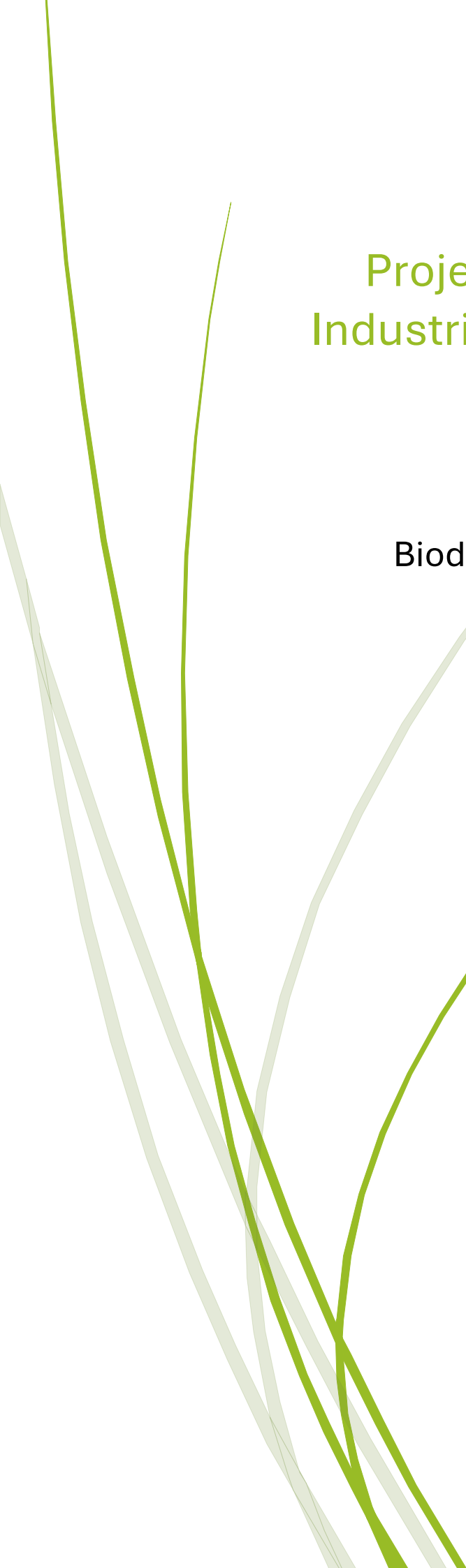




Project Silverback Oakdale East Industrial Estate (SSD-120888992)

2-10 Old Wallgrove Road,
Horsley Park

Biodiversity Impact Assessment Report

prepared for

Goodman Property Services (Aust) Pty Ltd

Project Silverback Oakdale East Industrial Estate (SSD-120888992) – Biodiversity Impact Assessment Report

prepared for

Goodman Property Services (Aust) Pty Ltd

About this document

This document has been prepared for the benefit of Goodman Property Services (Aust) Pty Ltd (Goodman). No liability is accepted by *écologique* with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval to fulfil a legal requirement.

Copyright Statement©

This document may be reprinted providing the original words are used and acknowledgment is given to *écologique* and the report authors.

Statement of Authorship

The author of the report is Kat Duchatel with 30 years' experience and the following relevant qualifications:

- + BSc Env (Macquarie)
- + BAM Assessor Accreditation no: BAAS17054
- + EIANZ Certified Environmental Practitioner
- + Ecological Consultants Association of NSW Practicing & Council member



Revision Schedule

Rev No	Date	Description	Issued to
DRAFT	21/05/2026	Biodiversity Impact Assessment Report for Client review	Goodman
1	22/05/2026	Biodiversity Impact Assessment Report for submission	Goodman
2	02/07/2026	Biodiversity Impact Assessment Report updated for submission	Goodman

Shortened form

BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BDAR	Biodiversity Development Assessment Report
BIA	Biodiversity Impact Assessment
Biosecurity Act	<i>NSW Biodiversity Security Act 2015 (NSW)</i>
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
CPHR	Conservation Programs Heritage and Regulation Group of DCCEEW (NSW)
DCP	Development Control Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPHI	NSW Department of Planning Housing and Infrastructure
EEC	Endangered Ecological Community
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection Biodiversity and Conservation Act 1999 (Cwlth)</i>
HTW	High threat weed
LGA	Local Government Area
PCT	Plant Community Type
SEARs	Secretary's Environmental Assessment Requirements
SEPP	NSW State Environment Protection Policy
SSD	State Significant Development
SSDA	State Significant Development Application
TEC	Threatened Ecological Community
TBDC	Threatened Biodiversity Data Collection
WM Act	<i>Water Management Act 2000 (NSW)</i>
WSEA	Western Sydney Employment Area

Contents

1. Introduction	1
1.1 Background.....	1
1.1.1 Concept Plan Amendments State Significant Development Application SSD - 37486043 (Mod 6).....	1
1.1.2 Detailed Application State Significant Development Application SSD-120888992.....	1
1.2 Related Applications/Activities	3
1.2.1 DA 85.1/2019 - Austral Bricks Plant 3 Proposed Crusher Relocation	3
1.2.2 DA 93.1/2019 – OEE Precinct 1	3
1.2.3 Fairfield City Council Development Application DA 347.1/2021 (as modified) – Rehabilitation Works	3
1.3 Secretary Environmental Assessment Requirements (SSD 120888992)	5
2. Site description	7
2.1 Location	7
2.2 Vegetation Management Plans	8
3. Prescribed impacts	10
4. Avoid and minimise impacts	12
4.1 Avoiding or minimising impacts on biodiversity values.....	12
4.2 Direct impacts	12
4.3 Indirect impacts	12
5. Mitigation measures.....	18
6. Conclusion.....	23
7. References.....	23

Tables

Table 1. Biodiversity values impacted.....	4
Table 2. Biodiversity values impacted.....	4
Table 3. Prescribed and Uncertain Impacts	10
Table 4. Summary of residual indirect impacts in addition to those already assessed	13
Table 5. Summary of proposed mitigation and management measures	18

Figures

Figure 1. Approval history as relevant to biodiversity..... 6

Figure 2. Subject Site (Base source: Nearmap)..... 7

Figure 3: Oakdale East Estate site context (Base source: Nearmap)..... 8

Figure 4. VMP extent 9

Figure 5. Proposed development 13

1. Introduction

1.1 Background

This Biodiversity Impact Assessment has been prepared by écologique to address the following Development Applications:

- + **Concept Plan Amendments (Mod 6):** Amendments to State Significant Development Application 37486043 (as modified) in accordance with Section 4.24 of the *Environmental Planning & Assessment Act 1979*
- + **Detailed Application (Proposed Works):** State Significant Development Application (SSDA) No. 120888992 based on Industry-Specific Secretary's Environmental Assessment Requirements (SEARs) dated 8 May 2026.

The proposed development is being undertaken by Goodman Property Services (Aust) Pty Ltd (Applicant) on behalf of BGMG 14 Pty Ltd (ACN 661 888 884) as trustee of BGMG 1 Oakdale East Trust No.2 (Owner). The development is located within Lot 109 in DP 1293112, formally referred to as 2-10 Old Wallgrove Road, Horsley Park (the Site).

The below further outlines the respective works the Development Applications seek approval for.

1.1.1 Concept Plan Amendments | State Significant Development Application SSD - 37486043 (Mod 6)

As part of the proposed works under SSD No. 120888992, the following amendments are proposed to the Concept approval and Stage 1 Infrastructure works approved under SSDA 37486043:

- + Amendment to approved Masterplan and Subdivision plan to accommodate revised Precinct 2-5 layout which will consolidate Precincts 2, 4 and 5, resulting in a total of three (3) precincts. (Precinct 1, 2 & 3).
- + Amendment of Stage 2 infrastructure scope to accommodate revised and consolidated Precinct 2-5 layout
- + Amendment of Development Controls, including those prescribed under Condition A9 & A10 of the consent, specifically:
 - Building Height
 - Maximum GLA
- + Increase maximum permissible vehicle from a 30 m super B-double to a 36.5m B-triple (Condition D14)

This application, inclusive of the amendments to the Concept approval under SSD 37486043, seeks to facilitate the development of Building 2A, 2B & Lot 2C and associated Internal infrastructure changes.

1.1.2 Detailed Application | State Significant Development Application SSD-120888992

The SSDA seeks approval for the construction, fit-out, operation and use of 2 warehouse buildings and associated internal site infrastructure works to accommodate the proposed building layouts. Specifically, this includes:

- + **Warehouses and Distribution Building – Building 2A**
 - 24/7 warehouse and distribution use.
 - Construction, operation, fit-out (warehouse racking and office fit-out) and use of approximately 18,110 sqm warehouse with ancillary office GLA. Proposed ridge height of 14.6m (excluding rooftop plant and solar).

- Includes hard stand, dock offices, loading bays, landscaping, electric vehicle charging, solar panels and signage.
- + **Warehouses and Distribution Building – Building 2B & Lot 2C**
 - 24/7 warehouse and distribution use for an automated mail and parcel processing and sorting facility.
 - Construction, operation, fit-out (office and warehouse) and use of approximately 142,157 sqm of warehouse and office GLA across two levels spanning a proposed ridge height of 25.0m (excluding rooftop plant, roof access stairs and solar).
 - Warehouse fit-out includes automation and sortation equipment along with associated mezzanine structures.
 - Building 2B will include hardstand, heavy rigid parking, guardhouses, dock offices, loading bays, landscaping, electric vehicle charging, goods collection lockers, solar panels six lithium-ion battery energy storage systems (BESS) external to the main warehouse building and fleet workshop, weighbridges, fleet workshop, dock temperature control with external units, emergency generators, refuelling bay, truck wash and signage.
 - Dangerous goods (DGs) are proposed to be stored at the site, which are below the threshold quantities under Chapter 3 of the State Environmental Planning Policy (Resilience and Hazard) 2021
 - Ground Improvements to Warehouse 2B building footprint (i.e. pilling), including a 200mm thick layer of Cement Treated Fine Crushed Rock (CTFCR) placed under the entire warehouse footprint.
- + **Internal Estate Infrastructure**
 - Bulk Earthworks to Precinct 2 (formally Precinct 2, 4 & 5)
 - Approximately 550,000m³ fill importation required as either virgin excavated natural material (VENM), excavated natural material (ENM) or Resource Recovery Order under Section 286A of the *Protection of the Environment Operations Act 1997* (PoEO Act 1997) Importation proposed to be 24 hours, 7 days a week during the Fill Importation program
 - Export any unsuitable material (i.e Topsoil and Clay)
- + Retaining Walls (including importation of Engineered backfill)
- + Stormwater Basin D (including fit-out)
- + Construction and associated Easement to Drain of Stage 1 stormwater discharge line through Building 2B to Basin C
- + Stage 1 road and servicing amendments to reflect revised Precinct 2, 4 & 5 building layout
- + Noise barriers
- + Lead-in services including additional 11kv feeder via the extension of HV feeders from existing Endeavour Energy switching stations within Roberts Road and Capicure Drive
- + Other
 - Expansion and on-going management of DA 347.1/2021 Containment Cell
 - Subdivision of Precinct 2, 4 & 5 to suit revised precinct plan and ultimate lot layout

1.2 Related Applications/Activities

The wider Oakdale East Estate (OEE) site has been subject to a number of development approvals that previously assessed the impacts on biodiversity values. These impacts do not require re-assessment.

The following sections summarise previously approved impacts on biodiversity values and how they were offset. Approved clearing that has been progressively undertaken is shown in Figure 1.

1.2.1 DA 85.1/2019 - Austral Bricks Plant 3 Proposed Crusher Relocation

The Austral Brick Company Pty Ltd was granted approval on 28 August 2019 for the relocation of the former Plant 3 Crusher, removal of trees and construction of a new internal road; under DA 85.1/2019. The plant crusher was relocated to its current site to enable works on OEE Precinct 1 to proceed.

Vegetation cleared comprised planted native trees located on earthen bunds and other locations (predominantly planted as screening to the quarry operations). The extent of clearing (0.35 ha) did not trigger the area threshold nor was the Biodiversity Value (BV) threshold triggered and entry into the NSW Biodiversity Offset Scheme (BOS) was not required.

1.2.2 DA 93.1/2019 – OEE Precinct 1

Precinct 1 of the OEE was approved by Fairfield City Council (FCC) under DA 93.1/2019 on 1 April 2020. Works under DA 93.1/2019 were completed in 2021, which included the clearing of 0.1 ha of of Cumberland Plain Woodland (PCT 3320) and a further 0.64 ha of planted woodland.

Ten (10) ecosystem credits were retired to offset clearing of PCT 3320 in the southwest corner of the Site, where Precinct 1 currently operates.

1.2.3 Fairfield City Council Development Application DA 347.1/2021 (as modified) – Rehabilitation Works

A Fairfield City Council Development Application DA 347.1/2021 (as modified) has previously been approved over the site facilitating Bulk Earthworks and Rehabilitation (including an initial Containment Cell) Works at the Site to provide relative levels suitable for future industrial development.

These levels are:

- + Precinct 2 (western portion): BE 77.5
- + Precinct 2 (eastern portion): BE 71.5
- + Precinct 3: BE 77.0

Proposed SSD-120888992 assumes these levels and works in respect of assessment of environmental impacts previously assessed in accordance with Clause 4.63 (a) *Environmental Planning & Assessment Act 1979*. Further re-assessment is therefore not required.

DA 347.1/2021 assessed the Environmental Impacts associated with the required rehabilitation to achieve the above Bulk Earthworks levels.

Notwithstanding, DA 347.1/2021 (as modified) is currently unable to be fulfilled as the consent approves a shortfall of:

- + Fill importation required to achieve the above FCC approved rehab levels
- + Contamination cell size required to fulfill rehabilitation obligations under the Fairfield City Council consent and associated Rehabilitation Action Plan.

SSD-120888992 assess and seeks approval to address these shortfalls as part of the Environmental Impact Assessment.

was approved over the Site facilitating bulk earthworks and rehabilitation works (including an initial containment cell) to provide relative levels suitable for future industrial development.

A total of 46 ecosystem credits and 14 species credits were retired to offset the residual impacts resulting from DA 347.1/2021 (as modified) as summarised in Table 1.

Table 1. Biodiversity values impacted

Biodiversity value impacted	Area of impact (ha)	Credits required
Plant community type (PCT)		
PCT 835 - Cumberland riverflat forest	1.18	22
PCT 849 - Cumberland shale plains woodland	1.01	19
PCT 1071 - Coastal freshwater wetlands	0.25	5
PCT 1800 - Cumberland swamp oak forest	0.13	0
Total ecosystem credits	2.57	46
Species (fauna)		
<i>Meridolum corneovirens</i> (Cumberland Plain land snail)	0.69	14
Total species credits	0.69	14

1.2.4 SSD 37486043 - Oakdale East Estate (OEE)

The OEE Concept Proposal and Stage 2 Development (SSD 37486043) was approved by the NSW Department of Planning, Housing & Infrastructure (DPHI) on 11 October 2023.

The Concept Proposal initially provided for an industrial estate to be built over five stages, including development controls. Prior to the SSD 37486043 submission, the Concept Proposal was amended to only four stages (Precincts 1 to 4); with DPHI accepting the BDAR as concluded for Precincts 1-5.

The Stage 2 Development included earthworks, intersection works, construction of estate roads and services, subdivision, noise barriers, biodiversity offsets and construction, fit-out and operation of an expansion of an existing warehouse in Precinct 1 and three new warehouses in Precinct 3.

A total of 14 ecosystem credits and 10 species credits were retired to offset the residual impacts summarised in Table 2 (this included offsetting of residual impact for future development of Precinct 5).

Table 2. Biodiversity values impacted

Biodiversity value impacted	Area of impact (ha)	Credits required
Plant community type (PCT)		
PCT 835 - Cumberland riverflat forest	0.49	10
PCT 849 - Cumberland shale plains woodland - planted	0.05	0
PCT 1071 - Coastal freshwater wetlands	0.13	3
PCT 1800 - Cumberland swamp oak forest - degraded	1.15	0
PCT 1800 - Cumberland swamp oak forest	0.03	1
Landscaping	0.43	0

Biodiversity value impacted	Area of impact (ha)	Credits required
Total ecosystem credits	2.28	14
Species (fauna)	2.28	14
<i>Callocephalon fimbriatum</i> (Gang-gang Cockatoo)	0.49	10
Total species credits	0.49	10

1.3 Secretary Environmental Assessment Requirements (SSD 120888992)

Industry-specific SEARs issued for the project on 8 May 2026 require the following in relation to biodiversity assessment:

- + Assess any biodiversity impacts associated with the development in accordance with the *Biodiversity Conservation Act 2016* and the Biodiversity Assessment Method 2020, including the preparation of a Biodiversity Development Assessment Report (BDAR), unless a waiver is granted, or the site is on biodiversity certified land.
- + If the development is on biodiversity certified land, provide information to identify the site (using associated mapping) and demonstrate the proposed development is consistent with the relevant biodiversity measure conferred by the biodiversity certification.

The development is not located on biodiversity certified land and the proposed SSD 12088892 does not involve any direct impacts on biodiversity values, which would be additional to those previously approved in the earlier DAs outlined Section 1.2.

Without appropriate mitigation measures, there could be prescribed and / or indirect impacts that are in addition to that previously assessed.

Because there will not be any direct clearing of vegetation, the potential for impacts to incur an offset obligation is not assessed through application of the BAM. However, due to the potential for additional indirect impacts above those previously offset under earlier DA approvals, it is unclear whether the current approval will be eligible to apply for a BDAR waiver.

A request was submitted to the BOS Help Desk enquiry management system (JIRA) on 28 April 2026 to confirm the appropriate method of assessment. At the time of preparing this report a response had not yet been received.



State Significant Development Application (SSD-120888992)

Figure 1.
Approved clearing history

Legend

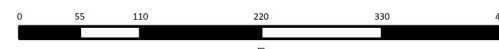
- OEE boundary
- Vegetation retained

Clearing approval

- DA/85/2019
- DA/347.1/2021
- SSD 37486043



écologique



Coordinate System: MGA Zone 56 (GDA 2020)
Image sources: Nearmap 17 March 2026

2. Site description

2.1 Location

The SSD-120888992 development site (the Site) is located at the OEE in the Fairfield Local Government Area (LGA). The broader OEE has a total site area of 88 ha and now consists of several land parcels since the original concept approval (SSD 37486043) as a result of subsequent subdivision of the site, including Lots 104, 105, 106, 107, 108 and 109 in DP1293112

The proposed SSD 120888992 applies to Lot 109 in DP 1293112 (Figure 2), which covers an area of approximately 30.5 ha across existing Precincts 2, 4 and 5 of the OEE.



Figure 2. Subject Site (Base source: Nearmap)

The Site is bounded by Water NSW's Warragamba Pipelines and the M7 Business Hub to the north, Reedy Creek and rural land and industrial development to the east, the future corridor of the Southern Link Road (SLR) and rural residential to the south, and the broader OEE Precincts 1 and 3 along with the Oakdale Central, West and South Industrial Estates to the west (see Figure 3).

The Austral Brick Co. Pty Ltd (Austral Brick) has operated the Site as a plant and quarry for brick production since 1973. Prior to this time the area was extensively cleared for farming purposes.

Quarrying has been increasingly scaled back in recent years with portions of the Site being relinquished from the Mining Lease (ML M(MO)L7) and associated Mining Operations Permit over time.

Substantial alterations to the land form have occurred through quarrying activities. Limited remnant vegetation occurred within the Site, with most vegetation of planted origin located on man-made screening bunds. Most of this vegetation has been cleared as described in Section 1.2 and shown in Figure 1.

Large areas of remnant vegetation occur along the eastern boundary of the Site, which is associated with the riparian corridor of Reedy Creek. Approximately 6.2 ha of riparian corridor is subject to the implementation of two vegetation management plans that will fulfil consent conditions under both DA 347.1/2021 and SSD 37486043 and (see Section 2.2).



Figure 3: Oakdale East Estate site context (Base source: Nearmap)

2.2 Vegetation Management Plans

2.2.1 DA 347.1/2021 Plant 3 Earthworks and Rehabilitation VMP

The approved earthworks and rehabilitation under DA 347.1/2021 encroach onto waterfront land, which required a controlled activity approval under Water Management Act 2000 (WM Act).

A controlled activity approval (CAA-2022-10326) was granted on 12 December 2022 (and since extended) for the earthworks and drainage system.

A Vegetation Management Plan (VMP) was prepared to support the CAA application, which will be implemented on completion of the construction phase and commencement of occupation.

Approximately 2.6 ha in the southern part of the riparian corridor will be conserved and managed under this VMP (écologique, 2022)

2.2.2 SSD 37486043 – OEE VMP

The Oakdale East Estate SSD-37486043 Vegetation Management Plan v.4 (écologique 2023) was prepared to fulfil the following consent conditions:

- + **D25.** Prior to the commencement of any clearing or construction works, the Applicant must update the Vegetation Management Plan (VMP) prepared by écologique dated 22 March 2023 to include a detailed map showing the area of each vegetation community that will be revegetated on the site.
- + **D26.** The Applicant must complete the revegetation of the riparian corridor in accordance with the VMP within 6 months of completing construction of the access road within Precinct 4.

Approximately 2.4 ha of riparian corridor immediately north of the Rehab DA VMP, a further 1.1 ha adjacent Precinct 5 (and north of the transmission easement) will be conserved and managed under this VMP (écologique, 2023).

The extent of the riparian corridor and VMP areas are shown in Figure 4.



State Significant Development Application (SSD-120888992)

Figure 4. VMP extent

Legend

- OEE boundary
- VMP extent
- DA/347.1/2021 VMP
- SSD-3786043 VMP
- Reedy_Creek

3. Prescribed impacts

Prescribed additional biodiversity impacts (prescribed impacts) must be assessed as per clause 6.1 of the BC Reg. Prescribed impacts include those impacts on the habitat of threatened species or ecological communities from development that is not directly caused from vegetation clearing.

Table 3 lists the prescribed impacts, which are identified in Clause 6.1 of the BC Reg and the relevance of each prescribed impact in relation to the proposal.

Table 3. Prescribed and Uncertain Impacts

Feature	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature.
Karst, caves, crevices, cliffs, rocks or other geological features of significance	N/A These features are not present within, or near, the subject land.	N/A
Human-made structures	N/A These features are not present within, or near, the subject land.	N/A
Non-native vegetation	N/A Areas of exotic groundcover within the Site is currently limited to the transmission easement located between Precincts 4 and 5, which predominantly lie outside of the proposal's construction footprint.	The potential for development of the Site to result in this prescribed impact was assessed under SSD 37486043; and no additional non-native vegetation will be cleared under SSD 120888992.
Habitat connectivity	The Site has been cleared of any habitat with connectivity provided by the Reedy Creek riparian corridor.	The proposal is not expected to impact on habitat connectivity for threatened species as the development conserves the Reedy Creek riparian corridor. The potential for development of the Site to result in this prescribed impact was assessed under SSD 37486043.
Waterbodies, water quality and hydrological processes	The Site does not contain any watercourses or groundwater dependant ecosystems and the proposal does not involve any activities that would directly interfere with any aquifers or aquicludes.	The proposal is considered unlikely to adversely impact on water quality, water bodies and hydrological processes that sustain threatened entities. The proposed capture, detention and management of both water quantity and quality has been designed compliantly in accordance with the SEARs and DCP requirements.

Feature	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature.
		These measures are designed to comply with pre-development water quality, quantity and flow criteria and thereby protect the downstream Reedy Creek from the development's operation. The potential for development of the Site to result in this prescribed impact was assessed under SSD 37486043.
Wind turbine strikes (wind farm development only)	N/A	N/A
Vehicle strikes	The proposal will result in changed vehicle movements i.e., from plant and machinery to heavy vehicles associated with warehouse distribution.	The risk of vehicle strike is considered to be a low risk as fauna have been prevented from the Site through fencing and a lack of ground dwelling fauna. The potential for development of the Site to result in this prescribed impact was assessed under SSD 37486043.

4. Avoid and minimise impacts

4.1 Avoiding or minimising impacts on biodiversity values

The proposed SSD-120888992 is contained wholly within the existing approved SSD 37486043 Concept proposal footprint, with previous assessment and approvals considered appropriate, given the Site is located in the following areas:

- + The location of Precincts 2 and 4 are within the former Plant 3 quarry, which is subject to rehabilitation under the approved DA 347.1/2021
- + The location of Precinct 5 is subject to ongoing quarry operations under the Mining Lease (ML M(MO)L7) and associated Mining Operations Permit.

Over six ha of native vegetation is being conserved along the eastern boundary of the Site, which includes a large proportion of land zoned IN1 (i.e., is not limited C2 zoned land). Thereby averting future potential loss of 2.7 ha of native vegetation (0.9 ha under SSD-37486043 and 1.8 ha under DA 347.1/2021).

4.2 Direct impacts

The proposed SSD-120888992 will not result in any residual direct impacts on native vegetation. Figure 5 illustrates the proposed development footprint in the context of existing construction 'no go zones' and the VMP extent.

4.3 Indirect impacts

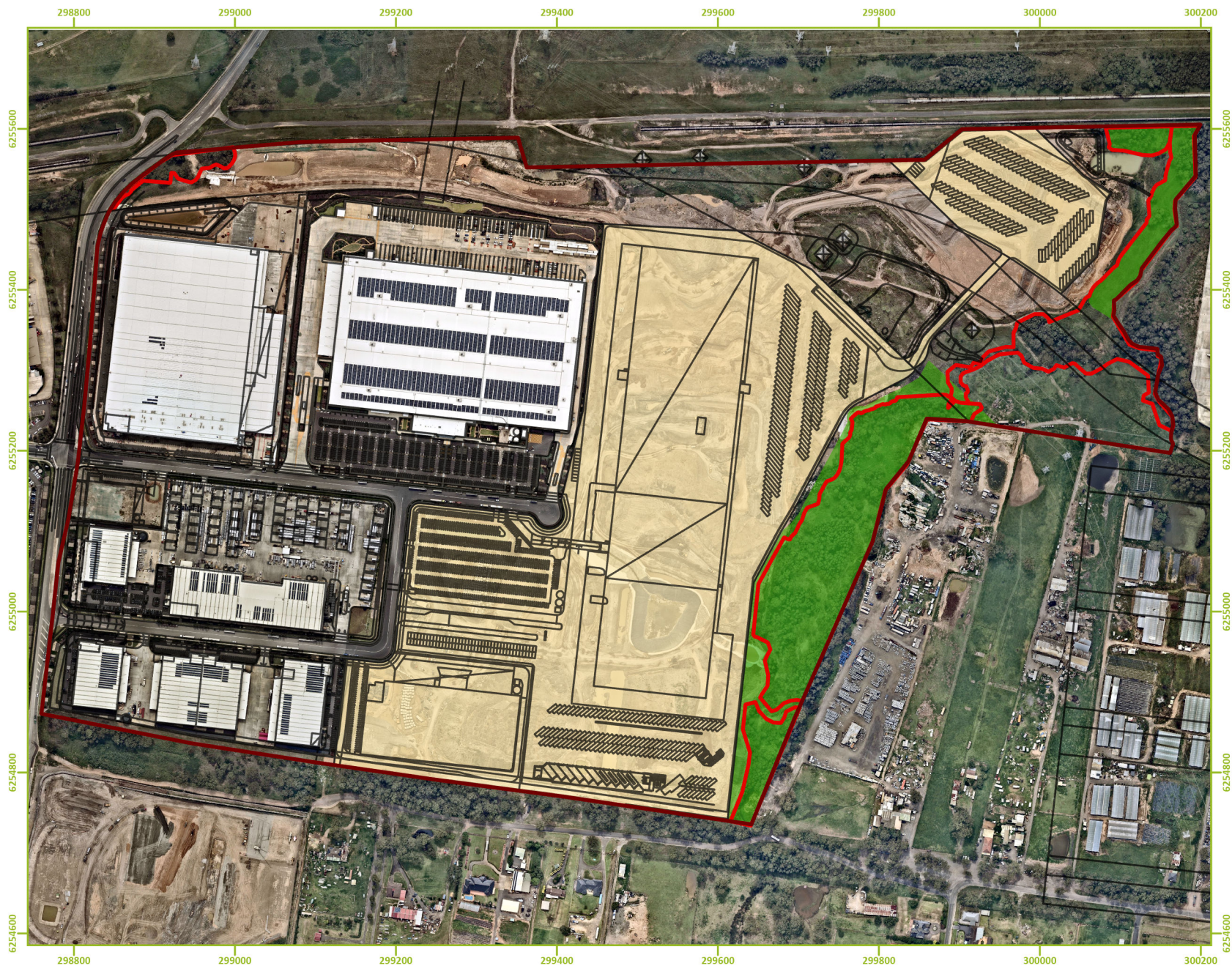
The maximum height of Building 2B has increased to 25m, which is an increase in building height from that proposed under SSD-37486043.

In combination with day and night operation the proposed SSD-120888992 has the potential to interfere with fauna flight paths and expose the adjacent riparian corridor to light spill and noise impacts; above that considered under SSD-37486043.

A summary of indirect impacts is provided in Table 4 and recommended mitigation measures are provided in Section 5: Table 5.

State Significant Development Application (SSD-120888992)

Figure 5.
Proposed development

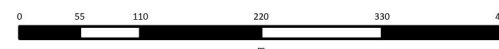


Legend

- OEE boundary
- Precinct 2_Masterplan
- No_go_zone
- VMP extent



écologique



Coordinate System: MGA Zone 56 (GDA 2020)
Image sources: Nearmap 17 March 2026

Table 4. Summary of residual indirect impacts in addition to those already assessed

Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase / timing of impact	Likelihood and consequences
Reduced viability of adjacent habitat due to light spill:						
The proposal will result in an increase in light levels above that which already exists.	Fauna utilising PCTs 4023 and 4025	Remnant vegetation in riparian corridor	Nightly during operation	Potentially long-term impacts	Operation	SSD-37486043 was approved for 24hour operation of industrial lots. The following design standards and guidelines for mitigating impacts on fauna habitat, included the following: + Commonwealth of Australia (2020) National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds; and + AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting recognises the impact of artificial light on biota. The above guidelines provide a range of measures to minimise light spill impacts on fauna and fauna habitat. Examples include: + The use of recent advances in smart control technology options for better controlled and targeted artificial light management; + Ensuring that lighting is shielded and directed only to the intended object or area; + Ensuring that light intensity is appropriate for the target area using only the minimum number and intensity of lights needed to provide safe and secure illumination for the area at the time required to meet the lighting objectives; and + Consideration of the following lighting aspects: ▪ high quality, low glare lighting, which enhances visibility for the user at night, reduces eye fatigue, improves night vision and delivers light where it is needed,

Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase / timing of impact	Likelihood and consequences
						- non-reflective, dark coloured surfaces, - reduced or filtered out blue, violet and ultraviolet wavelengths, which wildlife are sensitive to. Providing the design of the Estate's lighting installations incorporates the above and current best practice measures, the likelihood of light spill impacts on fauna and fauna habitat will be minimised as far as practical.
Reduced viability of adjacent habitat due to noise:						
Noise	Fauna utilising PCTs 4023 and 4025	Remnant vegetation in riparian corridor	Daily, during construction and operational phases	Potentially long-term impacts	Construction and operation	A detailed acoustic assessment (RWDI, 2026) included the addition of modelled receivers at the three locations nearest to the development within the vegetated riparian corridor. Night time (10pm to 7am) noise levels are not expected to exceed 44 dBA at the worst affected receiver location during the busiest 15 minutes of the night (10pm to 7am). Noise levels at these receivers are dominated by trucks looping around the building and those using the HV parking. This assessment included a basis of 4 movements per hour during the night time period. The modelled noise levels represent a worst case 15 minutes when operating at 100% capacity (2036 forecast). It is unclear how often this will be achieved in practice. Noise levels at these locations are likely to vary significantly (lower) from the traffic/utilisation data received; and also assume that all mitigation measures are adopted. Microbat species are likely to forage within and around the riparian corridor. Most microbats show

Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase / timing of impact	Likelihood and consequences
						temporary avoidance of areas where continuous mechanical noise exceeds ~55 dBA. The modelled 44 dBA at the worst affected receiver location appear to be acceptable and given the absence of persistent high-frequency or ultrasonic emissions, foraging and commuting behaviour are unlikely to be significantly affected.
Flight path integrity 1.4(e) BC Regulation						
Increased building height from 15 to 25m that may interfere with flight paths of bats and / or migratory species	<i>Pteropus poliocephalus</i> (Grey-headed flying-fox)	Habitual flight paths	Daily, during Operational phases	Potentially long-term impacts	Operation	The proposed increase in building height from 15 m to 25 m is unlikely to significantly interfere with Grey-headed Flying-fox movement due to the species' high mobility, tolerance of urban-industrial environments, and ability to navigate above and around existing built infrastructure. While the adjacent riparian corridor may provide local movement and foraging connectivity, the proposal is not expected to create a substantial barrier effect, provided riparian vegetation integrity is maintained and lighting spill is minimised.
	Threatened microbat species					The proposed increase in building height from 15 m to 25 m has potential to marginally alter local microbat movement and foraging behaviour through increased edge effects, lighting spill, and modification of the riparian flight environment. However, provided riparian vegetation integrity is maintained and lighting impacts are minimised, the proposal is unlikely to significantly impede regional microbat connectivity or result in a significant impact on local populations within the existing industrial landscape context of Eastern Creek.

Indirect impact	Impacted entities	Extent	Frequency	Duration	Project phase / timing of impact	Likelihood and consequences
	Migratory bird species (e.g., swifts, needleetails)					Most migratory species occurring around the locality move across broad landscapes, fly at highly variable altitudes and are capable of navigating heavily urbanised environments. On this basis a 25 m industrial building height is not considered likely to cause a significant impact.

5. Mitigation measures

Table 5 outlines proposed mitigation and management measures to address the potential for additional light spill and noise.

Table 5. Summary of proposed mitigation and management measures in addition to those impacts already assessed

Mitigation measure	Risk before mitigation measure	Risk after mitigation measure	Threatened entity or biodiversity to which the mitigation measure applies	Proposed Action	Timing	Frequency	Outcome	Responsibility
Light impacts								
Implement sensitive lighting design (low-glare, downward-directed, warm-spectrum fixtures) to complement low	Moderate	Low	Nocturnal fauna in the riparian corridor	Design all external lighting in accordance with AS/NZS 4282:2019 and IDA/ADSA Dark Sky Principles – fully shielded, downcast, and with 0° upward light output	Design / Construction	Once during design and construction (lighting installations) phases	No direct illumination (>0.5 lux) within C2 boundary	Principal / Electrical Engineer / Project Designer
				Position lighting poles and fittings inward facing toward the development footprint and away from the C2 zone	Design / Construction	Once during design and construction (lighting installations) phases	Minimise horizontal light trespass beyond property boundary	Principal
Minimise illumination intensity and spectral disturbance.	Moderate	Low	Nocturnal fauna in the riparian corridor	Use warm-spectrum LEDs (<3000 K) and limit blue-rich or high-CCT light sources	Operation	Daily during operation	No increase in insect attraction or altered fauna behaviour at boundary	Tenants
				Apply adaptive lighting controls (motion sensors, dimmers, or time switches) to reduce illumination during low-activity periods (10 pm–5 am)	Operation	Daily during operation	Night lighting limited to essential safety/security functions	Tenants

Mitigation measure	Risk before mitigation measure	Risk after mitigation measure	Threatened entity or biodiversity to which the mitigation measure applies	Proposed Action	Timing	Frequency	Outcome	Responsibility
				Avoid spotlighting, floodlighting, or high-mounted lighting near the conservation interface; where necessary, use baffled, directional fittings	Operation	Daily during operation	Minimise disorientation of nocturnal fauna and foraging disruption	Tenants
Protect nocturnal fauna and maintain natural light cycles	Moderate	Low	Nocturnal fauna in the riparian corridor	Develop a Lighting Management Plan integrated into the Operational Environmental Management Plan (OEMP), including lux contour mapping, maintenance schedule, and compliance verification.	Design / Operation	Once during design and ongoing during operation	Lighting impacts assessed and confirmed to meet performance targets.	Environmental Manager
				Educate site staff and contractors on the ecological importance of low-light conditions and protocols for vehicle headlights and temporary lighting.	Construction / Operation	Ongoing as required during site inductions	Reduction of incidental light intrusion from vehicles or works.	Environmental Manager
Noise impacts								
Minimise acoustic disturbance to fauna in the riparian corridor	Moderate	Low	Resident fauna in the riparian corridor	+ Installation of noise wall	Construction	Once	Minimised noise impacts on riparian corridor	Contractor / Principal
				+ Limit all high-noise construction activities (e.g., bulk earthworks, rock breaking, heavy vehicle use) to standard daytime hours (7 am–6 pm	Construction	Daily during construction	No high noise works during dusk/night periods when fauna	Contractor / Principal

Mitigation measure	Risk before mitigation measure	Risk after mitigation measure	Threatened entity or biodiversity to which the mitigation measure applies	Proposed Action	Timing	Frequency	Outcome	Responsibility
				weekdays; 8 am–1 pm Saturdays			(microbats) are most active	
				+ Avoid abrupt or impulsive noise events near the riparian corridor (e.g., air-brake use, metal impacts) + Use non-tonal reversing alarms (e.g., “broadband squawkers”) on site vehicles			Reduced startle responses riparian corridor	Contractor / Principal
				+ Turning off machinery when not in use + Maximising the offset distance between noisy plant items and sensitive receivers + Avoiding using noisy plant simultaneously and / or close together, adjacent to sensitive receivers + Using dampened tips on rock breakers + Using noise source controls, such as the use of residential class mufflers, to reduce noise from all plant and equipment including bulldozers,			Noise reduction of 5–10 dB in riparian corridor	Contractor / Principal

Mitigation measure	Risk before mitigation measure	Risk after mitigation measure	Threatened entity or biodiversity to which the mitigation measure applies	Proposed Action	Timing	Frequency	Outcome	Responsibility
				cranes, graders, excavators and trucks				
Protect nocturnal fauna	Moderate	Low	Resident fauna in riparian corridor	+ Restrict night works to essential activities only; otherwise, maintain operations below 45 dBA at the habitat boundary	During operation	Daily during operation	No measurable increase in night-time sound levels above baseline	Principal / Tenants
Minimise acoustic disturbance to fauna in riparian corridor	Moderate	Low	Resident fauna in riparian corridor	+ Turning off machinery when not in use + Maximising the offset distance between noisy plant items and sensitive receivers + Orienting equipment away from sensitive receivers + Carrying out loading and unloading away from sensitive receivers + Closing all warehouse roller shutter doors during the night period	Operation	Once during design phase, daily during operation	Minimise acoustic disturbance to fauna in the riparian corridor	Contractor / Principal / Tenants
Ensure compliance with acoustic criteria and continuous improvement.	Moderate	Low	Resident fauna in riparian corridor	+ Include fauna-related acoustic controls in the Construction Noise and Vibration Management Plan (CNVMP) and Operational Environmental Management Plan (OEMP)	Design / Pre-construction	Once during design phase, daily during construction and operation	All noise mitigation measures incorporated and audited for compliance	Principal / Acoustic Consultant / Environmental Manager

Mitigation measure	Risk before mitigation measure	Risk after mitigation measure	Threatened entity or biodiversity to which the mitigation measure applies	Proposed Action	Timing	Frequency	Outcome	Responsibility
Flight paths								
Design Building 2B to consider birds in flight	Moderate	Low	Migratory birds and other bird species	+ Reduce reflective glazing near the corridor + Use bird-friendly glazing where feasible	Design	Once during design phase	Reduce risk of bird collision with buildings	Principal / Architect
Implement sensitive lighting design	Moderate	Low	Migratory birds	+ Avoid upward/projected lighting + Shield lighting from riparian vegetation + Use warm-spectrum, low-spill lighting	Design	Once during design phase	Reduce risk of bird collision with buildings	Principal / Electrical Engineer / Project Designer

6. Conclusion

The proposed SSD 12088892 does not involve any direct impacts on biodiversity values, which would be additional to those previously approved in the earlier DAs outlined Section 1.2.

Indirect impacts have been assessed in accordance with the BAM 2020 and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); due to an increase in building height to that approved under SSD 37486043.

This assessment has focused on the potential indirect impacts from light spill, noise and interference to habitual flight paths. This has included consideration of migratory species protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The proposal will not:

- + Substantially modify habitat
- + Disrupts lifecycle processes
- + Seriously disrupt an ecologically significant proportion of a population, or
- + Decrease habitat availability.

The conclusion of this assessment is that the proposed SSD-120888992 is not anticipated to result in any prescribed impacts and there is a low and acceptable risk of any indirect impacts; subject to the implementation of the mitigation measures recommended in this report.

7. References

Australian and New Zealand Standard 4282 (2019) Control of the obtrusive effects of outdoor lighting recognises the impact of artificial light on biota

Commonwealth of Australia (2020) National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds.

Department of the Environment, Water, Heritage and the Arts (2013) Significant Impact Guidelines 1.1 - Matters of National Environmental Significance. EPBC Act Policy Statement

Department of Planning, Industry and Environment (2020) Biodiversity Assessment Method. Published by Environment, Energy and Science Department of Planning, Industry and Environment. ISBN 978-1-922493-29-3 EES 2020/0468 October 2020

écologique (2019) Austral Bricks Plant #3 Proposed Crusher Relocation Biodiversity Assessment v.3. Prepared for Austral Bricks. 19 March 2019

écologique (2022b) Plant 3 Rehabilitation Project Vegetation Management Plan. Prepared for Goodman Property Services on behalf of Austral Bricks. 29 August 2022

écologique (2023) Oakdale East Estate SSD-37486043 Vegetation Management Plan v.4. Prepared for Goodman Property Services. 18 October 2023

