



STRATFORD MINING COMPLEX Biodiversity Management Plan

STRATFORD MINING COMPLEX
(STRATFORD EXTENSION PROJECT)
BIODIVERSITY MANAGEMENT PLAN



Revision Status Register

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All	3	Updated to describe current status of SMC and biodiversity strategy progress	DPE-BCS and DPE	24 February 2023

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1 INTRODUCTION

1.1 STRATFORD MINING COMPLEX

Stratford Coal Pty Ltd (SCPL), a wholly owned subsidiary of Yancoal Australia Limited (Yancoal), owns the Stratford Coal Mine (SCM), which is located approximately 100 kilometres (km) north of Newcastle, New South Wales (NSW) (Figure 1). SCPL also owns the Bowens Road North Open Cut (BRNOC), located to the immediate north of the SCM. The SCM and BRNOC are collectively referred to as the Stratford Mining Complex (SMC).

Yancoal also owns the Duralie Coal Mine (DCM), which is located approximately 20 km south of the SMC (Figure 1). Run-of-mine (ROM) coal from the DCM is transported by rail to the SMC for processing and export.

Mining activities approved under the SCM Development Consent (DA 23-98-99) and the BRNOC Development Consent (DA 39-02-01) were suspended in mid-2014, however, processing of ROM coal from the DCM and the export of product coals continued under the SCM Development Consent.

The Development Consent (SSD-4966) for the Stratford Extension Project (SEP) was granted on 29 May 2015 under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and involves the extension and continuation of mine operations at the SMC¹, including (among other things):

- mining of up to 2.6 million tonnes of ROM coal per annum;
- continuation of mining in the BRNOC and the extension of mining into three additional open cut mining areas:
 - Roseville West Pit Extension;
 - Avon North Open Cut; and
 - Stratford East Open Cut.
- progressive backfilling of mine voids with waste rock behind the advancing open cut mining operations;
- continued and expanded placement of waste rock in the Stratford Waste Emplacement and Northern Waste Emplacement;
- coal processing at the existing Coal Handling and Preparation Plant (CHPP);
- stockpiling and loading of product coal to trains for transport on the North Coast Railway to Newcastle;
- disposal of CHPP rejects via pipeline to the existing co-disposal area in the Stratford Main Pit and, later in the mine life, the Avon North Open Cut void;
- continued use of existing water storages/dams and progressive development of additional sediment dams, pumps, pipelines, irrigation infrastructure and other water management equipment and structures;
- other associated minor infrastructure, plant, equipment and activities and minor modifications to existing structure, plant and equipment and activities; and
- rehabilitation of the site.

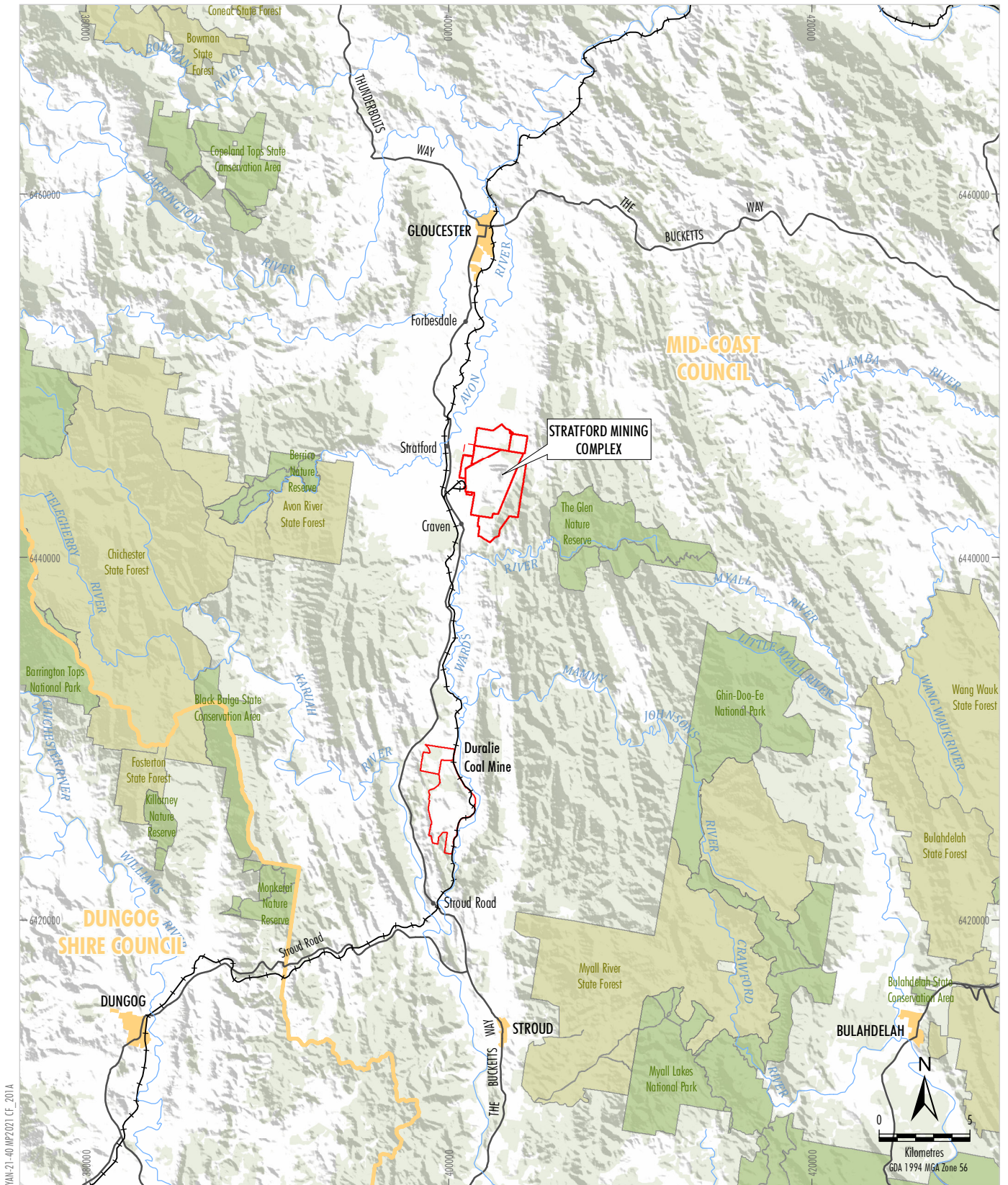
The general arrangement of the approved SMC is provided in Figure 2.

Current Status of SCM

Mining activities approved under the SEP Development Consent (SSD-4966) commenced on 4 April 2018. Current mining operations at the SMC are associated with:

- completion of mining in the Roseville West Open Cut Pit followed by progressive backfilling with waste rock material;
- completion of mining in the BRNOC followed by progressive backfilling with waste rock material;
- continued development and mining of the Stratford East Open Cut; and
- continued development and mining of the Avon North Open Cut.

¹ A copy of the Development Consent (and other statutory State and Federal licenses and approvals) is available on the Stratford Coal website (www.stratfordcoal.com.au).



YAN-21-40-IMP2021 CF - 201A



- LEGEND**
- Mining Lease Boundary
 - Mining Lease Application Boundary *
 - NSW State Forest
 - National Park, Nature Reserve or State Conservation Area
 - Local Government Area Boundary

*MLA1 is a proposed future Mining Lease Application (MLA) area and has not yet been lodged.

Source: Geoscience Australia (2006); Yancoal (2019); NSW Department of Planning & Environment (2017)



STRATFORD EXTENSION PROJECT
Regional Location

Figure 1

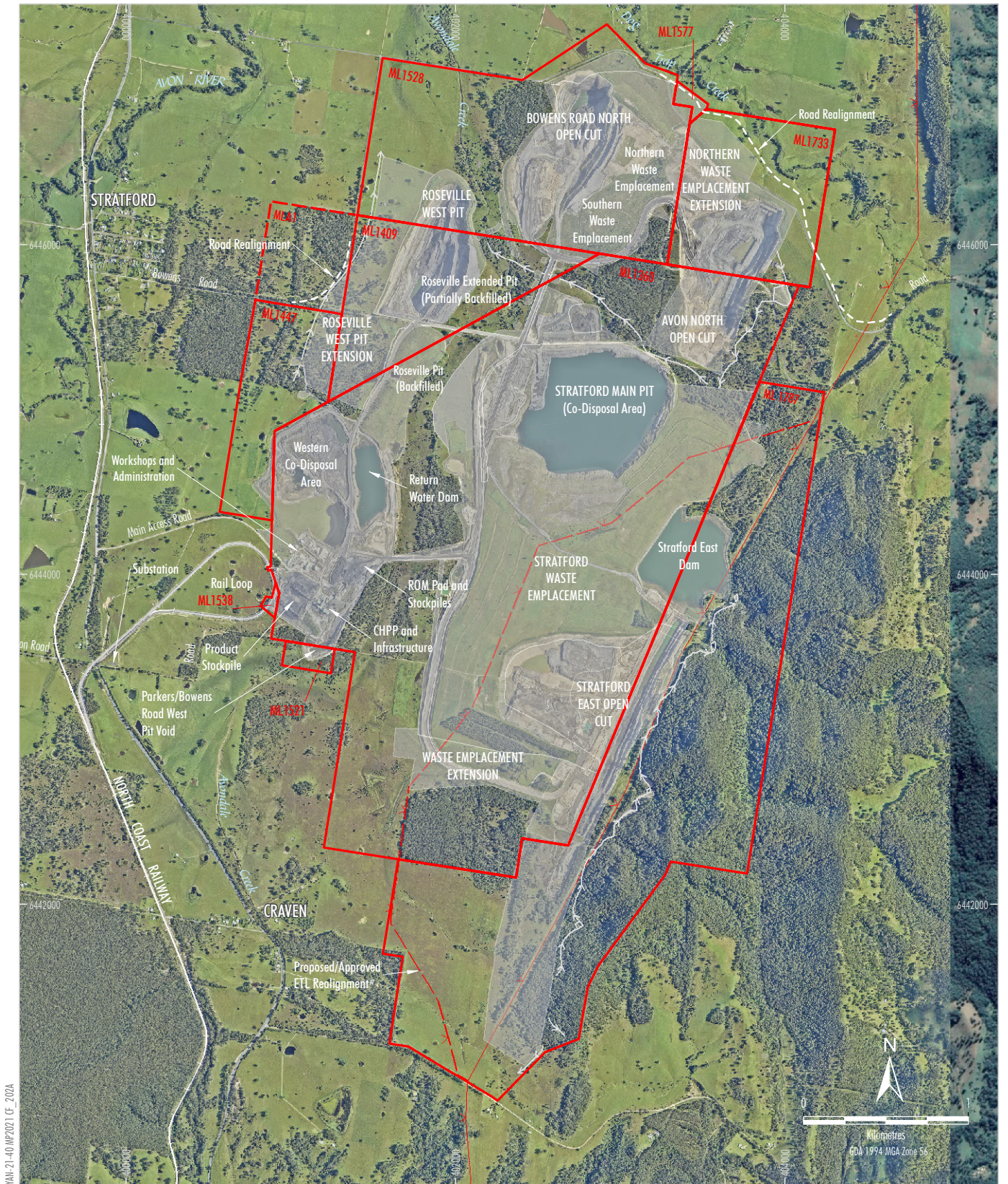


Figure 2

Condition 5, Schedule 2 of the SMC's Development Consent (SSD-4966) authorises mining operations to be carried at the SMC until 31 December 2025. As the SMC progresses towards the end of its approved mine life, operations and activities at the SMC over the next four years will progressively change to reflect this and will generally involve the following:

- **Reduction of open cut pit mining and total mobile plant fleet:** Open cut mining operations will progressively reduce with mining of the SMC's remaining operational pits (Avon North Open Cut and Stratford East Open Cut) to reduce sequentially over the next four years. Consequently, total mobile plant fleet operating at the SMC will also reduce.
- **Progressive open cut pit backfilling activities:** As mining of the open cut pits is progressively completed, backfilling of some of the pits with waste rock material, including Roseville West Open Cut Pit and BRNOC, will also occur either concurrently with mining or after the completion of mining.
- **Progressive rehabilitation of completed areas:** Rehabilitation of backfilled open cut pits, completed areas of the waste emplacements and other disturbed areas will continue to be progressed in accordance with the SMC's Rehabilitation Management Plan.
- **Reduction and then cessation of vegetation clearance activities:** The proposed extent of development of the remaining open cut pits and ancillary mining activities will be reached over the next four years, and subsequently after this time, no new disturbance areas (within the approved surface disturbance areas) are proposed.
- **Closure Planning:** SCPL will continue to implement the SMC's Mine Closure Planning Program (described in the SMC Mining Operations Plan and Rehabilitation Management Plan [and in future Rehabilitation Management Plans]) which includes technical assessments and works that will be undertaken and implemented as the SMC progresses towards the mine closure phase. As these assessments and works are completed, the SMC's environmental management plans will be reviewed and revised as required to reflect progression of the SMC towards mine closure, in consultation with relevant regulatory agencies.

Following the cessation of mining operations on 31 December 2025, SCPL will undertake bulk rehabilitation earthworks, infrastructure decommissioning, and revegetation of the final landform in accordance with the SMC's Rehabilitation Management Plan. Once bulk rehabilitation earthworks are complete, all major fleet will then be removed from site and the mine's workforce reduced to support post-closure activities.

SCPL will continue to implement this Biodiversity Management Plan (BMP) to manage biodiversity at the rehabilitated site and within the offset areas. It is anticipated that this BMP will remain in effect until the BMP completion criteria have been met.

1.2 OBJECTIVE AND STRUCTURE OF THE BMP

This BMP has been prepared in accordance with the requirements of Condition 39, Schedule 3 of NSW Development Consent SSD-4966 (Section 2.1).

The objective of this BMP is to address relevant State and Commonwealth approval conditions (Sections 2.1 and 2.2) and facilitate the management of biodiversity at the SMC, Biodiversity Enhancement Area and Biodiversity Offset Area.

In accordance with Condition 39(d), Schedule 3 of Development Consent SSD-4966, the BMP was initially prepared for the three year period from the date of BMP approval (between 2018 and 2020) and included broader concepts for the medium term (3 to 6 years) and the longer term (6+ years). This document will be reviewed/revised as described in Section 8.4.

This revision of the BMP has been prepared to describe the current status of operations at the SMC and anticipated changes as the site progresses towards closure. Updates have also been made to describe the status of biodiversity strategy components and reflect the status and completion of the 2018 to 2020 performance and completion criteria for the offset areas. Further, the medium term (3 to 6 years) and long term (6+ years) biodiversity offset strategy components have been updated. Other administrative updates have also been included to contemporise the plan.

The remainder of the BMP is structured as follows:

- Section 2: Outlines the statutory requirements relevant to the SMC.
- Section 3: Provides a description of the existing environment related to the SMC and Biodiversity Offset Strategy.
- Section 4: Describes the management of biodiversity at the SMC.
- Section 5: Describes the management of the Biodiversity Offset Strategy.
- Section 6: Describes the Performance and Completion Criteria for the Biodiversity Offset Strategy.
- Section 7: Describes the Monitoring of the Biodiversity Offset Strategy.
- Section 8: Outlines the reporting, auditing and reviewing requirements.
- Section 9: Provides a list of references used in this BMP.

1.3 CONSULTATION

In accordance with Condition 39(a), Schedule 3 of NSW Development Consent SSD-4966, the BMP is to be prepared in consultation with the NSW Biodiversity Conservation Division (BCD), within the Department of Planning and Environment (DPE) (formerly the Office of Environment and Heritage [OEH]). SCPL notes that BCD is now the Biodiversity Conservation and Science division (BCS) within DPE.

This revised BMP has been provided to the BCS for comment. BCS's correspondence is included in the Record of Consultation provided in Attachment 1.

This revised BMP has been submitted to the DPE for approval. On 24 February 2023, the DPE approved this revised BMP. The DPE's letter of approval is provided in Attachment 2. The revision and approval status of this BMP is provided on the title page of this plan.

1.4 RELATIONSHIP OF THE BMP TO OTHER MANAGEMENT PLANS

1.4.1 Squirrel Glider Management Plan

The Squirrel Glider Management Plan (SGMP) provides measures to manage the Squirrel Glider (*Petaurus norfolcensis*) in accordance with Condition 38, Schedule 3 of the Development Consent SSD-4966, including measures to enhance habitat and food resources, provide additional nesting opportunities and facilitate movement. This BMP includes a vegetation clearance protocol, revegetation programme and nest box programme which are relevant to the Squirrel Glider. The SGMP and BMP are closely integrated.

1.4.2 Mining Operations Plan/Rehabilitation Management Plan

A portion of the mine rehabilitation (350 hectares [ha] of native vegetation to be re-established) forms part of the Biodiversity Offset Strategy in Condition 33, Schedule 3 of the Development Consent SSD-4966 (Section 3.2). Management of the rehabilitation of areas disturbed for mining at the SMC is described in the Mining Operations Plan/Rehabilitation Management Plan.

1.4.3 Water Management Plan

The Water Management Plan provides measures to manage water resources on-site, including measures to control erosion and minimise impacts on aquatic ecology.

1.4.4 Duralie Coal Mine Biodiversity Management Plan

The BRNOC Biodiversity Offset Area is located adjacent to the offset area for the DCM and is 29 ha in size (Section 3.3). The DCM BMP provides for the management of the BRNOC Biodiversity Offset Area.

2 STATUTORY REQUIREMENTS

SCPL's statutory obligations are contained in:

- (i) the conditions of NSW Development Consent SSD-4966;
- (ii) the conditions of Commonwealth Approval (EPBC 2011/6176);
- (iii) the conditions of Environment Protection Licence (EPL) 5161;
- (iv) relevant licences and permits, including conditions attached to the SMC mining leases (MLs); and
- (v) other relevant legislation.

2.1 STRATFORD COAL MINE – NSW APPROVAL CONDITIONS

The conditions of the Development Consent SSD-4966 relevant to the BMP, and where they are referenced in this BMP, are provided in Table 1.

Table 1
Development Consent SSD-4966 Requirements Relevant to this Biodiversity Management Plan

Development Consent SSD-4966 Condition	BMP Section
1. <i>The Applicant shall prepare and implement a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:</i>	
(a) <i>be prepared in consultation with BCD, and be submitted to the Secretary for approval prior to 31 December 2025</i>	Section 1.3
(b) <i>describe the short, medium, and long-term measures that will be implemented to:</i> <ul style="list-style-type: none"> • <i>manage the remnant vegetation and habitat on the site; and</i> • <i>implement the biodiversity offset strategy;</i> 	Sections 4 and 5
(c) <i>include detailed performance and completion criteria for evaluating the performance of the biodiversity offset strategy, and triggering remedial action (if necessary);</i>	Section 6
(d) <i>include a detailed description of the measures that will be implemented over the next 3 years for:</i> <ul style="list-style-type: none"> • <i>enhancing the quality of existing vegetation and fauna habitat;</i> • <i>establishing native vegetation and fauna habitat in the Biodiversity Offset Area, Biodiversity Enhancement Area and Rehabilitation Area through focusing on assisted natural regeneration, targeted vegetation establishment and the introduction of naturally scarce fauna habitat features (where necessary);</i> • <i>enhancing the landscaping of the site and along public roads to minimise visual and lighting impacts, particularly along Glen Road;</i> • <i>protecting vegetation and soil outside approved disturbance area;</i> • <i>maximising the salvage of resources within the approved disturbance area – including vegetative and soil – for beneficial reuse in the biodiversity offset strategy;</i> • <i>collecting and propagating seed;</i> • <i>minimising the impacts to fauna on site, including undertaking pre-clearance surveys;</i> • <i>managing any potential conflicts between the proposed restoration works in the Biodiversity Offset Area and any Aboriginal heritage values (both cultural and archaeological);</i> • <i>managing salinity;</i> • <i>controlling weeds and feral pests;</i> • <i>controlling erosion;</i> • <i>managing grazing and agriculture;</i> 	Section 5
	Sections 4.8 and 5.3
	Section 4.10
	Section 4.1.1
	Section 4.1.4
	Section 4.1.5
	Sections 4.1.2 and 4.1.3
	Section 5.5
	Section 4.9
	Sections 4.4, 4.5 and 5.6 and 5.7
	Sections 4.6 and 5.8
	Sections 4.2 and 5.1

Table 1 (Continued)
Development Consent SSD-4966 Requirements Relevant to this Biodiversity Management Plan

Development Consent SSD-4966 Condition	BMP Section
<ul style="list-style-type: none"> controlling access; and managing bushfire risk; 	Sections 4.3 and 5.1
(e) include a program to monitor and report on the effectiveness of these measures, and progress against the detailed performance and completion criteria;	Sections 6 and 7
(f) identify the potential risks to the successful implementation of the biodiversity offset strategy, and include a description of the contingency measures that will be implemented to mitigate against these risks; and	Section 7.2
(g) include details of who will be responsible for monitoring, reviewing, and implementing the plan.	Section 8.5
Note: The Biodiversity Management Plan and Rehabilitation Management Plan need to be substantially integrated for achieving biodiversity objectives for the rehabilitated mine-site.	

In addition:

- Condition 29, Schedule 3 (Avondale and Dog Trap Creeks) provides:

29. The Applicant shall not carry out any mining operations within 40 metres of Avondale or Dog Trap Creeks, with the exception of the construction and/or use of the proposed and existing haul road crossings of Avondale Creek shown in the figure(s) in Appendix 3.

This condition is addressed in Section 4.1.1.

- Condition 30, Schedule 3 (Avondale and Dog Trap Creeks) provides:

30. The Applicant shall improve the riparian habitat along Avondale Creek to the satisfaction of the Secretary. These improvements must be made within the area of the proposed Biodiversity Enhancement Area (see Appendix 8) and include the re-establishment of flora species characteristic of the Cabbage Gum open forest vegetation community.

This condition is addressed in Section 5.3.

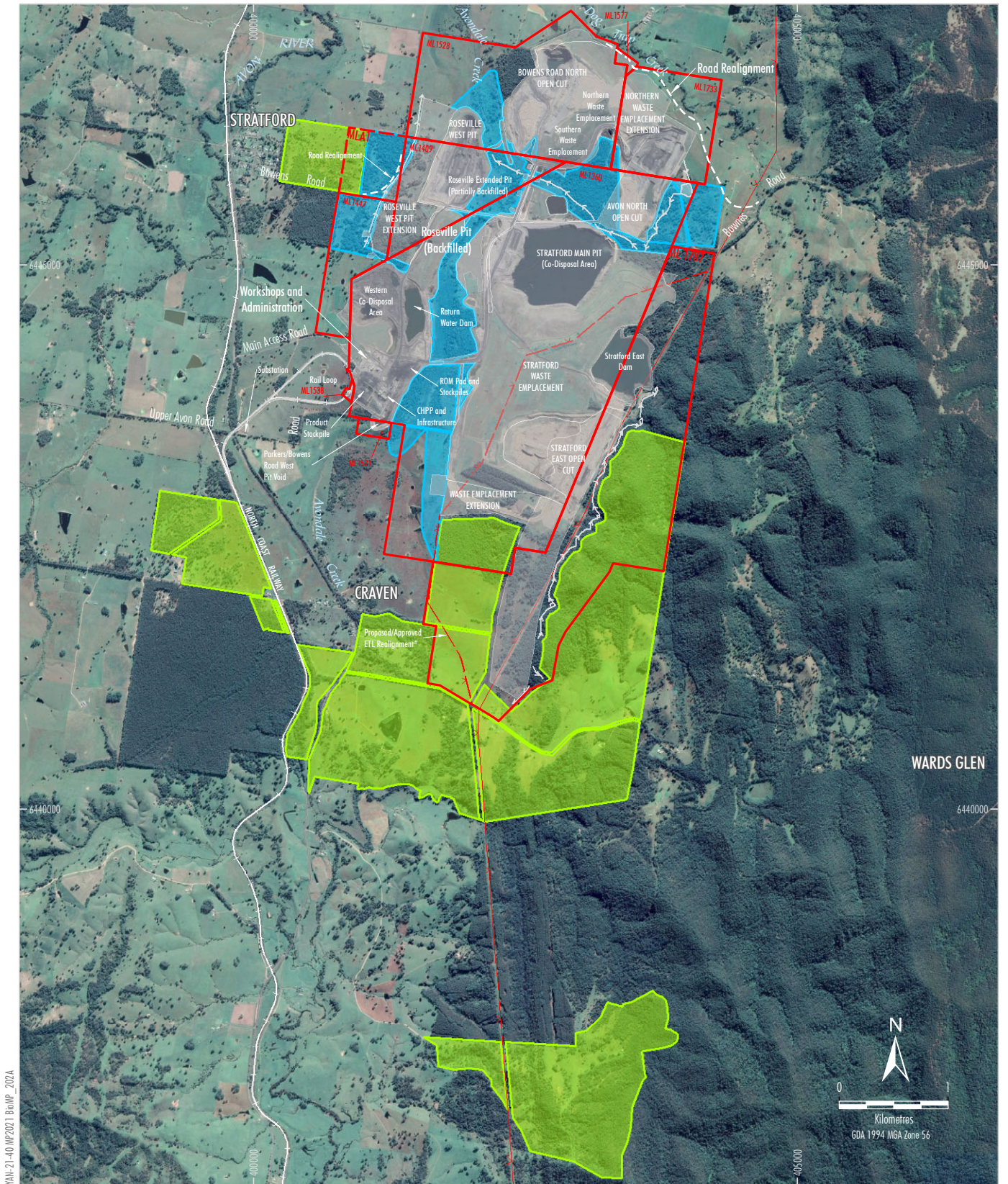
- Condition 33, Schedule 3 (Biodiversity Offset Strategy) provides:

33. The Applicant shall implement the biodiversity offset strategy described in the EIS, summarised in Table 9 and shown conceptually in Figure 1 in Appendix 8, to the satisfaction of the Secretary.

Table 9: Summary of the biodiversity offset strategy

Area	Offset Type	Minimum Size (ha)
Biodiversity Offset Area, including Offset Areas 1, 2, 3 and 4	Existing vegetation to be enhanced and additional vegetation to be established.	935 <i>Includes 490 ha of existing native vegetation.</i>
Biodiversity Enhancement Area	Existing vegetation to be enhanced and additional vegetation to be established, including Cabbage Gum open forest within the Avondale Creek riparian area.	240
Rehabilitation Area	Native woodland vegetation communities to be re-established.	350

This condition is addressed in Sections 3.2 and 5. The Biodiversity Offset Area and Biodiversity Enhancement Area are shown on Figure 3.



Source: Orthophoto - GoogleEarth CNES/Airbus (2020); LPI (2016); NSW Department of Planning & Environment (2017)



STRATFORD EXTENSION PROJECT
Biodiversity Offset Area and Biodiversity Enhancement Areas

Figure 3

- Condition 34, Schedule 3 (Enhancement of the Biodiversity Offset Strategy) provides:

34. At least 3 months prior to the commencement of mining operations in the new mining areas, the Applicant shall notify the owner of Property 44 (Cross / Jane) that they may request the Applicant to acquire their property. Upon receiving a written request from the owner to acquire their property, the Applicant shall acquire this property in accordance with conditions 5 and 6 of Schedule 4.

Should the Applicant acquire Property 44, then the property, exclusive of the residence and its immediate surrounds, shall be added to the Biodiversity Offset Strategy for the development described in condition 34 above, and managed in accordance with the requirements applicable to this Strategy.

Should the Applicant not acquire Property 44 in accordance with this condition, then the Applicant shall use its best endeavours to enter into an agreement with the owner that conserves, enhances and provides long-term security for the native vegetation on the property. This agreement must require that the vegetation on this property is managed in accordance with the Biodiversity Management Plan in condition 40.

This condition is addressed in Section 3.2.

- Condition 35, Schedule 3 (Cabbage Gum Open Forest) provides:

35. The Applicant shall ensure the establishment of vegetation in the Biodiversity Offset Area and Biodiversity Enhancement Area includes the establishment of flora species characteristic of the Cabbage Gum Open Forest community as described in the note below Table 9.

This condition is addressed in Section 5.3.

- Condition 36, Schedule 3 (Long-term security of the Offset) provides²:

36. Prior to 30 June 2016, unless the Secretary agrees otherwise, the Applicant shall make suitable arrangements to protect the Biodiversity Offset Area in perpetuity to the satisfaction of the Secretary.

Note: For the purposes of this consent suitable arrangements may include a biobanking agreement or the use of Public Positive Covenants in combination with Restrictions In Use of Land on the land titles of the Offset lands. Other arrangements such as dedication of land under the National Parks and Wildlife Act 1974, Trust Agreements under the Nature Conservation Trust Act 2001 or a Property Vegetation Plan registered on title under the Native Vegetation Act 2003 would be considered for their suitability by the Secretary.

This condition is addressed in Section 5.12.

- Condition 37, Schedule 3 (Habitat for Threatened Fauna Species) provides:

37. The Applicant shall ensure that the Biodiversity Offset Area and Biodiversity Enhancement Area provides suitable habitat for all the threatened fauna species recorded in the surface development area, namely the:

- *Glossy-black Cockatoo;*
- *Speckled Warbler;*
- *Grey-crowned Babbler (eastern subspecies);*
- *Varied Sittella;*
- *Brush-tailed Phascogale;*
- *Squirrel Glider;*
- *Long-nosed Potoroo; and*
- *New Holland Mouse.*

This condition is addressed in Section 3.2.

² Note, the timing outlined in this condition assumed that the Development Consent would commence upon approval. The Secretary of the then DP&E (now DPE) agreed (correspondence dated 30 November 2017) to extend the requirement relevant to commencement of the Project approved under the Development Consent SSD-4966 to 30 November 2018.

- Condition 40, Schedule 3 (Conservation Bond) provides²:

40. By the end of June 2016, unless the Secretary agrees otherwise, the Applicant shall lodge a Conservation Bond with the Department to ensure that the Biodiversity Offset Strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan.

The sum of the bond shall be determined by:

- (a) calculating the full cost of implementing the Biodiversity Offset Strategy (other than land acquisition costs); and*
- (b) employing a suitably qualified quantity surveyor to verify the calculated costs.*

If the Offset Strategy is completed generally in accordance with the completion criteria in the Biodiversity Management Plan to the satisfaction of the Secretary, the Secretary will release the bond.

If the offset strategy is not completed generally in accordance with the completion criteria in the Biodiversity Management Plan, the Secretary will call in all, or part of, the conservation bond, and arrange for the satisfactory completion of the relevant works.

Notes:

- *Alternative funding arrangements for long-term management of the biodiversity offset strategy, such as provision of capital and management funding as agreed by BCD as part of a Biobanking Agreement or transfer to conservation reserve estate can be used to reduce the liability of the conservation and biodiversity bond.*
- *The sum of the bond may be reviewed in conjunction with any revision to the biodiversity offset strategy.*

This condition is addressed in Section 5.13.

- Condition 41, Schedule 3 (Bowens Road North Open Cut Offset Strategy) provides:

41. The Applicant shall implement the Bowens Road North Offset Strategy, as described in the modification application Bowens Road North Mod 4 and accompanying Environmental Assessment titled Bowens Road North Open Cut June 2010 Modification, in conjunction with the biodiversity offset strategy for the Duralie Extension Project and comply with the relevant requirements for the implementation of this strategy in the Duralie Extension project approval (see MP 08_0203).

Note: The lands to which the Bowens Road North Offset Strategy applies are shown conceptually in Figure 2 of Appendix 8 and are located about 20 km south of the Stratford Mine and contiguous with more extensive lands of the Duralie Mine Offset Strategy.

This condition is addressed in Section 3.3.

- Condition 3, Schedule 5 of Development Consent SSD-4966, provides requirements for management plans (Table 2).

**Table 2
Development Consent SSD-4966 Requirements Relevant to Management Plans**

Development Consent SSD-4966 Condition	BMP Section
Condition 3, Schedule 5	
3. The Applicant shall ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 3
(b) a description of:	
<ul style="list-style-type: none"> • the relevant statutory requirements (including any relevant approval, licence or lease conditions); 	Section 2
<ul style="list-style-type: none"> • any relevant limits or performance measures/criteria 	Section 6
<ul style="list-style-type: none"> • 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 6
(c) a description of the measures that will be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Sections 4 to 6

Table 2 (Continued)
Development Consent SSD-4966 Requirements Relevant to Management Plans

Development Consent SSD-4966 Condition	BMP Section
(d) a program to monitor and report on the: <ul style="list-style-type: none"> • impacts and environmental performance of the development; • effectiveness of any management measures (see c above); 	Sections 7 and 8
(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 7.2
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 8
(g) a protocol for managing and reporting any: <ul style="list-style-type: none"> • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and 	Section 8 and SMC Environmental Management Strategy and Pollution Incident Response Management Plan (PIRMP)
(h) a protocol for periodic review of the plan.	Section 8.4

- The Statement of Commitments (Appendix 9 of Development Consent SSD-4966) states:

SOC2: SCPL will make every reasonable attempt to ensure that the conservation agreements (or other mechanism under which the Stratford Extension Project Biodiversity Offsets are secured) authorise the location and operation of AGL's proposed wells CR24, CR26, CR 27 and ST55 within the Stratford Extension Project Biodiversity Offsets properties as shown on Figure 1.

In February 2016, AGL Energy (AGL) announced that it would not proceed with the Gloucester Gas Project. Consequently, the wells originally proposed to be located within the Stratford Extension Project Biodiversity Offset Area (CR24, CR26, CR27 and ST55) are no longer proposed. Given this, the Conservation Agreements for the Biodiversity Offset Area will not be required to authorise the location and operation of these wells.

On 30 November 2017, the Secretary of the then DP&E (now DPE) confirmed that SCPL has no further obligations to fulfil SOC2 of the Development Consent.

2.2 STRATFORD COAL MINE – RELEVANT COMMONWEALTH APPROVAL CONDITIONS

The conditions of the Commonwealth Approval (EPBC 2011/6176) relevant to biodiversity management, and where they are referenced in this BMP, are provided in Table 3.

Table 3
Stratford Extension Project EPBC Act Approval (EPBC 2011/6176)

Conditions	BMP Section
Additional conditions for the protection of listed threatened species and communities	
2. Within ten (10) business days of the approval of any biodiversity management plan in accordance with Condition 39 of Schedule 3 to the Development Consent, whether in relation to an impact site, an offset site, or both, the person taking the action must provide the Department with a copy of the plan.	Section 1.3
3. Within ten (10) business days of fulfilment (or partial fulfilment if offset areas are not secured simultaneously) of Condition 36 of Schedule 3 to the Development Consent (relating to legal security of offset areas), the person taking the action must provide the Department with documentary evidence of its fulfilment (or partial fulfilment).	Section 8.4.2

Table 3 (Continued)
Stratford Extension Project EPBC Act Approval (EPBC 2011/6176)

Conditions	BMP Section
Administrative conditions	
9. <i>The person taking the action must maintain accurate records substantiating all activities associated with, or relevant to, these conditions of approval, including measures taken to implement any management documents, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions of approval. Summaries of audits will be posted on the website of the Department and may also be publicised through the general media.</i>	Section 8.1
10. <i>By 31 March of each year after the commencement of the action, or as agreed with the Department, the person taking the action must publish a report on their website addressing compliance with these conditions of approval during the previous calendar year, including implementation of any management documents as specified in the conditions. Non-compliance with any of these conditions of approval must be reported to the Department at the same time as the compliance report is published.</i>	Section 8.2.2
11. <i>Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with these conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.</i>	Section 8.3.2
18. <i>Unless otherwise agreed to in writing by the Minister, the person taking the action must publish all management documents referred to in these conditions of approval on their website. Each management document must be published on the website within ten (10) business days of being approved by the Minister or being submitted under Condition 12a)</i>	Section 8.2.3

2.3 OTHER COMMITMENTS RELEVANT TO THE BIODIVERSITY MANAGEMENT PLAN

Other relevant commitments (additional to those captured by the Consent conditions) as derived from measures described in the Stratford Extension Project Environmental Impact Statement (EIS) (SCPL, 2012) include:

- management of traffic throughout the SMC area, Biodiversity Offset Area and Biodiversity Enhancement Area (Sections 4.3 and 5.1);
- management of aspects relevant to aquatic ecology, including (Section 4.12):
 - construction and design of creek crossings; and
 - monitoring aquatic ecology; and
- nest box programme for species other than the Squirrel Glider (Section 5.10).

3 EXISTING ENVIRONMENT/BASELINE DATA

3.1 STRATFORD MINING COMPLEX

The SMC is located within the Gloucester Basin approximately 100 km north of Newcastle. It lies within the Hunter Local Land Services area and the MidCoast Council Local Government Area (LGA).

3.1.1 Climate

On-site weather data are collected at the meteorological station (the Stratford Weather Station) situated south of the Western Co-Disposal Area. On-site temperature records from 2016 onwards indicate that in the summer months at the SMC, maximum temperatures would be expected to range from 32 to 45 degrees Celsius (°C) while during winter months temperatures can fall as low as -5°C. The highest temperatures generally occur in January and the lowest occur during July.

The short-term mean monthly rainfall recorded at the Stratford Weather Station ranges from approximately 32 to 200 millimetres (mm) with the driest month being August and the wettest month typically being March. Mean monthly rainfall for the nearby district of Stratford over the period 1908 to 2007 ranges from 47 to 130 mm. Historical records show that rainfall tends to be highest in March and lowest in August.

A summary of meteorological data collected from these sources in the vicinity of the SMC is provided in Table 4.

**Table 4
Meteorological Data Summary – Temperature and Rainfall**

Period of Records	Short-term Average Monthly Temperature (°C)		Average Monthly Rainfall (mm)	
	Stratford Weather Station		Stratford Weather Station	Stratford District
	Minimum	Maximum	2016-2021	1908-2007
January	12.1	41.6	123.5	113.7
February	12.5	40.0	148.2	114.8
March	10.6	36.1	199.1	129.3
April	10.6	30.9	44.4	78.2
May	0.2	26.0	27.9	71.6
June	-0.1	22.4	76.9	69.4
July	-2.7	25.2	32.1	52.7
August	-2.2	27.3	28.7	47.1
September	1.0	32.9	34.7	50.5
October	5.2	34.2	86.0	65.5
November	7.4	36.0	77.4	2.7
December	10.6	39.0	96.0	102.2
Annual Average	5.4	32.6	974.8	977.7

3.1.2 Flora and Fauna Surveys

SCPL (1994a) and Dowling (2001) conducted flora surveys of the locality prior to the development of the existing SMC. Past fauna surveys in the area include frog surveys (SCPL, 1994b; Murray, 1994; Mount King Ecological Surveys, 2001), general fauna surveys (Mount King Ecological Surveys, 2001), reptile surveys (SCPL, 1994b; Mount King Ecological Surveys, 2001), bird surveys (AGC Woodward-Clyde, 1994; Mount King Ecological Surveys, 2001) and bat surveys (Hoye and Finney, 1994; Hoye, 1998; Richards, 2001).

More recently, flora surveys were undertaken in 2007, 2008 and 2010 by Ecobiological (2011a) and 2010 and 2011 by FloraSearch (2012). Australian Museum Business Services (AMBS) (2011a) also conducted surveys in the Biodiversity Offset Area. Recent fauna surveys include those by Ecobiological (2011a, 2011b, 2011c), AMBS (2011b, 2012a), Kerle (2011) and Biosphere Environmental Consultants (2011).

3.1.3 Vegetation Communities

The FloraSearch (2012) flora surveys identified 12 broad vegetation communities and two additional modified types within the SMC surface disturbance area and surrounds (Figure 4). These included:

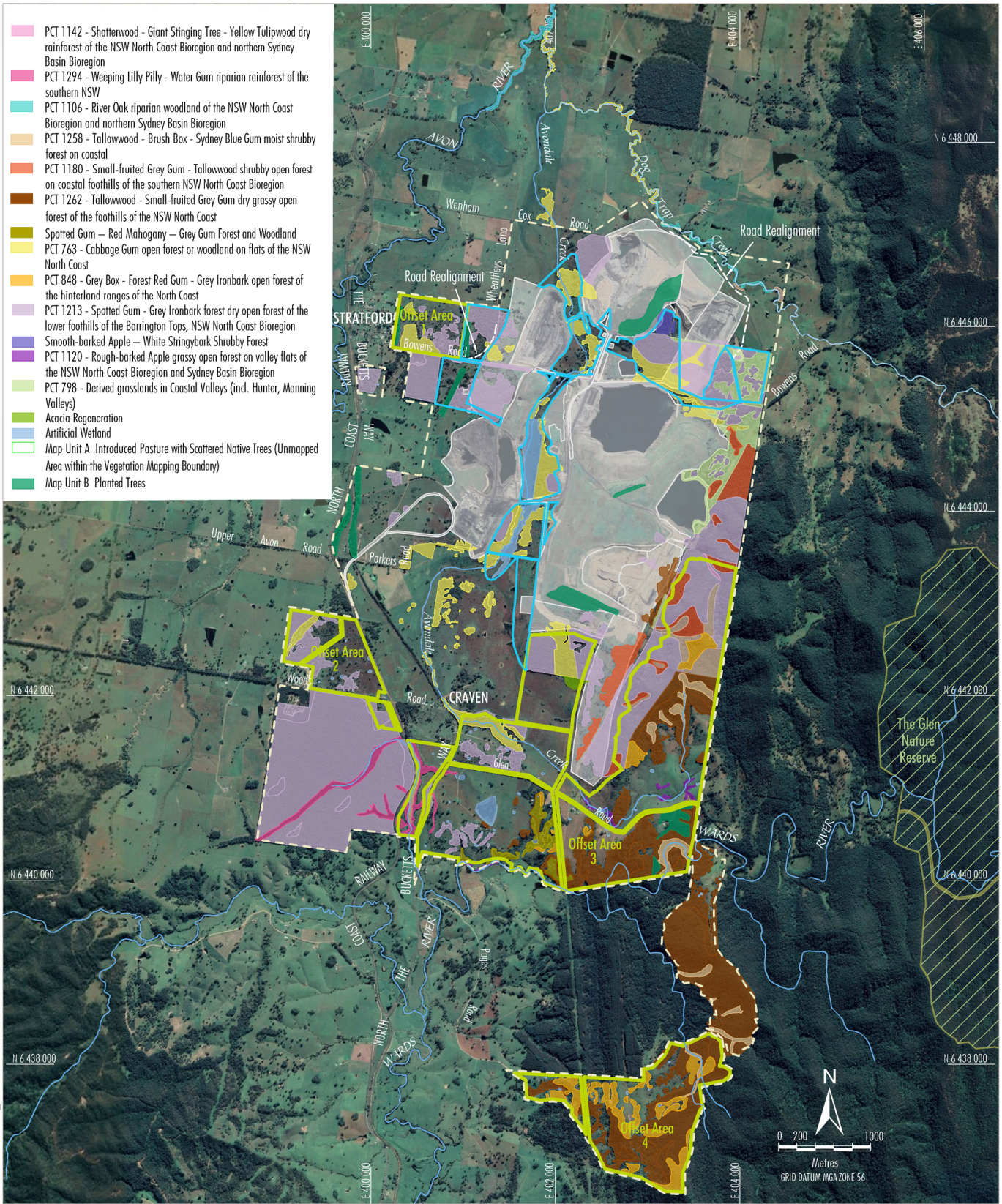
- Shatterwood – Giant Stinging Tree – Yellow Tulipwood dry rainforest of the North Coast and Northern Sydney Basin (Plant Community Type [PCT] 1142);
- Weeping Lily Pilly – Water Gum Riparian Rainforest of Southern North Coast (PCT 1294);
- River Oak riparian woodland of the and North Coast and Northern Sydney Basin (PCT 1106);
- Tallowwood – Brush Box – Sydney Blue Gum moist shrubby forest on coastal foothills of the southern North Coast (PCT 1258);
- Grey Gum – Tallowwood – Spotted Gum Forest and Woodland (PCT 1180);
- Tallowwood – Small-fruited Grey Gum dry grassy open forest of the foothills of the North Coast (PCT 1262);
- Spotted Gum – Red Mahogany – Grey Gum Forest and Woodland;
- Cabbage Gum open forest or woodland on the flats of the North Coast and New England Tablelands (PCT 763);
- Grey Box – Forest Red Gum – Grey Ironbark open forest of the hinterland ranges of the North Coast (PCT 848);
- Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast (PCT 1213);
- Smooth-barked Apple – White Stringybark Shrubby Forest;
- Rough-barked Apple Grassy Open Forest on the Valley Flats of the North Coast and Sydney Basin (PCT 1120);
- Derived Grasslands in Coastal Valleys (PCT 798); and
- Acacia Regeneration.

Further information on the vegetation communities associated with the SMC is provided in the EIS (SCPL, 2012)³.

3.1.4 Threatened Flora and Communities

No flora species or ecological communities listed in the schedules of the NSW *Biodiversity Conservation Act 2016* (BC Act) or EPBC Act were found in the targeted searches conducted over the SMC area (FloraSearch, 2012; AMBS, 2011a).

³ A copy of the Stratford Extension Project EIS is available on the Stratford Coal website (www.stratfordcoal.com.au).



- LEGEND**
- Approximate Extent of Existing/Approved Surface Development
 - Vegetation Mapping Boundary
 - Biodiversity Enhancement Area
 - Offset Area



STRATFORD EXTENSION PROJECT
Vegetation Types

Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)

Figure 4

3.1.5 Threatened Fauna

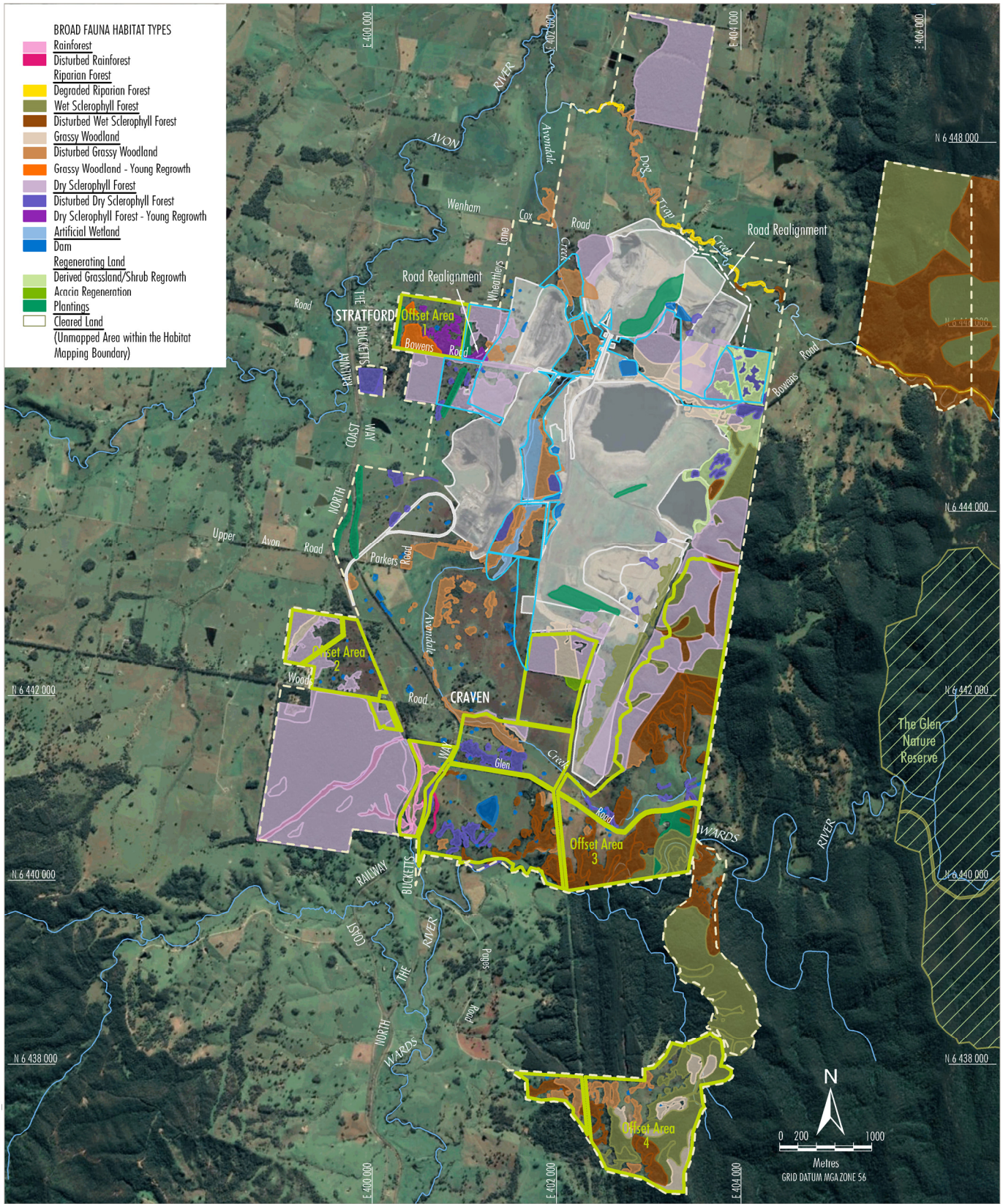
Fauna habitat is shown in Figure 5. The threatened fauna species listed under the BC Act and/or EPBC Act that have been recorded at the SMC and/or surrounds are listed in Table 5 and shown in Figures 6 to 8. A total of 28 species of the fauna recorded at the SMC or surrounds are listed as threatened species under either the BC Act or EPBC Act (AMBS, 2012a). This includes 15 species of birds and 13 species of mammals.

Table 5
Threatened Fauna Species Recorded at the Stratford Mining Complex and/or Surrounds

Scientific Name	Common Name	Conservation Status ¹	
		BC Act	EPBC Act
Birds			
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-
<i>Anseranas semipalmata</i>	Magpie Goose	V	-
<i>Calyptorhynchus lathamii</i>	Glossy Black-cockatoo	V	-
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-
<i>Tyto novaehollandiae</i>	Masked Owl	V	-
<i>Tyto tenebricosa</i>	Sooty Owl	V	-
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	-
<i>Chthonicola sagittata</i>	Speckled Warbler	V	-
<i>Melanodryas cucullata cucullata</i>	Hooded Robin (south-eastern form)	V	-
<i>Climacteris picumnus</i>	Brown Treecreeper (eastern subspecies)	V	-
<i>Petroica phoenicea</i>	Flame Robin	V	-
<i>Petroica boodang</i>	Scarlet Robin	V	-
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V	-
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-
<i>Stagonopleura guttata</i>	Diamond Firetail	V	-
Mammals			
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V	-
<i>Phascolarctos cinereus</i>	Koala	V	V
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-
<i>Petaurus australis</i>	Yellow-bellied Glider	V	-
<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo	V	V
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	-	V
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V	-
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V	-
<i>Miniopterus australis</i>	Little Bentwing-bat	V	-
<i>Myotis macropus</i>	Southern Myotis	V	-
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V	-
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-

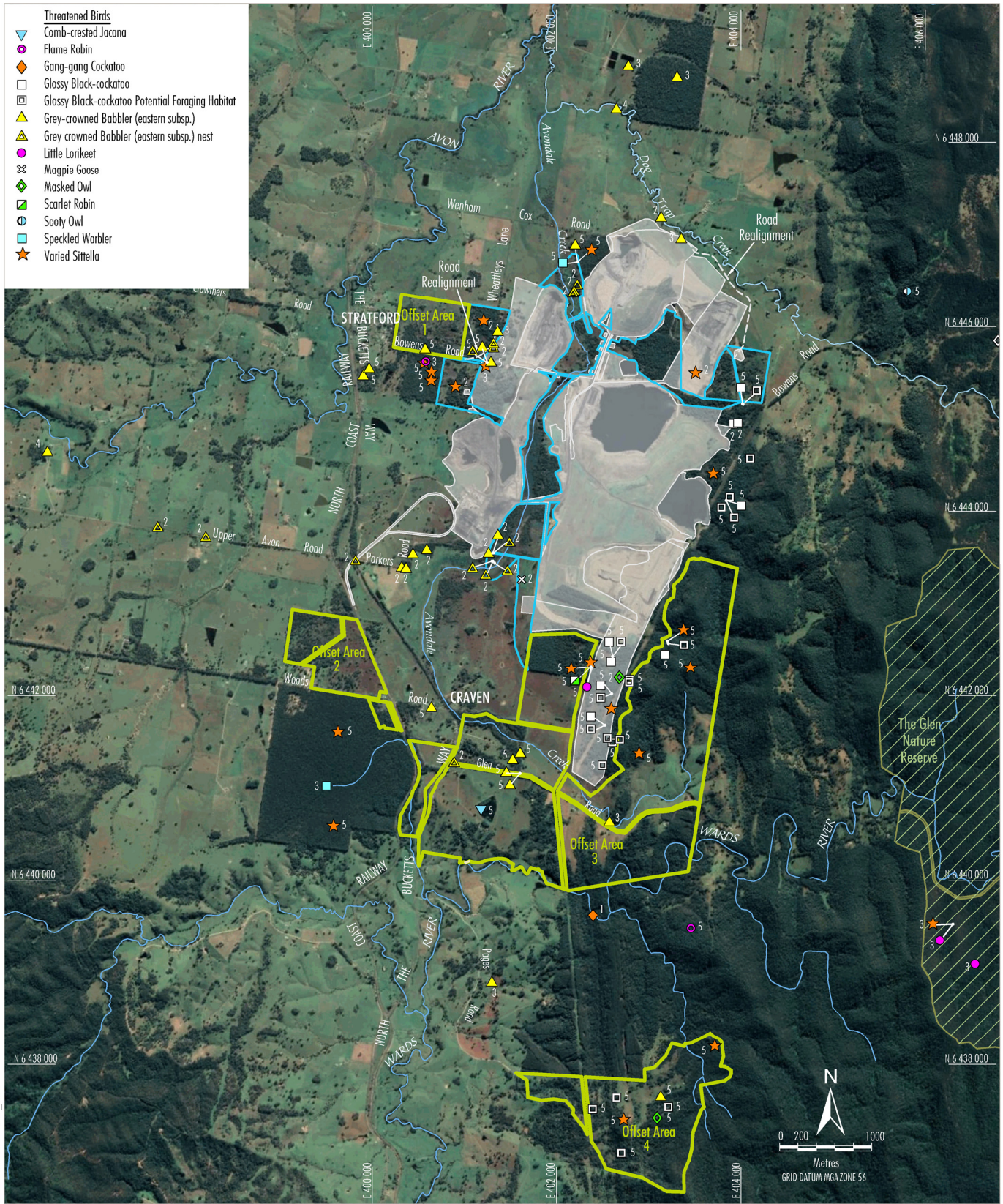
Threatened species status under the BC Act and/or EPBC Act current at November 2017.

V = Vulnerable; E = Endangered.



Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)

Figure 5



Threatened Birds

- ◄ Comb-crested Jacana
- Flame Robin
- ◆ Gang-gang Cockatoo
- Glossy Black-cockatoo
- ◻ Glossy Black-cockatoo Potential Foraging Habitat
- ▲ Grey-crowned Babbler (eastern subsp.)
- ▲ Grey-crowned Babbler (eastern subsp.) nest
- Little Lorikeet
- ⊗ Magpie Goose
- ◆ Masked Owl
- ◻ Scarlet Robin
- Sooty Owl
- ◻ Speckled Warbler
- ★ Varied Sittella

- LEGEND**
- ◻ Approximate Extent of Existing/Approved Surface Development
 - Minimum Survey Coverage Boundary
 - ◻ Biodiversity Enhancement Area
 - Offset Area

Source: 1. *EcoBiological* (2009c) 4. Penny Drake-Brackmann (pers. comm) in Parsons Brinckerhoff (2005)
 2. *EcoBiological* (2011a) 5. *AMBS* (2011b)
 3. *Birds Australia* (2011)

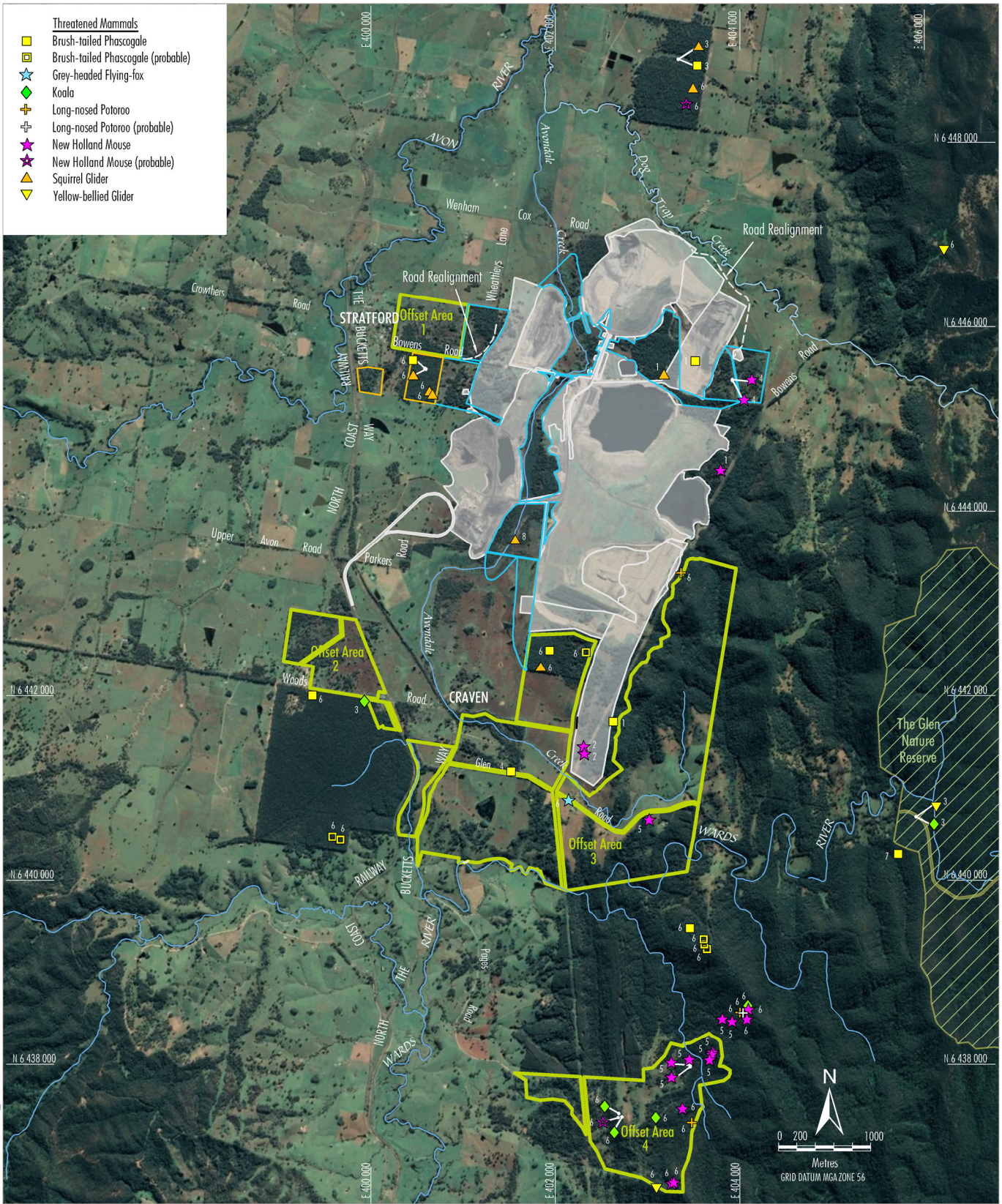
Please note that AGC Woodward-Clyde (1994) recorded the Glossy Black Cockatoo, Little Lorikeet, Hooded Robin (south-eastern form), Grey-crowned Babbler (eastern subsp.), Speckled Warbler, Varied Sittella, Brown Treecreeper (eastern subsp.) and Diamond Firetail, however the exact locations of these species were not reported.

Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)



STRATFORD EXTENSION PROJECT
Threatened Birds

Figure 6



YAN-21-40 WP2021 BioNP 101C

- LEGEND**
- Crown Land
 - Approximate Extent of Existing/Approved Surface Development
 - Biodiversity Enhancement Area
 - Offset Area

Source: 1. EcoBiological (2011a) 5. AMBS (2017a)
 2. EcoBiological (2011b) 6. AMBS (2011b)
 3. EcoBiological (2011c) 7. Australian Museum (2011)
 4. Kerle (2011) 8. Hays and Finney (1994)

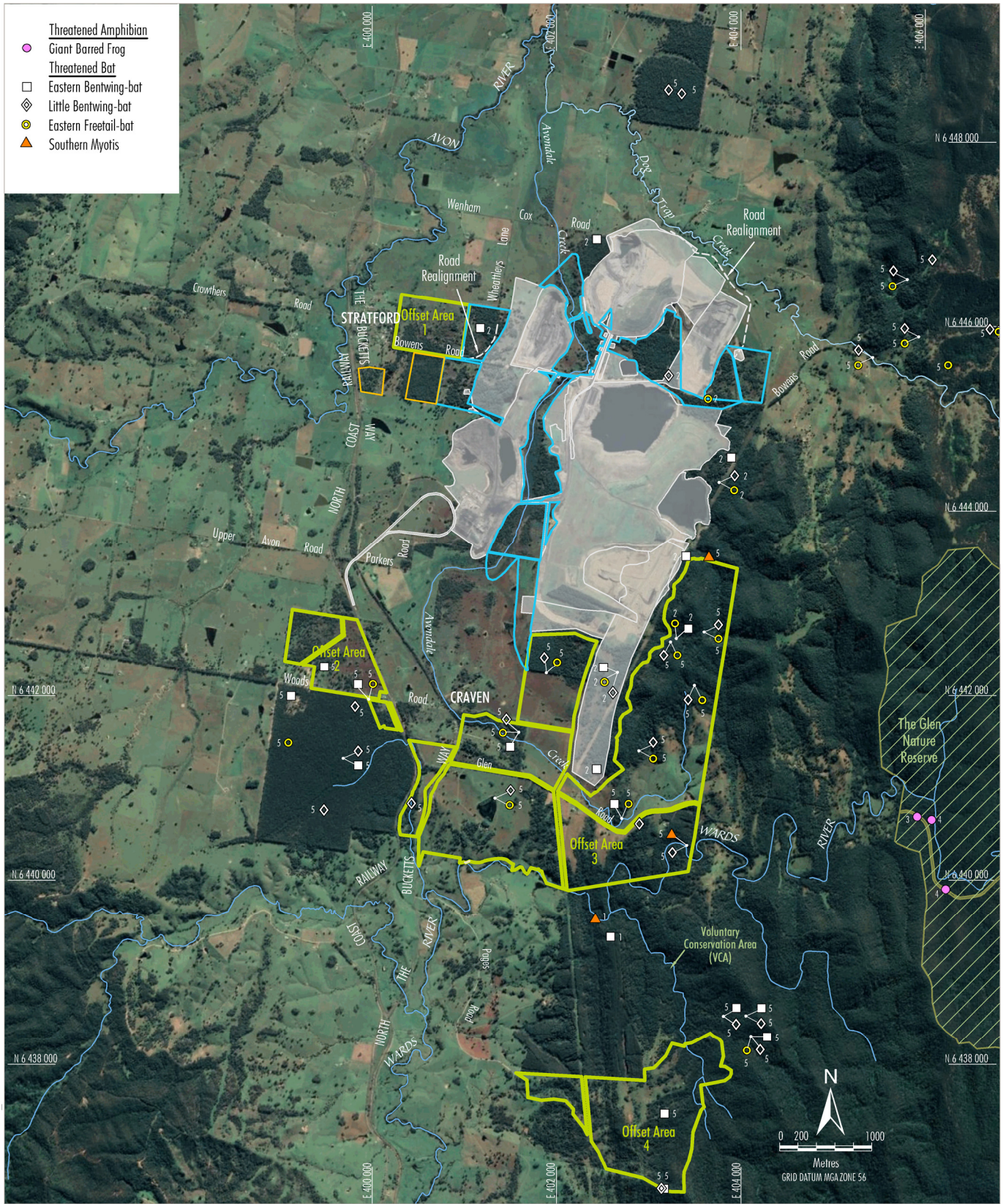
SCPL (2012); DFS-LPI (2012) and DPI C&L (CLD) (2012)
 Orthophoto - Gloucester Coal Ltd (flown July 2011)


STRATFORD COAL
 Part of the Yancoal Australia Group

STRATFORD EXTENSION PROJECT
Threatened Mammals

Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L (CLD) (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)


Figure 7



YAN-21-40 WP2021 BioNP 1058

LEGEND
 Crown Land
 Approximate Extent of Existing/Approved Surface Development
 Biodiversity Enhancement Area
 Offset Area

Source: 1. EcoBiological (2009c) 4. BioSphere Environmental Consultants (2010-2011)
 2. EcoBiological (2011a) 5. AMBS (2011b)
 3. EcoBiological (2011c)

 **STRATFORD COAL**
 Part of the Yancoal Australia Group
STRATFORD EXTENSION PROJECT
Threatened Amphibian and Bats

Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)

Please note Hoye and Finney (1994) recorded the Eastern Bentwing-bat; Hoye (1988) recorded the Eastern Bentwing-bat; Southern Myotis and Greater Broad-nosed Bat; and Richards (2001) recorded the Yellow-bellied Sheath-tail-bat, however the exact locations of these species were not reported.

Figure 8

3.1.6 Weeds

A total of 77 introduced taxa were recorded in the SMC surface disturbance area and surrounds (FloraSearch, 2012).

In NSW, all plants are regulated under the NSW *Biosecurity Act 2015* with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

State level determined priority weed species are set by NSW Department of Primary Industries (DPI). The NSW *Biosecurity Act 2015* and regulations provide specific legal requirements for state level priority weeds and high risk activities. The state determined priority weed species that have been recorded in the locality include (FloraSearch, 2012):

- *Rubus fruticosus* (Blackberry).
- *Salix spp.* (Willows).
- *Senecio madagascariensis* (Fireweed).

Regionally determined priority weed species are listed in the *Hunter Regional Strategic Weed Management Plan 2017 – 2022* along with regional strategic responses. The regionally determined priority weed species that have been recorded in the locality include (FloraSearch, 2012):

- *Rubus fruticosus* (Blackberry).
- *Xanthium occidentale* (Noogoora Burr).

3.1.7 Feral Animals

Thirteen species of exotic fauna were found in the SMC surface disturbance area and surrounds (AMBS, 2011a), including four species of bird and nine species of mammal. These exotic species include the Rock Dove, Spotted Turtle-Dove, Common Starling, Common Myna, House Mouse, Black Rat, Dog, Red Fox, Cat, Brown Hare, European Hare, European Rabbit, and European Cattle. Exotic species were considered to be 'uncommon', with the exception of the Rabbit, which was considered 'common' (AMBS, 2011a). Of these, the Domestic Dog, Red Fox and European Rabbit are declared pests under the *Local Land Services Act 2013*.

3.2 BIODIVERSITY OFFSET STRATEGY

The Biodiversity Offset Strategy is summarised in Table 6 from Condition 33, Schedule 3 of the Development Consent SSD-4966.

Table 6
Summary of the Biodiversity Offset Strategy

Area	Offset Type	Minimum Size (ha)	Long-term Security	Bond
<i>Biodiversity Offset Area, including Offset Areas 1, 2, 3 and 4</i>	<i>Existing vegetation to be enhanced and additional vegetation to be established.</i>	935 <i>Includes 490 ha of existing native vegetation.</i>	In perpetuity (Section 5.12)	Conservation Bond (Section 5.13)
<i>Biodiversity Enhancement Area</i>	<i>Existing vegetation to be enhanced and additional vegetation to be established, including Cabbage Gum open forest within the Avondale Creek riparian area.</i>	240	Land management during the life of the Project (Section 5.12) (SCPL, 2012).	Conservation Bond (Section 5.13)
<i>Rehabilitation Area</i>	<i>Native woodland vegetation communities to be re-established.</i>	350	Future land use subject to future consultation (Section 4.8).	Mine Security Deposit

The Biodiversity Offset Area, Biodiversity Enhancement Area and Rehabilitation Area are described below in Sections 3.2.1 to 3.2.3.

3.2.1 Biodiversity Offset Area

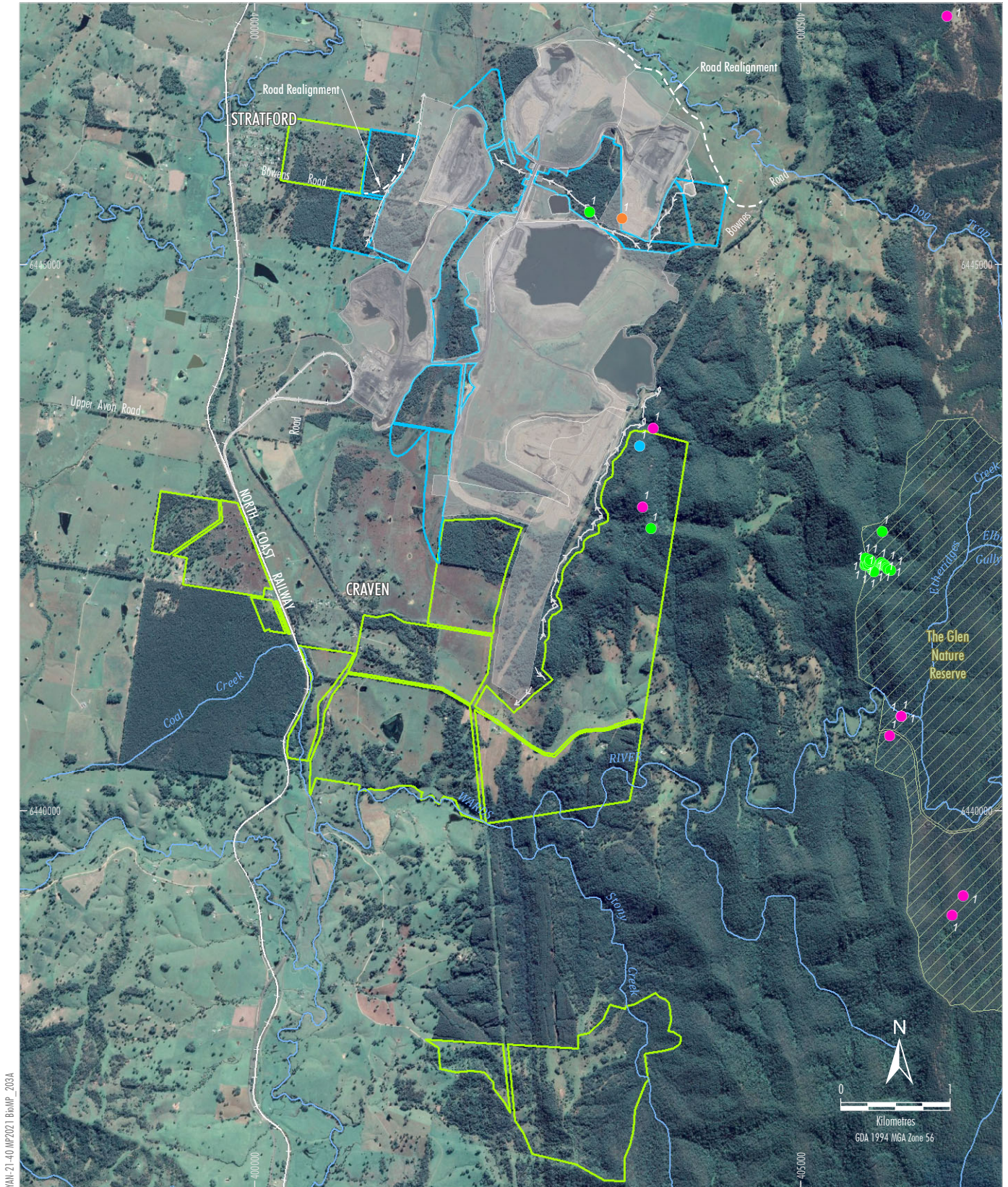
3.2.1.1 Location

This BMP provides for the management of the Biodiversity Offset Area (including Offset Areas 1, 2, 3 and 4) shown in Figures 3 and 9, totalling approximately 935 ha (including 490 ha of existing vegetation) (Figure 10).

3.2.1.2 Vegetation Communities and Habitats

The Biodiversity Offset Area contains a range of vegetation community types including rainforest, riparian forest, wet sclerophyll forest, grassy woodlands, dry sclerophyll forest, aquatic habitats (including artificial wetlands), acacia regeneration, derived grassland/shrub re-growth, plantings and introduced pasture with scattered trees. Vegetation communities include (FloraSearch, 2012):

- Shatterwood – Giant Stinging Tree – Yellow Tulipwood dry rainforest of the North Coast and Northern Sydney Basin;
- Weeping Lily Pilly – Water Gum Riparian Rainforest of Southern North Coast;
- Tallowwood – Brush Box – Sydney Blue Gum moist shrubby forest on coastal foothills of the southern North Coast;
- Grey Gum – Tallowwood – Spotted Gum Forest and Woodland;
- Tallowwood – Small-fruited Grey Gum dry grassy open forest of the foothills of the North Coast;
- Spotted Gum – Red Mahogany – Grey Gum Forest and Woodland;
- Cabbage Gum open forest or woodland on the flats of the North Coast and New England Tablelands;
- Grey Box – Forest Red Gum – Grey Ironbark open forest of the hinterland ranges of the North Coast;
- Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast;
- Rough-barked Apple Grassy Open Forest on the Valley Flats of the North Coast and Sydney Basin; and
- Acacia Regeneration.



YAN-21-40-IMP2021 BioIMP_203A

- LEGEND**
- Approximate Extent of Existing/Approved Surface Development
 - Biodiversity Enhancement Area
 - Offset Area

- Threatened Flora**
- Craven Grey Box
 - Magenta Lilly Pilly
 - Scant Pomaderris
 - Scrub Turpentine

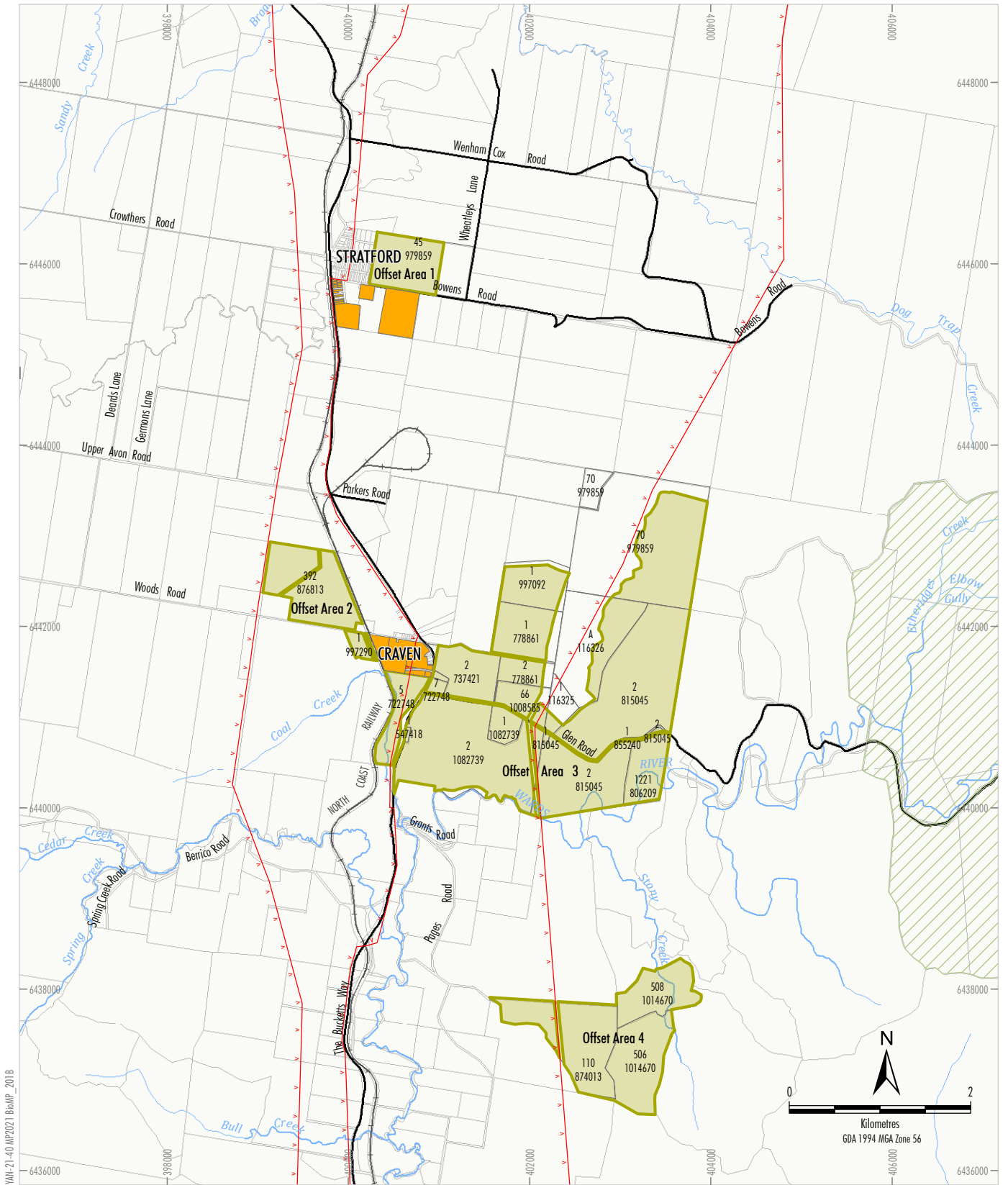
Source 1. BioNet Atlas (2022)

Source: Orthophoto - NSW Department of Customer Services (2020)
LPI (2016); NSW Department of Planning & Environment (2017)



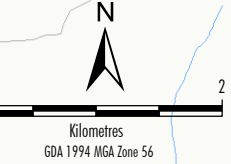
STRATFORD EXTENSION PROJECT
Threatened Flora

Figure 9



YAN-21-40 MP2021 BioIMP_2018

- LEGEND**
- Offset Area
 - Crown Land
 - Electricity Transmission Line




STRATFORD COAL
 Part of the Yancoal Australia Group
STRATFORD EXTENSION PROJECT
Land Tenure - Biodiversity Offset Areas

Source: NSW Spatial Services (2021)

Figure 10

3.2.1.3 Threatened Flora and Communities

During the preparation of the SMC 2012 Flora Assessment Report, no threatened flora species or ecological communities listed in the schedules of the BC Act or the EPBC Act were located in targeted searches of the Biodiversity Offset Area (FloraSearch, 2012; AMBS, 2012b). However, BCD has advised (Attachment 1) that three threatened plant species have been recorded in the Biodiversity Offset Area (records retrieved from BioNet Atlas 24 March 2022) (Figure 9). Table 7 provides a list of the three threatened plant species recorded within the Biodiversity Offset Area.

Table 7
Habitat in the Offset Area for Threatened Flora Species

Scientific Name	Common Name	Conservation Status ¹		Description
		BC Act	EPBC Act	
<i>Eucalyptus largeana</i>	Craven Grey Box	E	E	Records retrieved by BCD via BioNet Atlas (search conducted 24 March 2022) (Attachment 1).
<i>Rhodamnia rubescens</i>	Scrub Turpentine	E	E	
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	E	V	

¹ Threatened species status under the BC Act and/or EPBC Act current at January 2023.
V = Vulnerable; E = Endangered.

3.2.1.4 Threatened Fauna

Threatened fauna recorded at the SMC and/or surrounds are shown on Figures 6 to 8. A total of 21 threatened species were recorded within the Biodiversity Offset Area, with potential habitat for an additional five species being identified by AMBS (2011a) (Table 8).

Table 8
Habitat in the Offset Area for Threatened Fauna Species

Scientific Name	Common Name	Conservation Status ¹		Description
		BC Act	EPBC Act	
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-	The Comb-crested Jacana was recorded within an artificial wetland during a diurnal bird survey (AMBS, 2011a). Two individuals were present.
<i>Anseranas semipalmata</i>	Magpie Goose	V	-	This species utilises shallow wetlands (usually less than 1 m) with emergent vegetation, especially <i>Eleocharis</i> , with dense growth of sedges and rushes. Potential habitat for this species is not likely to be extensive throughout the Biodiversity Offset Area.
<i>Calyptorhynchus lathami</i>	Glossy Black-cockatoo	V	-	The Glossy Black-cockatoo was recorded several times throughout the Biodiversity Offset Area, including foraging signs (AMBS, 2011a). The Biodiversity Offset Area contains areas of foraging habitat (<i>Allocasuarina</i> spp.). <i>Allocasuarina</i> spp. will also be included in the revegetation programme.
<i>Petroica boodang</i>	Scarlet Robin	V	-	One individual Scarlet Robin was recorded during recent surveys within Dry Sclerophyll Forest (AMBS, 2011a).
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-	The Varied Sittella was recorded on multiple occasions during the current surveys, within dry and wet eucalypt forest (AMBS, 2011a). The Biodiversity Offset Area contains dry or wet eucalypt forests and woodlands required for this species. Potential habitat for the species occurs throughout most of the Biodiversity Offset Area.

Table 8 (Continued)
Habitat in the Offset Area for Threatened Fauna Species

Scientific Name	Common Name	Conservation Status ¹		Description
		BC Act	EPBC Act	
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-	All of the Biodiversity Offset Area contains habitat resources such as <i>Eucalyptus siderophloia</i> and much of the eastern portion of the area is dominated by other utilised trees such as <i>Corymbia maculata</i> . It is likely that the species moves through the study area in response to the availability of food resources such as <i>Corymbia maculata</i> , <i>Melaleuca</i> spp, <i>Leptospermum</i> spp. and <i>Callistemon</i> spp.
<i>Climacteris picumnus</i>	Brown Treecreeper (eastern subspecies)	V	-	Most mature vegetation within the Biodiversity Offset Area is lacking in a dense shrub layer which is the preferred habitat for this species. The derived grasslands contain tussock grasses and all areas (both revegetation and remnant vegetation) include stringybark Eucalypt species such as <i>E. acmeniodes</i> and <i>E. microcorys</i> .
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	The Masked Owl was recorded during a standard call playback survey (AMBS, 2011a). One individual responded to conspecific call broadcast.
<i>Tyto tenebricosa</i>	Sooty Owl	V	-	The Biodiversity Offset Area contains areas of wet Eucalypt forests required by this species.
<i>Pyrrholaemus sagittata</i>	Speckled Warbler	V	-	All of the Biodiversity Offset Area contains habitat resources such as <i>Eucalyptus siderophloia</i> and much of the eastern portion of the area is dominated by other utilised trees such as <i>Corymbia maculata</i> . The derived grasslands contain tussock grasses which are also used by the species.
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V	-	The Grey-crowned Babbler (eastern subspecies) was recorded on multiple occasions surveys (AMBS, 2011a). Group sizes ranged from two individuals to seven, and mostly occurred within dry sclerophyll forest in lowland areas. All of the Biodiversity Offset Area contains habitat resources such as <i>Eucalyptus siderophloia</i> and much of the eastern portion of the area is dominated by other utilised trees such as <i>Corymbia maculata</i> . The derived grasslands contain tussock grasses which are also used by the species.
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V	-	The Brush-tailed Phascogale was recorded on seven occasions throughout the Biodiversity Offset Area (AMBS, 2011a). The majority of the Biodiversity Offset Area is dominated by (or will be revegetated into) open dry foothill forest which is a key habitat for this species. The Brush-tailed Phascogale is also typically associated with <i>Eucalyptus siderophloia</i> and other utilised trees, such as <i>Corymbia maculata</i> and <i>E. acmeniodes</i> , which are abundant on-site.
<i>Phascolarctos cinereus</i>	Koala	V	V	The Koala was recorded on several occasions throughout the Biodiversity Offset Area (AMBS, 2011a).
<i>Petaurus australis</i>	Yellow-bellied Glider	V	-	An individual Yellow-bellied Glider was heard during a call playback session performed in the Biodiversity Offset Area (AMBS, 2011a).
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-	Two individuals of the Squirrel Glider were recorded in dry sclerophyll forest within Offset Area 3 (AMBS, 2011a). All of the Biodiversity Offset Area contains habitat resources such as <i>Eucalyptus siderophloia</i> and much of the eastern portion of the area is dominated by other utilised trees such as <i>Corymbia maculata</i> . The Biodiversity Offset Area also contain mature trees with hollows for nesting within mature regrowth vegetation.

Table 8 (Continued)
Habitat in the Offset Area for Threatened Fauna Species

Scientific Name	Common Name	Conservation Status ¹		Description
		BC Act	EPBC Act	
<i>Potorous tridactylus</i>	Long-nosed Potoroo	V	V	The Long-nosed Potoroo was recorded from two locations using remote monitoring cameras (AMBS, 2011a). The Biodiversity Offset Area contains dry and wet sclerophyll forests preferred by this species. Habitat for the species is throughout the Biodiversity Offset Area in patches.
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	-	V	The New Holland Mouse was recorded in five locations in the Biodiversity Offset Area (AMBS, 2011a). The Biodiversity Offset Area contains dry and wet sclerophyll forests with sparse shrub layer and grassy understorey which is preferred by this species. Habitat for the species is throughout the Biodiversity Offset Area in patches.
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V	-	This species was recorded in numerous locations throughout the Biodiversity Offset Area from Anabat recordings (AMBS, 2011a).
<i>Scoteanax ruepellii</i>	Greater Broad-nosed Bat	V	-	These species was recorded in numerous locations throughout the Biodiversity Offset Area, from both direct capture and Anabat recordings (AMBS, 2011a).
<i>Miniopterus australis</i>	Little Bentwing-bat	V	-	
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V	-	
<i>Vespadelus troughtoni</i>	Eastern Cave Bat	V	-	This species was possibly recorded in numerous locations throughout the Biodiversity Offset Area from Anabat recordings (AMBS, 2011a).
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	This species was possibly recorded in numerous locations throughout the study area from Anabat recordings (AMBS, 2011a).
<i>Pteropus poliocephalus</i>	Grey-headed Flying Fox	V	V	Three individuals of the species were observed in a flowering eucalypt within Offset Area 3 (AMBS, 2012b).
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	-	This species was possibly recorded within Offset Area 2 from Anabat recordings (AMBS, 2011a).
<i>Myotis macropus</i>	Large-footed Myotis	V	-	This species was recorded in two locations throughout the Biodiversity Offset Area, from both direct capture, and several other possible records from Anabat recordings (AMBS, 2011a).

Highlighted species = threatened fauna species listed in Condition 37, Schedule 3 of Development Consent SSD-4966.

In accordance with Condition 37, Schedule 3 of Development Consent SSD-4966, the Biodiversity Offset Area, provides suitable habitat for the following threatened fauna species:

- Glossy-black Cockatoo;
- Speckled Warbler;
- Grey-crowned Babbler (eastern subspecies);
- Varied Sittella;
- Brush-tailed Phascogale;
- Squirrel Glider;
- Long-nosed Potoroo; and
- New Holland Mouse

These species are highlighted in Table 8.

3.2.1.5 Weeds & Feral Animals

The nature and extent of weeds and feral animals within the Biodiversity Offset Area will be investigated as part of the initial management works outlined in Sections 5.6 and 5.7.

3.2.2 Biodiversity Enhancement Area

The mining leases associated with the SMC are managed to provide a mixed land use – mining, agriculture (grazing livestock) and biodiversity conservation. Land designated as a Biodiversity Enhancement Area (wildlife corridor) through the SMC was proposed as part of the original EIS (AGC Woodward-Clyde, 1994). Figure 3 shows the location of the Biodiversity Enhancement Area⁴.

The Biodiversity Enhancement Area is a proposal for land management during the life of the SMC (SCPL, 2012). The final tenure of the Biodiversity Enhancement Area will be subject to future consultation (SCPL, 2012).

3.2.2.1 Vegetation Communities

The vegetation communities within the Biodiversity Enhancement Area include:

- Cabbage Gum open forest or woodland on the flats of the North Coast and New England Tablelands;
- Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast;
- Smooth-barked Apple – White Stringybark Shrubby Forest; and
- Derived grasslands in Coastal Valleys.

3.2.2.2 Threatened Flora and Communities

During the preparation of the SMC 2021 Flora Assessment Report, no flora species or ecological communities listed in the schedules of the BC Act or EPBC Act were found in the targeted searches conducted over the SMC area and surrounds (FloraSearch, 2012; AMBS, 2011a). However, BCD has advised (Attachment 1) that one threatened flora species have been recorded in the Biodiversity Enhancement Area (records retrieved from BioNet Atlas 24 March 2022) (Figure 9). Table 9 provides a list of the threatened flora species recorded within the Biodiversity Enhancement Area.

Table 9
Threatened Flora Species Recorded in the Biodiversity Enhancement Area

Scientific Name	Common Name	Conservation Status ¹	
		BC Act	EPBC Act
<i>Eucalyptus largeana</i>	Craven Grey Box	E	E

¹ Threatened species status under the BC Act and/or EPBC Act current at January 2023.
V = Vulnerable; E = Endangered.

3.2.2.3 Threatened Fauna

Threatened fauna recorded at the SMC and/or surrounds are shown on Figures 6 to 8. Threatened fauna recorded within the Biodiversity Enhancement Area are listed in Table 10.

⁴ The boundaries of the Biodiversity Enhancement Area shown conceptually in Appendix 8 of Development Consent (SSD-4966) have been refined to exclude existing approved surface development, whilst maintaining 240 ha.

Table 10
Threatened Fauna Species Recorded in the Biodiversity Enhancement Area

Scientific Name	Common Name	Conservation Status ¹	
		BC Act	EPBC Act
Birds			
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-
<i>Anseranas semipalmata</i>	Magpie Goose	V	-
<i>Calyptorhynchus lathami</i>	Glossy Black-cockatoo	V	-
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-
<i>Tyto novaehollandiae</i>	Masked Owl	V	-
<i>Tyto tenebricosa</i>	Sooty Owl	V	-
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	-
<i>Pyrrholaemus sagittata</i>	Speckled Warbler	V	-
<i>Petroica phoenicea</i>	Flame Robin	V	-
<i>Petroica boodang</i>	Scarlet Robin	V	-
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V	-
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-
Mammals			
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V	-
<i>Phascolarctos cinereus</i>	Koala	V	V
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-
<i>Petaurus australis</i>	Yellow-bellied Glider	V	-
<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo	V	V
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	-	V
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V	-
<i>Miniopterus australis</i>	Little Bentwing-bat	V	-
<i>Myotis macropus</i>	Southern Myotis	V	-
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V	-

¹ Threatened species status under the BC Act and/or EPBC Act current at November 2017.

Highlighted species = threatened fauna species listed in Condition 37, Schedule 3 of Development Consent SSD-4966.

V = Vulnerable; E = Endangered.

In accordance with Condition 37, Schedule 3 of Development Consent SSD-4966, the Biodiversity Enhancement Area, provides suitable habitat for the following threatened fauna species:

- Glossy-black Cockatoo;
- Speckled Warbler;
- Grey-crowned Babbler (eastern subspecies);
- Varied Sittella;
- Brush-tailed Phascogale;
- Squirrel Glider;
- Long-nosed Potoroo; and
- New Holland Mouse

These species are highlighted in Table 8.

3.2.2.4 *Weeds and Feral Animals*

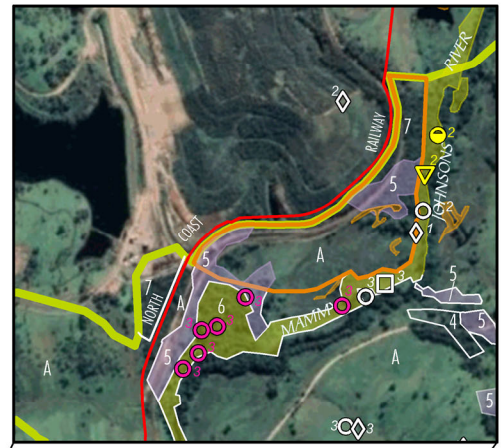
The nature and extent of weeds and feral animals within the Biodiversity Enhancement Area will be investigated as part of the initial management works outlined in Sections 5.6 and 5.7.

3.2.3 **Mine Rehabilitation**

A portion of the mine rehabilitation (350 ha of native vegetation to be re-established) is part of the Biodiversity Offset Strategy in Condition 33, Schedule 3 of Development Consent SSD-4966 (Table 6).

3.3 **BOWENS ROAD NORTH OPEN CUT OFFSET STRATEGY**

The lands to which the *Bowens Road North Offset Strategy* applies, shown conceptually in Figure 11, are located about 20 km south of the SMC and contiguous with more extensive lands of the Duralie Mine Offset Strategy. In accordance with Condition 41, Schedule 3 of Development Consent SSD-4966, SCPL will implement the *Bowens Road North Offset Strategy*, as described in the modification application *Bowens Road North Mod 4* (SCPL, 2010) and accompanying Environmental Assessment titled *Bowens Road North Open Cut June 2010 Modification* (SCPL, 2010), in conjunction with the biodiversity offset strategy for the Duralie Extension Project. The biodiversity offset strategy will comply with the relevant requirements for implementation as outlined in the Duralie Extension Project Approval (08_0203).



LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Duralie Extension Project Offset Area
- BRNOC Offset Area

Vegetation Communities

- 4 Grey Gum – Red Gum – Apple Riparian Forest
- 5 Cabbage Gum Floodplain Forest - River-flat Eucalypt Forest on Coastal Floodplains Endangered Ecological Community
- 6 Riparian Closed Forest - Lowland Forest on Floodplain Endangered Ecological Community
- 7 Stringybark – Paperbark Forest
- 11 Freshwater Wetlands Endangered Ecological Community

Vegetation Map Units

- A Derived Grasslands

Note: Vegetation community numbering is in accordance with the Duralie Extension Project Environmental Assessment.

Threatened Fauna

- Giant Barred Frog
- Rose-crowned Fruit-Dove
- ▼ Sooty Owl
- Brush-tailed Phascogale
- ◆ Eastern Bentwing-bat
- ◎ Large-footed Myotis

1. ERM Mitchell McCotter (1996)
 2. Woodward-Clyde (1996)
 3. EcoBiological (2009a)

0 0.5 1 2 3 4
 Kilometres
 GRID DATUM MGA 94 ZONE 56
 Source: SCPL (2012); DFS-LPI (2012) and DPI C&L [CLD] (2012)
 Orthophoto - GoogleEarth CNES/Airbus (2020)

STRATFORDCOAL
 Part of the Yancoal Australia Group

STRATFORD EXTENSION PROJECT
Bowens Road North Offset Area

Figure 11

4 MANAGEMENT OF BIODIVERSITY AT THE STRATFORD MINING COMPLEX

This section describes the short, medium and long term biodiversity management measures to be implemented by SCPL at the SMC. The management actions to be implemented within the Biodiversity Offset Area and Biodiversity Enhancement Area are detailed in Section 5.

4.1 VEGETATION CLEARANCE PROTOCOL

Objective

A vegetation clearance protocol has been developed to minimise the impact from vegetation clearance activities on native flora and fauna, including threatened species.

The vegetation clearance protocol is shown on Figure 12 and described below. The protocol involves:

- following general clearing restrictions and timing considerations (Section 4.1.1);
- undertaking pre-clearance surveys (Section 4.1.2);
- applying clearing methods to minimise impacts on fauna (Section 4.1.3);
- salvaging of material (including seed) for habitat enhancement (Section 4.1.4);
- collection and propagation of seed (Section 4.1.5); and
- reporting (Section 4.1.6).

4.1.1 Clearing Restrictions

General Clearing Restrictions

Land clearance will be undertaken progressively, with restriction of clearing to the minimum area necessary to allow mining operations to continue for the ongoing year, taking into consideration requirements for soil erosion control (SCPL, 2012).

The approved disturbance boundary will be digitally captured and displayed within the site survey and GIS databases. This data will be made available either digitally or in cartographic format to inform and guide mine planning, vegetation clearing, land preparation and mine rehabilitation activities. Approved disturbance limits near areas to be cleared will be delineated on the ground prior to clearing activities (e.g. flagging tape and posts) to protect vegetation and fauna habitat outside the approved disturbance area in accordance with Condition 39(d), Schedule 3 of Development Consent SSD-4966.

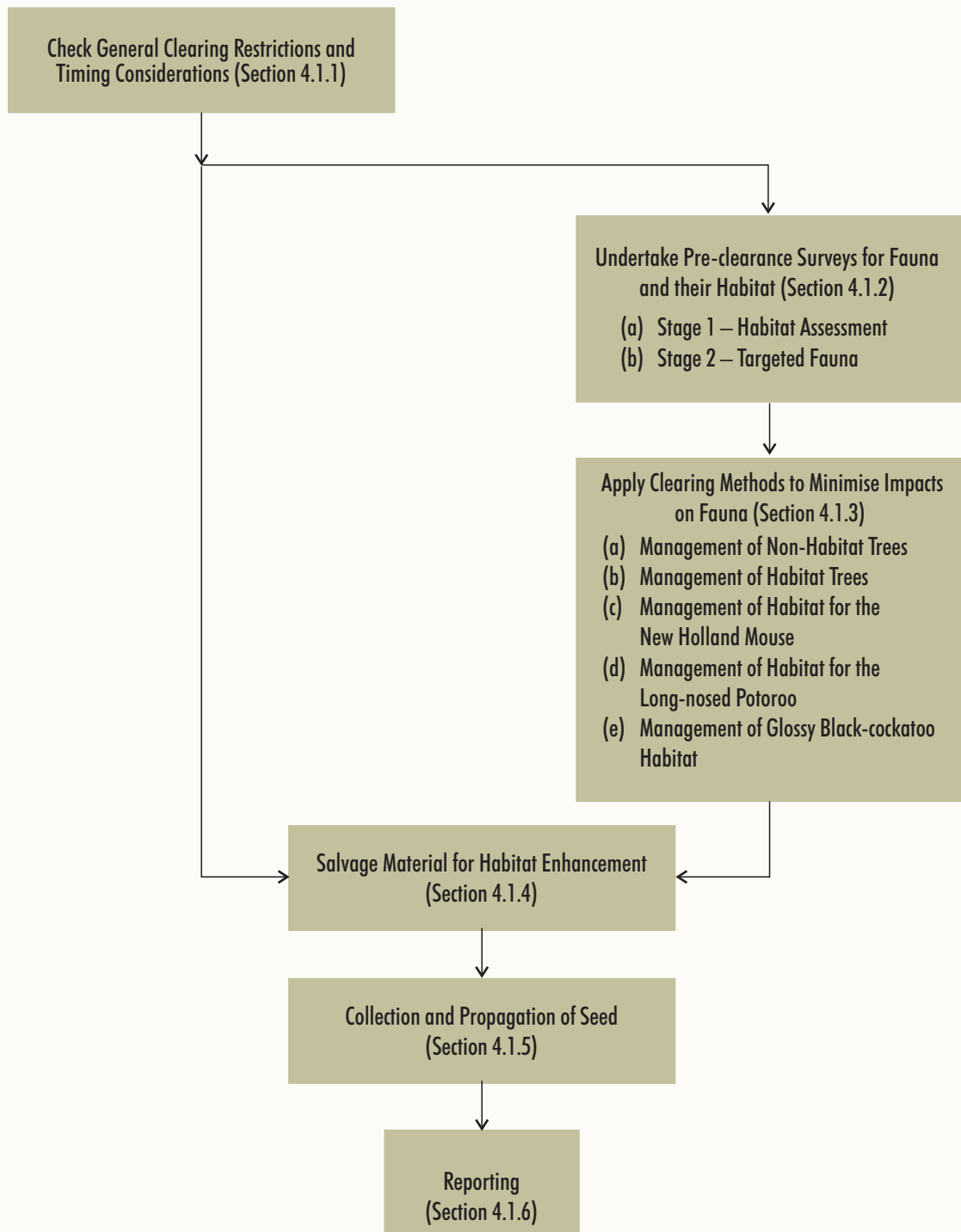
In accordance with Condition 29, Schedule 3 of Development Consent SSD-4966, SCPL will not carry out any mining operations within 40 m of Avondale or Dog Trap Creeks, with the exception of the construction and/or use of the proposed and existing haul road crossings of Avondale Creek (Figure 2).

Timing Considerations

Clearance of habitat trees (Section 4.1.2) will occur during late summer or early autumn to minimise impacts to a large range of fauna breeding during spring and summer, and fauna which will hibernate during winter (e.g. microbats) (SCPL, 2012). If clearance of habitat trees is required outside of this time period, suitably qualified personnel will assess the habitat to be disturbed and determine the appropriate vegetation clearance procedures (SCPL, 2012). Clearance of derived native grassland or non-habitat trees or shrubs will occur at any time of year.

The construction of the up-catchment diversions east of the Stratford East Open Cut will occur once operations in this area commence, to minimise the period of potential disturbance to the Long-nosed Potoroo habitat⁵ to the east of the SMC surface disturbance area (SCPL, 2012) (Figure 7).

⁵ Long-nosed Potoroo habitat is identified as the native vegetation communities located between the Stratford East Open Cut and Offset Area 3 (as mapped by AMBS, 2011a).



The creek crossing of Avondale Creek (e.g. culvert) required by SMC will be installed at the driest time of the year (SCPL, 2012) as detailed in the *Stratford Mining Complex Water Management Plan*.

4.1.2 Pre-clearance Fauna Surveys

Targeted pre-clearance surveys for vertebrate fauna will be undertaken by a suitably qualified person(s). The objective of the pre-clearance vertebrate fauna surveys is to identify:

1. habitat features in trees that could harbour vertebrate fauna and place them at risk during vegetation clearance activities (e.g. tree hollows), or features that could be salvaged and reused such as mature trees, stags; and
2. vertebrate fauna most likely to be at risk during vegetation clearance activities and those that will be managed during clearing activities.

The two stages of the pre-clearance surveys are outlined below.

Stage 1 – Habitat Assessment

The first stage of the pre-clearance surveys will involve a habitat assessment to:

- identify habitat trees (i.e. trees that contain nests or suspected bat roosts, including mature trees with hollows);
- identify habitat features that will be used in the mine site rehabilitation and habitat enhancement in the Biodiversity Enhancement Area or Biodiversity Offset Area (Section 4.1.4); and
- identify seed resources for seedling propagation (Section 4.1.5).

The approximate size and number of hollow bearing trees to be removed will be documented for determining the number of nest boxes to be installed (Section 5.10). Parameters considered relevant to arboreal fauna habitat will be recorded for each habitat tree during the preliminary habitat assessment and may include:

- estimated height of tree;
- estimated diameter at breast height (DBH);
- living status of the tree (e.g. alive, stag);
- amount of dead crown/canopy;
- habitat features (e.g. hollow, fissure, bird nest);
- estimated internal volume of hollows;
- potential habitat features (i.e. those suspected, however not able to be determined e.g. potential hollow);
- whether the habitat feature is considered to provide potential habitat for birds, bats and/or arboreal mammals;
- whether the tree hollow provides potential habitat for the Squirrel Glider (for determining Squirrel Glider nest box quantities – Section 5.10);
- the potential for the habitat features to be used in the rehabilitation and habitat enhancement programmes and salvaged;
- fauna observed in the area and surrounds, particularly bird activity at hollows and nests; and
- evidence of fauna in the area and surrounds (e.g. scats, tracks, scratches, remains of prey, guano, etc.).

Trees containing such features are referred to as 'habitat trees' and they will be marked with a highly visible flagging tape or spray paint. The first stage of the pre-clearance surveys may be undertaken concurrently with the second stage of the pre-clearance surveys.

Stage 2 – Targeted Vertebrate Animal Surveys

If required to confirm use of areas planned to be cleared and identified as having potential habitat resources, the area will be surveyed by suitably qualified personnel to determine the vertebrate fauna present (AMBS, 2011a). Targeted vertebrate fauna surveys will be undertaken to identify species most likely to be at risk during vegetation clearance activities and those that will be managed during clearing activities, such as hollow-dwelling fauna (birds, bats and/or arboreal mammals).

These surveys may include (AMBS, 2011a):

- diurnal and nocturnal spotlighting surveys for nest birds, investigation of ground and arboreal habitats;
- nocturnal spotlighting for arboreal mammals and birds, particularly near hollow-bearing trees; and
- watching at any medium or large hollows.

Targeted vertebrate animal surveys will be undertaken in a particular area of habitat within two weeks prior to clearing so the information can be used to inform clearance activities.

4.1.3 Clearing Procedures to Minimise Harm to Native Vertebrate Animals

Vegetation clearance in a particular area will be conducted within two weeks following the pre-clearance vertebrate animal surveys in that area.

Management of Non-habitat Trees

Vegetation around habitat trees may be initially cleared so that the habitat trees are isolated and less desirable for animals to inhabit them prior to clearance.

Management of Habitat Trees

A suitably qualified person(s) will be present during clearing of habitat trees to manage vertebrate animals (AMBS, 2011a).

If a habitat tree contains a nest that is suspected to be active (i.e. it is suspected to contain eggs or young), the tree will not be cleared until after fledglings have left the nest or advanced fledglings are old enough to be cared for by a wildlife career for subsequent release (AMBS, 2011a).

Habitat trees will be inspected by a suitably qualified person(s) immediately prior to and after felling for animals. A suitably qualified person(s) may:

- leave animals to move on their own accord (prior to or after felling);
- capture and release of animal(s) into surrounding suitable habitat either at the time of capture or at a more suitable time depending on the animal (e.g. at night for nocturnal mammals and bats); and
- capture of injured animal(s) for assessment by a suitably qualified ecologist and/or advice of a local wildlife rescue organisation sought, or in some cases that of a veterinarian, to determine the best way to proceed.

The following clearing methods will be employed when clearing habitat trees containing a feature (e.g. hollows, openings, cracks, loose bark) suspected to be used by bats, birds or arboreal animals (e.g. Brush-tail Phascogale or Squirrel Glider):

- immediately prior to clearance, the tree will be knocked with machinery to encourage animals to move to an alternative tree;
- the tree will be lowered slowly using an excavator (or similar), with the tree hollow facing upwards (to enable animals to exit);
- alternatively, the individual habitat feature (hollow branch) could be individually removed and placed on the ground;
- the felled tree will be visually inspected for animals; and

- the felled tree will be left *in situ* overnight to enable remaining animals to exit at night.

Management of Habitat for the New Holland Mouse

To reduce harm to the New Holland Mouse during clearance activities of habitat potentially used by the species (as mapped by AMBS, 2011a), a trapping programme will be undertaken to remove and relocate New Holland Mouse individuals (SCPL, 2012).

The following clearing methods will be employed when clearing New Holland Mouse habitat (SCPL, 2012):

- a temporary fence will be installed to minimise movement of relocated mice back into the disturbance area prior to clearance;
- within the fenced area, an intensive trapping programme will be undertaken; and
- New Holland Mouse individuals trapped will be relocated to suitable habitat in adjoining areas (outside of the fenced area).

Management of Habitat for the Long-nosed Potoroo

The construction of the up-catchment diversions east of the Stratford East Open Cut will occur in as short a time frame as practical (once operations in this area commence) to minimise the period of potential disturbance to the Long-nosed Potoroo habitat⁶ where the species has been recorded (AMBS, 2011a).

Management of Glossy Black-cockatoo Habitat

Clearing of *Allocasuarina* spp. will be deferred if evidence of current foraging by Glossy Black-cockatoos is recorded, since this species is known to utilise selected foraging trees for up to a few weeks before moving on to a new area (AMBS, 2011a).

4.1.4 Salvage of Material for Habitat Enhancement in the Biodiversity Offset, Enhancement and Rehabilitation Areas

Salvage of material for habitat enhancement will be undertaken opportunistically when available to meet habitat enhancement requirements (mine site rehabilitation and habitat enhancement in the Biodiversity Offset Area and Biodiversity Enhancement Area). Procedures for the salvage of material for habitat enhancement are described below.

Habitat features (e.g. trunks, logs, large rocks, branches, small stumps and roots) will be salvaged during vegetation clearance activities and stockpiled for relocation to nearby areas (i.e. rehabilitation areas, Biodiversity Enhancement Area or Biodiversity Offset Area). When relocated, these features are likely to provide habitat resources for a range of invertebrate and ground dwelling fauna.

Relocation of trunks, logs, branches, small stumps and roots to post-mine rehabilitation areas may benefit the revegetation by increasing the mulch cover for the soil. The ground-layer vegetation and low shrubs will be incorporated into the topsoil when it is stripped. This will possibly enhance the soil seed bank on the rehabilitation.

Some tree hollows salvaged during vegetation clearance activities will be selectively chosen for placement in areas where habitat enhancement is required. These features may be securely attached to suitable trees or placed on the ground. Tree hollows will be monitored according to the nest box programme (Section 5.10).

4.1.5 Collection and Propagation of Seed

During the habitat assessment phase of the Vegetation Clearance Protocol (Section 4.1.2) trees may also be checked for their provision of seed to be utilised in the mine rehabilitation programme, followed by the collection of seed during felling activities. A key aim of seed collection is to collect local provenance seed stock for propagation purposes, unless local stock is not available.

⁶ Long-nosed Potoroo habitat is identified as the native vegetation communities located between the Stratford East Open Cut and Offset Area 3 (as mapped by AMBS, 2011a).

Seed from mature Forest Oak (*Allocasuarina torulosa*) will be specifically salvaged during vegetation clearing, where it is identified, to assist with the re-establishment of foraging habitat for the local Glossy Black-cockatoo (SCPL, 2012) (Section 5.3.).

All seed collection is to be conducted under the framework of the *Florabank Guidelines* (Florabank, 2012). This includes best practice in collection activities, cleaning, data collection, germination testing and storage. The seedbank will be supplemented by commercially available material from endemic native species.

4.1.6 Reporting

A summary of vegetation clearance activities undertaken throughout the year will be reported in the Annual Review (Section 8.2.1).

4.2 MANAGEMENT OF GRAZING AND AGRICULTURE

The SMC Mining Operations Plan (and/or Rehabilitation Management Plan) provides detail regarding the management of grazing and agriculture within SMC area and surrounds (refer Sections 5 and 6 of the Mining Operations Plan). Measures described in the Mining Operations Plan (and/or Rehabilitation Management Plan), relevant to biodiversity include (but are not limited to) the exclusion of livestock grazing from native revegetation on post-mine landforms (unless used as a management measure). Cattle will be grazed on rehabilitated pasture areas.

4.3 VEHICLES AND CONTROLLING ACCESS

Vehicles can strike native fauna causing injury or death. Vehicle access to the SMC in the short to medium-term (during operations) will be limited to authorised personnel only. Maximum speed limits of 60 km per hour will apply to vehicles using the mine roads and tracks (SCPL, 2012).

Mine personnel will be restricted from entering the Biodiversity Offset Areas and Biodiversity Enhancement Areas, unless authorised. Where required to prevent livestock, livestock proof fencing and signage will be installed around the Biodiversity Offset Areas and Biodiversity Enhancement Areas.

4.4 WEED CONTROL

Procedure for Controlling and Monitoring Weeds

Staff and contractor inductions will include staff and contractor requirements to prevent incursion or spread of priority and/or environmental weeds (e.g. using designated access tracks). The incidental transport of seed from the site will be minimised during construction and operation through the use of the SMC vehicle wash bay (SCPL, 2012). Vehicles travelling into an area identified as having weeds that have the opportunity to be spread by vehicular access are to utilise the bay prior to entering or leaving the site.

Priority and/or environmental weeds will be controlled and monitored by an appropriately qualified person(s) using standard methods as detailed in Section 5.6.

Recommended techniques for removal of priority weeds that have been published by DPI Agriculture will be consulted prior to weed control, e.g. *Noxious and Environmental Weed Control Handbook* (DPI, 2014a). The control of weeds is intended to be adaptive and will be informed/reviewed based on monitoring.

The implementation of alternative measures that favour the restoration of healthy native vegetation is also considered an effective method of weed management. Other methods of weed control, which may be utilised by the mine in appropriate areas in consultation with a suitably qualified person, may include activities such as crash/pulse grazing and the use of fire for burning off areas vegetation and areas which are heavily infested by weeds.

Frequency, Timing and Duration

The procedure for controlling and monitoring weeds will be implemented twice a year, every six months (or at other times when rainfall conditions are favourable to weed outbreaks) as determined by SCPL.

Record Keeping and Reporting

A summary of the weed management and monitoring results will be reported in the Annual Review (Section 8.2.1).

4.5 FERAL ANIMAL CONTROL

Procedure for Controlling Feral Animals

Measures to control exotic animals to be undertaken at the SMC are detailed in Section 5.7.

As described in the *SEP EIS Terrestrial Fauna Assessment* (AMBS, 2011a), some feral animal prevention and management techniques will include 1080 fox baiting and Pindone poison carrots for rabbits implemented in a manner that will minimise or eliminate collateral mortality of native fauna.

Control measures will be implemented by mine staff or by an appropriate Pest Control Contractor(s) as required. All personnel involved in feral animal control will be required to hold relevant and valid licences/permits, including any relevant chemical licences for pesticide use. The *Humane Pest Animal Control: Code of Practice and Standard Operating Procedures* (DPI, 2013, or its revision) will be followed.

Control methods for moderately common or abundant feral animals are outlined in Table 11. A selection of these techniques or additional techniques may be undertaken depending on the feral animal species which is in an abundance that requires control (as determined through monitoring) and the success of these control techniques. The control of feral animals is intended to be adaptive and will be informed/reviewed based on monitoring.

**Table 11
Control Methods for Target Feral Animals**

Scientific Name	Common Name	Status¹	Control Method	Relevant Documents
<i>Canis lupus dingo</i>	Wild Dog	Declared pest	<ul style="list-style-type: none"> Trapping and Shooting. Ground baiting (using 1080 poison). 	A and B
<i>Vulpes vulpes</i>	European Red Fox	Declared pest	<ul style="list-style-type: none"> Ground baiting (using 1080 poison). 	A, B, C and D
<i>Felis catus</i>	Feral Cat	-	<ul style="list-style-type: none"> Ground baiting. 	A and B
<i>Oryctolagus cuniculus</i>	European Rabbit	Declared pest	<ul style="list-style-type: none"> Warren ripping/fumigation; and/or ground baiting (using Pindone poison carrots). 	A, B and E

¹ *Local Land Services Act 2013.*

A *PestSmart Toolkit* (Invasive Animals Cooperative Research Centre, 2015).

B *Vertebrate Pest Control Manual* (DPI, 2014b).

C *Threat Abatement Plan for Predation by European Red Fox* (DEWHA, 2008a).

D *NSW Threat Abatement Plan For Predation by The Red Fox (Vulpes vulpes)* (OEH, 2011).

E *Threat Abatement Plan for Competition and Land Degradation by Rabbits* (DEWHA, 2008b).

Monitoring Methods

An estimate of the abundance of feral animals (European Red Fox, Feral Cat and European Rabbit) will be obtained using the vehicle spotlight method (or acceptable alternate method) in consideration of the NSW DPI *Monitoring Techniques For Vertebrate Pests* (Mitchell and Balogh, 2007a to c).

Frequency, Timing and Duration

Monitoring of feral animals (including foxes, rabbits and cats) will be undertaken every two years by an appropriately qualified contractor. If the results of these surveys indicate that a control program is necessary, such a control program will be implemented and monitored as described in this section.

Record Keeping and Reporting

Feral animal monitoring and management will be documented annually in the Annual Review (Section 8.2.1).

4.6 CONTROLLING EROSION

The SMC Water Management Plan provides measures to control erosion within the SMC area and surrounds. Measures described in the Water Management Plan, relevant to biodiversity include (but are not limited to):

- SCPL will design, install and maintain erosion and sediment controls generally in accordance with the series *Managing Urban Stormwater: Soils and Construction including Volume 1, Volume 2A – Installation of Services and Volume 2C – Unsealed Roads* (SCPL, 2012).
- Soil erosion and sedimentation controls will be implemented prior to vegetation clearing work and during operation of the mine complex.
- Mulching or revegetation of introduced pasture with scattered trees is to be undertaken to stabilise the soil and reduce erosion and run-off (SCPL, 2012).

4.7 BUSHFIRE PREVENTION AND RISK MANAGEMENT

In accordance with Condition 51, Schedule 3 of the Development Consent SSD-4966, SCPL will:

- ensure that the development is suitably equipped to respond to any fires on site; and
- assist the Rural Fire Service (RFS), emergency services and National Parks and Wildlife Service as much as possible if there is a fire in the surrounding area.

The SMC is located in the Gloucester Bush Fire Management Committee (GBFMC) Bush Fire Management Plan area (Gloucester BFMC area). In the Gloucester BFMC area, the bushfire season generally runs from October to December, however, when summer rainfall is below average, the season can extend through autumn.

In the case of a bushfire incident, the RFS are to be called upon as the primary response unit to contain, fight and manage bushfires. SMC personnel may provide secondary support roles, services and equipment where requested by the RFS as approved by the SMC's Operations Manager.

The following bushfire management related activities/works are currently undertaken at the SMC (SCPL, 2012):

- access arrangements onto and through the SMC for local RFS officers to fight fires are in place;
- a number of prior fire trails up onto the ridge on the eastern side of the SMC have been reinstated;
- SMC water cart(s) are made available for bushfire fighting purposes where suitable access for this machinery is available;
- SCPL undertakes hazard reduction burns as required, in consultation with the local RFS; and
- fuel loads on areas of introduced pasture with scattered trees are reduced by cattle agistment, periodic slashing and/or hazard reduction burning as appropriate.

SCPL will continue to implement the existing bushfire management measures and consult with the GBFMC and the RFS and provide assistance to these organisations as required.

Bushfire Prevention

Management measures that will be implemented in consultation with the RFS to minimise the potential for fire ignition include those listed below (SCPL, 2012):

- Provision of fire fighting equipment on-site.
- The establishment and maintenance of a fire break around the perimeter of the mining leases.
- Prohibition of smoking in fire prone areas.
- All mine personnel will receive basic fire control training.

4.8 REHABILITATION - ESTABLISHING NATIVE VEGETATION AND FAUNA HABITAT

The SMC Mining Operations Plan and Rehabilitation Management Plan provides detail regarding rehabilitation of the SMC (refer SMC Mining Operations Plan/Rehabilitation Management Plan Sections 5, 6 and 7). The mine disturbance areas will be progressively rehabilitated and revegetated with species characteristic of native woodland/open forest and pasture with scattered trees (SCPL, 2012). Detailed performance and completion criteria for the rehabilitation of disturbed areas at the SMC are described in the Mining Operations Plan/Rehabilitation Management Plan.

4.9 SALINITY MANAGEMENT

The SMC Surface Water Management Plan provides measures to manage salinity within SMC area and surrounds (refer Sections 7 and 8 of the Surface Water Management Plan). Measures described in the Water Management Plan, relevant to biodiversity include (but are not limited to) the implementation of a vegetation monitoring program to identify potential adverse impacts of irrigation (e.g. salinity) on vegetation.

4.10 MANAGEMENT OF ARTIFICIAL LIGHTING

Whilst ensuring that operational safety is not compromised, SCPL will minimise light emissions by select placement, configuration and direction of lighting so as to reduce off-site nuisance effects (SCPL, 2012). SCPL will implement the use of native tree species for use in the visual screens to give the additional benefit of providing potential habitat for native fauna species.

Measures that will be employed to mitigate potential impacts from night-lighting will include:

- Compliance with AS 4282: 1997 - *Control of the Obtrusive Effects of Outdoor Lighting* for all external lighting associated with the SMC.
- Restriction of night-lighting to the minimum required for operational and safety requirements.
- Use of directional lighting to direct light away from sensitive viewpoints.
- Planting of trees at nearby dwellings to help screen any potential night-time lighting impacts, in consultation with the landholder.

4.11 SQUIRREL GLIDER MANAGEMENT

The Squirrel Glider Management Plan describes the measures to be implemented to ameliorate the short-term potential impacts on the Squirrel Glider relating to habitat loss and connectivity of the local population, such as:

- installation of nest boxes and relocation of cleared hollows;
- erection of glider poles; and
- monitoring of the local Squirrel Glider population.

4.12 AQUATIC ECOLOGY MANAGEMENT

The SMC Water Management Plan provides measures to manage potential impacts on aquatic ecology values within the SMC area and surrounds. Measures described in the Water Management Plan, relevant to biodiversity include (but are not limited to):

- new creek crossings will follow the NSW *Policy and Guidelines for Fish Friendly Waterway Crossings* (DPI, 2004) and *Policy and Guidelines for Aquatic Management and Fish Conservation* (DPI, 1999), and be regularly maintained.
- culverts will be checked and maintained annually for debris or plant growth that impedes fish passage.
- SCPL will continue to annually monitor aquatic ecosystems around the SMC.

4.13 LANDSCAPING AT THE STRATFORD MINING COMPLEX AND PUBLIC

The Biodiversity Offset Strategy includes measures such as revegetation of areas of introduced pasture with scattered trees (e.g. between Glen Road and the Stratford East Open Cut void in Offset Area 3) to promote native woodland/forest species (Section 5.3). The tree plantings/revegetation will progressively limit potential views of the mine from some viewpoint locations (e.g. Glen Road) (SCPL, 2012). Areas within the Biodiversity Offsets which will provide visual screens of potential viewpoints of the operations will be prioritised and these works will commence in Year 1 (i.e. 2018). As with the visual screens, SCPL will implement the use of native tree species to give the additional benefit of providing potential habitat for native fauna species.

Upon receiving a request from an owner of any privately-owned dwelling which has significant direct view, SCPL will implement visual mitigation measures (e.g. vegetation screening) in consultation with the owner to minimise the visibility of the mine from the dwelling (SCPL, 2012).

5 MANAGEMENT OF THE BIODIVERSITY OFFSET STRATEGY – BIODIVERSITY OFFSET AREA AND BIODIVERSITY ENHANCEMENT AREA

This BMP has been prepared to reflect the status and completion of the 2018 to 2020 performance and completion criteria for the offset areas and to update the medium term (3 to 6 years) and long term (6+ years) biodiversity offset strategy components. Short-term measures were completed between 2018 and 2020.

This section describes the short, medium and long term measures that will be implemented to manage the remnant vegetation and habitat in the Biodiversity Offset Area and Biodiversity Enhancement Area and implement the Biodiversity Offset Strategy (Section 3.2). The quality of existing vegetation and fauna habitat in Biodiversity Offset Area and Biodiversity Enhancement Area will be enhanced mainly through exclusion of livestock (Section 4.2), weed control (Section 5.6), and feral animal control (Section 5.7).

A portion of the mine rehabilitation (350 ha of native vegetation to be re-established) is part of the Biodiversity Offset Strategy in Condition 33, Schedule 3 of the Development Consent SSD-4966 (Section 3.2). Management of the mine rehabilitation is described in the Rehabilitation Management Plan/Mining Operations Plan.

5.1 FENCING GATES AND SIGNAGE

Livestock grazing has been excluded from the Biodiversity Offset Area and Biodiversity Enhancement Area through the provision of appropriate stock fencing. However, crash grazing may be selectively applied within the Revegetation Area (Management Zone A) to reduce biomass prior to revegetation works.

There are a number of existing infrastructure components that occur within the Biodiversity Offset Area, including (AMBS, 2011a):

- Powerline⁷ – occurs through Offset Area 3 and Offset Area 4; and
- Mine-owned Dwellings – occur within Offset Area 3 and Offset Area 4.

Fencing has also been installed around the existing infrastructure components to exclude vehicle and human entrance to the Biodiversity Offset Area (SCPL, 2012).

Following the initial 2018 review of the existing fencing, gates and access tracks, contractors were engaged to implement the removal of redundant fencing and install new fencing where required. Contractors were also engaged to maintain access tracks required for the ongoing management of the Biodiversity Areas. Mapping of fencing and access tracks has been completed at the Biodiversity Areas to assist with the ongoing management.

The installation of signage was completed in 2018. Signage was installed on gates into the Biodiversity Offset Area and Biodiversity Enhancement Area which recognises that the area is protected for conservation purposes. In 2020, routine inspection of signage identified the need for further signage and locks on gates to restrict access to the Biodiversity Areas. Signage will continue to be routinely inspected (at least annually) for maintenance issues.

Performance and Completion Criteria

Table 12 outlines the fencing, gates and signage actions implemented across the Biodiversity Offset Area and Biodiversity Enhancement Area to December 2020, including performance and completion criteria for each action, where relevant. Table 12 also outlines activities relevant to fencing, gates and signage to be undertaken from December 2020 onwards.

⁷ Note, the easement for the powerline was excluded from the Biodiversity Offset Areas.

Table 12
Fencing, Gate and Signage Performance and Completion Criteria

Management Action	Completed Activities to December 2020	Annually from December 2020 onwards PC Maintenance Phase	Completion Criteria
Review of fencing requirements for offset areas.	Review of fencing complete including development of mapping showing fence and gate types, redundant fences and fences to be retained.	-	Fencing review complete.
Gate and fence installations.	Installation of gates and fences complete.	Monitoring of gates and fencing to exclude livestock. Where required, maintenance undertaken and documented.	Gate and fence installations complete. Livestock excluded. Monitoring and maintenance ongoing.
Redundant fence removal.	Redundant fences removed.	-	No redundant fencing.
Installation of signage.	Installation of signage complete.	Monitoring and maintenance of signs has been undertaken.	Signage installed.

5.2 ACCESS TRACKS

Access tracks throughout the Biodiversity Offset Area and Biodiversity Enhancement Area have been maintained for fire management. Mapping of existing access tracks has been undertaken in order to identify key access tracks and fire trails. Access tracks will be routinely inspected (at least annually) for maintenance issues.

Performance and Completion Criteria

Table 13 outlines the access track actions implemented across the Biodiversity Offset Area and Biodiversity Enhancement Area, including performance and completion criteria for each action. Table 13 also outlines activities relevant to access tracks to be undertaken from December 2020 onwards.

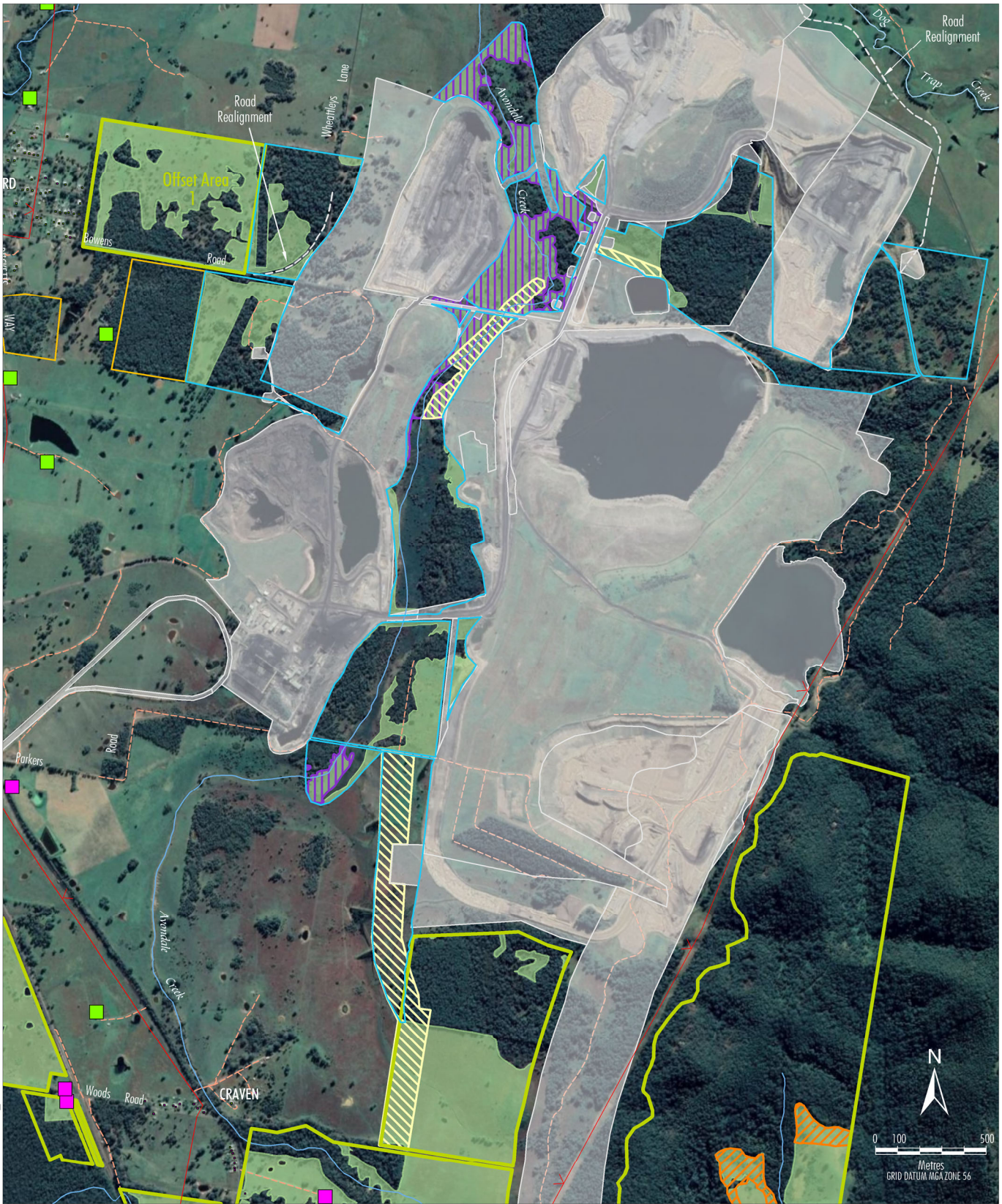
Table 13
Access Track Performance and Completion Criteria

Management Action	Completed Activities to December 2020	Annually from December 2020 onwards PC Maintenance Phase	Completion Criteria
Operational review and mapping to facilitate site access for offset management activities.	Operational review developed. Mapping complete.	-	Operational review and mapping completed.
Access track enhancement and maintenance.	Enhancement of access tracks undertaken as identified in operational review.	Monitoring and maintenance of access tracks.	Access track enhancement complete (as per operational review).

5.3 REVEGETATION PROGRAMME

Objective

The aim of revegetation will be to establish a range of habitat niches through revegetation (including canopy, and understorey) (SCPL, 2012). The Revegetation Area (Management Zone A) (Figures 13a to 13c) (dominated by non-native vegetation) in the Biodiversity Offset Area and Biodiversity Enhancement Area will be revegetated to substantially increase the area of native vegetation in the area and maximise habitat diversity and a range of successional stages (SCPL, 2012).



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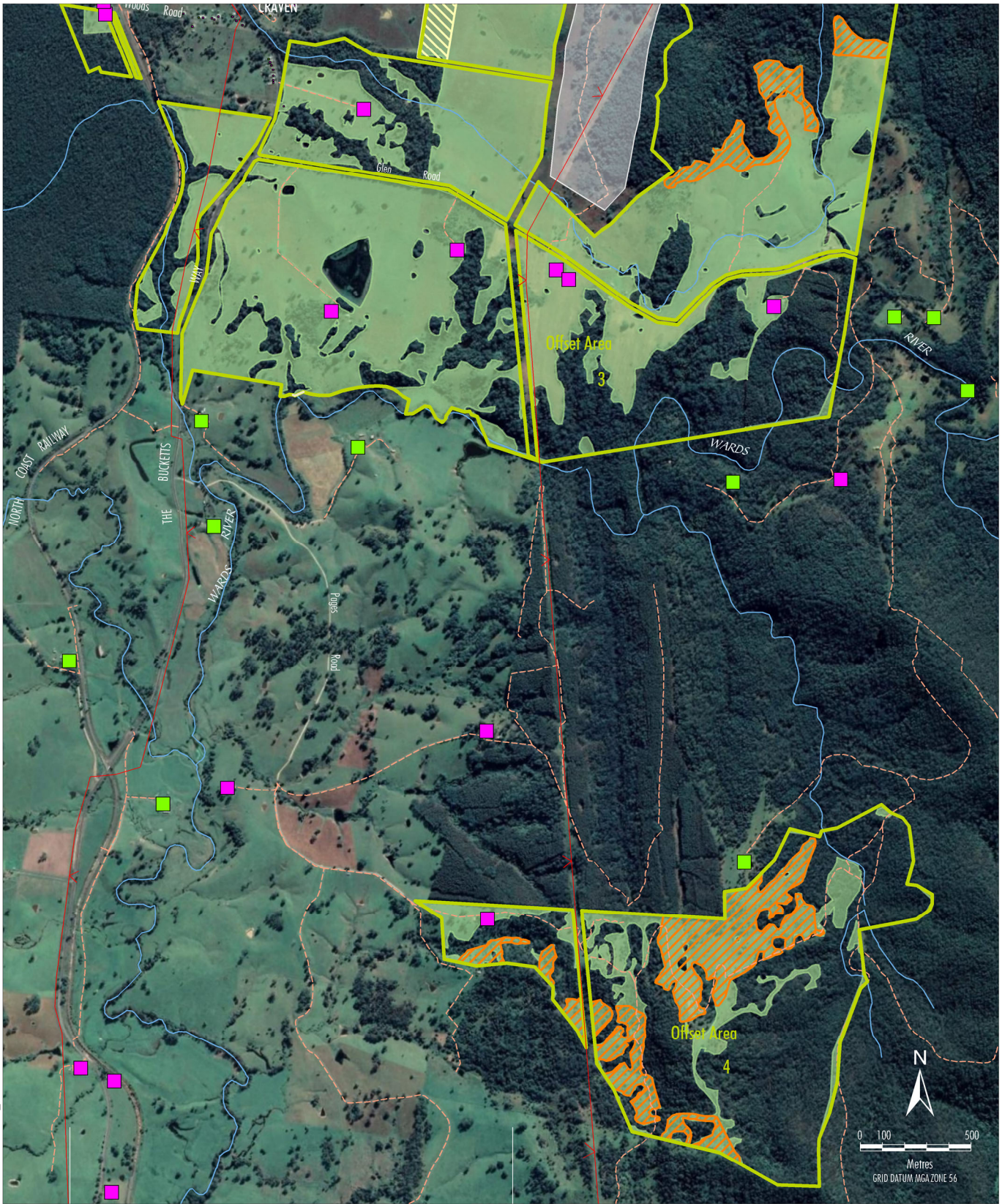
- LEGEND**
- Electricity Transmission Line
 - Crown Land
 - Approximate Extent of Existing/Approved Surface Development
 - Biodiversity Enhancement Area
 - Proposed Offset Area
 - Resource Company Owned Dwelling
 - Privately Owned Dwelling
 - Tracks

- Management Zones**
- Management Zone A - Revegetation Area (Indicative Location)
 - A1 Squirrel Glider Vegetation Pathways (Indicative Location)
 - A2 Allocasuarina spp. Plantings (Indicative Location)
 - A3 Coastal Floodplain Forest Revegetation (Indicative Location)
 - Management Zone B - Existing Remnant Vegetation*
 - Management Zone C - Power Line Corridor
- * Note, existing remnant vegetation is shown on the aerial photo.



STRATFORD EXTENSION PROJECT
Management Domains for the Biodiversity Offset Areas and Biodiversity Enhancement Areas - North
Figure 13a

Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L [CLD] (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)



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- LEGEND**
- Electricity Transmission Line
 - Crown Land
 - Approximate Extent of Existing/Approved Surface Development
 - Biodiversity Enhancement Area
 - Proposed Offset Area
 - Resource Company Owned Dwelling
 - Privately Owned Dwelling
 - Tracks

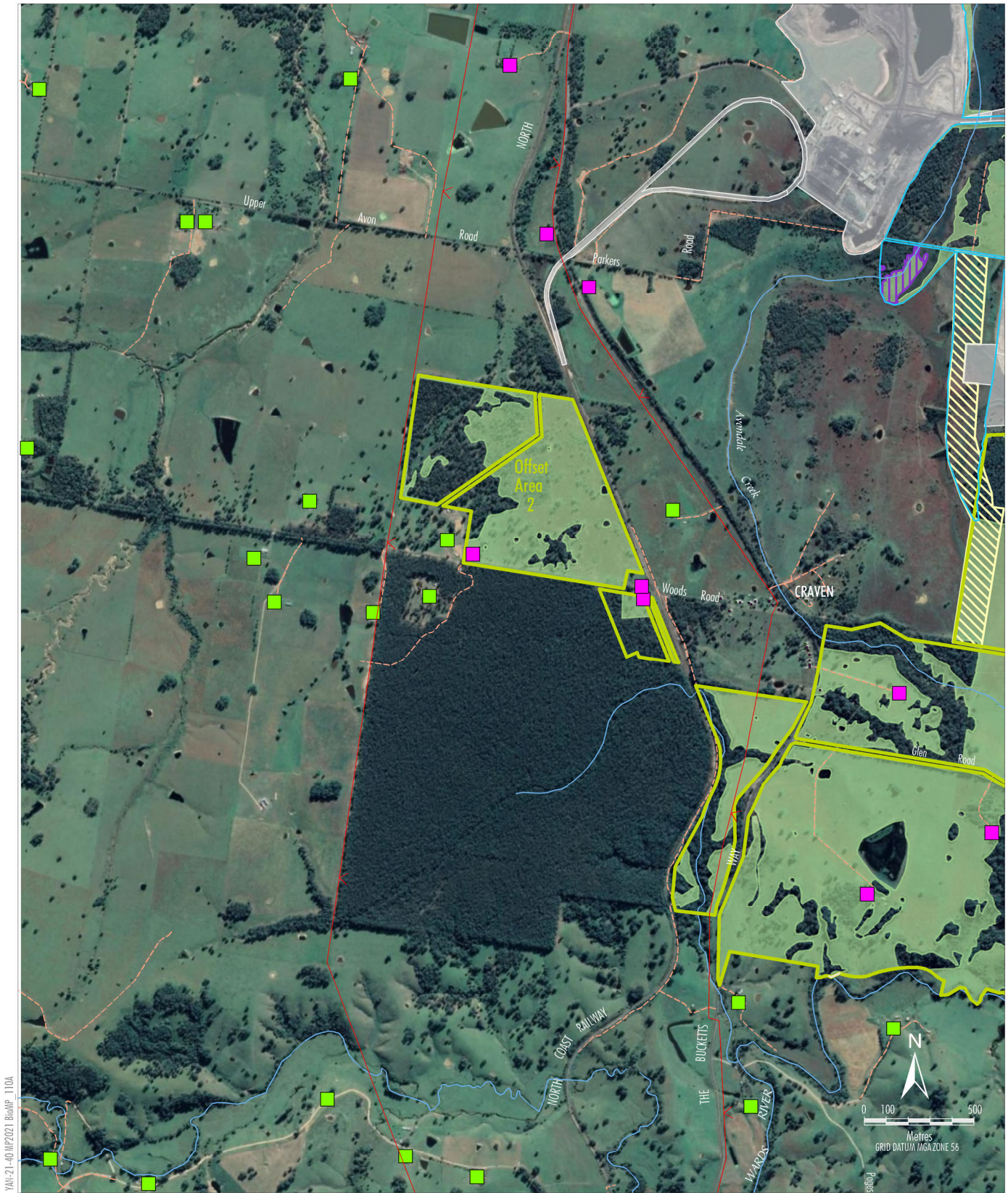
- Management Zones**
- Management Zone A - Revegetation Area (Indicative Location)
 - A1 Squirrel Glider Vegetation Pathways (Indicative Location)
 - A2 Allocasuarina spp. Plantings (Indicative Location)
 - A3 Coastal Floodplain Forest Revegetation (Indicative Location)
 - Management Zone B - Existing Remnant Vegetation*
 - Management Zone C - Power Line Corridor

* Note, existing remnant vegetation is shown on the aerial photo.



STRATFORD EXTENSION PROJECT
Management Domains for the Biodiversity Offset Areas and Biodiversity Enhancement Areas - South
Figure 13b

Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L [CLD] (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)



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- LEGEND**
- Electricity Transmission Line
 - Crown Land
 - Approximate Extent of Existing/Approved Surface Development
 - Biodiversity Enhancement Area
 - Proposed Offset Area
 - Resource Company Owned Dwelling
 - Privately Owned Dwelling
 - Tracks

- Management Zones**
- Management Zone A - Revegetation Area (Indicative Location)
 - A1 Squirrel Glider Vegetation Pathways (Indicative Location)
 - A2 Allocasuarina spp. Plantings (Indicative Location)
 - A3 Coastal Floodplain Forest Revegetation (Indicative Location)
 - Management Zone B - Existing Remnant Vegetation*
 - Management Zone C - Power Line Corridor
- * Note, existing remnant vegetation is shown on the aerial photo.



STRATFORD EXTENSION PROJECT
Management Domains for the Biodiversity Offset Areas and Biodiversity Enhancement Areas - West
Figure 13c

Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)

The Revegetation Area (Management Zone A) (Figures 13a to 13c) covers introduced pasture and will be actively managed to promote revegetation of native woodland/forest species. This will include, but not necessarily be limited to, removal of weeds (Section 5.6), creating disturbance to the introduced grassland (via slashing or low-intensity controlled burning) (Section 5.9), and planting and/or seeding of flora species represented in the surrounding native vegetation communities. An indicative list of flora species proposed to be used in the Revegetation Area (Management Zone A) is provided in Appendix A.

Management Zones

The revegetation programme will occur within the Management Zones listed in Table 14 and shown on Figures 13a to 13c.

Table 14
Management Zones

Management Zones	Description	Description
A	Revegetation Area	The Revegetation Areas are areas of introduced pasture with scattered trees which will be revegetated to establish a range of habitat niches (including native canopy, understorey and ground cover). An indicative list of flora species proposed to be used in the Revegetation Area (Management Zone A) is provided in Appendix A. Revegetation Areas occur in the Biodiversity Offset Area and Biodiversity Enhancement Area (Figures 13a to 13c).
	A1 Squirrel Glider Vegetation Pathways	A sub-component of the Revegetation Areas will be planted with flora species which enhance the food resources and dispersal pathways for Squirrel Gliders, in accordance with Condition 38, Schedule 3 of Development Consent SSD-4966. An indicative list of flora species proposed to be used in the Squirrel Glider Pathways is provided in Appendix C. Squirrel Glider Vegetation Pathways occur in the Biodiversity Offset Area (particularly in Offset Areas 1 and 3) and Biodiversity Enhancement Area (Figures 13a to 13c).
	A2 Allocasuarina spp. Plantings	A sub-component of the Revegetation Areas will be planted with <i>Allocasuarina</i> spp. tubestock for the Glossy-back Cockatoo. <i>Allocasuarina</i> spp. plantings will occur in the Biodiversity Offset Area (Figures 13a to 13c).
	A3 Coastal Floodplain Forest Revegetation	A sub-component of the Revegetation Areas will be planted with flora species characteristic of the Cabbage Gum open forest vegetation community. Condition 35, Schedule 3 of Development Consent SSD-4966, states that these revegetation works must include establishment of flora species characteristic of the Subtropical Coastal Floodplain Forest of the NSW North Coast Bioregion. Appendix B provides an indicative list of flora species in the NSW Scientific Committee's (2011) Final Determination for 'Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion' endangered ecological community. Coastal Floodplain Forest Revegetation will occur in the Biodiversity Enhancement Area (Figures 13a to 13c). In accordance with Condition 30, Schedule 3 of Development Consent SSD-4966, SCPL will improve the riparian habitat along Avondale Creek to the satisfaction of the Secretary.
B	Existing Remnant Vegetation	Existing remnant vegetation within the Biodiversity Offset Area and Biodiversity Enhancement Area will be allowed to naturally regenerate.
C	Power Line Corridor	Woodland/forest will not be allowed to regenerate within the power line corridor within Offset Area 3. In accordance with current power line clearance requirements, Transgrid will clear overstorey and mid-storey vegetation, leaving ground cover vegetation only.

Site Planning

Site planning has been and will continue to be undertaken prior to revegetation within the Revegetation Area (Management Zone A) and will include a site inspection by a suitability qualified person(s) (e.g. restoration ecologist[s]) to provide direction with:

- site preparation requirements (e.g. weed control);
- constraints (e.g. infrastructure);
- target vegetation community or combination of vegetation communities for the Revegetation Area (Management Zone A) (considering factors such as soil, aspect, topography, altitude and pre-clearing vegetation types in order to match species to their preferred soil-landscape);
- flora species to be sown/planted (a list for each target vegetation community);
- application rates for seeds as well as planting densities (spacings) for tube stock to help avoid excessive competition and better mimic natural community structure; and specific revegetation methods/treatments.

Seed and Tube Stock

Revegetation in the Revegetation Area (Management Zone A) has occurred via seed and tubestock.

In order to fast-track the establishment of the Squirrel Glider Vegetation Pathways (Management Zone A1) and *Allocasuarina* spp. Plantings (Management Zone A2), these management domains were planted with tubestock (SCPL, 2012).

Local endemic (adapted) species will preferentially be used, however consideration will be given to the use of a high quality seed sourced further from the site over a low quality more local seed source. In order to meet the demand of seed/tubestock, the following will be undertaken:

- calculation of the amount and species of seed and tube stock required each year;
- review of the amount and species of seed collected locally (e.g. at during vegetation clearance [Section 4.1.5]);
- identifying the gaps and constraints to meeting the demand;
- handling and storage requirements;
- pre-planting treatments; and
- review of how additional seed and/or tube stock will be sourced to meet the demand.

Collection and propagation of seed is described in Section 4.1.5.

An indicative list of flora species proposed to be used in the Revegetation Area (Management Zone A) is provided in Appendix A. The flora species included in the list have been recorded in the locality by FloraSearch (2012) and/or AMBS (2011a).

The provisional revegetation species list for Coastal Floodplain Forest Revegetation (Management Zone A3) is provided in Appendix B. The flora species included in the list have been recorded in the locality by FloraSearch (2012) and/or AMBS (2011a).

The indicative revegetation species list for Squirrel Glider Vegetation Pathways (Management Zone A1) is provided in Appendix C. The flora species included in the list have been recorded in the locality by FloraSearch (2012) and/or AMBS (2011a).

Black She-oak (*Allocasuarina littoralis*) and Forest Oak (*Allocasuarina torulosa*) will be planted in the *Allocasuarina* spp. Plantings (Management Zone A2) along with other species characteristic of the associated vegetation communities in these locations.

Revegetation Techniques

A combination of direct seeding and tubestock planting may be used to increase the diversity of species, as some species are better suited to direct seeding, and other species are better established by tubestock.

Direct seed and tubestock planting will be undertaken in consideration of the Florabank *Native Vegetation Management Tool* (<http://www.florabank.org.au/>) (Florabank, 2021).

Site Preparation

Weed Control

Weed control measures will be implemented prior to undertaking any revegetation works within the Revegetation Area (Management Zone A) as described in Section 5.6.

Maintenance

The Revegetation Areas (Management Zone A) will be maintained through a variety of activities, including weed control (Section 5.6) and feral animal control (particularly grazing herbivores) (Section 5.7).

Contingency measures to address potential issues with the Revegetation Areas (Management Zone A) (e.g. poor understorey diversity, plant growth or grazing animals [e.g. rabbits and insects]) are provided in Section 7.2.

Monitoring

To monitor the effectiveness of revegetation in the Biodiversity Offset Area, monitoring of Landscape Function Analysis and vegetation dynamics in the Biodiversity Offset Area has been undertaken annually. Monitoring is to be undertaken within representative areas to assess the effectiveness of restoration and to assess completion status, focusing on:

- canopy cover;
- signs of canopy and shrub layer recruitment present outside a minimum 40 m from adjacent vegetation;
- average height (and species composition) of each vegetation stratum;
- native sub-canopy species encountered within 1 m of the monitoring point; and
- correct labelling with date, location, GPS points for the monitoring location and any other observations.

Results of the annual monitoring of revegetation are presented in the SMC Annual Reviews.

Monitoring of the Revegetation Areas (Management Zone A) is further discussed in Section 7.1.3.

Performance and Completion Criteria

Tables 15 and 16 outline the seed collection and propagation, and revegetation and regeneration actions implemented across the Biodiversity Offset Area and Biodiversity Enhancement Area, including performance and completion criteria for each action. Tables 15 and 16 also outline activities to be undertaken from December 2020 onwards.

Table 15
Seed Collection and Propagation Performance and Completion Criteria

Management Action	Completed Activities to December 2020	Annually from December 2020 onwards PC Maintenance Phase	Completion Criteria
Develop seed collection species list	Species list developed.	Continued development of the species list as required.	Species list developed.
Seed collection	Seed collection commenced.	Continued seed collection as required.	Seed collection completed.
Seed propagation	Seed propagation commenced.	Continued seed propagation as required.	Seed propagation completed.

Table 16
Revegetation and Regeneration Performance and Completion Criteria

Management Action	Completed Activities to December 2020	Annually from December 2020 onwards PC Maintenance Phase	Completion Criteria
Site Planning	Site inspection complete and advice received.	-	Site inspection complete and advice received.
Map Revegetation Areas (Management Zone A) and identify target vegetation communities to establish	Mapping complete and target vegetation communities identified.	-	Mapping complete and target vegetation communities identified.
Develop a species list for each target vegetation community	Species list developed.	-	Species list developed.
Develop application rates for seeds as well as planting densities for tube stock	Application rates developed.	-	Application rates developed.
Implement revegetation schedule	Revegetation schedule developed and implementation commenced.	Continue implementation of revegetation schedule (Section 7.1.3).	Revegetation schedule complete.
Revegetation Area (Management Zone A)	Commencement and continuation of revegetation works within the Revegetation Area (Management Zone A) (Figures 13a to 13c).	Continue revegetation works within the Revegetation Area (Management Zone A) (Figures 13a to 13c). Monitoring and maintenance (as required) of revegetation works (Section 7.1.3).	Vegetation established and provides suitable habitat for use by native fauna species.
Squirrel Glider Vegetation Pathways (Management Zone A1)	Commenced planting of flora species which provide habitat for the Squirrel Glider within designated revegetation zones (Figures 13a to 13c).	Continue plantings of flora species which provide habitat for the Squirrel Glider.	Squirrel Glider vegetation pathways planted and provide connective habitat for the Squirrel Glider (Figures 13a to 13c).
<i>Allocasuarina</i> spp. Plantings (Management Zone A2)	Planting of <i>Allocasuarina</i> spp. within designated revegetation zones complete (Figures 13a to 13c).	Monitoring and maintenance (as required) of <i>Allocasuarina</i> spp. plantings within Offset Area 3.	<i>Allocasuarina</i> spp. planted and provide foraging habitat for the Glossy Black-cockatoo (Figures 13a to 13c).
Coastal Floodplain Forest Revegetation (Management Zone A3)	Re-establishment of flora species characteristic of the Cabbage Gum open forest vegetation community.	Monitoring and maintenance (as required) of flora species characteristic of the Cabbage Gum open forest vegetation community (Section 7.1.3).	Improvement in condition of the riparian habitat along Avondale Creek as evidenced by monitoring data (Figures 13a to 13c).

Table 16 (Continued)
Revegetation and Regeneration Performance and Completion Criteria

Management Action	Completed Activities to December 2020	Annually from December 2020 onwards PC Maintenance Phase	Completion Criteria
Existing Remnant Vegetation (Management Zone B)	Annual inspections undertaken to monitor regeneration.	Annual inspections to monitor regeneration (Section 7.1.3).	Remnant vegetation enhanced and protected.
Power Line Corridor (Management Zone C)*	-	-	-

* The management of the PowerLine Corridor (Management Zone C) is the responsibility of Transgrid (not SCPL).

Record Keeping and Reporting

Record keeping for the revegetation programme is discussed in Section 8.1, and reporting requirements are discussed in Section 8.2.

5.4 USE OF SALVAGED MATERIAL FOR HABITAT ENHANCEMENT

As described in Section 4.1.4, salvage and use of material for habitat enhancement will be undertaken opportunistically when available to meet habitat enhancement requirements in the Biodiversity Offset Area and Biodiversity Enhancement Area.

SCPL will maximise the salvage of habitat resources within the approved disturbance area (including vegetation and soil) and relocate these to the Revegetation Areas (Management Zone A) as required (SCPL, 2012). Relocation of trunks, logs, branches, small stumps and roots to the Revegetation Area (Management Zone A) may also benefit the revegetation by increasing the mulch cover for the soil.

5.5 ABORIGINAL HERITAGE VALUES

There is not expected to be any conflict between the proposed restoration works in the Biodiversity Offset Area and Biodiversity Enhancement Area and any Aboriginal heritage values (both cultural and archaeological) (Figures 13a to 13c). However, it is noted that:

- Any disturbance works in the Biodiversity Offset Area and Biodiversity Enhancement Area will consider potential impacts to heritage values.
- If any artefacts are found or known to occur, then consultation will be undertaken with relevant stakeholders and an appropriate course of action identified, including securing appropriate licences where necessary.

The management of heritage values within the SMC area is described in detail in the SMC Heritage Management Plan.

5.6 WEED CONTROL

Objective

The weed control program described below aims to manage weeds to minimise their impact on native flora and fauna.

Procedure for Controlling and Monitoring Weeds

Priority and/or environmental weeds will continue to be controlled and monitored by an appropriately qualified person(s) using standard methods. The procedure for controlling and monitoring weeds is as follows:

1. Monitor the location and density of priority and/or environmental weeds through inspections of the Biodiversity Offset Area and Biodiversity Enhancement Area.
2. Identify suitable control methods for target priority and/or environmental weeds (e.g. mechanical removal of identified weeds, application of herbicide, crash grazing and/or use of fire) (SCPL, 2012).
3. Implement the selected control methods on target priority and/or environmental weeds.
4. Follow-up site inspections to evaluate the effectiveness of the weed control (SCPL, 2012).
5. Follow-up control where previous control has been sub-optimal.

Recommended techniques for removal of priority weeds that have been published by DPI Agriculture will be consulted prior to weed control, e.g. *Noxious and Environmental Weed Control Handbook* (DPI, 2014a). The control of weeds is intended to be adaptive and will be informed/reviewed based on monitoring.

The implementation of alternative measures that favour the restoration of healthy native vegetation is also considered an effective method of weed management. Other methods of weed control, which may be utilised by the mine in appropriate areas in consultation with a suitably qualified person, may include activities such as crash/pulse grazing and the use of fire for burning off vegetation and areas which are heavily infested by weeds.

Frequency, Timing and Duration

The procedure for controlling and monitoring weeds will continue to be implemented twice a year, every six months (or at other times when rainfall conditions are favourable to weed outbreaks) as determined by SCPL.

Performance and Completion Criteria

Table 17 outlines the weed management actions implemented across the Biodiversity Offset Area and Biodiversity Enhancement Area, including performance and completion criteria for each action. Table 17 also outlines activities to be undertaken from December 2020 onwards.

**Table 17
Weed Management Performance and Completion Criteria**

Management Action	Completed Activities to December 2020	Annually from December 2020 onwards PC Maintenance Phase	Completion Criteria
Monitoring of weed location and density	Mapping of weed extent and density produced.	-	Mapping of weed extent and density produced.
Bi-annual weed inspections and recording	Inspections and records completed.	Ongoing bi-annual inspections undertaken and records completed.	Inspections complete.
Weed control/treatment program	Strategic weed control as required, recording on areas worked and implementation of recommendations.	Strategic weed control as required, recording on areas worked and implementation of recommendations.	Priority weed infestations appropriately controlled and minimised as evidenced through monitoring data.

Record Keeping and Reporting

A summary of the weed management and monitoring results will be reported in the Annual Review (Section 8.2.1).

5.7 FERAL ANIMAL CONTROL

Objective

The objective of feral animal control program is to manage feral animals to minimise their impact on native flora and fauna in the Biodiversity Offset Area and Biodiversity Enhancement Area.

The feral animal control program may be implemented in conjunction with the feral animal control program for the SMC (Section 4.5).

Procedure for Controlling Feral Animals

Measures to control exotic animals to be undertaken at the Biodiversity Offset Area and Biodiversity Enhancement Area include:

1. Monitor the abundance of feral animals.
2. Identify suitable control methods for target feral animals (e.g. trapping and/or baiting for European Rabbits and European Red Foxes).
3. Implement the selected control methods on the target feral animals.
4. Re-monitor the abundance of feral animals to evaluate the effectiveness of the control methods.
5. Follow-up control where previous control has been sub-optimal.

As described in the *SEP EIS Terrestrial Fauna Assessment* (AMBS, 2012a), some feral animal prevention and management techniques will include 1080 fox baiting and Pindone poison carrots for rabbits implemented in a manner that will minimise or eliminate collateral mortality of native fauna.

Control measures will be implemented by mine staff or by an appropriate Pest Control Contractor(s) as required. All personnel involved in feral animal control will be required to hold relevant and valid licences/permits, including any relevant chemical licences for pesticide use. The *Humane Pest Animal Control: Code of Practice and Standard Operating Procedures* (DPI, 2013, or its revision) will be followed.

Control methods for moderately common or abundant feral animals are outlined in Table 10. A selection of these techniques or additional techniques may be undertaken depending on the feral animal species which is in an abundance that requires control (as determined through monitoring) and the success of these control techniques. The control of feral animals is intended to be adaptive and will be informed/reviewed based on monitoring.

Monitoring Methods

An estimate of the abundance of feral animals (European Red Fox, Feral Cat and European Rabbit) will be obtained using the vehicle spotlight method in consideration of the NSW DPI *Monitoring Techniques For Vertebrate Pests* (Mitchell and Balogh, 2007a to c).

Frequency, Timing and Duration

An initial feral animal study of the Biodiversity Offset Area and Biodiversity Enhancement Area has been undertaken and a control program has been implemented and monitored.

Monitoring of feral animals (including foxes, rabbits and cats) will be undertaken every subsequent two years by an appropriately qualified contractor. If the results of these surveys indicate that a control program is necessary, such a control program will be implemented and monitored as described in this section.

Performance and Completion Criteria

Table 18 outlines the feral animal management actions implemented across the Biodiversity Offset Area and Biodiversity Enhancement Area, including performance and completion criteria for each action. Table 18 also outlines activities to be undertaken from December 2020 onwards.

Table 18
Feral Animal Management Performance and Completion Criteria

Management Action	Completed Activities to December 2020	Annually from December 2020 onwards PC Maintenance Phase	Completion Criteria
Abundance of feral animal species established	Initial study undertaken in the Biodiversity Offset Area and Biodiversity Enhancement Area.	-	Initial feral animal study completed.
Feral animal monitoring	Inspections and records completed.	Ongoing inspections undertaken and recording on areas worked.	Feral animal monitoring reports and records prepared.
Feral animal control program	Feral animal control implemented as required.	Ongoing feral animal control implemented as required.	Feral animal numbers within offset areas minimised as evidenced through monitoring data.

Record Keeping and Reporting

Feral animal monitoring and management will be documented annually in the Annual Review (Section 8.2.1).

5.8 CONTROLLING EROSION

Objective

The objective of controlling soil erosion in the Biodiversity Offset Area and Biodiversity Enhancement Area is to avoid severe soil erosion significantly damaging habitat for native flora and fauna.

Methodology

The potential for severe soil erosion in the Biodiversity Offset Area and Biodiversity Enhancement Area has been reduced by excluding livestock (Section 5.1), controlling access (Section 5.1) and control of feral animals (Section 5.7).

Monitoring

Severe soil erosion will be controlled as required. Visual monitoring will be undertaken to identify severe erosion that requires remediation (Section 7).

Performance Indicators, Risks and Contingency Measures

The performance indicator is the area of severe soil erosion. In the event that severe soil erosion is identified that is not controlled via the methods above, additional control may be required, such as:

- selective plantings/direct seeding (including spray mulch) of local endemic species to stabilise the soil; and/or
- restorative earth works and/or inclusion of surface water management structures (e.g. contour banks and temporary sediment traps [such as hay bales]).

5.9 BUSHFIRE PREVENTION AND RISK MANAGEMENT

Objective

The objective of bushfire management in the Biodiversity Offset Area and Biodiversity Enhancement Area is to prevent impacts from unplanned bushfire (e.g. rapid response to fire from lightning strikes) and to use fire to promote biodiversity.

Frequency, Timing and Duration

Annual visual monitoring will be undertaken to evaluate fuel loads/fire risk. The results of the visual monitoring will determine the frequency at which bushfire preventative procedures (outlined below) will be implemented.

Methodology

In the event that an unplanned bushfire were to occur in the offset area (e.g. via lightning strike), SCPL will notify the RFS and assist the RFS, emergency services and/or National Parks and Wildlife Service (regarding the Glenn Nature Reserve) as much as practicable.

Bushfire preventative procedures will include:

- educating employees and contractors on general fire awareness and response procedures;
- annual inspections to identify areas requiring bushfire control measures including assessment of surrounding fuel loads;
- where fire control is necessary, hazard reduction burns will be planned;
- fire breaks will be constructed and maintained around the perimeter of offset areas; and
- fire access trails will be implemented and maintained.

In the case of a bushfire incident, the RFS will be called upon as the primary response unit to contain, fight and manage bushfires. SMC personnel may provide secondary support roles, services and equipment where requested by the RFS as approved by the Operations Manager.

Performance and Completion Criteria

Table 19 outlines the bushfire management actions implemented across the Biodiversity Offset Area and Biodiversity Enhancement Area, including performance and completion criteria for each action. Table 19 also outlines activities to be undertaken from December 2020 onwards.

**Table 19
Bushfire Management Performance and Completion Criteria**

Management Action	Completed Activities to December 2020	Annually from December 2020 onwards PC Maintenance Phase	Completion Criteria
Mapping of Fire Breaks and Trails	Mapping complete.	-	Mapping complete.
Monitoring of Fuel Loads	Inspections and records completed.	Ongoing inspections undertaken and recording on areas worked.	Monitoring reports prepared.
Bushfire Management Activities Including Controlled Burning	Fire management activities have been implemented (if required).	Fire management activities have been implemented (if required).	Regular bushfire management measures in place.

5.10 NEST BOX PROGRAMME

Objective

Nest boxes have been and will continue to be installed to provide habitat opportunities for the Squirrel Glider in the short to medium-term in accordance with Condition 38(g), Schedule 3 of Development Consent SSD-4966. In addition to the above, nest boxes have also been installed to provide habitat opportunities in the short to medium-term for a number of other arboreal fauna species in accordance with the commitment in the EIS (SCPL, 2012).

Nest Box Design for the Squirrel Glider

In accordance with Schedule 3, Condition 38(g) of the Development Consent, suitable nest boxes for the Squirrel Glider have been installed at a ratio of least 3:1 for each tree hollow suitable for the Squirrel Glider cleared for the mine. Squirrel Glider nest boxes will have a small entrance hole (45-50 millimetres diameter) to exclude larger possums and birds (AMBS, 2011a).

As far as practically possible, SCPL will salvage hollow-bearing and stag trees from cleared vegetation and 'erect' these dead trees into areas of habitat enhancement (SCPL, 2012). In the event where the whole tree and/or stag cannot be erected, consideration will be given to attaching the portions of the trees which contain hollows to existing trees within the areas of habitat enhancement.

Further detail on the management of the Squirrel Glider is provided in the SMC Squirrel Glider Management Plan.

Nest Box Design for Other Species

For tree hollows that provide habitat to arboreal fauna species (other than the Squirrel Glider), nest boxes have been installed at a minimum ratio of 1:1 (i.e. one nest box of appropriate size to replace one hollow of similar size and properties) (SCPL, 2012). These nest boxes will be provided for birds, bats and arboreal mammals (SCPL, 2012).

Installation

Nest boxes have been installed within the Biodiversity Offset Area and Biodiversity Enhancement Area in Existing Remnant Vegetation (Management Zone B) as well as the Revegetation Area (Management Zone A).

The nest boxes have been installed under the direction of the suitably qualified expert. The location in which the nest box will be installed will take into account the following factors:

- the tree on which it is to be installed (i.e. healthy living trees without existing hollows);
- the existing tree hollow density of the surrounding area in which they will be installed (i.e. with a preference for a location with low tree hollow density);
- to provide shelter from rain and, if possible, excessive sun; and
- camouflage from potential predators.

The Squirrel Glider Management Plan provides measures to establish the food resources used by the Squirrel Glider and to establish their home range. This information can be used to locate suitable nest boxes for the Squirrel Glider (i.e. within/on the edge of the home range near feeding resources).

The following minimum data will be recorded upon installing the nest boxes:

- date;
- GPS location of each nest box and type;
- height of the nest box;
- surrounding vegetation maturity/type;
- the number of hollow-bearing trees within each 100 square metres (m²) plot area; and
- photographs of each installed box.

Monitoring

Objective

Once installed, the nest boxes will be monitored by suitably qualified personnel to observe fauna usage.

Timing

Quarterly inspections during the first year will enable occupation timing to be documented. Following the first year, monitoring will occur annually in spring and may then be reduced to biennial monitoring following a review of the monitoring results.

Methodology

The entrance to the nest box will be blocked prior to inspection to reduce the chance of possible nocturnal inhabitants escaping and risking predation (Freegard and Richter, 2009).

Surveillance of bat boxes will be undertaken via watching for exiting bats at dusk (de Souza-Daw, 2003). Bat boxes will not be opened once occupied by bats (de Souza-Daw, 2003) as disturbing hibernating bats can lead to exhaustion of food reserves and death of the animal (Strahan, 2004).

The following minimum data will be recorded during each monitoring event:

- date;
- type of nest box and its specifications (at commencement of study);
- nest box number and location;
- signs of animal presence (e.g. scats, fur, feathers, nesting material, etc.);
- species of animals present (or possibly present inferred from secondary evidence);
- breeding data where possible;
- number of individuals; and
- sex and age of individuals (adults, independent subadults or dependent juveniles).

Data Analysis

An analysis of the monitoring results will be reported in the Annual Review.

Ongoing Maintenance

If the nest box has not been occupied after two years, consideration will be given to moving the nest box to an alternative location.

The boxes are to be checked annually and maintained if infested (e.g. by bees) or replaced if in disrepair.

DPE requires that Squirrel Glider nest boxes are to be managed for a period of between 20 and 50 years, depending on the census of existing hollow-bearing trees suitable for the Squirrel Glider and assessment of tree hollow development (as detailed in the Squirrel Glider Management Plan).

Performance and Completion Criteria

Table 20 outlines the nest box program actions implemented across the Biodiversity Offset Area and Biodiversity Enhancement Area, including performance and completion criteria for each action. Table 20 also outlines activities to be undertaken from December 2020 onwards.

Table 20
Nest Box Program Performance and Completion Criteria

Management Action	Completed Activities to December 2020	Annually from December 2020 onwards PC Maintenance Phase	Completion Criteria
Nest Boxes – Installation	Next boxes installed for squirrel glider and other species based on ratios of cleared hollows recorded from clearing activities.	Continued nest box installation as clearing progresses.	Nest boxes installed as required to replace cleared hollows.
Nest Boxes – Monitoring and Reporting	Quarterly inspections undertaken in Year 1 (2018). Annual inspections undertaken and records completed in Years 2 (2019) and 3 (2020).	Ongoing annual monitoring inspections and records completed.	Nest box monitoring completed and report prepared.
Nest Boxes - Maintenance	Maintenance or replacement as required.	Maintenance or replacement as required.	Nest boxes functioning as designed.

Reporting

The monitoring results will be reported in the Annual Review.

5.11 GLIDER POLES

The Squirrel Glider Management Plan describes the installation and management of glider poles in the Biodiversity Enhancement Area.

As described in the Squirrel Glider Management Plan, glider pole installation would be targeted in the Biodiversity Offset Areas and Biodiversity Enhancement Areas (Figure 14). The glider poles proposed to be installed would be approximately 15 to 20 meters (m) high, depending on the height of surrounding vegetation, and would be placed at approximately 25 m intervals (where possible). For the glider poles proposed to be installed either side of haul roads, aerial fauna crossings (such as fauna bridges) may be installed in their place should the span between poles be more than 40 m. This would facilitate the road crossing and minimise the likelihood of fauna mortality associated with Squirrel Gliders falling short of the landing pole.



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- LEGEND**
- Electricity Transmission Line
 - Crown Land
 - Approximate Extent of Existing/Approved Surface Development
 - Biodiversity Enhancement Area
 - Offset Area
 - Resource Company Owned Dwelling
 - Privately Owned Dwelling
 - Tracks
 - Management Zone A - Revegetation Area (Indicative Location)
 - A1 Squirrel Glider Vegetation Pathways (Indicative Location)
 - Glider Pole (Indicative Location)

Source: Australian Museum Business Services (2011); FloraSearch (2011); SCPL (2012); DFS-LPI (2012); DPI C&L (2012) Orthophoto - GoogleEarth CNES/Airbus (2020)



STRATFORD EXTENSION PROJECT
Squirrel Glider Vegetation Pathways
for the Biodiversity Offset Areas and
Biodiversity Enhancement Areas - North

Figure 14

5.12 LONG-TERM SECURITY

Biodiversity Offset Areas

In accordance with Condition 36, Schedule 3 of Development Consent SSD-4966, SCPL has made suitable arrangements to protect the Biodiversity Offset Areas in perpetuity to the satisfaction of the Secretary. Condition 36, Schedule 3 of Development Consent SSD-4966 states that suitable arrangements may include a biobanking agreement or the use of Public Positive Covenants in combination with Restrictions In Use of Land on the land titles of the Biodiversity Offset Areas.

Public Positive Covenants and Restrictions on the Use of Land for the Biodiversity Offsets were registered on title with NSW Land and Property Information in October 2019. Copies of the executed Positive Covenants and notice of registration of the instruments was included in the 2019 SMC Annual Biodiversity Report which can be found on the SMC's website (<https://www.florabank.org.au/guidelines/>).

In accordance with Condition 34, Schedule 3 of the Development Consent (SSD-4966), should SCPL acquire Property 44, the property, exclusive of the residence and its immediate surrounds, shall be added to the Biodiversity Offset Strategy and managed in accordance with the requirements applicable to this Strategy. Should SCPL not acquire Property 44, SCPL shall use its best endeavours to enter into an agreement with the owner that conserves, enhances and provides long-term security for native vegetation on the property.

Within ten (10) business days of fulfilment (or partial fulfilment if Biodiversity Offset Areas are not secured simultaneously) of Condition 36 of Schedule 3 to the Development Consent SSD-4966, SCPL will provide the Department of Agriculture, Water and the Environment (DAWE) with documentary evidence of its fulfilment (or partial fulfilment).

Biodiversity Enhancement Areas

The Biodiversity Enhancement Areas is a proposal for land management during the life of the SMC (SCPL, 2012). The final tenure of the Biodiversity Enhancement Areas will be subject to future consultation (SCPL, 2012).

5.13 CONSERVATION BOND

In accordance with Condition 40, Schedule 3 of Development Consent SSD-4966, SCPL has lodged a Conservation Bond⁸ with the DPE to ensure that the Biodiversity Offset Strategy (Biodiversity Offset Areas and Biodiversity Enhancement Areas) is implemented in accordance with the performance and completion criteria of this BMP (Section 6).

The sum of the bond was determined by:

- (a) calculating the full cost of implementing the Biodiversity Offset Strategy (Section 3.2) (other than land acquisition costs); and
- (b) employing a suitably qualified quantity surveyor to verify the calculated costs.

The Conservation Bond calculation was prepared by Kleinfelder and a verification of the costs was undertaken by Rider Levett Bucknall. The Conservation Bond calculation was submitted in January 2019 and subsequently approved by DPE on 15 January 2019.

The Conservation Bond in the form of a bank guarantee was executed and lodged with DPE on 8 February 2019.

Condition 40, Schedule 3 of Development Consent SSD-4966 states that if the Biodiversity Offset Strategy is completed generally in accordance with the completion criteria in the BMP to the satisfaction of the Secretary, the Secretary will release the Conservation Bond. If the Biodiversity Offset Strategy is not completed generally in accordance with the completion criteria in the BMP (Section 6), the Secretary will call in all, or part of, the Conservation Bond, and arrange for the satisfactory completion of the relevant works.

⁸ Alternative funding arrangements for long-term management of the biodiversity offset strategy, such as provision of capital and management funding as agreed by BCS as part of a Biobanking Agreement or transfer to conservation reserve estate can be used to reduce the liability of the conservation and biodiversity bond. The sum of the bond may be reviewed in conjunction with any revision to the biodiversity offset strategy.

6 PERFORMANCE AND COMPLETION CRITERIA FOR THE BIODIVERSITY OFFSET STRATEGY

The original BMP was prepared for the first three years of mining (i.e. 2018 – 2020) and included relevant performance criteria and completion criteria for the short term. This revision of the BMP has been prepared for the three year period between 2021 and 2024 and includes broader concepts for the medium term (3 to 6 years) and the longer term (6+ years).

Tables 18 to 20 summarise the performance and completion criteria for monitoring and management actions applied in the short-term (to December 2020) and anticipated activities from December 2020 onwards.

The completion criteria relate to the life of the management action.

Performance Criteria

As described in Section 1.2, this BMP has been prepared for the three year period between 2021 and 2024 and includes broader concepts for the medium term (3 to 6 years) and the longer term (6+ years). This document will be reviewed/revised as described in Section 8.4.

Performance criteria are interim targets for the management activities. The performance of the Biodiversity Offset Strategy will be monitored against the performance criteria provided in the relevant tables throughout the BMP. If performance criteria are not being met, the reason for not meeting the performance criteria will be investigated by SCPL and contingency measures will be considered (where appropriate).

The performance criteria will be reviewed and revised as appropriate during the life of the mine.

Completion Criteria

Completion criteria are provided throughout the relevant sections of the BMP. As described in Section 5.13, Condition 40, Schedule 3 of Development Consent SSD-4966 states that if the Biodiversity Offset Strategy is completed generally in accordance with the completion criteria to the satisfaction of the Secretary of DPE, the Secretary will release the Conservation Bond for the Biodiversity Offset Areas.

The completion criteria will be reviewed and revised as appropriate during the life of the mine.

7 MONITORING OF THE BIODIVERSITY OFFSET STRATEGY

In accordance with Condition 39(e), Schedule 3 of Development Consent SSD-4966, a program is provided to monitor and report on the effectiveness of these measures and progress against the detailed performance and completion criteria (Table 21).

Table 21
Monitoring Program – Biodiversity Offset Strategy

Monitoring Program	Relevant BMP Section	Frequency
Visual Monitoring	Section 7.1.1	Annual
Photo Monitoring	Section 7.1.2	Annually (spring)
Habitat and Vegetation Monitoring Program	Section 7.1.3	Annually (spring)
Fauna Monitoring Program	Section 7.1.4	Every three years
Weed Monitoring	Section 5.6	Biannually
Feral Animal Monitoring	Section 5.7	Every two years
Nest Box Monitoring	Section 5.10	Quarterly for 12 months and then biannually

7.1 MONITORING PROGRAM

7.1.1 Visual Monitoring

Objective

Visual monitoring will be undertaken to identify maintenance issues.

Timing

Visual inspection of the Biodiversity Offset Area will be undertaken opportunistically and targeted monitoring annually.

Methodology

The visual inspection/monitoring of the Biodiversity Offset Area will identify:

- maintenance issues with tracks/fire trails (Section 5.9);
- maintenance issues with fences (Section 5.1);
- maintenance issues with signage (Section 5.1);
- illegal access or vandalism;
- uncontrolled presence of livestock;
- severe erosion that requires remediation (Section 5.8); and
- fuel loads/fire risk (Section 5.9).

7.1.2 Photo Monitoring

Objective

Photo monitoring will be undertaken to monitor the change in the Biodiversity Offset Area over time.

Timing

Photo monitoring commenced in spring 2018 and will be undertaken annually.

Methodology

Sixteen permanent photographic monitoring points have been established across representative vegetation communities and areas of introduced pasture with scattered trees (i.e. Revegetation Areas [Management Zone A]) within the Biodiversity Offset Area. Photo monitoring provides a visual assessment of the vegetation cover and abundance at each monitoring site.

The methodology for photographic monitoring described below reflects the National Parks and Wildlife Service (2003) *Conservation Management Note 9 – Photographic Monitoring*. Photos will be taken:

- in multiple directions at each photo monitoring point (north, south, east and west);
- in a consistent height above the ground; and
- in a consistent approximate time of day.

These above aspects as well as the location (GPS points), photographer and the date will be recorded for each photo taken.

Table 22 provides the GPS locations of the monitoring quadrats where photographic monitoring points have been established.

Table 22
GPS Locations of Photo Monitoring Quadrants

Label	Easting	Northing
Q1	399296	6442419
Q2	399617	6442303
Q3	401069	6441130
Q4	400749	6440960
A5	402150	6445659
Q6	401917	6444524
Q7	401565	6443458
Q8	402487	6442340
Q9	401765	6442326
Q10	403637	6441741
Q11	401665	6442041
Q12	402075	6441503
Q13	401722	6441427
Q14	402925	6437686
Q15	400622	6445805
Q16	400991	6446073

Data Analysis

After the photographic monitoring event the photos will be reviewed and an analysis of the photographic record will be reported in the Annual Review.

7.1.3 Habitat and Vegetation Condition Monitoring

Objective

Habitat and vegetation condition monitoring will also be undertaken to quantitatively measure the change in habitat and vegetation condition over time.

Timing

Habitat and vegetation condition monitoring commenced in spring 2018 and will be undertaken annually.

Methodology

Suitably qualified personnel will be engaged to undertake the habitat and vegetation condition monitoring. Habitat and vegetation condition monitoring sites will be established across representative vegetation communities and areas of introduced pasture with scattered trees (i.e. Revegetation Areas [Management Zone A]) within the Biodiversity Offset Area.

The Biodiversity Offset Area will be monitored using data collected in accordance with relevant guidelines, where appropriate, and as indicated in Table 23.

Table 23
Indicative Habitat and Vegetation Condition Monitoring Parameters

Parameter	Survey Requirement	Method
Stratum (& layer)	Stratum & layer in which each species occurs.	20 m x 20m plot
Growth form	Growth form for each recorded species.	
Species name	Scientific name and common name.	
Cover	Estimate the percentage (%) of foliage cover across the plot of each species rooted in or overhanging the plot. Cover should be recorded in decimals if less than 1% (0.1, 0.2...), or whole numbers up to 5 % (1,2,3...), or to the nearest 5 % where greater than 5 % cover (5,10,15,20,25...).	
Abundance rating	For species with cover less than or equal to 5%, count or estimate the number of individuals or shoots of each species within the plot, using the following intervals: 1,2,3,4,5,6,7,8,9,10,20,50,100,500,1000,1500,2000, etc. Numbers above 20 are estimates only, and the recorded abundance is the upper end of each class (e.g. 50 represents an estimated abundance of between 20 and 50). For species with cover greater than 5%, abundance estimates are not required (but may be recorded if desired).	

Three 20 m x 20 m plots will be established at each monitoring site. These plots will be permanently marked by placement of star pickets at the northern and southern end of the midline of each plot. The location of the pickets will be recorded using a GPS.

Table 22 provides the GPS locations of the Habitat and Vegetation Condition Monitoring quadrats where photographic monitoring points have been established.

Data Analysis

Results will be compiled after each monitoring event and a summary of the results will be included in the Annual Review. In the event that native vegetation is not on a trajectory towards sufficiently regenerating naturally in the Revegetation Area (Management Zone A) five years after exclusion of livestock, the land will be revegetated via direct seeding and/or tubestock.

7.1.4 Fauna Monitoring Program**Objective**

Monitoring will be undertaken to document the fauna species response to improvement in vegetation and habitat in the Biodiversity Offset Area.

Timing

Terrestrial fauna surveys commenced in spring 2018 and will be undertaken every three years to monitor the use of the Biodiversity Offset Area by vertebrate fauna (SCPL, 2012).

Methodology

Fauna monitoring will include documentation of native and introduced (including feral) animals. Fauna monitoring methods may include those outlined in Table 24. The same methods and survey effort will be repeated during each monitoring period so the data can be compared.

Table 24
Fauna Monitoring Methods

Group	Method
Reptiles	Habitat Search
	Spotlighting
Diurnal Birds	Area Search
Nocturnal Birds	Call Playback (Owls)
	Habitat Search
	Spotlighting
Terrestrial Mammals	Camera Traps
	Secondary Evidence
	Spotlighting
Bats	Anabat Detectors
	Harp-trapping

Data Analysis

Results will be compiled after each monitoring event and a summary of the results will be included in the Annual Review. An increase in the species richness and/or abundance is anticipated as the quantity and/or quality of habitat resources increases over time.

7.2 RISKS AND CONTINGENCY MEASURES/REMEDIAL ACTIONS

In accordance with Condition 39(f), Schedule 3 of Development Consent SSD-4966, the potential risks to the successful implementation of the Biodiversity Offset Strategy are identified in Table 23 along with a description of the contingency measures that will be implemented to mitigate against these risks, should they arise. Contingency measures (remedial actions) to be implemented if the monitoring program identifies that the performance criteria are not being met are outlined in Table 25. Contingency measures may not be limited to those listed in Table 25.

Table 25
Risks to the Biodiversity Offset Strategy and Contingency Measures/Remedial Actions

Aspect	Section	Potential Risk	Possible Contingency Measures/Remedial Actions
Fencing Gates and Signage / Access Tracks	Section 5.1 and 5.2	Damage to new fences by cattle.	<ul style="list-style-type: none"> Inspect and remedy issue. Install additional fencing if required.
		Minimal existing access tracks present.	<ul style="list-style-type: none"> Development of additional access tracks as required.
		Illegal access and vandalism.	<ul style="list-style-type: none"> Inspect and remedy issue. Increase level of security (e.g. video or personal surveillance). Report illegal access and vandalism to relevant authorities.
Revegetation Programme	Section 5.3	Poor understorey diversity.	<ul style="list-style-type: none"> Supplemental seeding or planting as required.
		Dense grass cover.	<ul style="list-style-type: none"> Ecological thinning, crash grazing or controlled burning as appropriate.
		Poor native plant growth/germination.	<ul style="list-style-type: none"> Supplemental seeding or planting to replace lost recruits if the rate of loss is higher than the rate of establishment. Addition of soil ameliorants, fertiliser and/or irrigation as appropriate.
Revegetation Programme (continued)		Dense over-storey and mid-storey revegetation preventing under-storey development.	<ul style="list-style-type: none"> Ecological thinning.
		Grazing herbivores or feral animals significantly damaging seedlings or tube stock.	<ul style="list-style-type: none"> Maintain/improve fencing. Implement culling/control programme. Implement use of tree guards.
		Insect pests significantly damaging seedlings or tube stock.	<ul style="list-style-type: none"> Pesticide will be used safely according to the safety data sheets.
		Presence of Myrtle Rust or Phytophthora.	<ul style="list-style-type: none"> Establish hygiene protocols (e.g. avoiding infected areas, vehicle wash down).
Use of Salvaged Material for Habitat Enhancement	Section 5.4	Inappropriate storage of habitat materials leading to their degradation.	<ul style="list-style-type: none"> Establish appropriate storage procedures. Opportunistic immediate use in rehabilitation/enhancement areas.
Control of Weeds	Section 5.6	Weed invasion – perennial and annual grasses, perennial herbs, annual and biennial herbs and woody weeds.	<ul style="list-style-type: none"> Review additional strategies to control target weed species. Increase the frequency of weed control and monitoring. Re-evaluate the grazing strategy.
Control of Feral Animals	Section 5.7	Sustained increase in feral animal numbers despite control measures.	<ul style="list-style-type: none"> Review additional strategies to control target feral animals. Increase the frequency of feral animal control and monitoring. Additional temporary fencing around plantings (effective against feral pigs).
Erosion	Section 5.8	Continued erosion of landforms.	<ul style="list-style-type: none"> Undertake restorative earthworks, revegetation and drainage control.

Table 25 (continued)
Risks to the Biodiversity Offset Strategy and Contingency Measures/Remedial Actions

Aspect	Section	Potential Risk	Possible Contingency Measures/Remedial Actions
Bushfire Prevention and Risk Management	Section 5.9	Unplanned bushfire over greater than 20% of the Biodiversity Offset Area.	<ul style="list-style-type: none"> • Increase fire hazard monitoring and management. • Reseed/replant affected area. • Implement additional control measures (such as boundary fire breaks). • Re-evaluate the required management in the affected portions of the Biodiversity Offset Area and revise the BMP (if required).
Nest Box Programme	Section 5.10	Native fauna not inhabiting the nest boxes.	<ul style="list-style-type: none"> • Relocate nest box to an alternative location. • Revise nest box programme.
		Infestation of nest boxes by pests.	<ul style="list-style-type: none"> • Replacement of the nest boxes.

8 REPORTING, AUDITING AND REVIEWING

In accordance with Condition 3, Schedule 5 of Development Consent SSD-4966, SCPL has developed protocols for managing and reporting the following:

- incidents;
- complaints;
- non-compliances with statutory requirements; and
- exceedances of the impact assessment criteria and/or performance criteria.

The management of incidents is described in the SMC PIRMP. The management of complaints and non-compliances is described in detail in the Environmental Management Strategy. The management of exceedances of performance criteria is detailed in this BMP. In accordance with Condition 8, Schedule 5 of NSW Development Consent SSD-4966, SCPL will provide regular reporting on the environmental performance of the SMC on the SMC's website.

8.1 DOCUMENTATION

In accordance with Condition 9 of EPBC 2011/6176, SCPL will maintain accurate records substantiating all activities associated with, or relevant to, the conditions of EPBC 2011/6176, including measures taken to implement any management documents, and make them available upon request to DAWE. Such records may be subject to audit by DAWE or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of EPBC 2011/6176. Summaries of audits will be posted on the website of DAWE and may also be publicised through the general media.

8.2 REPORTING

8.2.1 Annual Review

In accordance with Condition 4, Schedule 5 of Development Consent SSD-4966, SCPL will conduct an Annual Review of the environmental performance of the SMC by the end of March each year, or other timing as agreed by the Secretary of the DPE.

In accordance with Condition 4, Schedule 5 of Development Consent SSD-4966, the Annual Review will:

- a) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;*
- b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:*
 - *the relevant statutory requirements, limits or performance measures/criteria;*
 - *the monitoring results of previous years; and*
 - *the relevant predictions in the EIS;*
- c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;*
- d) identify any trends in the monitoring data over the life of the development;*
- e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and*
- f) describe what measures will be implemented over the next year to improve the environmental performance of the development.*

Specific to the BMP, the Annual Review will include:

- a summary of the Vegetation Clearance Protocol outcomes (Section 4.1);
- a summary of the nest box programme outcomes (Section 4.11);
- describe weed monitoring and control outcomes (Section 4.4);
- describe feral animal pest monitoring and control outcomes (Section 4.5);
- a summary of the Biodiversity Enhancement Area progress (Section 5);
- a summary of the Biodiversity Offset Area progress (Section 5); and
- a review of the monitoring results over the past year, including a comparison of these results against the monitoring results of previous years.

The Annual Review will be made publicly available on the Stratford Coal website, in accordance with Condition 11, Schedule 5 of Development Consent SSD-4966.

8.2.2 EPBC Act Reporting

In accordance with Condition 10 of EPBC 2011/6176, by 31 March of each year after the commencement of the action, or as agreed with DAWE, SCPL will publish a report on their website addressing compliance with the conditions of EPBC 2011/6176 during the previous calendar year, including implementation of any management documents as specified in the conditions of EPBC 2011/6176. Non-compliance with any of the conditions of EPBC 2011/6176 will be reported to DAWE at the same time as the compliance report is published.

8.2.3 Publishing of this BMP

In accordance with Condition 2 of EPBC 2011/6176, unless otherwise agreed to in writing by the Commonwealth Minister, SCPL will publish all management documents referred to in EPBC 2011/6176 on their website. Each management document will be published on the website within ten (10) business days of receiving approval from by the Commonwealth Minister.

This BMP will be made publicly available on the Stratford Coal website in accordance with Condition 11, Schedule 5 of Development Consent SSD-4966. A hard copy of the BMP will also be kept at the SMC.

8.3 INDEPENDENT ENVIRONMENTAL AUDIT

8.3.1 NSW SSD-4966

In accordance with Condition 39(d), Schedule 3 of Development Consent SSD-4966, this BMP has been prepared for the three year period from the date of BMP approval (between 2021 and 2024) and includes broader concepts for the medium term (3 to 6 years) and the longer term (6+ years).

The EIS (SCPL, 2012) states that the Biodiversity Offset Area will be independently audited at intervals agreed with relevant authorities. The audits will be conducted by a suitably qualified person(s) to:

- assess compliance with the BMP;
- assess the performance of the Biodiversity Offset Area;
- review the adequacy of the management measures and monitoring programme; and
- recommend actions or measures to improve the performance of the Biodiversity Offset Area, BMP, or monitoring programme, where required.

Further, in accordance with Condition 9, Schedule 5 of Development Consent SSD-4966, the Independent Environmental Audit will assess whether the SMC is operating in compliance with the requirements of relevant management plans required by the Development Consent, including this BMP.

8.3.2 Commonwealth EPBC 2011/6176

In accordance with Condition 11 of EPBC 2011/6176, upon the direction of the Commonwealth Minister, SCPL will ensure that an independent audit of compliance with the conditions of EPBC 2011/6176 is conducted and a report submitted to the Commonwealth Minister. The independent auditor will be approved by the Commonwealth Minister prior to the commencement of the audit. Audit criteria will be agreed to by the Commonwealth Minister and the audit report must address the criteria to the satisfaction of the Commonwealth Minister.

8.4 REVIEW AND REVISION OF THE BMP

8.4.1 NSW SSD-4966

In accordance with Condition 5, Schedule 3 of Development Consent SSD-4966, this BMP will be reviewed to the satisfaction of the Secretary of the DPE within three months of the submission of:

- (a) an Annual Review under Condition 4, Schedule 5 of Development Consent SSD-4966;
- (b) an incident report under Condition 7, Schedule 5 of Development Consent SSD-4966;
- (c) an audit report under Condition 9, Schedule 5 of Development Consent SSD-4966; or
- (d) any modification to the conditions of Development Consent SSD-4966.

Where this review leads to revisions of the BMP, the revised BMP will be submitted for the approval of the Secretary of the DPE within 4 weeks of the review. The revision status of this BMP is indicated on the cover page of each copy.

Should SCPL acquire Property 44, the property, exclusive of the residence and its immediate surrounds, will be added to the Biodiversity Offset Strategy, and managed in accordance with the requirements applicable to this Strategy (and the BMP). Should SCPL not acquire Property 44, SCPL shall use its best endeavours to enter into an agreement with the owner that conserves, enhances and provides long-term security for native vegetation on the property. This agreement must require that the vegetation on this property is managed in accordance with the BMP (Section 5.12). The BMP will be revised accordingly.

8.4.2 Commonwealth EPBC 2011/6176

In accordance with Condition 2 of EPBC 2011/6176, within 10 business days of the approval of any BMP in accordance with Condition 39 of Schedule 3 to the Development Consent, whether in relation to an impact site, an offset area, or both, SCPL will provide DAWE with a copy of the BMP.

8.5 RESPONSIBILITIES

The various roles and responsibilities in regard to the implementation of this BMP is provided in Table 26 below.

Table 26
Roles and Responsibilities

Environmental Management Team Member(s)	Role and Responsibility
Operations Manager	<ul style="list-style-type: none"> • Provide adequate resourcing (i.e. financial support) to support site environmental management.
Environment and Community Superintendent	<ul style="list-style-type: none"> • Responsible for site environmental monitoring. • Implementation and compliance with EMPs. • Responsible for managing contractors and annual reporting.

9 REFERENCES

- AGC Woodward-Clyde Pty Ltd (1994) *Avifauna*. Attachment A8.3 of Appendix 8.2 of Stratford Coal (1994) *Stratford Coal Project Environmental Impact Statement*.
- Australian Museum Business Services (2011a) *Stratford Surrounds Flora Survey*.
- Australian Museum Business Services (2011b) *Gloucester Valley Terrestrial Fauna Survey*.
- Australian Museum Business Services (2012a) *Terrestrial Fauna Assessment for the Stratford Extension Project*. Report prepared for Stratford Coal Pty Ltd.
- Australian Museum Business Services (2012b) *Stratford Surrounds Baseline Fauna Surveys*.
- Biosphere Environmental Consultants (2011) *Stratford Extension Project Frog Survey at Dog Trap Creek*.
- Department of the Environment, Water, Heritage and the Arts (2008a) *Threat Abatement Plan for Predation by the European Red Fox*. Canberra.
- Department of the Environment, Water, Heritage and the Arts (2008b) *Threat Abatement Plan for Competition and Land Degradation by Rabbits*. Canberra.
- Department of Primary Industries (1999) *Policy and Guidelines for Aquatic Habitat Management and Fish Conservation*.
- Department of Primary Industries (2004) *Policy and Guidelines for Fish Friendly Waterway Crossing*.
- Department of Primary Industries (2013) *Humane Pest Animal Control: Code of Practice and Standard Operating Procedures*.
- Department of Primary Industries (2014a) *Noxious and Environmental Weed Control Handbook*. NSW Department of Primary Industries, a part of Department of Trade and Investment, Regional Infrastructure and Services.
- Department of Primary Industries (2014b) *Vertebrate Pest Control Manual*. NSW Department of Primary Industries, a part of Department of Trade and Investment, Regional Infrastructure and Services.
- de Souza-Daw (2003) *The Bat Roost Box Kit*.
- Dowling, W. (2001) *Bowens Road North Project Flora Survey and Assessment*. Report prepared for Stratford Coal Pty Ltd.
- Ecobiological (2011a) *Fauna Survey Report Stratford Coal Mine, Gloucester, New South Wales*.
- Ecobiological (2011b) *Stratford Coal Mine New Holland Mouse Targeted Survey Programme*.
- Ecobiological (2011c) *Stratford Coal Mine Arboreal Mammal Targeted Survey Programme*.
- FloraSearch (2012) *Stratford Extension Project – Flora Assessment*. Report prepared for Stratford Coal Pty Ltd.
- Florabank (2021) *Florabank Guidelines*.
Website: <https://www.florabank.org.au/guidelines/>
- Freeguard, C. and Richter, V. (2009) *DEC Nature Conservation Service Biodiversity Standard Operating Procedure Nest Boxes for Monitoring Arboreal Mammals*.
- Hoye, G.A. (1998) *1998 Summer Survey of Bats at the Stratford Open Cut Coal Mine, Stratford, New South Wales*. In Richards, G.C. (2001) *An Assessment of the Bat Fauna at the proposed Bowens Road North Project, via Stratford, New South Wales*. Appendix FC of Stratford Coal Pty Ltd (2001) *Bowens Road North Project Environmental Impact Statement*.

- Hoye, G.A. and Finney, D. (1994) *Report on a Survey of the Bat Fauna of an Area Proposed for Open Cut Coal Mining Near Stratford, New South Wales*. Attachment 8.2-B of Appendix 8.2 of Stratford Coal Pty Ltd (1994) *Stratford Coal Project Environmental Impact Statement*.
- Invasive Animals Cooperative Research Centre (2015) *PestSmart Toolkit*.
Website: <http://www.feral.org.au/pestsmart/>
Accessed: August 2015.
- Kerle, A. (2011) *Stratford Coal Mine New Holland Mouse (Pseudomys novaehollandiae) Targeted Survey Programme*.
- Mount King Ecological Surveys (2001) *Bowens Road North Project, Stratford Fauna Survey and Assessment*. Appendix FA of Stratford Coal (2001) *Bowens Road North Project Environmental Impact Statement*.
- Mitchell, B. and Balogh, S. (2007a) *Monitoring Techniques for Vertebrate Pests, Feral Cats*. New South Wales Department of Primary Industries, Orange.
- Mitchell, B. and Balogh, S. (2007b) *Monitoring Techniques for Vertebrate Pests, Foxes*. New South Wales Department of Primary Industries, Orange.
- Mitchell, B. and Balogh, S. (2007c) *Monitoring Techniques for Vertebrate Pests, European Rabbit*. New South Wales Department of Primary Industries, Orange.
- Murray, M. (1994) *Survey of Frog Species at proposed Mine Stratford, Near Gloucester: Attachment A8.2-A Amphibian Survey (1994) of Appendix 8.2*.
- National Parks and Wildlife Service (2003) *Conservation Management Note 9 – Photographic Monitoring*.
- NSW Scientific Committee (2011) *NSW Scientific Committee Final Determination for the Subtropical Coastal Floodplain Forest of the New South Wales Coast Bioregion*.
Website: <https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2008-2010/subtropical-coastal-floodplain-forest-minor-amendment-determination>
Accessed: February 2022.
- Office of Environment and Heritage (2011) *NSW Threat Abatement Plan For Predation by The Red Fox (Vulpes vulpes)*.
- Richards, G.C. (2001) *An Assessment of the Bat Fauna at the proposed Bowens road North Project, via Stratford, New South Wales*. Appendix FC of Stratford Coal Pty Ltd (2001) *Bowens Road North Project Environmental Impact Statement*.
- Strahan, R. (Ed.) (2004) *The Mammals of Australia*. Published by Reed New Holland.
- Stratford Coal Pty Ltd (1994a) *Flora*. Appendix 8.1 of Stratford Coal Pty Ltd (1994) *Stratford Coal Project Environmental Impact Statement*.
- Stratford Coal Pty Ltd (1994b) *Terrestrial Fauna*. Appendix 8.1 of Stratford Coal Pty Ltd (1994) *Stratford Coal Project Environmental Impact Statement*.
- Stratford Coal Pty Ltd (2010) *Bowens Road North Open Cut – June 2010 Modification Environmental Assessment*
- Stratford Coal Pty Ltd (2012) *Stratford Extension Project Environmental Impact Statement*.
Website: www.stratfordcoal.com.au

ATTACHMENT 1
RECORD OF CONSULTATION WITH BCD

Our ref: DOC22/241657-3

Your ref: SSD-4966

Mr Michael Plain

Environment and Community Superintendent
Stratford Coal Limited
michael.plain@yancoal.com.au

Dear Mr Plain

Stratford Mining Complex (SSD-4966) – Review of revised Biodiversity Management Plan

I refer to the request on the Major Project Planning Portal dated 17 March 2022 in which the Planning and Assessment Division (P&A) of the Department of Planning and Environment (the Department) invited Biodiversity and Conservation Division (BCD) to provide advice in relation to the revised Biodiversity Management Plan (BMP) for the Stratford Mining Complex.

BCD has reviewed the revised BMP and notes that mining activities are authorised to be carried out until 31 December 2025. BCD recommends that the following changes are made to the BMP:

- 1) Update the 'Table of Contents' to include page numbers for the 'List of Tables', 'List of Plates' and 'List of Figures'.
- 2) Update Figure 3 'Biodiversity Offset Areas and Biodiversity Enhancement Areas' – the legend has transposed the offset areas with the biodiversity enhancement areas.
- 3) Update Figure 4 'Vegetation Types' by:
 - a) Adding the Biometric Vegetation Type Code to each vegetation community. It is currently missing for vegetation zones 1, 3, 5, 7 and 11, and
 - b) Change the shades of brown used in the colour ramp for Wet Sclerophyll Forest types as they are too similar. Choose colours and patterns that make all vegetation communities easy to see and identify on the map.
- 4) Update Section 3.1 'Vegetation Communities' to include the Biometric Vegetation Code (as shown in Figure 4, e.g. HU651, HU642 and HU644) and match each vegetation community to the current vegetation classification of 'Plant Community Types' ('PCT'), as provided in the BioNet Vegetation Classification database [<https://www.environment.nsw.gov.au/NSWVCA20PRapp/LoginPR.aspx>]: PCTs are the current classification and are linked to threatened species and their habitat in BioNet.
- 5) Add a section to state that the vegetation communities shown in Figure 10 'Bowens Road North Offset Area' are from the Plant Community Types Classification, and thus differ from the Biometric Vegetation Type classification used for Figure 4 and the vegetation zone numbers in Figure 4 and 10 do not correlate.
- 6) Add a section to describe the climate at the site, including average monthly minimum and maximum temperatures, and average monthly rainfall and the average annual rainfall. Include details of any recent extreme events that may have affected rehabilitation in the biodiversity enhancement areas or vegetation in the biodiversity offset areas.
- 7) Update Section 3.2.1.3 'Threatened Flora and Communities' to state that since the Flora Assessment Report prepared for Stratford Coal Pty Limited by FloraSearch (2012) was published, when no threatened plant species were known from the mine site that three threatened plants have since been found in the offset area: Craven Grey Box (*Eucalyptus largeana*), Scrub Turpentine (*Rhodamnia rubescens*) and Magenta Lily Pilly (*Syzygium*

paniculatum) (based on an assessment of BioNet records on 24 March 2022). Include a Table, Like Table 6 'Habitat in the Offset Area for Threatened Fauna Species' for threatened plants now known to be in the offset areas, and

- 8) Update Section 3.2.2.2 'Threatened Flora and Communities' to state that since the Flora Assessment Report prepared for Stratford Coal Pty Limited by FloraSearch (2012) was published, when no threatened plant species were known from the habitat enhancement areas, that Craven Grey Box (*Eucalyptus largeana*) has since been found in the habitat enhancement area. Include a new table, like Table 7 'Threatened Fauna Recorded within the Biodiversity Enhancement Area' for threatened plant species since recorded in the habitat enhancement area.
- 9) Include a map, like Figure 8 'Threatened Amphibians and Bats', to show the location of current threatened flora records on the Stratford Mining Complex.
- 10) Update Table 13 'Revegetation and Regeneration Performance and Completion Criteria' to include a check of the flora composition and structure at monitoring sites within the revegetation areas. Discuss in the Annual Reviews how the floristic composition and structure of revegetation compares against mature examples of the targeted vegetation communities within the local area. Develop completion criteria that demonstrate when revegetation is self-sustaining and has a canopy species density commensurate with the density of the targeted vegetation community.
- 11) Update Section 5.10 'Nest boxes' to include a requirement to replace damaged nest boxes when they are no longer able to be used by the targeted species.
- 12) Section 5.11 'Glider Poles' – Include details of how many glider poles have been added to the Biodiversity Enhancement Area and show their location on a map.
- 13) Update Section 7.1.2 'Photo Monitoring' to state that at each photo monitoring site that details of the three dominant native canopy species, native shrubs, native groundcover species and the three most common weeds will be recorded at each site, and that information presented with each set of photos in the Annual Report. Provide a table in the BMP with the name of each photo monitoring site, and their eastings and northings. Show their location on a map in the BMP.
- 14) Revise Section 7.1.3 'Habitat and Vegetation Condition Monitoring' to include a table that presents the name of each monitoring site, its eastings, northings, the vegetation community it occurs within, and the management activities at the site. Include a map that shows their locations.
- 15) Provide indicative groundcover species to the revegetation mixes in Table A1 'Indicative Revegetation Species List – Management Zone A'

If you have any further questions in relation to this matter, please contact Robert Gibson, Senior Regional Biodiversity Conservation Officer, on 4927 3154 or via email at huntercentralcoast@environment.nsw.gov.au

Yours sincerely



STEVEN CRICK
Senior Team Leader Planning
Hunter Central Coast Branch
Biodiversity and Conservation Division

29 March 2022

ATTACHMENT 2
DPE LETTER OF APPROVAL OF BMP

John Cullen
Operations Manager
Stratford Coal Pty Ltd
3364 Bucketts Way South
Stratford, NSW 2422

24/02/2023

Subject: **Biodiversity Management Plan for Stratford Extension Project (SSD-4966)**

Dear Mr. Cullen,

I refer to the Biodiversity Management Plan submitted in accordance with Schedule 3, Condition 39 of the Development Consent for the Stratford Extension Project (SSD-4966).

I note the revision of the Biodiversity Management Plan has been prepared in consultation with Biodiversity and Conservation Science division.

The Department has carefully reviewed the document and is satisfied that it generally meets the requirements of the relevant conditions in consent (SSD-4966).

Accordingly, as nominee of the Planning Secretary, I approve the Biodiversity Management Plan (Revision 3, February 2023).

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Scotney Moore, on 02 9274 6342.

Yours sincerely



Wayne Jones
Team Leader - Post Approval
Resource Assessments

As nominee of the Planning Secretary

APPENDIX A

INDICATIVE REVEGETATION SPECIES LIST – MANAGEMENT ZONE A

Table A1 identifies the indicative list of flora species which will be used in the proposed revegetation works within Management Zone A. The species list has been generated based on the key species identified within the common communities mapped within the SMC extent and the proposed Biodiversity Offset Areas. This includes the *Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast* and the *Grey Box – Forest Red Gum – Grey Ironbark open forest of the hinterland ranges of the North Coast* (FloraSearch, 2012).

Table A1
Indicative Revegetation Species List – Management Zone A

Scientific Name	Common Name
Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast	
<i>Overstory Layer</i>	
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Corymbia maculata</i>	Spotted Gum
<i>Eucalyptus carnea</i>	Thick-leafed Mahogany
<i>Eucalyptus globoide</i>	White Stringybark
<i>Eucalyptus moluccana</i>	Grey Box
<i>Eucalyptus siderophloia</i>	Grey Ironbark
<i>Shrub Layer</i>	
<i>Acacia ulicifolia</i>	Prickly Moses
<i>Breynia cernua</i>	-
<i>Exocarpos cupressiformis</i>	Native Cherry
<i>Leucopogon juniperinus</i>	Prickly Beard-heath
<i>Melaleuca nodosa</i>	Prickly-leaved Paperbark
<i>Pultenaea villosa</i>	Hairy Bush-pea
Grey Box – Forest Red Gum – Grey Ironbark open forest of the hinterland ranges of the North Coast	
<i>Overstory Layer</i>	
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Angophora subvelutina</i>	Broad-leafed Apple
<i>Corymbia maculata</i>	Spotted Gum
<i>Eucalyptus carnea</i>	Thick-leafed Mahogany
<i>Eucalyptus globoide</i>	White Stringybark
<i>Eucalyptus moluccana</i>	Grey Box
<i>Eucalyptus siderophloia</i>	Grey Ironbark
<i>Eucalyptus tereticornis</i>	Forest Red Gum
<i>Shrub Layer</i>	
<i>Breynia cernua</i>	-
<i>Acacia implexa</i>	Hickory Wattle
<i>Acacia irrorata</i>	Green Wattle
<i>Acacia maidenii</i>	Maiden's Wattle
<i>Podolobium ilicifolium</i>	Prickly Shaggy Pea

Source: FloraSearch (2012)

APPENDIX B

**INDICATIVE REVEGETATION SPECIES LIST – CABBAGE GUM OPEN FOREST OR WOODLAND ON THE
FLATS OF THE NORTH COAST AND NEW ENGLAND TABLELANDS – MANAGEMENT ZONE A3**

Table B1 identifies the list of flora species in the NSW Scientific Committee's (2011) Final Determination for *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion' endangered ecological community* which will be used in the proposed revegetation works. Note, not all species will be included in the revegetation works.

Table B1
Flora Species List – Cabbage Gum Open Forest or Woodland on the Flats of the North Coast and New England Tablelands

Species	FloraSearch (2011)	AMBS (2011a)
<i>Acacia concurrens</i>	-	-
<i>Allocasuarina torulosa</i>	A,B,C	E
<i>Angophora paludosa</i>	-	-
<i>Angophora woodsiana</i>	-	-
<i>Brachychiton populneus subsp. populneus</i>	A,B	E
<i>Brunoniella australis</i>	A,B	E
<i>Callistemon viminalis</i>	-	-
<i>Casuarina cunninghamiana subsp. cunninghamiana</i>	A,B,C	E
<i>Centella asiatica</i>	A,B	E
<i>Cissus hypoglauca</i>	A,B	E
<i>Commersonia bartramia</i>	-	-
<i>Cordyline congesta</i>	-	-
<i>Cupaniopsis anacardioides</i>	-	-
<i>Cymbidium suave</i>	B,D	E
<i>Cyperus enervis</i>	B	E
<i>Desmodium varians</i>	A,B	E
<i>Dianella longifolia</i>	-	E
<i>Dichondra repens</i>	A,B,D	-
<i>Drypetes australasica</i>	-	-
<i>Elaeocarpus reticulatus</i>	B	
<i>Entolasia stricta</i>	A,B,C,D	E
<i>Eucalyptus acmeniodes</i>	-	-
<i>Eucalyptus moluccana</i>	B,C,D	E
<i>Eucalyptus resinifera subsp. hemilampra</i>	A,B,D	E
<i>Eucalyptus seeana</i>	-	-
<i>Eucalyptus tereticornis</i>	A,B,C	E
<i>Ficus macrophylla subsp. macrophylla</i>	B	
<i>Ficus superba var. henneana</i>	-	-
<i>Gahnia clarkei</i>	B	E
<i>Glochidion ferdinandii</i>	-	-
<i>Hardenbergia violacea</i>	A,B,C,D	E
<i>Hibiscus diversifolius</i>	-	-
<i>Hovea acutifolia</i>	-	-
<i>Kennedia rubicunda</i>	B,C	E
<i>Laxmannia gracilis</i>	B	E
<i>Lomandra longifolia</i>	A,B,C,D	E
<i>Lophostemon suaveolens</i>	-	-

Table B1 (Continued)
Flora Species List – Cabbage Gum Open Forest or Woodland on the Flats of the North Coast and New England Tablelands

Species	FloraSearch (2011)	AMBS (2011a)
<i>Mallotus philippensis</i>	A,C	-
<i>Melaleuca decora</i>	A,B,C,D	-
<i>Microlaena stipoides</i> var. <i>stipoides</i>	A,B,D	E
<i>Notelaea longifolia</i>	A,B	E
<i>Oplismenus imbecillis</i>	A,B	E
<i>Parsonsia straminea</i>	A,B,C	E
<i>Pittosporum revolutum</i>	B,D	E
<i>Pteridium esculentum</i>	A,B,C	E
<i>Smilax australis</i>	A,B	E
<i>Stephania japonica</i> var. <i>discolor</i>	A,B	E
<i>Tricoryne elatior</i>	A,B	E
<i>Viola hederacea</i>	B,D	E
<i>Alphitonia excelsa</i>	A,B,C	E
<i>Angophora subvelutina</i>	A,B,D	E
<i>Aristida vagans</i>	A,B	E
<i>Breynia oblongifolia</i>	A,B,C	E
<i>Callistemon salignus</i>	A,B	E
<i>Commelina cyanea</i>	A,B	E
<i>Commersonia fraseri</i>	B	
<i>Cymbopogon refractus</i>	A,B	E
<i>Desmodium rhytidophyllum</i>	A,B,D	E
<i>Dichelachne micrantha</i>	A,B,D	E
<i>Digitaria parviflora</i>	A,B	E
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	A,B,C,D	E
<i>Entolasia marginata</i>	A,B,D	E
<i>Eragrostis leptostachya</i>	A,B,D	E
<i>Eucalyptus propinqua</i>	B,C	E
<i>Eucalyptus siderophloia</i>	A,B,C	E
<i>Eustrephus latifolius</i>	A,B,C	E
<i>Gahnia aspera</i>	B	-
<i>Geitonoplesium cymosum</i>	A,B,C	E
<i>Glycine clandestina</i>	A,B,C,D	E
<i>Hibbertia scandens</i>	A,B	E
<i>Imperata cylindrica</i> var. <i>major</i>	A,B,D	E
<i>Lomandra filiformis</i>	-	E
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	B,C	E
<i>Maclura cochinchinensis</i>	A,B	E
<i>Melaleuca nodosa</i>	B,C,D	E
<i>Melaleuca styphelioides</i>	A,B	E
<i>Morinda jasminoides</i>	A,B	E
<i>Oplismenus aemulus</i>	A,B	E

Table B1 (Continued)
Flora Species List – Cabbage Gum Open Forest or Woodland on the Flats of the North Coast and New England Tablelands

Species	FloraSearch (2011)	AMBS (2011a)
<i>Panicum simile</i>	A,B,D	E
<i>Persoonia stradbrogensis</i>	A,D	E
<i>Pimelea linifolia</i>	A,B,C,D	E
<i>Pratia purpurascens</i>	A,D	E
<i>Smilax glycyphylla</i>	B	-
<i>Themeda australis</i>	A,B,C,D	E
<i>Vernonia cinerea</i>	B,D	E

A FloraSearch (2011) *Stratford Extension Project Flora Assessment*.

B Ecobiological (2011) *Flora and Fauna Survey Report: Stratford Coal mine, Gloucester, New South Wales*. Report to Gloucester Coal Pty. Ltd

C AGC Woodward-Clyde (1994) *Stratford Coal Project: Environmental Impact Statement*. Prepared for Stratford Coal Pty. Ltd.

D Dowling, W. (2001) *Bowens Road North Project. Flora Survey and Assessment*. Report to Stratford Coal Pty. Ltd.

E Australian Museum Business Services (2011) *Stratford Baseline Flora Report*.

APPENDIX C

REVEGETATION SPECIES LIST - SQUIRREL GLIDER FEED TREES/SHRUBS – MANAGEMENT ZONE A1

Table C1
Revegetation Species List - Squirrel Glider Feed Trees/Shrubs

Scientific Name	Common Name	Known Habitat	Flowering Times*
Fast Growing Mid-storey Plant Species			
<i>Acacia irrorata</i> Sieber ex Spreng. subsp. <i>irrorata</i>	Blueskin	A, C	November-January
<i>Acacia leiocalyx</i> (Domin) Pedley subsp. <i>leiocalyx</i>	Curracabah	B	June–October
Canopy Tree Species			
<i>Corymbia maculata</i> (Hook.) K.D.Hill & L.A.S.Johnson	Spotted Gum	C, D	Winter
<i>Eucalyptus amplifolia</i> Naudin subsp. <i>amplifolia</i>	Cabbage Gum	A	August-September
<i>Eucalyptus crebra</i> F.Muell.	Narrow-leaved Ironbark	B	Late autumn to spring
<i>Eucalyptus fibrosa</i> F.Muell.	Red Ironbark	D	Winter
<i>Eucalyptus microcorys</i> F.Muell.	Tallowood	B	July-November
<i>Eucalyptus moluccana</i> Roxb.	Grey Box	A	March - May
<i>Eucalyptus resinifera</i> Smith subsp. <i>resinifera</i>	Red Mahogany	A, B	October-February
<i>Eucalyptus siderophloia</i> Benth.	Grey Ironbark	A,B, C	Winter-Early Summer
<i>Eucalyptus tereticornis</i> Sm.	Forest Red Gum	B, C, D	Winter
<i>Lophostemon confertus</i> (R.Br.) Peter G.Wilson & J.T.Waterh.	Brush Box	B	October–December

* PlantNet

A CSIRO (1998) *Feeding behaviour of the Squirrel Glider at Nungawalbin Nature Reserve, north-eastern New South Wales*, Wildlife Research, 25, 243 – 254.

B Rowston et. Al (2001) Habitat preferences of squirrel gliders, *Petaurus norfolcensis*, in the fragmented landscape of southeast Queensland, Forest Ecology and management, 164, 197-209

C Smith, A and Murray, M (2003) Habitat requirements of the Squirrel Glider (*Petaurus norfolcensis*) and associated posums and gliders on the New South Wales central coast, CSIRO Publishing, 30, 291 – 301.

D Quinn, DG (1995) Population ecology of the Squirrel Glider (*Petaurus norfolcensis*) and the sugar glider (*P.breviceps*) at Limebeurners Creek, on the central north coast of New South Wales. Widl. Res. 22, 471 -505.