the waste management measures required by this OWMP are not effective in managing environmental impacts, the responses outlined in Table 5-2 will be implemented. These responses will manage any unpredicted impacts and their consequences. This plan would be implemented so that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible.

This contingency management for this OWMP is consolidated in Appendix D of the OEMP to form the Contingency Plan for the Development.



#### Table 5-2: OWMP contingency management plan

Key Element	Trigger/Response	Condition Green	Condition Amber	Condition Red
Waste	Trigger	Inspections identified no waste generated by operation outside of dedicated bins and storage areas.	Inspections identified minimal waste generated by operations outside of dedicated bins and storage areas.	Inspections identified large quantities of waste generated by operations outside of dedicated bins and storage areas.
				Complaints received regarding waste management.
	Response	Continue to implement existing measures in accordance with OWMP.	Clean up the waste immediately and dispose according to OWMP requirements.	Clean up the waste immediately and dispose according to OWMP requirements.
			Toolbox talk with all workers to discuss waste management requirements.	Toolbox talk with all workers to discuss waste management requirements.



# **5.6 Document Control and Records**

ESR, warehouse tenants and contractors are responsible for maintaining clear environmental records to demonstrate compliance with this OWMP, including where relevant:

- All monitoring records and reports
- Internal audit reports
- Reports of pollution incidents, environmental non-compliances and follow-up actions
- Reports of environmental complaints and follow-up actions
- Minutes of management review meetings, and actions required as a result
- Induction and training records.

All documentation, including environmental records, is to be controlled in accordance with the ESR document control system and contractual requirements.

Contractors are to make all relevant records available for inspection by ESR and/or the environmental auditor where requested or as directed in the OEMP.

## 5.7 OWMP Review and Revision Process

As described in Section 6.7 of the OEMP, ESR will implement a review program to meet the requirements of CoC C1(d) and (f) for the OEMP and Sub-Plans and to:

- Monitor and report on the:
  - Impacts and environmental performance of the Development
  - Effectiveness of the management measures included in the OEMP and Sub-Plans
- Investigate and implement ways to improve the environmental performance of the Development over time.

This review will consider the broader management context of the OEMP and Sub-Plans including:

- Phasing of operations as warehouses commence operations
- Changes in operational activities
- Environmental monitoring outcomes
- Progress against objectives and targets
- Changes in standards and legislation
- Any Regulatory Agency or Council input/requirements or response from DPHI
- Any third-party landholder inputs or requirements
- Community complaints received
- Issues raised by stakeholders
- Non-compliances identified and reported
- Incidents and the ESR and warehouse tenant response



- Development management team structure and resourcing
- Recommendations of environmental audits and previous reviews (after the initial review).

This review will be undertaken by the Senior Project Manager, in consultation with the warehouse tenants, on an annual basis following the initial environmental audit. An Environmental Review Report recommending measures to improve the environmental performance of the Development will be produced by the review.

CoC C8 also states that all strategies, plans and programs required under the Development Consent will be reviewed and the Planning Secretary notified of the review within three months of:

- the submission of a Compliance Report under CoC C14 (not relevant to operations)
- the submission of an incident report under CoC C10
- the approval of any modification of the conditions of the Development Consent or
- the issue of a direction of the Planning Secretary under CoC A2(b) which requires a review.

As per CoC C9, where documents are revised under the above reviews the revised documents will be submitted to the Planning Secretary for approval within six weeks of the review.

All employees and contractors will be informed of any revisions to the OWMP inductions and ongoing training.



## REFERENCES

Aspect Environmental (July 2023) *Construction Environmental Management Plan, Westlink Stage 1.* 

Aspect Environmental (April 2024) Operational Environmental Management Plan, Westlink Stage 1.

Ethos Urban (June 2021) Environmental Impact Statement – 290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek – Westlink Industrial Estate.

Ethos Urban (September 2022) SSD-9138102: Westlink Stage 1 – Amendment Report – 290-308 Aldington Road, 59-62 Abbotts Road & 63 Abbotts Road, Kemps Creek – ESR Australia.

Penrith City Council (2014) Development Control Plan.

SLR Consulting (August 2022) Waste Management Plan (Appendix O of the EIS).

SSD 9138102 Development Consent, dated 21 April 2023, as consolidated.

SSD 9138102 Planning Secretary's Environmental Assessment Requirements dated December 2020.



Appendix L Operational Traffic Management Plan for the Development



# **Operational Traffic Management Plan**

Westlink Stage 1

Mamre Road Precinct 20/12/2024 P1323Ar01v8



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# **Document Control**

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v5	28/10/2024	Consultation	K. Ballurkar	K. Ballurkar
v6	11/11/2024	Issue	K. Ballurkar	K. Ballurkar
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Appendix B. Section 138 Approval

Appendix C. Staging Plans (Road Works)

Appendix D. Operational Drivers Code of Conduct



# Glossary

Acronym	Description
AGRD	Austroads Guide to Road Design
AGTM	Austroads Guide to Traffic Management
The Estate	Stage 1 Westlink Industrial Estate
Council	Penrith City Council
CTMP	Construction Traffic Management Plan
DCP	Development Control Plan
DPHI	Department of Planning, Housing and Infrastructure
GFA	Gross Floor Area
MRV	Medium Rigid Vehicle (as defined by AS2890.2:2018)
MRP	Mamre Road Precinct
OTMP	Operational Traffic Management Plan
RTA Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
SSD	State Significant Development
TfNSW	Transport for New South Wales
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)



# **1** Introduction

# 1.1 Overview

Ason Group has been engaged by ESR to prepare this Operational Traffic Management Plan (OTMP) required for Warehouse 1 (the Site) of the Westlink Industrial Estate Stage 1 development. The OTMP responds to authority requirements and details the heavy vehicle routes corresponding to phasing of the road network supporting the Mamre Road Precinct.

The Estate is subject to a Stage 1 Masterplan approval, which was granted consent by the Department of Planning, Housing and Infrastructure (DPHI) on 21 April 2023 (reference: SSD-9138102<sup>1</sup>). This OTMP has been established pursuant to the Conditions of Consent accompanying latest approved modification to the Stage 1 Masterplan, SSD-9138102-MOD-5<sup>2</sup> (MOD-5), determined on 7 June 2024.

The Estate consists of 81,347m<sup>2</sup> of warehouse and office floorspace. A breakdown of the key development details is provided below.

TABLE 1: APPROVED ESTATE DETAILS				
Details	Land Use	Masterplan		
Building	Warehouse	79,131m <sup>2</sup>		
(GFA)	Office	2,186m <sup>2</sup>		
Derking Provisions	Car	390		
Parking Provisions	Bicycle	18		
Docks	Loading Bays	54		

The Stage 1 development is presented in Figure 1.



<sup>&</sup>lt;sup>1</sup> <u>https://www.planningportal.nsw.gov.au/major-projects/projects/westlink-industrial-estate-stage-1</u>

<sup>&</sup>lt;sup>2</sup> https://www.planningportal.nsw.gov.au/major-projects/projects/mod-5-external-road-upgrades



Figure 1: SSD-9138102 Architectural Masterplan

# 1.2 Background

This OTMP has been prepared specifically for Warehouse 1 (the Site) and relates to the operation of the individual warehouse. The warehouse is to be occupied by Toll, for the purposes of warehouse and logistics uses.

Toll will commence operations while numerous construction and road works associated with the Mamre Road Precinct are ongoing. The OTMP has been requested to ensure that the operational heavy vehicle traffic (warehouse/logistics) associated with Toll does not impact road safety and network efficiency, noting the context of ongoing and staged delivery of the Mamre Road Precinct Road Network.



# 1.3 Relevant Conditions

As abovementioned, this OTMP has been prepared in response to Conditions of Consent (SSD-9138102-MOD-5). The Conditions relevant to the OTMP are reproduced in **Table 2**.

TABLE 2: SSD-9138102 REQUIREMENTS				
Condition No.	Requirement	Comments and Document Reference		
D13	Prior to the commencement of operation of warehouse 1, the Applicant must prepare an Operational Traffic Management Plan (OTMP) for the development to the satisfaction of the Planning Secretary. The OTMP must:	-		
(a)	be prepared by a suitably qualified and experienced person(s);	Ason Group employees are suitably qualified and experienced.		
(b)	be prepared in consultation with TfNSW and Council;	Section 2 and Appendix A		
(c)	detail the measures to be implemented to manage operational traffic from warehouse 1 to ensure that all operational traffic accesses the site from Abbotts Road via a left turn in from Mamre Road and exit the site via Abbotts Road and turn left onto Mamre Road until the interim traffic signals are operational;	Section 6.2.		
(d)	detail the measures to manage operational traffic with concurrent construction traffic from the site and the External Road Works and other public traffic, to ensure road safety and network efficiency at all times;	Section 6.2.		
(e)	detail heavy vehicle routes, turning restrictions, access and parking arrangements;	Section 6		
(f)	include an Operational Driver Code of Conduct to:	Appendix D		
(i)	minimise impacts on the local and regional road network;	Appendix D		
(ii)	minimise conflicts with other road users;	Appendix D		
(iii)	minimise road traffic noise;	Section 7.2		
(iv)	inform truck drivers of the site access arrangements, turning restrictions and use of specified routes;	Appendix D		
(v)	include a program to monitor the effectiveness of these measures; and	Appendix D		
(vi)	detail the compliance actions that would be implemented for any vehicles that deviate from approved routes and turning restrictions.	Appendix B		
D14	The Applicant must:			
(a)	not commence operation of warehouse1 until the OTMP required by condition D13 is approved by the Planning Secretary;	Pending		
(b)	update the OTMP to reflect any changes to staging, routes or turning restrictions, and submit the updated plan to the Planning Secretary for approval, at least 1 month prior to implementing the changes; and	Pending		
(c)	implement the most recent version of the OTMP approved by the Planning Secretary for the duration of the development.	Pending		



D15	The Applicant must lodge an application under section 138 of the Roads Act 1993 to the relevant roads authority to undertake the Stage 1 Abbotts Road Widening Works within 1 month of the date of consent of SSD-9138102-Mod-5.	Please refer to Appendix B for a copy of the Section 138 Road Works approval issued by Penrith City Council.
D16	The Applicant must complete the Stage 1 Abbotts Road Widening Works within 4 months of receiving the section 138 Roads Act, 1993 approval for the works, to the satisfaction of the relevant roads authority, unless otherwise agreed by the Planning Secretary.	Please refer to Section 2, specifically response to Item 2 of Table 4 which includes discusses timing and delivery of these works.

## 1.4 Exclusions

This OTMP does not cover the following:

- Traffic and pedestrian management associated with construction activities. Reference should be made to relevant Construction Traffic Management Plans (CTMP) or Traffic Guidance Schemes (TGS's) specific to those works, as required.
- Traffic and parking management of the broader Westlink Industrial Estate.
- Transport of Dangerous Goods is not covered by this OTMP. A Transport Emergency Response Plan (TERP) is required prior to transport of any Dangerous Goods. It is expected that such plans will be prepared by the Tenant involved in the transport of Dangerous Goods to/from the individual businesses within the Estate.

# 1.5 References

In preparing this Plan, reference is made to the following:

- Modification 5 of Westlink Industrial Estate Stage 1 State Significant Development Modification Assessment Report, prepared by DPHI, dated June 2024 (MOD-5 Assessment Report),
- Stage 1 Westlink, Mamre Road Precinct State Significant Development Application (SSD-9138102) Transport management and Accessibility Plan prepared by Ason Group, dated 19 October 2022 (Ason TMAP), and
- Framework Operational Traffic Monitoring Program Westlink Stage 1, prepared by Ason Group, dated 15 March 2024 (Monitoring Program).



# **2 Stakeholder Engagement**

The relevant Authorities were consulted during the development of this OTMP under Condition D13, with the details of consultation provided in the below table.

TABLE 3: STAKEHOLDER CONSULTATION ACTIONS			
Stakeholder	Action		
	OTMP (P1323Ar01v4) was submitted to TfNSW on 16 September 2024.		
Transport for New South Wales (TfNSW)	OTMP (P1323Ar01v05) addressed comments received from TfNSW as outlined in <b>Table 4</b> .		
	This OTMP (P1323Ar01v06) includes confirmation that TfNSW were satisfied with the changes to the previously submitted OTMP, with a copy of correspondence provided in <b>Appendix A</b> .		
	OTMP (P1323Ar01v4) was submitted to Penrith City Council on 16 September 2024.		
Penrith City Council	OTMP (P1323Ar01v05) addressed comments received from Council as outlined in <b>Table 5</b> .		
	This OTMP (P1323Ar01v06) includes confirmation that TfNSW were satisfied with the changes to the previously submitted OTMP, with a copy of correspondence provided in <b>Appendix A</b> .		
Department of Planning, Housing and	OTMP (P1323Ar01v6) was submitted to DPHI following consultation with the abovementioned authorities as required under Condition D13.		
Infrastructure DPHI	This OTMP (P1323Ar01v08) addresses relevant comments received from DPHI as outlined in <b>Table 6</b> .		

TABLE 4: TRANSPORT FOR NSW COMMENTS				
No.	Comment 10 October 2024	Ason Group Response		
1	The approval of the staging plans for the traffic signal works for the Mamre/Abbotts Road have been confirmed by the TfNSW Project Manager so there are no further comments regarding this component of the OTMP.	Noted		
2	In the consent for Mod 5, ESR were required to undertake Stage 1 Abbotts road widening works to allow occupation by Toll:			
	D15. The Applicant must lodge an application under section 138 of the Roads Act 1993 to the relevant roads	Condition D15 has been satisfied, please refer to Appendix B for a		



	authority to undertake the Stage 1 Abbotts Road Widening Works within 1 month of the date of consent of SSD-9138102-Mod-5.	copy of the approval for the Section 138 works issued by Penrith City Council.
D16.	authority to undertake the Stage 1 Abbotts Road Widening Works within 1 month of the date of consent of SSD-9138102-Mod-5.	<ul> <li>copy of the approval for the Section 138 works issued by Penrith City Council.</li> <li>While it is noted that this is not a pre-requisite condition for the opening of Warehouse 1, the intent is for the Abbotts Road works to be completed within a shorter timeframe.</li> <li>ESR and TfNSW have engaged in further discussions regarding possible delays and mitigations: <ul> <li>Delays such as from wet weather or authority reviews may require the ongoing establishment of work sites on Abbotts Road. In this regard, the external contractor will be responsible for implementing approved temporary traffic control measures to guide vehicles past Warehouse 1. The Operational Drivers Code of Conduct has thus been updated to re-enforce that drivers must obey instructions and directions for any temporary traffic control associated with external works (or as per other approved work sites).</li> <li>ESR note that Stage 1 works have been disrupted by industrial action by Endeayour</li> </ul> </li> </ul>
		action by Endeavour Energy and therefore an estimated timeframe of 23 January 2025 would not be feasible. In this regard, the works only relate to Aldington Road which will not impact Warehouse 1 traffic under the Phase 1 routes that require drivers to use Abbotts Road to access Mamre Road.



3	The Stage 1 Abbotts Road Widening works are described in the consent as:	The approved Stage 1 drawings for the Abbotts Road Widening		
	<ul> <li>Constructing temporary pavement on the southern side of Abbotts Road and western side of Aldington Road and temporary safety barriers, as shown on the plan</li> </ul>	Appendix C.		
	'AARU Civil Works Staging Drawing Stage 01 Abbotts Rd SP2_3 (Nov 2023)' prepared by Robson Civil.	This addresses Condition D15 and It is noteworthy that Condition		
	I have attached the AARU Civil Works Staging Drawing Stage 01 Abbotts Rd SP2_3 (Nov 2023) which ESR are conditioned to provide prior to occupation by Toll. The works I refer to are shown in sheet 1 of the plans.	D16 relates to post-opening of Warehouse 1.		
	In the submitted OTMP I do not see any reference to these works. TfNSW require the OTMP to be updated to include reference to these plans and that conditions D15 and D16 have been satisfied.			

#### TABLE 5: PENRITH CITY COUNCIL

No.	Comment (9 October 2024)	Response
1	It would be beneficial to have the Construction Traffic Management Plan and Traffic Guidance Schemes attached/referenced in the OTMP so to ensure that all three documents are consistent with one another.	Ason Group has been preparing Construction Traffic Management Plans with Traffic Guidance Schemes as part of a separate engagement relating to the external works. The OTMP is intended as a document for tenants to implement for the management of Warehouse 1. It is not considered necessary to include the CTMP and TGS to the OTMP, however both the OTMP and DCoC have been updated to reinforce that drivers should obey any instruction or direction associated with temporary traffic control for external works (or other work
		sites).



#### **TABLE 6: DEPARTMENT OF PLANNING, HOUSING AND INFRASTRUCTURE**

No.	Comment (18 December 2024)	Response
1	The assessment of the external road works under SSD-9138102-Mod-5 included reliance on the operation of warehouse 1 to build up over three stages as the warehouse fit-out progresses. The OTMP should clarify how this will be implemented and the timeframes relative to the infrastructure sequencing.	As informed by estimates from the project team, the relationship between Warehouse 1 staffing and external road works (as it relates to Abbots Road) is shown in the graph below. This includes the estimated workforce utilisation for both <b>contractors</b> of the Fit-Out Works and <b>employees</b> for the warehouse tenant.



		Reference should be made to the Framework report prepared by Ason Group (Ref: P1323Br01v1, prepared March 2024) with a high level summary of contingencies provided below to demonstrate the mitigation measures which can be implemented to manage volumes if required during external works.		
		Condition Green	Condition Amber	Condition Red
		Within volume thresholds	Exceeding volume thresholds	Intersection exceeding capacity
		No response required	Review and investigate	As with Condition Amber, plus;
			operational activities, and where appropriate, implement additional remediation measures such as:	<ul> <li>Investigate alternative arrangements to increase capacity at the key Mamre Road / Abbotts Road</li> </ul>
			<ul> <li>Implementing a specific delivery schedule to reduce operational traffic volumes during the peak hours.</li> </ul>	intersection (i.e., modify signal phasing or investigate physical measures such as increase in turning lanes.
			<ul> <li>Review shift patterns to reduce operational traffic volumes during the peak hours.</li> </ul>	
	<i>ndition D13(d) requires detail of the</i> Ason Group has been preparing Construction Traffic Management Plans with Traffic Guidant <i>asures to manage operational traffic with</i> <i>ncurrent construction traffic from the site</i>			ns with Traffic Guidance Schemes as
2	and the External Road Works and other public traffic. Aside from the phased vehicle routes, site signs and code of conduct, please provide further detail on how operational, construction and public traffic will be managed alongside the external road works.	The OTMP is intended as a document for tenants to implement for the management of Warehouse 1. It is not considered necessary to include the CTMP and TGS to the OTMP, however both the OTMP and DCoC have been updated to reinforce that drivers should obey any instruction or direction associated with temporary traffic control for external works (or other work sites).		



# **3 Project Details**

# 3.1 Westlink Industrial Estate Site Context

The Site is located within the Westlink Industrial Estate on 59-63 Abbotts Road, Kemps Creek and is legally known as Lots 111 to 115, DP 1296469 and Lot 10, DP 1296455.

The Estate is located approximately 4 km north-west of the future Western Sydney International (Nancy-Bird Walton) Airport (WSA), 13 km south-east of the Penrith CBD and 40 km west of the Sydney CBD.

The Site has frontage to Abbotts Road and Aldington Road. The location of the Site is presented below in **Figure 2**.



Figure 2: Site Appreciation and Road Hierarchy

All access to the Estate is provided via 1 Abbotts Road which is connected to Mamre Road as shown by **Figure 3**.





Figure 3: Estate Context

# 3.2 Site Overview

#### 3.2.1 Warehouse 1 Development

In relation to Warehouse 1, the development comprises the following:

- A total development GFA of 63,007m<sup>2</sup>, including:
  - Warehouse Gross Floor Area (GFA) of 61,271m<sup>2</sup>
  - Ancillary and dock office GFA of 1,736m<sup>2</sup>
- Provision of 294 parking spaces
- Cycle parking
- Loading docks, and
- Associated site landscaping.



The Warehouse 1 development is presented in Figure 4.



Figure 4: Warehouse 1 Architectural Plan

#### 3.2.2 Hours of Operation

With reference to the SSD-9138102 Conditions of Consent, the Site will operate 24 hours a day, 7 days a week.

#### 3.2.3 Site Access Arrangements

The Site has separated entry and exit access crossovers for commercial vehicles (Heavy Vehicles). These driveways are located along the Access Road 01 and shall facilitate access and egress movements for up to 30m PBS Level 2 Type B vehicles.

The Site's car park has a combined entry and exit driveway along Access Road 01 and shall facilitate access and egress movements for light vehicles.

A copy of the approved warehouse plan and access crossovers have been provided in per Figure 5.





Figure 5: Operational Heavy Vehicle Movement Plan



# 3.3 Other Project Works

#### 3.3.1 Warehouse 4

As indicated by the approved Estate plan, a second warehouse, Warehouse 4, will form the remaining Stage 1 Westlink development.

#### 3.3.2 External Road Networks

Further, construction activities associated with the external road upgrade works may occur concurrently during the operation of Warehouse 1. These infrastructure works include upgrades to intersections as well as carriageways widening prior to the delivery of ultimate network layout. These key upgrades include:

- Mamre Road & Abbotts Road Intersection Upgrade (MAUI) delivered by ESR:
  - Signalisation of the Mamre Road / Abbotts Road intersection (prior to this, the intersection may include restrict Abbotts Road traffic to left-in and left-out (LILO) movements as indicated by signage responding to conditions).
  - Widening of Mamre Road for 200m to the north and 600m to the south of the intersection including provision of dual carriage ways on both sides and turning lanes at the intersection.
- Abbotts Road & Aldington Road Intersection Upgrade (AAIU) Phase 1 delivered by ESR:
  - Widening of Abbotts Road consistent with the ultimate layout on land owned by ESR and Council, with the interim layout proposed in other areas
  - Widening of Aldington Road within the existing road reserve along the frontage of the Estate
  - Installation of traffic signals at the intersection of Abbotts Road / Aldington Road
- Abbotts Road & Aldington Road Intersection Upgrade (AAIU) Phase 2 delivered by others:
  - Widening of Aldington Road to the north of the subject site

A copy of staging plans for the MAIU and AAIU Phase 1, as will be delivered by ESR, is provided in **Appendix C**.

The indicative works duration and anticipated peak hourly and daily trip generation of these works are summarised in **Table 7** and **Table 8** below. The OTMP will be updated to include dates/timeframes once staging information is confirmed and made available.



#### **TABLE 7: EXTERNAL ROAD WORKS DURATION (INDICATIVE)**

Upgrade	Stage	Duration	Relevance	
Memre Deed 9	1	3 months	The upgrade of the intersection as well as interim conditions inform the routes described in this OTMP for each relevant phase.	
Abbotts Road	2	6 months		
Intersection Upgrade	3	6 months		
(WAIO)	4	6 weeks		
	1	6 weeks	These opening of Warehouse 1 may initially coincide with ongoing works for the AARU project. Notwithstanding, traffic guidance	
Abbotts Road & Aldington Road	2	3 months	facilitate any temporary traffic control measures to manage the passage of vehicles past works sites.	
Phase 1: Aldington Road Site Frontage Only	3	8 months	Aldington Road would be inconsequential noting that drivers will not use this road until Phase 2.	
	4	2 weeks		
Abbotts Road and	Early Works	5 months	The delivery of Phase 2 is expected	
Aldington Road Upgrade (AARU)	1	12 months	to cause minimal impacts noting that Abbotts Road will remain as the	
Phase 2: Aldington Road (North of Subject Site)	2	7 months	main thoroughfare to access Mamre Road.	

#### **TABLE 8: EXTERNAL ROAD WORKS CONSTRUCTION TRIP GENERATION**

Upgrade	AM	РМ	Daily
MAIU	30	18	284
AARU Phase 1	40	20	332
AARU Phase 2	40	22	358



# **4 Traffic Management Methodology**

# 4.1 Overview

The OTMP has been prepared in response to Condition D13, the key matters to be considered by this OTMP are summarised in **Table 9** below.

# TABLE 9: OPERATIONAL TRAFFIC MANAGEMENT PLAN CONSIDERATIONS OTMP Considerations Management Aspect Heavy Vehicle Routes Relevant Condition D13 (c) (e) (f)

Nelevant Condition			
Triggers for Interventions	<ul> <li>As operation of the Site are expected concurrently with the delivery of external road upgrades, heavy vehicle route planning and management are critical to ensure the safe operation of key intersections during each infrastructure upgrade sequencings.</li> <li>Interventions have been developed to:</li> <li>identify the appropriate heavy vehicle access routes to and from the Site</li> <li>manage driver behaviour and ensure implementation of the identified routes</li> </ul>		
Interventions	Operational Drivers Code of Conduct (refer Section 6.2.2)		



# **5 Infrastructure Sequencing**

## 5.1 Overview

The Site is located within the Mamre Road Precinct, where road network development and upgrades are ongoing. It is understood that ESR is responsible for delivering of some external road upgrade works through the Works Authorisation Deed (WAD) process with TfNSW and Voluntary Planning Agreement (VPA) with Council.

These external road upgrade works contemplated under the original SSD include upgrades of the following key intersections and the delivery of associated road widening:

- Signals at Mamre Road/Bakers Lane,
- Signals at Mamre Road/Abbotts Road, and
- Signals at Aldington Road/Abbotts Road.

It is understood that the progression of the road design through the WAD and VPA processes has been delayed. Consequently, the required external road works would not be delivered in time for the proposed operation of Warehouse 1. As such, commencement of Warehouse 1 operation during the construction of the external road upgrades has been proposed under MOD-5.

This arrangement has been approved by the DPHI subject to the implementation of an Operational Traffic Management Plan for Warehouse 1, to ensure heavy vehicle movements would be safely managed through each stage of the roadworks to reflect changed traffic conditions and turning restrictions.

# 5.2 Infrastructure Delivery Phasing

In this regard, four key infrastructure delivery phases have been identified in table below to distinguish when changes to heavy vehicle access routes to Site are required. This nominates the major intersection changes as the indicator of network changes, noting that road widening is also included as part of these works.

#### **TABLE 10: INFRASTRUCTURE PHASING**

	Relevant External Road Works Completion Status			
Phase	Mamre Road / Abbotts Road Intersection	Abbotts Road / Aldington Road Intersection	Southern Link Road	
1	Existing – priority-controlled, (subject to LILO turning restrictions)	Existing – priority-controlled	Not constructed	
2a	Signalised Intersection	Signalised intersection	Not constructed	
2b	Signalised Intersection	Signalised intersection	Operational, provides heavy vehicle access between Aldington Road and Mamre Road	
3	Signalised Intersection	Signalised intersection	Operational	



# **6 Vehicle Routes**

## 6.1 Overview

Heavy vehicle access routes for each the key external road network delivery phasing have been identified. The purpose of provision of these routes is to ensure that drivers only use the upgraded road network as indicated. The access routes for each infrastructure phasing are detailed below.

#### 6.1.1 Phase 1 – Existing Mamre Road / Abbotts Road Intersection

During Phase 1, the existing road network operation restrictions apply, with the Mamre Road / Abbotts Road intersection currently subject to left-in left-out (LILO) traffic movement restrictions.

Condition D13 (c) reinforces this movement whereby "all operational traffic accesses the site from Abbotts Road via a left turn in from Mamre Road and exit the site via Abbotts Road and turn left onto Mamre Road until the interim traffic signals are operational".

Therefore, all heavy vehicles associated with the Warehouse 1 development are subject to LILO traffic movement restrictions accessing Abbotts Road via Mamre Road at all times (24hr) during Phase 1. The arrival and departure trips are detailed below:

- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and left into Abbotts Road.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then south along Mamre Road and left into Abbotts Road.
- Departure Trips:
  - Route 1: From the Site, straight onto Abbotts Road, then left onto Mamre Road, south to Elizabeth Drive and left to the M7 Motorway and sub-regional routes to the east.
  - Route 2: From the Site, straight onto Abbotts Road, then left onto Mamre Road, then south to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

The Phase 1 routes are illustrated in Figure 6.





Figure 6: Phase 1 – Heavy Vehicle Access Routes (All Vehicles)



Phase 2a will include signalisation of the Mamre Road / Abbotts Road intersection. All turning movements for both light and heavy vehicles at the intersection will be permissible.

The Phase 2a are illustrated in Figure 7.



Figure 7: Phase 2a – Heavy Vehicle Access Routes



During Phase 2b, further infrastructure upgrades within the wider Mamre Road Precinct are anticipated. These include the delivery of Aldington Road upgrade and a partial Southern Link Road (SLR) connection between Mamre Road and Aldington Road.

These works will allow all operational vehicle associated with the Westlink Stage 1 development to access Mamre Road and Aldington Road via the future SLR connection, which will be provided parallel to the existing Bakers Lane. The Phase 3b routes are illustrated in **Figure 8**.



Figure 8: Phase 2b – Heavy Vehicle Access Routes



Finally, Phase 3 infrastructure delivery assumes the operation of the ultimate road network as defined by the MRP DCP. In this regard, the future SLR connection to Wallgrove Road and additional access routes through internal local road connections are available. The Site location in relation to the ultimate road network is illustrated in **Figure 9**.



Figure 9: Phase 3 – Heavy Vehicle Access Routes (Ultimate Mamre Road Precinct Network)



# 6.2 Interventions

#### 6.2.1 Signage

Relevant signs will be placed at the Westlink Estate gate and Warehouse 1 access to reinforce the turning restrictions for Phase 1 and Phase 2a (subsequent phases relate to progression of the Mamre Road Precinct Network. These signs will include the following as shown in **Figure 10**.



Figure 10: Signage for Phase 1 and Phase 2a at Westlink Estate

#### 6.2.2 Operational Drivers Code of Conduct

An Operational Drivers Code of Conduct (DCoC) has been prepared in response to Condition D13 (f), and is intended to provide clear instructions for Toll employees and applicable Toll subcontractors regarding the vehicle heavy access routes. The Operational DCoC has been established to address the following key objectives:

- To minimise operational traffic impacts on the local and regional road network
- To minimise conflict with other road users, whom may otherwise be impacted by the construction traffic associated with the infrastructure delivery works in the Mamre Road Precinct.
- To minimise road traffic noise; and
- To ensure drivers use specified routes between the Site and the regional road network in accordance with changed access and/or turning restrictions at relevant intersections.
- To advise all drivers to obey all instructions for all temporary traffic control measures associated with the delivery external road works.

The Operational DCoC is annexed as **Appendix D**.

#### 6.2.3 Operational Traffic Monitoring Program

An Operational Traffic Monitoring Program has been addressed as per the requirements of Condition B3 and relates to operational traffic volumes. This Operational Traffic Monitoring Program has been prepared separately by Ason Group, which provides detail of the monitoring methodology and a Contingency Plan for management measures.



# 7 Plan Administration

# 7.1 Plan Maintenance

This Plan shall be subject to ongoing review and will be updated as necessary in response to monitoring activities, changing requirements or in response to any documented WHS issues. In particular, a review of this Plan may be required where a new business occupies a tenancy and has different operational requirements to that envisaged under this Plan (refer to Section 3.2). Where a change of businesses does not alter the underlying characteristics of the operation, no change to this plan would be required.

As a minimum, ongoing review of the OTMP shall occur annually or in response to changed vehicle routes with road upgrades (phases). All and any reviews undertaken should be documented.

# 7.2 Internal Traffic Management

To ensure minimal disruption to the local road network, a Contingency Plan for internal traffic management is outlined in **Table 11**.



TABLE 11: CONTINGENCY PLAN				
Risk		Regular Conditions	Intervention Conditions	
	Trigger	Visual monitoring of all traffic movements within the Site does not detect unsafe movement of traffic and risk to persons and property	Monitoring of all traffic movements within the Site detects unsafe movement of traffic and risk to persons and property	
	Response	Visual monitoring to continue daily as part of an ongoing process.	<ul> <li>Review needed to address persistent unsafe movements.</li> <li>Modification of traffic controls to self-enforce appropriate vehicle manoeuvres within the Site.</li> </ul>	
	Trigger	Following periods of adverse weather conditions (e.g., a significant heavy rain event), internal roads/aisles have been inspected prior to vehicle traffic use and no issues found	Internal roads / aisles have been inspected following adverse weather conditions and minor issues found (small potholes, dirt / debris, or pooling water)	
Operational	Response	No further action required until next adverse weather event.	<ul> <li>Any impediments to access roads will be cleared.</li> <li>Maintenance teams to repair any potholes for internal roads and remove excess water when expected traffic volumes are lowest.</li> </ul>	
Movements	Trigger	Parking occupancy less than provided on-site capacity	Parking bay requirements are within 90% of the provided spaces	
	Response	No response required. Continue monitoring program	<ul> <li>Review and investigate parking rates and where appropriate, implement additional remediation measures such as:</li> <li>Undertake additional parking reviews to determine cause of higher limit parking space issues in more detail.</li> </ul>	
			• Review OTMP and update where necessary.	
			<ul> <li>Provide additional training to tenants to provide information on lowering parking demands.</li> </ul>	
	Trigger	No unsafe pedestrian movements identified.	Pedestrian behaviour identified to be risky and unsafe.	


	Response	No response required. Continue monitoring program	<ul> <li>Review needed to address persistent unsafe movements.</li> <li>Modification of traffic controls to self-enforce appropriate vehicle manoeuvres within the Site.</li> </ul>	
	Trigger	Loading / service bays are within operational constraints	Loading / service bays are within 90% of capacity	
Response		No response required. Continue monitoring program	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Drivers be provided with additional training and an extra copy of the Driver Code of Conduct.</li> <li>Provision of additional training to the tenants should be provided to ensure the most appropriate schedule can be created.</li> </ul>	
Trigger		Service bays are not restricted and being utilised as intended.	Vehicles other than service vehicles are stopped within service area	
	Response	No response required. Continue monitoring program.	<ul> <li>Review and investigate operational activities, and where appropriate, implement additional remediation measures such as:</li> <li>Drivers be provided with additional training and an extra copy of the Driver Code of Conduct.</li> <li>Provision of additional training to the tenants should be</li> </ul>	
			provided to ensure the most appropriate schedule can be created.	
	Trigger	No queuing identified at the Site access	Queuing identified at the Site access	
Queueing	Response	No response required. Continue monitoring program	<ul> <li>Review the delivery schedules prepared by the tenant.</li> <li>Drivers be provided with additional training and an extra copy of the Driver Code of Conduct.</li> <li>Provision of additional training to the tenants should be provided to ensure the most appropriate schedule can be created.</li> </ul>	



Incidents	Trigger	No incidents observed or reported	Near miss or minor incident occurred within the carriageway of the Site which did not require medical attention (such as tripping on raised footpath)
	<b>Response</b> No action required at this stage, however continual reinforcement to all tenants to report all incidents shall continue.		Near miss to be reported to the appropriate Incident to be reported to Site Manager and Estate Coordinator, for immediate remedy.
	Trigger	Operational noise volume is in accordance with permissible and programmed volume constraints	Operational noise volumes are within 90% of the permissible volume constraints
Noise	Response	No action. Continue ongoing monitoring activities.	Review and investigate noisy operational activities, and where appropriate, implement additional remediation measures such as:
			• Undertake additional noise reviews to determine cause of higher limit noise issues in more detail.
			<ul> <li>Review OTMP (and other sub-plans) and update where necessary.</li> </ul>
			<ul> <li>Provide additional training to tenants to provide information on lowering noise emissions.</li> </ul>



# **Appendix A. Consultation Record**





Our reference:P-792420-Y1L3Contact:Gavin CherryTelephone:(02) 4732 8125

6 November 2024

ATTN: Jensen Wu & Kedar Ballurka Email: jensen.wu@asongroup.com.au Kedar.Ballurkar@asongroup.com.au

Dear Jensen Wu & Kedar Ballurka,

Further Council Response to Planning Enquiry Regarding Compliance with Condition of Consent D13– Operational Traffic Management Plan for SSD-9138102 at Westlink Industrial Estate - 59-63 Abbots Road, Kemps Creek, NSW, 2178 & 290 - 308 Aldington Road, Kemps Creek, NSW, 2178

I refer to the above referenced SSD Notice of Determination, and specifically Condition D13 which requires consultation to occur with Council regarding the Operational Traffic Management Plan (OTMP).

Council's Traffic Management Department have reviewed the revised OTMP dated 25 October 2024 and raise no objections or concerns with the detail contained within it.

It should be noted that Condition D14 of the SSD Notice of Determination states that the Applicant must not commence operation of Warehouse 1 until the OTMP required by condition D13 is approved by the Planning Secretary. As a result, the Department of Planning, Housing and Infrastructure (as the applicable consent authority) must be satisfied that the condition requirements have been met and that it is appropriate for simultaneous road works and warehouse 1 operation.

Should you wish to discuss this matter further, please contact Phil Saverimuttu – Council's Senior Traffic Engineer on (02) 4732 7961.

Yours sincerely,

Gavin Cherry Development Services Coordinator

Penrith City Council PO Box 60, Penrith NSW 2751 Australia T 4732 7777 F 4732 7958 penrithcity.nsw.gov.au

### PENRITH CITY COUNCIL



# Penrith Council - Further Comments on SSD-9138102 - Condition D13 - Operations Traffic Management Plan for Westlink Industrial Estate

From Katelyn Davies <Katelyn.Davies@penrith.city>

Date Wed 6/11/2024 4:36 PM

- To Jensen Wu <jensen.wu@asongroup.com.au>; Kedar Ballurkar <Kedar.Ballurkar@asongroup.com.au>
- Cc Rebecca Butler-Madden <Rebecca.BMadden@asongroup.com.au>; James Laidler <james.laidler@asongroup.com.au>

1 attachment (86 KB)

SSD-9138102 - Further Council Advice on Condition D13 Compliance - OTMP - Westlink Industrial Estate.pdf;

Good Afternoon All,

Please see attached further Penrith Council Comments on SSD-9138102 - Condition D13 - Operations Traffic Management Plan for Westlink Industrial Estate.

Thanks,

Katelyn Davies Senior Administration Officer Development Services

E <u>Katelyn.Davies@penrith.city</u> T <u>+61247327447</u> | F | M PO Box 60, PENRITH NSW 2751 <u>www.visitpenrith.com.au</u> <u>www.penrithcity.nsw.gov.au</u>







From: Kedar Ballurkar <<u>Kedar.Ballurkar@asongroup.com.au</u>>
Sent: Monday, 28 October 2024 2:58 PM
To: John Skaf <<u>John.Skaf@penrith.city</u>>; Gavin Cherry <<u>gavin.cherry@penrith.city</u>>
Cc: Stephen Masters <<u>stephen.masters@penrith.city</u>>; Rebecca Butler-Madden
<<u>Rebecca.BMadden@asongroup.com.au</u>>; James Laidler <<u>james.laidler@asongroup.com.au</u>>

# **Subject:** Re: Penrith City Council Traffic Engineering Comments on Draft OTMP - SSD-9138102 (Westlink Industrial Estate)

Hi John & Gavin,

Thanks for your patience on the OTMP for the Westlink Estate (Stage 1). We have been working through aspects with TfNSW regarding the delivery of the external works.

The OTMP is intended as a document for the Warehouse 1 tenant (Toll) so we have made reference to the external works being ongoing upon opening as well as an additional responsibility for drivers to obey any temporary traffic control associated with passing work sites. (Note that the CTMP/TGS's would be outside of the tenant's obligations, however we are assisting ESR on this and are happy to advise further).

We have included a response to TfNSW and Council's comments on Page 7 (Page 12) of the report - this also included a request to reference the Section 138 Road Works approval from Council for the Stage 1 works.

We'd appreciate any further comments prior to the submission of our OTMP to DPHI and please don't hesitate to contact me.

Kind Regards,

### Kedar Ballurkar

Senior Transport Planner | Ason Group

T: +61 2 9083 6601 | M: +61 488 070 119 | E: kedar.ballurkar@asongroup.com.au

A: Suite 17.02, Level 7, 1 Castlereagh Street, Sydney NSW 2000

From: John Skaf <<u>John.Skaf@penrith.city</u>>

Sent: Wednesday, 9 October 2024 2:26 PM

To: Kedar Ballurkar <<u>Kedar.Ballurkar@asongroup.com.au</u>>

Cc: Stephen Masters <<u>stephen.masters@penrith.city</u>>; Gavin Cherry <<u>gavin.cherry@penrith.city</u>> Subject: RE: Penrith City Council Traffic Engineering Comments on Draft OTMP - SSD-9138102 (Westlink Industrial Estate)

Hi Kedar,

Following from Gavin Cherry's e-mail below, I reviewed the submitted draft OTMP and have no objection on the proposed traffic management stages to facilitate the operation of warehouse 1 concurrently with the delivery of the external road upgrades. It would be beneficial to have the Construction Traffic Management Plan and Traffic Guidance Schemes attached/referenced in the OTMP so to ensure that all three documents are consistent with one another.

Kind Regards,

### John Skaf Senior Engineer - Major Developments Engineering Services

E John.Skaf@penrith.city T <u>+61247328085</u> | F | M <u>+61427304533</u> PO Box 60, PENRITH NSW 2751 www.visitpenrith.com.au www.penrithcity.nsw.gov.au







From: Gavin Cherry <gavin.cherry@penrith.city>
Sent: Monday, September 30, 2024 1:01 PM
To: Kedar.Ballurkar@asongroup.com.au
Cc: John Skaf <John.Skaf@penrith.city>; Stephen Masters <stephen.masters@penrith.city>
Subject: Penrith City Council Traffic Engineering Comments on Draft OTMP - SSD-9138102 (Westlink Industrial
Estate)

Morning Kedar,

I refer to your original email and a further email received today seeking a status update.

The below request has been reviewed by Council's Traffic Engineering Team as requested and the following advice has been received which is relayed to assist in the finalisation of the OTMP and endorsement by the consent authority:

Heavy vehicle access routes for each of the key external road network delivery phasing have been identified as follows:

- Phase 1 Existing Mamre Road/Abbotts Road Intersection
- Phase 2a Signalisation of Mamre Road / Abbotts Road / Aldington Road
- Phase 2b Abbotts Road / Aldington Road Upgrade
- Phase 3 Ultimate Mamre Road Precinct Road Network

### **Conclusion:**

No objection is raised, subject to, heavy vehicle drivers using the roads that are identified in the infrastructure phasing in the Operational Traffic Management Plan for travel.

Council's Development Engineering Unit have also been referred a copy of the Draft Operational Traffic Management Plan however I am still awaiting confirmation from this Unit as to whether anything further needs to be raised. I have included John Skaf – Senior Development Engineer in this email and will request that our Engineers verify if any further comments need to be raised for consideration in the finalisation of the Draft Plan.

regards

### Gavin Cherry Development Assessment Coordinator Development Services

E <u>Gavin.Cherry@penrith.city</u> T <u>+61247328125</u> | F +612 4732 7958 | M PO Box 60, PENRITH NSW 2751 www.visitpenrith.com.au www.penrithcity.nsw.gov.au



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From: Kedar Ballurkar <<u>Kedar.Ballurkar@asongroup.com.au</u>>
Sent: Monday, September 16, 2024 11:58 AM
To: Penrith City Council - RECORDS <<u>council@penrith.city</u>>
Cc: Justin Crameri <<u>Justin.Crameri@esr.com</u>>; Alasdair Cameron <<u>Alasdair.Cameron@esr.com</u>>; Rebecca
Butler-Madden <<u>Rebecca.BMadden@asongroup.com.au</u>>
Subject: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Penrith City Council)

You don't often get email from kedar.ballurkar@asongroup.com.au. Learn why this is important

# **EXTERNAL EMAIL:** This email was received from outside the organisation. Use caution when clicking any links or opening attachments.

To Whom it May Concern,

By way of introduction, Ason Group has been providing traffic engineering services in support of <u>SSD-</u> <u>9138102</u> (Westlink Industrial Estate - Stage 1).

As per the Development Consent, Condition D13 requires the proponent to consult with Council on a Operational Traffic Management Plan (OTMP) to guide operations (post-commencement) of the Warehouse 1 building.

We have prepared the **attached** OTMP document and it would be appreciated if this can be forwarded to Council's Traffic Engineering team for review. We would be happy to respond to or attend a meeting should Council have any comments.

We look forward to hearing back and please don't hesitate to contact me for any clarification to help expedite the review.

Kind Regards,

### Kedar Ballurkar

Senior Transport Planner | Ason Group

T: +61 2 9083 6601 | M: +61 488 070 119 | E: <u>kedar.ballurkar@asongroup.com.au</u>

A: Suite 17.02, Level 7, 1 Castlereagh Street, Sydney NSW 2000



### RE: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

From Nav Prasad (TRAFFIC SAFETY) <Nav.Prasad2@transport.nsw.gov.au>

Date Fri 8/11/2024 2:18 PM

- To Alasdair Cameron <Alasdair.Cameron@esr.com>; Kedar Ballurkar <Kedar.Ballurkar@asongroup.com.au>
- Cc Deana Burn <Deana.Burn@planning.nsw.gov.au>; Brendan Pegg <br/>brendan.j.pegg@transport.nsw.gov.au>; Pahee Rathan <Pahee.RATHAN@transport.nsw.gov.au>; Rebecca Butler-Madden <Rebecca.BMadden@asongroup.com.au>

Thanks Alasdair for confirming.

<u>@Kedar Ballurkar</u> – TfNSW confirm that with the advice provided by Alasdair that the TfNSW comments on the OTMP have been addressed and that the OTMP satisfies the conditions to allow occupation.

Regards

Nav Prasad Land Use Planner Transport Planning Planning, Integration and Passenger Transport for NSW

T (02) 9983 3193 E Nav.Prasad2@transport.nsw.gov.au Level 4, 4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150

### Please note that I do not work on Wednesdays



Transport for NSW

### OFFICIAL

From: Alasdair Cameron <Alasdair.Cameron@esr.com>
Sent: Friday, November 8, 2024 12:09 PM
To: Nav Prasad (TRAFFIC SAFETY) <Nav.Prasad2@transport.nsw.gov.au>; Development Sydney
<Development.Sydney@transport.nsw.gov.au>; Kedar Ballurkar <Kedar.Ballurkar@asongroup.com.au>
Cc: Deana Burn <Deana.Burn@planning.nsw.gov.au>; Brendan Pegg <brendan.j.pegg@transport.nsw.gov.au>;
Pahee Rathan <Pahee.RATHAN@transport.nsw.gov.au>; Rebecca Butler-Madden
<Rebecca.BMadden@asongroup.com.au>
Subject: RE: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

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Hi Nav,

Further to our conversation, confirming that we are scheduled to complete the stage 1 Abbotts Road in January 2025. Alasdair



### ESR Australia & New Zealand

Level 12, 135 King Street, Sydney 2000 | au.esr.com

M <u>+61 402 458 226</u> D <u>+61 2 9506 1430</u> E <u>Alasdair.Cameron@esr.com</u>

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### OFFICIAL

From: Nav Prasad (TRAFFIC SAFETY) <<u>Nav.Prasad2@transport.nsw.gov.au</u>> Sent: Friday, 8 November 2024 10:20 AM

 To: Development Sydney < Development.Sydney@transport.nsw.gov.au</td>
 ; Kedar Ballurkar < Kedar.Ballurkar@asongroup.com.au</td>

 Cc: Deana Burn < Deana.Burn@planning.nsw.gov.au</td>
 ; Brendan Pegg < brendan.j.pegg@transport.nsw.gov.au</td>
 ; Pahee Rathan

 < Pahee.RATHAN@transport.nsw.gov.au</td>
 ; Rebecca Butler-Madden < Rebecca.BMadden@asongroup.com.au</td>
 ; Alasdair Cameron

 < Alasdair.Cameron@esr.com</td>
 >

Subject: FW: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

### [\*\*EXTERNAL EMAIL\*\*]

Hi Sharon,

Can you please create another log for this and allocate to me please?

<u>@Kedar Ballurkar</u> – As discussed with Rebecca can you please ensure that you send any request to <u>development.sydney@transport.nsw.gov.au</u>? This way your request gets logged and assigned for response.

I will aim to have a response to you by Tuesday.

Regards

Nav Prasad Land Use Planner Transport Planning Planning, Integration and Passenger Transport for NSW

T (02) 9983 3193 E <u>Nav.Prasad2@transport.nsw.gov.au</u> Level 4, 4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150

### Please note that I do not work on Wednesdays



Transport for NSW

OFFICIAL

From: Kedar Ballurkar <<u>Kedar.Ballurkar@asongroup.com.au</u>> Sent: Thursday, November 7, 2024 8:56 AM To: Nav Prasad (TRAFFIC SAFETY) <<u>Nav.Prasad2@transport.nsw.gov.au</u>> Cc: Heather Trengove <<u>Heather.Trengove@transport.nsw.gov.au</u>>; Deana Burn <<u>Deana.Burn@planning.nsw.gov.au</u>>; Brendan Pegg <<u>brendan.j.pegg@transport.nsw.gov.au</u>>; Rebecca Butler-Madden <<u>Rebecca.BMadden@asongroup.com.au</u>> **Subject:** Re: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

Some people who received this message don't often get email from kedar.ballurkar@asongroup.com.au. Learn why this is important

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

Hi Nav,

Hope you are well and just following up to see if you had further comments or clarifications in relation to the OTMP

Much Appreciated

Kedar Ballurkar

Senior Transport Planner | Ason Group

T: +61 2 9083 6601 | M: +61 488 070 119 | E: kedar.ballurkar@asongroup.com.au

A: Suite 17.02, Level 17, 1 Castlereagh Street, Sydney NSW 2000

From: Kedar Ballurkar < Kedar.Ballurkar@asongroup.com.au >

Sent: Monday, 28 October 2024 2:41 PM

To: Nav Prasad (TRAFFIC SAFETY) <<u>Nav.Prasad2@transport.nsw.gov.au</u>>

Cc: Heather Trengove <<u>Heather.Trengove@transport.nsw.gov.au</u>>; Deana Burn <<u>Deana.Burn@planning.nsw.gov.au</u>>; Brendan Pegg <<u>brendan.j.pegg@transport.nsw.gov.au</u>>; Rebecca Butler-Madden <<u>Rebecca.BMadden@asongroup.com.au</u>>; Subject: Re: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

Hi Nav,

Thank you for the comments on the v4 OTMP report earlier this month.

We have worked through with ESR and updated the OTMP to respond to these comments (and from Penrith City Council).

These responses are on Page 7 (PDF page 12) and I'd be happy to outline all changes.

We'd appreciate any further input prior to submitting the OTMP to DPHI

Much Appreciated,

### Kedar Ballurkar

Senior Transport Planner | Ason Group

T: +61 2 9083 6601 | M: +61 488 070 119 | E: kedar.ballurkar@asongroup.com.au

A: Suite 17.02, Level 7, 1 Castlereagh Street, Sydney NSW 2000

From: Nav Prasad (TRAFFIC SAFETY) <<u>Nav.Prasad2@transport.nsw.gov.au</u>>
Sent: Thursday, 10 October 2024 1:18 PM
To: Kedar Ballurkar <<u>Kedar.Ballurkar@asongroup.com.au</u>>
Cc: Heather Trengove <<u>Heather.Trengove@transport.nsw.gov.au</u>>; Deana Burn <<u>Deana.Burn@planning.nsw.gov.au</u>>; Brendan

Pegg <<u>brendan.j.pegg@transport.nsw.gov.au</u>> Subject: FW: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

Hi Kedar,

TfNSW have reviewed the OTMP and provided the following comments for your information:

- The approval of the staging plans for the traffic signal works for the Mamre/Abbotts Road have been confirmed by the TfNSW Project Manager so there are no further comments regarding this component of the OTMP.
- In the consent for Mod 5, ESR were required to undertake Stage 1 Abbotts road widening works to allow occupation by Toll:
  - D15. The Applicant must lodge an application under section 138 of the *Roads Act 1993* to the relevant roads authority to undertake the Stage 1 Abbotts Road Widening Works within 1 month of the date of consent of SSD-9138102-Mod-5.
  - D16. The Applicant must complete the Stage 1 Abbotts Road Widening Works within 4 months of receiving the section 138 *Roads Act, 1993* approval for the works, to the satisfaction of the relevant roads authority, unless otherwise agreed by the Planning Secretary.

The Stage 1 Abbotts Road Widening works are described in the consent as:

 Constructing temporary pavement on the southern side of Abbotts Road and western side of Aldington Road and temporary safety barriers, as shown on the plan 'AARU Civil Works Staging Drawing Stage 01 Abbotts Rd SP2\_3 (Nov 2023)' prepared by Robson Civil.

I have attached the AARU Civil Works Staging Drawing Stage 01 Abbotts Rd SP2\_3 (Nov 2023) which ESR are conditioned to provide prior to occupation by Toll. The works I refer to are shown in sheet 1 of the plans.

• In the submitted OTMP I do not see any reference to these works. TfNSW require the OTMP to be updated to include reference to these plans and that conditions D15 and D16 have been satisfied.

Regards

Nav Prasad Development Assessment Officer

Planning and Programs

Greater Sydney
Transport for NSW

T (02) 9983 3193 E <u>Nav.Prasad2@transport.nsw.gov.au</u> Level 4, 4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150

Please note that I do not work on Wednesdays



Transport for NSW



I recognise and acknowledge that modern New South Wales is an overlay on Aboriginal land and that many of the transport routes of today follow songlines Aboriginal people have followed for tens of thousands of years. I pay my respects to the Aboriginal people of NSW and Elders past and present.

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### OFFICIAL

From: Kedar Ballurkar <<u>Kedar.Ballurkar@asongroup.com.au</u>>
Sent: Wednesday, October 9, 2024 4:50 PM
To: Nav Prasad (TRAFFIC SAFETY) <<u>Nav.Prasad2@transport.nsw.gov.au</u>>
Cc: Rebecca Butler-Madden <<u>Rebecca.BMadden@asongroup.com.au</u>>; Pahee Rathan <<u>Pahee.RATHAN@transport.nsw.gov.au</u>>;
Heather Trengove <<u>Heather.Trengove@transport.nsw.gov.au</u>>; Brendan Pegg <<u>brendan.j.pegg@transport.nsw.gov.au</u>>
Subject: Re: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

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Hi Nav,

Appreciate the update last week - the attached staging plan was submitted in the MOD 5 approval and we'd be happy to include this as an additional appendix since this nominates the implementation of signals and permissible movements.

Would it be possible to know when we could expect TfNSW to complete the review pending the additional information?

For any issues please reach out

Kind Regards,

### Kedar Ballurkar

Senior Transport Planner | Ason Group

T: +61 2 9083 6601 | M: +61 488 070 119 | E: kedar.ballurkar@asongroup.com.au

A: Suite 17.02, Level 7, 1 Castlereagh Street, Sydney NSW 2000

From: Nav Prasad (TRAFFIC SAFETY) <<u>Nav.Prasad2@transport.nsw.gov.au</u>>
Sent: Tuesday, 1 October 2024 6:41 PM
To: Kedar Ballurkar <<u>Kedar.Ballurkar@asongroup.com.au</u>>
Cc: Rebecca Butler-Madden <<u>Rebecca.BMadden@asongroup.com.au</u>>; Pahee Rathan
<<u>Pahee.RATHAN@transport.nsw.gov.au</u>>; Heather Trengove <<u>Heather.Trengove@transport.nsw.gov.au</u>>; Brendan
Pegg <<u>brendan.j.pegg@transport.nsw.gov.au</u>>
Subject: RE: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

Hi Kedar,

I am reviewing the OTMP from Land Use and just waiting on some information from the PM managing the construction of the Mamre/Abbotts traffic signals specifically relating to the staging plans.

Rebecca advised yesterday in the Westgate meeting that the staging plans had been approved and included the provision of interim traffic signals which I cannot see in the staging plans in this submitted OTMP.

Please also be advised that similar to what Jensen does please also submit the OTMP directly to <u>development.CTMP.CJP@transport.nsw.gov.au</u> to obtain comments relating to the TDM etc.

I will aim to have a response to you by the end of the week.

Regards

Nav Prasad Development Assessment Officer

Planning and Programs

Greater Sydney
Transport for NSW

T (02) 9983 3193 E <u>Nav.Prasad2@transport.nsw.gov.au</u> Level 4, 4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150





I recognise and acknowledge that modern New South Wales is an overlay on Aboriginal land and that many of the transport routes of today follow songlines Aboriginal people have followed for tens of thousands of years. I pay my respects to the Aboriginal people of NSW and Elders past and present.

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From: Kedar Ballurkar < Kedar.Ballurkar@asongroup.com.au</li>
Sent: Monday, September 30, 2024 10:48 AM
To: Development Sydney < Development.Sydney@transport.nsw.gov.au</li>
Cc: Rebecca Butler-Madden < Rebecca.BMadden@asongroup.com.au</li>
Subject: Re: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

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Hi,

Just wanted to check if the query below has been assigned to an officer and if there is any expected timeframe for TfNSW to complete a review?

Much Appreciated,

### Kedar Ballurkar

Senior Transport Planner | Ason Group

T: +61 2 9083 6601 | M: +61 488 070 119 | E: kedar.ballurkar@asongroup.com.au

A: Suite 17.02, Level 7, 1 Castlereagh Street, Sydney NSW 2000

From: Kedar Ballurkar
Sent: Monday, 16 September 2024 11:58 AM
To: Development Sydney < <u>Development.Sydney@transport.nsw.gov.au</u>>
Cc: Justin Crameri < <u>Justin.Crameri@esr.com</u>>; Alasdair Cameron < <u>Alasdair.Cameron@esr.com</u>>; Rebecca Butler-Madden < <u>Rebecca.BMadden@asongroup.com.au</u>>
Subject: SSD-9138102 (Westlink Industrial Estate) - OTMP Issue for Consultation (Transport for NSW)

To Whom it May Concern,

By way of introduction, Ason Group has been providing traffic engineering services in support of <u>SSD-9138102</u> (Westlink Industrial Estate - Stage 1).

As per the Development Consent, Condition D13 requires the proponent to consult with Transport for NSW on a Operational Traffic Management Plan (OTMP) to operations (post-commencement) of the Warehouse 1 building.

We have prepared the **attached** OTMP document and it would be appreciated if this can be forwarded to the relevant assessment team. We would be happy to respond to or attend a meeting should Transport have any comments.

We look forward to hearing back and please don't hesitate to contact me for any clarification to help expedite the review.

Kind Regards.

### Kedar Ballurkar

Senior Transport Planner | Ason Group

T: +61 2 9083 6601 | M: +61 488 070 119 | E: kedar.ballurkar@asongroup.com.au

### A: Suite 17.02, Level 7, 1 Castlereagh Street, Sydney NSW 2000

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# **Appendix B. Section 138 Approval**



Our reference:SSD 9138102Contact:John SkafTelephone:4732 8085

23 September 2024

ESR Developments (Australia) Pty Ltd Level 24, 88 Philip Street SYDNEY NSW 2000

### Attention: Alasdair Cameron

Dear Alasdair

# EA24/0005 Section 138 Roads Act Approval for Works at Abbotts Road an Aldington Road, Kemps Creek.

Under Section 138 of the Roads Act 1993, approval is granted for works in the road reserve of Abbotts Road and Aldington Road, Kemps Creek as required by Condition No. D.11 of SSD 9138102 and in accordance with the stamped approved plans by AT&L, project number 24-1177, listed in the following schedule:

Drawing No.	Revision	Date	Drawing Title
C1000	P2	02-09-2024	COVER SHEET
C1001	P2	02-09-2024	DRAWING LIST
C1002	P2	02-09-2024	GENERAL NOTES
C1010	P2	02-09-2024	GENERAL ARRANGEMENT & ALIGNMENT CONTROL PLAN
C1021	P2	02-09-2024	TYPICAL SECTION AND PAVEMENT DETAIL
C1101	P2	02-09-2024	ROADWORKS PLAN SHEET 1
C1102	P2	02-09-2024	ROADWORKS PLAN SHEET 2
C1103	P2	02-09-2024	ROADWORKS PLAN SHEET 3
C1104	Pl	02-09-2024	ROADWORKS PLAN SHEET 4
C1105	Pl	02-09-2024	ROADWORKS PLAN SHEET 5
C1301	P2	02-09-2024	SIGNAGE AND LINEMARKING PLAN SHEET 1
C1302	P2	02-09-2024	SIGNAGE AND LINEMARKING PLAN SHEET 2
C1303	P2	02-09-2024	SIGNAGE AND LINEMARKING PLAN SHEET 3

Penrith City Council PO Box 60, Penrith NSW 2751 Australia T 4732 7777 F 4732 7958 penrith.city



Penrith City Council Roads Act Approval No. EA 24/0005

C1304	Pl	02-09-2024	SIGNAGE AND LINEMARKING
01004		02 03 2024	PLAN SHEET 4
C1305	DI	02-00-2024	SIGNAGE AND LINEMARKING
C1305	FI	02-09-2024	PLAN SHEET 5
C1E01	וח	02 00 2024	STORMWATER CATCHMENT
C1501	FI	02-09-2024	PLAN
C1701	וס	02-00-2024	ROAD CROSS SECTIONS
CI/OI	FI	02-09-2024	ABBOTTS ROAD SHEET 1
01702	וס	02 00 2024	ROAD CROSS SECTIONS
C1/02	PI	02-09-2024	ABBOTTS ROAD SHEET 2
	DI 02.00.2024		ROAD CROSS SECTIONS
Сілі	FI	02-09-2024	ALDINGTON ROAD SHEET 1
C1751	Ы	02-00-2024	LONGITUDINAL SECTIONS
C1/51	FI	02-09-2024	DRAINAGE CHANNEL SHEET 1
01750	וס	02-00-2024	LONGITUDINAL SECTIONS
C1/52	FI	02-09-2024	DRAINAGE CHANNEL SHEET 2
C1901	20	02-00-2024	VEHICLE TURN PATH ABBOTTS
CIOUI	FZ	02-09-2024	RD CURVILINEAR SHEET 1
C1902	20	02-00-2024	VEHICLE TURN PATH ABBOTTS
C1602	٢Z	02-09-2024	RD CURVILINEAR SHEET 2
			VEHICLE TURN PATH
C1803	P2	02-09-2024	ALDINGTON RD & ABBOTTS RD
			INTERSECTION SHEET 3

### **Supporting Documents:**

- Progressive Erosion & Sediment Control Plans: Stage 1, prepared by Rubicon Enviro Pty Ltd.
- Traffic Guidance Scheme, prepared by Allroad Group Pty Ltd, TMP no. ARG 24-048 TMP, version 1, dated 23/08/2024
- Construction Traffic Management Report prepared by Asongroup, P2264r03, dated 30/08/2024
- Pavement Design Report prepared by ADE Consulting Group, A201021.1725.19\_F, dated 19 September 2024

Approval is subject to the following conditions:

- 1. All works shall be undertaken in accordance with the approved plans, Penrith City Council's Engineering Construction Specification for Civil Works and at the direction of Penrith City Council.
- 2. The applicant is to provide Penrith City Council with written notice of intention to commence works a minimum of two days before any construction activity on site.
- 3. The notice of commencement shall be accompanied by the following documentation:
  - a) Contractor's license and details of public liability insurance with a limit of not less than \$20,000,000.00 (twenty million dollars) indemnifying Penrith City Council from all claims arising from the execution of works.

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- Prior to the commencement of works, a dilapidation report shall be 4. undertaken over the full extent of works including road pavement, kerb and gutter, footpaths, street trees and private vehicular crossings. Any damage shall be rectified at the applicant's cost prior to the issue of Council's final signoff of the works.
- The contractor is to notify all affected residents in writing two (2) days prior 5. to the commencement of construction. Vehicular access to all properties is to be maintained throughout the construction. The contractor's contact details are to be included in the letter.
- 6. Inspections are to be undertaken in accordance with the requirements of Penrith City Council's Engineering Construction Specification for Civil Works and at the direction of Penrith City Council Officers.
- 7. A final inspection will not be undertaken until full Works-As-Executed plans and compliance documentation have been submitted to Penrith City Council for review.
- 8. A letter of completion for works under this approval will not be issued by Penrith City Council until all defects identified in the final inspection have been completed.
- The Principal Certifier shall not issue an Occupation Certificate for the 9. building works until a Compliance Certificate for works under this approval has been issued by Penrith City Council.
- 10. As the works under this approval (i.e. stage 1) are considered temporary until works progress to stage 2, the applicant is responsible to continually monitor the road condition and report to Council any identified failures. Upon Council's approval and at no cost to Council the applicant shall undertake all necessary repairs to ensure the road is restored to a safe condition.
- The lighting of any road works or pedestrian facility must be in accordance 11. with AS1742 and AS1158.

For further information in respect of this approval, please contact John Skaf on 4732 8085.

Yours sincerely

Penrith City Council PO Box 60, Penrith NSW 2751 Australia T 4732 7777 F 4732 7958 penrith.city

John Skaf

Senior Engineer – Major Developments **Penrith City Council** 



# **Appendix C. Staging Plans (Road Works)**

P1323Ar01v6 Operational Traffic Management Plan (OTMP)\_ Westlink Stage 1, Kemps Creek



# ALDINGTON AND ABBOTTS ROAD UPGRADE (AARU) PHASE 1 1000-SERIES, TEMPORARY WORKS PACKAGE STAGE 1



P2	ISSUED FOR REVIEW	02-09-24
P1	ISSUED FOR REVIEW	04-07-24
Issue	Description	Date

100mm on Original

LOCALITY PLAN





# FOR CONSTRUCTION

Civil Engineers and Project Managers



Date Plotted: 2 Sep 2024 – 11:13AM File Name: F:\24–1177 AARU ESR\6.0 Drgs\Civil\Final\1000\_Series\24–1177-C1000.dwg

AARU PHASE 1

STAGE 1

**TEMPORARY WORKS** 

COVER SHEET

			Bar Scales	s	Client		Scales		Drawn	KB	Project
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DRAWING LIST	
24-1177-C1000	COVER SHEET
24-1177-C1001	DRAWING LIST
24-1177-C1002	GENERAL NOTES
24-1177-C1010	GENERAL ARRANGEMENT & ALIGNMENT CONTROL PLAN
TYPICAL SECTIONS	
24-1177-C1021	TYPICAL SECTION AND PAVEMENT DETAIL
SITEWORKS	
24-1177-C1101	ROADWORKS PLAN SHEET 1
24-1177-C1102	ROADWORKS PLAN SHEET 2
24-1177-C1103	ROADWORKS PLAN SHEET 3
24-1177-C1104	ROADWORKS PLAN SHEET 4
24-1177-C1105	ROADWORKS PLAN SHEET 5
SIGNAGE AND LINEMARKING	
24-1177-C1301	SIGNAGE AND LINEMARKING PLAN SHEET 1
24-1177-C1302	SIGNAGE AND LINEMARKING PLAN SHEET 2
24-1177-C1303	SIGNAGE AND LINEMARKING PLAN SHEET 3
24-1177-C1304	SIGNAGE AND LINEMARKING PLAN SHEET 4
24-1177-C1305	SIGNAGE AND LINEMARKING PLAN SHEET 5
CATCHMENT PLAN	
24-1177-C1501	STORMWATER CATCHMENT PLAN
ROAD CROSS SECTIONS	
24-1177-C1701	ROAD CROSS SECTIONS ABBOTTS ROAD SHEET 1
24-1177-C1702	ROAD CROSS SECTIONS ABBOTTS ROAD SHEET 2
24-1177-C1711	ROAD CROSS SECTIONS ALDINGTON ROAD SHEET 1
LONGITUDINAL SECTIONS	
24-1177-C1751	LONGITUDINAL SECTIONS DRAINAGE CHANNEL SHEET 1
24-1177-C1752	LONGITUDINAL SECTIONS DRAINAGE CHANNEL SHEET 2
VEHICLE TURN PATH PLANS	
24-1177-C1801	VEHICLE TURN PATH ABBOTTS RD CURVILINEAR SHEET 1
24-1177-C1802	VEHICLE TURN PATH ABBOTTS RD CURVILINEAR SHEET 2
24-1177-C1803	VEHICLE TURN PATH ALDINGTON RD & ABBOTTS RD INTERSECTION SHEET 3



# FOR CONSTRUCTION

Civil Engineers and Project Managers



AARU PHASE 1 STAGE 1 TEMPORARY WORKS

DRAWING LIST

Date Plotted: 2 Sep 2024 – 11:13AM File Name: F:\24–1177 AARU ESR\6.0 Drgs\Civil\Final\1000\_Series\24–1177–C1001.dwg

# CIVIL WORKS GENERAL NOTES

# **GENERAL NOTES**

- LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (A.H.D). 2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTES OTHERWISE. ALL LEVELS, METREAGES, STATIONS AND
- CO-ORDINATES ARE EXPRESSED IN METRES. SERVICES ARE INDICATIVE ONLY. THE CONTRACTOR IS TO CONFIRM LOCATIONS OF ALL SERVICES PRIOR TO COMMENCING WORK. THE CONTRACTOR TO ENSURE ADOPTED. METHOD OF CONSTRUCTION WILL AVOID DAMAGE TO ALL
- SERVICES. ACCESS TO PROPERTIES TO BE MADE AVAILABLE BY CONTRACTOR AT ALL TIMES DURING CONSTRUCTION.

# SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY LANDPARTNERS, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A

BASIS FOR DESIGN. AT & L DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS. POINT OF ORIGIN: PM33562

SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT AT & L.

THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM THE ORIGINAL SURVEY DOCUMENTS.

IMPORTANT NOTE:

TREE SIZES ARE ESTIMATES ONLY. ONLY VISIBLE SERVICES HAVE BEEN LOCATED IN THIS SURVEY.

SERVICE AND UTILITIES SHOWN ON PLAN HAVE BEEN LOCATED BY PHYSICAL EVIDENCE ON SITE ONLY AND MAY NOT HAVE BEEN OPENED TO VERIFY THE TYPE OF UTILITY. NEITHER EXCAVATION NOR POTHOLING HAVE BEEN CARRIED OUT TO CONFIRM UNDERGROUND LOCATION. SERVICE DETAILS SHOULD BE CONFIRMED WITH THE RELEVANT SERVICE AUTHORITY DURING DESIGN AND PRIOR TO ANY CONSTRUCTION

ALL DIMENSIONS MUST BE VERIFIED ON SITE PRIOR TO ANY CONSTRUCTION. THE POSITION OF SURVEYED DATA HAS BEEN LOCATED AND IS SHOWN TO TOPOGRAPHIC ACCURACIES. IF CLEARANCES TO BOUNDARIES OR OTHER FEATURES ARE CRITICAL AND DIMENSIONS ARE NOT SHOWN FURTHER SURVEY MAY BE REQUIRED. THE TITLE BOUNDARIES SHOWN HEREON WERE NOT MARKED AT THE TIME OF

SURVEY AND HAVE BEEN DETERMINED BY PLAN DIMENSIONS ONLY AND NOT BY FIELD SURVEY. ANY CONSTRUCTION ON OR NEAR BOUNDARIES WILL REQUIRE FURTHER

SURVEY IN ORDER THAT MARKS DEFINING BOUNDARIES CAN BE PLACED.

# **EXISTING UNDERGROUND SERVICES**

- THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.
- AT & L CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.
- CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY.
- CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS.
- CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH. PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.
- PRIOR TO COMMENCEMENT OF WORKS, THE CONTRACTOR IS TO CONFIRM THE ALIGNMENT AND LEVELS OF ALL EXISTING SERVICES AT ALL LOCATIONS WHERE THE PROPOSED SERVICES ARE TO CROSS. CONNECT TO, OR ARE LOCATED IN CLOSE PROXIMITY TO THE EXISTING SERVICES.

# DEWATERING

ANY DEWATERING WORKS TO BE AS PER THE DEWATERING PROCEDURE AS CONTAINED WITHIN THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP).

# **DECOMMISSIONING / DEMOLITION**

EXISTING FENCING, UTILITIES AND OTHER REDUNDANT STRUCTURES TO BE DEMOLISHED AND REMOVED TO AN APPROVED WASTE MANAGEMENT FACILITY.

100mm on Original

# NOTE

THESE NOTES ARE TO BE READ IN CONJUNCTION WITH THE CONSTRUCTION SPECIFICATION FOR THE THE RELEVANT AUTHORITY.

WHERE A DISCREPANCY EXISTS BETWEEN THESE NOTES AND THOSE WITHIN AN AUTHORITY SPECIFICATION, THE AUTHORITY SPECIFICATION MUST BE ADOPTED.

# **KERBING NOTES**

- ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa U.N.O IN REINFORCED CONCRETE NOTES.
- ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON MIN. 100mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 95% MODIFIED DRY DENSITY (AS 1289 5.2.1).
- EXPANSION JOINTS (E.J) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
- WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
- BROOM FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
- 6. IN THE REPLACEMENT OF KERB AND GUTTER :-EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER NEW BASECOURSE AND SURFACE TO BE LAID 900mm WIDE U.N.O.
- EXISTING ALLOTMENT DRAINAGE PIPES ARE TO BE BUILT INTO THE NEW KERB AND GUTTER WITH 100mm DIA HOLE.
- 8. EXISTING KERB AND GUTTER IS TO BE COMPLETELY REMOVED WHERE NEW KERB AND GUTTER IS SHOWN.

# **EMBANKMENT CONSTRUCTION** SEQUENCE

1. STRIP VEGETATION AND TOPSOIL FROM EMBANKMENT AREA AND STOCKPILE TOPSOIL FOR LATER USE. CUT BACK AREA TO FIRM GROUND.

- 2. CONSTRUCT EMBANKMENT IN PRESENCE OF YOUR QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER IF NOT ROCK. GEOTECHNICAL ENGINEER TO PROVIDE CERTIFICATION EMBANKMENTS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH DOCUMENTATION.
- 3. IN THE CASE WHERE THE EMBANKMENT MATERIAL IN UNSUITABLE. THE CONTRACTOR WILL SOURCE SUITABLE MATERIAL FOR EMBANKMENTS AND PROVIDE GEOTECHNICAL CERTIFICATION.
- 4. COMPACT CLAY STABILISED WITH HYDRATED LIME (3% BY DRY MASS. MINIMUM) AS APPROVED BY A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER INTO THE CUT-OFF TRENCH OF LAYER OF 300mm THICKNESS TO A DRY DENSITY EQUIVALENT TO 98% OF THAT DETERMINED BY STANDARD COMPACTION (AS 1289.5.1.1) AND AT A MOISTURE CONTENT OF -2% TO +2% OF OPTIMUM MOISTURE CONTENT.
- 5. CONSTRUCT BODY OF EMBANKMENT WITH STABILISED CLAYEY MATERIAL WON FROM SITE WITH HYDRATED LIME (3% BY DRY MASS MINIMUM) OR IMPORT STABILISED MATERIAL OF THE SAME STANDARD. COMPACT THE CLAYEY MATERIAL APPROVED BY A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER IN LAYER OF 300mm THICKNESS TO A DRY DENSI EQUIVALENT TO 98% OF THAT DETERMINED BY STANDARD COMPACTION (AS 1289.5.1.1) AND AT A MOISTURE CONTENT OF -2% TO +2% OF OPTIMUM MOISTURE CONTENT. MOST IMPORTANTLY, IF SHRINKAGE CRACKS OCCUR. REPAIR AS DIRECTED BY YOUR QUALIFIED AND EXPERIENCED GEOTECHNICA ENGINEER.
- 6. OVERFILL THE EMBANKMENT AND TRIM OFF, SO THAT THE ENTIRE BODY OF THE EMBANKMENT IS COMPACTED.
- 7. PLACE ROCK RIP-RAP AS SHOWN.
- 8. RECOVER TOPSOIL FROM STOCKPILE AND SPREAD OVER EMBANKMENT AND CUT BATTERS (A THIN COVER OF TOPSOIL ONLY HAS BEEN NOMINATED). ONLY LIGHTLY TRACK-ROLL THE TOPSOIL AND THEN LANDSCAPE IN ACCORDANCE WITH THE LANDSCAPE AREA DRAWINGS.
- 9. WATER AND FERTILIZE LANDSCAPE AS REQUIRED BY CLIMACTIC CONDITIONS TO ENSURE THE LANDSCAPE IS SUCCESSFUL.
- 10. AT THE COMPLETION OF WORK WRITTEN CONFIRMATION & CERTIFICATION IS TO BE PROVIDED FROM A QUALIFIED & EXPERIENCED GEOTECHNICAL ENGINEER THAT THE EMBANKMENTS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THESE DRAWINGS.

2	CONC
1.	ALL WC AS 3600 VARIED
2.	Concr All Re Specif Reinfc
	VEHI

# PITS

# NOMINAL BAR

8. FOLLOWING DETAIL:

- 1% AFP 5% AEP
- WELDED JOINTS.
- IN HEIGHT.

Bar Scales

P2	ISSUED FOR REVIEW	02-09-24
P1	ISSUED FOR REVIEW	04-07-24
ssue	Description	Date

# **CRETE NOTES**

### ORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH 0 CURRENT EDITION WITH AMENDMENTS. EXCEPT WHERE D BY THE CONTRACT DOCUMENTS.

RETE QUALITY EQUIREMENTS OF THE CURRENT ACSE CONCRETE FICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK,

ORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.

ELEMENT	AS 3600 F'c MPa AT 28 DAYS	SPECIFIED SLUMP	NOMINAL AGG. SIZE
CULAR BASE	32	60	20
BS, PATHS, AND	25	80	20

- CEMENT TYPE SHALL BE (ACSE SPECIFICATION) TYPE SL

- PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1379.

NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY AT & L.

CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE 40mm TOP AND 70mm FOR EXTERNAL **FDGES UNLESS NOTED OTHERWISE.** 

ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1m CENTRES BOTH WAYS, BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.

6. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS. COMPLETELY FILLING THE FORMWORK. THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED AND CURED IN ACCORDANCE WITH R.M.S SPECIFICATION

REINFORCEMENT SYMBOLS:

N DENOTES GRADE 450 N BARS TO AS 1302 GRADE N R DENOTES 230 R HOT ROLLED PLAIN BARS TO AS 1302

SL DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS 1304 NUMBER OF BARS IN GROUP

ACING IN mm THE FIGURE FOLLOWING THE FABRIC SYMBOL SL IS THE REFERANCE NUMBER FOR FABRIC TO AS 1304.

FABRIC SHALL BE LAPPED IN ACCORDANCE WITH THE

25 MIN LAP TWO WIRES

# STORMWATER DRAINAGE NOTES

### STORMWATER DESIGN CRITERIA: (A) AVERAGE EXCEEDANCE PROBABILITY:

### MAJOR STORM (OVERLAND FLOW) MINOR STORM (PIPED NETWORK)

2. PIPES 300 DIA. AND LARGER TO BE REINFORCED CONCRETE CLASS '3' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O. 3. PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC WITH SOLVENT

4. EQUIVALENT STRENGTH VCP OR FRC PIPES MAY BE USED. SUBJECT TO THE APPROVAL OF PENRITH CITY COUNCIL.

5. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE 6. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m

6. PIPES TO BE INSTALLED TO TYPE HS3 SUPPORT IN ACCORDANCE WITH AS 3725 (2007) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)

7 ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2

8. PRECAST PITS MAY BE USED SUBJECT TO APPROVAL BY AT & L.

9. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED

FITTINGS WHERE PIPES ARE LESS THAN 300 DIA. 10. WHERE SUBSURFACE DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.

11. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.

12. GRATES AND COVERS SHALL CONFORM TO AS 3996. 13. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE

SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.

14. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

15. PROVIDE ANTI GRAFFITI PAINT TO FACE OF HEADWALLS.

# **EROSION AND SEDIMENT CONTROL**

# NOTES

# **GENERAL INSTRUCTIONS**

- THE CONTRACTOR IS RESPONSIBLE FOR ENGAGING A SUITABLY QUALIFIED EROSION AND SEDIMENT CONSULTANT FOR THE DURATION OF THE CONTRACT WITH THE EXPERTISE IN DESIGNING AND DOCUMENTING THE CONTROLS TO ALLOW THE INSTALLATION AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROLS. SUITABLE EROSION AND SEDIMENT CONTROLS SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR REQUIRED TO SUIT THE CONSTRUCTION STAGING
- 2. ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
- THE OFFICE OF ENVIRONMENT AND HERITAGE'S 'MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION. LANDCOM, (4TH EDITION) MARCH 2004 (REPRINTED 2006) (THE "BLUE BOOK"). VOLUME 1 AND VOLUME 2. LOCAL AUTHORITY REQUIREMENTS
- c. EPA REQUIREMENTS 3. MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION
- OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY. 4. WHEN STORMWATER PITS ARE CONSTRUCTED. PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
- 5. CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

# LAND DISTURBANCE

6. WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN / INSTALLED AS DIRECTED BY THE CONTRACTORS EROSION AND SEDIMENT CONTROL CONSULTANT.

# **EROSION CONTROL**

- 7. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL
- 8. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

# SEDIMENT CONTROL

- 9. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
- 0. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
- 1. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE. I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
- 12. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

# OTHER MATTERS

- 13. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
- 14. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
- (A) PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE

(B) ENSURING THAT NOTHING IS NAILED TO THEM

- (C) PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS.
- (I) ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICH EVER IS THE GREATER
- (II) A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH
- (III) CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

CONTINUED ABOV

# STAGING

SUITABLE EROSION AND SEDIMENT CONTROLS SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT ALL STAGES OF WORKS, THROUGHOUT THE FULL TERM OF THE CONTRACT, WHERE SHOWN ON AT&L DRAWINGS OR WHERE DIRECTED BY THE SUPERINTENDENT OR PENRITH CITY COUNCIL'S ENGINEERS. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING. DOCUMENTING. INSTALLING AND MAINTAINING THE SEDIMENT AND EROSION CONTROLS REQUIRED TO SUIT THE SELECTED CONSTRUCTION STAGING. THIS IS TO BE DOCUMENTED IN THE FORM OF A SOIL AND WATER MANAGEMENT PLAN TO BE DEVELOPED BY THE CONTRACTOR AND THEIR EROSION ND SEDIMENT CONSULTANT AND PROVIDED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION COMMENCEMENT.

SUCH CONTROLS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROTECTION OF THE ENVIRONMENT OPERATIONS ACT, PENRITH CITY COUNCIL'S SPECIFICATIONS AND THE OFFICE OF ENVIRONMENT AND HERITAGE'S 'MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION. LANDCOM, (4TH EDITION) MARCH 2004 (REPRINTED 2006) (THE "BLUE BOOK"). VOLUME 1 AND VOLUME 2. EPA REQUIREMENTS

# EARTHWORKS NOTES

- WHERE EARTHWORKS ARE TO BE CONSTRUCTED ON OR AGAINST ANY EMBANKMENTS OR AGAINST ANY SLOPES AND THE EMBANKMENT/SLOPE IS STEEPER THAN 10(H):1(V) IN ANY DIRECTION, THE CONTRACTOR SHALL CUT TERRACES INTO THE SLOPE TO A MINIMUM DEPTH OF 300mm, EXCEPT WHERE SLOPES ARE STEEPER THAN 4(H):1(V) WHERE, MINIMUM DEPTH SHALL BE 600mm, TO ALLOW ADEQUATE KEY AND COMPACTION OF MATERIAL.
- THE CONTRACTOR SHALL PRODUCE A MATERIAL TRACKING REGISTER FOR ALL IMPORT AND EXPORT MATERIAL INCLUDING DEMOLITION WASTE. FOR INSTANCES WHERE CONTAMINATED MATERIAL IS EXPORTED FROM THE SITE, THE CONTRACTOR SHALL ENSURE A CHAIN OF CUSTODY REPORT AND CERTIFICATES ARE PROVIDED FOR THE CONTAMINATED MATERIAL.

# CONSTRUCTION TOLERANCES

ALL WORKS

<b>BULK EARTHWORKS</b> EARTHWORKS	-10mm / +20mm
VERGE TURF	-10mm / +0mm
MULCH	-10mm / +0mm
RETAINING / WALLS	
WALL	-20mm / +20mm
WALL	-10mm / +10mm
WALL	-5mm / +0mm
WALL	-20mm / +20mm



Scales	NTC	Drawn	KB	Proj
	IN. I . <b>S</b> .	Designed	KB	
Grid	GDA2020	Checked	AL	
Height Datum	AHD	Approved	AAL	Title
				Title

# **GDA2020**

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ROAD CROSS SECTIONS ABBOTTS ROAD SHEET 2

alà Fax: 02 9923 1055 www.atl.net.au info@atl.net.au Status ISSUED FOR REVIEW NOT TO BE USED FOR CONSTRUCTION A1 Project - Drawing No. Issue 24-1177-C1702 P1

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SWALE LONGSECTION	_		50.352	50.890	51.574	52.401	53.229	54.358	55.314	56.121			
EXISTING SURFACE LEVEL	50.499	50.496	50.725	51.211	51.802	52.611	53.571	54.550	55.446	56.253	56.880	57.253	57.475
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Development Consent: SSD-9138102 S138 Roads Act: EA24/0005

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CITY COUNCIL This plan / document relates to

Civil Engineers and Project Managers

Subject to the conditions outlined in the consent

COUNCIL DOES NOT ATTEST TO THE ACCURACY OF DETAILS IN PLANS





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## Appendix D. Operational Drivers Code of Conduct

P1323Ar01v6 Operational Traffic Management Plan (OTMP)\_ Westlink Stage 1, Kemps Creek





## **Operational Drivers Code of Conduct**

Westlink Industrial Park – Warehouse 1

Mamre Road Precinct 28/10/2024 P1323Ar02v3



Info@asongroup.com.au +61 2 9083 6601 Suite 17.02, Level 17, 1 Castlereagh Street, Sydney, NSW 2000

### **Document Control**

Project No	1323A
Project	Westlink Stage 1
Client	ESR
File Reference	P1323Ar02v3 Operational Drivers Code of Conduct_Westlink WH1, Kemps Creek

#### **Revision History**

Revision No.	Date	Details	Author	Approved by
-	05/07/2024	Draft	A. Ji	K. Ballurkar
v1	02/08/2024	Issue	K. Ballurkar	K. Ballurkar
v2	03/09/2024	Issue	K. Ballurkar	K. Ballurkar
v3	28/10/2024	Issue	K. Ballurkar	K. Ballurkar

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## Application of Operational Drivers Code of Conduct

This Operational Drivers Code of Conduct (Operational DCoC) has been prepared for Warehouse 1 (Site) of the ESR Westlink Industry Park located at Abbotts Road, Kemps Creek. It is applicable to all employees and applicable Toll subcontractors driving heavy vehicles to or from the Site.

### Objectives of the Operational Drivers Code of Conduct

- To minimise operational traffic impacts on the local and regional road network.
- To minimise conflict with other road users, whom may otherwise be impacted by the construction traffic associated with the infrastructure delivery works in the Mamre Road Precinct.
- To minimise road traffic noise; and
- To ensure all drivers use specified routes between the Site and the regional road network in accordance with changed access and/or turning restrictions at relevant intersections.
- To advise all drivers to obey all instructions for all temporary traffic control measures associated with the delivery external road works.

#### Compliance of Operational Drivers Code of Conduct

All employees (operating heavy vehicles) and applicable Toll subcontractors are to be issued with a copy of the Operational DCoC. Prior to entering the site, heavy vehicle drivers must provide acknowledgement of the Operational DCoC and thereafter comply with all of the following:

- Demonstrate safe driving and road safety activities.
- Abide by traffic, road, and environmental legislations.
- Follow site signage and instructions, provided separately to this Operational DCoC.
- Drivers must only enter and exit the site via the Site Access Routes relevant to the Phase (road network), as advised by ESR.
- Not undertake any U-Turn on Mamre Road which would contravene the Site Access Routes.
- Drivers must obey all directions and instructions associated with temporary traffic controls associated with the delivery of external road networks (or as may arise with other work sites).

Failure to comply with the above may result in warnings, disciplinary action and/or penalties by the relevant organisation supervisor/manager. The below activities will also be considered as a breach of conduct and are also liable to driving penalties enforced by authorities:

- Reckless or dangerous driving causing injury or death.
- Driving whilst disqualified or not correctly licensed.
- Having a BAC exceeding legal limits (or in breach of the respective organisation's policies) or being under the influence of drugs while driving.
- Failing to stop after an incident.
- Exceeding the speed limit in place on any permanent or temporary roads.



#### **Driver Responsibilities**

All heavy vehicle drivers on site must:

- Be responsible and accountable for their actions when operating a company vehicle or driving for the purposes of work.
- Display the highest level of professional conduct when driving a vehicle at all times.
- Ensure they have a current driver's licence for the class of vehicle they are driving, and this licence is to be carried at all times.
- Immediately notify their respective organisation supervisor or manager if their drivers' licence has been suspended, cancelled, or has had limitations applied.
- Comply with all traffic and road legislation when driving.
- Assess hazards while driving.
- Undertake daily pre-start checks of oil, tyre pressures, radiator, and battery levels of company vehicles they regularly used.
- Drive within the legal speed limits, including driving to the conditions.
- Obey weight, length and height restrictions imposed by the National Vehicle Regulator, and other Government agencies. Heavy Vehicles shall adhere to the selected routes.
- Be cognisant of the noise and emissions requirements imposed within the EIS, and in a broader sense, the NSW/Australian Road Rules.
- Do not queue on public roads unless a prior approval has been sought.
- Be aware that at no time may a tracked plant be permitted or required on a paved road.
- Never drive under the influence of alcohol (over legal BAC limits and in accordance with the respective organisation policies) or drugs, including prescription and over the counter medication if they cause drowsiness to do so will merit disciplinary measures.
- All drivers to report to their respective organisation supervisor or manager if they have been prescribed medication prior to the start of work.
- Wear a safety seat belt at all times when in the vehicle.
- Avoid distraction when driving the driver will adjust car stereos/mirrors etc. before setting off or pull
  over safely to do so.
- Report ALL near-misses, crashes, and scrapes to their respective organisation supervisor or manager,
- Report infringements to their respective organisation supervisor or manager at the earliest opportunity.
- Report vehicle defects to their respective organisation supervisor or manager prior to the next use of the vehicle.
- Follow speed limits as imposed within the estate.
- Keep loads covered at all times.
- Park in dedicated light vehicle or heavy vehicle parking spaces.
- Follow the approved Site Access Routes as detailed below for the relevant Phase (road network).
- Obey any instruction or direction where temporary traffic controls are employed to facilitate work sites.



#### Site Access Routes

The Site Access Routes in this section relate to the progression of the road network being constructed for the Mamre Road Precinct. Heavy vehicle drivers must only use the upgraded road network, to which ESR will advise the Warehouse 1 tenant on the relevant Phase listed below.

These routes must be followed by heavy vehicle drivers travelling to and from the Site. In addition to potential penalties for heavy vehicle drivers, prohibited turning manoeuvres may be subject to NSW Police penalties.

#### Phase 1 – Heavy Vehicle Access Routes

All operational heavy vehicles associated with Warehouse 1 are subject to left-in left-out (LILO) turning movement restrictions at the Mamre Road / Abbotts Road intersection at all times. This relates to operational conditions imposed by authorities prior to the installation of interim traffic signals at the intersection.

Phase 1 vehicle access routes to Site are by way of Mamre Road via Abbotts Road only. All vehicles are subject to LILO traffic movement restrictions accessing Abbotts Road via Mamre Road at all times. The heavy vehicle access routes to and from the Site exit are detailed below and shown in **Figure 1**.

- Arrival Trips:
  - Route 1: From M4 Western Motorway, southbound along Mamre Road and left into Abbotts Road.
  - Route 2: From Westlink M7, westbound on Old Wallgrove Road, Lenore Drive and Erskine Park Road, then south along Mamre Road and left into Abbotts Road.
- Departure Trips:
  - Route 1: From the Site, straight onto Abbotts Road, then left onto Mamre Road, south to Elizabeth Drive and left to the M7 Motorway and sub-regional routes to the east.
  - Route 2: From the Site, straight onto Abbotts Road, then left onto Mamre Road, then south to Elizabeth Drive and right to Badgerys Creek and The Northern Road to the west.

NOTE: Heavy vehicle drivers must strictly adhere to the abovementioned arrival and departure routes, including travelling south to Elizabeth Drive for departing trips. U-turn manoeuvres on Mamre Road are prohibited for Warehouse 1 heavy vehicle drivers and may result in warnings and disciplinary action. Active monitoring is also being undertaken by the NSW Government and prohibited manoeuvres may be subject to penalties.





Figure 1: Phase 1 – Heavy Vehicle Access Routes



#### Phase 2a - Heavy Vehicle Access Routes

The Phase 2a infrastructure works is defined by the signalisation of the Mamre Road / Abbotts Road intersection. Subsequently, all turning movements at the intersection will be permitted.

The vehicle access routes during Phase 2a are shown in Figure 2.



Figure 2: Phase 2a – Heavy Vehicle Access Routes



#### Phase 2b - Heavy Vehicle Access Routes

During Phase 2b, further infrastructure upgrades within the wider Mamre Road Precinct are anticipated. These include the delivery of Aldington Road upgrade and the Southern Link Road connection between Mamre Road and Aldington Road.

These works will allow all operational vehicles associated with the Westlink Stage 1 development to access Mamre Road and Aldington Road via the future SLR connection, which will be provided parallel to the existing Bakers Lane. The vehicle access routes under Phase 2b are illustrated in **Figure 3**.



Figure 3: Phase 2b – Heavy Vehicle Access Routes



Phase 3 infrastructure delivery assumes the operation of the ultimate road network as defined by the MRP DCP. In this regard, the future Southern Link Road connection to Wallgrove Road and additional access routes through internal local road connections are available.

The Site location in relation to the ultimate road network is illustrated in **Figure 4** below.



Figure 4: Phase 3 – Vehicle Access Routes (Ultimate Mamre Road Precinct Network)



#### Crash or Incident Procedure

In the event of a crash or incident, the following procedures should be undertaken:

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.
- Ensure the following information is noted:
  - Details of the other vehicles and registration numbers
  - Names and addresses of the other vehicle drivers.
  - Names and addresses of witnesses.
  - Insurers details
- Give the following information to the involved parties:
  - Name, address, and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
  - If there is a disagreement over the cause of the crash.
  - If there are injuries.
  - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to the respective organisation supervisor or manager.

#### **Environmental Procedures**

Further, a range of measures for the operation of heavy vehicles shall be implemented to ensure the following:

- Containment measures for spillages will be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main construction work areas.
- Keep an accurate record which includes the range of measures undertaken to reduce environmental impacts.

