

# ANNUAL COMPLIANCE REPORT

# WOOLOOGA SOLAR FARM, LOWER WONGA (EPBC 2019/8 554)

PREPARED FOR: LIGHTSOURCE BP





01/06/2022 Job Number: 273 Evolve Environmental Solutions Pty. Ltd.

bp

# Document Control

Document Name: Annual Compliance Report - Woolooga Solar Farm, Lower Wonga, Queensland.

### Document Issue

Issue	Date	Prepared By	Checked By
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### Declaration of Accuracy

In making this declaration, I am aware that sections 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed:	A. How
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# 1 Introduction & Purpose

**Evolve Environmental Solutions Pty Ltd** (Evolve) was engaged by **Lightscource BP** (LSbp) to undertake the implementation and management of a Biodiversity Offset Management Plan (OMP) as developed by RPS for the Woolooga Solar Farm: Stage 1 Lower Wonga, Qld (EPBC 2019/8554).

This Annual Compliance Report (ACR) has been prepared by Evolve to provide evidence that the LSbp has complied with the conditions under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) when conducting the Project.

### 1.1 Reporting Period

This ACR details the status and compliance of the Project for the 12-month reporting period between 19 April 2021 to 19 April 2022. The commencement of action is the 19<sup>th</sup> April 2021, based on Carruthers mobilizing to site for the road upgrades scope of work (Refer **Appendix 1** for weekly PCL report from 19<sup>th</sup> April to 23<sup>rd</sup> April 2021).

### 1.2 EPBC Approval

LSbp was issued with an approval by the Department on the  $19^{th of}$  February 2021, subject to conditions.

Key details related to EPBC 2019/8554 are provided in Table 1.

Commonwealth Beforence	
	EPBC 2019/8554
Project Name	Woolooga Solar Farm, Lower Wonga,
	Queensland
Approval Holder	Lightsource Development Services Australia Pty
	Ltd
ABN	26 623 301 799
Approved Action	Construct and operate a photo-voltaic (PV)
	solar facility including solar arrays, switch yards,
	battery storage, control building, car park area
	and ancillary infrastructure with a capacity of
	up to 176 megawatt (MW) on various lots at
	Lower Wonga, approximately 25 km north-west
	of Gympie Queensland
Controlling Provision(s)	Listed Threatened Species and Communities
Controlling Provision(s)	Listed Infeatened Species and Communities
	(sections 18 & 18A)
Approval Date	19 February 2021
Expiry Date of the Approval	5 March 2051
Date Commencement of the Action	19 April 2021
Address	Woolooga 1 - Lot 158 LX327, Lots 159 and 90
	SP237339 and Lot 157 LX2424; Woolooga 2 Site
	B - Lot 157 on LX2424: and Woolooga 2 Site A -
	Lot 232 on LX2383 and Lot 107 on LX562
Local Government Area	Cympie Regional Council

Table 1: Approval Details



### 1.3 Project location

The project is located in South-East Queensland, approximately 25 km north-west of Gympie, Queensland. The Woolooga Solar Farm offset is located across part of Lot 157 on LX2424, and part of Lot 90 and Lot 159 on SP237 on Wide Bay Highway, Lower Wonga.

### 1.4 Objectives of the Offset

In accordance with the EPBC Act approval, the following outcomes are to be achieved through the implementation of the OMP:

- Maintain and improve Koala and Grey-headed Flying-fox habitat across the Offset site;
- Regenerate remnant zones and revegetate non-remnant zones within the Offset site;
- Ensure quality of remnant vegetation is maintained through implementing an appropriately designed Vegetation Management Plan;
- Implement adaptive management techniques to ensure effective ecological outcomes. These will include applying milestone targets and monitoring programs tailored to each management action; and
- Undertake Annual Compliance Report (ACR). The ACR will outline how implementation, management and achievements contribute towards accomplishing the performance and completion criteria

# 2 Approved Documentation (EPBC)

Approved documents under the EPBC Approval include:

- Biodiversity Management Plan V1.5 21 June 2021
- Offsets Management Plan V8.0 21 June 2021.

Following approval of BMP V1.4 (29 January 2021) and OMP V4.0 (20 January 2021), these plans were updated to reflect minor changes in the layout. Refer to attached correspondence to DAWE dated 24/06/2021 and acknowledgement from DAWE dated 25/06/2021 (Refer **Appendix 2**).

### 3 Status of Project

### 3.1 Construction Status

### Table 2: Construction Milestones

Milestone	Status
Public Road Upgrades	Completed
Clearing and Grubbing	Completed
Fencing	99% completed
Pile/Tracker/Module Installation	In progress
Electrical Installation	In progress (Switchgear Landing Completed)
Civil & Siteworks	Erosion & Sediment Control: Not yet constructed APZ/Firebreak: Completed Grading (Cut/Fill) – 98% completed Internal Roads – 90% completed PCU foundation - Completed
Weather Station	50% completed
O&M Building	Not yet constructed



### 3.2 Offset Status

### Table 3: Offset Milestones

Milestone	Status
Access and fencing management assessment	Completed / ongoing: General inspections are undertaken on the Offset site quarterly to identify any potential issues that may require remedial action
Weed monitoring and assessment – survey	Baseline has been completed as per the conditions of approval
Habitat management (condition) - survey	Baseline Completed
Revegetation assessment (EMZ 2) – plantings	Completed February 2022
Pest management baseline survey	Completed
Bushfire management planning and assessment baseline	Completed
Offsets Management Plan – Annual Compliance Reporting (ACR)	This Document - Completed
Revisions of Offset Management Plan	No Revisions Required at this stage
Voluntary declaration	Declaration made on 24 January 2022
Project meetings and monthly reporting	Completed/ ongoing
Meetings or Audits with Government	Currently not requested
Koala crossing poles	Due in June 2022
Weed management	Continuing
Fire trails and track maintenance and burns	Installation of 90% of tracks complete



# 4 EPBC Conditions and Compliance

Table 4 documents the compliance with the EPBC Act conditions for the Project for Year 1 reporting period, being 19 April 2021 to 19 April 2022.

Table 4: Compliance Audit of EPBC 2019/8554 Conditions for the Project	
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No.	Condition	Compliance	Evidence/comments		
Part A	Part A - Development area				
1	The approval holder must not clear more than 176 ha of Koala habitat and 83.38 ha of Grey-headed Flying-fox foraging habitat within the development area; and must confine any clearing of Koala habitat to the areas shaded in hatched green identifying Koala habitat, as shown in Attachment A; and any clearing of Grey-headed Flying-fox foraging habitat to the areas shaded in hatched blue identifying Grey-headed Flying-fox habitat, as shown in Attachment B.	Compliant	172.2 ha of Koala habitat (confined to areas shaded in hatched green identifying Koala habitat, Attachment A in approval), and 79.8 ha of GHFF foraging habitat (confined to areas shaded in hatched blue, Attachment B in approval) has been cleared. Evolve conducted a site inspection on the 20 <sup>th</sup> of May 2022 and can confirm the areas for retention have not been cleared of habitat. Refer <b>Plan 1</b> .		
2	For the protection of the Koala and the Grey-headed Flying-fox at the develop	ment area, the appro	oval holder must:		
2 (a)	Ensure that a fauna spotter/catcher is present during all clearing and construction activities and given sufficient authority to ensure that such activities do not cause injury or death of Koalas or Grey-headed Flying-foxes;	Compliant	<ul> <li>PCL – Construction site <ul> <li>A fauna spotter/catcher was present during all clearing</li> <li>and construction activities between 14 June 2021 to 3</li> <li>September 2021. Refer Appendix 3 – Confirmation of</li> <li>Koala Spotter, and FSC pre and post clearance reports</li> <li>from AWEC.</li> </ul> </li> <li>Evolve - Environmental Offset site <ul> <li>A fauna spotter/catcher was present during clearing and</li> <li>construction events occurring between 6 and 15</li> <li>September 2021. No fauna was captured, injured or killed</li> <li>in the course of clearing works. Refer Appendix 4 - Spotter</li> </ul> </li> </ul>		



No.	Condition	Compliance	Evidence/comments
2 (b)	Clear in accordance with the Nature Conservation (Koala) Conservation Plan	Compliant	Clearing occurred between 14 June 2021 and 1 October
	2017 approved under the Nature Conservation Act 1992 (Qld) so as to allow		2021. Refer <b>Appendix 5</b> - Revised Project Program. The
	Koalas to safely move out of clearing area and into connected areas of Koala		weekly reports from PCL show evidence of sequential
	habitat, and implement all provisions for sequential clearing		clearing over this time, with the progress status of clearing
			and grubbing provided (Refer <b>Appendix 6</b> ).
	(Note: As we are located in koala District B the following apply- )		
			The PCL Clearing & Grubbing procedure included outlines
	Part 3 Clearing in particular areas		the progression that clearing progressed (less than 3 ha or
	10 Sequential clearing in koala district A or B		3 percent per 24 hours was cleared). Thus it is considered
	1. A person clearing koala habitat trees in koala district A or koala		that clearing was carried out in accordance with the
	district B must ensure the cleaning is carried out in a way that		conditioned clearing sequencing procedure (Refer
	Maximum popalty _ 120 popalty units		Appendix 7).
	(2) This section applies in addition to any other requirement applying		As stated above, evidence of fauna spotter/catcher
	to the clearing under an Act		nesent at all times during clearing is provided in
	(3) In this section— sequential clearing conditions means all of the		Annendix 3 and 4
	following conditions — [s 11] Nature Conservation (Koala)		
	Conservation Plan 2017		
	(a) clearing of the koala habitat trees is carried out in a way that		
	ensures koalas on the area being cleared (the clearing site) have		
	enough time to move out of the clearing site without human		
	intervention, including, in particular, for clearing sites with an area		
	of more than 3ha, by— (i) carrying out the clearing in stages; and (ii)		
	ensuring not more than the following is cleared in any 1 stage—		
	(A) for a clearing site with an area of 6ha or less—50% of the site's		
	area;		
	(B) for a clearing site with an area of more than 6ha—3ha or 3% of		
	the site's area, whichever is the greater; and		
	(iii) ensuring that between each stage and the next there is at least 1		
	period of 12 hours starting at 6p.m. on a day and ending at 6a.m. on		
	the following day during which no trees are cleared on the site;		
	(b) clearing of the koala habitat trees is carried out in a way that		
	ensures, while the clearing is carried out, appropriate habitat links		
	are maintained within the clearing site and between the site and its		



No.	Condition	Compliance	Evidence/comments
	adjacent area, to allow koalas living on the site to move out of the site; (c) no koala habitat tree in which a koala is present, and no koala habitat tree with a crown overlapping a tree in which a koala is present, is cleared.		
	And		
	<ul> <li>Koala spotter needed for clearing in koala habitat area <ul> <li>(1) This section applies to a person clearing, in a koala habitat area, koala habitat trees having a trunk of a diameter of more than 10cm at 1.3m above the ground.</li> <li>(2) The person must ensure the clearing is carried out in the presence of a koala spotter who has the primary role of locating koalas in the trees for the person.</li> <li>Maximum penalty—120 penalty units.</li> <li>(3) This section applies in addition to any other requirement applying to the clearing under an Act.</li> <li>(4) In this section— koala spotter means a person who has qualifications and experience, or demonstrated skills and knowledge, in— <ul> <li>(a) locating koalas in koala habitats; or</li> <li>(b) conducting arboreal fauna surveys.</li> </ul> </li> </ul></li></ul>		
2 (c)	Install temporary Koala exclusion fencing around any area of construction work, immediately after clearing and prior to the commencement of construction in that area, so as to prevent Koalas entering any area where construction is taking place. The Koala exclusion fencing around any construction area must remain in place until construction activities within that fenced construction area are completed;	Compliant	Installation of temporary koala exclusion fencing around any area of construction is evidenced by the Daily Progress Reports (DPR's) and Weekly Reports issued to LSbp from PCL (Refer <b>Appendix 6</b> ). In addition, example photos of temporary installation (Refer <b>Appendix 8</b> ) illustrate temporary measures installed post clearing but prior to construction works (demolition of the existing houses). The final koala exclusion fence plan (rev. 6) is provided in <b>Appendix 8</b> and also displayed in <b>Plan 2</b> .

No.	Condition	Compliance	Evidence/comments
2 (d)	Implement measures to prevent domestic and feral dogs from entering the development area and adjacent Koala habitat during clearing and construction to minimise the risk to Koalas of predation by domestic and feral dogs at the development area and within the riparian corridor. Such measures must include (but are not limited to) prohibition of anyone bringing domestic dogs into the development area and adjacent Koala habitat;	Compliant	PCL completes safety and environmental inspections as part of their overall obligations for the Project and HSE obligations. The Project HSE plan has been included which outlines PCL's requirements related to environmental inspections, as well as an inspection checklist template. This includes inspections of the perimeter to ensure it is secure from access by feral and domestic animals, including dogs (Refer <b>Appendix 9</b> ). Specific to feral animal management, the offset baseline was completed in the appropriate timing and pest management activities are occur on the perimeter of the site. Perimeter fencing has been installed to secure the site.
2 (e)	Implement traffic calming measures and ensure that the speed of all vehicles on construction roads in the development area is no greater than 40 km/h at any time (except in an emergency) so as to minimise the risk to Koala of vehicle strike; and	Compliant	A Traffic Management Plan that includes calming measures and ensures that the speed limits are maintained below 40km/h is updated daily and issued to the project site (Refer <b>Appendix 10</b> - Traffic Plan 12-4- 2022). Road signs on the project site ensure that speed limits are maintained below 20km/h (Refer to Photo Plate 2 and 3 within <b>Appendix 11</b> – Site Photos)
2 (f)	Construct roads consistent with Queensland's fauna sensitive road design guidelines to minimise the risks to Koalas of vehicle strike. In particular, on roads flanking the riparian corridor or adjacent Koala habitat or waterways, or which cross waterways, safe fauna movement solutions, fauna exclusion/koala proof fencing and local traffic management measures must be implemented in accordance with Queensland's Koala-sensitive Design Guideline.	Compliant	As this only applies to the road upgrades undertaken on the public road network, the road upgrade designs for the site access points on the northern sites have been provided in <b>Appendix 12</b> - JJR-1200312A-Site 1 Combined) The area where the road was completed was entirely devoid of vegetation/outside a Koala Habitat Area. The road is a minor road and therefore will have a speed limit of 50km/hr. This is considered compliant with the Queensland's Koala-sensitive Design Guideline.



No.	Condition	Compliance	Evidence/comments
3 3 (a)	For the on-going protection and rehabilitation of Koala habitat and Grey-head Retain and manage at least 17.68 ha of native vegetation within the riparian corridor:	led Flying-fox foraging Compliant	Koala Exclusion fencing has been installed in between the offset and impact sites to mitigate Koala entry. Small sections on the fencing are earthed to protected from electrical shock as per other conditions of approval of the solar farm, and these areas would make up approximately 1% of the fencing. Some sections of fencing around the demolition areas are in the final stages of completion. habitat in the riparian corridor, the approval holder must: Evolve conducted a site Audit on the 20 <sup>th</sup> of May 2022, which found the waterway/riparian areas to be intact as
			ner the condition and <b>Plan 1</b> .
3 (b)	Prohibit construction and operational activities from impacting the native vegetation and habitat values in the <b>riparian corridor</b> ;	Compliant	Bunting has been used on the project site to ensure construction and operational activities do not impact native vegetation and habitat values in the riparian corridor. Aerial drone photos of the project site show the bunting delineating the no-go zones (Refer <b>Appendix 13</b> ), and site audit photos show the no-go zones in place (Refer Photo Plates 4 and 5 within <b>Appendix 11</b> ). The no go zones are included in the induction slides all workers complete prior to starting work on the site (Refer <b>Appendix 13</b> ).
3 (c)	Construct any watercourse crossings in accordance with Accepted Development Requirements for Operational Work that is Constructing or Raising Waterway Barrier Works;	Compliant	Evolve's site audit revealed that culverts on the construction site appear to be in accordance with the DAF Fisheries permits, which are located in <b>Appendix 14</b> . Also refer to <b>Appendix 11</b> for site photos from the site audit, specifically Photo Plates 9-30 and 33-40, and the locations of these culverts within <b>Plan 3</b> .



No.	Condition	Compliance	Evidence/comments
3 (d)	Prior to and during construction, effectively delineate areas where construction is prohibited, using measures including erecting fauna friendly fencing, flagging, bunting, para-webbing or similar, and ensure all workers are aware this is a no-go zone;	Compliant	Bunting has been used on the project site prior to and during construction to indicate areas where construction is prohibited. Aerial drone photos of the project site show the bunting delineating the no-go zones (Refer <b>Appendix</b> <b>13</b> ), and site audit photos show the no-go zones in place (Refer Photo Plates 4 and 5 within <b>Appendix 11</b> ). The no go zones are included in the induction slides all workers complete prior to starting work on the site (Refer <b>Appendix 13</b> ).
3 (e)	During construction and operation, ensure weed control is undertaken as specified in the Biodiversity Management Plan; and	Partial Compliance	In accordance with the BMP, vehicles and equipment entering site have provided a Weed Hygiene Declaration form and have been issued a Weed and Certificate when the equipment/vehicles have been sprayed (Refer <b>Appendix 15</b> for a selection of the Weed Hygiene declarations). During the site audit, Evolve could not find an evidence of any weed management other than slashing of the site area. The drone photo within <b>Appendix 15</b> also shows the slashing that has occurred.
3 (f)	Prevent any sheep access to the riparian corridor, including erecting and maintaining fauna friendly stock exclusion fencing.	Compliant	LSbp confirmed the last livestock vacated the site on 4 May 2021. Based on landholder (LSbp) accounts, the land was destocked prior to the date the titles were transferred.
Part B -	Environmental Offset Requirements		
4	To compensate for the clearing of up to 176 ha of Koala habitat and 83.38 ha	of Grey-headed Flying	g-fox foraging habitat, the approval holder must:
4 (a)	Commence management activities at the Woolooga Offset Site prior to undertaking any clearing at the development area;	Compliant	Management activities in the form of Bushfire trails planning and baselines assessment commenced in the month of May 2021. Clearing and grubbing on the impact site did not occur until June 2021. Therefore, this condition is considered to be compliant.

No.	Condition	Compliance	Evidence/comments
4 (b)	Legally secure at least 196.42 ha of land at the Woolooga Offset Site by the end of year 1; and	Compliant	Legal security was made on 24 January 2022 via a voluntary declaration with the Department of Resources (Refer <b>Appendix 16</b> ).
4 (c)	Within 20 business days of legally securing at least 196.42 ha of land at the Woolooga Offset Site, provide the Department with written evidence demonstrating that the Woolooga Offset Site has been legally secured (e.g. legal security documentation), and shapefiles of the offset attributes.	Compliant	Written evidence of legal security was provided to the department on 8 February 2022, and confirmation that the department received this documentation is attached (Refer <b>Appendix 16</b> ).
Part C -	Baseline survey information		
5	By the end of year 1, the approval holder must complete baseline surveys of the entire Woolooga Offset Site. The baseline surveys must be conducted by a suitably qualified field ecologist in accordance with a scientifically valid, robust, and repeatable methodology, and include the following:	Compliant	Section 5 of this report details the results of the baseline surveys completed by suitably qualified field ecologists at Evolve Environmental Solutions (Evolve), and by a contractor, Invasive Plant and Animal Services (IPAS) by the end of year 1.
5 (a)	Detailed baseline habitat quality assessment data for each Environmental Management Zone;	Compliant	As above, Refer Section 5.
5 (b)	The vegetation condition attributes for each Regional Ecosystem present;	Compliant	As above, Refer Section 5.
5 (c)	The number and condition of Grey-headed Flying-fox winter or spring	Compliant	As above, Refer Section 5.
	flowering foraging species present;		
5 (d)	The Species Stocking Rate;	Compliant	As above, Refer Section 5.
5 (e)	The extent of weed cover;	Compliant	As above, Refer Section 5.
5 (f)	The number of non-native predators and non-native herbivores across, and where possible surrounding, the Woolooga Offset Site;	Compliant	As above, Refer Section 5.
5 (g)	The number of Koala mortalities attributable to non-native predators; and	Compliant	As above, Refer Section 5.
5 (h)	The baseline conditions in respect of each of the outcomes specified in conditions 7-12.	Compliant	As above, Refer Section 5.
6	Within three (3) months after the end of year 1, the approval holder must publish on its website a report containing all survey data (including survey methodology and dates) from the baseline surveys required under condition 6 including a program to monitor and report on progress against the ecological outcomes specified in conditions 7-12. A copy of this information and evidence of the date of publication on the website must be provided to the Department within 3 months after the end of year 1.	Compliant	This report containing all survey data from baseline surveys will be published by 5 <sup>th</sup> June 2022 (within 3 months after the end of Year 1)
Part D -	Pest and weed management		



No.	Condition	Compliance	Evidence/comments
7	The approval holder must achieve a 90% or greater reduction in the number	Not applicable	This condition falls outside of the scope of the current
	of non-native predators and non-native herbivores by the end of year 5,		reporting period.
	relative to the numbers identified during the baseline surveys conducted in		
	year 1, and ensure that the number of non-native predators and non-native		
	herbivores are then maintained at, or reduced below, the year 5 numbers		
	for the remaining period of effect of this approval.		
8	The approval holder must ensure the extent of weed cover across the whole V	Voolooga Offset Site i	S:
8 (a)	Less than 20% by the end of year 5; and	Not applicable	This condition falls outside of the scope of the current
			reporting period.
8 (b)	Less than 5% by the end of year 10, and then maintained at 5% or less for	Not applicable	This condition falls outside of the scope of the current
	the remaining period of effect of this approval.		reporting period.
Part E -	Stock exclusion		
9	For the protection of Koala habitat and Grey-headed Flying-fox habitat, the	Not Applicable	Stock exclusion fencing has already been installed prior to
	approval holder must demonstrate to the Department by the end of year 1		the commencement of the offset action. Fencing to keep
	that fauna friendly stock exclusion fencing has been installed around the		out cattle must be four strand barbed wire or it only result
	entire perimeter of the Woolooga Offset Site. The approval holder must		in Cattle incursion. Neighbours to the offset site were not
	ensure that the fauna friendly stock exclusion fencing is maintained so as to		in favour of fencing that was not barbed, and thus Part F
	be effective in excluding stock and effective for its designed purpose, and		Condition 10 was utilised.
	that no stock enter the offset site, for the period of effect of the approval.		
Part F -	Barbed wire visibility		
10	For the protection of the Koala (and Koala habitat) and the Grey-headed	Compliant	This action was commenced and completed in January
	Flying-fox (and Greyheaded Flying-fox foraging habitat), by the end of year 1		2022 (Refer <b>Appendix 17</b> ). Visibility tags were affixed to
	the approval holder must increase the visibility to fauna of perimeter		the top of the perimeter barb-wired fencing at 30 cm
	barbed-wire fencing (if used), including by affixing durable visibility tags at		intervals (Refer Photo Plate 1 within <b>Appendix 11</b> ).
	every 30 cm interval along the top strand of any perimeter barbed-wire		
	tencing.		
Part G -	Habitat Quality Improvement		
11	The approval holder must achieve the following outcomes in the Woolooga Of	ffset Site (intact):	
11 (a)	An average recruitment of woody perennial species in the ecologically	Not applicable	This condition falls outside of the scope of the current
	dominant layer greater than 75% of the benchmark for relevant Regional		reporting period.
	Ecosystems present by the end of year 5, and subsequently maintain or		
	exceed this outcome for the remainder of the period of effect of the		
	approval;		
11 (b)	By the end of year 5, the number of large trees greater than 100% of the	Not applicable	This condition falls outside of the scope of the current
	benchmark for relevant Regional Ecosystems present and subsequently		reporting period.





No.	Condition	Compliance	Evidence/comments
	maintain or exceed this outcome for the remainder of the period of effect of the approval;		
11 (c)	Tree canopy height greater than 70% of the benchmark for relevant Regional Ecosystems present and subsequently maintain or exceed this outcome for the remainder of the period of effect of the approval; 5	Not applicable	This condition falls outside of the scope of the current reporting period.
11 (d)	An average tree canopy cover maintained at between greater than 50% and less than 200% of the benchmark for relevant Regional Ecosystems and subsequently maintain or exceed this outcome for the remainder of the period of effect of the approval;	Not applicable	This condition falls outside of the scope of the current reporting period.
11 (e)	An increase, relative to the baseline habitat quality assessment data, in Koala usage by the end of year 5, and subsequently maintain or exceed this outcome for the remainder of the period of effect of the approval; and	Not applicable	This condition falls outside of the scope of the current reporting period.
11 (f)	An average of at least 5 different Grey-Headed Flying-fox winter or spring flowering foraging species present per hectare by the end of year 5, and subsequently maintain or exceed this outcome for the remainder of the period of effect of the approval.	Not applicable	This condition falls outside of the scope of the current reporting period.
Part H -	Habitat creation		
12	The approval holder must achieve the following outcomes in the Woolooga O	ffset Site (regen):	
12 (a)	Recreate the relevant pre-clearing Regional Ecosystem, as identified in the baseline survey, required under condition 6;	Compliant	Plantings were specific to the relevant pre-clearing RE bioregion (Refer <b>Appendix 18</b> - Tubestock invoices)
12 (b)	Complete all planting of 86.7 ha of new Koala Habitat and Grey-headed Flying-fox foraging habitat by the end of year 1;	Compliant	All planting was completed in December 2021 (Refer <b>Appendix 18</b> - Progress Report, and Tubestock invoices)
12 (c)	Average recruitment of woody perennial species in the ecologically dominant layer greater than 20% of the benchmark for relevant Regional Ecosystems present, by the end of year 5;	Not applicable	This condition falls outside of the scope of the current reporting period.
12 (d)	Average recruitment of woody perennial species in the ecologically dominant layer at greater than 75% of the benchmark for relevant Regional Ecosystems present, by the end of year 10, and subsequently maintain or exceed that rate of recruitment for the remainder of the period of effect of the approval;	Not applicable	This condition falls outside of the scope of the current reporting period.
12 (e)	The number of large trees at least 25% of the benchmark for relevant Regional Ecosystems present, by the end of year 10;	Not applicable	This condition falls outside of the scope of the current reporting period.



No.	Condition	Compliance	Evidence/comments
12 (f)	The number of large trees at least 50% of the benchmark for relevant Regional Ecosystems present, by the end of year 20 and this proportion subsequently maintained or exceeded for the remainder of the period of effect of the approval;	Not applicable	This condition falls outside of the scope of the current reporting period.
12 (g)	Average tree canopy cover greater than 10% of the benchmark for relevant Regional Ecosystems present, by the end of year 10, and subsequently maintain or exceed 10% of the benchmark for relevant Regional Ecosystems for the remainder of the period of effect of the approval;	Not applicable	This condition falls outside of the scope of the current reporting period.
12 (h)	Average tree canopy height greater than 25% of the benchmark for relevant Regional Ecosystems present at the site, by the end of year 10, and subsequently maintain or exceed that tree canopy height for the remainder of the period of effect of the approval;	Not applicable	This condition falls outside of the scope of the current reporting period.
12 (i)	An increase, relative to the baseline habitat quality assessment data, in Koala usage by the end of year 5, and subsequently maintain or exceed this outcome for the remainder of the period of effect of the approval; and	Not applicable	This condition falls outside of the scope of the current reporting period.
12 (j)	An average of at least 5 different Grey-headed Flying-fox winter or spring flowering foraging species present in each assessment plot by the end of year 10, and subsequently maintain or exceed this diversity of foraging species for the remainder of the period of effect of the approval.	Not applicable	This condition falls outside of the scope of the current reporting period.
13	The approval holder must engage a suitably qualified field ecologist to undertake an assessment, at the end of each of year 5, year 10, year 15, and year 20, as to whether each outcome required under conditions 7-12 has been, or is likely to be, achieved in accordance with the condition requirements, and provide advice of any circumstance/s which they consider is/are affecting the achievement of each outcome. The findings of each assessment must be documented and published on the website within 3 months of the end of the particular period of which the assessment is undertaken and be provided to the Department within 5 business days of being published.	Not applicable	This condition falls outside of the scope of the current reporting period.
14	If, at any time during the period of effect of the approval, the Minister is not satisfied that any of the requirements and/or outcomes under the conditions of approval, including (but not limited to) conditions 7-12, have been or are likely to be achieved or maintained, <b>the Minister may require the approval holder to submit a corrective action plan</b> for the Woolooga Offset Site for the Minister's approval, or to monitor, manage, avoid,	Not applicable	This condition is not applicable. The Minister has not required the approval holder to submit a corrective action plan.



Condition	Compliance	Evidence/comments
mitigate, offset, record and/or report on, impacts to the Koala and/or the		
Grey-neaded Flying-lox.		
The Minister may set a timeframe in which the corrective action plan must	Not applicable	This condition is not applicable.
be submitted and suitable for approval, may require that the corrective		
action plan be prepared and/or reviewed by a suitably qualified		The Minister has not required the approval holder to
action plan be prepared and/or reviewed by a suitably qualified		The Minister has not required the approval holder to
independent expert and may specify consequences for the approval holder		submit a corrective action plan.
if the corrective action plan is not suitable for approval within the specified		
timeframe.		
The approval holder must implement the corrective action plan approved by	Not applicable	This condition is not applicable.
the Minister in writing.		
		The Minister has not required the approval holder to
		submit a corrective action plan
	Condition mitigate, offset, record and/or report on, impacts to the Koala and/or the Grey-headed Flying-fox. The Minister may set a timeframe in which the corrective action plan must be submitted and suitable for approval, may require that the corrective action plan be prepared and/or reviewed by a suitably qualified independent expert and may specify consequences for the approval holder if the corrective action plan is not suitable for approval within the specified timeframe. The approval holder must implement the corrective action plan approved by the Minister in writing.	ConditionCompliancemitigate, offset, record and/or report on, impacts to the Koala and/or the Grey-headed Flying-fox.The Minister may set a timeframe in which the corrective action plan must be submitted and suitable for approval, may require that the corrective action plan be prepared and/or reviewed by a suitably qualified independent expert and may specify consequences for the approval holder if the corrective action plan is not suitable for approval within the specified timeframe.Not applicableThe approval holder must implement the corrective action plan approved by the Minister in writing.Not applicable



# Plan 1. Koala and GHFF Habitat Impact



# Project Area Offset Area GHFF habitat impact areas (79.8 ha) Koala habitat impact areas (172.2 ha) Ν

0 70 140

Legend

280

420

Coordinate System: GDA 1994 MGA Zone 56 Projection: Transverse Mercator

560



# Plan 3. Site Audit - observation points



Issue	Date	Description	Drawn	Checked
В	1/06/2022	Revised	AL	AH

# 5 Baseline Surveys and Monitoring

Condition 5 of the EPBC requires baseline surveys of the entire Woolooga offset site to be completed by the end of Year 1. The following sections detail the results of the baseline survey's completed by suitably qualified field ecologists at **Evolve Environmental Solutions (Evolve)**, and by a contractor, **Invasive Plant and Animal Services (IPAS)**.

### 5.1 Climatic conditions

Weather conditions for these assessment dates are provided below in Table 5.

 Table 5: Weather conditions during site surveys (Source: www.bom.gov.au).
 Observations have been drawn from Gympie

 {station 040093} where available, data entries indicated by a \* have been drawn from Tin Can Bay {station 140010}.

Date	Day	Min Temp (°C)	Max Temp (°C)	Relative Humidity	Rainfall (mm)	hPa
04/05/2021	Tuesday	12.8	26.8	96%	0.2	1017.6
05/05/2021	Wednesday	15.2	22.4	100%	1.8	1012.7
06/05/2021	Thursday	8.7	24.3	71%	4.2*	1011.0
07/05/2021	Friday	11.2	25.6	71%	0	1009.8
08/05/2021	Saturday	11.3	28.4	78%	0*	1013.0
09/05/2021	Sunday	12.6	26.7	94%	0*	1015.2
10/05/2021	Monday	14.0	28.7	100%	0	1014.0
11/05/2021	Tuesday	16.3	28.5	89%	0	1014.9
12/05/2021	Wednesday	17.8	28.8	95%	1.6	1012.8
13/05/2021	Thursday	16.5	26.9	93%	7.2	1010.3
14/05/2021	Friday	9.1	25.3	55%	0	1011.6
15/05/2021	Saturday	5.2	24.6	83%	0	1012.4
16/05/2021	Sunday	7.5	21.3	51%	0	1017.8
17/05/2021	Monday	8.9*	24.5	80%	0*	1019.1
18/05/2021	Tuesday	11.9*	23.0	78%	0*	1023.5
19/05/2021	Wednesday	12.6	22.0	79%	0	1024.2
20/05/2021	Thursday	8.2	24.4	82%	1.4	1023.1
21/05/2021	Friday	7.4	23.7	80%	0	1022.0

Date	Day	Min Temp (°C)	Max Temp (°C)	Relative Humidity	Rainfall (mm)	hPa
06/09/2021	Monday	11.8	22.4	40%	0.2	1020.0
07/09/2021	Tuesday	4.7	24.2	37%	0	1024.0
08/09/2021	Wednesday	3.0	24.5	60%	0	1026.9
09/09/2021	Thursday	8.1	24.8	75%	0	1025.9
13/09/2021	Monday	17.0	32.1	65%	0	1009.6
14/09/2021	Tuesday	10.2	23.5	36%	11.2	1014.4
15/09/2021	Wednesday	4.0	24.8	50%	0	1016.4
17/11/2021	Wednesday	16.3	27.7	74%	0	1020.0
18/11/2021	Thursday	17.1	27.3	64%	0	1021.3



### 5.2 Survey effort and methodology

Refer to **Plan 4 to 6** for the field survey effort across the site (Vegetation, Fauna and Weeds), and the following table (**Table 6**) highlighting survey effort and survey methodology.

### Table 6: Survey Methodology and Effort Summary

Method	Survey Effort	Survey methodology
Night spotlighting	Six hours of spotlighting was conducted	Each survey involved the observers walking slowly and systematically through the survey site, or via a driven
	on the nights 18 <sup>th</sup> – 21st May (two hours	transect. This technique involves focusing on tree canopies, and detecting eye shine.
	each night between 1800 and 2000)	
Scat meanders and SAT	Scat searches within the offset site were	These surveys were undertaken on-site in accordance with the methodology developed by the Australian Koala
survey	conducted by two ecologists from 4 <sup>th-</sup> 7 <sup>th</sup> May	Foundation (as per Phillips & Callaghan 2011) and specified in the <i>EPBC Act Referral Guidelines for the Vulnerable Koala</i> (DoE 2014).
		Scat meanders searching for evidence of koala presence were carried out across the offset site. The SAT involves identifying a non-juvenile tree of any species within the site that is either observed to have a Koala or scats, or is known to be a food tree or otherwise important for Koalas, and recording any evidence of Koala usage of that tree including presence, identifiable scratches or scats. The nearest non-juvenile tree is then identified and the same data recorded. The next closest non-juvenile tree to the first tree is then assessed and so on until 30 trees have been surveyed.
		The number of trees showing evidence of Koala activity is expressed as a percentage of the total number of trees sampled to indicate the frequency of Koala usage. Assessment of each tree involves a systematic search for Koala scats beneath the tree within one metre radius of the trunk. After approximately two person minutes of searching for scats, the base of the trunk is observed for scratches and the crown for Koala.
Camera trapping	14 un-baited motion activated cameras were deployed 4 <sup>th</sup> -21 <sup>st</sup> May. In addition, a pest contractor ( <b>Invasive</b> <b>Plant and Animal Services</b> ) was engaged to provide an independent presence/absence survey for pest	Camera trapping involves setting up a fixed digital camera to capture images or video of animals which pass in front of camera. Infrared sensing cameras with an infrared flash were deployed, which use motion to trigger. Ideally, cameras were attached 30-50cm from the ground on a tree or post. These cameras were left to record for as long as possible, but no longer than 2 weeks (a minimum of 4 nights is recommended). The programming was consistent across all cameras, and cameras were set up in a consistent manner to maintain similar detection probabilities.
	animals, namely wild dogs, feral foxes and feral cats, given that they will have the most direct impact on koalas and other native fauna. This involved deployment of an additional 17 unbaited motion activated cameras deployed since May	For inventory surveys, cameras were placed in the vicinity of an animal trail. Heavy vegetation was avoided as this can cause false triggering, and camera was aimed to avoid sun shining directly onto lens. Cameras were deployed in key locations.



Method	Survey Effort	Survey methodology
	2021, for almost a 7 month period (total of over 3500 camera trap nights).	
Audio recording	2 audiomoths were deployed $4^{th} - 21^{st}$ May.	An audio moth ecological recording device was deployed, and sampling cycle was set to one minute in every half hour with a minimum amplitude threshold of 15 needing to be met for the segment to be written to the SD card.
Trace surveys	Surveys were conducted opportunistically across 4th-7th May and 17th- 21st May.	Predator signs and scats were identified across the site, in particular along tracks and roads. These were identified in situ wherever possible, and recorded as incidentals for the survey site.
GHFF camp/roost-site search	Roost searches within the wider landscape were conducted by two ecologists from 4th- 7th May	As per the Survey guidelines for Australia's threatened bats (DEWHA 2010).
Modified Habitat Quality Assessment	23 habitat condition plots were surveyed within the offset site. Surveys were conducted across 4 <sup>th</sup> -7 <sup>th</sup> May and 17 <sup>th-</sup> 21 <sup>st</sup> May.	The offset site has been assessed using a modified version of the Queensland State Governments <i>Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy</i> Version 1.2 April 2017. This methodology has been adopted and tailored/modified to assess the impacts and offsets relating to Matters of National Environmental Significance (MNES), and in line with the methodology utilized in the <i>Offset Management Plan</i> prepared by RPS.
		To assess the habitat values according to MHQA, the Offset site was divided into Habitat Assessment Units (AUs) based on prevailing Regional ecosystems and other ecological and topographical features. Within each Habitat AU, site-based condition attributes, landscape attributes and the species habitat index were determined based on field transects, observations, and GIS analysis. The BioCondition assessment component of the Koala and GHFF habitat assessments was carried out in accordance with the methodology published in Eyre et. al. 2015.
		The traditional terrestrial habitat quality assessment assesses the three (3) core indicators—site condition, site context and species habitat index. Modified habitat quality assessment (MHQA) combines the three (3) core indicators into two (2) (site condition and site context) with Site Condition being weighted 40% of the final score and Site Context being weighted 30% of the final score. The balance of the weighting (30%) has been attributed to the third indicator which is independent of the traditional habitat quality assessment, being species stocking rate. Species stocking rates are estimates of the Koala carrying capacity of the site at the time of undertaking the survey.
		<u>GHFF Foraging Habitat Assessment</u> The offset site has been assessed using a GHFF Foraging Habitat Assessment (GHFF FHA) tool developed by the Saunders Havill Group (2019) which adopts characteristics of the Queensland State Governments "Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy" Version 1.2 April 2017, while also integrating published scientific literature on GHFF foraging habitat.
		The GHFF FHA tool combines the aspects of the three (3) core indicators and published scientific literature into two (2) (site condition and site context) with site condition being weighted with 40 % and site context weighted at 30 % of the final score. The balance of the weighting (30 %) has been attributed to the third indicator which is



Method	Survey Effort	Survey methodology
		independent of the traditional habitat quality assessment, being species stocking rate. The species stocking rate assessment incorporated in the GHFF FHA tool is focussed on 'foraging habitat' for GHFF rather than GHFF stocking rates (presence/absence of the species). This assessment of 'foraging habitat' for species stocking rate has been incorporated in the GHFF FHA tool as Grey-headed Flying-fox roosting camp or species presence was not observed on-site, however, suitable foraging habitat for the species was evident. Therefore, the density of foraging habitat available on-site is considered an appropriate assessment benchmark for species stocking rate.
Weed meanders (High Threat Weeds)	Surveys were conducted across 4th-7th May and 17th- 21st May.	Weed infestations were mapped opportunistically with the use of a handheld GPS units. Individual occurrences were marked with points and single species patch infestations delineated by a walking polygons around the infestations.
Weed monitoring plots	<ul> <li>24 weed monitoring plots were established and baseline surveys conducted across 4th-7th May and 17th-21st May.</li> <li>A 6-month monitoring event was conducted on 17<sup>th</sup> and 18<sup>th</sup> November.</li> </ul>	<ul> <li>20m x 20m weed monitoring plots were established to be representative of weed infestation across the offset site.</li> <li>23 of the weed monitoring plots were co-located with BioCondition transects to streamline field effort. One additional 20m x 20m weed monitoring plot was established to represent a unique area of weed infestation where a BioCondition transect could not be viably located (Point 24).</li> <li>For each weed monitoring plot established the following data was recorded: <ul> <li>GPS coordinate of the plots center point</li> </ul> </li> </ul>
		<ul> <li>Weed species present</li> <li>Percentage cover of each species</li> <li>Weed monitoring data will be recorded at the established sampling plots at six monthly intervals until performance criteria for the reduction of monitoring frequency to annual are met.</li> </ul>
Photo monitoring point	24 photo monitoring points were established, and photos taken 4th-7th May and 17th- 21st May.	Photo monitoring points were co-located with the centrepoints of the weed monitoring plots. Photographs were taken facing each of the cardinal coordinate locations.





# Plan 4. Field Survey Effort - Habitat Assessment Units

 Issue
 Date
 Description
 Drawn
 Checked

 B
 1/06/2022
 Revised
 AL
 AH

	Legend
	Uffset Area
	Biocondition transects
	Assessment Units
	AU1 - 12.11.6 intact (36.28 ha)
<b>A</b>	AU2 - 12.11.8 intact (45.61 ha)
500 10	AU3 - 12.11.14 and 12.3.7 intact (31.54 ha)
	AU4 - 12.11.6 regen (7.29 ha)
	AU5 - 12.11.14 and 12.3.7 regen (71.97 ha)
	AU6 - 12.11.8 regen (6.23 ha)
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8	
a de la companya de l	
	N
	0 60 120 240 360 480
	Coordinate System: GDA 1994 MGA Zone 56
	Frujection. Transverse Mercator

# Plan 5. Field Survey Effort - Fauna

\*

 $\star$ 

### Legend





### Legend



### Offset

Weed and photo monitoring plots

High threat weed specimen location

- Cats Claw Creeper
- Giant Rat's Tail Grass
- Groundsel
- Lantana camara
- Tecoma stans
- Opuntia



Coordinate System: GDA 1994 MGA Zone 56 Projection: Transverse Mercator

## 6 Baseline Survey Results

A full listing of fauna species encountered within the offset site during this reporting period is supplied in **Appendix 19**. The following sections summarise the results related to specific surveys.

### 6.1 Koala presence

One (1) koala scat was positively identified during meander surveys for koala evidence. A subsequent SAT survey of 30 trees identified no further evidence of koala presence giving a usage score of 3.33% which corresponds to "low usage" in the east Coast (med-high) Activity category (Phillips and Callaghan 2011).

Three (3) consecutive nights of spotlighting works and meanders through the offset site did not identify any Koala individuals.

With respect to the number of Koala mortalities, no koala individuals, alive or deceased, were detected on site during baseline survey. The only evidence of mortality attributable to non-native predators were the remains of a Ringtail possum (detached limb) and wallaby (jawbone fragments) during site surveys.

### 6.2 GHFF presence

Three (3) consecutive nights of spotlighting works within the offset site did not identify any GHFF.

GHFF were not found to be present at any of the flying fox roosting sites recorded in the greater landscape area (ie. Varley Road, Glenwood; Widgee Crossing Road, Gympie; Hyne Estate Road, Kadanga; Beenham Valley Road, Beenaam Valley; Yellow Belly Reserve; Cooran). One active flying fox camp was identified within the town of Gympie (Commissioner's Gully/Popes Road), however GHFF were not present at the location at the time of survey works. A resident adjacent to the Glenwood roost site indicated that flying-foxes had been present at the site approximately two weeks prior to survey works but had since moved on.

### 6.3 Pest animals

Evolve's motion sensor cameras recorded numerous fauna species, including two (2) pest species, Red fox (*Vulpes vulpes*) and the Australian dingo (*Canis familiaris dingo*). Trace evidence of the following species was located during survey works:

- Wild dog (Canis familiaris)
- Pigs (Sus scrofa)
- Deer species (Family Cervidae)

Baseline presence/absence survey undertaken by IPAS included deployment of 17 cameras across the project site, a return on investment with over 70 000 images to review. In the review of camera footage, there also appears to be no animal behaviour to depict possible camera shyness. Statistically, about 80% percent where false negative captures. A summary of the animals captured on camera by IPAS is reported below in **Table 7**.



#### Table 7: Baseline surveillance for pest animals - IPAS

Baseline presence	
<i>Felis catus</i> (Feral cat)	2-3 individuals. This project site has been most active on the central and eastern parts with feral cat activity. Spotted gum ridge tops and old fences crossing gullies are the areas most visited.
<i>Vulpes vulpes</i> (Red fox)	<ul><li>2-3 individuals.</li><li>Active fox travel ways like roads, fence lines, gullies and watering points were of the most areas visited.</li></ul>
Canis familiaris, Canis familiaris dingo (Wild dog)	Two pairs, plus 2-3 individuals. A stable resident and regular occurrence of 4 wild dogs was present continually across the site, with some noticeably larger dogs frequenting but with no set pattern, a noticeable peak in activity in Oct/Nov/Dec 2021, coinciding with natal dispersal time of young dogs as they are venturing further and possible away from there earlier home range.
<i>Sus scrofa</i> (Feral pig)	3 lone boars, and family group of 12-15. A noticeable chance in Sep 2021 with a larger mob, sows and suckers, bachelor boars and dominant boars making appearances in the Eastern gullies of the site. Old historically tree orchards are mature in size and yielding extensive fruits i.e mango trees on the western side of the project site. The extra food source of mangoes falling to the ground may be potential site visited more as the season progresses for consumption of easy available food.
<i>Cervus elaphus</i> (Red deer)	Sporadic presence in site gullies. Feral deer were generally singular, occurring in higher ridge tops and gullies. The red deer species population dynamics will possibility change (possible severe increase in numbers of deer on site) if this location has a historical local significance where red deer "stags" come to defend/acquire territory through "roaring".

# 7 Modified Habitat Quality Assessment

### 7.1 Assessment Units

The offset site has been divided into five Assessment Units (AU) by previous analysis carried out by RPS based delineation of Regional Ecosystem patches and the areas broad Vegetation Condition states.

To retain consistency with the OMP, the AUs within this report are also numbered AU1-AU5, with an additional AU (AU6) added to account for an area of RE12.11.8 vegetation within the Regeneration zone not captured within the previous baseline assessment provided by RPS.

For details of each AU and the corresponding BioCondition transects refer to **Table 8**, and **Plan 4** for the locations.





Table 8.	Assessment	Unit descr	intions and	<b>BioCondition</b>	transect allocation
Table 0.	Assessment	onit acser	iptions and	Diocontaition	transect anotation.

BVC State	Habitat Assessment Unit	Regional Ecosystem (RE)	Description	Transect Nos.	Approximate Area (ha)
Intact	AU1	RE 12.11.6	Lemon-scented gum Corymbia citriodora subsp. variegata, narrow-leaved ironbark Eucalyptus crebra woodland on metamorphics +/- interbedded volcanics	1, 2, 5, 6, 7, 8	36.28
	AU2	RE 12.11.8	Eucalyptus melanophloia and E. crebra grassy woodland on a hillside of metamorphic rock +/- interbedded volcanics	3, 4, 20, 21	45.61
	AU3	RE 12.11.14	Eucalyptus crebra, E. tereticornis, Corymbia intermedia woodland on metamorphics +/- interbedded volcanics	10, 11, 18	31.54
Regeneration zone	AU4	RE 12.11.6	Lemon-scented gum Corymbia citriodora subsp. variegata, narrow-leaved ironbark Eucalyptus crebra woodland on metamorphics +/- interbedded volcanics	23	7.29
	AU5	RE 12.11.14	Eucalyptus crebra, E. tereticornis, Corymbia intermedia woodland on metamorphics +/- interbedded volcanics	9, 12, 13, 14, 15, 16, 17, 19	71.97
	AU6	RE 12.11.8	Eucalyptus melanophloia and E. crebra grassy woodland on a hillside of metamorphic rock +/- interbedded volcanics	22	6.23



### 7.2 Baseline Koala Habitat Assessment

Site condition is assessed using a suite of attributes to describe the structure and function of the vegetation community and is benchmarked against the expected range for a relatively undisturbed community. Within each Habitat AU, site-based attributes were assessed via Biocondition Transects, and the summary of this data and the associated scores are provided within **Appendix 20**. To better incorporate MNES, two (2) species habitat index characteristics, being, 'quality and availability of food and foraging habitat' and 'quality and availability of shelters' have been added to the site condition indicator. From this data, the average scores for each AU were calculated, and are provided below in **Table 9**. The rating scale used for the extra condition characteristics are provided below this table.

Site context is measured using a suite of attributes to describe the location of the habitat within the surrounding landscape and the influence of its associated threats. This assessment also considers the influence of adjacent vegetated areas and ecological corridors. Three (3) species habitat index characteristics were nominated—'role of site location to overall species population in the state', 'threats to the species' and 'species mobility capacity'. The landscape-scale attributes were assessed for each AU, and the scores provided below in **Table 10**. Role of site location was assigned a score of 4 out of 5, due to the location of the offset site within a vegetated landscape of the Gympie region. Threat to species was assigned a score of 7 out of 15, due to the apparent risk of predation by wild dogs/dingoes. Species mobility capacity was assigned a score of 7 out of 10, due to the ability of the species to move from the site and through the surrounding landscape.

Species stocking rates are estimates of the Koala carrying capacity of the site at the time of undertaking the survey. Given the discreet nature of the Koala and limited to no published literature on habitat carrying capacity of the species, the species stocking rate scoring has been derived through the collation of site-specific surveys and surrounding contextual habitat analysis. This was similarly assessed for each AU and provided in **Table 11**. Presence detected on or adjacent to site was assigned a score of 5 out 10, due to sightings within the connected habitat. Species usage of the site was assigned 10 of 15 for intact areas, and 0 out of 15 for regeneration areas, given the evidence of koala in an intact area on site only. Approximate density and role/importance of species population on site were both assigned a score of 0, given the lack of koala individuals observed over the site.

The totals for Site Condition, Site Context, and Species Stocking Rates were added together to form a Total Habitat Quality score (out of 10). After weighting the habitat quality score by the assessment unit (AU) area, the final habitat quality score for the Offset site area (intact) was 4 and the Offset site (regeneration zones) was 3 (Refer **Table 12**).

Parameter (and weighting)	Intact			Regen	eration	zones
	AU1	AU2	AU3	AU4	AU5	AU6
Recruitment of Woody Species (/5)	2.83	2.25	3	0	1.125	0
Tree Species Richness (/5)	4.58	3.75	5	2.5	2.81	2.5
Shrub Species Richness (/5)	1.67	3.75	3.33	2.5	2.5	2.5
Grass Species Richness (/5)	2.5	2.5	4.17	2.5	2.19	2.5
Forb Species Richness (/5)	2.08	2.5	2.5	0	1.25	2.5
Tree Canopy Height (/5)	2.75	2.5	2.33	4	1.062	4
Tree Canopy Cover (/5)	2.16	1.125	2	2.5	0.25	1
Shrub Canopy Cover (/5)	0.5	0.75	3.67	3	2.625	0
Native Perennial Grass Cover (/5)	1.33	1	0.33	5	0.75	5
Organic Litter (/5)	4	3.25	2.67	3	2.625	0
Large Trees (/15)	0.83	7.5	3.33	0	0	10
Course Woody Debris (/5)	3.17	0.5	5	5	0.75	0
Non-native plant cover (/10)	4.33	1.5	3.33	5	1.375	3

### Table 9: Site Condition summary – average scores (40% weighting)



	4.66	2	2.66	2	1.5	2
Quality and availability of food and foraging habitat (/10)						
Quality and availability of shelter (/10)	4.83	3	3.99	1	0.87	3
Totals (out of 100)	42.22	37.87	47.31	38	21.68	38
Totals (out of 4)	1.69	1.51	1.89	1.52	0.87	1.52

Species Habitat Attribute	Indicator	Rating Scale
Quality and availability of	Number of non-juvenile koala habitat tree	Score 0 = 0 trees
food and foraging habitat (/10)	specimens (Eucalyptus, Corymbia,	Score 1 = 1-86
	Lophostemon, Melaleuca, Angophora or	Score 2 = 87-172
	Melaleuca quinquenervia) per hectare	Score 3 = 173-258
		Score 4 = 259-344
		Score 5 = 345-430
Quality and availability of	Number of non-juvenile koala habitat tree	Score 0 = 0 trees
shelter (/10)	specimens (Eucalyptus, Corymbia,	Score 1 = 1-86
	Lophostemon, Melaleuca, Angophora,	Score 2 = 87-172
	Melaleuca quinquenervia) per hectare	Score 3 = 173-258
		Score 4 = 259-344
		Score 5 = 345-430
	Average Tree Canopy Cover	Score 0 = 0%
		Score 1 = 1-12
		Score 2 = 13-24
		Score 3 = 25-36
		Score 4 = 37-48
		Score 5 = 49-60

### Table 10: Site Context summary (30% weighting)

Parameter (and weighting)	Intact			Regeneration zones		
	AU1	AU2	AU3	AU4	AU5	AU6
Size of patch (/10)	10	10	10	10	10	10
Connectedness (/5)	5	5	2	5	5	5
Context (/5)	5	5	4	5	4	5
Ecological corridors (/6)	0	0	0	0	0	0
Threats to the Species (/15)	7	7	7	7	7	7
Species Mobility Capacity (/10)	7	7	7	7	7	7
Role of site location to species overall	4	4	4	4	4	4
population in the state (/5)						
Totals (out of 56)	38	38	34	38	37	38
Totals (out of 3)	2.04	2.04	1.82	2.04	1.98	2.04

### Table 11: Species Stocking Rate summary (30% weighting)

Parameter (and weighting)	Intact			Regeneration zones		
	AU1	AU2	AU3	AU4	AU5	AU6
Presence detected on or adjacent to site (neighbouring property with connecting habitat) (/10)	5	5	5	5	5	5
Species usage of the site (habitat type & evidenced usage) (/15)	10	10	10	0	0	0
Approximate density (per ha) (/30)	0	0	0	0	0	0
Role/importance of species population on site (/25)	0	0	0	0	0	0
Totals (out of 70)	15	15	15	5	5	5
Totals (out of 3)	0.64	0.64	0.64	0.214	0.214	0.214



#### Table 12: Final Koala Habitat Scores

Parameter (and weighting)	Intact Regene				ration zones	
	AU1	AU2	AU3	AU4	AU5	AU6
Site Condition /4	1.69	1.51	1.89	1.52	0.87	1.52
Site Context /3	2.04	2.04	1.82	2.04	1.98	2.04
Species Stocking Rate /3	0.64	0.64	0.64	0.214	0.214	0.214
Total Habitat Assessment /10	4.37	4.19	4.35	3.774	3.064	3.774
Approximate Area (ha)	36.28	45.61	31.54	7.29	71.97	6.23
Weighting	0.320	0.402	0.278	0.085	0.842	0.073
Weighted Habitat Assessment Total	1.40	1.68	1.21	0.32	2.58	0.28
Total weighted scores combined	4.29 (rounded to a 4) 3.18 (rounded to			o a 3)		

### 7.3 Baseline Grey Headed Flying Fox (GHFF) Foraging Habitat Assessment

For on-ground assessment purposes, the 100 m X 20 m plots utilised for the GHFF FHA overlap with the on-ground condition characteristics of the Koala MHQA. The stem counts within each plot are provided within **Appendix 20**, and the flower scores used have been included within the table for each tree species. Baseline values for the Timing of Biological Shortages parameter were determined for each Regional Ecosystem based upon it's expected species composition in its undisturbed remnant state. A table of calculations for the assignment of this score is also provided in **Appendix 20**. From this data, the scores for each AU were calculated, and are provided below in **Table 13**. The rating scale used for the condition characteristics are provided below this table.

The landscape-scale attributes were assessed for each AU, and the scores provided below in **Table 14**, and the rating scales used provided below this table.

Species stocking rate for GHFF is related to the density of GHFF foraging habitat at the site at the time of undertaking the survey (Refer **Table 15**).

The totals for Site Condition, Site Context, and Species Stocking Rates were added together to form a Total Habitat Quality score (out of 10). After weighting the habitat quality score by the assessment unit (AU) area, the final habitat quality score for the Offset site area (intact) was 4 and the Offset site (regeneration zones) was 3 (Refer **Table 16**).

Parameter (and weighting)	Intact			Regeneration zones			
	AU1	AU2	AU3	AU4	AU5	AU6	
Vegetation condition (/20)	10	10	10	5	5	5	
Canopy tree species richness (/20)	20	20	20	5	20	5	
Flower scores (average) (/10)	5	5	5	5	5	5	
Timing of biological shortages (/10)	9.531	10	8.961	3.163	7.680	5.562	
Quality of foraging habitat (trees >0.65 wt p*r) (/20)	10	10	5	5	5	5	
Non-native plant cover (/20)	5	1	5	10	1	5	
Totals (out of 100)	59.531	56	53.961	33.163	43.680	30.562	
Totals (out of 4)	2.381	2.24	2.158	1.327	1.747	1.222	

Table 13: Site Condition summary - GHFF (40% weighting)

Attribute	Rating Scale
Vegetation Condition (/20)	Score 5 = Category X / non-remnant
	Score 10 = Category C / regrowth
	Score 20 = Category B / remnant
Species Richness (/20)	Score 0 = 0 GHFF foraging species
	Score 5 = 1 – 3 GHFF foraging species
	Score 10 = 4 – 6 GHFF foraging species
	Score 20 = > 6 GHFF foraging species



Attribute	Rating Scale
Flower Score (average) (/10)	Score 2 = 0.01 – 0.25
	Score 5 = 0.26 – 0.50
	Score 8 = 0.51 – 0.75
	Score 10 = 0.76 – 1.00
Timing of Biological Shortages (/10)	Score 2.5 = Food Shortages
	Score 1.5 = Pregnancy and Birthing
	Score 1.5 = Lactation
	Score 1.5 = Mating and conception
	Score 1.5 = Migration paths
	Score 1.5 = Fruit industries
	Total (/10) – Combine total of above
Quality of Foraging Habitat (trees	Score 0 = 0 significant GHFF foraging tree species
>0.65 wt p*r) (/20)	Score 5 = 1 – 3 significant GHFF foraging tree species
	Score 10 = 4 – 6 significant GHFF foraging tree species
	Score 20 = > 6 significant GHFF foraging tree species
Non-Native Plant Cover (/20)	Score 1 = > 50 % non-native plant cover
	Score 5 = 25 – 50 % non-native plant cover
	Score 10 = 5 – 25 % non-native plant cover
	Score 20 = < 5 % non-native plant cover

### Table 14: Site Context summary - GHFF (30% weighting)

Parameter (and weighting)	Intact			Regeneration zones		
	AU1	AU2	AU3	AU4	AU5	AU6
Size of patch (/10)	10	10	10	10	10	10
Connectedness (active camps within 20km radius) (/10)	0	0	0	0	0	0
Context (% GHFF foraging habitat within 20km radius) (/10)	6	6	6	6	6	6
Ecological corridors (/10)	0	0	0	0	0	0
Role of site location to species overall	0	0	0	0	0	0
population in the state (active GHFF national flying-fox						
monitoring viewer 'level 3' roost camps in a 20 km radius)						
(/10)						
Threats to the Species (/10)	1	1	1	1	1	1
Totals (out of 60)	17	17	17	17	17	17
Totals (out of 3)	0.85	0.85	0.85	0.85	0.85	0.85

Attribute	Rating Scale
Size of Patch (/10)	Score 0 = < 5 hectares
	Score 2 = 5 – 25 hectares
	Score 5 = 26 – 100 hectares
	Score 7 = 101 – 200 hectares
	Score 10 = > 200 hectares
Connectedness (/10)	Score 0 = < 1 active Grey-headed Flying-fox camp within a 20 km radius
	Score 3 = 1 – 3 active Grey-headed Flying-fox camp within a 20 km radius
	Score 6 = 4 – 6 active Grey-headed Flying-fox camp within a 20 km radius
	Score 10 = > 6 active Grey-headed Flying-fox camp within a 20 km radius
Context (/10)	Score 0 = < 10 % Grey-headed Flying-fox foraging habitat within a 20 km radius
	Score 3 = 10 – 30 % Grey-headed Flying-fox foraging habitat within a 20 km radius
	Score 6 = 31 – 75 % Grey-headed Flying-fox foraging habitat within a 20 km radius
	Score 10 = > 75 % Grey-headed Flying-fox foraging habitat within a 20 km radius
Ecological corridors (/10)	Score 0 = Not within an ecological corridor
	Score 6 = Sharing a common boundary with an ecological corridor
	Score 10 = Within an ecological corridor
Role of site location to species overall	Score 0 = < 1 active level 3 Grey-headed Flying-fox camp within a 20 km radius
population in the state (/10)	Score 5 = 1 – 3 active level 3 Grey-headed Flying-fox camp within a 20 km radius
	Score 10 = > 3 active level 3 Grey-headed Flying-fox camp within a 20 km radius
Threats to the Species (/10)	Score 1 = High level threat to the species
	Score 5 = Moderate level threat to the species
	Score 10 = Low level threat to the species

### Table 15: Species Stocking Rate summary – GHFF (30% weighting)

Parameter (and weighting)	Intact			Regeneration zones			
	AU1	AU2	AU3	AU4	AU5	AU6	
			1	•	1		





Foraging Tree Density per ha (out of 10)	4.66	2.5	2.66	2	1.75	2
Totals (out of 3)	1.398	0.75	0.798	0.6	0.525	0.6

#### Table 16: Final GHFF Habitat Scores

Parameter (and weighting)	Intact			Regeneration zones			
	AU3	AU4	AU5	AU6	AU7	AU8	
Site Condition /4	2.381	2.24	2.158	1.327	1.747	1.222	
Site Context /3	0.85	0.85	0.85	0.85	0.85	0.85	
Species Stocking Rate /3	1.398	0.75	0.798	0.6	0.525	0.6	
Total Habitat Assessment /10	4.63	3.84	3.81	2.78	3.12	2.67	
Approximate Area (ha)	36.28	45.61	31.54	7.29	71.97	6.23	
Weighting	0.320	0.402	0.278	0.085	0.842	0.073	
Weighted Habitat Assessment Total	1.48	1.54	1.06	0.24	2.63	0.19	
Total weighted scores combined	4.08 (r	ounded	to a 4)	3.06 rounded to a 3)			

### 8 Weed Surveys

### 8.1 Mapping of High Threat Weeds

Mapping of High Threat Weeds has occurred to determine the nature and threat of HTWs to be targeted in weed management. The locations of HTW identified during weed meanders across the offset site between the 4th and 21st of May are shown in **Plan 6**.

It was noted that infestation of High Threat Weed's (HTW) is unevenly distributed across the offset site. A higher concentration of Giant Rat's Tail (GRT) was occurred on Lot 157 as compared to the other land parcels within the offset. A higher proportion of Yellow Bells (*Tecoma stans*) were noted in gully areas, and Lantana (*Lantana camara*) infestations are scattered across the site, albeit occurring in higher density in gullies.

### 8.2 Weed Monitoring Plots

Monitoring plots were established, generally in association with the Biocondition transect locations (Refer **Plan 4**), and two (2) weed monitoring events have occurred since the commencement of the project. Data for each of the weed monitoring plots is provided in **Appendix 21**, with photos at each monitoring point provided in **Appendix 22**.

Across the twenty-four (24) 20 x 20m weed monitoring plots, thirty-three (33) different introduced flora species were recorded in the first occasion with total weed coverage within individual monitoring plots varying between 7% and 100%. Forty-five (45) introduced species were recorded by the second monitoring event, reflective of seasonally wetter weather with a weed coverage range of 3.1% to 97.5%. The box and whisker plots in **Figure 1** highlight the differences in the data distribution and medians between monitoring event 1 and 2.

Four of the recorded weed species; *Lantana camara, Opuntia stricata, Sporobolus sp.* and *Tecoma stans* are Category 3, falling within the OMPs definition of Hight Threat Weeds (HTW). Approximately 16% of the total weed cover recorded within the offset site was contributed by these species at weed monitoring event 1, and 11% at weed monitoring event 2.

The species with the greatest coverage across all of the monitoring plots in both monitoring instances was *Melinis repens*, accounting for 29% and 36% of the weed cover recorded across the offset site on respective occasions.










# 9 Appendix

- Appendix 1 Commencement of Action Weekly PCL report
- Appendix 2 Correspondence with DAWE OMP and BMP updates
- Appendix 3 Confirmation of Koala Spotter, and FSC pre and post clearance reports AWEC
- Appendix 4 FSC pre and post clearance reports Evolve
- Appendix 5 Revised Project Program
- Appendix 6 Sequential Clearing Weekly PCL Reports
- Appendix 7 Clearing and Grubbing Procedure
- Appendix 8 Final Koala Exclusion Fencing Plan and photos of temporary fencing
- Appendix 9 Project HSE plan and Inspection Checklist
- Appendix 10 Traffic Plan
- Appendix 11 Site Photos Evolve Audit
- Appendix 12 Road Upgrade Design
- Appendix 13 Delineating no-go zones Photos and Induction Slides
- Appendix 14 Waterway Barrier Works DA forms and Culvert Plan
- Appendix 15 Weed Declaration certificate and image of slashing on site
- Appendix 16 Legal security documentation
- Appendix 17 Barbed wire visibility Evolve progress report
- Appendix 18 Planting completion and planting species Evolve progress report and Tubestock invoices
- Appendix 19 Site Fauna Species List
- Appendix 20 Baseline Site Condition Data Tables
- Appendix 21 Weed Monitoring Plot Data
- Appendix 22 Photo Monitoring Points

# Appendix 1– Commencement of Action – Weekly PCL report



# WOOLOOGA Solar

# **Lightsource BP**

Weekly Report No. 6

19 April 2021 – 23 April 2021



Le out on

PCL Constructors Pacific Rim Pty Ltd L38 Olderfleet, 477 Collins Street Melbourne VIC 3000

# **1.1 CONSTRUCTION UPDATE**

	SCOPE	COMPLETED THIS WEEK	COMPLETED TO DATE	TOTAL QUANTITY	UOM	% COMPLETED
Mai	n Access Road	0	0	0	EA	0
Cle	aring and Grubbing	0	0	0	EA	0
Fen	cing					
S	Security Fence	0	0	0	LM	0
S F	Security Fence (Koala Friendly)	0	0	0	LM	0
Pile	/Tracker/Module Installat	ion				
F	Piles Installed	0	0	0	EA	0
٦	racker (Soft) Installed	0	0	0	EA	0
Ν	Iodules Installed	0	0	0	EA	0
Ele	ctrical Installation					
۵	OC Electrical Install					
	DC Trenching - Excavated	0	0	0	LM	0
	DC Trenching - Backfilled	0	0	0	LM	0
	DC Combiner	0	0	0	EA	0
	DC Harnessing	0	0	0	EA	0
A	C Electrical Install					
	AC Trenching - Excavated	0	0	0	LM	0
	AC Trenching - Backfilled	0	0	0	LM	0
	PCU Landing	0	0	0	EA	0
	PCU Termination	0	0	0	EA	0
	Switchgear Landing	0	0	0	EA	0
	Switchgear Termination	0	0	0	EA	0
F	ibre Install	0	0	0	Block	0
Civ	il & Siteworks					
E	Frosion & Sediment	0	0	0	block	0
A	APZ / Firebreak	0	0	0	LM	0
(	Grading	0	0	0	Block	0
ŀ	Access Roads	0	0	0	LM	0
F	PCU foundation	0	0	0	EA	0
Lan	dscaping	0	0	0	LM	0
Wea	ather Station	0	0	0	EA	0
0&	M Building	0	0	0	EA	0

#### 1.2 WEEKLY SUMMARY OF PROJECT PROGRESS

SUBCONTRACTOR / SUPPLIER / TRADES	DESCRIPTION OF WORKS	ISSUES ENCOUNTERED (IF ANY)
	Carruthers mobilized to site for the road upgrades scope of work.	
Subcontractor Site Visits	Pilecom completed pile probing	None.

### 1.3 CONTRACTOR MANPOWER

SUBCONTRACTOR	SCOPE OF WORK	MANHOURS
PCL	EPC	336
Carruthers	Road Upgrades	168
Pilecom	Probing	36

# 1.4 SAFETY RECORD

INCIDENT TYPE	INCIDENTS THIS PERIOD	INCIDENTS TO DATE
Major Incident	0	0
Minor Incident	0	0
Near Miss	0	0
First Aid Occurrences	0	0
Lost time injuries	0	0

# Details of Safety Reports For This Period:

None to note.

#### Safety Update:

- No incidents to note. All parties adhered to the safety procedures on site and wore the appropriate PPE to conduct the works.

#### 1.5 WEATHER

DATE		WORK STATUS	
Monday	Sunny	Low: 10.2 °C   High: 26.7 °C	N/A
Tuesday	Overcast	Low: 9.9 °C   High: 27.6 °C	N/A
Wednesday	Overcast	Low: 13.0 °C   High: 30.8 °C	N/A
Thursday	Sunny	Low: 9.1 °C   High: 23.4 °C	N/A
Friday	Sunny	Low: 10.6 °C   High: 25.4 °C	N/A

# 1.6 THIRD PARTY VISITORS (NEIGHBORS, COUNCIL, GOVERNMENT AUTHORITY, ETC.)

NAME OF VISITOR	COMPANY	AGENDA ON-SITE	DATE OF VISIT
None			

# 2.0 PROCUREMENT AND TENDER

# 2.1 TENDER STATUS

SUBCONTRACTOR	SCOPE	STATUS
Carruthers Contracting	Road Upgrades	Awarded
Aussie Environmental	Landscaping Buffer	Awarded
Ford Brothers	Security Fencing	Awarded
TBD	Clearing & Grubbing	Tendering

# 2.2 PROCUREMENT STATUS

SCOPE	CRITIC AL PATH	LEAD TIME (WEEK )	QTY	UO M	PROJECTE D DELIVERY START DATE	PROJECT ED DELIVERY FINISH DATE	ACTUAL DELIVERY START DATE	ACTUAL DELIVERY FINISH DATE
			PCL S	UPPL	IED EQUIPME	NT		
DC Cable	No							
AC Cable	Yes							
Grounding Cable	No							
Fibre Cable	No							
Combiner Boxes	Yes							
PV String Harnesses	Yes							
PCUs	No							
Switchgear Building	Yes							
Weather Station	No							

# 2.3 RECEIVED DELIVERIES

MATERIAL	PART NUMBER	QUANTITY ARRIVED ON- SITE	QUANTTY WITH DEFICIENCY	QUANTITY ACCEPTED
	EPC S	соре		
None to note.				

# 3.0 DRAWINGS/DOCUMENTS LOG

### 3.1 CRITICAL DESIGN/REPORTS LOG

DRAWING/REPORT	STATUS	INITIATED BY	SUBMITTED TO	DATE SUBMITTED
SUM-0005 – HSE Plan	In review	PCL	LSBP	29 March 21
SUM-0007 – Construction Environmental Management Plan	In review	PCL	LSBP	9 April
SUM-0008 Occupational Health and Hygiene Management Plan	In review	PCL	LSBP	9 April
SUM-0009 – Project Execution Plan	In review	PCL	LSBP	9 April
SUM-0010 – Project Quality Control Plan	In review	PCL	LSBP	9 April

#### 3.2 PERMITS

PERMIT	STATUS	DECIDING BODY	DATE SUBMITTED	DATE APPROVED
Building Permit - Fencing	Pending resolution on revised APZ line	Gympie Regional Council		
Powerlink Easement Application - Fencing	Pending resolution on revised APZ line	Powerlink		
Development Permit for Operational Works (Car Parking, Access areas, Off street parking, internal access)	Planning site setup for mobilization (parking, access roads, etc.)	Gympie Regional Council		
Development Permit for Building Works (Buildings, Site Office, Inverter, Transformer Units)	Planning site setup for mobilization (parking, access roads, etc.)	Gympie Regional Council		
Development Permit for Operational Works (Site Works)	Planning site setup for mobilization (parking, access roads, etc.)	Gympie Regional Council		
Demolition – DA Form 2 & Plumbing Permit	To be submitted by 30 April 2021	Gympie Regional Council		
Notice of re-use of existing Dwelling	To be submitted by 30 April 2021	Gympie Regional Council		
TMR Approval for Cable Crossing at Wide Bay Hwy	Awaiting final design documents	Transport and Main Roads (TMR)		
Waterway Barrier Works Permit	Under review as part of logistics planning for site mobilization	Department of Agriculture and Fisheries		

#### 3.3 CONTEMPLATED VARIATION LOG

INITIATED BY	CHANGE ORDERS	STATUS
PCL	PCL to issue RFI for confirmation of specifications for koala fencing, as per the latest BMP. Potential cost impact. Fencing layout to be confirmed to finalize scope and pricing.	Pricing

# 4.0 RFI LOG

# 4.1 NEW RFI (REQUEST FOR INFORMATION)

RFI NO.	RFI DETAILS	ASSIGNED TO	DUE DATE
0024	Harmonic Feeder / Battery Storage Requirements	LSBP	11 Feb 2021
0046	Naming Conventions	LSBP	09 Mar 2021
0048	PV Modules Specification Changes	LSBP	15 Mar 2021
0049	Powerlink Runback Requirements	LSBP	17 Mar 2021
0050	Sub-Synchronous Protection	LSBP	17 Mar 2021

# 5.1 CONTRACTOR/OWNER IDENTIFIED RISKS

RISK	SLIPPAGE TO PROJECT SCHEDULE	PCL PLAN FOR RECOVERY
Harmonic filter design	To be determined when design and subsequent requirements (Q@Night) are finalized.	

# 6.0 PHOTOGRAPHS

To be added when construction activities commence.

Appendix 2–

Correspondence with DAWE – OMP and BMP updates



From:	Hayden Beck
To:	PostApproval@awe.gov.au; jess.thomson@environment.gov.au
Cc:	Joanne Cousins; Mark Aitkens; Diana Mitchell
Subject:	EPBC 2019/8554 Woolooga Solar Farm - Offset Management Plan and Biodiversity Management Plan updates
Date:	Thursday, 24 June 2021 5:47:15 PM
Attachments:	image001.png <u>147105_Offset Managment Plan_Final_V8.0_20210624_Reduced.pdf</u> <u>Woolooga SF_BMP (consolidated)_V1.5_210624_Reduced.pdf</u> <u>147105_Consistency Assessment_2.1_HBMA_210610_Reduced.pdf</u>

Hi Post Approvals Team,

Lightsource bp were issued approval by DAWE on 19 February, 2021 for construction of a solar farm at Lower Wonga in Qld (EPBC 2019/8554).

As a result of design finalisation, the Approval Holder has required a further update to the OMP and BMP, to reflect the following minor changes in the layout:

• A new alignment for the security fence-line to allow for the final design of the solar farm; and

• Utilization of an existing access point (Lot 157 in LX2424; in the SW corner of the site).

On behalf of the Approval Holder, this email is to advise DAWE of these design changes, to provide updated versions of the OMP and BMP to reflect these design changes and to provide a consistency assessment that assessed these design changes against the *Guidance on 'new or increased impact' relating to changes to approved management plans under EPBC Act environmental approvals*. In that assessment, it was considered unlikely that these changes in design would constitute a new or increased impact.

Warm regards,

Hayden

Hayden Beck Senior Ecologist RPS | Australia Asia Pacific Unit 2A, 45 Fitzroy Street Carrington NSW 2294, Australia T +61 2 4940 4200 D +61 2 4940 4264 E hayden.beck@rpsgroup.com.au

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From:	Post Approval
To:	Hayden Beck; PostApproval@awe.gov.au; Jess Thomson
Cc:	Joanne Cousins; Mark Aitkens; Diana Mitchell
Subject:	RE: EPBC 2019/8554 Woolooga Solar Farm - Offset Management Plan and Biodiversity Management Plan updates [SEC=OFFICIAL]
Date:	Friday, 25 June 2021 10:16:59 AM
Attachments:	image002.png image003.png

Good morning Hayden,

Thank you for your email.

The department confirms receipt of the updated versions of the OMP and the BMP, attached in your email below. The changes in the revised documents have also been noted.

Kind regards,

# **Post Approvals Section**

Department of Agriculture, Water and the Environment Environment Assessments (Vic, Tas) and Post Approvals Branch | Environment Approvals Division John Gorton Building, Parkes PI, Parkes ACT 2600

www.awe.gov.au

?	

The Department acknowledges the traditional owners of the country throughout Australia and their continuing connection

to land, sea and community. We pay our respects to them and their cultures and their elders, past, present and emerging.

From: Hayden Beck <Hayden.Beck@rpsgroup.com.au>

Sent: Thursday, 24 June 2021 5:46 PM

To: PostApproval@awe.gov.au; Jess Thomson <Jess.Thomson@environment.gov.au>

**Cc:** Joanne Cousins <joanne.cousins@rpsgroup.com.au>; Mark Aitkens

<Mark.Aitkens@rpsgroup.com.au>; Diana Mitchell <diana.mitchell@lightsourcebp.com> **Subject:** EPBC 2019/8554 Woolooga Solar Farm - Offset Management Plan and Biodiversity Management Plan updates

Hi Post Approvals Team,

Lightsource bp were issued approval by DAWE on 19 February, 2021 for construction of a solar farm at Lower Wonga in Qld (EPBC 2019/8554).

As a result of design finalisation, the Approval Holder has required a further update to the OMP and BMP, to reflect the following minor changes in the layout:

• A new alignment for the security fence-line to allow for the final design of the solar farm; and

• Utilization of an existing access point (Lot 157 in LX2424; in the SW corner of the site).

On behalf of the Approval Holder, this email is to advise DAWE of these design changes, to provide updated versions of the OMP and BMP to reflect these design changes and to provide a consistency assessment that assessed these design changes against the *Guidance on 'new or increased impact' relating to changes to approved management plans under EPBC Act environmental approvals*. In that assessment, it was considered unlikely that these changes in design would constitute a new or increased impact.

Warm regards,

Hayden

#### Hayden Beck

Senior Ecologist RPS | Australia Asia Pacific Unit 2A, 45 Fitzroy Street Carrington NSW 2294, Australia **T** +61 2 4940 4200 **D** +61 2 4940 4264 **E** hayden.beck@rpsgroup.com.au



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# Appendix 3–

Confirmation of Koala Spotter, and FSC pre and post clearance reports - AWEC



# **Michaela McGinn**

From:	James Carruthers <jc@carrutherscontracting.com.au></jc@carrutherscontracting.com.au>
Sent:	Thursday, April 14, 2022 11:04 AM
То:	Michaela McGinn
Cc:	sglatimer@live.com
Subject:	WSF - Clearing

#### [External Email]

Hi Michaela,

With regards to the provision of a Fauna Spotter during the clearing works onsite. Joel Keady of Australian Wide Environmental Consultants provided a qualified Fauna Spotter during all clearing/grubbing works for the full duration.

If you require any further details please let me know.

Regards,



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66-C2205-D

# FAUNA PRE-CLEARANCE REPORT

WOOLOOGA SOLAR FARM, 1706 WIDE BAY HIGHWAY, WOOLOOGA



Prepared for client: CARRUTHERS CONTRACTING

Pre-clearance survey date: MAY2021





Document Prepared by: Australia Wide Environmental Consultants ABN 67 618 756 291 33 Ballantyne Court Glenview Queensland 4553 Australia T: 0458 293 759 E: admin@awenv.com.au

# **Revision History**

Rev. #	lssue Date	Revision Details	Prepared By	Reviewed By	Approved By
0	May 2022	For Use	Erin Monaghan	Yolande Venter	Yolande Venter
1					
2					

# **Document Approval**

Approved:	Name:	Signature:	Date:
Company Director	Yolande Venter	letter	May 2022

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# **1** INTRODUCTION

# 1.1 Background

Australia Wide Environmental Consultants (AWEC) were commissioned by Carruthers Contractors to conduct a fauna pre-clearance survey for the development of the Woolooga Solar Farm, 1706 Wide Bay Highway, Woolooga (**FIGURE 1**).

# **1.2 Ecologist and Qualifications**

The AWEC nominated Ecologist is Yolande Venter who is a degree qualified ecologist/environmental coordinator with over 15 years of field experience within the ecology and environmental sectors.

# 1.3 Scope

- A. See **TABLE 1** for a non-exhaustive list of the statutory requirements and guidelines this project adheres to.
- B. A desktop review of the site's potential ecological value and any planning constraints.
- C. A site inspection which included ground truthing the desktop review findings and a fauna survey.
- D. Management measures to control the risk to native fauna during these works.





FIGURE 1 - SITE CONTEXT



# 2 STATUTORY REQUIREMENTS AND GUIDELINES

See **TABLE 1** below for the relevant statutory requirements and guidelines.

# TABLE 1- STATUTORY REQUIREMENTS AND GUIDELINES

Legislation	Purpose of Legislation	Impact on Project personnel
Environmental Protection Regulation 2019	Gives legislative support to various national guidelines, plans and Australian Standards. This regulation also outlines requirements for the management of fauna and flora.	To abide by the regulations within the DES.
Environmental Protection and Biodiversity Conservation Act 1999	The <i>EPBC Act 1999</i> focuses Australian Government interests on the protection of matters of national environmental significance, with the states and territories having responsibility for matters of state and local significance.	To comply with the relevant sections of the Act that relate to matters of national significance which are present in the vicinity of the project works.
Nature Conservation Other Legislation Act 2016	The Act provides for the legislative protection of Queensland's threatended biota. It is aligned with the IUCN redlist which categorises biota into their current status in the wild.	To comply with the relevant sections of the Act and regulations and the Environmental Authority administered by the DES.
Nature Conservation (Wildlife) Regulation 2006	This Regulation lists the plants and animals considered presumed extinct, endangered, vulnerable, rare, common, international, and prohibited. It discusses their significance and states the declared management intent and the principles to be observed in any taking and use for each group.	List those animals that may be potentially found on sites being developed as part of the project and limitations for management.
Nature Conservation (Wildlife Management) Regulation 2006	This Regulation provides for the management of wildlife (including taking, keeping and using wildlife including protected plants).	Provides guidance for the management of wildlife on site, particularly in relation to the interference with native wildlife during the clearing process.
Nature Conservation and Other Legislation	Guideline for identifying and managing koala habitat	Provides guidance on where fauna spotter catchers are legally



Legislation	Purpose of Legislation	Impact on Project personnel
(Koala Protection) Amendment Regulation 2020		required and how they are to manage koala habitat
Animal Care and Protection Act 2001	Animal Welfare	Outlines that animal ethics approval is needed for research, survey and/or monitoring involving vertebrates, where activities such as trapping, census leading to disturbance of animals (such as spotlighting or call play- back), abnormal interruption of behaviour or marking/tagging are involved.
Australian code for the care and use of animals for scientific purposes 8 <sup>th</sup> edition (2013)	Ethical framwork for animals used for scientific purposes	Governing principles set out in the Code provide guidance for investigators, teachers, institiutions, animal ethics committees and all the people involved in the care and use of animals for scientific purposes.
Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (2018)	Guidelines for Fauna Surveys	Detailed guidelines on designing a survey, the different survey methadologies and the ethical considerations that need to be made for each methadology.
Queensland Hygiene protocol for handling amphibians	Protocol for handling amphibian species	Outlines how to handle and manage amphibian species to prevent the spread of diseases among specimens and colonies.
Code of Practice- Care and rehabilitation of orphaned, sick or injured protected animals by wildlife carers(2013)	Provides guidelines on the rehabilitation and care of wildlife	Detailed guidelines, in regards to hygiene, housing, capture and release, euthanasia and relevant legistation
Seqwater- Guideline- Fish Stranding and Salvage	The purpose of this guidance document is to ensure native fish recovery operations are conducted in a timely and safe manner to	Guideline on managing aquatic fauna during dewatering works.



Legislation	Purpose of Legislation	Impact on Project personnel
	minimise or eliminate loss of fish from stranding.	
Fisheries Act 1994	The main purpose of the <i>Fisheries</i> <i>Act 1994</i> is to provide for the use, conservation and enhancement of the community's fisheries resources and fish habitats in a way that seeks to apply the principles of ecologically sustainable development.	Outlines fish habitats and fish movement and migration (regulation of waterway barriers). Guidelines on commercial, recreational and indigenous fishing.
Biosecurity Act 2014	The <i>Biosecurity Act 2014</i> provides a framework for an effective biosecurity system for Queensland, to ensure the safety and quality of agricultural inputs, and to align responses to biosecurity risks in the state with national and international obligations.	Under the <i>Biosecurity Act 2014</i> , pest species must not be kept, fed, given away, sold, or released into the environment without a permit. Under the Biosecurity Act, everyone has a general biosecurity obligation to take reasonable and practical steps to minimise the risks associated with restricted plants and animals.
DAF Guidelines for Fish Salvage, 2018	Purpose of these guidelines is to minimise the risk to aquatic fauna during dewatering works.	These guidelines provide detailed instructions for dewatering waterbodies and slavaging aquatic fauna.

Australia Wide Environmental Consultants (AWEC) holds a current DES rehabilitation permit (**Permit #WA0027769**), with an extended authority issued by the Department of Environment and Science specifying that the holder may take, keep, or use an animal whose habitat is about to be destroyed by human activity.



# 3 METHODOLOGY

# 3.1 Desktop Review

Prior to commencing the survey, all previous surveys and management plans related to the site were reviewed, as well as extensive desktop research of the intended site.

# 3.1.1 Regulated Vegetation Management

Land clearing in Queensland is regulated under the *Land Act 1994* and the vegetation management framework. To ensure this site will not have detrimental environmental impacts to the local biodiversity appropriate vegetation mapping was downloaded from Queensland Spatial Catalogue (The State of Queensland (Department of Resources) 2021) for viewing in ArcGIS. Vegetation management regional ecosystem map – version 12 (The State of Queensland (Department of Resources) 2021) was used to establish the Regional Ecosystems (RE's) on site.

# 3.1.2 Koala Habitat Planning and Management

Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation 2020 is an overarching state planning instrument that regulates new development at the development assessment stage. The new koala planning framework is based upon scientifically based, consistent koala habitat mapping. The framework applies consistently across SEQ and establishes where clearing may be prohibited, where it is assessable by the State, where koala conservation outcomes will be considered by local governments and what exemptions may apply.

South East Queensland Koala Conservation Strategy 2019-2024 data package (Department of Environment and Science 2021) was utilised to discover the vegetation status relevant to koalas on site.

# 3.1.3 Significant Fauna Species List

A species list was collated by a suitably qualified ecologist, sourced from the Queensland Government WildNet Database (2021). This established the significant species with confirmed sighting records since 1980, within a 5 km radius of the central coordinates of the site.

The results of the desktop review allowed the survey to be designed to target the significant species most likely to be encountered within the proposed survey location. Benefits of the desktop review prior to commencing the survey included: Increased knowledge of the site by understanding;

- The overall habitat value
- Range of habitat features



- Floral structural complexity
- Available water and food sources

# 3.2 Survey Planning

The survey methodology considered the following aspects:

- Size of the survey site
- Timeframes
- Access
- Workplace Health & Safety
- EVNT Native species confirmed- terrestrial/ arboreal
- Feral species
- Complexity of potential breeding places
- Marking of potential habitat features.

The methodology used for this survey was the active diurnal search methodology incorporating a meandered pattern. This method was suitable for the large survey area with complex habitat and time constraints.

The main objective of this survey was to locate any active or potential native fauna breeding places and high value habitat features.

The extent was surveyed by a suitably qualified person.

The number of meanders completed depended on the vegetation community and the number of habitat features present within the site. During the survey, photographs of unidentified scat, tracks and signs were taken, researched, peer reviewed, and identified using the appropriate reference materials.

# 3.3 Pre-Clearance Survey

Site was surveyed by a suitably qualified ecologist in June 2021 which included ground-truthing via meandering transects.

The purpose of the survey is to record the sites overall habitat value, significant habitat features, vegetation connectivity within the site and surrounding lots, fauna signs and opportunistic fauna sightings and the site's suitability for the significant species likely to occur in the area.

A thorough aural/visual fauna survey was conducted including a systematic traverse throughout the site searching for fauna individuals and habitat features.

The following habitat features are considered significant and were recorded if observed:

- 1. Tree hollows (branch and crown)
- 2. Native wildlife nests (stick nests)



- 3. Burrows (feeding burrows)
- 4. Fallen/felled timber
- 5. Thick groundcover
- 6. Fissured bark
- 7. Rocky outcrops
- 8. Aquatic habitat
- 9. And flora species considered Koala habitat trees under the Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation 2020.

# 3.4 Fauna Survey Methods

The methods presented below were as part of the fauna field survey:

# 3.4.1 Animal Signs

Some native wildlife leave scat, tracks and scratches that can be identified and are described by Barbara Triggs (2004). These indicators should be used to provide evidence for identification without an actual physical sighting.

# 3.4.2 Diurnal Bird Survey

This non-intrusive active area search provides a census of the avian biodiversity and abundance within the survey site. This survey technique requires a skilled observer with relevant experience in local bird species and bird calls. Site transects are traversed slowly shortly after dawn when birds are most active. Avoid disturbing nesting birds during the survey.

# 3.4.3 Amphibian Survey

Systematically designed active searches should be conducted for frogs and frog calls within the site area, in addition suitable habitat such as streams, wetlands and other water bodies should be targeted.

This survey requires experienced observers to accurately identify species. The following attributes/conditions need to be recorded/adhered to:

- Length and type of area surveyed
- Time spent conducting the survey
- Weather conditions
- Avoid disturbing breeding sites
- Follow all the recommendations in the "Technical Manual, Wildlife Management, Interim hygiene protocol for handling amphibians", 2008
- Avoid handling animals where possible or minimise the time spent handling any particular animal.

All animals are to be returned to the exact location it was captured from, all animals are to be released as soon as they have been identified. If load reduction trapping of waterbodies is necessary, it will be conducted prior to dewatering.



# 3.4.4 Koala Survey

The Spot Assessment Technique was undertaken, as recommended in the *EPBC Act* Referral Guidelines for the Endangered Koala (DoE 2013). This technique involved faecal pellet searches of a 100 cm radius around selected trees at each Spot Assessment Technique site. The method applied was varied from that described in Phillips and Callaghan (2011), by randomly selecting the centre tree (from a randomly generated location) and searching under both potential food and shelter trees (i.e., not limited to trees of the *Eucalyptus, Corymbia, Angophora* or *Lophostemon* genera), based on evidence presented in Woosnam-Merchez *et al.* (2012). Note: During the fauna preclearance survey smooth bark trees were examined for scratch marks, in the event koala scratch marks were evident this assessment technique was conducted and data logged.

# 3.5 Emergency Procedures

During the trapping and construction phases it is likely that injured or sick wildlife will be encountered onsite. Local carers and veterinarians contact details should be always available. Moreover, all staff conducting trapping should be trained in the emergency first aid of native wildlife and carry the required first aid equipment to stabilise native fauna for transport and correct transportation cages. All sick and orphaned wildlife will be taken to the Australia Zoo Wildlife Hospital, 1638 Steve Irwin Way, Beerwah, **(07) 5436 2097**.



# 4 **RESULTS**

# 4.1 Desktop Review

# 4.1.1 Regulated Vegetation Management

The clearing extent is approximately 5 km2 and this lot contains non-remnant vegetation, as well as mapped Regional Ecosystems 12.11.14, 12.11.18 and 12.3.11 (FIGURE 1, TABLE 2).

# TABLE 2 - REGIONAL ECOSYSTEMS

RE	VM Act Status	Short Description
12.11.14	Of Concern	Eucalyptus crebra, E. tereticornis, Corymbia intermedia woodland on metamorphics +/- interbedded volcanics. Potential habitat for NCA listed species: <i>Cycas megacarpa</i> , <i>Macrozamia longispina</i> and <i>Coleus omissus</i> . This ecosystem is known to provide suitable habitat for koalas.
12.11.18	Least Concern	<i>Eucalyptus moluccana</i> woodland on metamorphics +/- interbedded volcanics. Potential habitat for NCA listed species: <i>Melaleuca formosa</i> . This ecosystem is known to provide suitable habitat for koalas.
12.3.11	Of Concern	Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia open forest on alluvial plains usually near coast. Potential habitat for NCA listed species: Acronychia littoralis, Alectryon ramiflorus, Arthraxon hispidus, Cupaniopsis shirleyana, Eulophia bicallosa, Gossia gonoclada, Macrozamia lomandroides, Macrozamia pauli-guilielmi, Marsdenia coronata, Maundia triglochinoides. This ecosystem is known to provide suitable habitat for koalas

# 4.1.2 Koala Habitat Planning and Management

Koala habitat mapping was not available for this region, but the above regional ecosystems were all listed as suitable habitat for koalas.

# 4.1.3 WildNet Database



This database provided a list of 6 fauna species previously recorded in the area, of which only included 1 Endangered species, the koala (TABLE 3).

# **TABLE 3- SIGNIFICANT SPECIES**

Significant fauna	Conservation status	Species/site relationship
Mammal Species		
Koala (Phascolarctos cine	rus)	
	Listed as Endangered under the Nature Conservation Act 1992 and under the Environmental Protection and Biodiversity Conservation Act 1999. 3 confirmed sightings within a 5 km radius of the site.	No individuals were sighted during the pre-clearance survey, but site does contain suitable trees. Chances of encountering during clear are moderate.

# 4.2 Survey Results

Site consisted of open grassy areas, previously cleared for farmland, with patches of eucalypt trees and some dams.

There was a total of 56 observations recorded, 40 of these were habitat features (hollows, fissured bark, woody debris, termite mounds) and 22 were fauna signs (nests, diggings and scratch marks) (**TABLE 4, FIGURE 2**). Some trees showed signs of koala scratch marks, but no individuals or scat were sighted.

There was abundant bird diversity observed, but no native mammals were observed, likely due to their nocturnal and cryptic nature (TABLE 5).

#	Туре	Description	Latitude	Longitude
1	Habitat feature	Some dead branches, fissured bark, no hollows	-26.0755105	152.4455092
2	Fauna sign	Inactive stick nest possible crow	-26.07589067	152.4454905

# **TABLE 4 - HABITAT FEATURES & FAUNA SIGNS**



#	Туре	Description	Latitude	Longitude
3	Both	Stick nest possible crow Crown hollow	-26.076169	152.445752
4	Habitat feature	Arboreal termite mound	-26.07620833	152.44569
5	Habitat feature	Crown hollow	-26.07614533	152.4460675
6	Habitat feature	Arboreal termite mound with hollowing out signs	-26.0764745	152.4463843
7	Faun sign	Old possum scratch marks	-26.07684233	152.4466722
8	Habitat feature	Termite mound in dead tree fissured bark	-26.0773415	152.4466237
9	Faun sign	Possum scratching old	-26.07727267	152.4465507
10	Habitat feature	Hollowed branches, 1 large hollow multiple smaller possibility for bats	-26.077528	152.4468292
11	Habitat feature	Arboreal termites mound some dead tree limbs	-26.07669133	152.4447848
12	Habitat feature	2 crown hollows	-26.07617167	152.4409793
13	Both	Stick nest uninhabited, fissured bark	-26.07593333	152.44106
14	Fauna sign	Stick nest	-26.07586683	152.4408355
15	Fauna sign	Stick nest inactive	-26.075733	152.4409648
16	Fauna sign	Stick nest appears inactive	-26.07658583	152.4402338
17	Fauna sign	Stick nest	-26.074509	152.4406642
18	Habitat feature	Crown hollow	-26.07419667	152.4407532
19	Habitat feature	Multiple crown hollows Dead limbs with large hollow	-26.07328683	152.4408477
20	Fauna sign	Stick nest	-26.0851815	152.4395903
21	Both	Large stick nest possible bird of prey, some dead branch hollows	-26.08569417	152.4392468
22	Habitat feature	Dead stag possibility for bats	-26.0852925	152.4387003
23	Habitat feature	Hollow limb small/medium size hollow	-26.08516633	152.4386525
24	Habitat feature	Dead tree hollowed out possible bat habitat, fissured bark	-26.084024	152.4395585
25	Habitat feature	Hollow limbs possible crown hollow	-26.08411733	152.4395562
26	Habitat feature	Multiple large hollows crown and branch	-26.0752355	152.4276683
27	Habitat feature	Large stag branch hollows fissured bark	-26.07560117	152.427382



#	Туре	Description	Latitude	Longitude
28	Habitat feature	Trunk hollow	-26.0771535	152.427926
29	Habitat feature	2 dead trees side by side both appear hollow all the way through possible bats trunk hollows	-26.07721467	152.42824
30	Both	Multiple trunk hollows, presence of lorikeets, base hollow suggests tree hollow all the way up. Scratch marks on tree also	-26.075942	152.428258
31	Both	2 stick nests inactive and presence of scratch marks.	-26.07515817	152.4285722
32	Fauna sign	Stick nest inactive	-26.07323817	152.4319717
33	Habitat feature	Large hollow and other smaller crown and branch hollows, scratch marks	-26.07382367	152.4357732
34	Habitat feature	Hollowed branches	-26.0739645	152.4358058
35	Habitat feature	Trunk hollow, arboreal termite mound	-26.07606317	152.4372008
36	Fauna sign	Stick nest inactive	-26.07750283	152.4339537
37	Fauna sign	Stick nest and evidence of second nest being constructed	-26.07768067	152.4384232
38	Fauna sign	Stick nest uninhabited	-26.07951667	152.4396415
39	Fauna sign	Stick nest appears inactive and an orchid growing from tree	-26.07874283	152.4374475
40	Habitat feature	Branch hollows	-26.07784333	152.4372565
41	Habitat feature	Multiple hollows; crown, branch, trunk and old scratches	-26.08000667	152.4343973
42	Habitat feature	Large crown hollow, lorikeet activity present	-26.08312383	152.4288668
43	Fauna sign	Stick nest inactive	-26.0827965	152.4291413
44	Habitat feature	Large trunk ground hollow, hollow limbs	-26.08236483	152.4291325
45	Habitat feature	Hollow trunk to base of tree	-26.08229867	152.4292012
46	Habitat feature	Hollow trunk to base of tree some hollow limbs	-26.082115	152.4292937
47	Habitat feature	Multiple branch hollows	-26.0821925	152.427925
48	Habitat feature	Branch hollows dead stag lorikeets present	-26.08064567	152.427935
49	Habitat feature	Rocky debris pile	-26.07998417	152.426803
50	Both	Crown and trunk hollow with evidence of digging at base of tree	-26.079975	152.4253065
51	Habitat feature	Multiple branch hollows lorikeets present	-26.078724	152.4236363



#	Туре	Description	Latitude	Longitude
52	Fauna sign	Small mud bird nest	-26.0780405	152.4233802
53	Habitat feature	Multiple Hollow limbs	-26.07706867	152.421831
54	Habitat feature	2 trunk hollows lorikeets present	-26.08193983	152.426085
55	Fauna sign	Scratch marks possible possum or koala	-26.08283667	152.4270678
56	Habitat feature	Crown hollow branch hollows	-26.08280183	152.427126

# **TABLE 5 - SIGHTED FAUNA BIODIVERSITY**

Common name	Scientific name	Conservation Status
Avian species		
Australian magpie	Gymnorhina tibicen	Least Concern
Australian Pelican	Pelecanus conspicillatus	Least Concern
Australian wood duck	Chenonetta jubata	Least Concern
Black cormorant	Phalacrocorax sulcirostris	Least Concern
Black-faced cuckoo shrike	Coracina novaehollandiae	Least Concern
Black kite	Milvus migrans	Least Concern
Brown quail	Coturnix ypsilophora	Least Concern
Common myna	Acridotheres tristis	Introduced
Dusky wood swallow	Artamus cyanopterus	Least Concern
Grey fantail	Rhipidura albiscapa	Least Concern
Grey-crowned babbler	Pomatostomus temporalis	Least Concern
Laughing kookaburra	Dacelo novaeguineae	Least Concern
Magpie lark	Grallina cyanoleuca	Least Concern
Masked lapwing	Vanellus miles	Least Concern
Noisy friarbird	Philemon corniculatus	Least Concern
Noisy miner	Manorina melanocephala	Least Concern
Pacific baza	Aviceda subcristata	Least Concern
Pale-headed rosella	Platycercus adscitus	Least Concern
Pheasant coucal	Centropus phasianinus	Least Concern
Pied butcherbird	Cracticus nigrogularis	Least Concern
Pied cormorant	Phalacrocorax varius	Least Concern
Pied currawong	Strepera graculina	Least Concern
Purple swamphen	Porphyrio porphyrio	Least Concern


Common name	Scientific name	Conservation Status
Rainbow bee eater	Merops ornatus	Least Concern
Rainbow lorikeet	Trichoglossus moluccanus	Least Concern
Red-backed fairywren	Malurus melanocephalus	Least Concern
Red-browed finch	Neochmia temporalis	Least Concern
Red-tail black cockatoo	Calyptorhynchus banksii	Least Concern
Scaly breast lorikeet	Trichoglossus chlorolepidotus	Least Concern
Square tailed kite	Lophoictinia isura	Least Concern
Straw necked ibis	Threskiornis spinicollis	Least Concern
Striated pardalote	Pardalotus striatus	Least Concern
Sulphur crested cockatoo	Cacatua galerita	Least Concern
Tawny frogmouth	Podargus strigoides	Least Concern
Torresian crow	Corvus orru	Least Concern
Wedge tail eagle	Aquila audax	Least Concern
Weebill	Smicrornis brevirostris	Least Concern
Whistling kite	Haliastur sphenurus	Least Concern
Willy wagtail	Rhipidura leucophrys	Least Concern
Mammal species		
European hare	Lepus europaeus	Introduced





FIGURE 2- HABITAT FEATURES AND FAUNA RELOCATION



#### 5 FAUNA MANAGEMENT

#### 5.1 Managing Disturbance Activities

#### Prior to Work Commencing

A quick ground inspection of the site prior to any disturbance activities will be conducted every morning. All habitat features and nesting sites should be clearly marked with flagging tape, and their planned mitigation measures will be discussed with the clearing crew.

#### During Disturbance Works

During clearing works a fauna spotter catcher (FSC) is to be present to manage the risk to native fauna on site. The FSC will ensure that significant habitat features, and breeding sites are cleared in a manner that best mitigates the risk to fauna potentially in-habiting them.

The FSC will also manage the direction of clearing to ensure that fauna is directed to a suitable location.

#### 5.2 Fauna Capture

One of the roles of the FSC on site is to remove any fauna within the disturbance site. Where practical animals are to be moved out of an area proposed for disturbance before clearing/stripping works commence.

Where there is a risk to native fauna a FSC is to be present during clearing works and watch out for any fauna, fauna signs and significant habitat features. When an animal is sighted, and it is deemed safe to approach the animal the capture procedure listed below will be adhered to.

This does not apply to the Endangered Koala which cannot be captured, handled, stored or removed from site and must be managed in accordance with the *Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation 2020.* 

#### Fauna Identification

It is important that correct identification (Fauna/Flora) is made for record keeping purposes. If a sighted or captured/collected flora or fauna specimen cannot be identified on site an ecologist is to be contacted who will direct the FSC on site on the types of images they require to correctly identify the specimen.



#### 5.3 Storing Captured Fauna

Captured fauna should be secured in either a calico bag, snake bag or pet carrier after being captured. If an animal is placed into a bag the end should be securely knotted closed and then tied using a bag tie or zip-tie.

These bags should be placed in a quiet dark location that is the appropriate temperature for the species that has been captured. Captured fauna should be released into suitable habitat as soon as possible. Some species are nocturnal and cannot be released till dusk, extra care should be taken when storing an animal for such a long period to ensure it is not stressed or over/under heated.

If an animal is injured or orphaned, it should be secured in a manner that prevents unnecessary stress or increases the severity of its injuries. It should be transported to a wildlife carer or vet clinic as soon as possible.

#### 5.4 Releasing Captured Fauna

See **FIGURE 2** for proposed release locations for any fauna found during clearing. These will be inspected and contain a wide range of vegetation types for all the different fauna species which may require relocation. The proposed locations may be adjusted but must remain within the DES guidelines stated below.

When releasing animals away from disturbed habitat, attention must be paid to several factors, including weather conditions, seasonal conditions and the animal's ecology. Native Fauna should be released:

- Into suitable habitat with an adequate food supply
- In appropriate weather, season, and time of day. This is particularly important for migratory species.
- Under circumstances which will not cause additional stress, such as extreme weather conditions, the wrong time of day (i.e., nocturnal species)
- In the appropriate social group. Some animals fare better if released into social groups.
- Within 1km of the site as per DES guidelines.

Fauna should be released at a suitable time of day, in a protected location close to the site. Data should be recorded and kept on all fauna species trapped and relocated in accordance with DES guidelines under the Rehabilitation Permit issued to AWEC.

If situations occur where animals can be re-released on the clearing site once clearing is complete the following criteria must be followed:

• Sufficient habitat is retained on site to support the animal's required niche, considering factors such as: vulnerability to predation; availability of nesting



sites, hollows or microhabitats and the availability of water and sufficient food sources.

- Habitat corridors retained are of a suitable size, topography, and vegetation cover to provide effective routes for normal ecological processes such as immigration, emigration, recruitment and dispersal.
- Habitat blocks and corridors are of sufficient size to maintain ecological integrity and effectiveness, considering likely edge effects.
- Long term risk factors to individual and population survival associated with the development have been (or will be) adequately managed or mitigated. For example: domestic animal control, motor vehicle/road impacts, swimming pool risk.

#### 5.5 Injuries & Euthanasia

Euthanasia is sometimes required to end pain or suffering of an injured captured animal that is not capable of recovering to a degree to be released back into its natural habitat. Any euthanasia that is required should be done promptly and, in the manner, most humane to that species.

Any injured animals that have a reasonable chance of being rehabilitated and released back into their natural habitat should immediately be given the care that they require. Any animals that require medical attention to treat or diagnose an injury should be taken to the closest vet. Any orphaned young or fauna with minor injuries (e.g., concussion) should be taken to the closest carer. Some animals for example koalas will require specialist care and the closest suitable care facility should be contacted.

Recommended Wildlife Surgery-

- i. RSPCA Wildlife Hospital, Wacol 1300 ANIMAL
- ii. Wildcare Australia Inc (07) 5527 2444

#### 5.6 Native Beehive Relocation

All native beehives of the genera *Tetragonula* (*syn Trigona*) and/or *Austroplebelia* are to be recovered during vegetation clearing works for relocation into the retained vegetation and/or recovered and "boxed up" (if damaged).

If a native beehive is located on site, its entrance is to be blocked off prior to sunrise. The extent of the beehive within the hollow is to be established using a fibre optic camera. The beehive is then to be cut out and both ends of the hive sealed off using treated wood. The beehive is then to be relocated to a suitable location and left-over night. The next morning at sunrise the entrance is to be opened.



#### 5.7 Stages of Clearing (Two stage clearing process)

- 1. First stage of clearing is removing all the non-habitat trees. Non-habitat trees (i.e., trees other than those identified as habitat trees) will be cleared and stockpiled for mulching. Clearing of non-habitat trees will only occur where their removal will not impact on identified habitat trees (e.g., canopies do not interconnect with habitat trees).
- 2. Second stage of clearing is removing the habitat trees (minimum of 24hours later and where conditions allow habitat trees to be cleared in the afternoon). Once the vegetation surrounding each habitat tree has been removed allowing better access, the site and the habitat tree will be assessed to ascertain which one of the following methods is most suited to ascertaining whether the tree is in-habited- drones, cameras, climbers, or an elevated work platform. Where a tree is confirmed not to be in-habited it will be soft felled to avoid damaging any of the habitat features which will be retained. In-habited trees will be pieced down using an EWP or climbers to piece down the tree.

#### 5.8 Fauna Clearing Management Measures

Pre-Clearing	
Objective:	Mitigate the risk to native fauna
Responsibility:	FSC
Timing:	Pre-construction

- 1. At the pre-start meeting, the FSC is to outline the clearing process and the requirements of the approved FMP.
- 2. A quick active fauna inspection is to be conducted the morning prior to clearing works commencing, active search over micro-habitats for any fauna, locate any potential nesting sites, ensure all habitat trees are marked and tree fellers are informed of these.
- 3. A specific inspection of trees for the presence of koalas must be conducted the night before and morning of clearing.
- 4. Any fauna sighted during the pre-clearance survey should be relocated to a nearby suitable habitat

Clearing and Grubbing

Objective:	Reduce risk to native fauna during disturbance
activities	······································
Responsibility:	FSC, Construction/Clearing crew
Timing:	Earthworks



- 1. Immediately prior to the commencement of clearing of native vegetation a daily visual inspection of the area must be carried out by the FSC. Furthermore, the FSC is to be present on site during all clearing operations to supervise and direct clearing works, and to respond to any situations that may arise in relation to fauna.
- 2. Suitably qualified FSC are to be present for all clearing and grubbing activities where there is a risk to native fauna. FSC are to implement and check that all practical measures to minimise the risk to fauna during construction are adhered to. FSC must hold or be approved to work under DES a Rehabilitation FSC endorsed permit and damage mitigation permit.
- 3. Clearing direction will occur towards the vegetated areas of the site and be managed by the project FSC to allow all fauna unimpeded movement towards remaining vegetated areas that have been designated during the staged clearing process.
- 4. Vegetation must be cleared sequentially to direct wildlife into surrounding retained vegetation and prevents isolates patches of vegetation where wildlife may seek refuge
- 5. All habitat trees and hollow bearing trees will be inspected using a thermal drone whether they are currently occupied. Any occupied trees will be blocked off and relocated using an EWP or tree climber where practical and site conditions allow.
- 6. Any habitat or hollow bearing trees with un-confirmed occupancy are to be soft-felled in order to reduce the risk of injury to any fauna in-habiting the tree and to reduce the risk of damaging the hollows.
- 7. Any injured wildlife will be taken to receive veterinary attention within 24 hours if required. If veterinary attention is not required any injured or orphaned wildlife is to be transferred to a suitably qualified Wildlife Carer.

Koala Management	
Objective:	To protect the local population of koalas
Responsibility:	FSC, Clearing crew
Timing:	Earthworks

- 1. If a koala is sighted within the site a koala FSC will be on site to manage and monitor the animal until it has self-relocated out of the site. A koala FSC is to be present on the first day of clearing works with the sole responsibility to inspect all the vegetation proposed for disturbance for the presence of koalas.
- Nature Conservation and Other Legislation (Koala protection) Amendment Regulation 2020, the following measures will be undertaken to minimise, reduce or mitigate impacts to koalas in potential koala habitat areas:
  - a) Sequential clearing will be utilised to assist fauna in relocating to nearby habitat on their own accord.
  - b) No tree in which a koala is present and no tree with a crown overlapping a tree with a koala present will be disturbed. A 50m buffer around any tree containing a



koala is to be established and works to seize within this buffer until the has moved off on its own accord.

- c) A vegetation corridor is to be left where practical to allow the koala to self-relocate to a suitable area that is not a proposed disturbance site.
- d) In areas containing a dominance of koala food trees and positively identified koala sightings and/or identified scat or scratch marks a koala FSC is to be present during clearing activities.
- e) If a koala is not injured but refuses to move from the clearance area on its own accord after two days, the FSC will liaise with DES and negotiate appropriate methods for removal and relocation.
- 3. A DES approved koala FSC is a person who holds a tertiary qualification in Biology or Zoology, or who is demonstrably experienced in the identification and location of koalas in their natural habitat and has authorisation from DES to conduct such activities.
  - a) be present at the site of felling operations
  - b) Identify any tree at the site within which a koala is present, as well as any tree that has a crown which is intermeshed or overlapping with such a tree; and
  - c) Advise the person who is authorised to conduct the felling operation, or that person's representative, of the precise location of each such tree.

Releasing Fauna	
Objective:	To reduce the project impact on native fauna
Responsibility:	FSC
Timing:	Project Duration

- 1. The animal must be released as near as practical to the point of capture.
- 2. Where practical animals should be relocated with the hollow in which they were found or a suitable nest box.
- 3. When releasing wildlife attention must be paid to several factors, including weather conditions, seasonal conditions, and the animal's ecology.
- 4. Fauna should be released at a suitable time of day in a suitable location.

Mulching Works	
Objective:	To reduce the project impact on native fauna
Responsibility:	FSC, Construction/Clearing crew
Timing:	Clearing Works

- 1. Trees identified by the project fauna spotter-catcher with hollows should have the hollow section salvaged and preserved.
- 2. Stockpiled vegetation, topsoil and other materials can quickly become temporary habitat for animals displaced during the actual clearing and earthworks. Prior to



removal of any stockpiled vegetation, the FSC must inspect for any fauna using the stockpile as temporary shelter.

ReportingObjective:To reduce the project impact on native faunaResponsibility:FSCTiming:Post-Clearing Works

- 1. Post-clearance Should contain the following details for each captured animal:
  - a) Species
  - b) Identification name or number
  - c) Sex (M, F or unknown)
  - d) Approximate Age or Age Class (neonate, juvenile, sub-adult, adult)
  - e) Time and date of capture
  - f) Method of capture
  - g) Exact point of capture (GPS coordinates)
  - h) State of health
  - i) Incidents associated with capture likely to affect health
  - j) Veterinary intervention or treatments
  - k) Time held in captivity
  - Disposal method (euthanasia, translocation, re-release) m. Date and time of disposal
  - m) Detailed of disposal (GPS points of release)
  - n) For released animals, location relative to point of capture

#### Earthworks and Construction Phase

Objective:To reduce the project impact on native faunaResponsibility:Construction crewTiming:Clearing Works

- 1. The Contractor shall ensure that to the extent possible project infrastructure and auxiliary works (laydown areas, stockpile sites, site office) are constructed in a manner that does not create additional hazards for wildlife.
- 2. To minimise impacts and conflicts between native animals, vehicular movement and access during construction, site access should be controlled via a single entry and exit point.
- 3. Inspect open trenches, culverts and other structures prior to works being undertaken within an area to determine whether there are any trapped or injured native fauna species present and act as appropriate.
- 4. Trenches, manholes, excavations for footings, etc. while open pose threats to native animal entrapment and should be backfilled as soon as possible. In some location's barriers may be required overnight to eliminate the accidental capture of animals moving through the site.



- 5. Educate staff, including sub-contractors, in relation to the risk of fauna injury and deaths and how to manage animals which are displaced, including threatened species.
- 6. All native wildlife is protected (including snakes) and shall not be intentionally harmed as a result of work or workers actions.
- 7. All native animal fatalities must be reported immediately to the Environmental Coordinator.
- 8. Where any site staff (contractors or subcontractors) witness or locates distressed, injured, or orphaned animals they should immediately contact the FSC and Environmental Coordinator. Works within the area of the animal must cease until further instruction is provided by one of the above authorities.



#### 6 CONCLUSION

Australia Wide Environmental Consultants (AWEC) were commissioned by Carruthers Contractors to conduct a fauna pre-clearance survey for the development of the Woolooga Solar Farm, 1706 Wide Bay Highway, Woolooga.

Although there was some areas labelled as suitable habitat for koalas, none were sighted during the pre-clearance survey. Majority of the habitat features and fauna signs recorded were hollows and nests, and there was also an abundance of bird life sighted.

This site does show evidence of use by local wildlife, especially birds, and caution should be taken during clearing.

#### 7 RECOMMENDATIONS

To manage the risk to native fauna the following measures are recommended:

- Install nest boxes to replace lost hollows and habitat features.
- Thermal camera to inspect the site the morning prior to works commencing –
  i. Focusing on detecting any koalas within or adjacent to the site
- Any woody debris or felled hollows to be relocated into retained vegetation.



#### 8 **REFERENCES**

Curtis LK & Dennis AJ, (2012), Queensland's Threatened Animals, CSIRO Publishing, Collingwood, Victoria

Department of Enivronment and Science, (2021), Spatial modelling for koalas in South East Queensland: Report, version 2.0, Brisbane: Department of Environment and Science, Queensland.

Eyre Tj, Ferguson Dj, Hourigan Cl, Smith Gc, Mathieson Mt, Kelly, Al, Venz Mf & Hogan, Ld. 2012. Terrestrial Vertebrate Fauna Survey Guidelines For Queensland. Qld.Gov.Au. (2018), From Https://Www.Qld.Gov.Au/\_\_Data/Assets/Pdf\_File/0022/68224/Fauna-Survey-Guidelines.Pdf.

Lester N, (2008), Woodland To Weeds- Southern Queensland Brigalow Belt, Second Edition, Copyright Publishing, Brisbane.

Mcelroy C, Ingleby S, Tipping J, Stokes J, Barclay S. 2004. Survey Guidelines For Australia's Threatened Mammals. Environment.Gov.Au. (2011), <a href="https://www.awe.gov.au/sites/default/files/documents/survey-guidelines-mammals.pdf">https://www.awe.gov.au/sites/default/files/documents/survey-guidelines-mammals.pdf</a>

*Nature Conservation and Other Legislation Act* 2016, Queensland Government, <u>https://www.legislation.qld.gov.au/view/html/asmade/act-2016-022/lh</u>

*Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation* 2020, Queensland Government, <u>https://www.legislation.qld.gov.au/view/pdf/asmade/sl-2020-0009</u>

Romanowski N, (2011), Australian Grasses, Hyland House Publishing, Australia

Ryan M, (2007), Wildlife Of The Greater Brisbane, Queensland Museum, South Brisbane

Ryan M, (2007), Wild Plants Of The Greater Brisbane, Queensland Museum, South Brisbane

The State of Queensland (Department of Resources), (2021), Queensland Spatial Catalogue, <u>https://qldspatial.information.qld.gov.au/catalogue/custom/index.page</u>

Triggs, B., (2004). Tracks, Scats, And Other Traces. 2nd Ed. South Melbourne, Vic.: Oxford University Press.

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# FAUNA POST-CLEARANCE REPORT

WOOLOOGA SOLAR FARM, 1706 WIDE BAY HIGHWAY, WOOLOOGA



Prepared for client: CARRUTHERS CONTRACTING

Dates on site: JUNE-AUGUST 2021





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#### **Document Approval**

Approved:	Name:	Signature:	Date:
Company Director	Yolande Venter	letter	May 2022

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### **1** INTRODUCTION

#### 1.1 Background

Australia Wide Environmental Consultants (AWEC) were commissioned by Carruthers Contractors to manage fauna during clearing for the development of the Woolooga Solar Farm, 1706 Wide Bay Highway, Woolooga (FIGURE 1).

#### **1.2 Ecologist and Qualifications**

The AWEC nominated Ecologist is Yolande Venter who is a degree qualified ecologist/environmental coordinator with over 15 years of field experience within the ecology and environmental sectors.

#### 1.3 Scope

- A. See **TABLE 1** for a non-exhaustive list of the statutory requirements and guidelines this project adheres to.
- B. A desktop review of the site's potential ecological value and any planning constraints.
- C. A site inspection which included ground truthing the desktop review findings and a fauna survey.
- D. Management measures to control the risk to native fauna during these works.







**FIGURE 1- SITE CONTEXT** 



#### 2 STATUTORY REQUIREMENTS AND GUIDELINES

See TABLE 1 below for the relevant statutory requirements and guidelines.

#### TABLE 1- STATUTORY REQUIREMENTS AND GUIDELINES

Legislation	Purpose of Legislation	Impact on Project personnel
Environmental Protection Regulation 2019	Gives legislative support to various national guidelines, plans and Australian Standards. This regulation also outlines requirements for the management of fauna and flora.	To abide by the regulations within the DES.
Environmental Protection and Biodiversity Conservation Act 1999	The <i>EPBC Act 1999</i> focuses Australian Government interests on the protection of matters of national environmental significance, with the states and territories having responsibility for matters of state and local significance.	To comply with the relevant sections of the Act that relate to matters of national significance which are present in the vicinity of the project works.
Nature Conservation Other Legislation Act 2016	The Act provides for the legislative protection of Queensland's threatended biota. It is aligned with the IUCN redlist which categorises biota into their current status in the wild.	To comply with the relevant sections of the Act and regulations and the Environmental Authority administered by the DES.
Nature Conservation (Wildlife) Regulation 2006	This Regulation lists the plants and animals considered presumed extinct, endangered, vulnerable, rare, common, international, and prohibited. It discusses their significance and states the declared management intent and the principles to be observed in any taking and use for each group.	List those animals that may be potentially found on sites being developed as part of the project and limitations for management.
Nature Conservation (Wildlife Management) Regulation 2006	This Regulation provides for the management of wildlife (including taking, keeping and using wildlife including protected plants).	Provides guidance for the management of wildlife on site, particularly in relation to the interference with native wildlife during the clearing process.
Nature Conservation and Other Legislation	Guideline for identifying and managing koala habitat	Provides guidance on where fauna spotter catchers are legally



Legislation	Purpose of Legislation	Impact on Project personnel
(Koala Protection) Amendment Regulation 2020		required and how they are to manage koala habitat
Animal Care and Protection Act 2001	Animal Welfare	Outlines that animal ethics approval is needed for research, survey and/or monitoring involving vertebrates, where activities such as trapping, census leading to disturbance of animals (such as spotlighting or call play- back), abnormal interruption of behaviour or marking/tagging are involved.
Australian code for the care and use of animals for scientific purposes 8 <sup>th</sup> edition (2013)	Ethical framwork for animals used for scientific purposes	Governing principles set out in the Code provide guidance for investigators, teachers, institiutions, animal ethics committees and all the people involved in the care and use of animals for scientific purposes.
Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (2018)	Guidelines for Fauna Surveys	Detailed guidelines on designing a survey, the different survey methadologies and the ethical considerations that need to be made for each methadology.
Queensland Hygiene protocol for handling amphibians	Protocol for handling amphibian species	Outlines how to handle and manage amphibian species to prevent the spread of diseases among specimens and colonies.
Code of Practice- Care and rehabilitation of orphaned, sick or injured protected animals by wildlife carers(2013)	Provides guidelines on the rehabilitation and care of wildlife	Detailed guidelines, in regards to hygiene, housing, capture and release, euthanasia and relevant legistation
Seqwater- Guideline- Fish Stranding and Salvage	The purpose of this guidance document is to ensure native fish recovery operations are conducted in a timely and safe manner to	Guideline on managing aquatic fauna during dewatering works.



Legislation	Purpose of Legislation	Impact on Project personnel
	minimise or eliminate loss of fish from stranding.	
Fisheries Act 1994	The main purpose of the <i>Fisheries</i> <i>Act 1994</i> is to provide for the use, conservation and enhancement of the community's fisheries resources and fish habitats in a way that seeks to apply the principles of ecologically sustainable development.	Outlines fish habitats and fish movement and migration (regulation of waterway barriers). Guidelines on commercial, recreational and indigenous fishing.
Biosecurity Act 2014	The <i>Biosecurity Act 2014</i> provides a framework for an effective biosecurity system for Queensland, to ensure the safety and quality of agricultural inputs, and to align responses to biosecurity risks in the state with national and international obligations.	Under the <i>Biosecurity Act 2014</i> , pest species must not be kept, fed, given away, sold, or released into the environment without a permit. Under the Biosecurity Act, everyone has a general biosecurity obligation to take reasonable and practical steps to minimise the risks associated with restricted plants and animals.
DAF Guidelines for Fish Salvage, 2018	Purpose of these guidelines is to minimise the risk to aquatic fauna during dewatering works.	These guidelines provide detailed instructions for dewatering waterbodies and slavaging aquatic fauna.

Australia Wide Environmental Consultants (AWEC) holds a current DES rehabilitation permit (**Permit #WA0027769**), with an extended authority issued by the Department of Environment and Science specifying that the holder may take, keep, or use an animal whose habitat is about to be destroyed by human activity.



#### 3 METHODOLOGY

A suitably qualified fauna spotter catcher was on site throughout the clearing of this project during June, July and August 2021.

#### 3.1 Managing Disturbance Activities

#### Prior to Work Commencing

A quick ground inspection of the site prior to any disturbance activities will be conducted every morning. All habitat features and nesting sites should be clearly marked with flagging tape, and their planned mitigation measures will be discussed with the clearing crew.

#### During Disturbance Works

During clearing works a fauna spotter catcher (FSC) is to be present to manage the risk to native fauna on site. The FSC will ensure that significant habitat features, and breeding sites are cleared in a manner that best mitigates the risk to fauna potentially in-habiting them.

The FSC will also manage the direction of clearing to ensure that fauna is directed to a suitable location.

#### 3.2 Fauna Clearing Management Measures

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Pre-Clearing	
Objective:	Mitigate the risk to native fauna
Responsibility:	FSC
Timing:	Pre-construction

- 1. At the pre-start meeting, the FSC is to outline the clearing process and the requirements of the approved FMP.
- 2. A quick active fauna inspection is to be conducted the morning prior to clearing works commencing, active search over micro-habitats for any fauna, locate any potential nesting sites, ensure all habitat trees are marked and tree fellers are informed of these.
- 3. A specific inspection of trees for the presence of koalas must be conducted the night before and morning of clearing.
- 4. Any fauna sighted during the pre-clearance survey should be relocated to a nearby suitable habitat

#### Clearing and Grubbing

Objective:	Reduce risk to native fauna during disturbance
activities	
Responsibility:	FSC, Construction/Clearing crew
Timing:	Earthworks



- 1. Immediately prior to the commencement of clearing of native vegetation a daily visual inspection of the area must be carried out by the FSC. Furthermore, the FSC is to be present on site during all clearing operations to supervise and direct clearing works, and to respond to any situations that may arise in relation to fauna.
- 2. Suitably qualified FSC are to be present for all clearing and grubbing activities where there is a risk to native fauna. FSC are to implement and check that all practical measures to minimise the risk to fauna during construction are adhered to. FSC must hold or be approved to work under DES a Rehabilitation FSC endorsed permit and damage mitigation permit.
- 3. Clearing direction will occur towards the vegetated areas of the site and be managed by the project FSC to allow all fauna unimpeded movement towards remaining vegetated areas that have been designated during the staged clearing process.
- 4. Vegetation must be cleared sequentially to direct wildlife into surrounding retained vegetation and prevents isolates patches of vegetation where wildlife may seek refuge
- 5. All habitat trees and hollow bearing trees will be inspected using a thermal drone whether they are currently occupied. Any occupied trees will be blocked off and relocated using an EWP or tree climber where practical and site conditions allow.
- 6. Any habitat or hollow bearing trees with un-confirmed occupancy are to be soft-felled in order to reduce the risk of injury to any fauna in-habiting the tree and to reduce the risk of damaging the hollows.
- 7. Any injured wildlife will be taken to receive veterinary attention within 24 hours if required. If veterinary attention is not required any injured or orphaned wildlife is to be transferred to a suitably qualified Wildlife Carer.

Koala Management	
Objective:	To protect the local population of koalast
Responsibility:	FSC, Clearing crew
Timing:	Earthworks

- 1. If a koala is sighted within the site a koala FSC will be on site to manage and monitor the animal until it has self-relocated out of the site. A koala FSC is to be present on the first day of clearing works with the sole responsibility to inspect all the vegetation proposed for disturbance for the presence of koalas.
- Nature Conservation and Other Legislation (Koala protection) Amendment Regulation 2020, the following measures will be undertaken to minimise, reduce or mitigate impacts to koalas in potential koala habitat areas:
  - a) Sequential clearing will be utilised to assist fauna in relocating to nearby habitat on their own accord.
  - b) No tree in which a koala is present and no tree with a crown overlapping a tree with a koala present will be disturbed. A 50m buffer around any tree containing a koala is to be established and works to seize within this buffer until the has moved off on its own accord.



- c) A vegetation corridor is to be left where practical to allow the koala to self-relocate to a suitable area that is not a proposed disturbance site.
- d) In areas containing a dominance of koala food trees and positively identified koala sightings and/or identified scat or scratch marks a koala FSC is to be present during clearing activities.
- e) If a koala is not injured but refuses to move from the clearance area on its own accord after two days, the FSC will liaise with DES and negotiate appropriate methods for removal and relocation.
- 3. A DES approved koala FSC is a person who holds a tertiary qualification in Biology or Zoology, or who is demonstrably experienced in the identification and location of koalas in their natural habitat and has authorisation from DES to conduct such activities.
  - a) be present at the site of felling operations
  - b) Identify any tree at the site within which a koala is present, as well as any tree that has a crown which is intermeshed or overlapping with such a tree; and
  - c) Advise the person who is authorised to conduct the felling operation, or that person's representative, of the precise location of each such tree.

Releasing Fauna	
Objective:	To reduce the project impact on native fauna
Responsibility:	FSC
Timing:	Project Duration

- 1. The animal must be released as near as practical to the point of capture.
- 2. Where practical animals should be relocated with the hollow in which they were found or a suitable nest box.
- 3. When releasing wildlife attention must be paid to several factors, including weather conditions, seasonal conditions, and the animal's ecology.
- 4. Fauna should be released at a suitable time of day in a suitable location.

#### Mulching Works

Objective:	To reduce the project impact on native fauna
Responsibility:	FSC, Construction/Clearing crew
Timing:	Clearing Works

- 1. Trees identified by the project fauna spotter-catcher with hollows should have the hollow section salvaged and preserved.
- 2. Stockpiled vegetation, topsoil and other materials can quickly become temporary habitat for animals displaced during the actual clearing and earthworks. Prior to removal of any stockpiled vegetation, the FSC must inspect for any fauna using the stockpile as temporary shelter.

ReportingObjective:To reduce the project impact on native fauna



## Responsibility:FSCTiming:Post-Clearing Works

- 1. Post-clearance Should contain the following details for each captured animal:
  - a) Species
  - b) Identification name or number
  - c) Sex (M, F or unknown)
  - d) Approximate Age or Age Class (neonate, juvenile, sub-adult, adult)
  - e) Time and date of capture
  - f) Method of capture
  - g) Exact point of capture (GPS coordinates)
  - h) State of health
  - i) Incidents associated with capture likely to affect health
  - j) Veterinary intervention or treatments
  - k) Time held in captivity
  - Disposal method (euthanasia, translocation, re-release) m. Date and time of disposal
  - m) Detailed of disposal (GPS points of release)
  - n) For released animals, location relative to point of capture

#### Earthworks and Construction Phase

Objective:To reduce the project impact on native faunaResponsibility:Construction crewTiming:Clearing Works

- 1. The Contractor shall ensure that to the extent possible project infrastructure and auxiliary works (laydown areas, stockpile sites, site office) are constructed in a manner that does not create additional hazards for wildlife.
- 2. To minimise impacts and conflicts between native animals, vehicular movement and access during construction, site access should be controlled via a single entry and exit point.
- 3. Inspect open trenches, culverts and other structures prior to works being undertaken within an area to determine whether there are any trapped or injured native fauna species present and act as appropriate.
- 4. Trenches, manholes, excavations for footings, etc. while open pose threats to native animal entrapment and should be backfilled as soon as possible. In some location's barriers may be required overnight to eliminate the accidental capture of animals moving through the site.
- 5. Educate staff, including sub-contractors, in relation to the risk of fauna injury and deaths and how to manage animals which are displaced, including threatened species.
- 6. All native wildlife is protected (including snakes) and shall not be intentionally harmed as a result of work or workers actions.
- 7. All native animal fatalities must be reported immediately to the Environmental Coordinator.



8. Where any site staff (contractors or subcontractors) witness or locates distressed, injured, or orphaned animals they should immediately contact the FSC and Environmental Coordinator. Works within the area of the animal must cease until further instruction is provided by one of the above authorities.

#### 3.3 Emergency Procedures

During the trapping and construction phases it is likely that injured or sick wildlife will be encountered onsite. Local carers and veterinarians contact details should be always available. Moreover, all staff conducting trapping should be trained in the emergency first aid of native wildlife and carry the required first aid equipment to stabilise native fauna for transport and correct transportation cages. All sick and orphaned wildlife will be taken to the Australia Zoo Wildlife Hospital, 1638 Steve Irwin Way, Beerwah, **(07) 5436 2097**.



#### 4 **RESULTS**

#### 4.1 Survey Results

During clearing several habitat features were recorded and retained, including 5 woody debris piles and 6 hollow bearing trees (TABLE 2, FIGURE 3).

#### **TABLE 2- HABITAT FEATURES**

Number	Description	Location			
Habitat fe	Habitat feature				
1	Trunk hollow	-26.082803, 152.427174			
2	Terrestrial habitat	-26.071810, 152.442395			
3	Vertical trunk hollow present	-26.073814, 152.435777			
4	Branch hollow. Large nest not occupied.	-26.085709, 152.439254			
5	Hollowed branches, Trunk hollow, arboreal termite mound	-26.077537, 152.446821			
6	Trunk hollow towards the base, no fauna	-26.075255, 152.427681			
7	Crown and trunk hollow, no fauna. HAB30	-26.075945, 152.428258			
8	Wood debris pile	-26.077621, 152.444581			
9	Wood debris pile	-26.078304, 152.445630			
10	Wood debris pile	-26.071658, 152.442108			
11	Wood debris pile	-26.073679, 152.435415			
12	Wood debris pile	-26.076755, 152.436036			
13	Large fig tree,3.5 m base	-26.084459, 152.439820			



FIGURE 2 - IMAGES TAKEN ON SITE (Images of woody debris piles on site).



There was abundant bird diversity observed throughout the entire clearing period (TABLE 3).

#### TABLE 3 - SIGHTED FAUNA BIODIVERSITY

Common name	Scientific name	Conservation Status
Avian species		
Australian magpie	Gymnorhina tibicen	Least Concern
Australian Pelican	Pelecanus conspicillatus	Least Concern
Australian wood duck	Chenonetta jubata	Least Concern
Black cormorant	Phalacrocorax sulcirostris	Least Concern
Black-faced cuckoo shrike	Coracina novaehollandiae	Least Concern
Black kite	Milvus migrans	Least Concern
Brown quail	Coturnix ypsilophora	Least Concern
Common myna	Acridotheres tristis	Introduced
Dusky wood swallow	Artamus cyanopterus	Least Concern
Grey fantail	Rhipidura albiscapa	Least Concern
Grey-crowned babbler	Pomatostomus temporalis	Least Concern
Laughing kookaburra	Dacelo novaeguineae	Least Concern
Magpie lark	Grallina cyanoleuca	Least Concern
Masked lapwing	Vanellus miles	Least Concern
Noisy friarbird	Philemon corniculatus	Least Concern
Noisy miner	Manorina melanocephala	Least Concern
Pacific baza	Aviceda subcristata	Least Concern
Pale-headed rosella	Platycercus adscitus	Least Concern
Pheasant coucal	Centropus phasianinus	Least Concern
Pied butcherbird	Cracticus nigrogularis	Least Concern
Pied cormorant	Phalacrocorax varius	Least Concern
Pied currawong	Strepera graculina	Least Concern
Purple swamphen	Porphyrio porphyrio	Least Concern
Rainbow bee eater	Merops ornatus	Least Concern
Rainbow lorikeet	Trichoglossus moluccanus	Least Concern
Red-backed fairywren	Malurus melanocephalus	Least Concern
Red-browed finch	Neochmia temporalis	Least Concern
Red-tail black cockatoo	Calyptorhynchus banksii	Least Concern
Scaly breast lorikeet	Trichoglossus chlorolepidotus	Least Concern
Square tailed kite	Lophoictinia isura	Least Concern



Common name	Scientific name	Conservation Status
Straw necked ibis	Threskiornis spinicollis	Least Concern
Striated pardalote	Pardalotus striatus	Least Concern
Sulphur crested cockatoo	Cacatua galerita	Least Concern
Tawny frogmouth	Podargus strigoides	Least Concern
Torresian crow	Corvus orru	Least Concern
Wedge tail eagle	Aquila audax	Least Concern
Weebill	Smicrornis brevirostris	Least Concern
Whistling kite	Haliastur sphenurus	Least Concern
Willy wagtail	Rhipidura leucophrys	Least Concern
Mammal species		
European hare	Lepus europaeus	Introduced

Fauna that was captured and relocated during clearing can be seen in **TABLE 4**. There was quite a lot of local fauna encountered, however most were safely relocated, only 3 native animals were killed as a result of clearing activities. No threatened species were encountered.

#### TABLE 4 - FAUNA RELOCATION

Date	Common name	Scientific name	Capture location	Release location	Comments
15/6/21	Brush tail possum	Trichosurus vulpecula	-26.115321, 152.438066	-26.118047, 152.435617	Healthy female
15/6/21	Green tree frog	Litoria caerulea	-26.115321, 152.438066	-26.117633, 152.434024	X3 adults, healthy
15/6/21	* Cane toads	Rhinella marina	-26.114948, 152.438593	N/A	X2, Humanely euthanised
15/6/21	Green tree frog	Litoria caerulea	-26.115574, 152.438110	-26.117633, 152.434024	X5 adults
15/6/21	*Cane toads	Rhinella marina	-26.115574, 152.438110	N/A	X3, Humanely euthanised
15/6/21	Green tree frog	Litoria caerulea	-26.111350, 152.435420	-26.117633, 152.434024	X2 adults
15/6/21	*Cane toads	Rhinella marina	-26.114948, 152.438593	N/A	
15/6/21	Green tree frog	Litoria caerulea	-26.115574, 152.438110	-26.117633, 152.434024	



Date	Common name	Scientific name	Capture location	Release location	Comments
1/07/21	Sugar glider	Petaurus breviceps	-26.073628, 152.431979 -	-26.071339, 152.430078	4 adults, 2 joey's
1/07/21	Desert tree frogs	Litoria rubella	-26.073628, 152.431979	-26.071339 <i>,</i> 152.430078	x9
1/07/21	Desert tree frog	Litoria rubella	-26.085684, 152.439262	-26.078144 <i>,</i> 152.449273	x32, healthy
1/07/21	Green tree frog	Litoria caerulea	-26.085684, 152.439262	-26.078144 <i>,</i> 152.449273	x17, healthy
1/09/21	Tawny frog mouth	Podargus strigoides	-26.077974, 152.434964	N/A	X2, self- relocated
13/7/21	Squirrel glider	Petaurus norfolcensis	-26.082527, 152.427102	-26.082983, 152.426457	Pair with Joeys
13/7/21	Green tree frog brood	Litoria caerulea	-26.083985 <i>,</i> 152.439795	-26.079607 , 152.443883	X4, adults, healthy
14/07/21	Green tree frog	Litoria caerulea	-26.083985 <i>,</i> 152.439795	-26.079607 , 152.443883	X4, Healthy
21/7/21	Bearded dragon	Pogona barbata	-26.075808, 152.445343	-26.074754 <i>,</i> 152.445982	Adult male
21/7/21	Verreaux's skink	Verreaux's anomalopus	-26.079206, 152.445588	-26.078279, 152.445867	X2 adults
26/7/21	Verreaux's skink	Anomalopus	-26.0758132, 152.4363237	-26.0699529, 152.4354975	
26/7/21	Eastern bearded dragon	Pogona barbata	-26.0756545, 152.4354144	-26.0699529, 152.4354975	Large male
26/7/21	Eastern Bearded dragon	Pogona barbata	-26.0761423, 152.4367562	-26.0698656, 152.4363126	Male and Female
27/7/21	Eastern bearded dragon	Pogona barbata	-26.0765952, 152.4364933	-26.0711793, 152.4337353	Healthy male
27/7/21	Green tree frog	Litoria caerulea	-26.0753274, 152.4339258	-26.0710904, 152.4339992	X12, healthy adults
27/7/21	Squirrel Glider	Petaurus norfolcensis	-26.0744423, 152.4349584	-26.0710904, 152.4339992	Pair with 2 joeys
28/7/21	Desert tree frog	Litoria rubella	-26.0821453, 152.4286002	-26.0833666, 152.4267485	Healthy adult
28/7/21	Green tree frog	Litoria caerulea	-26.0821453, 152.4286002	-26.0833666, 152.4267485	X4, healthy adults



28/7/20Singmon brusTrichosurusSi2.0822729, 10.0N/ABithy adult sincoder29/7/20Sommon tree SommonSi2.0439000Si2.0435900Si2.0435900Malthy adult21/21Squirel gliderPodrurus Sof.0fcensisSi2.043800Si2.043800Small male21/21Tawny frog MouthpanOdargues Sof.0fcensisSi2.043800Si2.043800Small male21/21Tawny frog MouthpanSof.offcensisSi2.043800Si2.043800Small male21/21Tawny frog MouthpanSof.offcensisSi2.043800N/ASi2.04380021/21Tawny frog MouthpanSof.offcensisSi2.043800Si2.043800Si2.04380021/21Sinder MouthpanSinder MouthpanSi2.043800Si2.043800Si2.04380021/21Sinder MouthpanSinder MouthpanSi2.043800Si2.043800Si2.043800Sinder21/21Sinder MouthpanSinder MouthpanSinder SinderSinder SinderSinder SinderSinder Sinder21/21Sinder MouthpanSinder MouthpanSinder SinderSinder SinderSinder SinderSinder Sinder21/21Sinder MouthpanSinder SinderSinder SinderSinder SinderSinder SinderSinder Sinder21/21Sinder SinderSinder SinderSinder SinderSinder SinderSinder SinderSinder Sinder21/21Sinder SinderSinder Sinder <td< th=""><th>Date</th><th>Common name</th><th>Scientific name</th><th>Capture location</th><th>Release location</th><th>Comments</th></td<>	Date	Common name	Scientific name	Capture location	Release location	Comments
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2/8/21Squirrel gliderPetaurus norfolcensis26.075892, 152.433590-26.070237, 152.433269Small male2/8/21Tawny frog mouth pairPodargus strigoides-26.078021, 152.433790N/AX2 adult Self-relocated03/08/21Red bellied black snakeSecudechis porphyriacus26.077493, 152.435277N/AInjured, humanly euthanised03/8/21*Cane toadRhinella marina26.077493, 152.435277N/AHumanly euthanised03/8/21Squirrel 	29/7/21	Common tree goanna		-26.0763619, 152.4390022	-26.0705607, 152.4353768	Healthy adult
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09/08/21Bearded dragonPogona barbata26.074888, 152.42947126.0773153, 152.429141Large male09/08/21Eastern Barn OwlTylo Alba26.077419, 152.423614N/AHealthy adult, self-relocated10/08/21*Cane toadRhinella marina26.074538, 152.427387N/AHumanly cuthanised10/08/21Squirrel GliderPetaurus barbata26.074745, 152.42708426.070834, 152.433103IxFemale and 	6/8/21	Rainbow lorikeet	Trichoglossus haematodus	-26.077119, 152.428042	-26.182735, 152.682159	Chicks, Taken to carer
O9/08/21Eastern Barn OwlTylo Alba26.077419, S12.43614N/AHealthy adult, self-relocated10/08/21*Cane toad <i>Rhinella</i> marina26.074538, S12.427387N/AHumanly cuthanised10/08/21Squirrel Gilder <i>Petaurus</i> barbata26.074745, S12.4375626.070834, S12.433103IxFemale and peranes10/08/21Bearded drago <i>Pogona</i> barbata26.074745, S12.4335626.070834, S12.433103Large male10/08/21Squirrel Gilder <i>Petaurus</i> barbata26.074987, S12.43585826.070834, 	09/08/21	Bearded dragon	Pogona barbata	-26.074888 <i>,</i> 152.429471	-26.073153, 152.429141	Large male
10/08/21*Cane toadRhinella marina-26.074538, 152.427387N/AHumanly euthanised10/08/21Squirrel GliderPetaurus norfolcensis-26.074208, 152.427084-26.070834, 152.433103IxFemale and yearlings x210/08/21Bearded dragoPogona barbata26.074987, 152.433756-26.070834, 	09/08/21	Eastern Barn Owl	Tylo Alba	-26.077419 <i>,</i> 152.423614	N/A	Healthy adult, self-relocated
10/08/21Squirrel GliderPetaurus norfolcensis-26.074208, 152.427084-26.070834, 152.4331031xFemale and yearlings x210/08/21Bearded dragonPogona barbata26.074745, 152.433756-26.070834, 	10/08/21	*Cane toad	Rhinella marina	-26.074538, 152.427387	N/A	Humanly euthanised
10/08/21      Bearded dragon      Pogona barbata      26.074745, 152.433756      -26.070834, 152.433103      Large male        10/08/21      Squirrel Glider      Petaurus norfolcensis      -26.074987, 152.435858      -26.070834, 152.433103      Healthy male        10/08/21      Chocolate wattled bat      Chalinolobus morio      -26.074987, 152.435858      N/A      Self-relocated	10/08/21	Squirrel Glider	Petaurus norfolcensis	-26.074208, 152.427084	-26.070834, 152.433103	1xFemale and yearlings x2
10/08/21      Squirrel Glider      Petaurus norfolcensis      -26.074987, 152.435858      -26.070834, 152.433103      Healthy male        10/08/21      Chocolate wattled bat      Chalinolobus morio      -26.074987, 152.435858      N/A      Self-relocated	10/08/21	Bearded dragon	Pogona barbata	26.074745, 152.433756	-26.070834, 152.433103	Large male
10/08/21Chocolate wattled batChalinolobus morio-26.074987, 152.435858N/ASelf-relocated	10/08/21	Squirrel Glider	Petaurus norfolcensis	-26.074987, 152.435858	-26.070834, 152.433103	Healthy male
	10/08/21	Chocolate wattled bat	Chalinolobus morio	-26.074987 <i>,</i> 152.435858	N/A	Self-relocated



Date	Common name	Scientific name	Capture location	Release location	Comments
10/08/21	Eastern bearded dragon	Pogona barbata	-26.074987, 152.435858	-26.070834, 152.433103	Large male
11/08/21	Rainbow lorikeet	Trichoglossus haematodus	-26.085136, 152.438619	N/A	Chicks, transported to a carer
12/08/21	Rufous owl	Ninox rufa	-26.082861, 152.436338	N/A	Self-relocated
13/08/21	Tawny frog mouth	Podargus strigoides	-26.077868, 152.436600	N/A	Self-relocated
13/8/21	Green tree frog	Litoria caerulea	-26.074653, 152.433406	-26.071453, 152.433053	X8, adults
13/8/21	Squirrel glider	Petaurus norfolcensis	-26.076727, 152.432354	-26.071453, 152.433053	X2 male and female
16/8/21	Squirrel glider	Petaurus norfolcensis	-26.073555, 152.431311	-26.070604, 152.431596	Healthy male
16/8/21	Bearded dragon	Pogona barbata	-26.073450, 152.432049	-26.071941, 152.431426	Small male
16/8/21	Squirrel glider	Petaurus norfolcensis	-26.074117, 152.431097	-26.070604, 152.431596	Adult male And female
16/8/21	Tawny frog mouth	Podargus strigoides	-26.075239, 152.430230	N/A	Self- relocated
16/8/21	Eastern bearded dragon	Pogona barbata	-26.074844 <i>,</i> 152.429728	-26.070604, 152.431596	Healthy male
16/8/21	Squirrel glider Male	Petaurus norfolcensis	-26.075993, 152.428188	-26.070604, 152.431596	Single male
16/8/21	Rainbow Lorikeet	Trichoglossus haematodus	-26.075911, 152.428295	N/A	Fledglings x2 Dead on impact
17/8/21	Green tree frog brood	Litoria caerulea	-26.078617, 152.423515	-26.071395, 152.441625	22 indiv. healthy
17/8/21	Persons tree frog	Litoria peronii	-26.078617, 152.423515	-26.071395, 152.441625	Healthy adult
17/8/21	Desert tree frog brood	Litoria rubella	-26.078617, 152.423515	-26.071395, 152.441625	x9
17/8/21	Eastern Barn owl	Tyto alba	-26.077459, 152.425095	N/A	1 adult, Self-relocated







FIGURE 3- HABITAT FEATURES

Habitat Features



#### 5 CONCLUSION

Australia Wide Environmental Consultants (AWEC) were commissioned by Carruthers Contractors to manage fauna during the clearing at 1706 Wide Bay Highway, Woolooga.

A suitably qualified and licenced fauna spotter catcher was on site for the duration of clearing works.

The site was slowly sequentially cleared over a period of 3 months, this allowed fauna to self-relocate. There was a moderate to high abundance of wildlife encountered during clearing, some were assisted in relocating, many self-relocated. There were 3 fatalities, an injured red-belly black snake and 2 lorikeets.

Overall clearing at this site did not have too negative an impact on local wildlife, and many habitat features were retained.



#### 6 **REFERENCES**

Curtis LK & Dennis AJ, (2012), Queensland's Threatened Animals, CSIRO Publishing, Collingwood, Victoria

Department of Enivronment and Science, (2021), Spatial modelling for koalas in South East Queensland: Report, version 2.0, Brisbane: Department of Environment and Science, Queensland.

Eyre Tj, Ferguson Dj, Hourigan Cl, Smith Gc, Mathieson Mt, Kelly, Al, Venz Mf & Hogan, Ld. 2012. Terrestrial Vertebrate Fauna Survey Guidelines For Queensland. Qld.Gov.Au. (2018), From Https://Www.Qld.Gov.Au/\_\_Data/Assets/Pdf\_File/0022/68224/Fauna-Survey-Guidelines.Pdf.

Lester N, (2008), Woodland To Weeds- Southern Queensland Brigalow Belt, Second Edition, Copyright Publishing, Brisbane.

Mcelroy C, Ingleby S, Tipping J, Stokes J, Barclay S. 2004. Survey Guidelines For Australia's Threatened Mammals. Environment.Gov.Au. (2011), <a href="https://www.awe.gov.au/sites/default/files/documents/survey-guidelines-mammals.pdf">https://www.awe.gov.au/sites/default/files/documents/survey-guidelines-mammals.pdf</a>

*Nature Conservation and Other Legislation Act* 2016, Queensland Government, <u>https://www.legislation.qld.gov.au/view/html/asmade/act-2016-022/lh</u>

*Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation* 2020, Queensland Government, <u>https://www.legislation.qld.gov.au/view/pdf/asmade/sl-2020-0009</u>

Romanowski N, (2011), Australian Grasses, Hyland House Publishing, Australia

Ryan M, (2007), Wildlife Of The Greater Brisbane, Queensland Museum, South Brisbane

Ryan M, (2007), Wild Plants Of The Greater Brisbane, Queensland Museum, South Brisbane

The State of Queensland (Department of Resources), (2021), Queensland Spatial Catalogue, <u>https://qldspatial.information.qld.gov.au/catalogue/custom/index.page</u>

Triggs, B., (2004). Tracks, Scats, And Other Traces. 2nd Ed. South Melbourne, Vic.: Oxford University Press.



Appendix 4– FSC pre and post clearance reports - Evolve

Woolooga Solar Farm Offset


Fauna Spotter/Cater Services Report



# Woolooga Solar, Wide Bay Highway, Lower Wonga

Fauna Spotter/Catcher

Pre-clearance Report

20/04/2021 Job Number: 273

Evolve Environmental Solutions Pty. Ltd.



#### Document Control

#### Document Name: Fauna Spotter/Catcher Pre-clearance Report – Woolooga Solar

#### **Document Issue**

Issue	Date	Prepared By	Checked By
Issue A	20.04.2021	Zoe Lutz	Adam Hutchinson

Prepared by

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#### Introduction

**Evolve Environmental Solutions** (Evolve) has been engaged by Lightsource BP to undertake management of the Woolooga Solar Farm Environmental Offset site located on Wide Bay Highway, Lower Wonga, including fire-break cutting works and associated Fauna Spotter/Catcher and Fauna Management activities.

The objective of this report is to summarise the existing fauna values present and assign mitigatory strategies applicable to probable species likely to be encountered during the clearing of identified habitats throughout or within specific localities of the site. Fauna species both common and of elevated conservation value have been considered within the parameters of onsite investigations.

#### Current Permits and Authorities

All activities conducted during the site investigations were implemented under the provisions of current permits issued to Evolve Environmental Solutions Pty Ltd.

Permit/Authorisation	Permit Number	Issuing Body	Expiry Date
Rehabilitation Permit	WA0036560	Department of	30 August 2024
		Environment and	
		Science (DES)	
Scientific Purposes Permit	WA0027298	DES	08 October 2025
Animal Ethics	CA 2020/07/1389	Department of	10 September 2023
		Agriculture and	
		Fisheries (DAF) Animal	
		Ethics Committee (AEC)	
Animal Ethics	CA 2021/03/1490	DAF AEC	10 September 2023
<b>General Fisheries Permit</b>	213450	DAF	10 September 2023

Table 1; Fauna permits.

These permits and approvals enable Evolve to conduct the investigation, observation and relocation of protected animals exposed to disturbance due to infrastructure expansion resulting in the destruction of natural and artificial habitats.

#### Methodology

#### Camera Trapping

The following methodology was employed during our camera trapping surveys:

- Camera areas were first assessed and cameras installed in key locations on site;
- Cameras securely attached 30 50 cm from the ground on a tree or post;
- Cameras were not baited;
- Cameras were set on the burst function of 2-3 photos per trigger; and
- 14 Cameras were deployed for 15 nights from  $4^{th} 20^{th}$  of May.

#### Audio Logging

Two audio moth ecological recording devices was deployed over 15 nights from 4<sup>th</sup> – 20<sup>th</sup> of May.

• Sampling cycle was set to one minute in every half hour with a minimum amplitude threshold of 15 needing to be met for the segment to be written to the SD card.



#### Spotlighting

The following spotlighting was employed over three nights (18<sup>th</sup>- 20<sup>th</sup> of May) with a total of approximately 12 man hours being employed.

- Spotlighting surveys were conducted within the 100 x 100 m generic survey site for 30-person minutes;
- Binoculars were used to assist with species identification;
- Each site was surveyed with a 400 Lumen LED Torch on two occasions during the survey period on different nights, once close to dusk (< 1 h after dusk) and once later (> 1 h after dusk);
- Each spotlight survey involved an observer/s walking slowly and systematically through the 100 x 100 m generic survey site; and
- Animals seen or heard can were recorded as on-site (within the 100 x 100 m area), near site or offsite.

#### Scat and Sign Search

These searches were conducted incidentally to coincide with other on-site activities, 4<sup>th</sup>-20<sup>th</sup> May, 24<sup>th</sup> May and 1<sup>st</sup> September.

- Traces were documented with use of a camera for later confirmation of ID.
- Samples were not removed from site as no traces were suspected as belonging to significant species.
- Where a Koala scat was identified Koala SAT survey methodology was be employed, as per Phillips & Callaghan (2011). One fecal pellet was located within the offset site.

#### Microhabitat Identification

The following observations were carried out concurrently to pre-works determining fire-trail locations carried out on 24<sup>th</sup> May and 1<sup>st</sup> September.

- Identification of terrestrial microhabitats such as ground hollows, rock, burrows, leaf litter, stands of heavy vegetation, fallen branches and bark exfoliations;
- Artificial habitats including but not limited to discarded rubbish, human dwellings and other infrastructure;
- Observation and investigation of aquatic habitats including dams, soaks, creeks, rivers and seasonally inundated vegetation communities. Artificial aquatic habitats include constructed drains and culverts. Further components of interest include bank profiles and undercuts, submerged and/or exposed timber and rock, immediate aquatic and riparian vegetation, surfacing animals, nesting and/or feeding birds;
- Direct observation of active or exposed fauna within terrestrial, aquatic and arboreal habitats;

#### Findings

The following habitat and fauna-based observations were made across the offset site.

#### Terrestrial Habitat

Terrestrial fauna values of the site include extensive areas of dense grassland. Common grassland species include Quail (*Coturnix sp.*), Red-back fairywrens (*Malrus melanocephalus*), Eastern grey kangaroo (*Macropus giganteus*) and Red bellied black snake (*Pseudechis porphyriacus*).



Patches within the offset site are naturally rocky with artificial rockpiles occurring in some areas where rocks have historically been cleared from fence lines and access tracks. Rocky areas and rockpiles provide shelter and basking opportunities for reptile species including the Pale-flecked garden sunskink (*Lampropholis guichenoti*).

Class	Scientific name	Common name	Status
Amphibia	Rhinella marina	Cane toad	I
Aves	Centropus phasianinus	Pheasant coucal	LC
Aves	Chthonicola sagittata	Speckled warbler	LC
Aves	Estrildidae spp.	Finch sp.	
Aves	Malrus melanocephalus	Red-backed fairywren	LC
Aves	Manorina melanocephala	Noisy miner	LC
Aves	Ocyphaps lophotes	Crested pigeon	LC
Aves	Pardalotus punctatus	Spotted pardalote	LC
Mammalia	Canis familiaris dingo	Australian Dingo	
Mammalia	Macropus parryi	Whiptail Wallaby	LC
Mammalia	Macropus giganteus	Eastern grey kangaroo	LC
Mammalia	Tachyglossus aculeatus	Short-beaked echidna	LC
Mammalia	Vulpes vulpes	Red fox	C3, C4, C5, C6
Reptillia	Lampropholis guichenoti	Pale-flecked garden sunskink	LC
Reptillia	Pseudechis porphyriacus	Red bellied black snake	

Table 2; Terrestrial Fauna Species Observed

#### Arboreal Habitat

Proposed fire trails have been strategically positioned to avoid clearing of native trees. No trees bearing hollows, termitaria or constructed habitat features are within the area of disturbance.

Arboreal species known to occur within the offset site are listed in the table, below.

Table 3; Arboreal fauna species observed.

Class	Scientific name	Common name	Status
Amphibia	Litoria gracilentia	Graceful tree frog	LC
Amphibia	Litoria fallax	Eastern sedgefrog	LC
Amphibia	Litoria tyleri	Tyler's Tree Frog	LC
Aves	Corvus coronoides	Australian raven	LC
Aves	Dacelo novaeguineae	Laughing Kookaburra	LC
Aves	Platycercus adscitus	Pale-headed rosella	LC
Aves	Trichoglossus moluccanus	Rainbow lorikeet	LC
Aves	Acanthorhynchus tenuirostris	Eastern spinebill	LC
Aves	Phaps chalcoptera	Brozewing dove	LC
Aves	Geopelia humeralis	Bar shouldered dove	LC
Aves	Grallina cyanoleuca	Mudlark	LC
Aves	Ailuroedus crassirostri	Green catbird	LC
Aves	Manorina melanocephala	Noisy miner	LC



Aves	Rhipidura leucophrys	Willy wag tail	LC
Aves	Cracticus spp.	Butcherbird	LC
Aves	Ocyphaps lophotes	Crested pigeon	LC
Aves	Malrus sp.	Wren	LC
Aves	Strepera graculina	Pied Currawong	LC
Aves	Zosterops lateralis	Wax eye	LC
Aves	Cacatua galerita	Sulfur crested cockatoo	LC
Aves	Rhipidura	Fantail	LC
Aves	Eudynamys scolopacea	Common Koel	LC
Mammalia	Microchiroptera spp.	Microbat	
Mammalia	Trichosurus vulpecula	Common brushtail possum	LC
Mammalia	Pseudocheirus peregrinus	Common ringtail possum	LC
Reptilia	Lampropholis guichenoti	Pale-flecked garden sunskink	LC
Aves	Pardalotus punctatus	Spotted pardalote	LC
Aves	Acanthiza pusilla	Brown thornbill	LC
Aves	Gymnorhina tibicen	Australian Magpie	LC
Aves	Scythrops novaehollandiae	Channel-billed cuckoo	LC
Amphibia	Litoria rubella	Naked treefrog	LC
Aves	Estrildidae spp.	Finch sp.	LC
Aves	Lichmera indistincta	Brown honeyeater	LC
Aves	Ninox boobook	Southern boobook owl	LC

#### Wetland

A number of creeks are present within the offset site and have been established through audio trapping to support multiple wetlands associated species. Planned fire trails cross these creeks at pre-existing crossings. Constructed dams and drainage features are also present within the offset site. Audio recording data shows Striped marsh frog (*Limnodynastes peronii*) and Eastern sedgefrog (*Litoria fallax*) occur with abundance in wetland areas within the offset site. A full list of Aquatic species known to occur on-site is provided in the table, below.

Table 4; Wetland associated fauna species known to occur within the offset site.

Class	Scientific name	Common name	Status
Amphibia	Limnodynastes tasmaniensis	Spotted marsh frog	LC
Amphibia	Limnodynastes peronii	Striped marsh frog	LC
Amphibia	Litoria fallax	Eastern sedgefrog	LC
Amphibia	Litoria gracilentia	Graceful tree frog	LC
Amphibia	Litoria rubella	Naked treefrog	LC
Amphibia	Litoria tyleri	Tyler's Tree Frog	LC
Amphibia	Rhinella marina	Cane toad	I
Aves	Anas superciliosa	Pacific black duck	LC
Aves	Fulica atra	Eurasian coot	LC
Aves	Porphyrio porphyrio	Purple swamphen	LC
Amphibia	Crinia parinsignifera	Eastern sign-bearing froglet	LC



#### Endangered, Vulnerable and Near Threatened (EVNT) Species

It is not envisaged that any EVNT fauna species will be detrimentally impacted by the proposed works. However, five species identified within the Online EPBC Protected Matters Report (Appendix A) and the Queensland Government Wildlife Online Search Tool (Appendix B) are considered to have potential to occur within the site.

Scientific name	Common name	Species Information	Likelihood of Occurrence
Mammals			
Dasyurus hallucatus	Northern Quoll	EPBC: Endangered	Possible
		NCA: -	Species habitat
			may occur within area
Phascolarctos cinereus	Koala	EPBC: Vulnerable	Possible
		NCA: Vulnerable	Known food trees occur in
			the area and historical
			evidence of species has been
			located within the wider site.
Pteropus	Grey-headed	EPBC: Vulnerable	Possible
poliocephalus	Flying-fox	NCA: -	Known food trees occur in
			the area
Birds			
Erythrotriorchis	Red Goshawk	EPBC: Vulnerable	Possible
radiatus		NCA: Endangered	Species habitat
			may occur within area
Falco hypoleucos	Grey Falcon	EPBC: Vulnerable	Possible
		NCA: Vulnerable	Species habitat
			may occur within area
Geophaps scripta	Squatter pigeon	EPBC: Vulnerable	Possible
scripta		NCA: Vulnerable	Species habitat
			may occur within area
Hirundapus	White-throated	EPBC: Vulnerable	Possible
caudacutus	Needletail	NCA: Vulnerable	Species habitat
			may occur within area

Table 5; EVNT Species that have potential to occur within the area of disturbance.



#### Conclusion

#### EVNT

It is not envisaged that any species, listed under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* or the *Nature Conservation Act 1992*, other than those listed in **Table 5**, will require specific management during vegetation clearing activities.

However, specific management for those identified EVNT species will include targeted investigations immediately prior to vegetation removal activities on each day of clearing and subsequently whilst clearing takes place. Preliminary investigations will be supported by additional monitoring applied during clearing activities with a designated fauna spotter operating with each machine actively involved in vegetation or identified habitat disturbance. These should include the following:

#### Koala

As favoured Koala food trees on site exceed a diameter of 100mm at 1.3 metres from the ground, requirements under the Koala Plan's 'Koala Habitat Area' provisions trigger the need for inspection and monitoring during vegetation clearing by a qualified Fauna Spotter.

Historically known to occur within the area the Koala will feature highly in daily search efforts with a dedicated and detailed methodology employed.

Direct observational methodology will include the following components:

- 'Drip zone' searches at the base of known food trees for the presence of scats to a radius equal to that of the crown of individual trees;
- Inspection of trunks for scratchings indicative of use by Koalas;
- Repeat observations made of single trees from numerous angles at repeated times throughout the clearing activities by the assigned fauna spotter.

In the event a Koala is detected; the Fauna Spotter will determine the appropriate course of action with exclusion zones implemented and alterations to the clearing plan discussed with the Site Supervisor. Once defined, these directions will be communicated to the plant operators and clearing will proceed in accordance with the recommendations made.

Changes to Koala management strategies highlighted in the *Nature Conservation (Koala) Conservation Plan 2017* have resulted in particular conditions placed on vegetation clearance involving the removal of Koala food trees. These provisions entail an increased responsibility by developers and land clearance operators alike to ensure the welfare of potentially present Koalas in areas identified as having significance for the persistence of this species.

Where significance under planning instruments is assigned provisions may include the restriction of all clearance that directly interferes with any tree a Koala is residing in or surrounding trees that, when felled, may impact on the crown of the host tree. Koalas are to leave via their own volition through a corridor designated by the Fauna Spotter to the closest remaining suitable habitat.

Throughout this time, the Koala may not be interfered with by any means unless the Koala is evidently in a state of compromised health. Only when Koalas have vacated a tree can clearance operations include the identified host tree and surrounding vegetation which composes the established exclusion zone. Recommendations made by the Fauna Spotter on site will embrace these provisions.



#### General Terrestrial and Arboreal Fauna

The majority of habitat to be cleared is comprised of grassland with a high proportion of introduced pasture grasses present. Overall, the site contains low-medium value refugial opportunities for arboreal and terrestrial fauna species. The species expected within the site are likely to primarily reflect common fauna assemblages for the region however provisions are proposed directly for common fauna and species of conservation significance.

It is advised that all identified fauna habitats onsite be inspected by a DES approved Fauna Spotter prior to vegetation clearing and all vegetation removal activities be supervised during the clearing process.

#### **Clearing Procedures**

Trees identified as having potential fauna values (such as hollows, fissures and exfoliating bark) will be clearly identified and subsequently avoided. Efforts will be made to determine potentially occupant species by way of investigations for indicative signs (scats, scratching and tracks) on the day(s) of clearing. Small saplings (<200mm DBH) may be felled only where;

- a) No signs of occupancy are found. And
- b) Felling of the sapling is not reasonably avoidable by adjusting the location of the fire break.

All identified micro habitats will be inspected via ground based observation and the direction of felling will be determined considering the safety of personnel, machinery and potentially occupant fauna. This will be achieved under direction of the Fauna Spotter present directly communicating with the plant operator(s).

#### References

Department of Environment and Energy (2015) *EPBC Act Protected Matters Report,* https://www.environment.gov.au/epbc/protected-matters-search-tool Date accessed 17th Sept 2021.

Department of Environment and Heritage Protection (2017) Nature Conservation (Koala) Conservation Plan 2017, Queensland State Government – DEHP.

Department of Environment and Science (2017) *Plants and Animals – Species Lists*, https://www.qld.gov.au/environment/plants-animals/species-list Date accessed 19th April 2021.



Appendix A: EPBC Act Protected Matters Report



Appendix B: Wildlife Online Extract



Fauna Spotter/Catcher Services Report



# Woolooga Solar, Wide Bay Highway, Lower Wonga

Fauna Spotter/Catcher Post-clearance Report

17/09/2021 Job Number: VS0273 Evolve Environmental Solutions Pty. Ltd.



#### **Document Control**

#### Document Name: Fauna Spotter/Catcher Post-clearance Report – Woolooga Solar

#### **Document Issue**

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Prepared by

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#### Introduction

**Evolve Environmental Solutions** (Evolve) has been engaged by Lightsource BP to undertake management of the Woolooga Solar Farm Environmental Offset site located on Wide Bay Highway, Lower Wonga, including fire-break cutting works and associated Fauna Spotter/Catcher and Fauna Management activities.

This report covers Spotter/catcher and clearance activities undertaken between the 6<sup>th</sup> and 15<sup>th</sup> of September, inclusive.

#### Current Permits and Authorities

All activities conducted during the site investigations were implemented under the provisions of current permits issued to Evolve Environmental Solutions Pty Ltd by the Department of Environment and Science (DES)

Permit/Authorisation	Permit Number	Expiry Date
Rehabilitation Permit	WA0036560	30 August 2024
Scientific Purposes Permit	WA0027298	08 October 2025
Animal Ethics	CA 2020/07/1389	10 September 2023
Animal Ethics	CA 2021/03/1490	10 September 2023
General Fisheries Permit	213450	10 September 2023

#### Table 1; Permits and authorisations

These permits and approvals enable Evolve to conduct the investigation, observation and relocation of protected animals exposed to disturbance due to infrastructure expansion resulting in the destruction of natural and artificial habitats.

#### Methodology

#### Clearance Investigations

A standard set of observational and active searching techniques were employed prior to the commencement of clearance to ascertain and identify existing fauna values for each location. These include:

• Assessment of terrestrial microhabitats such as ground hollows, rock, burrows, leaf litter, fallen branches and bark exfoliations,

• Observation and assessment of occupancy of arboreal microhabitats such as tree hollows, fissures and exfoliations,

- Direct observation of active or exposed fauna,
- Identification of scats, tracks and scratchings to determine fauna present on the site.

All microhabitats were identified and subsequently inspected during clearance.

#### Koala (Phascolarctos cinereus) Specific considerations

Due to the specific requirements relating to the Koala the following techniques were employed at the clearance site to ascertain presence/absence status:

• 'Drip zone' searches at the base of known food trees for the presence of scats to a radius equal to that of the crown of individual trees;



• Inspection of trunks for scratchings indicative of use by Koalas.

Recent changes to Koala management strategies highlighted in the Nature Conservation (Koala) Conservation Plan 2017 have resulted in particular conditions placed on vegetation clearance involving the removal of Koala food trees.

Further provisions include the restriction of all clearance that may directly interfere with the tree a Koala is residing in. Koalas are to leave via their own volition and may not be interfered with by any means. Only when Koalas have vacated a tree can clearance operations include the host tree and surrounding vegetation.

#### **Clearing Procedures**

No trees identified as having potential fauna values (such as hollows, fissures and exfoliating bark) were cleared. Two trees ≥4m in height were removed due to a viable alternative fire trail route being unavailable, for these trees;

- Efforts were made to determine potentially occupant species by way of investigations for indicative signs (scats, scratchings and tracks). Where no signs were found, trees were felled in a manner directed at minimising the potential risk of injury to any unidentified fauna.
- Limbs were inspected and the direction of felling determined with regards to safety of both machinery and operators. Considerations to potentially occupant fauna were assessed and felling procedures formulated. Felling procedures may have included the following techniques:
  - Machinery blades were utilised to shake the tree in an attempt to disturb fauna out microhabitat refugia to determine species present.
  - If fauna were present, the tree was either left standing overnight to allow the occupant animal(s) time to leave via their own volition, or if species detected were able to be encouraged from the tree by shaking or direct capture by a wildlife spotter(s). The tree was felled with considerations to potentially undetected fauna.
  - Adjacent felled trees were utilised to absorb the impact of potential fauna bearing trees

#### Communications during Clearance

Each spotter/catcher was equipped with a hand held radio to make positive communications with machinery operators. Communications by radio and positive hand signals were utilised to indicate intentions to machinery operators.

#### Results

No fauna was captured, injured or killed in the course of clearing works.

No fauna species listed as Endangered, Vulnerable or Near-Threatened under either the EPBC Act or NCA were observed during the course of on-site works.

In addition to the species known to occur within the offset site as listed in the Spotter-Catcher Pre-Clearance report the following species, not previously recorded within the offset site were observed incidentally during the course of on-site works;



Table 2; Additional species observations

Class	Scientific name	Common name	Status
Aves	Coturnix chinensis	King quail	LC
Mammalia	Isoodon macrourus	Northern Brown Bandicoot	LC
Mammalia	Mus musculus	House mouse	I
Reptillia	Varanus varius	Lace monitor	LC

Fire trails utilised pre-existing creek crossings at three points within the subject site as planned. No additional clearing works were carried out at these locations.

No microhabitats were cleared in the form of:

- Nest;
- Hollows;
- Arboreal termitaria;
- Course woody debris;
- Rock piles; or
- Burrows.

Table 3; Spotter-catcher allocation

Works Date	Spotter-catchers in attendance
Mon 6 <sup>th</sup> September	Four
Tuesday 7 <sup>th</sup> September	Three
Wednesday 8 <sup>th</sup> September	Three
Thursday 9 <sup>th</sup> September	Three
Monday 13 <sup>th</sup> September	Three
Tuesday 14 <sup>th</sup> September	Three
Wednesday 15 <sup>th</sup> September	Тwo

#### Conclusion

No Koalas or other EVNT fauna were observed during clearance. Other fauna found during clearance works self-relocated to adjacent localities comprising suitable refugia and feeding resources consistent with individual species requirements.

All supervised clearance activities were conducted with the full co-operation of onsite personnel and machinery operators.

#### References

Department of Environment and Heritage Protection (2017) Nature Conservation (Koala) Conservation Plan 2017. Queensland Government.









	V	Vooloog	a Solar - E	PC Progra	am December 2021 Progress Update - Risen ROC
					Update
				Status Da	ate: 01-Dec-21   Print Date: 22-Dec-21
Activity ID	Activity Name	Original	Start	Finish	2021 2022
		Duration			Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun .
Woolooga	Solar - EPC Program December 2021 Progress Update	573	20-Feb-20 A	30-Dec-22	
Milestone	S	479	01-Feb-21 A	30-Dec-22	
M1020	NTP	0	02-Jun-21 A		► NTP
M1010	Early Works Agreement #1 (Concept Design and Site Investigations)	0	01-Feb-21 A		Early Works Agreement #1 (Concept Design and Site Investigations)
M1110	Contractor Mobilization	0	19-Apr-21 A		Contractor Mobilization
M1130	R1 Registration Package Submission	0		28-Oct-21 A	R1 Registration Package Submission
M1060	Array Construction Complete	0		07-Jul-22	
M1070	Inverter Commissioning Complete	0		21-Jul-22	
M1080	R2 Commissioning Complete	0		19-Aug-22	
M1120	Provisional Acceptance (Substantial Completion)	0		19-Aug-22	
M1100	Final Completion	0		30-Dec-22	
M1030	EPC Contract Award	0	11-Feb-21 A		◆ EPC Contract Award
M1040	Extended Early Works Agreement #2 (Access Road, Design and Procurment)	0	16-Mar-21 A		<ul> <li>Extended Early Works Agreement #2 (Access Road, Design and Procurment)</li> </ul>
M1050	Early Works Agreement #3 (Design, Procurment, Onsite Construction Activities	0	01-Apr-21 A		Early Works Agreement #3 (Design, Procurment, Onsite Construction Activities
Condition	s Precedent	379	11-Feb-21 A	08-Aug-22	
A7850	Financial Close	0		02-Jun-21 A	♦ Financial Close
A7860	Project Documents (Connection Agreement / Council Licence / Waiver Letter)	15	12-Feb-21 A	01-Jun-21 A	Project Documents (Connection Agreement / Council Licence / Waiver Le
A7870	Contractor's Insurances (PL / Motor Vehicle / Equipment / PI / 3rd party)	15	11-Feb-21 A	21-May-21 A	Contractor's Insurances (PL / Motor Vehicle / Equipment / PI / 3rd party)
A7880	Parent Company Guarantee	10	12-Feb-21 A	24-May-21 A	Parent Company Guarantee
A7890	Financier's Tripartite Deed	10	12-Feb-21 A	28-May-21 A	Financier's Tripartite Deed
A7900	Advance Payment Guarantee (EPC)	10	12-Feb-21 A	18-May-21 A	Advance Payment Guarantee (EPC)
A7910	Performance Bank Guarantee (EPC)	10	12-Feb-21 A	18-May-21 A	Performance Bank Guarantee (EPC)
A7920	Performance Bank Guarantee (O&M)	0		08-Aug-22	
A7930	Registration and Licensing	15	12-Feb-21 A	21-May-21 A	Registration and Licensing
A7940	Legal Opinions	15	12-Feb-21 A	31-May-21 A	Legal Opinions
A7950	Independent Certifier Deed (EPC)	15	12-Feb-21 A	25-May-21 A	Independent Certifier Deed (EPC)
A7960	Principal's Insurances	15	12-Feb-21 A	02-Jun-21 A	Principal's Insurance's
A7970	Notice of Anticipated Financial Close	0	29-Apr-21 A		Notice of Anticipated Financial Close
A7980	Anticipated Date of Financial Close	0		20-May-21 A	◆ Anticipated Date of Financial Close
Changes /	/ Delays	316	01-Mar-21 A	02-Jun-22	V Char
A2240	Early Works Agreement #2 - Delayed Receipt of Security	11	01-Mar-21 A	15-Mar-21 A	Early Works Agreement #2 - Delayed Receipt of Security
A2290	Offset Management Plan - Issuance Post EPC Signing	30	23-Apr-21 A	09-Jul-21 A	Offset Management Plan - Issuance Post EPC Signing
A2300	Public Road Upgrades - Site 1 And Site2A Alignment Issues (Lidar Survey)	30	30-Apr-21 A	18-Jun-21 A	Public Road Upgrades - Site 1 And Site2A Alignment Issues (Lidar Sur
A2310	Public Roads Upgrades - Site 2A Subsurface Stream Discovered	14	06-May-21 A	18-Jun-21 A	Public Roads Upgrades - Site 2A Subsurface Stream Discovered
A2350	Harmonic Compliance - Assessment Report	17	27-May-21 A	30-Jul-21 A	Harmonic Compliance - Assessment Report
A2360	Harmonic Compliance - Filter Install and Commission (TBC)	18	09-May-22	02-Jun-22	Ham
A2370	Switchroom Delay - COVID-19 Impacts	21	17-Sep-21 A	29-Oct-21 A	Switchroom Delay - COVID-19 Impacts
A2380	Cable Drum Procurement Delay - COVID-19 Impacts	15	23-Aug-21 A	08-Sep-21 A	Cable Drum Procurement Delay - COVID-19 Impacts
A2390	PCU Procurement Delay - COVID-19 Impacts	25	01-Oct-21 A	18-Nov-21 A	PCU Procurement Delay - COVID-19 Imp
A2400	Harmonic Compliance - ONE Design and Procurement	120	08-Oct-21 A	02-May-22	Harmonic (
A2410	Module Procurement Delay No. 01	60	12-Jul-21 A	01-Oct-21 A	Module Procurement Delay No. 01
A2430	Cable Manufacturing Delay - Government Restrictions	22	27-Sep-21 A	14-Dec-21	Cable Manufacturing Delay - Govern
A2470	Module Procurement Delay No. 02	7	01-Oct-21 A	10-Nov-21 A	Module Procurement Delay No. 02
A2480	Harmoninc Compliance - Civil and Substation Works (TBC)	115	23-Nov-21 A	06-May-22	Harmonin
A2385	Cable Delivery Delay (Batch 1) - COVID-19 Impacts	46	09-Sep-21 A	19-Nov-21 A	Cable Delivery Delay (Batch 1) - COVID-1
Remai	ining Level of Effort Remaining Work Summary				Page 1 of 10
Actual	Level of Effort Critical Remaining Work				20-Dec-21 Decen
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# Woolooga Solar - EPC Program December 2021 Progress Update - Risen ROC Update

				Status Da	te: 01-Dec-21   Print Date: 22-Dec-21
ctivity ID	Activity Name	Original	Start	Finish	2021 2022 2023
		Duration			Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct
A2530	PCU Incident 19 Nov 2021	5	19-Nov-21 A	30-Dec-21	PCU Incident 19 Nov 2021
A2495	Cable Delivery Delay (Batch 2) - COVID-19 Impacts	7	15-Dec-21	23-Dec-21	Cable Delivery Delay (Batch 2) - COVID-19 Impacts
A2523	Rain Delay - Site Access (Internal) Roads - Oct/Nov 2021 (15 days)	5	08-Nov-21 A	30-Nov-21 A	Rain Delay - Site Access (Internal) Roads - Oct/Nov 2021 (15 days)
A2540	Rain Delays - Mechanical Installation - Nov 2021	5	08-Nov-21 A	02-Dec-21 A	Rain Delays - Mechanical Installation - Nov 2021
A2490	Module Procurement Delay No. 03 - Gap in Deliveries #6 and #7	18	20-Dec-21	17-Jan-22	Module Procurement Delay No. 03 - Gap in Deliveries #6 and #7
A2560	Module Procurement Delay No. 04 - Gap in Deliveries #15 and #16	8	30-Mar-22	08-Apr-22	Module Procurement Delay No. 04 - Gap in Deliveries #15 and #16
Pre-Constru	ction	435	20-Feb-20 A	12-Jun-22	Pre-Construction
Engineering		132	01-Feb-21 A	27-Jul-21 A	Engineering
Solar Array Eng	ineering	132	01-Feb-21 A	27-Jul-21 A	Solar Array Engineering
A2090	Onsite Pile Testing and Geotechnical Investigation	15	01-Feb-21 A	19-Feb-21 A	Onsite Pile Testing and Geotechnical Investigation
A2130	Solar Array - Issued for Review (IFR) Design Review (LSBP)	10	30-Mar-21 A	16-Apr-21 A	Solar Array - Issued for Review (IFR) Design Review (LSBP)
A2110	Solar Arrary Engineering to Issued for Review (IFR) Package	40	01-Feb-21 A	29-Mar-21 A	Solar Arrany Engineering to Issued for Review (IFR) Package
A2160	Solar Array Engineering to Issued for Tender (IFT)	30	19-Apr-21 A	26-May-21 A	Solar Array Engineering to Issued for Tender (IFT)
A2170	Solar Array - Issued for Tender (IFT) Design Review (LSBP)	10	27-May-21 A	08-Jul-21 A	Solar Array - Issued for Tender (IFT) Design Review (LSBP)
A2180	Solar Array Engineering to Issued for Construction (IFC) Package	20	28-May-21 A	27-Jul-21 A	Solar Array Engineering to Issued for Construction (IFC) Package
A2140	Pile Foundation Design IFC	15	16-Mar-21 A	15-Apr-21 A	Pile Foundation Design IFC
A2150	Tracker De sign IFC	15	16-Mar-21 A	10-May-21 A	Tracker Design IFC
Substation Eng	ineering	111	01-Feb-21 A	28-Jun-21 A	Substation Engineering
A2250	Substation Engineering Concept Design 30%	20	01-Feb-21 A	12-Feb-21 A	Substation Engineering Concept Design 30%
A2260	Substation Engineering Concept Design 30% Review (LSBP)	10	15-Feb-21 A	01-Apr-21 A	Substation Engineering Concept Design 30% Review (LSBP)
A2270	Substation Engineering Detailed Design Submission 80%	20	02-Apr-21 A	14-May-21 A	Substation Engineering Detailed Design Submission 80%
A2280	Substation Engineering Detailed Design Submission IFC	20	28-May-21 A	28-Jun-21 A	Substation Engineering Detailed Design Submission IFC
A2330	Substation Engineering Detailed Design Submission 80% Review (LSBP)	10	06-May-21 A	25-May-21 A	Substation Engineering Detailed Design Submission 80% Review (LSBP)
A2320	Substation Engineering - Major Plant Procurement Issued for Review	5	01-Feb-21 A	05-Feb-21 A	Substation Engineering - Major Plant Procurement Issued for Review
A2340	Substation Engineering - Major Plant Procurement LSBP Review	3	08-Feb-21 A	11-Feb-21 A	Substation Engineering - Major Plant Procurement LSBP Review
Public Road Up	grades - Woolooga Fund Pty. Ltd	20	01-Feb-21 A	25-Mar-21 A	Public Road Upgrades - Woolooga Fund Pty. Ltd
A13070	JJ Ryan - Detailed Design Site 1 - Issued for Construction	20	01-Feb-21 A	23-Mar-21 A	JJ Ryan - Detailed Design Site 1 - Issued for Construction
A13090	JJ Ryan - Detailed Design Site 2A - Issued for Construction	20	01-Feb-21 A	25-Mar-21 A	JJ Ryan - Detailed Design Site 2A - Issued for Construction
A13100	JJ Ryan - Detailed Design Site 2B - Issued for Construction	20	01-Feb-21 A	23-Mar-21 A	JJ Ryan - Detailed Design Site 2B - Issued for Construction
Approvals an	d Permits	367	20-Feb-20 A	04-Mar-22	Approvals and Permits
Woolooga Fun	d. Pty. Ltd.	362	20-Feb-20 A	25-Feb-22	🗸 Woolooga Fund. Pty. Ltd.
A12840	Development Permit for Operational Works - Public Road Upgrades Site 1	0	17-Feb-21 A		◆ Development Permit for Operational Works - Public Road Upgrades Site 1
A12860	DTMR Road Corridor Permit - 33kV Underground Line	60	09-Aug-21 A	11-Aug-21 A	I DTMR Road Corridor Permit - 33kV Underground Line
A12870	Development Permit for Operational Works - Landscape Buffer - Site 1 and Sit	0	15-Sep-20 A		Operational Works - Landscape Buffer - Site 1 and Site 2B
A12880	Construction Traffic Management Plan - JJ Ryan (Final Versions to be Issued)	120	10-Dec-20 A	03-Jun-21 A	Construction Traffic Management Plan - JJ Ryan (Final Versions to be Issued)
A12990	Development Approval - Site 2A (Amended)	0	11-Mar-21 A		◆ Development Approval - Site 2A (Amended)
A13000	Development Approval - Site 1	0	20-Feb-20 A		
A13010	Development Approval - Site 2B (Amended)	0	05-Mar-21 A		◆ Development Approval - Site 2B (Amended)
A13020	Development Approval - Site 1 and Site 2B Minor Change Application	40	09-Apr-21 A	15-Jun-21 A	Development Approval - Site 1 and Site 2B Minor Change Application
A13260	DTMR Road Corridor Permit - 33kV OHL	60	09-Aug-21 A	16-Aug-21 A	DTMR Road Conidor Permit - 33kV OHL
A13270	Development Permit for Operational Works - Public Road Upgrades Site 2A	0	19-Feb-21 A		Development Permit for Operational Works - Public Road Upgrades Site 2A
A13370	AEMO Register as a Load	30	14-Jan-22	25-Feb-22	AEMO Register as a Load
PCL Construct	ors Pacific Rim Pty. Ltd.	193	03-May-21 A	04-Mar-22	▼ PCL Constructors Pacific Rim Pty. Ltd.
A12890	Development Permit for Operational Works (Road and Site Works) - Site 2A	40	03-May-21 A	10-Sep-21 A	Development Permit for Operational Works (Road and Site Works) - Site 2A
A12900	Development Permit for Operational Works (Road and Site Works) - Site 1	40	13-May-21 A	20-Sep-21 A	Development Permit for Operational Works (Road and Site Works) - Site 1
A12910	Development Permit for Operational Works (Road and Site Works) - Site 2B	40	13-May-21 A	22-Sep-21 A	Development Permit for Operational Works (Road and Site Works) - Site 2B
Remainin	a Level of Effort Remaining Work Summan				Page 2 of 10 Date Revision Checked Approved
Actual Le	vel of Effort Critical Remaining Work				20-Dec-21 December 2021 - Risen Update M.C

## Woolooga Solar - EPC Program December 2021 Progress Update - Risen ROC

Update	
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				Status Da	ate: 01-Dec-21   Print Date: 22-Dec-21	
ctivity ID	Activity Name	Original Duration	Start	Finish	2021	2022
412020	Development Dermit for Ruilding Works (Ruilding Site Office, Depelo Structure	14	12 Aug 21 A	24 Aug 21 A	Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan	Feb Mar Apr May Jun Ju
A12920	Development Permit for Building Works (Building, Site Office, Panels Structure	5	12-Aug-21 A	24-Aug-21 A		Iding Works (Building, Site Office
A12930	Development Permit for Building Works (Building, Site Office, Panels Structure	5	12-Aug-21 A	24-Aug-21 A		Iding Works (Building, Site Office
A12940	Development Permit for Building Works (Demolition) Site 1 (Southern Dwollin	20	01 Jul 21 A	02 Jul 21 A	Development Permit for Building World	re (Demolition) Site 1 (Souther
A12900	Development Permit for Building Works (Demolition) - Site 1 (Southern Dwellin	20	01-5ul-21A	02-501-21A		Development Permit for
P1 Pagiatrati		20	30-Mar-21 A	25-Feb-22		B1 Registration
RI Registrati	Concentra Data Shaata	- 220 - E	30-Mar 21 A	20-1-0-22		
A1770	Generator Data Sheets	5 00	30-IVIAI-21 A	30-Jul-21 A		della e
A1650	Energy Conversion Modeling	20	25-Jun-21 A	15-Sep-21 A		leiing
A1080	Infusion Study	20	02-Aug-21 A	30-Aug-21 A		
A1540	Undertake PSSE Connection Study	20	30-Aug-21 A	27-Sep-21 A		Inection Study
A1840		20	30-Aug-21 A	06-Oct-21 A		
A1520	Undertake PSSE Model Acceptance Testing (MAT)	8	10-Sep-21 A	08-Oct-21 A		
A1530	Develop PSCAD/PSSE Bench Marking Report	8	17-Sep-21 A	13-Oct-21 A		SSE Bench Marking Report
A1750	Develop PSCAD/PSSE Releasable User Guide (RUG)	5	14-Oct-21 A	20-Oct-21 A		PSSE Releasable User Guide (
A1780	Voltage Control Strategy Report	5	21-Oct-21 A	27-Oct-21 A	Voltage Control	Strategy Report
A1790	Collate R1 Submission Package	7	27-Oct-21 A	28-Oct-21 A	Collate R1 Sub	mission Package
A1800	Develop Commissioning Plan (including R2 Test Plan)	7	25-Oct-21 A	28-Oct-21 A	Develop Comm	issioning Plan (including R2 Tes
A1660	Submit R1 Registration Package	0		28-Oct-21 A	◆ Submit R1 Reg	istration Package
A1810	R1 Review - NSP Due Diligence (Variable)	60	29-Oct-21 A	27-Jan-22		R1 Review - NSP Due Diligen
A1820	R1 Review - AEMO Due Dilligence (Variable)	40	29-Dec-21	24-Feb-22		R1 Review - AEMO Due I
A1830	R1 Registration Received	0		25-Feb-22		R1 Registration Received
Procurement	L	333	11-Feb-21 A	12-Jun-22		Procu
P1050	Tracker Procurement	65	22-Mar-21 A	25-Jun-21 A	Tracker Procurement	
P1040	Piling Procurement	70	16-Mar-21 A	11-Jun-21 A	Piling Procurement	
P1100	Module Procurement	70	16-Mar-21 A	09-Jul-21 A	Module Procurement	, , , , , , , , , , , , , , , , , , ,
P1020	DC Homerun Cable Procurement	75	21-May-21 A	12-Oct-21 A	DC Homerun Cab	le Procurement
P1080	Combiner Box Procurement	75	18-Jun-21 A	09-Nov-21 A	Combiner Bo	x Procurement
P1160	AC Homerun Cable Procurement	75	21-May-21 A	12-Oct-21 A	AC Homerun Cab	e Procurement
P1070	PCU Procurement	140	16-Mar-21 A	01-Oct-21 A	PCU Procurement	I I I I I I I I I I I I I I I
P1090	Harness Procurement	5	06-Sep-21 A	24-Sep-21 A	Hamess Procurement	
Substation		150	11-Feb-21 A	05-Nov-21 A	▼ Substation	
A2420	Control Room inc. Medium Voltage Switch Gear	150	11-Feb-21 A	29-Oct-21 A	Control Room i	nc. Medium Voltage Switch Gea
A2440	Main Power Transformer (Wilsons)	150	11-Feb-21 A	23-Sep-21 A	Main Power Transform	er (Wilsons)
A2450	High Voltage Isolator and Earth Switch	150	11-Feb-21 A	13-Oct-21 A	High Voltage Isola	tor and Earth Switch
A2460	High Voltage Circuit Breaker	150	11-Feb-21 A	07-Oct-21 A	High Voltage Circuit	, Breaker
A2500	High Voltage CT's and VT's	150	11-Feb-21 A	13-Oct-21 A	High Voltage CT's	and VT's
A2510	Overhead Line Infrastructure	100	11-Feb-21 A	05-Nov-21 A	Overhead Line	) Infrastructure
Piles		41	14-Jun-21 A	12-Aug-21 A	<b>▼−−−−</b> ▼ Piles	
A7200	Foundation Piling Delivery #1 - 20MW	8	14-Jun-21 A	18-Jun-21 A	Foundation Piling Delivery #1 - 20MW	
A7210	Foundation Piling Delivery #2 - 20MW	8	21-Jun-21 A	25-Jun-21 A	Foundation Piling Delivery #2 - 20MW	
A7220	Foundation Piling Delivery #3 - 20MW	8	28-Jun-21 A	02-Jul-21 A	Foundation Piling Delivery #3 - 20MW	
A7230	Foundation Piling Delivery #4 - 20MW	8	05-Jul-21 A	09-Jul-21 A	Foundation Piling Delivery #4 - 20M	N
A7240	Foundation Piling Delivery #5 - 20MW	8	12-Jul-21 A	16-Jul-21 A	Foundation Piling Delivery #5 - 20N	IW
A7250	Foundation Piling Delivery #6 - 20MW	8	19-Jul-21 A	23-Jul-21 A	Foundation Piling Delivery #6 - 20	MW
A7260	Foundation Piling Delivery #7 - 20MW	8	26-Jul-21 A	30-Jul-21 A	Foundation Piling Delivery #7 - 2	OMW
A7270	Foundation Piling Delivery #8 - 20MW	8	02-Aug-21 A	04-Aug-21 A	Foundation Piling Delivery #8 - 2	20MW
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#### Woolooga Solar - EPC Program December 2021 Progress Update - Risen ROC Update Status Date: 01-Dec-21 | Print Date: 22-Dec-21 Original Duration Activity ID Activity Name Start Finish 202 2022 Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Ju A12590 Foundation Piling Delivery #9 - 20MW 04-Aug-21 A 06-Aug-21 A Foundation Piling Delivery #9 - 20MW 4 A12600 Foundation Piling Delivery #10 - 20MW 4 11-Aug-21 A Foundation Piling Delivery #10 - 20MW 09-Aug-21 A A12610 Foundation Piling Delivery #11 - 14.33MW 4 11-Aug-21 A 12-Aug-21 A Foundation Piling Delivery #11 - 14.33MW Trackers 77 28-Jun-21 A 08-Dec-21 A Trackers Trackers Deliverv #1 - 20MW 30-Jun-21 A Trackers Deliverv #1 - 20MW A7280 8 28-Jun-21 A A7290 Trackers Delivery #2 - 20MW 8 01-Jul-21 A 07-Jul-21 A Trackers Delivery #2 - 20MW A7300 Trackers Delivery #3 - 20MW 8 08-Jul-21 A 13-Jul-21 A Trackers Delivery #3 - 20MW A7310 Trackers Delivery #4 - 20MW 8 14-Jul-21 A 16-Jul-21 A Trackers Delivery #4 - 20MW A7320 8 27-Jul-21 A Trackers Delivery #5 - 20MW Trackers Delivery #5 - 20MW 19-Jul-21 A 6 A7330 Trackers Delivery #6 - 20MW 28-Jul-21 A 02-Aug-21 A Trackers Delivery #6 - 20MW Trackers Delivery #7 - 20MW A7340 6 11-Aug-21 A Trackers Delivery #7 - 20MW 02-Aug-21 A A7350 Trackers Delivery #8 - 20MW 6 11-Aug-21 A 13-Aug-21 A Trackers Delivery #8 - 20MW Trackers Delivery #9 - 20MW A12660 Trackers Delivery #9 - 20MW 6 17-Aug-21 A 24-Sep-21 A 04-Oct-21 A 08-Oct-21 A Trackers Delivery #10 - 20 MW A12670 Trackers Deliverv #10 - 20 MW 5 Trackers Delivery #11 - 14.33MW 08-Dec-21 A Trackers Delivery #11 - 14.33MW A12680 5 12-Oct-21 A Modules 172 06-Oct-21 A 12-Jun-22 🔻 Modu Module Delivery #1 - 3.75MW, Feeder 02 A7360 Module Delivery #1 - 3.75MW, Feeder 02 5 06-Oct-21 A 13-Oct-21 A A7370 Module Delivery #2 - 10.49MW, Feeder 02 10 14-Oct-21 A 10-Nov-21 A Module Delivery #2 - 10.49MW, Feeder 02 A7380 Module Delivery #3 - 10.49MW, Feeder 02 10 17-Nov-21 A Module Delivery #3 - 10.49MW, Feeder 02 10-Nov-21 A 5 23-Nov-21 A Module Delivery #4 - 10.49MW, Feeder 02 A7390 Module Delivery #4 - 10.49MW, Feeder 02, 01 17-Nov-21 A Module Delivery #6 - 10.54MW, Feede A7400 Module Delivery #6 - 10.54MW, Feeder 01 5 08-Dec-21 A 17-Dec-21 A7410 Module Delivery #8 - 5MW, Feeder 06 10 28-Jan-22 06-Feb-22 Module Delivery #8 - 5MW, F A7420 Module Delivery #10 - 5MW, Feeder 06 10 12-Feb-22 21-Feb-22 Module Delivery #10 - 5M<sup>1</sup> A7440 5 07-Dec-21 A Module Delivery #5 - 10.55MW, Feeder Module Delivery #5 - 10.55MW, Feeder 01 23-Nov-21 A A7450 10 18-Jan-22 27-Jan-22 Module Delivery #7 - 10MW, Fe Module Delivery #7 - 10MW, Feeder 01, 06 A7460 5 11-Feb-22 Module Delivery #9 - 5MW, Feeder 06 07-Feb-22 Module Delivery #9 - 5MW, 6 27-Feb-22 Module Delivery #11 - 5N A7470 Module Delivery #11 - 5MW, Feeder 08 22-Feb-22 A12480 Module Delivery #12 - 5MW, Feeder 08 10 28-Feb-22 09-Mar-22 Module Delivery #12 - 5 A12490 Module Delivery #13 - 5MW, Feeder 08 5 10-Mar-22 14-Mar-22 Module Delivery #13 -A12500 Module Delivery #14 - 10MW, Feeder 08 10 15-Mar-22 24-Mar-22 Module Delivery #14 A12510 Module Delivery #15 - 10MW, Feeder 08, 07 5 25-Mar-22 29-Mar-22 Module Delivery #1 Module Delivery A12520 Module Delivery #16 - 10MW, Feeder 07, 05 5 09-Apr-22 13-Apr-22 23-Apr-22 A12530 Module Delivery #17 - 5MW, Feeder 05 10 14-Apr-22 Module Délive 5 A12540 Module Delivery #18 - 5MW, Feeder 05 24-Apr-22 28-Apr-22 Module Delive A12550 10 08-May-22 Module Deli Module Delivery #19 - 9MW, Feeder 05 29-Apr-22 5 13-May-22 A12560 Module Delivery #20 - 9MW, Feeder 05, 04 09-May-22 Module De 10 23-May-22 Module [ A12570 Module Delivery #21 - 10MW, Feeder 04 14-May-22 A12580 5 28-May-22 Module Module Delivery #22 - 15MW, Feeder 04, 03 24-May-22 15 12-Jun-22 A12620 Module Delivery #23 - 25MW, Feeder 03 29-May-22 Modu AC DC Fiber Farthing Cable 45 22-Nov-21 A 26-Jan-22 AC DC Fiber Earthing Cable A7530 Cable Delivery #1 - Batch 1 5 29-Nov-21 A Cable Delivery #1 - Batch 1 22-Nov-21 A 5 Cable Delivery #2 - Batch 2 A7540 Cable Delivery #2 - Batch 2 28-Dec-21 04-Jan-22 A7550 Cable Delivery #3 - Batch 3 5 28-Dec-21 Cable Delivery #3 - Batch 3 20-Dec-21 A7560 Cable Delivery #4 - PV Hamess 5 20-Jan-22 26-Jan-22 Cable Delivery #4 - PV Hames Power Conversion Units (PCU) 80 19-Nov-21 A 07-Mar-22 Power Conversion Units | PCU Delivery #1 - 1ea Units with PQ Meter A7480 PCU Delivery #1 - 1ea Units with PQ Meter Prep, Feeder 02 5 19-Nov-21 A 19-Nov-21 A

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# Woolooga Solar - EPC Program December 2021 Progress Update - Risen ROC Update

				Status Da	te: 01-Dec-21   Print Date: 22-Dec-21
vity ID	Activity Name	Original	Start	Finish	2021 2022
		Duration			Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul
A7490	PCU Delivery #2 - 2ea Units, Feeder 01, 03	4	26-Nov-21 A	26-Nov-21 A	PCU Delivery #2 - 2ea Units, Feeder 01, 0
A7500	PCU Delivery #3 - 2ea Units, Feeder 02, 01	2	29-Nov-21 A	29-Nov-21 A	PCU Delivery #3 - 2ea Units, Feeder 02, 0
A7510	PCU Delivery #4 - 3ea Units, Feeder 02, 01	5	03-Dec-21 A	06-Dec-21 A	PCU Delivery #4 - 3ea Units, Feeder 02,
A7520	PCU Delivery #5 - 2ea Units, Feeder 02, 01	5	06-Dec-21 A	06-Dec-21 A	I PCU Delivery #5 - 2ea Units, Feeder 02,
A12730	PCU Delivery #6 - 2ea Units, Feeder 01	7	13-Dec-21 A	13-Dec-21 A	I PCU Delivery #6 - 2ea Units, Feeder 01
A12740	PCU Delivery #7 - 4ea Units, PQ Meter Prep, Feeder 02, 06	3	17-Dec-21	21-Dec-21	PCU Delivery #7 - 4ea Units, PQ Mete
A12750	PCU Delivery #8 - 2ea Units, Feeder 02, 06	3	22-Dec-21	28-Dec-21	C PCU Delivery #8 - 2ea Units, Feeder
A12760	PCU Delivery #9 - 2ea Units, Feeder 06, 08	3	05-Jan-22	07-Jan-22	PCU Delivery #9 - 2ea Units, Feed
A12770	PCU Delivery #10 - 4ea Units, Feeder 08, 07	3	19-Jan-22	21-Jan-22	I PCU Delivery #10 - 4ea Units, F
A12780	PCU Delivery #11- 4ea Units, Feeder 08, 07	3	27-Jan-22	31-Jan-22	PCU Delivery #11- 4ea Uhits,
A12790	PCU Delivery #12 - 5ea Units, Feeder 05	3	02-Feb-22	04-Feb-22	PCU Delivery #12 - 5ea Units
A12800	PCU Delivery #13 - 5ea Units, Feeder 04	3	09-Feb-22	11-Feb-22	PCU Delivery #13 - 5ea Uni
A12810	PCU Delivery #14 - 5ea Units, Feeder 04, 03	5	14-Feb-22	18-Feb-22	PCU Delivery #14 - 5ea Ur
A12820	PCU Delivery #15 - 3ea Units, MVPS2500-S-AU, Feeder 01, 02, 03	5	22-Feb-22	28-Feb-22	D PCU Delivery #15 - 3ea U
A12850	PCU Delivery #16 - 1ea Unit, Feeder 03	5	01-Mar-22	07-Mar-22	PCU Delivery #16 - 1ea
Combiner Box	es	49	21-Oct-21 A	03-Jan-22	Combiner Boxes
A8050	Factory Acceptance Testing Combiner Boxes	1	21-Oct-21 A	13-Dec-21 A	Factory Acceptance Testing Combiner E
A13180	Combiner Box Delivery #1 (240)	5	10-Nov-21 A	12-Nov-21 A	Combiner Box Delivery #1 (240)
A13190	Combiner Box Delivery #2 (240)	5	07-Dec-21 A	08-Dec-21 A	I Combiner Box Delivery #2 (240)
A13200	Combiner Box Delivery #3 (160)	5	08-Dec-21 A	09-Dec-21 A	I Combiner Box Delivery #3 (160)
A13210	Combiner Box Delivery #4 (213)	5	23-Dec-21	03-Jan-22	Combiner Box Delivery #4 (213)
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Public Road	Upgrades	150	19-Apr-21 A	19-Oct-21 A	▼ Public Road Upgrades
Site 1		126	19-Apr-21 A	19-Oct-21 A	V Site 1
A13110	Mobilize	5	19-Apr-21 A	26-Apr-21 A	Mobilize
A13120	Preliminaries (Existing Services, Enviro Controls)	5	26-Apr-21 A	30-Apr-21 A	Preliminaries (Existing Services, Enviro Controls)
A13280	Earthworks (Clear and Grub, Cut to Fill, Drains)	20	03-May-21 A	28-May-21 A	Earthworks (Clear and Grub, Cut to Fill, Drains)
A13290	TMR Roadworks on Wide Bay Highway	40	28-May-21 A	19-Oct-21 A	TMR Roadworks on Wide Bay Highway
A13300	Site 1 Upgrade Complete	0		19-Oct-21 A	♦ Site 1 Upgrade Complete
Site 2B		141	03-May-21 A	19-Oct-21 A	▼▼ Site 2B
A13130	Mobilize	5	03-May-21 A	07-May-21 A	Mobilize
A13140	Preliminairies (Existing Services, Enviro Controls)	5	10-May-21 A	14-May-21 A	Preliminairies (Existing Services, Enviro Controls)
A13310	Earthworks (Clear and Grub, Cut to Fill, Drains)	15	07-Jun-21 A	06-Aug-21 A	Earthworks (Clear and Grub, Cut to Fill,Drains)
A13320	TMR Entrance Upgrades	40	09-Aug-21 A	19-Oct-21 A	TMR Entrance Upgrades
A13330	Site 2B Upgrade Complete	0		19-Oct-21 A	◆ Site 2B Upgrade Complete
Site 2A		65	19-Apr-21 A	22-Jul-21 A	Site 2A
A13150	Mobilize	5	19-Apr-21 A	26-Apr-21 A	Mobilize
A13160	Preliminaries (Existing Services, Enviro Controls)	5	26-Apr-21 A	30-Apr-21 A	Preliminaries (Existing Services, Enviro Controls)
A13340	Earthworks (Clear & Grub, Cut to Fill, Drains)	20	03-May-21 A	18-Jun-21 A	Earthworks (Clear & Grub, Cut to Fill, Drains)
A13350	TMR Entrance Upgrades	20	10-May-21 A	22-Jul-21 A	TMR Entrance Upgrades
A13360	Site 2A Upgrade Complete	0		22-Jul-21 A	♦ Site 2A Upgrade Complete
Site Work an	d Early Works (North and South)	314	19-Apr-21 A	02-Sep-22	
CN1070	Landscaping Buffer	20	14-Jul-21 A	09-Sep-21 A	Landscaping Buffer
CN1000	PCL Site Mobilization	20	19-Apr-21 A	13-May-21 A	PCL Site Mobilization
CN1060	Clearing and Grubbing	40	14-Jun-21 A	03-Sep-21 A	Clearing and Grubbing
CN1030	Grading / Storm Water Man agement	60	29-Jun-21 A	20-Dec-21	Grading / Storm Water Management
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# Woolooga Solar - EPC Program December 2021 Progress Update - Risen ROC Update

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ctivity ID	Activity Name	Original	Start	Finish	<u>2021</u> <u>2022</u> <u>2023</u>
014040	Otto Assess Deside	Duration	00 hm 01 h	00 law 00	Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct
CN1040	Site Access Roads	80	29-Jun-21 A	28-Jan-22	
CN1010		90	11-Jun-21 A	11-Apr-22	
CN1050		40	08-Jul-22	02-Sep-22	
Golden Row	- First Installation	123	24-Aug-21 A	18-Feb-22	Golden Row - First Installation
A3940	Pile Installation, Review & Approval	3	24-Aug-21 A	02-Sep-21 A	Pile Installation, Review & Approval
A3950	Tracker Installation, Review & Approval	3	24-Aug-21 A	02-Sep-21 A	Tracker Installation, Review & Approval
A3960	Module Installation, Review & Approval	3	24-Aug-21 A	02-Sep-21 A	Module Installation, Review & Approval
A3970	Hamess Installation, Review & Approval	3	27-Sep-21 A	29-Sep-21 A	A Britaniess Installation, Review & Approval
A3980	DC Trench Installation, Review & Approval	3	03-Dec-21	07-Dec-21	DC Trench Installation, Review & Approval
A3990	AC Trench Installation, Review & Approval	3	17-Dec-21	21-Dec-21	AC Trench Installation, Review & Approval
A4000	CB Installation, Review & Approval	3	28-Sep-21 A	30-Sep-21 A	CB Installation, Review & Approval
A4010	PCU Installation Review & Approval	3	16-Feb-22	18-Feb-22	PCU Installation Review & Approval
Feeder 2 - So	outh Site (7 Blocks)	152	29-Jul-21 A	06-Apr-22	▼ Feeder 2 - South Site (7 Blocks)
A5080	Feeder 2 - Pile Installation	20	29-Jul-21 A	28-Sep-21 A	Feeder 2 - Pile Installation
A5140	Feeder 2 - DC Trenching	15	13-Dec-21 A	21-Dec-21	Feeder 2 - DC Trenching
A5090	Feeder 2 - Tracker Installation	20	16-Aug-21 A	09-Nov-21 A	Feeder 2 - Tracker Installation
A5100	Feeder 2 - Modules	20	08-Nov-21 A	31-Jan-22	Feeder 2 - Modules
A5160	Feeder 2 - Electrical Management (PV Harnesses)	20	20-Jan-22	16-Feb-22	Feeder 2 - Electrical Management (PV Hamesses)
A5180	Feeder 2 - CB Installation	15	01-Dec-21	21-Dec-21	Feeder 2 - CB Installation
A5110	Feeder 2 - PCU Foundations	5	12-Oct-21 A	18-Oct-21 A	Feeder 2 - PCU Foundations
A5170	Feeder 2 - PCU Terminations	15	07-Feb-22	28-Feb-22	Feeder 2 - PCU Terminations
A5210	Feeder 2 - Hot Commissioning	13	21-Mar-22	06-Apr-22	Feeder 2 - Hot Commissioning
A5220	Feeder 2 - Network & SCADA Commissioning	7	10-Mar-22	18-Mar-22	Feeder 2 - Network & SCADA Commissioning
A5190	Feeder 2 - Inverter Cold Commissioning	7	01-Mar-22	09-Mar-22	Feeder 2 - Inverter Cold Commissioning
A5200	Feeder 2 - IV Curve and VOC Commissioning	14	17-Feb-22	09-Mar-22	Feeder 2 - IV Curve and VOC Commissioning
A5120	Feeder 2 - AC Trenching	15	29-Nov-21 A	06-Jan-22	Feeder 2 - AC Trenching
A5130	Feeder 2 - PCU Installation	16	26-Nov-21 A	28-Feb-22	Feeder 2 - PCU Installation
A5145	Feeder 2 - Mechanical Install Post AC Trenching	15	07-lan-22	27-lan-22	Feeder 2 - Mechanical Install Post AC Trenching
Feeder 1 - S	Puth Site (7 Blocks)	189	14-Jul-21 A	21-Apr-22	Feeder 1 - South Site (7 Blocks)
A5000	Feeder 1 - Dile Installation	15	14- Jul-21 A	28-Sep-21 A	Eeder 1 - Dile Installation
A5000	Fooder 1 DC Transhing	15	14-Jui-2 I A	20-3ep-21A	
A5040	Feeder 1 - DC field ling	15		07 Doo 21	
A5010		20	09-Aug-21 A	07-Dec-21	
A5020	Feeder 1 - Modules	20	21-00-21A	01-Feb-22	
A5030	Feeder 1 - Electrical Management (PV Hamesses)	20	17-Feb-22	11-Mar-22	
A5060		15	03-Jan-22	21-Jan-22	
A2990	Feeder 1 - PCU Foundations	5	12-Oct-21 A	18-Oct-21 A	
A5070	Feeder 1 - PCU Terminations	10	04-Mar-22	17-Mar-22	
A3050	Feeder 1 - Hot Commissioning	13	07-Apr-22	21-Apr-22	
A3060	Feeder 1 - Network & SCADA Commissioning	/	29-Mar-22	06-Apr-22	
A3070	Feeder 1 - Inverter Cold Commissioning	1	18-Mar-22	28-Mar-22	
A3120	Feeder 1 - IV Curve and VOC Commissioning	14	12-Mar-22	28-Mar-22	
A3860	Feeder 1 - AC Trenching	18	13-Dec-21 A	14-Jan-22	
A4990	Feeder 1 - PCU Installation	16	19-Nov-21 A	10-Mar-22	E Eeder 1 - PCU Installation
A5045	Feeder 1 - Mechanical Install post AC Trenching	15	17-Jan-22	04-Feb-22	Feeder 1 - Mechanical Install post AC Trenching
Feeder 6 - No	orth Site (6 Blocks)	170	24-Sep-21 A	06-Jun-22	▼ Feeder 6 - North Site (6 Blocks)
Pomoini	ng Level of Effort	imman/			Date Revision Checked Approved
					Page 6 01 10 20-Dec-21 December 2021 - Risen Update M.C

### Woolooga Solar - EPC Program December 2021 Progress Update - Risen ROC

Update

Status Date: 01-Dec-21 | Print Date: 22-Dec-21

				Status Da	
ctivity ID	Activity Name	Original Duration	Start	Finish	2021 2022 Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jap Feb Mar Apr May Jun Jul
A5530	Feeder 6 - Pile Installation	15	24-Sen-21 A	22-Oct-21 A	Feeder 6 - Pile Installation
A5590	Feeder 6 - DC Trenching	15	01-Mar-22	21-Mar-22	Feeder 6 - DC Trenc
A5540	Feeder 6 - Tracker Installation	20	08-Dec-21	07-Jan-22	Feeder 6 - Tracker Installation
A5550	Feeder 6 - Modules	10	11-Feb-22	28-Feb-22	Feeder 6 - Modules
A5610	Feeder 6 - Electrical Management (PV Hamesses)	11	06-May-22	20-May-22	
A5630	Feeder 6 - CB Installation	15	08-Mar-22	28-Mar-22	Feeder 6 - CB Insta
A5560	Feeder 6 - PCU Foundations	5	01-Dec-21	07-Dec-21	Feeder 6 - PCU Foundations
A5620	Feeder 6 - PCU Terminations	12	22-Apr-22	09-Mav-22	Feeder:6 - I
A5660	Feeder 6 - Hot Commissioning	10		06-Jun-22	
A5670	Feeder 6 - Network & SCADA Commissioning	6	19-May-22	27-Mav-22	Feeder
A5640	Feeder 6 - Inverter Cold Commissioning	6	10-May-22	17-May-22	□ Feeder 6
A5650	Feeder 6 - IV Curve and VOC Commissioning	11	13-May-22	30-May-22	Feeder
A5570	Feeder 6 - AC Trenching	15	01-Mar-22	21-Mar-22	Feeder 6 - AC Trenc
A5580	Feeder 6 - PCU Installation	3	17-Mar-22	21-Mar-22	Feeder 6 - PCU Inst
A5595	Feeder 6 - Mechanical Install post AC Trenching	15	22-Mar-22	11-Apr-22	Feeder 6 - Mech
Feeder 8 - No	orth Site (6 Blocks)	142	25-Oct-21 A	19-May-22	▼ Feeder 8
A5380	Feeder 8 - Pile Installation	15	25-Oct-21 A	17-Dec-21	Feeder 8 - Pile Installation
A5440	Feeder 8 - DC Trenching	15	07-Feb-22	28-Feb-22	Feeder 8 - DC Trenching
A5390	Feeder 8 - Tracker Installation	15	11-Nov-21 A	21-Jan-22	Feeder 8 - Tracker Installation
A5400	Feeder 8 - Modules	9	22-Mar-22	04-Apr-22	🗖 Feeder 8 - Module
A5460	Feeder 8 - Electrical Management (PV Harnesses)	11	21-Apr-22	05-May-22	🗖 Feeder 8 - E
A5480	Feeder 8 - CB Installation	15	14-Feb-22	07-Mar-22	Feeder 8 - CB Installati
A5410	Feeder 8 - PCU Foundations	5	08-Dec-21	14-Dec-21	Feeder 8 - PCU Foundations
A5470	Feeder 8 - PCU Terminations	12	05-Apr-22	21-Apr-22	Feeder 8 - PCI
A5510	Feeder 8 - Hot Commissioning	10	06-May-22	19-May-22	🗖 Feeder 8
A5520	Feeder 8 - Network & SCADA Commissioning	6	04-May-22	11-May-22	Feeder 8 -
A5490	Feeder 8 - Inverter Cold Commissioning	6	22-Apr-22	29-Apr-22	🗖 Feeder 8:- In
A5500	Feeder 8 - IV Curve and VOC Commissioning	11	28-Apr-22	12-May-22	Feeder 8 -
A5420	Feeder 8 - AC Trenching	15	07-Feb-22	28-Feb-22	Feeder 8 - AC Trenching
A5430	Feeder 8 - PCU Installation	3	22-Mar-22	24-Mar-22	Feeder 8 - PCU Inst
A5445	Feeder 8 - Mechanical Install post AC Trenching	15	01-Mar-22	21-Mar-22	Feeder 8 - Mechanic
Feeder 7 - No	orth Site (3 Blocks)	103	11-Nov-21 A	04-May-22	▼ Feeder 7 - N
A5230	Feeder 7 - Pile Installation	15	11-Nov-21 A	20-Dec-21	I Feeder 7 - Pile Installation
A5290	Feeder 7 - DC Trenching	15	17-Jan-22	04-Feb-22	Feeder 7 - DC Trenching
A5240	Feeder 7 - Tracker Installation	15	03-Jan-22	21-Jan-22	Feeder 7 - Tracker Installation
A5250	Feeder 7 - Modules	9	08-Apr-22	18-Apr-22	🗖 Feeder 7 - Mod
A5310	Feeder 7 - Electrical Management (PV Hamesses)	6	14-Apr-22	20-Apr-22	Feeder 7 - Elec
A5330	Feeder 7 - CB Installation	15	24-Jan-22	11-Feb-22	Feeder 7 - CB Installation
A5260	Feeder 7 - PCU Foundations	5	15-Dec-21	21-Dec-21	Feeder 7 - PCU Foundations
A5320	Feeder 7 - PCU Terminations	6	28-Mar-22	04-Apr-22	Feeder 7 - PCU T
A5360	Feeder 7 - Hot Commissioning	5	30-Apr-22	04-May-22	D Feeder 7 - H
A5370	Feeder 7 - Network & SCADA Commissioning	3	25-Apr-22	27-Apr-22	Feeder 7 - Ne
A5340	Feeder 7 - Inverter Cold Commissioning	3	05-Apr-22	07-Apr-22	Feeder 7 - Inverte
A5350	Feeder 7 - IV Curve and VOC Commissioning	6	20-Apr-22	26-Apr-22	□ Feeder 7 - IV
A5270	Feeder 7 - AC Trenching	15	17-Jan-22	04-Feb-22	Feeder 7 - AC Trenching

 Remaining Level of Effort
 Remaining Work
 Summary

 Actual Level of Effort
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# Woolooga Solar - EPC Program December 2021 Progress Update - Risen ROC Update Status Date: 01-Dec-21 | Print Date: 22-Dec-21

Activity ID	Activity Name	Original	Start	Status Da Finish	2021         2022         2023
		Duration			Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
A5280	Feeder 7 - PCU Installation	2	25-Mar-22	28-Mar-22	Feeder 7 - PCU Installation
A5295	Feeder 7 - Mechanical Install post AC Trenching	10	07-Feb-22	18-Feb-22	Eeeder 7 - Mechanical Install post AC Trenching
Feeder 5 - I	North Site (5 Blocks)	114	21-Dec-21	06-Jun-22	Feeder 5 - North Site (5 Blocks)
A6730	Feeder 5 - Pile Installation	15	21-Dec-21	13-Jan-22	Feeder 5 - Pile Installation
A6790	Feeder 5 - DC Trenching	15	17-Jan-22	04-Feb-22	Feeder 5 - DC Trenching
A6740	Feeder 5 - Tracker Installation	15	24-Jan-22	11-Feb-22	Feeder 5 - Tracker Installation
A6750	Feeder 5 - Modules	9	06-May-22	18-May-22	E Feeder 5 - Modules
A6810	Feeder 5 - Electrical Management (PV Hamesses)	9	10-May-22	20-May-22	Feeder 5 - Electrical Management (PV Hamesses)
A6830	Feeder 5 - CB Installation	15	24-Jan-22	11-Feb-22	Feeder 5 - CB Installation
A6760	Feeder 5 - PCU Foundations	5	22-Dec-21	30-Dec-21	E Feeder 5 - PCU Foundations
A6820	Feeder 5 - PCU Terminations	10	25-Mar-22	07-Apr-22	Feeder 5 - PCU Terminations
A6860	Feeder 5 - Hot Commissioning	9	25-May-22	06-Jun-22	E Feeder 5 - Hot Commissioning
A6870	Feeder 5 - Network & SCADA Commissioning	5	24-May-22	30-May-22	📮 Feeder 5 - Network & SCADA Commissioning
A6840	Feeder 5 - Inverter Cold Commissioning	5	08-Apr-22	14-Apr-22	Feeder 5 - Inverter Cold Commissioning
A6850	Feeder 5 - IV Curve and VOC Commissioning	9	17-May-22	30-May-22	Feeder 5 - IV Curve and VOC Commissioning
A6770	Feeder 5 - AC Trenching	15	17-Jan-22	04-Feb-22	Feeder 5 - AC Trenching
A6780	Feeder 5 - PCU Installation	3	29-Mar-22	31-Mar-22	Feeder 5 - PCU Installation
A6795	Feeder 5 - Mechanical Install post AC Trenching	10	07-Feb-22	18-Feb-22	Feeder 5 - Mechanical Install postAC Trenching
Feeder 4 - I	North Site (6 Blocks)	129	03-Jan-22	06-Jul-22	Feeder 4 - North Site (6 Blocks)
A6880	Feeder 4 - Pile Installation	8	14-Jan-22	25-Jan-22	Feeder 4 - Pile Installation
A6940	Feeder 4 - DC Trenching	15	07-Feb-22	28-Feb-22	Feeder 4 - DC Trenching
A6890	Feeder 4 - Tracker Installation	15	14-Feb-22	07-Mar-22	Feeder 4 - Tracker Installation
A6900	Feeder 4 - Modules	9	07-Jun-22	17-Jun-22	Feeder 4 - Modules
A6960	Feeder 4 - Electrical Management (PV Harnesses)	11	07-Jun-22	21-Jun-22	Feeder 4 - Electrical Management (PV Hamesses)
A6980	Feeder 4 - CB Installation	15	14-Feb-22	07-Mar-22	Feeder 4 - CB Installation
A6910	Feeder 4 - PCU Foundations	5	03-Jan-22	07-Jan-22	Feeder 4 - PCU Foundations
A6970	Feeder 4 - PCU Terminations	12	08-Apr-22	26-Apr-22	Feeder 4 - PCU Terminations
A7010	Feeder 4 - Hot Commissioning	10	22-Jun-22	06-Jul-22	Feeder 4 - Hot Commissioning
A7020	Feeder 4 - Network & SCADA Commissioning	6	20-Jun-22	27-Jun-22	
A6990	Feeder 4 - Inverter Cold Commissioning	6	27-Apr-22	04-May-22	Feeder 4 - Inverter Cold Commissioning
A7000	Feeder 4 - IV Curve and VOC Commissioning	11	14-Jun-22	28-Jun-22	Feeder 4 - IV Curve and VOC Commissioning
A6920	Feeder 4 - AC Trenching	15	07-Feb-22	28-Feb-22	Feeder 4 - AC Trenching
A6930	Feeder 4 - PCU Installation	3	01-Apr-22	05-Apr-22	Feeder 4 - PCU Installation
A6945	Feeder 4 - Mechanical Install Post AC Trenching	10	01-Mar-22	14-Mar-22	Feeder 4 - Mechanical Install Post AC Trenching
Feeder 3 - I	North Site (6 Blocks)	209	21-Sep-21 A	21-Jul-22	Feeder 3 - North Site (6 Blocks)
A7030	Feeder 3 - Pile Installation	15	21-Sep-21 A	01-Feb-22	Feeder 3 - Pile Installation
A7090	Feeder 3 - DC Trenching	15	01-Mar-22	21-Mar-22	Feeder 3 - DC Trenching
A7040	Feeder 3 - Tracker Installation	15	15-Nov-21 A	14-Mar-22	Feeder 3 - Tracker Installation
A7050	Feeder 3 - Modules	9	20-Jun-22	30-Jun-22	Feeder 3 - Modules
A7110	Feeder 3 - Electrical Management (PV Hamesses)	11	22-Jun-22	07-Jul-22	Feeder 3 - Electrical Management (PV Hamesses)
A7130	Feeder 3 - CB Installation	15	08-Mar-22	28-Mar-22	Feeder 3 - CB Installation
A7060	Feeder 3 - PCU Foundations	5	10-Jan-22	14-Jan-22	Feeder 3 - PCU Foundations
A7120	Feeder 3 - PCU Terminations	11	27-Apr-22	11-Mav-22	Feeder 3 - PCU Terminations
A7160	Feeder 3 - Hot Commissioning	6	14-Jul-22	21-Jul-22	Feeder 3 - Hot Commissioning
A7170	Feeder 3 - Network & SCADA Commissioning	6	06-Jul-22	13-Jul-22	Feeder 3 - Network & SCADA Commissioning
Remai	ning Level of Effort Remaining Work	Summary			Page 8 of 10 Date Revision Checked Approve
Actual	Level of Effort Critical Remaining Work	, l			20-Dec-21 December 2021 - Risen Update M.C
Actual	Work   Milestone				
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				Status Da	ate: 01-Dec-21   Print Date: 22-Dec-21	
ctivity ID	Activity Name	Original	Start	Finish	2021	2022
		Duration	Clark		Feb Mar Apr May Jun Jul Aug Sep Og	t Nov Dec Jan Feb Mar Apr May Jun Jul
A7140	Feeder 3 - Inverter Cold Commissioning	6	18-May-22	26-May-22		Feeder 3
A7150	Feeder 3 - IV Curve and VOC Commissioning	11	29-Jun-22	14-Jul-22		
A7070	Feeder 3 - AC Trenching	15	01-Mar-22	21-Mar-22		Feeder 3 - AC Trench
A7080	Feeder 3 - PCU Installation	3	06-Apr-22	08-Apr-22		I Feeder 3 - PCU Ir
A7095	Feeder 3 - Mechanical Install Post AC Trenching	10	22-Mar-22	04-Apr-22		🗖 Feeder 3 - Mechar
Substation Cor	nstruction	149	14-Jul-21 A	02-Mar-22	▼	Substation Construction
Substation Const	truction	98	14-Jul-21 A	23-Dec-21		Substation Construction
A2570	Site Mobilisation	2	09-Aug-21 A	11-Aug-21 A	I Site Mobilis	sation
A2610	Bulk Earthworks	10	14-Jul-21 A	06-Aug-21 A	Bulk Earthw	rorks
A2620	Civil Construction	40	11-Aug-21 A	22-Oct-21 A		Civil Construction
A2630	Land Main Power Transformer	1	24-Sep-21 A	24-Sep-21 A	l La	nd Main Power Transformer
A2640	Main Electrical Construction	40	01-Oct-21 A	17-Dec-21		Main Electrical Construction
A2650	Line Construction and Augmentation	37	11-Oct-21 A	23-Dec-21		Line Construction and Augmentation
Substation Comr	missioning	76	10-Nov-21 A	02-Mar-22		Substation Commissioni
A2600	Substation Construction Complete - Ready for Energisation	0	17-Jan-22			<ul> <li>Substation Construction Completion</li> </ul>
A2760	Perform Site Acceptance Testing (SAT)	19	10-Nov-21 A	20-Dec-21		Perform Site Acceptance Testing (SAT
A2770	Perform Site Integration Testing (SIT)	10	21-Dec-21	06-Jan-22		Perform Site Integration Testing (SI
A2780	Perform Site Integration testing (SIT) with NSP	10	17-Jan-22	28-Jan-22		Perform Site Integration testing
A2790	Solar Farm Energised [R2 Service Supplied]	0		02-Mar-22		<ul> <li>Solar Farm Energised [R</li> </ul>
A12830	Energise PoC up to 132kV VT and HV Switching (Subject to NSP)	3	28-Feb-22	02-Mar-22		Energise PoC up to 132
Amenities Build	ding	191	18-Oct-21 A	21-Jul-22		
A7600	Amenities Building Design	40	18-Oct-21 A	28-Jan-22		Amenities Building Design
A7620	Amenities Building Construction	100	31-Jan-22	22-Jun-22		
A7670	Amenities Building Commissioning	20	23-Jun-22	21-Jul-22		
CCTV - Securit	iy	222	30-Jun-21 A	24-May-22	• • • • • • • • • • • • • • • • • • •	▼ CCTV - S
CN5080	Design	40	30-Jun-21 A	29-Oct-21 A		Design
CN5090	CCTV Commissioning	20	26-Apr-22	24-May-22		
CN5130	CCTV Procurement	80	20-Oct-21 A	25-Feb-22		CCTV Procurement
CN5150	CCTV Installation	40	28-Feb-22	25-Apr-22		CCTV Installat
SCADA		99	18-Oct-21 A	10-Mar-22		
A1420	SCADA Commissioning (Factory)	15	18-Oct-21 A	10-Dec-21		SCADA Commissioning (Factory)
A1410	SCADA Installation	40	29-Dec-21	24-Feb-22		SCADA Installation
A1470	SCADA Commissioning (Inaccess - PV Array)	10	25-Feb-22	10-Mar-22		🗖 SCADA Commissioning
R2 Validation T	esting	120	01-Mar-22	19-Aug-22		
A1110	Generation Hold Point Testing #2	10	06-Jun-22	17-Jun-22		🗖 Gene
A1090	Generation Hold Point Testing #0	34	01-Mar-22	18-Apr-22		Generation Hold
A1370	AEMO Review Period - #0	10	19-Apr-22	02-May-22		🗖 AEMO Revie
A1380	AEMO Review Period - #1	10	20-May-22	03-Jun-22		AEMO
A1100	Generation Hold Point Testing #1	10	06-May-22	19-May-22		Generatio

Remaining Level of Effort		Remaining Work	Summary	Page 0 of 10	Date	
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Actual Work	•					

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A1390

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CN5010

**Project Closeout** 

AEMO Review Period - #2

AEMO Review Period - #3

Punch List Items

R2 Commissioning Complete

Generation Hold Point Testing #3

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#### Woolooga Solar - EPC Program December 2021 Progress Update - Risen ROC Update

01-Dec-21 | Print Date: 22-Dec-21

	Status Date: 01-Dec-21   Print Date: 22-Dec-21																							
Activity ID	Activity Name	Original	Start	Finish			2	2021				2022							2023					
		Duration			Feb N	Mar	Apr May Jun	ı Jul	Aug Sep	Oct Nov	Dec	Jan Fe	eb Mar	Apr May Jun	Jul	Aug Se	p Oct	Nov Dec	c Jan	Feb Mar Ap	or May J	un Jul	l Aug	Sep Oct
CN5070	PAC Testing	14	06-Aug-22	19-Aug-22												D PAC	C Testin	ıg						
CN5050	Substantial Completion	0		19-Aug-22		1		1					1 1 1 1 1 1			Sub	ostantia	Completio	oņ	I I I I I I		1		1 1 1
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CN5060	R2 Compliance Reporting - Data Collection and Report Submission	90	22-Aug-22	30-Dec-22				1											📕 R2 (	Compliance R	eporting -	Data Co	ollection	and Repo

Remaining Level of E	ffort
<ul> <li>Actual Level of Effort</li> </ul>	
Actual Work	•

Milestone

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Revision	Checked	Approved
iber 2021 - Risen Update	M.C	

## Appendix 6 –

Sequential Clearing - Weekly PCL Reports



# WOOLOOGA Solar

## Lightsource BP Weekly Report No. 14 R1

14 June 2021 – 20 June 2021



PCL Constructors Pacific Rim Pty Ltd L38 Olderfleet, 477 Collins Street Melbourne VIC 3000

## 1.0 PROJECT STATUS

#### **1.1 CONSTRUCTION UPDATE**

	SCOPE	COMPLETED THIS WEEK	COMPLETED TO DATE	TOTAL QUANTITY	UOM	% COMPLETED	
P	ublic Road Upgrades	In progress	1.05	3	EA	35%	
С	learing and Grubbing	In progress	150	553	HEC	27%	
Fe	encing						
	Security Fence	0	0	0	LM	0	
	Security Fence (Koala Friendly)	0	0	0	LM	0	
Pi	ile/Tracker/Module Installat	ion					
	Piles Installed	0	0	0	EA	0	
	Tracker (Soft) Installed	0	0	0	EA	0	
	Modules Installed	0	0	0	EA	0	
E	ectrical Installation						
	DC Electrical Install						
	DC Trenching - Excavated	0	0	0	LM	0	
	DC Trenching - Backfilled	0	0	0	LM	0	
	DC Combiner	0	0	0	EA	0	
	DC Harnessing	0	0	0	EA	0	
	AC Electrical Install						
	AC Trenching - Excavated	0	0	0	LM	0	
	AC Trenching - Backfilled	0	0	0	LM	0	
	PCU Landing	0	0	0	EA	0	
	PCU Termination	0	0	0	EA	0	
	Switchgear Landing	0	0	0	EA	0	
	Switchgear Termination	0	0	0	EA	0	
	Fibre Install	0	0	0	Block	0	
C	ivil & Siteworks						
	Erosion & Sediment Control	0	0	0	Block	0	
APZ / Firebreak		0	0	0	LM	0	
Grading		0	0	0	Block	0	
Access Roads		0	0	0	LM	0	
PCU foundation		0	0	0	EA	0	
La	andscaping	0	0	0	0		
W	eather Station	0	0	0	0		
0	&M Building	0	0	0	EA	0	

#### 1.2 WEEKLY SUMMARY OF PROJECT PROGRESS

SUBCONTRACTOR / SUPPLIER / TRADES	DESCRIPTION OF WORKS	ISSUES ENCOUNTERED (IF ANY)
Carruthers	Carruthers continued road works for Site 2A roads upgrades.	
Contracting	Carruthers started clearing and grubbing on the South site (Site 2A)	
Tyren-Whit	Tyren-Whit continued slashing and bailing grass	
Ford Brothers	Ford Brothers continued removing existing perimeter fencing	

#### **1.3 CONTRACTOR MANPOWER**

SUBCONTRACTOR	SCOPE OF WORK	WEEKLY MANHOURS
LSBP	Client	36
PCL	EPC	418
Carruthers	Road Upgrades	300
Tyrenwhit	Slashing	107.75
Ford Brothers	Fencing Removals	342
	MAN-HOURS PER WEEK	1203.75
	MAN-HOURS TO DATE	8217

#### 1.4 SAFETY RECORD

INCIDENT TYPE	INCIDENTS THIS PERIOD	INCIDENTS TO DATE
Major Incident	0	0
Minor Incident	1	1
Near Miss	0	0
First Aid Occurrences	0	0
Lost time injuries	0	0

NOTES: Civil contractor damaged Telstra cable on 1 June 2021 (not National Broadband Network (NBN)). Meeting held between PCL and LSBP on 4 June 2021 to debrief. Telstra cable has since been repaired.

#### 1.5 WEATHER

DATE		WORK STATUS	
Monday	Mainly Sunny	Low: 4.5 °C   High: 24.2 °C	Active
Tuesday	Mainly Sunny	Low: 9.3 °C   High: 26.1 °C	Active
Wednesday	Overcast	Low: 14.2 °C   High: 26.1 °C	Active
Thursday	Overcast	Low: 13.3 °C   High: 25.2 °C	Active
Friday	Sunny	Low: 4.5 °C   High: 22.6 °C	Active
Saturday	Sunny	Low: 7.4 °C   High: 20.2 °C	Active

#### 1.6 THIRD PARTY VISITORS (NEIGHBORS, COUNCIL, GOVERNMENT AUTHORITY, ETC.)

NAME OF VISITOR	COMPANY	AGENDA ON-SITE	DATE OF VISIT
Jason Dallinger	Transport and Main Roads (TMR)	Inspection of Proof Roll for Site 2A Road Upgrade	15 June
Dennis Urena & Cameron Ward	Gympie Regional Council	Inspection of Proof Roll for Site 2A Road Upgrade	17 June

## 2.0 PROCUREMENT AND TENDER

#### 2.1 TENDER STATUS

SUBCONTRACTOR	SCOPE	STATUS
Carruthers Contracting	Road Upgrades	Awarded
Aussie Environmental	Landscaping Buffer	Awarded
Ford Brothers	Security Fencing	Awarded
Carruthers Contracting	Clearing & Grubbing	Awarded
Carruthers Contracting	Demolition	Awarded
TBD	AC/DC Cables	Tendering
TBD	Civil	Tendering
TBD	Mechanical	Tendering
TBD	Electrical	Tendering
TBD	Combiner Boxes	Tendering

#### 2.2 PROCUREMENT STATUS

SCOPE	CRITICAL PATH	LEAD TIME (WEEK)	QTY	UOM	PROJECTED DELIVERY START DATE	PROJECTED DELIVERY FINISH DATE	ACTUAL DELIVERY START DATE	ACTUAL DELIVERY FINISH DATE
Foundation Piers	Yes	16	59,659	EA	21 June 2021	8 Nov 2021	14 June 2021	
Tracker – Upper Structure	Yes	20	4,950	EA	19 July 2021	6 December 2021		
PV Modules	Yes	18	400,400	EA	4 July 2021	12 Dec 2021		
DC Cable	Yes							
AC Cable	Yes							
Grounding Cable	No							
Fibre Cable	No							
Combiner Boxes	Yes							
PV String Harnesses	Yes							
PCUs	Yes							
Switchgear Building	Yes							
Weather Station	No							

#### 2.3 RECEIVED DELIVERIES

MATERIAL	PART NUMBER	QUANTITY ARRIVED ON-SITE	QUANTTY WITH DEFICIENCY	QUANTITY ACCEPTED
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252

AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252
Damper, Double Tube, Load Limiting, Spherical Rod End	21193	7722	0	7722
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-150	72668	177	0	177
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-150	72668	177	0	177
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-150	72668	177	0	177
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-150	72668	177	0	177
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-150	72668	177	0	177
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-150	72668	177	0	177
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x20-174	75320	153	0	153
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x20-174	75320	153	0	153
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x20-174	75320	153	0	153
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x20-174	75320	153	0	153
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x20-174	75320	153	0	153
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x20-174	75320	153	0	153
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x20-174	75320	153	0	153
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x20-174	75320	153	0	153
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x8.5-144	74982	425	0	425
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x8.5-156	74986	393	0	393
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x20-174	75320	153	0	153
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x8.5-144	74982	425	0	425
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x8.5-156	74986	393	0	393
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x8.5-156	74986	393	0	393
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AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x7-126	74894	550	0	550
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x8.5-144	74982	20	0	20
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x8.5-156	74986	18	0	18
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x8.5-144	74982	425	0	425
AUS Gen 2.2 Damper Slots Array Pier, 4 Mils, W6x14-150	75230	252	0	252
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-156	72670	168	0	168
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-156	72670	168	0	168
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-156	72670	168	0	168
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-156	72670	168	0	168
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-156	72670	168	0	168
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-156	72670	168	0	168
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-156	72670	168	0	168
Gen 2.2 v2 Motor Pier, 4 MILS, W6x20-156	72670	168	0	168

### 3.1 CRITICAL DESIGN/REPORTS LOG

DRAWING/REPORT	STATUS	INITIATED BY	SUBMITTED TO	DATE SUBMITTED
SUM-0009 – Project Execution Plan	Response received from LSBP 18 May – with PCL for response.	PCL	LSBP	9 April 21
SUM-0010 – Project Quality Control Plan	Response received from LSBP on 4 May – with PCL for review.	PCL	LSBP	9 April 21
SUM-0013 – 80% Substation Design	With PCL for comment.	PCL	LSBP	6 May 21
SUM-0015 – NEXTracker Quality Plan	In review with LSBP	PCL	LSBP	18 May 21
SUM-0016 – PV Array 80% Design Submission	With PCL for comment.	PCL	LSBP	28 May 2021
SUM-0017 – EPEC Substation Quality Plan	In review with LSBP	PCL	LSBP	28 May 2021
SUM-0018 – 30% SCADA Design Drawings	With PCL for comment.	PCL	LSBP	10 June
SUM-0020 – Material Handling Plan	With PCL for comment	PCL	LSBP	8 June
SUM-0021 – Design Document Register	In review with LSBP.	PCL	LSBP	8 June

## 3.2 PERMITS

PERMIT	STATUS	DECIDING BODY	DATE SUBMITTED	DATE APPROVED
Building Permit – Fencing – Site 1	Submitted	Private Certifier	9 May 2021	
Building Permit – Fencing – Site 2A	Approved	Private Certifier	9 May 2021	17 June 2021
Building Permit – Fencing – Site 2B	Submitted	Private Certifier	9 May 2021	
Powerlink Easement Application - Fencing	Submitted	Powerlink	10 May 2021	
Development Permit for Operational Works (Earthworks)– <b>Site 1</b>	Submitted	Gympie Regional Council	13 May 2021	
Development Permit for Operational Works (Earthworks) – <b>Site 2A</b>	Submitted	Gympie Regional Council	03 May 2021	
Development Permit for Operational Works (Earthworks) – <b>Site 2B</b>	Submitted	Gympie Regional Council	13 May 2021	
Development Permit for Building Works (Foundations) – Site 1	To be submitted by 16 July 2021	Private Certifier		

To be submitted by 16 July 2021	Private Certifier		
To be submitted by 16 July 2021	Private Certifier		
To be submitted by 25 May 2021	Private Certifier		
To be submitted by 25 June 2021	Gympie Regional Council		
Awaiting IFC design documents	Transport and Main Roads (TMR)		
Awaiting IFC design documents	Transport and Main Roads (TMR)		
	To be submitted by 16July 2021To be submitted by 16July 2021To be submitted by 25May 2021To be submitted by 25June 2021Awaiting IFC design documentsAwaiting IFC design documents	To be submitted by 16 July 2021Private CertifierTo be submitted by 16 July 2021Private CertifierTo be submitted by 25 May 2021Private CertifierTo be submitted by 25 June 2021Gympie Regional CouncilMaxiting IFC design documentsTransport and Main Roads (TMR)Awaiting IFC design documentsTransport and Main Roads (TMR)	To be submitted by 16 July 2021Private CertifierTo be submitted by 16 July 2021Private CertifierTo be submitted by 25 May 2021Private CertifierTo be submitted by 25 June 2021Gympie Regional CouncilMay 2021Transport and Main Roads (TMR)Awaiting IFC design documentsTransport and Main Roads (TMR)

## 3.3 CONTEMPLATED VARIATION LOG

INITIATED BY	CHANGE ORDERS	STATUS
PCL	PCL to issue RFI for confirmation of specifications for koala fencing, as per the latest BMP. Potential cost impact. Fencing layout to be confirmed to finalize scope and pricing.	Pricing
PCL	Site 2A intersection rock scour protection, realignment of survey data and sub-surface water remediation.	Pricing
PCL	Road alignment issues for Site 1 due to incorrect lidar survey data used by JJ Ryan	Pricing
PCL	Existing water stream discovered at Site 2A affecting design and construction	Pricing

## 4.1 NEW RFI (REQUEST FOR INFORMATION)

RFI No	Title	RFI Type	Status	Due Date	Assigned To
RFI-00024	Harmonic Feeder / Battery Storage Requirements	Construction	Open	11/02/2021	Jonathan Bocking
RFI-00033	Main Transformer Technical Change	Construction	Open	13/05/2021	Jonathan Bocking
RFI-00035	PCU Batteries and Thermal Cycling	Construction	Open	12/05/2021	Jonathan Bocking
RFI-00043	PLQ Relay Settings	Construction	Open	11/05/2021	Jonathan Bocking
RFI-00048	PV Modules Specification Changes	Construction	Open	15/03/2021	Jonathan Bocking
RFI-00049	Powerlink Runback Requirements	Construction	Open	17/03/2021	Jonathan Bocking
RFI-00050	Sub-Synchronous Protection	Construction	Open	17/03/2021	Jonathan Bocking
RFI-00054	PLQ Fibre Interface Point	Construction	Open	31/05/2021	Jonathan Bocking
RFI-00058	Proposed Substation SCADA Architecture	Construction	Open	7/06/2021	Jonathan Bocking
RFI-00064	QAP for Visual and EL Inspection- Risen PV Modules	Construction	Open	11/05/2021	Jonathan Bocking
RFI-00066	Request to remove conduit concrete haunches	Construction	Open	17/06/2021	Jonathan Bocking
RFI-00069	Crossing of Energy Queensland Assets	Construction	Open	25/05/2021	Jonathan Bocking
RFI-00085	ION meter, PPC	Construction	Open	10/06/2021	Jonathan Bocking
RFI-00088	Proposed Powerlink Substation Upgrade	Construction	Open	21/06/2021	Jonathan Bocking

#### 5.1 CONTRACTOR/OWNER IDENTIFIED RISKS

RISK	SLIPPAGE TO PROJECT SCHEDULE	PLAN FOR RECOVERY
Harmonic filter design	<ul> <li>To be determined when design and subsequent requirements (Q@Night) are finalized.</li> <li>Confirmed during meeting on 21 May 2021 between LSBP, PCL and EPEC that R1 modeling shall wait for harmonic assessment to be completed. Current R1 submission timeline cannot be met due to this requirement</li> </ul>	With LSBP to issue final design and Variation
Public Road Upgrades Site 1 Alignment Issues	<ul> <li>Significantly more material required due to incorrect Lidar survey data which will impact construction timelines and access for Site 1</li> </ul>	Received from JJ Ryan on 3 June. PCL currently reviewing and pricing.

# 6.0 PHOTOGRAPHS







