Earl Grey Lithium Project
Revised Proposal

Environmental Review Document

prepared for Covalent Lithium Pty Ltd

April 2022

JBS&G Australia Pty Ltd

www.jbsg.com.au

Document Status

Revision	Author	Distribution	Date	Status
A	S Hawkins (Globe Environments for Strategen-JBS&G)	A Pate (Covalent Lithium) T Bowra (Strategen-JBS&G)	17.08.2021	Draft for Client Review
0	S Hawkins (Globe Environments for Strategen-JBS&G)	A Pate (Covalent Lithium) T Bowra (Strategen-JBS&G)	30.08.2021	Final for Client Issue
1	S Hawkins (Globe Environments for Strategen-JBS&G)	A Pate (Covalent Lithium) T Bowra (Strategen-JBS&G)	23.12.2021	Final for Public Consultation
2	S Hawkins (Globe Environments for Strategen-JBS&G)	A Pate (Covalent Lithium) T Bowra (Strategen-JBS&G)	28.03.2022	Final for Public Consultation
3	S Hawkins (Globe Environments for Strategen-JBS&G)	A Pate (Covalent Lithium)	22.04.2022	Final for Public Consultation

Citation

This report should be cited as:

> Covalent Lithium Pty Ltd (2022) *Earl Grey Lithium Project Revised Proposal: Environmental Review Document.* Report prepared by Hawkins S of Globe Environments Australia Pty Ltd for Strategen-JBS&G (JBS&G Australia Pty Ltd) on behalf of Covalent Lithium Pty Ltd. Revision 3. April 2022.

Acknowledgement

This report includes information from the initial Environmental Review Document of January 2019 prepared by Whitley L of Strategen-JBS&G on behalf of Covalent Lithium. The substantial contribution or the initial Environmental Review Document towards this revision for the Revised Proposal is acknowledged.

This report includes recent contributions provided by Covalent Lithium's supporting consultants including (in alphabetical order) Bennelongia, Blueprint Environmental Strategies, CAD Resources, Ecoscape, GHD, Mattiske Consulting, MBS Environmental, Native Vegetation Solutions Strategen-JBS&G, Western Wildlife and 360 Environmental. The assistance and contributions of Covalent Lithium's supporting consultants towards this report is acknowledged and appreciated.

Limitations

This report has been prepared by Globe Environments Australia Pty Ltd on behalf of Strategen-JBS&G (JBS&G Australia Pty Ltd) for the exclusive use of the Client, Covalent Lithium Pty Ltd, for the sole purpose stated in the report title. Globe Environments has prepared this report in a manner consistent with the normal level of care and expertise exercised by members of the environmental services profession. In preparing this report, Globe Environments has relied on information provided by the Client, as well as other publicly available contextual information, all of which is presumed accurate and complete on receipt. Globe Environments makes no warranty and accepts no liability for the use of this report by persons other than the Client or for use of this report in excess of its stated purpose.

Earl Grey Lithium Project
Revised Proposal

Environmental Review Document

Prepared for Covalent Lithium Pty Ltd
by JBS&G Australia Pty Ltd
(t/a Strategen-JBS&G)

April 2022

Revision 3

Executive Summary

The Earl Grey Lithium Project (the Approved Proposal) is located at the previously abandoned Mt Holland Mine Site, approximately 100 kilometres (km) south-south-east of the townsite of Southern Cross and approximately 350 km east of Perth, Western Australia. The Approved Proposal comprises open cut mining and processing of a pegmatite–hosted lithium deposit (lithium ore) within a 2,347 hectare (ha) Development Envelope, within which up to 386 ha of native vegetation clearing has been authorised. Development of the Approved Proposal commenced in April 2021. Covalent Lithium Pty Ltd (Covalent Lithium) is the Proponent for the Approved Proposal.

The Approved Proposal was granted environmental approval in November 2019 under the State *Environmental Protection Act 1986* (WA) through the Statement 1118 approval, and granted environmental approval in February 2020 under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) through the EPBC Decision 2017/7950 approval. The above environmental approvals followed an environmental assessment of the Approved Proposal as outlined within Covalent Lithium's Environmental Review Document, and an assessment report prepared by the State Environmental Protection Authority.

Associated with the Approved Proposal is the Kwinana Lithium Refinery, located in the Kwinana Industrial Area approximately 30 km south of Perth. Spodumene concentrate (containing lithium) from the Approved Proposal will be transported to the Kwinana Lithium Refinery for processing to manufacture a lithium hydroxide product. Covalent Lithium is also the Proponent for the Kwinana Lithium Refinery. The Kwinana Lithium Refinery does not form part of the Approved Proposal.

Covalent Lithium propose to amend the Approved Proposal to incorporate the following changes (the Revised Proposal):

- Construction and operation of a Solar Plant to provide renewable energy to the mine operations (additional 32 ha of native vegetation clearing)
- Variation to the Airstrip width to accommodate lateral clearance in accordance with Civil Aviation Safety Authority requirements (additional 24 ha of native vegetation clearing)
- Change in the tailings waste disposal methodology from 'dry' tailings to 'wet' tailings
- Co-disposal of inert refinery waste generated from the Kwinana Lithium Refinery to the approved Waste Rock Landform located at the mine operations
- Modification of flora exclusions areas associated with the flora taxa *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V) and *Microcorys elatoides* (DBCA-P1)
- Modification of fauna exclusions areas associated with nest mounds of the fauna taxon Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)

The proposed changes described above will occur entirely within the existing Development Envelope for the Approved Proposal.

The Solar Plant component for the Revised Proposal will require an additional 32 ha of native vegetation clearing, with the Airstrip clearing component requiring an additional 24 ha of native vegetation clearing; resulting in the total area of native vegetation clearing increasing from 386 ha to 442 ha (15 % increase). All other proposed change components of the Revised Proposal will not require any additional native vegetation clearing.

In accordance with Section 38 of the *Environmental Protection Act 1986* (WA), Covalent Lithium has submitted a Referral of the proposed changes above as a 'Revised Proposal' for the purpose of an environmental assessment. This 'Environmental Review Document' has been prepared to support the environmental assessment process for the Revised Proposal with identification of the biological surveys completed, an assessment of the potential environmental effects, and an outline the proposed environmental management approach.

Additionally, the proposed changes have be submitted to in accordance with Section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (C'th) for the purpose of an environmental assessment. This Environmental Review Document may also be used to support this separate environmental assessment process, with a focus on 'Matters of Environmental Significance' protected under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

Table E-1 identifies the key characteristics of the Approved Proposal and the Revised Proposal consistent with definition structure of the Statement 1118 approval. Figure E-1 identifies the Development Envelope and the Indicative Site Layout (footprint) for the Revised Proposal (including the additional area for the proposed changes).

Consistent with the environmental assessment for the Approved Proposal, the key environmental factors relevant to the environmental assessment of the Revised Proposal are considered to be:

- 'Flora and Vegetation' and
- 'Terrestrial Fauna'

Of note, the environmental assessment for the Approved Proposal, and the environmental conditions arising within the Statement 1118 approval and the EPBC Decision 2017/7950 approval, focussed on the following biological values of listed conservation significance:

- Flora Taxa –
  - *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V)
  - *Microcorys elatoides* (DBCA-P1)
- Fauna Taxa –
  - Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)
  - Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V)

The Revised Proposal has the potential to affect the above biological values in addition to that previously assessed and authorised for the Approved Proposal.

Consistent with the approach adopted for the Approved Proposal, the Revised Proposal has sought to avoid and/or minimise the potential effects to the recorded biological values through the use of existing cleared / disturbed land areas, where possible. As outlined within this document, the Revised Proposal is not anticipated to result in an additional environmental effect to an extent that the representation, diversity, viability or ecological function of the identified biological values would be detrimentally affected at a species, population or community level.

Whilst noting the above, it is acknowledged the Revised Proposal will result in an increased effect to the clearing of fauna habitat potentially utilised by the fauna taxa *Leipoa ocellata* and *Dasyurus geoffroii*, and for which conditions for environmental offsets were previously imposed through the Statement 1118 approval and the EPBC Decision 2017/7950 approval. Consistent with the existing framework, Covalent Lithium proposes to provide additional environmental offsets for the Revised Proposal which are proportionate to the offsets that have been applied to the Approved Proposal.

Stakeholder consultation has continued to be undertaken for the Approved Proposal, and for the Revised Proposal. The views expressed by key stakeholders have been incorporated into the operational planning and environmental management processes for the Approved Proposal and the Revised Proposal. Consultation will continue to occur through the further detailed design, construction and operational phases.

Overall, the environmental effect of the Approved Proposal and the Revised Proposal (combined) is not anticipated to result in a significant environmental effect (i.e. not significantly affect the representation, diversity, viability or ecological function of the biological values present), with the residual effects considered to be environmentally acceptable. The Revised Proposal can be appropriately managed in accordance with the existing framework of environmental management plans and environmental offsets that are currently applied to the Approved Proposal.

PROPOSAL TITLE	EARL GREY LITHIUM PROJECT	
	APPROVED PROPOSAL	REVISED PROPOSAL
SHORT DESCRIPTION		
	The proposal is to develop a pegmatite-hosted lithium deposit at the abandoned Mt Holland Mine Site, in a Development Envelope of 2,347 ha. The mining proposal involves a footprint of 755 ha of land, including new clearing of up to 386 ha of native vegetation, for a mine pit, waste rock dump, integrated waste landform, processing plant, airstrip, accommodation village, water supply pipeline and associated infrastructure.	The Proposal is to develop a pegmatite-hosted lithium deposit at the abandoned Mt Holland Mine Site, in a Development Envelope of 2,347 ha. The Proposal involves new clearing of up to **442 ha** of native vegetation, and **use of existing cleared/disturbed land**, for **infrastructure including** a mine pit, waste rock **landforms**, **tailings storage facility**, processing plant, airstrip, accommodation village, water supply pipeline, **solar plant** and associated infrastructure.
PHYSICAL ELEMENTS		
Mine and associated infrastructure	Clearing of no more than 386 ha of native vegetation, within a Development Envelope of 2,347 ha	Clearing of no more than **442 ha** of native vegetation, within a Development Envelope of 2,347 ha
OPERATIONAL ELEMENTS		
Mining	Earl Grey open cut pit	Earl Grey open cut pit

Table E-1 Summary of the Approved Proposal and the Revised Proposal.

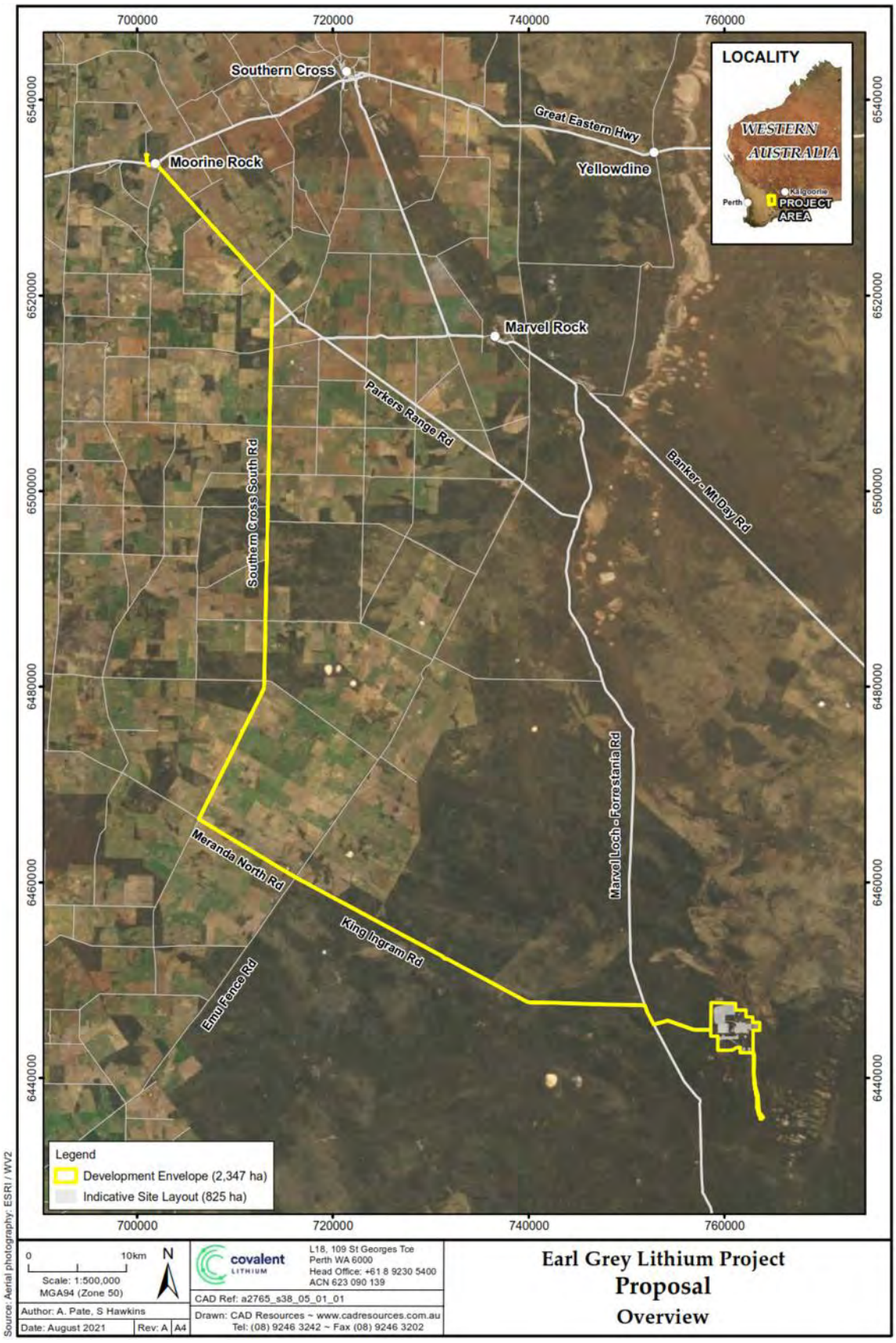


Figure E-1a The Revised Proposal

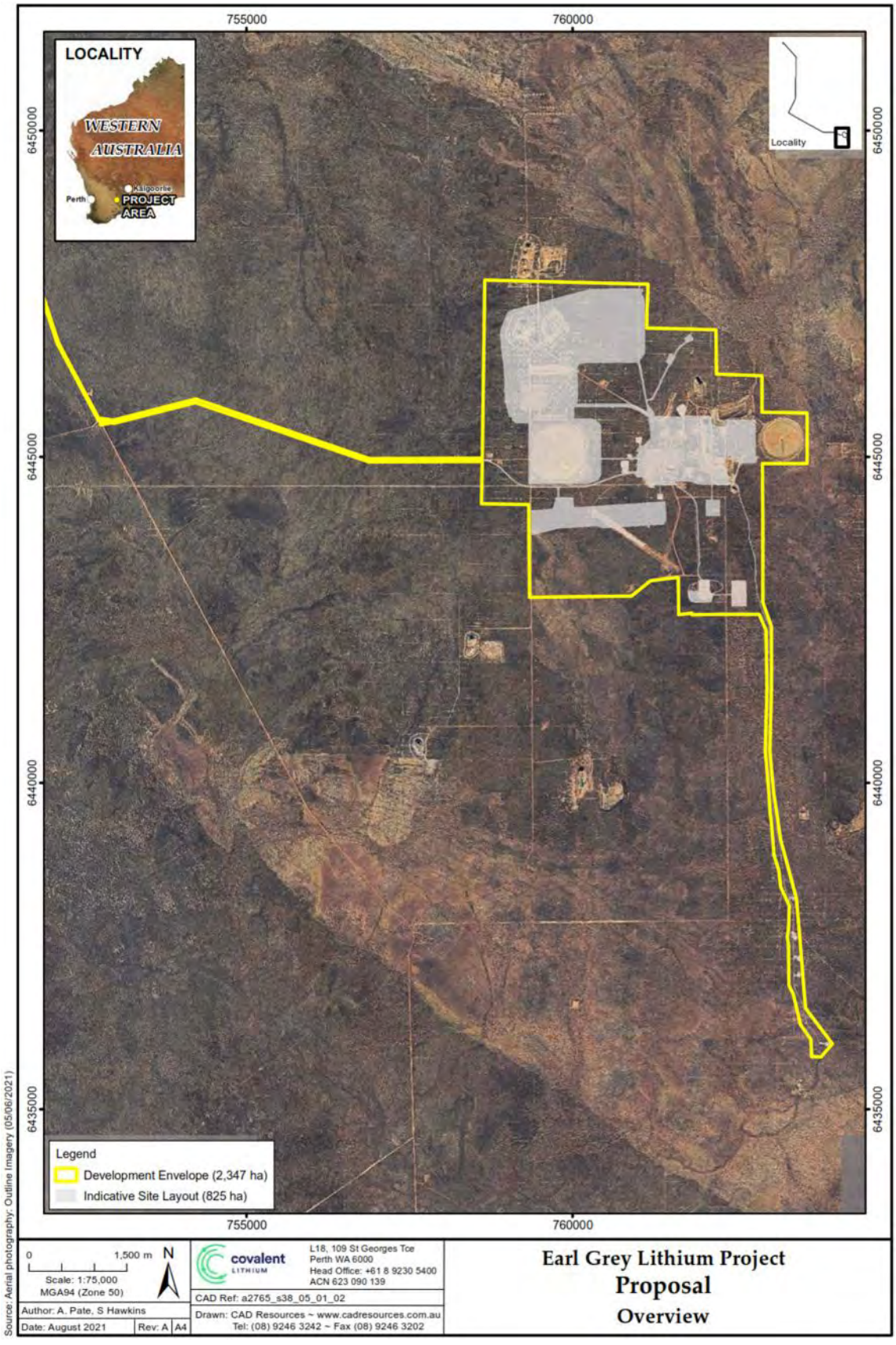


Figure E-1b The Revised Proposal

Contents

Appendix 2 Flora and Vegetation EMP (Covalent Lithium 2022a)

Appendix 3 Terrestrial Fauna EMP (Covalent Lithium 2022b)

Appendix 4 Fauna Offset Strategy (Covalent Lithium 2022c)

Appendix 5 EPBC Act Revised Proposal Approval (DAWE 2022)

Appendix 6 Stakeholder Consultation Register

Appendix 7 Response to EPA s40(2)(a) Request for Additional Information (November 2021)

Appendix 8 Response to EPA s40(2)(a) Request for Additional Information (March 2022)

1 Introduction

1.1 The Proposal

The Earl Grey Lithium Project (the Approved Proposal) is located at the previously abandoned Mt Holland Mine Site, approximately 100 kilometres (km) south-south-east of the townsite of Southern Cross and approximately 350 km east of Perth, Western Australia. The Approved Proposal comprises open cut mining and processing of a pegmatite–hosted lithium deposit (lithium ore) within a 2,347 hectare (ha) Development Envelope, within which up to 386 ha of native vegetation clearing has been authorised. Development of the Approved Proposal commenced in April 2021. Covalent Lithium Pty Ltd (Covalent Lithium) is the Proponent for the Approved Proposal.

The Approved Proposal was granted environmental approval in November 2019 through the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) by the Western Australian Minister for Environment (WA Minister for Environment 2019). The Approved Proposal was also granted environmental approval in February 2020 through the EPBC Decision 2017/7950 approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) by the Commonwealth Department of Agriculture, Water and the Environment (DAWE) (DAWE 2020). The above environmental approvals followed an environmental assessment of the Proposal as outlined within an Covalent Lithium's Environmental Review Document (Covalent Lithium 2019) and an assessment report by the State Environmental Protection Authority (EPA) (EPA 2019).

Associated with the Approved Proposal is the Kwinana Lithium Refinery, located in the Kwinana Industrial Area approximately 30 km south of Perth. Spodumene concentrate (containing lithium) from the Approved Proposal will be transported to the Kwinana Lithium Refinery for processing to manufacture a lithium hydroxide product. Covalent Lithium is also the Proponent for the Kwinana Lithium Refinery. The Kwinana Lithium Refinery does not form part of the Approved Proposal.

1.2 The Revised Proposal

Covalent Lithium propose to amend the Approved Proposal to incorporate the following changes (the Revised Proposal):

- Construction and operation of a Solar Plant to provide renewable energy to the mine operations (additional 32 ha of native vegetation clearing)
- Variation to the Airstrip width to accommodate lateral clearance in accordance with Civil Aviation Safety Authority requirements (additional 24 ha of native vegetation clearing)
- Change in the tailings waste disposal methodology from 'dry' tailings to 'wet' tailings
- Co-disposal of inert refinery waste generated from the Kwinana Lithium Refinery to the approved Waste Rock Landform (WRL) at the mine operations
- Modification of flora exclusions areas associated with the flora taxa *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V) and *Microcorys elatoides* (DBCA-P1)
- Modification of fauna exclusions areas associated with nest mounds of the fauna taxon Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)

The proposed changes described above will occur entirely within the existing Development Envelope for the Approved Proposal.

The Solar Plant component will require an additional 32 ha of native vegetation clearing, with the Airstrip safety clearing component requiring an additional 24 ha of native vegetation clearing; resulting in the total area of native vegetation clearing increasing from 386 ha to 442 ha (15 % increase). All other proposed change components of the Revised Proposal will not require any additional native vegetation clearing.

In accordance with Section 38 of the *Environmental Protection Act 1986* (WA), Covalent Lithium has submitted a Referral of the proposed changes above as a 'Revised Proposal' for the purpose of an environmental assessment. This 'Environmental Review Document' has been prepared to support the environmental assessment process for the Revised Proposal with identification of the biological surveys completed, an assessment of the potential environmental effects, and an outline the proposed environmental management approach.

Additionally, the proposed changes have be submitted to in accordance with Section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (C'th) for the purpose of an environmental assessment. This Environmental Review Document may also be used to support this separate environmental assessment process, with a focus on 'Matters of Environmental Significance' protected under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

Table 1-1 identifies the key characteristics of the Approved Proposal and the Revised Proposal (incorporating the proposed changes) consistent with definition structure under the Statement 1118 approval. Figure 1-1 identifies the Development Envelope and the Indicative Site Layout (footprint) for the Proposal (combined Approved Proposal and Revised Proposal).

Consistent with the environmental assessment for the Approved Proposal (Covalent Lithium 2019; EPA 2019), the key environmental factors relevant to the assessment of the Revised Proposal are considered to be:

- 'Flora and Vegetation' and
- 'Terrestrial Fauna'

Of note, the environmental assessment for the Approved Proposal, and the environmental conditions arising within the Statement 1118 approval and the EPBC Decision 2017/7950 approval, focussed on the following biological values of listed conservation significance:

- Flora Taxa –
  - *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V)
  - *Microcorys elatoides* (DBCA-P1)
- Fauna Taxa –
  - Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)
  - Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V)

The Revised Proposal has the potential to affect the above environmental values in addition to that previously assessed and authorised for the Approved Proposal.

Consistent with the approach adopted for the Approved Proposal, the Revised Proposal has sought to avoid and/or minimise the potential effects to the recorded biological values through the use of existing cleared / disturbed land areas, where possible. As outlined within this document, the Revised Proposal is not anticipated to result in an additional environmental effect to an extent that the representation, diversity, viability or ecological function of the identified biological values would be detrimentally affected at a species, population or a community level.

Whilst noting the above, it is acknowledged the Revised Proposal will result in an increased effect to the clearing of fauna habitat available to the fauna taxa *Leipoa ocellata* and *Dasyurus geoffroii*, for which environmental offsets were previously imposed under the Statement 1118 approval and the EPBC Decision 2017/7950 approval. Consistent with that approach, Covalent Lithium proposes to provide additional environmental offsets for the Revised Proposal which are proportionate to the offsets applied to the Approved Proposal.

A description of each of the proposed changes associated with the Revised Proposal is outlined below -

- Solar Plant -

  A Solar Plant of nominally 12 megawatt (MW) output capacity may be constructed to provide renewable energy to the mining operations (in addition to the current power transmission line). Based on preliminary design (subject to further design development and economic assessment) the Solar Plant is anticipated to consist of approximately 27,000 solar photo-voltaic panels on an axis tracking system (rotating to track the sun movement to maximise output), which may provide

approximately 25 % of the total power supply requirements of the processing plant and other supporting infrastructure.

The location of the proposed Solar Plant covers a spatial area of approximately 43 ha, comprising 32 ha of native vegetation and 11 ha of existing cleared / disturbed land. The spatial area for the Solar Plant includes land area for the installation of the solar panels and for construction laydown purposes.

Figure 1-2 identifies the proposed location and conceptual layout for the Solar Plant.

- Airstrip Safety Clearing -

  Detailed design for the Airstrip has identified a need to accommodate an increased lateral clearance (width) to meet the safety requirements of the Civil Aviation Safety Authority (CASA). The location of the Airstrip will remain unchanged, however, the native vegetation clearing width for the Airstrip will is increased.

  The Airstrip identified with the Approved Proposal had a width of approximately 210 m (totalling 48 ha). In order to meet the relevant safety requirements for a 'C3' rated airstrip, the Airstrip will need a total width of 350 m (totalling 73 ha); an increase in area of 25 ha. The further 25 ha area for the Airstrip comprises 24 ha of native vegetation and 1 ha of cleared land.

  Figure 1-3 identifies the proposed additional native vegetation clearing area for the Airstrip.

- 'Wet' Tailings Process Change -

  Process optimisation has identified a modification to the approach for the disposal of tailings waste; changing from the disposal of 'dry' tailings to the disposal of 'wet' tailings. The 'dry' deposition approach consisted of the tailings slurry being filtered to remove liquids prior to transport via conveyors/vehicles for disposal to an Integrated Waste Landform. The proposed change to 'wet' deposition consists of the tailings slurry being transported via pipelines for disposal (without filtration of liquids) to a Tailings Storage Facility (which will replace the Integrated Waste Landform), to be constructed consistent with the DMIRS (2013) document *Code of Practice: Tailings Storage Facilities in Western Australia*. As outlined within the design report by Coffey (2021), the Tailings Storage Facility will be developed as a combined Integrated Waste Landform / Tailings Storage Facility (IWL/TSF); comprising an 'inner' Tailings Storage Facility surrounded by a Waste Rock Landform.

  This process change will be implemented within the Indicative Site Layout for the Approved Proposal. Nil additional native vegetation clearing is required for the Tailings Storage Facility. The Tailings Storage Facility will occupy an area of approximately 80 ha, with construction to an elevation of 457 m Australian Height Datum (AHD) (maximum 27m height above ground level).

  Geochemical assessments by MBS (2017a) and Graeme Campbell & Associates (2021) have confirmed the tailings to be environmentally benign (non-reactive, non-polluting); such that the change in process (subject to appropriate materials management) does not present any new or additional environmental risk.

- Co-disposal of Inert Refinery Waste from the Kwinana Lithium Refinery -

  Spodumene concentrate (containing lithium) from the Approved Proposal will be transported to the Kwinana Lithium Refinery for additional processing. The processing creates an inert refinery process-derived waste, which is now proposed to be returned to the mine operations for co-disposal to within the approved Waste Rock Landform (WRL). Geochemical characterisation by MBS (2019) has confirmed the refinery waste to be environmentally benign (non-reactive, non-polluting); such that the change in process (subject to appropriate materials management) does not present any new or additional environmental risk for the Approved Proposal. To provide context, the volume of the refinery waste will represent approximately 5% of the total volume of materials for disposal to the Waste Rock Landform (total 218 M loose cubic metres (LCM), comprising 204 M LCM of waste rock and 11 M LCM of refinery waste). This process change will be implemented within the current approved Development Envelope (nil additional native vegetation clearing required).

- Modification of Flora Exclusion Areas –

  The Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) established a number of exclusions areas targeting the protection of the flora taxa *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V) and *Microcorys elatoides* (DBCA-P1), and the protection of Vegetation Unit W17 (which is not of listed conservation significance, however has a restricted spatial area). Review of the Flora Exclusion Areas has identified a need for modification to ensure each exclusion area includes the target flora taxa (some exclusion areas do not include these taxa) and to amend their placement to ensure the implementation of the Proposal is not unnecessarily restricted. The proposed changes to the Flora Exclusion Areas includes the deletion of some exclusion areas, and the addition of new exclusion areas.

  The effect of these changes will not result in any reduction in the protection of *Banksia sphaerocarpa* var. *dolichostyla* or *Microcorys elatoides*; with the total number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* protected within the revised Flora Exclusion Areas remaining at 5,246 individuals, and the total number of individuals of *Microcorys elatoides* protected within the revised Flora Exclusion Areas increasing slightly to 13,553 individuals). The effect of the changes will additionally not reduce the protection of Vegetation Unit W17 as no change to the Flora Exclusion Area covering this vegetation community is proposed (with 3 ha of Vegetation Unit W17 remaining protected). The revised Flora Exclusion Areas will however reduce the constraints on Proposal implementation through their refined placement.

  Figure 1-4 identifies the proposed changes to the Flora Exclusion Areas.

- Modification of Fauna Exclusion Areas –

  The Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) established a number of exclusions areas targeting the protection of nest mounds of the fauna taxon Malleefowl *Leipoa ocellata* (BC-V, EPBC-V). Review by Ecoscape (2021a) has identified a number of the Fauna Exclusion Areas do not contain recently active *Leipoa ocellata* nest mounds; and accordingly, it is considered that such Fauna Exclusion Areas should be removed as they do not protect identified locations of *Leipoa ocellata* breeding.

  Figure 1-5 identifies the proposed changes to the Fauna Exclusion Areas.

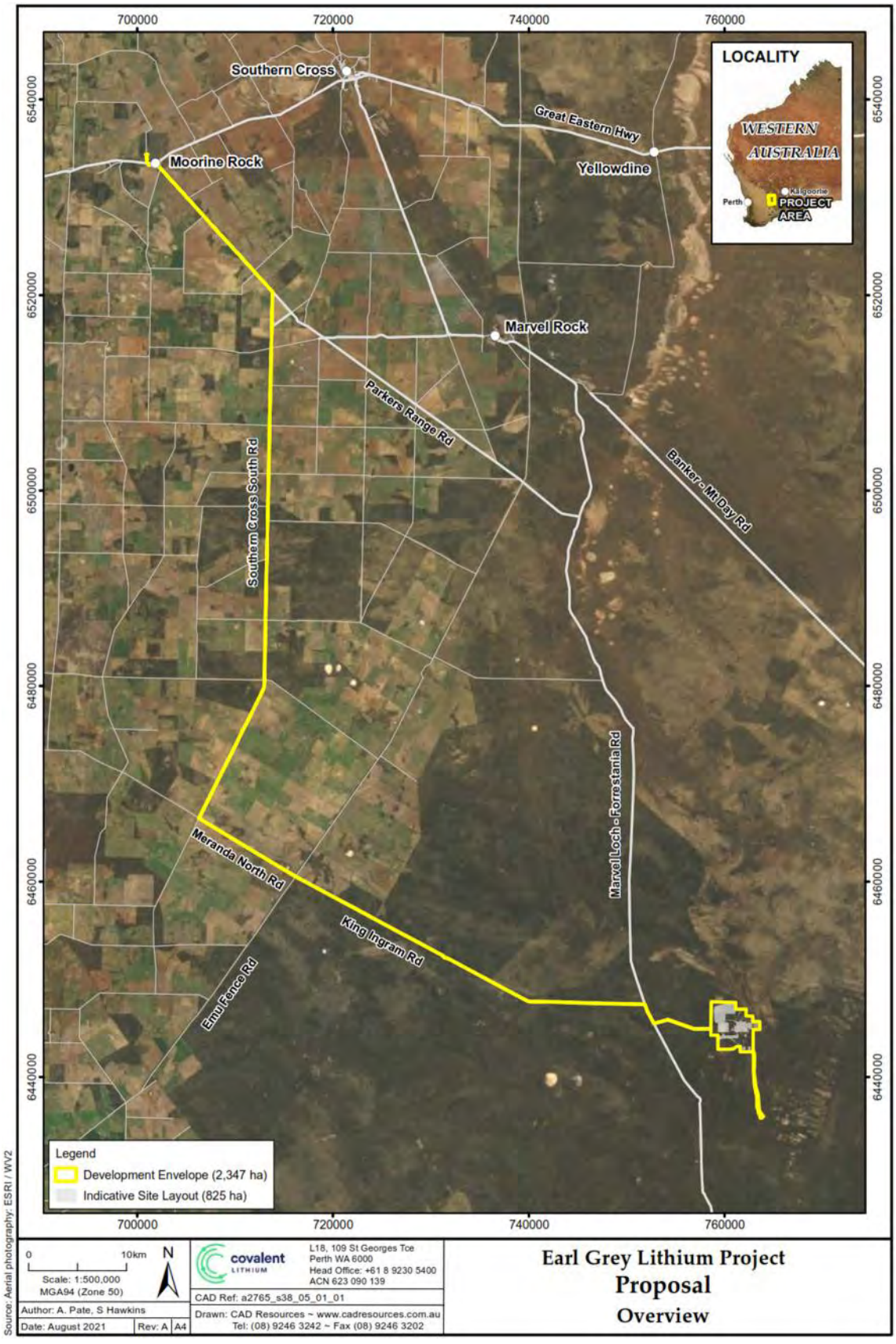


Figure 1-1a The Proposal

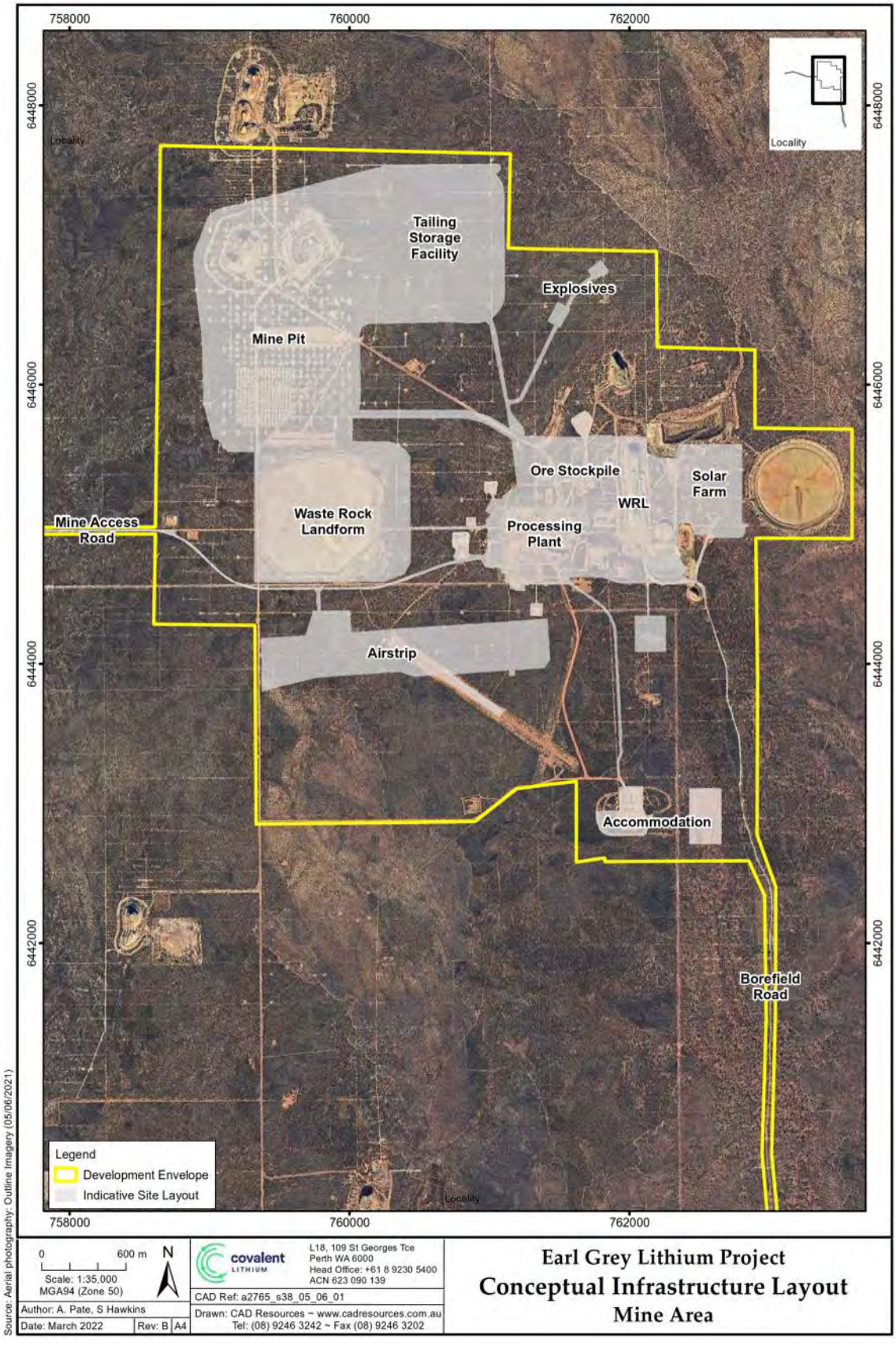


Figure 1-1b The Proposal

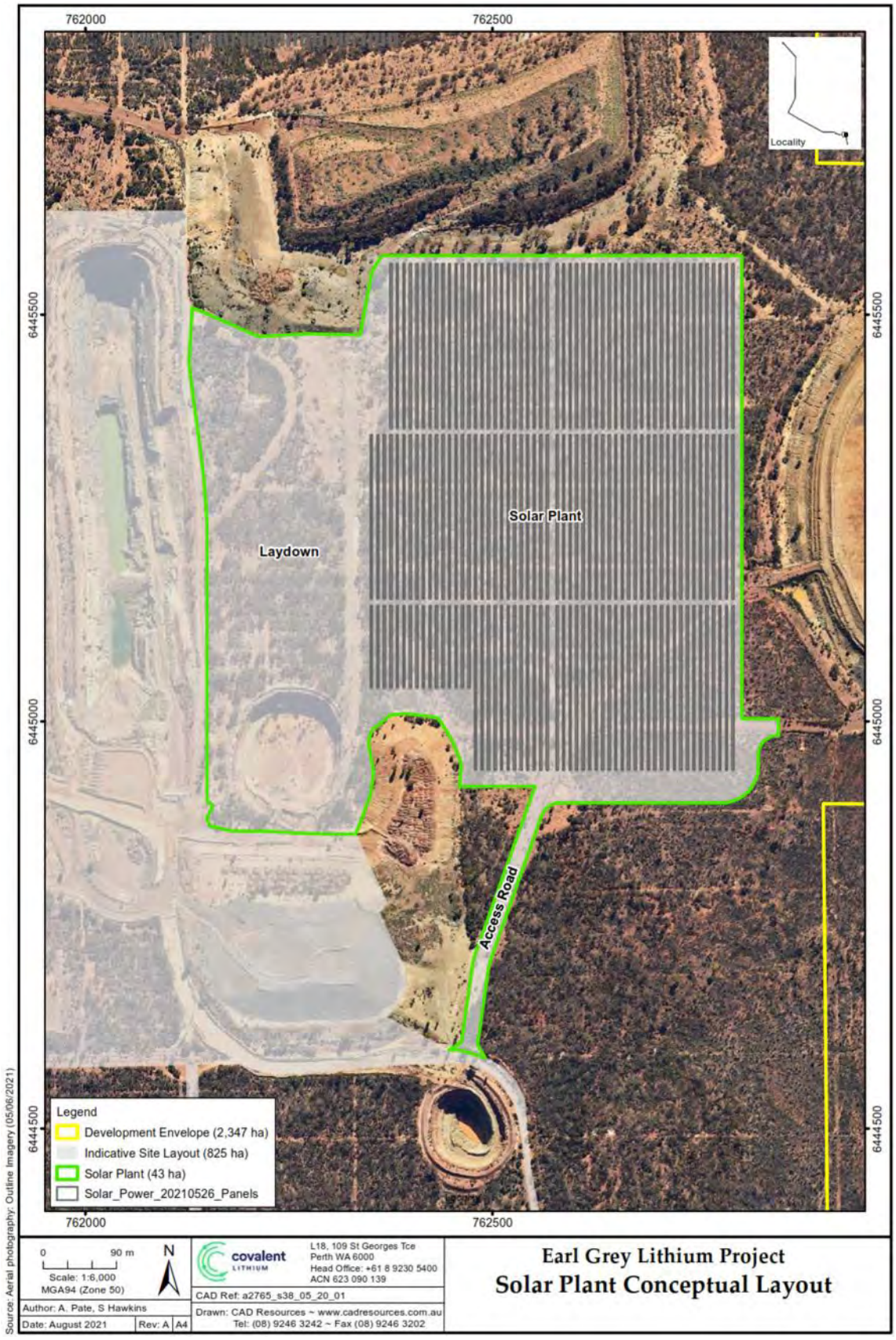


Figure 1-2 Solar Plant Location and Conceptual Layout

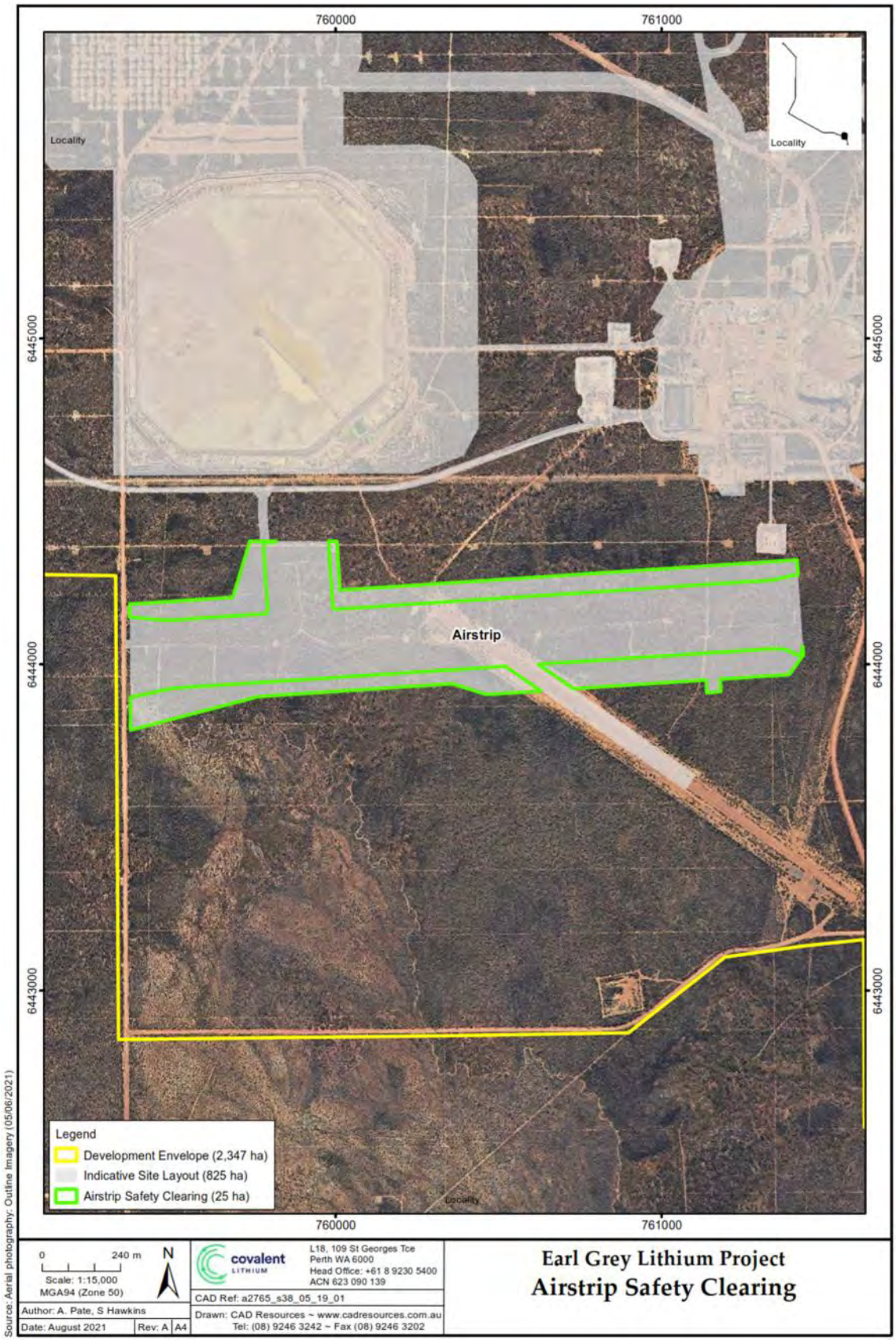


Figure 1-3 Airstrip Safety Clearing

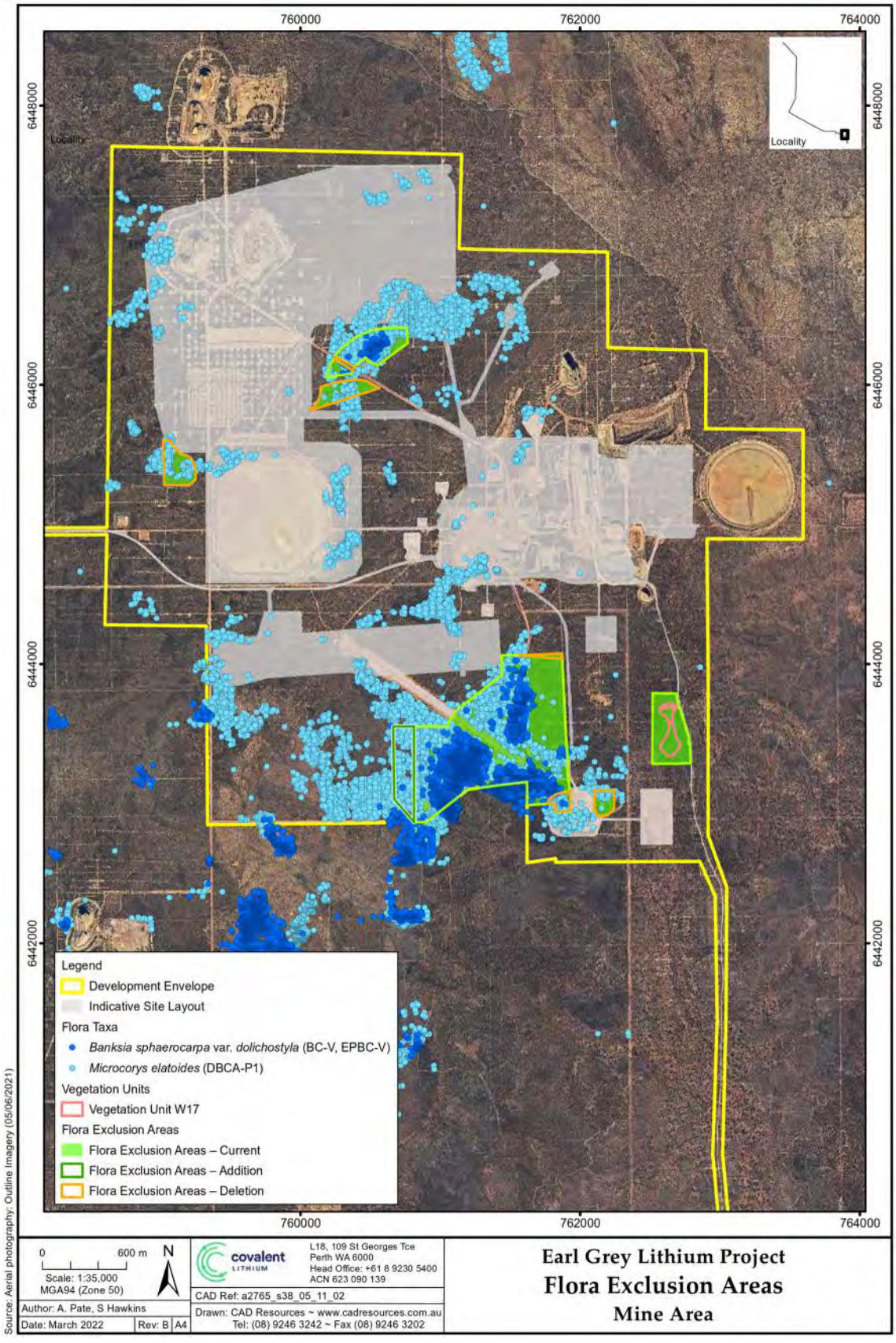


Figure 1-4a Flora Exclusion Areas

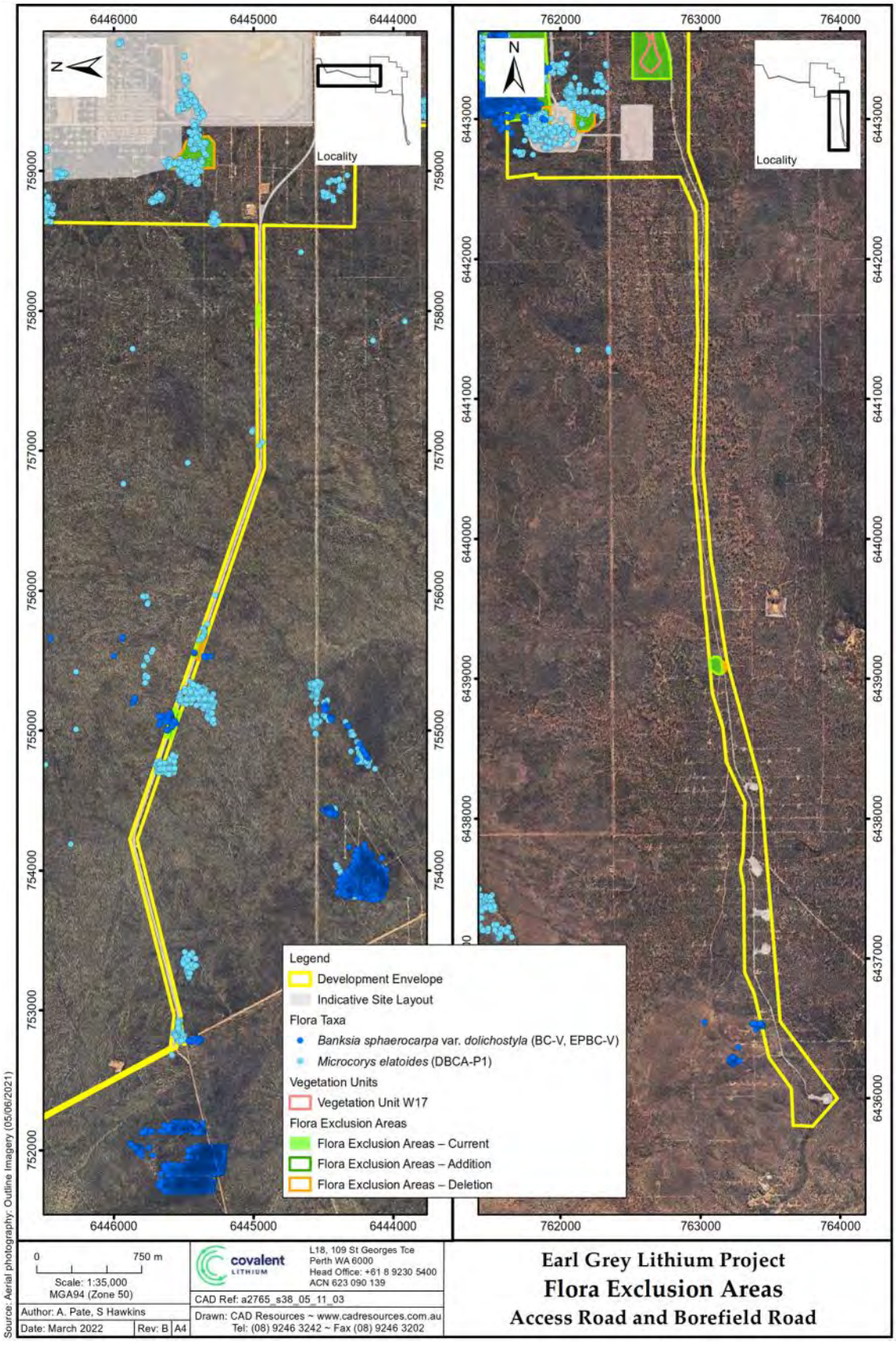


Figure 1-4b Flora Exclusion Areas

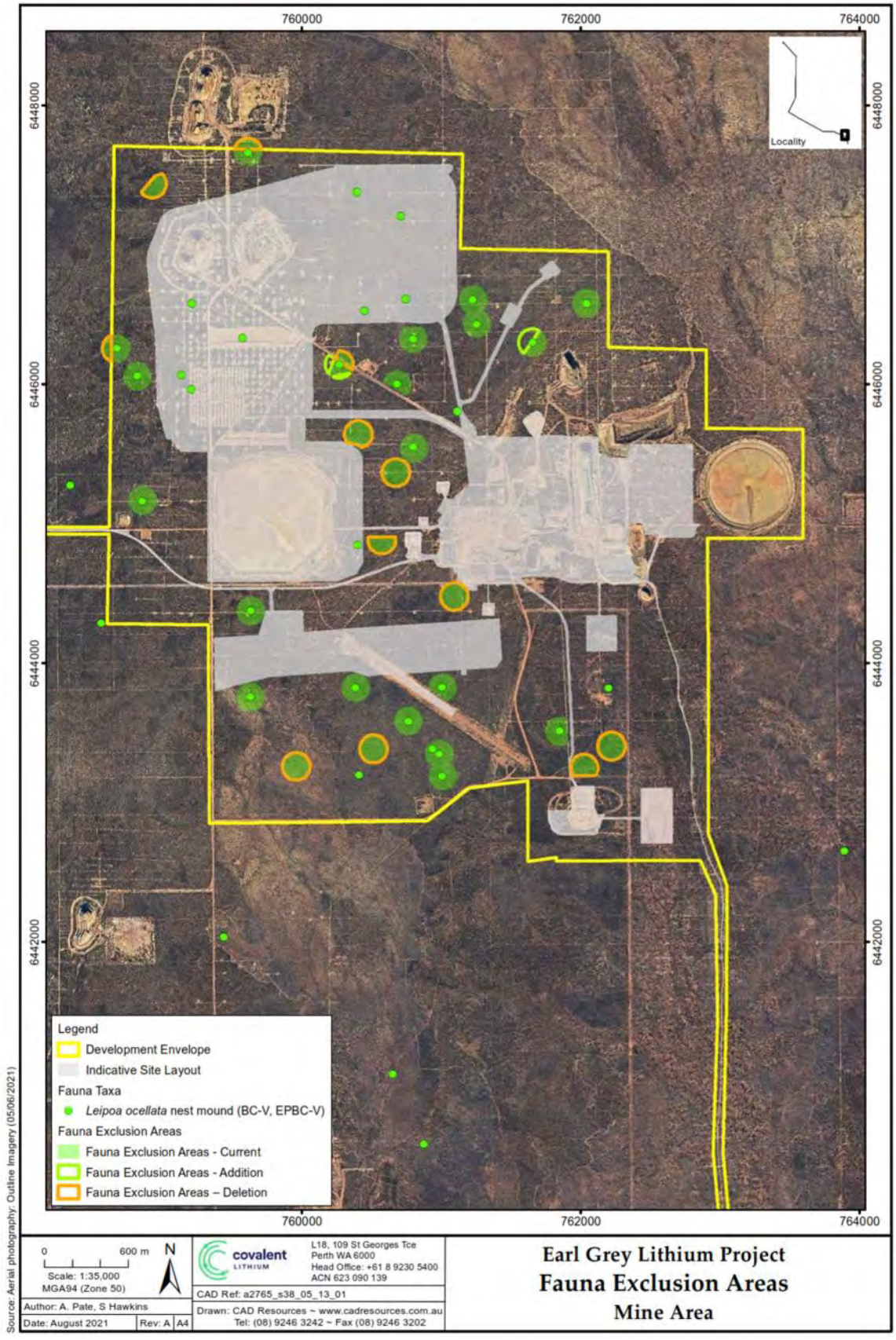


Figure 1-5 Fauna Exclusion Areas

1.3 The Proponent

Covalent Lithium Pty Ltd (Covalent Lithium) is the Proponent for the Proposal (Approved Proposal and Revised Proposal combined) as manager and as agent for and on behalf of the joint venturers MH Gold Pty Ltd (MH Gold) and SQM Australia Pty Ltd (SQM).

Covalent Lithium is a joint venture between Wesfarmers Lithium Pty Ltd (a subsidiary of Westfarmers Limited) and Sociedad Química y Minera de Chile S.A. Contact details for Covalent Lithium are identified by Table 1-1

PROPONENT	KEY CONTACT
Covalent Lithium Pty Ltd ACN 623 090 139 Level 17, 109 St Georges Terrace PERTH WA 6000	Anthea Pate Manager Environment, Approvals and Safety Telephone: 0409 365 133 E–mail: Anthea.Pate@CovalentLithium.com

Table 1-1 Contact Details

Wesfarmers Limited is an Australian listed company with diverse businesses including home improvement, office supplies, retail, chemicals, natural gas, fertilisers, and industrial and safety products. Wesfarmers was initially established over 100 years ago as a Western Australian farmers' cooperative, and has since grown into one of Australia's largest employers.

Sociedad Química y Minera de Chile S.A (SQM) is a global company involved in strategic industries including lithium, specialty plant nutrition, iodine, industrial chemicals and potassium. Through its corporate history spanning over 50 years of operations, SQM has expanded to have corporate offices with presence in 115 countries over 5 continents.

The Proposal will be implemented in accordance with Covalent Lithium's Environmental Policy, as provided at Appendix 1 (Covalent Lithium 2021a). Covalent Lithium recognises its responsibility in ensuring its activities are performed in an environmentally conscious manner, which for the Proposal includes:

- Environmentally responsible business practises are identified, implemented and promoted
- A commitment to return the Proposal to a safe, stable, non-polluting, self-sustaining agreed end land use
- Provision of training to all employees and contractors regarding environmental responsibilities
- Enhancing the understanding of the surrounding biodiversity and impact of the Proposal through monitoring programs
- Efficient use of resources to minimise waste
- Complying with legal requirements and reporting on environmental performance to internal and external stakeholders
- Continually assessing environmental risks and potential impacts of activities
- Ensuring risk-based objectives, targets and standards are established
- Continuous improvement in environmental performance through development and achievement of key performance indicators
- Communication and consultation with employees, contractors, the community, regulators and other relevant stakeholders
- Commitment to provide adequate and appropriate resources to achieve environmental goals and objectives
- Alignment and maintenance of the Environmental Management System with ISO14001.

1.4 Purpose and Scope of this Document

The purpose of this Environmental Review Document (ERD) is to present an environmental review of the Proposal, incorporating the Approved Proposal and the proposed changes associated with the Revised Proposal. This ERD has been prepared to support the environmental assessment process by identifying the biological surveys completed, assessing the potential environmental effects, and to outline the proposed environmental management approach.

Consistent with the environmental assessment for the Approved Proposal (Covalent Lithium 2019; EPA 2019), the key environmental factors relevant to the assessment of the Revised Proposal are considered to be:

- 'Flora and Vegetation' and
- 'Terrestrial Fauna'

The environmental assessment of the Approved Proposal focussed on the effect to 'Threatened' species of flora and fauna taxa listed and protected under the State *Biodiversity Conservation Act 2016* (WA)[1,2] and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th)[2], all at the conservation assessment level of 'Vulnerable':

- Flora Taxa -
  - *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V).
- Fauna Taxa -
  - Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)
  - Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V)

Additionally, the assessment for the Approved Proposal also had focus on flora taxa classified by the State Department of Biodiversity, Conservation and Attractions (DBCA) as 'priority' (no statutory protection), most notably:

- Flora Taxa –
  - *Microcorys elatoides* (DBCA-P1)

As the Revised Proposal will be undertaken within the authorised Development Envelope for the Approved Proposal, it is anticipated the key environmental factors of 'Flora and Vegetation' and 'Terrestrial Fauna' will apply to the assessment of the Revised Proposal, and with a focus on the effect to flora and fauna taxa of listed conservation significance.

[1] The State *Biodiversity Conservation Act 2016* (WA) replaced the former State *Wildlife Conservation Act 1950* (WA) that was in effect during the assessment of the Approved Proposal

[2] Refer to DAWE (2021a, 2021b) and WA Minister for Environment (2018a, 2018) for conservation assessment levels.

1.5 Environmental Assessment Process

1.5.1 *Environmental Protection Act 1986* (WA)

The State *Environmental Protection Act 1986* (WA) is the principal environmental protection legislation in Western Australia, and for the purposes of Part IV of the Act, is administered by the EPA and the Western Australian Minister for the Environment, with support to the EPA by the State Department of Water and Environmental Regulation (DWER, EPA Services group). The *Environmental Protection Act 1986* (WA) identifies that a proposal which is likely to have a significant effect on the environment requires an assessment by EPA and approval of the Minister.

The Approved Proposal was granted environmental approval in November 2019 through the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) by the Western Australian Minister for Environment (WA Minister for Environment 2019). The Statement 1118 approval followed an environmental assessment as outlined within Covalent Lithium's Environmental Review Document (Covalent Lithium 2019) and an environmental assessment report prepared by the EPA (2019).

This Environmental Review Document (ERD) for the Revised Proposal has been prepared to generally align with the format and content of the EPA (2021a) document *How to Prepare an Environmental Review Document*, and is intended as a supporting document to accompany the Referral of the Revised Proposal under Section 38 of the State *Environmental Protection Act 1986* (WA).

This ERD identifies the suite of biological surveys completed relevant to the key environmental factors of 'Flora and Vegetation' and 'Terrestrial Fauna'. The objectives of this ERD is to ensure the biological values within the area of the Revised Proposal are identified and understood, and to ensure the environmental effects of the Revised Proposal are informed by a science-based environmental assessment with appropriate avoidance, mitigation, management and offset measures applied.

1.5.2 *Environment Protection and Biodiversity Conservation Act 1999* (C'th)

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) is the principal Commonwealth environmental legislation, and is administered by the Commonwealth Department of Agriculture, Water and the Environment (DAWE). An action which is likely to have a significant effect to a 'Matter of National Environmental Significance' (for example, a 'Threatened' species of flora or fauna), may be assessed by DAWE with a subsequent approval decision by the Commonwealth Minister for Environment (or a decision as delegated to DAWE).

The Approved Proposal (action) was granted environmental approval in February 2020 through the EPBC Decision 2017/7950 approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) by DAWE (2020). The EPBC Decision 2017/7950 approval followed an environmental assessment as outlined within Covalent Lithium's Environmental Review Document (Covalent Lithium 2019), and supported by an environmental assessment report prepared by the EPA (2019) in accordance with the Bilateral Agreement assessment process (Commonwealth of Australia and State of Western Australia 2014).

This ERD for the Revised Proposal has informed the assessment by DAWE for a variation to the conditions of the EPBC Decision 2017/7950 approval under Section 143[1] of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th). Covalent Lithium submitted a request for a variation to the conditions of the EPBC Decision 2017/7950 approval in October 2021 (Covalent Lithium 2021b)

This ERD identifies the suite of biological surveys completed relevant to the key environmental factors of 'Flora and Vegetation' and 'Terrestrial Fauna', including specific focus to listed 'Threatened' species of flora and fauna as Matters of National Environmental Significance. The objectives of this ERD is to ensure the biological values within the area of the Revised Proposal are identified and understood, and to ensure the environmental effects of the Revised Proposal are informed by a science-based environmental assessment with appropriate avoidance, mitigation, management and offset measures applied.

[1] Whilst the Approved Proposal was assessed through the Bilateral Agreement assessment process, the Revised Proposal is not proposed to be assessed through the Bilateral Agreement assessment process.

In March 2022, the DAWE (2022) granted approval of the variation to allow for implementation of the Revised Proposal in accordance with Section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

Accordingly, the environmental assessment and approval processes for the Revised Proposal under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th) has been completed.

1.5.3 Previous Changes to the Approved Proposal

Change to Conditions – Section 46 of the *Environmental Protection Act 1986* (WA)

The Approved Proposal was granted environmental approval in November 2019 through the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019). The Approved Proposal was also granted environmental approval in February 2020 through the EPBC Decision 2017/7950 approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020). These environmental approvals followed an environmental assessment of the Proposal as outlined within Covalent Lithium's Environmental Review Document (Covalent Lithium 2019) and an assessment report prepared by the EPA (2019).

In August 2020, Covalent Lithium submitted a request to the Western Australian Minister for Environment to seek an amendment of a number of imposed conditions under the Statement 1118 approval. The EPA, on behalf of the Minister, subsequently assessed the requested amendments and provided its report to the Minister on the acceptable amendments in January 2021 (EPA 2021b). Following the EPA report, the Minister for Environment amended the Statement 1118 approval through the issue of an additional Statement 1167 approval under s46 of the *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2021), with the effect of the Statement 1167 approval resulting in:

- Addition of a new Condition 6-1(2) to limit the effects of the Proposal to a specified number of individuals of the flora taxa *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides*
- Addition of a new Condition 7-1(4) for the control introduced fauna taxa within a 3 kilometre (km) area surrounding the Development Envelope for the protection of the fauna taxon Malleefowl *Leipoa ocellata*.
- Amendment to existing Condition 8-1 and Condition 8-8 on environmental offsets to reduce the quantum value of the offsets required for *Banksia sphaerocarpa* var. *dolichostyla* and an increase in the quantum of the offsets required for *Microcorys elatoides*.
- Amendment to the exclusions areas associated with nest mounds of Malleefowl *Leipoa ocellata*.

The amendments to the imposed conditions reflected within the Statement 1167 approval resulted in a change to the manner in which the Approved Proposal is to be implemented, however, did not result in any substantive change to the Approved Proposal itself.

Change to Proposal – Section 45C of the *Environmental Protection Act 1986* (WA)

In October 2020, Covalent Lithium submitted a further request to the Western Australian Minister for Environment to seek an amendment to extend the Development Envelope to include a water supply pipeline between the Approved Proposal and the townsite of Moorine Rock, thereby increasing the spatial extent of the Development Envelope from 1,984 ha to 2,347 ha (363 ha increase); however with nil additional native vegetation clearing required.

In May 2021, the EPA approved the increase in the extent of the Development Envelope and include the water supply pipeline in the description of the Approved Proposal through amendment of the Statement 1118 approval under s45C of the *Environmental Protection Act 1986* (WA). The Statement 1118 approval was amended by the addition of an Attachment 1 to the approval (WA Minister for Environment 2019).

The amendment to the Approved Proposal reflected within the Statement 1118 approval results in a change to the spatial extent of the Approved Proposal, however, does not result in any additional environmental effect due to nil change in the authorised extent of native vegetation clearing.

1.6 Other Government Assessment Processes

1.6.1 *Mining Act 1978* (WA)

The State *Mining Act 1978* (WA) is the principal mining legislation in Western Australia, and is administered by the State Department of Mines, Industry Regulation and Safety (DMIRS). The purpose of the *Mining Act 1978* (WA) is to control mining land tenure (tenements), mineral exploration and mining operations. Prior to undertaking mining operations on mining land tenure, a proponent is required to prepare a Mining Proposal and a Mine Closure Plan in accordance with relevant DMIRS guideline documents, with the DMIRS to then determine approval of the documents on behalf of the State Minister for Mines, Industry Regulation and Safety.

The Proposal is located on a number of Mining Lease, General Purpose Lease and Miscellaneous Licence tenements granted under the *Mining Act 1978* (WA), with Covalent Lithium having commercial agreements with the relevant tenement holders to grant land access and authorise the mining operations.

Covalent Lithium has prepared a Mining Proposal (Covalent Lithium 2021c) and a Mine Closure Plan (Covalent Lithium 2021d) for the Proposal in accordance with the *Mining Act 1978* (WA), with both documents subsequently approved by DMIRS (2021a, 2021b).

The existing Mining Proposal and Mine Closure Plan will be amended to incorporate the Revised Proposal, with the revised documents to be submitted to DMIRS for assessment and approval. The Revised Proposal is not anticipated to identify any new or significantly different environmental effects not previously considered in the original Mining Proposal and Mine Closure Plan.

The assessment and approval of the revised Mining Proposal and Mine Closure Plan will be undertaken in parallel with the assessment and approval processes of EPA under the *Environmental Protection Act 1986* (WA) and the DAWE under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

1.6.2 *Biodiversity Conservation Act 2016* (WA)

The *Biodiversity Conservation Act 2016* (WA) provides for the conservation and management of specified flora and fauna taxa in Western Australia, and is administered by DBCA. The *Biodiversity Conservation Act 2016* (WA) requires that a Licence from the Minister for Environment (or as delegated to DBCA) must be held for the taking of any 'Threatened' flora or fauna taxa.

The Proposal will result in the taking of individuals of the flora taxon *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V). Accordingly, Covalent Lithium will be required to prepare and submit an application to DBCA for a Licence to remove individuals of *Banksia sphaerocarpa* var. *dolichostyla*.

The Proposal may also require the handling (relocation) of individuals of *the* fauna taxa *Leipoa ocellata* and/or *Dasyurus geoffroii* (if identified during land clearing and capture/relocation is required). Accordingly, Covalent Lithium may be required to prepare and submit an application to DBCA for a Licence to handle individuals of *L. ocellata* and/or *D. geoffroii*.

The assessment and approval processes for the Licences under the *Biodiversity Conservation Act 2016* (WA) will be undertaken in parallel with the assessment and approval processes of EPA under the *Environmental Protection Act 1986* (WA) and the DAWE under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

1.6.3 *Environmental Protection Act 1986* (WA) Part V

The *Environmental Protection Act 1986* (WA) under Part V requires specified activities to be constructed in accordance with a Works Approval, and then operated in accordance with a Licence, both as issued by DWER. The Proposal includes a number of specified activities which will require a Works Approval and Licence as listed under the State *Environmental Protection Regulations 1987* (WA).

Covalent Lithium has previously obtained a number of Works Approvals for specified activities, including for Category 5 'Processing or beneficiation of metallic or non-metallic ore', Category 54 'Sewage Facility' and Category 89 'Putrescible Landfill Site'.

In relation to the Revised Proposal, the change of the tailings waste disposal methodology from a 'dry' tailings' to a 'wet' tailings will require assessment and approval of a Works Approval and a Licence through DWER for Category 5 'Processing or beneficiation of metallic or non-metallic ore'.

The assessment and approval for a Works Approval and a Licence for Category 5 'Processing or beneficiation of metallic or non-metallic ore' through DWER will be undertaken in parallel with the assessment and approval processes of the EPA under the *Environmental Protection Act 1986* (WA) and the DAWE under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

1.6.4 *Aboriginal Heritage Act 1972* (WA)

The *Aboriginal Heritage Act 1978* (WA) is the principal legislation in Western Australia for the identification and protection of sites and objects of Aboriginal heritage value, and is administered by the State Department of Planning, Lands and Heritage (DPLH). The *Aboriginal Heritage Act 1978* (WA) requires that disturbance to any site or object of Aboriginal heritage significance requires a 'Consent' to be granted under s16 or s18 by the Minister for Aboriginal Affairs following an assessment of the heritage values by the Aboriginal Cultural Materials Committee.

Ethnographic and archaeological Aboriginal heritage surveys have been completed for the Proposal, including with representatives from the traditional owners (Native Title Claimant Groups). No ethnographic or archaeological Aboriginal heritage sites or objects were recorded during the surveys within the area of the Proposal (Western Heritage Research 2005; Land Access Solutions 2017). Further, the 'Aboriginal Heritage Inquiry System' maintained by DPLH does not identify any recorded 'Registered' site or object of Aboriginal heritage value coinciding with the Proposal.

As the Proposal (including the Revised Proposal) does not coincide with any registered Aboriginal Heritage site within the meaning of s5 of s6 of the *Aboriginal Heritage Act 1972* (WA), Consent under the *Aboriginal Heritage Act 1972* (WA) is not required for the Proposal.

2 The Proposal

2.1 Proposal Description

The 'Key Proposal Characteristics' of the Proposal are identified in Table 2-1. Table 2-1 identifies the key characteristics of the Approved Proposal as outlined within the Statement 1118 approval (Column 2) and the key characteristics for the Revised Proposal (Column 3).

The location of the Proposal (Approved Proposal and Revised Proposal combined) is identified by Figure 2-1 and Figure 2-2. Figure 2-2 identifies the authorised Development Envelope as identified within the Statement 1118 approval (nil change to Development Envelope). Figure 2-2 also identifies the 'Indicative Site Layout' within the approved Development Envelope.

The Indicative Site Layout is intended to indicate the conceptual location of the mining infrastructure as 'disturbance footprint', with this area including both native vegetation (to be cleared) and existing cleared / disturbed land. The Indicative Site Layout is not fixed and may be subject to operational change (within the limitations for the Proposal identified above).

Within the Development Envelope of 2,347 ha, the Indicative Site Layout has been optimised to use existing cleared / disturbed land areas as far as practicable. The Approved Proposal has been authorised for the clearing of up to 386 ha of native vegetation. The Revised Proposal will result in an increase in the area of native vegetation clearing by 56 ha (from 386 ha to 442 ha); representing a 15 % increase in native vegetation clearing authorised for the Approved Proposal.

To note, the Revised Proposal description (Column 3) also adopts the following administrative changes:

- Remove the total 'footprint' limit which inadvertently restricts the use of existing cleared/disturbed lands (which are absent of biological values).
- Change in terminology from 'Dump' to 'Landform'.
- Reflect the change from an Integrated Waste Landform to a Tailings Storage Facility (combined Integrated Waste Landform / Tailings Storage Facility) associated with the tailings disposal methodology.

Table 2-1 Key Proposal Characteristics (**bold text** used to identify proposed changes in Column 3)

PROPOSAL TITLE	EARL GREY LITHIUM PROJECT	
	APPROVED PROPOSAL	REVISED PROPOSAL
SHORT DESCRIPTION		
	The proposal is to develop a pegmatite-hosted lithium deposit at the abandoned Mt Holland Mine Site, in a Development Envelope of 2,347 ha. The mining proposal involves a footprint of 755 ha of land, including new clearing of up to 386 ha of native vegetation, for a mine pit, waste rock dump, integrated waste landform, processing plant, airstrip, accommodation village, water supply pipeline and associated infrastructure.	The Proposal is to develop a pegmatite-hosted lithium deposit at the abandoned Mt Holland Mine Site, in a Development Envelope of 2,347 ha. The Proposal involves new clearing of up to **442 ha** of native vegetation, **and use of existing cleared/disturbed land**, for **infrastructure including** a mine pit, waste rock **landforms**, **tailings storage facility**, processing plant, airstrip, accommodation village, water supply pipeline, **solar plant** and associated infrastructure.
PHYSICAL ELEMENTS		
Mine and associated infrastructure	Clearing of no more than 386 ha of native vegetation, within a Development Envelope of 2,347 ha	Clearing of no more than **442 ha** of native vegetation, within a Development Envelope of 2,347 ha
OPERATIONAL ELEMENTS		
Mining	Earl Grey open cut pit	Earl Grey open cut pit

The EPA (2021c) document *How to Identify the Content of a Proposal* requires a proposal to now be defined by a 'Proposal Content Document' in lieu of the former 'Key Characteristics Table' approach. In accordance with EPA (2021c), Table 2-2 and Table 2-3 below provides a Proposal Content Document for the Proposal (Approved Proposal and Revised Proposal combined).

Table 2-2 General Proposal Content Description

SUMMARY OF THE PROPOSAL	
PROPOSAL TITLE	Earl Grey Lithium Project
PROPONENT NAME	Covalent Lithium Pty Ltd
SHORT DESCRIPTION	The Proposal is to develop a pegmatite-hosted lithium deposit at the abandoned Mt Holland Mine Site, in a Development Envelope of 2,347 ha. The Proposal involves new clearing of up to 442 ha of native vegetation, and use of existing cleared/disturbed land, for infrastructure including a mine pit, waste rock landforms, tailings storage facility, processing plant, airstrip, accommodation village, water supply pipeline, solar plant and associated infrastructure.

Table 2-3 Proposal Content Elements

PROPOSAL ELEMENT	LOCATION / DESCRIPTION	MAXIMUM EXTENT, CAPACITY OR RANGE
PHYSICAL ELEMENTS		
Mine and associated infrastructure	Figure 2-2a and Figure 2-2b	Clearing of no more than 442 ha of native vegetation, and use of existing cleared/disturbed land, within a Development Envelope of 2,347 ha
OPERATIONAL ELEMENTS		
Mine and associated infrastructure	Mining operations and mining infrastructure including a mine pit, waste rock landforms, tailings storage facility, processing plant, airstrip, accommodation village, water supply pipeline, solar plant and associated infrastructure.	
GREENHOUSE GAS EMISSIONS		
Greenhouse Gas Emissions will be reported and regulated in accordance with the *National Greenhouse and Energy Reporting Act 2007* (C'th). Estimated greenhouse gas emissions have been modelled: Scope 1 - 70,000 - 84,000 t CO_2-e (annual average, estimated Scope 1 emissions) Scope 2 - 75,000 t CO_2-e (annual average, estimated Scope 1 and Scope 2 emissions combined) Scope 3 - 665,000 t CO_2-e (annual average, estimated Scope 3 emissions)		
REHABILITATION		
Rehabilitation will be assessed and regulated by the State Department of Mines, Industry Regulation and Safety in accordance with a Mine Closure Plan under the State *Mining Act 1978* (WA). Rehabilitation will be undertaken progressively during mining operations (where possible) within areas disturbed by the Proposal (excluding mine pits). Rehabilitation will seek to restore environmental values by supporting native vegetation comparable to adjacent undisturbed areas.		
COMMISSIONING		
Commissioning of the processing plant, solar plant and associated infrastructure (as required).		
DECOMMISSIONING		
Decommissioning of mine infrastructure will be assessed and regulated by the State Department of Mines, Industry Regulation and Safety in accordance with a Mine Closure Plan under the State *Mining Act 1978* (WA).		
OTHER ELEMENTS WHICH AFFECT EXTENT OF EFFECTS ON THE ENVIRONMENT		
Proposal time	40+ years	

Figure 2-1a Regional Location

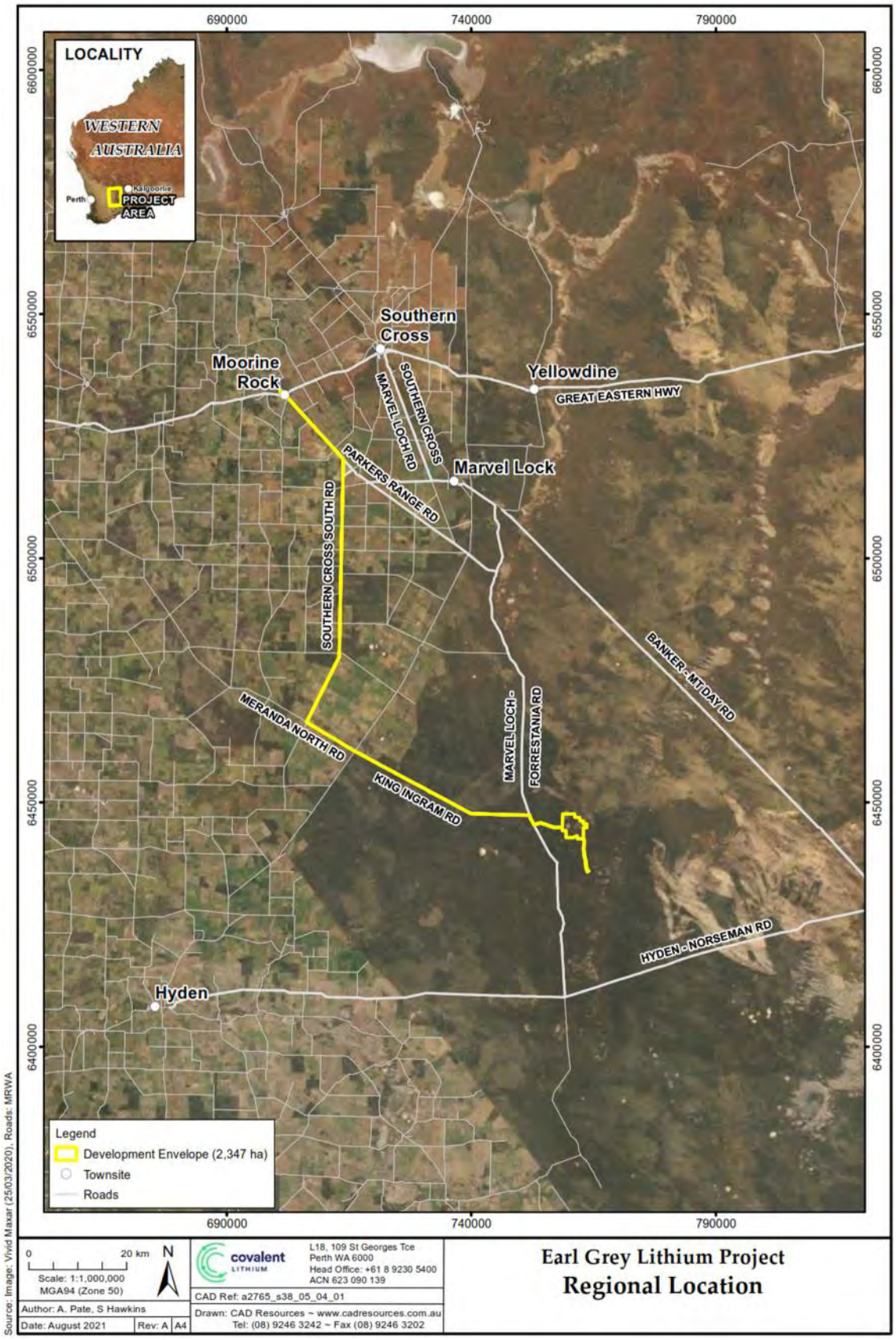


Figure 2-1b Regional Location

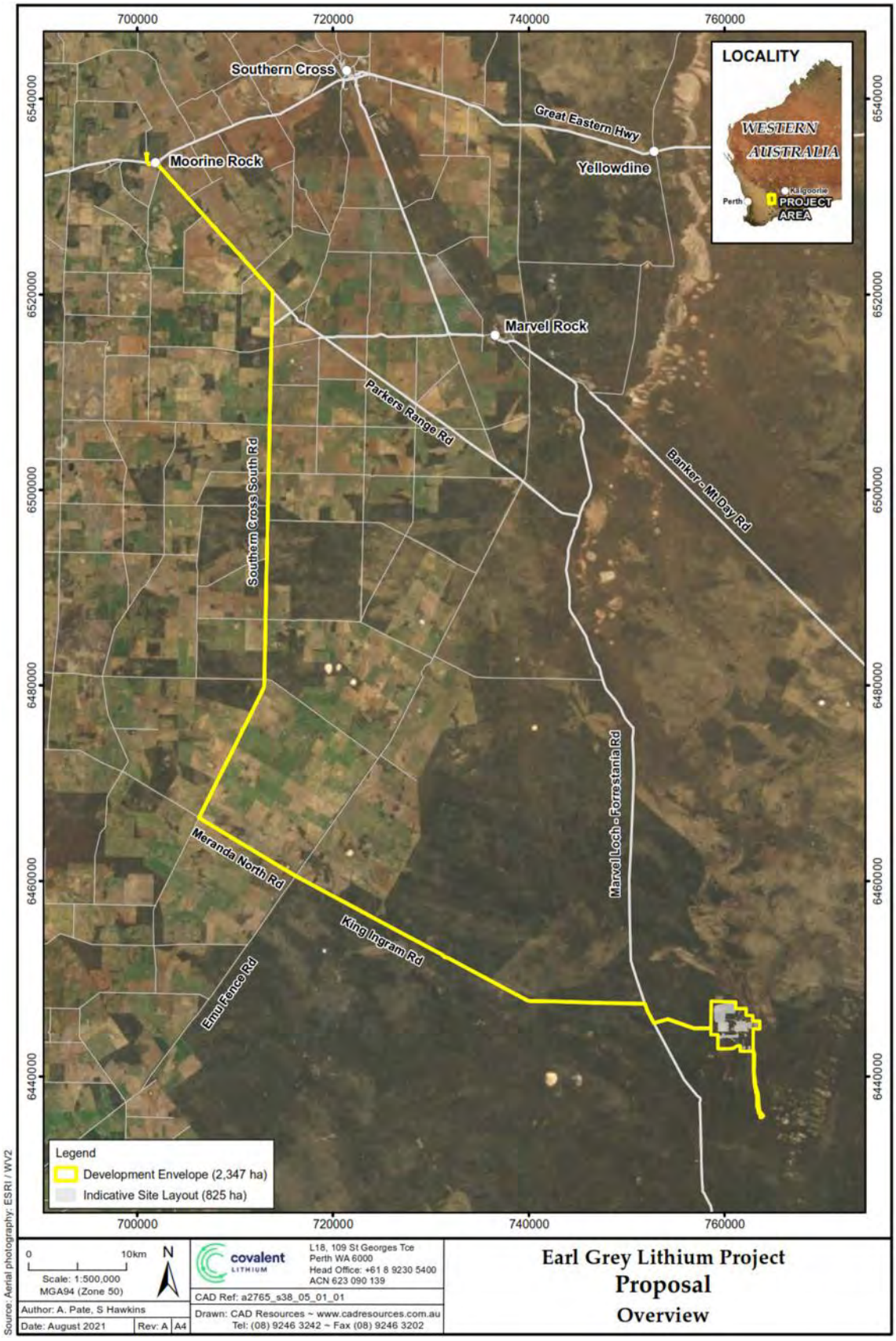


Figure 2-2a The Proposal

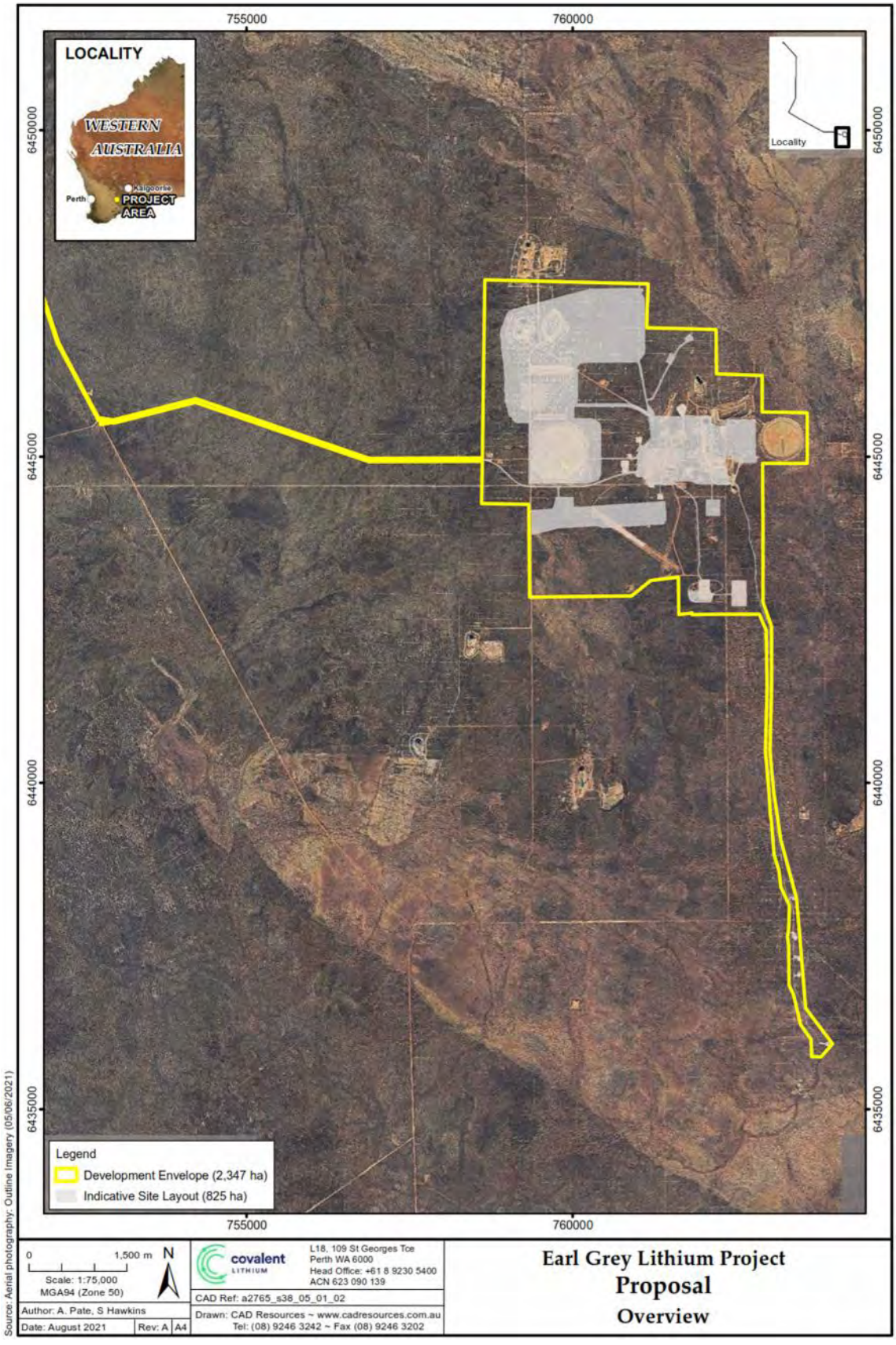


Figure 2-2b The Proposal

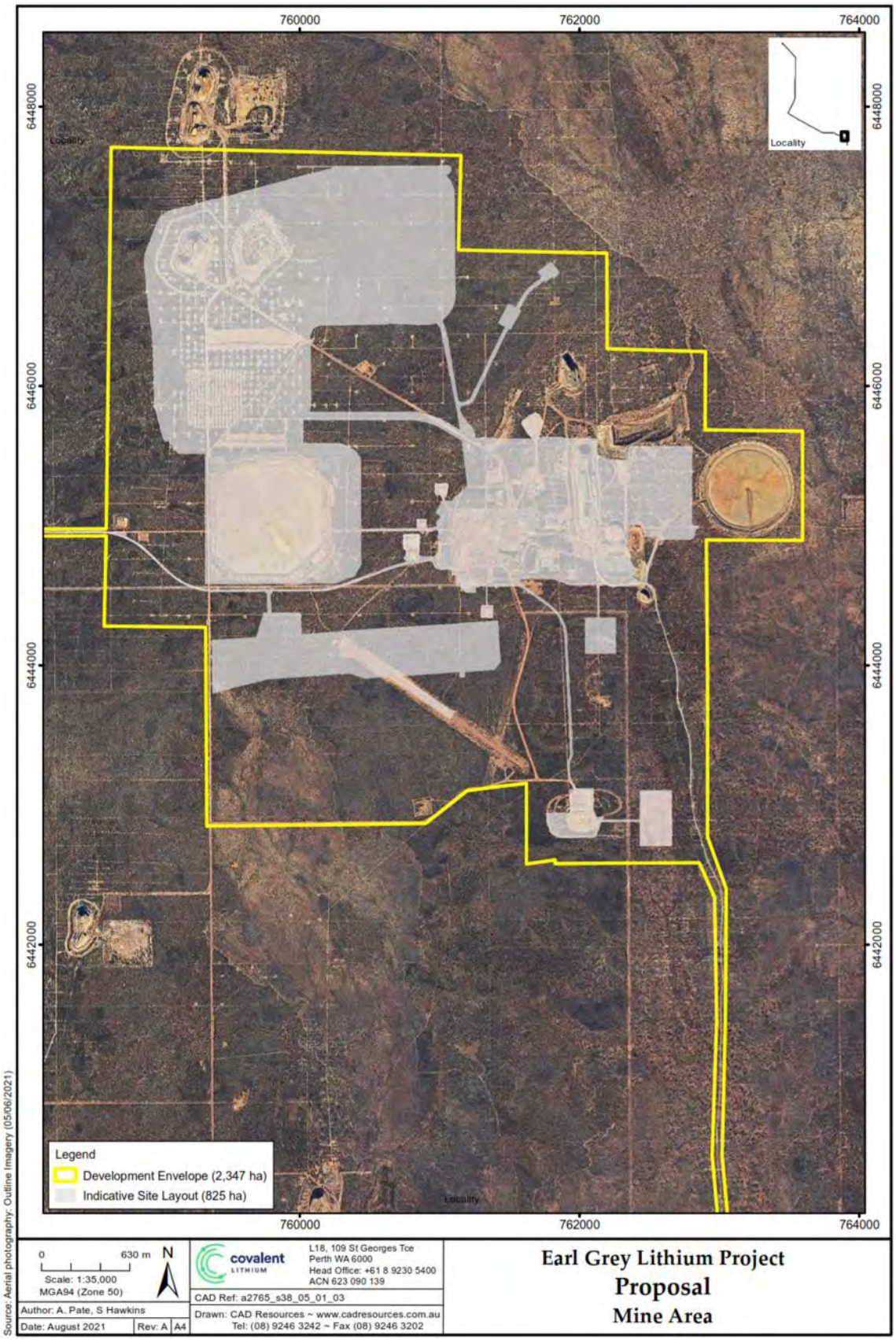


Figure 2-2c The Proposal

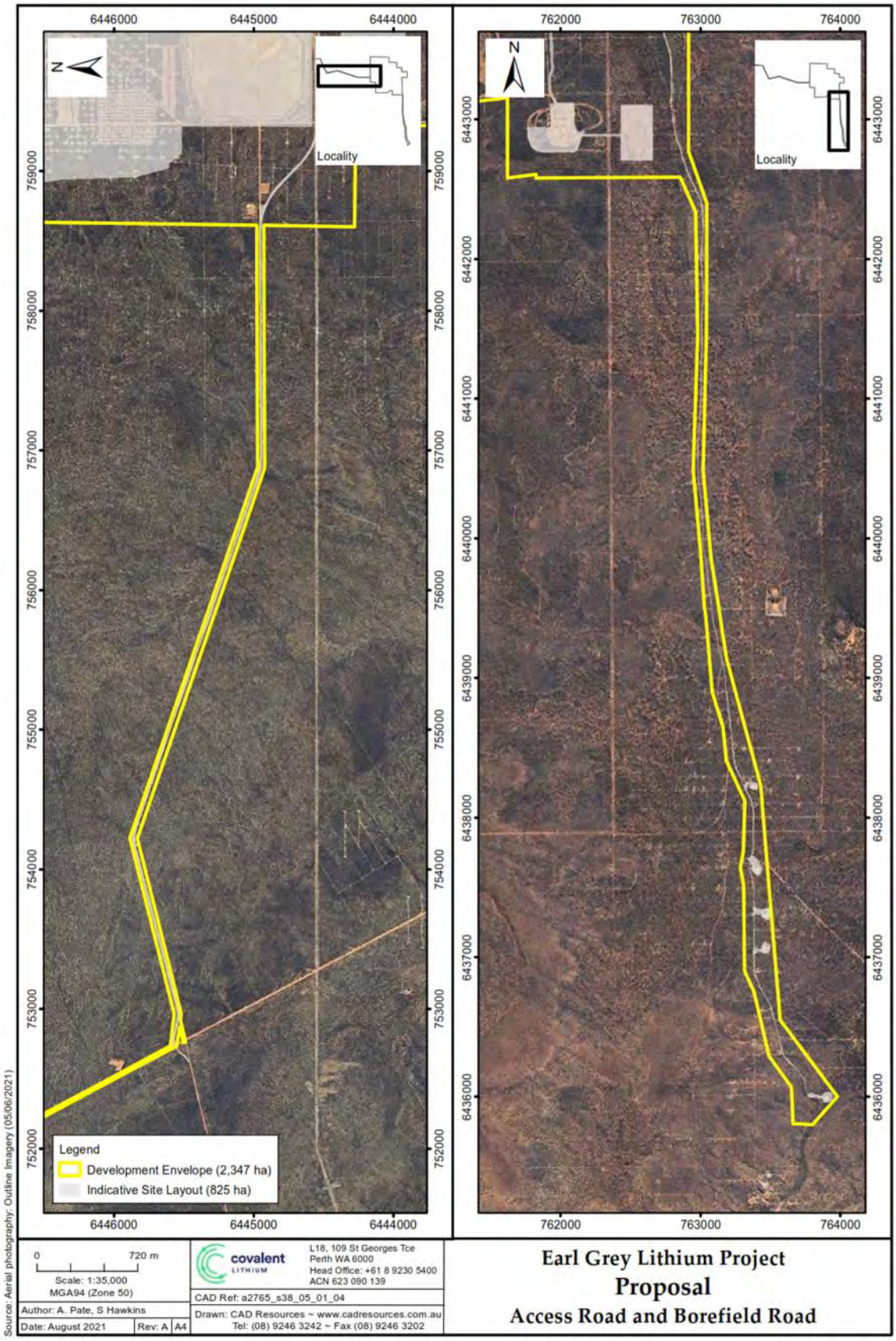


Figure 2-2d The Proposal

2.2 General Operation

As outlined within the ERD for the Approved Proposal (Covalent Lithium 2019), and subject to the proposed changes associated with the Revised Proposal, the general operational activities for the Proposal (Approved Proposal and Revised Proposal combined) include:

- Mining of the Earl Grey Lithium Deposit via a conventional open cut Mine Pit, using drill and blast mining methods, with transfer and temporary stockpiling of the extracted lithium ore
- Processing of lithium ore (dominant lithium minerals being spodumene and petalite) within a processing plant at an anticipated rate of nominally up to 3 million tonnes per annum (Mtpa) through a gravity separation and flotation plant
- Production of a spodumene concentrate (containing lithium), with temporary storage prior to transport by road and/or road to a refinery and/or export facility
- Production of chemically benign process waste streams, comprising a gravel sized reject that will be disposed of to a Waste Rock Landform (and/or used for construction purposes such as road base, fill, rehabilitation armouring) and a finer grained wet tailings to be disposed to a Tailings Storage Facility
- Disposal of waste rock (non-economic) to a Waste Rock Landform
- Co-disposal of inert refinery waste from the Kwinana Lithium Refinery to the Waste Rock Landform

2.3 Mine Pit

The Earl Grey Lithium Deposit is proposed to be mined via a conventional open cut Mine Pit, using a conventional drill and blast methodology, developed in multiple stages over a mining-life of greater than 40 years, with a total estimated 100 million tonnes (Mt) of lithium ore to be extracted.

The Mine Pit has been modelled to be approximately 1,800 m long and 950 m wide at the completion of mining. Based on the current modelling, maximum Mine Pit floor depths will be approximately 185 m below ground level (bgl) at the southern end of the Mine Pit, and 300 m bgl at the northern end.

2.4 Processing Plant

A Processing Plant (comprising multiple components, as below) will process lithium ore to produce a spodumene concentrate (lithium oxide) in four stages, as below.

Crushing -

The processing circuit requires lithium ore to be crushed and screened. Lithium ore from the ore stockpiles will be fed into a three-stage crushing circuit comprising of a primary jaw crusher, dry screens, secondary crusher and crushed ore storage stockpile at a design throughput of up to 5 Mtpa; producing crushed ore for feed into tertiary crushing followed by multi-stage Dense Media Separation (DMS) and flotation circuits.

Mica Rejection and Dense Media Separation -

Crushed spodumene ore is treated in a gravity separation process to remove gangue mica particles. The non-mica stream is then concentrated by separating the lithium bearing minerals (spodumene, petalite) from other minerals (typically quartz and albite) based on differences in density. No reagents are used in this part of the process other than the addition of environmentally benign granular ferrosilicon (FeSi) to control the pulp density.

The free-draining non-lithium bearing minerals from both stages are transferred to the stockpiles as a fine-grade laterite material reject (waste).

Flotation -

A flotation circuit will further separate the ore into concentrate and waste materials. Conventional flotation cells will consist of rougher, scavenger, and multi-stage cleaner cells. Minor quantities of benign and biodegradable reagents will be used to assist in the flotation process.

Thickening -

The flotation concentrate (product) will be thickened and filtered, prior to temporary storage.

The tailings material (waste) also be thickened, prior to disposal. The tailings thickener also receives dewatering and waste overflow streams from the flotation circuit. The solids and liquids are combined with an environmentally benign and biodegradable flocculent and thickened prior to disposal as 'wet' tailings to the Tailings Storage Facility.

The final spodumene concentrate product from Dense Media Separation and Flotation will be temporarily stored in a storage facility, prior to transport from the mine operations. Spodumene concentrate is environmentally benign and non-toxic; such that it will require no specific management measures other than general containment (e.g. to minimise product movement by wind, water).

2.5 Waste Rock and Tailings

As identified by the ERD for the Approved Proposal (Covalent Lithium 2019), and subject to the proposed changes associated with the Revised Proposal, the Proposal is expected to produce three primary waste material streams, comprising approximately:

- 200 million loose cubic metres of waste rock (inclusive of laterite material)
- 35 Mt (16,500,000 m^3) of laterite material (coarse tailings)
- 1.2 Mtpa of 'wet' tailings to be disposed of via pipelines to a Tailings Storage Facility.

2.5.1 Waste Rock

Waste rock will be disposed of to four locations, being:

- Waste Rock Landform covering the historic Tailings Storage Facility (associated with the abandoned Mt Holland Mine Site)
- Waste Rock Landform associated with the Tailings Storage Facility to the east of the Mine Pit
- Backfilling of the historical Bounty Mine Pit (associated with the abandoned Mt Holland Mine Site)
- In-pit backfilling of the Mine Pit (to the maximum extent practicable) to form an in-pit Waste Rock Landform.

Geochemical characterisation of waste rock materials to be excavated from the Mine Pit has been subject to a number of assessments, as outlined within the following reports:

- Martinick Bosch Sell Pty Ltd (2017b) *Earl Grey Lithium Project Waste Rock Characterisation*. Report prepared by North M (Dr) of Martinick Bosch Sell Pty Ltd for Kidman Resources Ltd. Final Report (Revision 2). May 2017.
- Martinick Bosch Sell Pty Ltd (2020a) *Earl Grey Lithium Project Waste Rock Characterisation Phase 1*. Report prepared by North M (Dr), Robson T (Dr) and Lekmine G (Dr) of Martinick Bosch Sell Pty Ltd for Covalent Lithium Pty Ltd. Revision A2. September 2020.
- Martinick Bosch Sell Pty Ltd (2020b) *Earl Grey Lithium Project Waste Rock Characterisation Phase 2*. Report prepared by North M (Dr), Robson T (Dr) and Lekmine G (Dr) of Martinick Bosch Sell Pty Ltd for Covalent Lithium Pty Ltd. May 2020.

- Martinick Bosch Sell Pty Ltd (2021a) *Earl Grey Lithium Project Waste Rock and Ore Characterisation Phase 1*. Report prepared by North M (Dr), Robson T (Dr) and Lekmine G (Dr) of Martinick Bosch Sell Pty Ltd for Covalent Lithium Pty Ltd. Revision A3. January 2021.
- Martinick Bosch Sell Pty Ltd (2021b) *Earl Grey Lithium Project Waste Rock and Ore Characterisation Phase 1 Extended Geochemical Assessment*. Report prepared by Lekmine G (Dr) and North M (Dr) of Martinick Bosch Sell Pty Ltd for Covalent Lithium Pty Ltd. Final Report. November 2021.

For the purpose of waste rock management, the waste rock types to be excavated from the Mine Pit include fresh waste rock (geochemically benign, erosion resistant), transitional waste rock (slightly-moderately saline, low soluble toxicants, varying erosion resistance) and oxide waste rock (low soluble toxicants, saline, dispersive). As outlined by MBS (2021a, 2021b), the geochemical characterisation results identify the following key outcomes for the waste rock materials:

- Fresh rock waste materials (37 % of total waste rock by bank cubic metres) were classified as non-acid forming and geochemically benign with low levels of soluble metals and metalloids. Water leachates were alkaline with low salinity. Fresh waste rock material is suitable for general use within the mining area, as rock armouring or as a construction material.
- Transitional material (25 %) were classified as non-acid forming, with circum-neutral pH, slightly to moderately saline, with low levels of metals and metalloids. Transitional material is suitable as a subsoil water storage layer for rehabilitation underneath available topsoils on flat surfaces. Potential for long-term placement on exposed batter slopes would require further assessment as to physical strength and resistance to erosion.
- Oxide mine waste materials (38 %) were classified as non-acid forming, naturally saline and sodic, and low in soluble metals and metalloids except for significant levels of exchangeable aluminium acidity. Oxide mine waste is not suitable for placement on external surfaces as a growth medium (saline, dispersive, aluminium acidity) with disposal to be through encapsulation within a waste landform or via in-pit backfilling (with cover of suitable waste rock materials).
- All waste rock materials were low in naturally occurring radioactive materials, with no specific management measures required.

The development of the Mine Pit will be staged requiring mining of the varying types of waste rock (from oxide waste rock at the surface to fresh waste rock at depth) to expose fresh ore. This approach will allow the construction of the Waste Rock Landforms to be staged to encapsulate the oxide and transitional waste rock within the fresh, competent waste rock as the Mine Pit development progresses. Dispersive oxide and transitional materials will be encapsulated with fresh competent waste rock to minimise the potential for post-mining erosion or sedimentation. Laterite material may also be disposed to a Waste Rock Landform as a fresh waste rock, utilised for final rehabilitation of a Waste Rock Landform, and/or used as a construction material (e.g. road base, fill, rehabilitation armouring).

Covalent Lithium notes that approximately half of the waste rock may contain naturally-occurring fibrous materials (amphibole minerals, in the form of non-asbestiform actinolite and anthophyllite), which will require management in their handling and disposal. Glossop Consultancy (2021) assessed the fibrous materials present and identified the number of respirable fibres to be low, and accordingly, the potential risk from airborne exposure is also low. Whilst Glossop Consultancy (2021) noted the potential for asbestiform actinolite and anthophyllite to exist, the concentrations are likely to be below the level of detection limits for bulk materials sampling (< 0.001 % by weight), such that the waste rock materials fall below the classification levels for defining asbestos and the materials to be used (i.e. mined and disposed) without restriction. Waste rock potentially containing fibrous materials will be encapsulated with a minimum of 1 m of competent, non-acid forming and non-fibrous waste rock materials within the Waste Rock Landforms and in-pit backfilling. Encapsulation is considered an appropriate long-term approach to minimise the risk of mobilisation of fibrous materials from weathering events (e.g. erosion by wind, water).

Physical and geochemical characterisation of waste rock materials will be an ongoing process during mining; consistent with the conditions imposed by DMIRS under the State *Mining Act 1978* (WA) for the Approved Proposal. The approach for ongoing physical and geochemical characterisation provides a mechanism by which waste rock material properties are identified, managed and appropriately disposed of in a manner which minimises the potential for risk to the environment.

2.5.2 Tailings Storage Facility

Tailings will be disposed to a conventional Tailings Storage Facility (to replace the Integrated Waste Landform), to be constructed consistent with the DMIRS (2013) document *Code of Practice: Tailings Storage Facilities in Western Australia*. The Tailings Storage Facility will be developed as a combined Integrated Waste Landform / Tailings Storage Facility (IWL/TSF); comprising an 'inner' Tailings Storage Facility surrounded by a Waste Rock Landform.

This Tailings Storage Facility will be located within the previously approved Indicative Site Layout for the Approved Proposal. Nil additional native vegetation clearing is required for the Tailings Storage Facility.

The Tailings Storage Facility has been subject to a number of engineering design assessments, peer reviews and geochemical assessments, as outlined within the following reports:

Engineering Design Assessments –

- Coffey Services Australia Pty Ltd (2021) *Mt Holland Lithium Project IWL/TSF Design Report*. Report prepared by Coffey Services Australia Pty Ltd for Covalent Lithium Pty Ltd. Revision 1. July 2021.
- SRK Consulting (Australasia) Pty Ltd (2018) *Mt Holland TSF Siting and Disposal Options Assessment*. Memorandum prepared by Kendall S and Moreno P of SRK Consulting (Australasia) Pty Ltd for Covalent Lithium Pty Ltd (formerly as Western Australia Lithium).
- SRK Consulting (Australasia) Pty Ltd (2020) *Phase 1 Wet Tailings Storage Facility Concept Summary*. Report prepared by Rola J, Kendall S and Eldridge J of SRK Consulting (Australasia) Pty Ltd for Covalent Lithium Pty Ltd. June 2020.
- SRK Consulting (Australasia) Pty Ltd (2021) *Mt Holland Lithium Project: WTSF Site Investigation Report*. Report prepared by Rola J of SRK Consulting (Australasia) Pty Ltd for Covalent Lithium Pty Ltd. June 2020.
- Peter O'Bryan & Associates (2021) *Mt Holland Lithium Project Integrated Waste Landform / Tailings Storage Facility Geotechnical Review*. Report prepared by O'Bryan P and Barnard G of Peter O'Bryan and Associates and Covalent Lithium Pty Ltd. February 2021.

Peer Review –

- ATC Williams Pty Ltd (2021) *Mt Holland Lithium Project Independent Peer Review of IWL/TSF Design Report*. Report prepared by Noske C of ATC Williams Pty Ltd for Covalent Lithium Pty Ltd.

Geochemical Assessments –

- Martinick Bosch Sell Pty Ltd (2017a) *Earl Grey Lithium Project Process Tailings Geochemical Assessment*. Report prepared by Allen D (Dr) and North M (Dr) of Martinick Bosch Sell Pty Ltd for Kidman Resources Ltd. Final Report (Revision 2). December 2017.
- Graeme Campbell and Associates Pty Ltd (2021) *Mt Holland Project: Geochemical Characterisation of Process-Tailings-Slurry Sample – Implications for Tailings Management*. Report prepared by Campbell G (Dr) of Graeme Campbell and Associates Pty Ltd for Coffey Services Australia Pty Ltd on behalf of Covalent Lithium Pty Ltd. February 2021.

To provide context, the area of the Tailings Storage Facility does not intersect any major surface water drainage lines or creek lines. Groundwater occurs at a depth of > 50 m below ground level; such that no groundwater-dependent vegetation occurs in the vicinity of the Tailings Storage Facility. Groundwater

quality is typically saline to hypersaline, with limited groundwater abstraction for mining operations being the only known beneficial use of the local groundwater.

As outlined by MBS (2017a), geochemical assessment has confirmed the tailings to be environmentally benign (non-reactive, non-polluting, non-acid forming, moderately alkaline) with no significant environmental risks identified (including nil risk to groundwater). The subsequent geochemical assessment by Graeme Campbell & Associates (2021) reinforced the previous geochemical assessment outcomes, identifying the tailings to be non-acid forming due to negligible sulfides, slight to moderate enrichment in other naturally occurring elements (e.g. lithium), with the tailings water neutral to alkaline (pH 7-8) and low salinity reflective of the benign nature of the ore stream and minimal use of reagents during metallurgical recovery.

In comparison to the original approved 'dry' tailings approach, the mass and volume of the 'wet' tailings approach will be greater (1.2 Mtpa) as a result of the liquid component remaining within the tailings slurry, however, the mass of the solids component of the tailings slurry will remain unchanged. The change to a 'wet' tailings approach will alter the water balance, with Coffey (2021) identifying an annual shortfall of up to approximately 0.44 GL/y (0.443 Mm^3/y) (noting the liquid component will no longer be removed from the tailings), however, this water balance shortfall can readily be met through external water supply received to site via the water pipeline authorised under the Approved Proposal.

As identified by the Coffey (2021) design report, the Tailings Storage Facility will be developed as a combined Integrated Waste Landform / Tailings Storage Facility (IWL/TSF); comprising an 'inner' TSF surrounded by a Waste Rock Landform. The Tailings Storage Facility incorporates the following general specifications, which accord to relevant State Government and industry guidelines:

- Area of approximately 80 ha, with construction to an elevation of 457 m Australian Height Datum (AHD) (27 m height above ground level).
- Liner of clay-rich saprolite mine waste materials, which meets the earthworks specification of percentage fines content (silt and clay content finer than 75 microns) in excess of 25 %.

Coffey (2021) identifies that the water from the Tailings Storage Facility (comprising supernatant and surface stormwater) will be managed to minimise seepage to the groundwater by:

- Water removal via a decant pump located within a central decant tower, with decanted water pumped back to the process plant (via a shaded return water pond with the crest width accommodating of a HDPE liner anchor trench on the upstream perimeter) for re-use.
- A cut-off trench of 4 m width and 2 m depth will be excavated beneath the perimeter embankment and backfilled with clayey mine waste.

Coffey (2021) identifies the total seepage loss from the Tailings Storage Facility was modelled at up to approximately 120 m^3/d under normal operating conditions.

Overall, the environmental risk of seepage from the Tailings Storage Facility is considered to be low in consideration of:

- Groundwater being at > 50 m below ground level, and being saline to hypersaline
- Absence of local surface water features (major drainage lines or creek lines)
- Absence of groundwater-dependent native vegetation
- The tailings being environmentally benign (non-reactive, non-polluting, non-acid forming, moderately alkaline and low salinity)

In context with the above, Coffey (2021) identifies there would be little benefit in control measures to prevent seepage entirely, with the Tailings Storage Facility to be appropriately managed through standard measures to minimise seepage (i.e. water removal and recycling via decant pump, cut-off trench beneath perimeter embankment). Consistent with the Coffey (2021) conclusion, Graeme Campbell & Associates (2021) also notes that due to the high groundwater salinity there would be little environmental benefit from stringent seepage-control measures.

The Tailings Storage Facility will incorporate a 1 m thick cover of non-acid forming competent waste rock covering the top surface of the tailings (refer to Coffey 2021 in Section 18.2 (page 79) and at

Drawing No 754-PERGE276922-013 (page 750)). Mine designs and geological/geochemical/physical assessments indicate a sufficient volume of waste rock (competent, non-acid forming, non-fibrous) is available to enable successful closure of the Tailings Storage Facility.

Covalent Lithium will undertake environmental monitoring of the groundwater surrounding the Tailings Storage Facility during mine operations, as part of understanding any potential environmental effects which may effect mine closure. The environmental monitoring will involve monitoring of groundwater levels and groundwater quality from water samples collected from groundwater bores to be established surrounding the Tailings Storage Facility (refer to Coffey 2021 in Section 16 (page 85) and Drawing No 754-PERGE276922–012 (page 785)). The details of the environmental monitoring will be outlined within the Mine Closure Plan to be submitted under the *Mining Act 1978* (WA) and regulated by DMIRS.

The Tailings Storage Facility infrastructure will be managed in accordance with relevant guidelines published by DMIRS, and regulated in accordance with a Mining Proposal as assessed and approved by DMIRS under the State *Mining Act 1978* (WA).

2.6 Support Infrastructure

A general description of the Support Infrastructure types to be constructed and operated are summarised below, being generally consistent with the infrastructure types normally required to support for all mine sites. Figure 2-3 identifies the conceptual layout for the Support Infrastructure.

- Accommodation Village (Mine Camp) –

  An accommodation village to house mining workforce (construction and operation) of approximately 600 personnel.

- Airstrip –

  An east-west aligned airstrip to meet Civil Aviation Safety Authority (CASA) safety regulations to allow for fly-in fly-out transport of mine personnel.

  (Note: The historic Mt Holland Mine Site airstrip is unsuitable due to its alignment, and the occurrence of restricted flora taxa limits any potential for redevelopment).

- Communications –

  Communication systems comprising new and existing point to point towers to the city of Kalgoorlie for telephone / internet, a mobile network via range extender, and on-site radio communications.

- Fuel Storage –

  Fuel tanks for the storage of diesel fuels (and other fuels if required) to supply plant and equipment. Fuel storage will include lights, fuel management and level control systems, fuel dispersing points (including, if necessary, direct feed to the power plant), and oil/water recovery and separator unit.

- Explosives Storage Compound –

  Explosives will be stored within a licensed and secure compound, located remote from active mine areas (as per standard safety separation distances).

- Miscellaneous Buildings –

  Workshops will be established for the maintenance of plant, heavy and light vehicles. Administration offices, first aid centre, laboratory, lunch rooms, mine offices, plant offices, and store rooms will also be required.

- Power Generation Plant –

  Power will be sourced from the State grid via an existing 132-kV substation located adjacent to the Proposal, by other independent generation infrastructure, or a combination of these options.

- Vehicle Washdown Facility –

  Vehicle washdown facilities will comprise both light and heavy vehicle washdown areas and a high pressure, low volume cleaning system to minimise water usage and waste water generation. Sediment and waste water will drain to a primary settlement sump. Oily water overflow will be separated from the water using a skimmer, with the waste oil temporarily stored prior to off-site disposal by a licenced contractor, with the residual water to be recycled and/or evaporated.

- Rehabilitation Materials (Topsoil / Subsoil and Vegetation) –

  Rehabilitation materials (topsoil / subsoil and vegetation) cleared from new disturbance areas will be temporarily stockpiled, for subsequent use in progressive and post-mining rehabilitation works.

- Roads -

  Unsealed site access roads to provide safe and controlled passage for light vehicles, heavy haulage vehicles, and other equipment. A number of road sections may be sealed, or otherwise treated, in order to minimise the risk of dust air emissions from vehicle movements.

  To the extent practicable, the existing road network and other disturbed/cleared areas from the abandoned Mt Holland Mine Site will be used in lieu of new road construction.

- Water Pipeline –

  A Water Pipeline, connecting to the Water Corporation's Goldfields pipeline at Moorine Rock and extending to the mine operations, will provide both potable and process water.

- Potable Water Treatment –

  A Water Treatment System will supply the accommodation and miscellaneous buildings with a reticulated potable water supply (drinking water).

- Process Water Treatment –

  A multi-stage water treatment facility utilising multimedia filtration and reverse osmosis to minimise the total dissolved solids and total organic carbon in the process water recycle stream.

- Landfill –

  A 'Class II' landfill will be operated for the disposal of inert and putrescible wastes.

- Waste Water Treatment –

  A Waste Water Treatment Plant will process influent wastewaters from washrooms and kitchen facilities from within the accommodation village and miscellaneous buildings. Treated effluent wastewater will be disposed of to evaporation ponds and/or spray fields.

- Solar Plant –

  A Solar Plant of nominally 12 megawatt (MW) output capacity consisting of approximately 27,000 solar photo-voltaic panels to provide renewable energy supply to the processing plant and other supporting infrastructure.

- Other Infrastructure –

  Construction or refurbishment of other supporting infrastructure, as may be required.

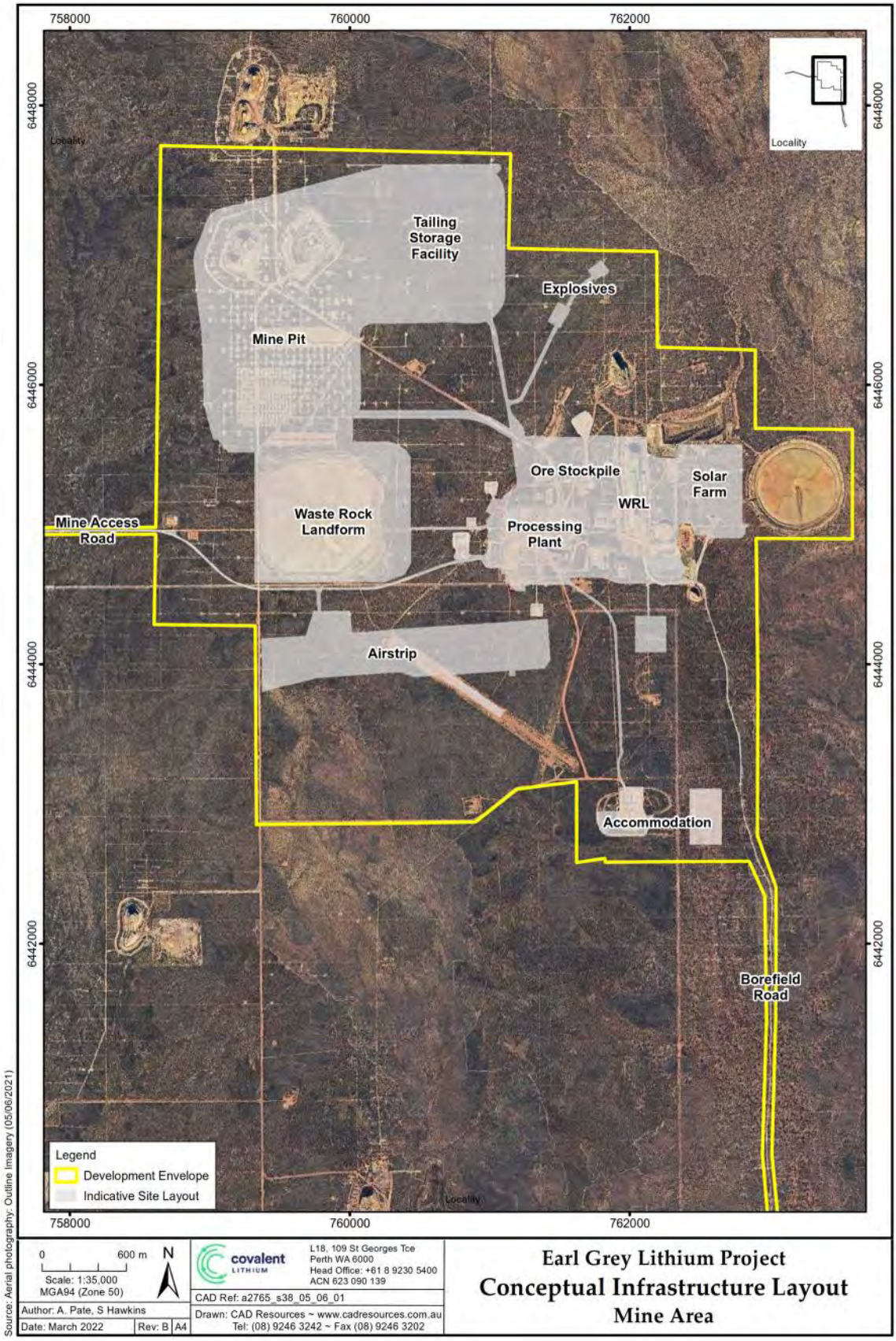


Figure 2-3 Conceptual Infrastructure Layout

2.7 Water Requirement

The Proposal is estimated to require up to 1.5 gigalitres per year (GL/y) for operations for ore processing, to supply the accommodation village, and for use in dust suppression. This water requirement will be met through a combination of:

- Potable water from the Water Corporation Goldfields pipeline
- Mine Pit dewatering
- Southern Borefield groundwater and Bounty Mine groundwater
- Saline water extracted from the Bounty South Ventilation Shaft
- Water recycling within the various process water circuits.

A general description of the proposed water supply sources is provided below:

Water Pipeline –

A Water Pipeline, connecting to the Water Corporation's Goldfields pipeline at Moorine Rock and extending to the mine operations, will provide both potable and process water.

Mine Pit Dewatering –

Mine Pit dewatering volumes are expected to be low, with inflow rates of approximately 3 to 4 litres per second (L/s) at depth. A dewatering of the Mine Pit is required to remove groundwater inflows to enable dry-floor mining. Water removed from the Mine Pit will predominantly be used for dust suppression on cleared areas (including in Mine Pits and on Waste Rock Landforms).

Any excess water will be pumped to the Bounty Pit (part of the abandoned Mt Holland Mine Site) which has a storage capacity of ~ 1.5 GL (allowing for 10 m freeboard).

Bounty Mine Water Supply –

Groundwater Licence GWL180267 has been granted by DWER (2019a) under Section 5C of the *Rights in Water and Irrigation Act 1914* (WA) to allow for the abstraction of up to 0.63 GL/y of groundwater for the Proposal. Groundwater abstraction will be undertaken in accordance with the licence conditions of the approval.

Southern Borefield Water Supply –

Groundwater supply will be supplemented with water sourced from the existing Southern Borefield (part of the abandoned Mt Holland Mine Site). The Southern Borefield will be refurbished and with groundwater abstraction to be undertaken in accordance with the licence conditions of Groundwater Licences GWL180267, GWL201377 and GWL205547 under Section 5C of the *Rights in Water and Irrigation Act 1914* (WA) (DWER 2019a, 2019b, 2021).

The southern borefield consists of seven production bores and a number of observation bores situated within the Mt Hope Caprock Aquifer. Water was abstracted from the borefield between 1988 and 2002 at a rate of up to approximately 0.3 GL/y, with peak abstraction rates of up to 3,000 kL/day. Total recoverable storage groundwater volumes from the aquifer has been estimated at approximately 20 gigalitres (URS 2002).

Bounty South Ventilation Shaft –

Water supply from the Bounty South ventilation shaft/raise, associated with the abandoned Mt Holland Mine Site, has been identified as a suitable supplementary saline groundwater source. The total depth of the shaft is approximately 260 m. Groundwater recovered from within the vent shaft will be pumped to a lined saline water dam. Groundwater abstraction from the vent shaft will be undertaken in accordance with a Licence granted under Section 5C of the *Rights in Water and Irrigation Act 1914* (WA).

2.8 Land Tenure

The Proposal (Approved Proposal and Revised Proposal combined) is situated within a number of Mining Lease, General Purpose Lease and Miscellaneous Licence tenements granted under the *Mining Act 1978* (WA), with Covalent Lithium having commercial agreements with the tenement holders to grant land access and authorise mining operations. Figure 2-4 identifies the mining land tenure associated with the Proposal.

2.9 Mining History

The Proposal (including the Revised Proposal) is partly located on the abandoned Mt Holland Mine Site; a former gold mining operation centred on the Bounty Mine. Figure 2-5 identifies the existing land disturbance associated with the abandoned Mt Holland Mine Site.

Between 1988 and 2001, the historic processing plant received ore from numerous open pits within an approximate 10 km radius of the mine site, including the existing Earl Grey Mine Pit. The site was owned and operated by various companies from 1988, including Aztec Mining, Forrestania Gold, Lion Ore Mining and Viceroy Australia, and by 2002 with the majority of tenements expired/surrendered and the 'Unconditional Performance Bonds' (financial bonds) called in by the State Government to fund the closure and rehabilitation of the site. In 2014, Convergent Minerals acquired tenements for the Mt Holland Mine Site and obtained approval of mining operations under the *Mining Act 1978* (WA), however, one year later in 2015 the company entered administration and no further mining development occurred.

Figure 2-4a Land Tenure

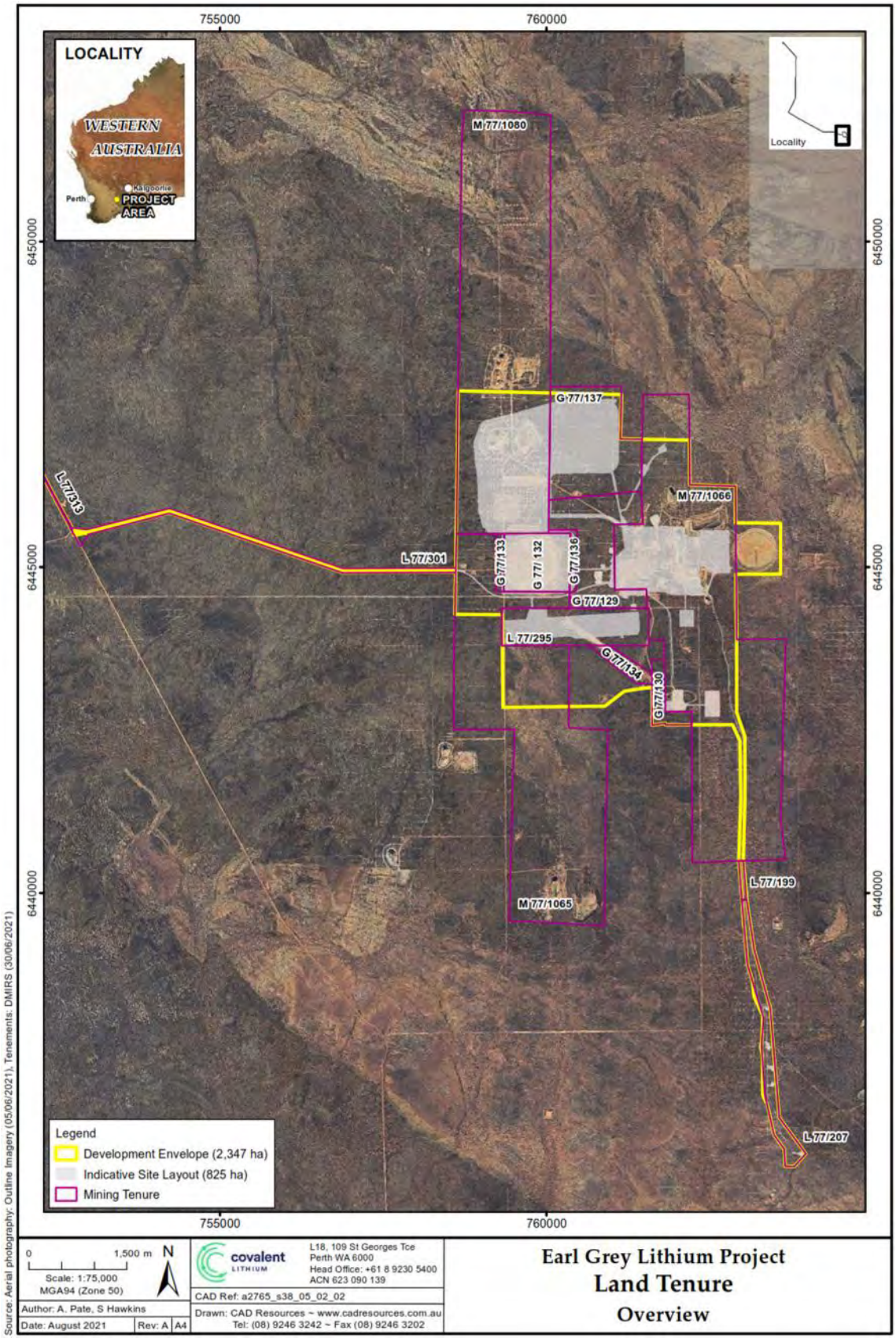


Figure 2-4b Land Tenure

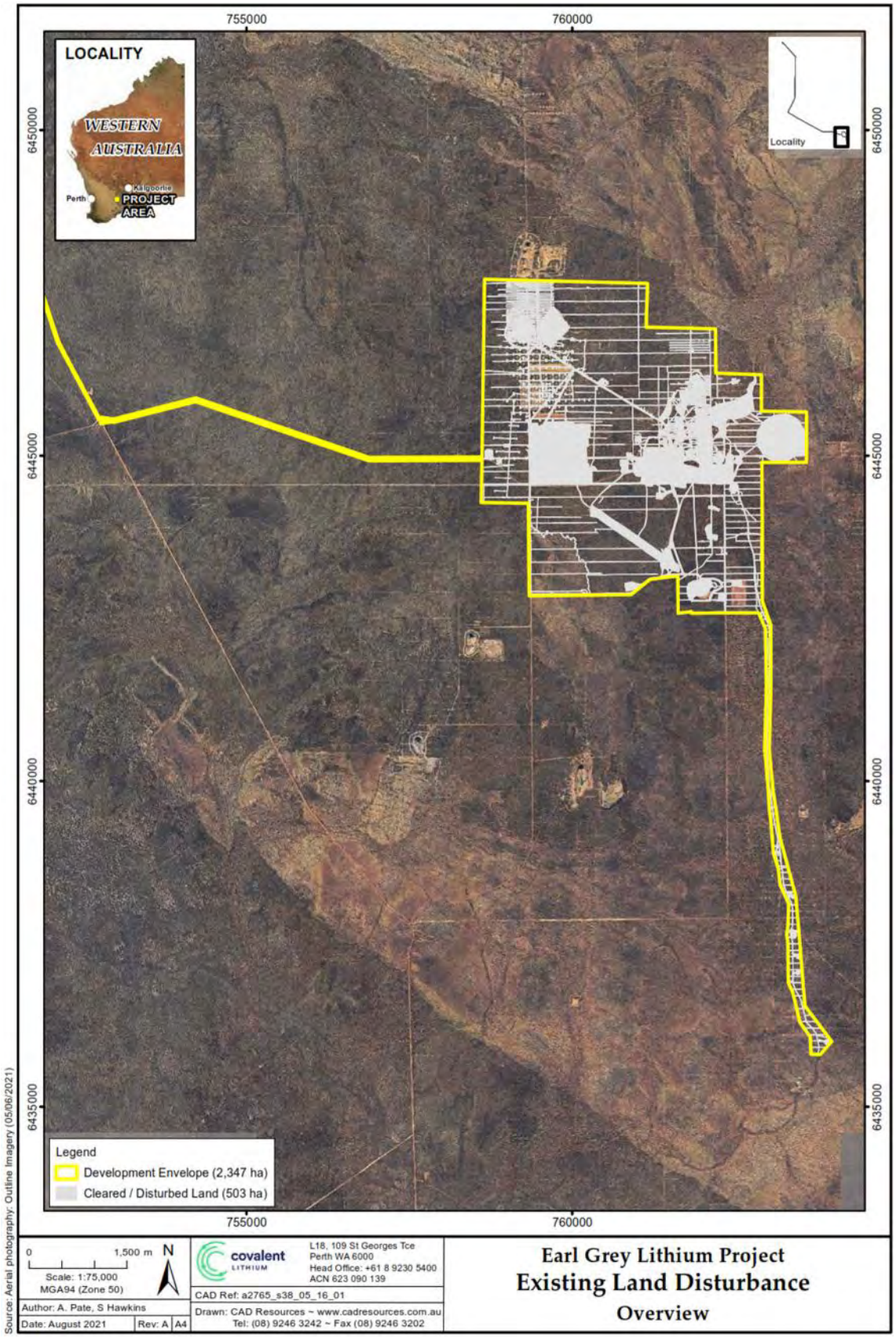


Figure 2-5 Existing Land Disturbance

2.10 Justification for the Proposal

Development of the Proposal (Approved Proposal and Revised Proposal combined) will provide lithium minerals required to meet the strong global demand for lithium; particularly in the growing lithium battery manufacturing market associated with renewable energy storage and the electric motor vehicle industry. Covalent Lithium's contribution towards the global lithium supply will contribute towards reducing the global dependence on fossil fuels for future energy supplies.

The Proposal will provide direct and indirect employment, both during the construction and operational phases. During construction, a workforce of approximately 550 personnel will be required over an 18-month period. When operations commence, an estimated 300 full-time equivalent personnel will be employed directly. Opportunities for local employment and supporting local industries (through the purchase of goods and services) can be expected to assist the local economies in regional towns including Southern Cross, Kalgoorlie, Kambalda, Coolgardie, Esperance, Hyden and Norseman.

The Proposal will additionally provide a revenue stream to Government through the payment of royalties (State Government) and taxation (Australian Government and State Government) during each year the Proposal is in operation.

Importantly, the implementation of the Proposal also provides the State Government with an opportunity to have a proportion of the abandoned Mt Holland Mine Site rehabilitated. Covalent Lithium's Proposal will utilise a substantial portion of the existing unrehabilitated disturbance areas at the former Mt Holland Mine Site. Redundant plant equipment and infrastructure from the abandoned Mt Holland Mine Site has been demolished and substantially removed by Covalent Lithium as part of the initial development works. Covalent Lithium will adopt responsibility for the progressive and post-mining rehabilitation of the areas used; resulting in a reduced liability for the State for closure and rehabilitation of this previously abandoned mine.

2.11 Consideration of Options or Alternatives

Options and alternatives have been considered for the construction and operation of the Proposal (Approved Proposal and Revised Proposal combined), as summarised below.

Processing Options –

Feasibility studies undertaken for the Proposal support an on-site purpose-built processing plant capable of up to 5.0 Mtpa throughput.

Covalent Lithium has additionally considered a potential short–term option to utilise the Poseidon Nickel Limited's Lake Johnston processing facility, located approximately 100 km south-east of the Proposal. For commercial reasons, this potential option was not advanced, and therefore is not included as a component of the Proposal.

Mining Options –

The location of the Earl Grey Lithium Deposit orebody is fixed, and as such, the location of the Mine Pit area is also fixed.

Whilst noting the above, two different mining approaches have been considered:

- Open pit mining with progressive in-pit backfilling of the Mine Pit to the extent practicable, in combination with disposal to Waste Rock Landforms, or
- Open pit mining with no progressive backfilling and all waste rock disposed to a Waste Rock Landform.

Whilst operationally complex (and with a potential for future resource sterilisation), in-pit backfilling of the Mine Pit with extracted waste rock has been included as a component of the Proposal to minimise the extent of native vegetation clearing which would require additional area for the Waste Rock Landforms. In addition, where practicable, part of the backfilled part of the Mine Pit may also be rehabilitated; thereby minimising the final area of the unrehabilitated Mine Pit void at mine closure.

Proposal Footprint –

Covalent Lithium has considered alternatives for the Indicative Site layout, noting the existing cleared / disturbed land areas associated with the abandoned Mt Holland Mine Site:

- Locate infrastructure within existing cleared / disturbed land areas of the abandoned Mt Holland Mine Site where possible, with Covalent Lithium adopting the closure and rehabilitation liability / risk for the areas used, or
- Locate infrastructure in currently undisturbed areas of native vegetation, thereby Covalent Lithium avoids any operational or commercial liability / risk associated with the abandoned Mt Holland Mine Site (currently liability / risk is held by the State of Western Australia)

Covalent Lithium has elected to locate infrastructure within existing cleared / disturbed land areas of the abandoned Mt Holland Mine Site where possible, with Covalent Lithium agreeing to adopt the closure and rehabilitation liability / risk for the areas which are used. Existing cleared / disturbed lands comprise > 45 % of the total area of the Proposal (383 ha of total 825 ha Indicative Site Layout). This approach results in the following key environmental outcomes for the Proposal:

- Reduction in native vegetation clearing, with a corresponding reduction in the effect to flora taxa, vegetation units, fauna taxa and fauna habitats
- Restoration of the health and ecological function of the local environment for land areas which have previously been cleared and abandoned
- Practical opportunity for Covalent Lithium to assist the State of Western Australia and the local community with the closure and restoration of abandoned mine landforms and infrastructure

2.12 Workforce

Excluding external support services to the mine, the operational workforce is expected to consist of approximately 300 employees, across various disciplines including management and administration, occupational health and safety, environment management, technical services, construction, mining and processing, maintenance, haulage, catering and janitorial.

The majority of workers would be accommodated at the mining operations within the accommodation facilities, with additional local employment anticipated from the nearby townsite of Southern Cross.

2.13 Mine Closure and Rehabilitation

2.13.1 Mine Closure Plan

Covalent Lithium have prepared a Mine Closure Plan (Covalent Lithium 2021d) for the Approved Proposal consistent with the DMIRS (2020) document *Statutory Guidelines for Mine Closure Plans*. The DMIRS (2020) Guideline replaces the former DMIRS & EPA (2015) Guideline that was in effect during the assessment of the Approved Proposal. The Mine Closure Plan has been approved by DMIRS (2021b) in accordance with the State *Mining Act 1978* (WA).

The Mine Closure Plan outlines the key information requirements for mine closure, including:

- Proposal summary
- Closure obligations and commitments
- Stakeholder engagement
- Baseline data and analysis
- Post-mining land use
- Risk assessment
- Outcomes and completion criteria
- Closure implementation
- Monitoring and maintenance

- Financial provisions

The Revised Proposal will not alter the mine closure objectives, risks or outcomes previously considered for the Approved Proposal; however, it is acknowledged the Mine Closure Plan will require an administrative amendment to reflect the additional spatial area (mapping of closure domains), rehabilitation monitoring locations and the quantum of the financial provisioning associated with the Revised Proposal.

2.13.2 Progressive Rehabilitation

The Proposal involves areas which will be progressively rehabilitated during the life of the mine operations (where possible), with the remaining areas rehabilitated following the completion of mining. Progressive rehabilitation will seek to restore the ecological function in areas no longer used (or identified for future use) for the mining operations. The implementation of progressive rehabilitation during the life of the mine may assist in the rehabilitation methodologies to be refined and improved over time. Adaptive improvement of the rehabilitation methods achieved during mining can be expected to provide an overall improved rehabilitation outcome for when the remaining areas are rehabilitated at the completion of mining.

Progressive rehabilitation is anticipated to commence following the waste rock covering of the existing Tailings Storage Facility (associated with the abandoned Mt Holland Mine Site). The staged clearing of native vegetation for the mine operations may also assist in providing the rehabilitation materials (topsoil, subsoil and vegetation) used in progressive rehabilitation works.

2.13.3 Post-mining Land Use

Mining and mineral exploration has been the principal land use within the Development Envelope for several decades, associated with the abandoned Mt Holland Mine Site. Prior to mining, the area comprised natural woodland and scrubland vegetation.

In consideration of the historic and permanently altered landforms, the aim at mine closure will be to return the area of the Proposal as far as practicable to a naturally functioning ecosystem, suitable for the concurrent underlying land tenure of Unallocated Crown Land.

There are understood to be no significant legacies or issues that would prevent the successful rehabilitation of the Proposal from meeting agreed post-mining land uses. In consideration of the long mining life anticipated, the details associated with the proposed final land use will be determined and finalised through periodic revisions to the Mine Closure Plan (nominally each 3 years) and in consultation with relevant stakeholders.

2.13.4 Closure Objectives and Completion Criteria

The objectives detailed in the Mine Closure Plan aim to facilitate well-planned and effective mine closure and rehabilitation for the Proposal, while providing processes to:

- Enable key stakeholders to have their views considered
- Allow closure to occur in an orderly, cost effective and timely manner
- Enable the financial cost of closure to be adequately identified and provisioned
- Provide clear accountability and adequate resources for closure
- Establish a set of indicators which will demonstrate successful mine closure through achieving agreed closure criteria.

The overarching closure objective will be to establish safe, physically and chemically stable landforms, with a self-sustaining and resilient vegetative cover (i.e. naturally functioning ecosystem) similar to that of the surrounding landscape.

Preliminary completion criteria for the Proposal have been developed to address the stated closure objectives, as identified by Table 2-4. The completion criteria will be refined during periodic revisions of the Mine Closure Plan.

ASPECT	OBJECTIVES
Safety	Ensure access to completed mine workings is restricted.
	Ensure waste and materials / infrastructure from operational areas are disposed or buried upon decommissioning such that they do not pose a risk to human safety.
	Ensure contaminated materials are managed in a manner such that no impacts to human health or the environment will occur.
Physical Stability	Ensure long-term stability of final landforms.
	Ensure long-term stability and functionality of drainage structures.
	Attain stable landforms with conditions suitable for the natural establishment of a self-sustaining vegetation community.
Chemical Stability	Ensure that the long-term water quality of local and regional surface water and groundwater resources is not compromised.
	Ensure soils are free of contamination.
	Ensure no pollution will migrate into the surrounding environment upon closure (e.g. acidic/alkaline seepage).
Ecological Function	To re-establish self-sustaining ecological communities on disturbed areas.
Visual Amenity	Final landforms integrate with the natural surroundings to the maximum extent practicable.
Next Land Use	Rehabilitate disturbed areas to a state that enables sustainable post mining land use.
	Any known mineral resources with potential value to future generations is, where practically possible, preserved for potential future exploitation.
	Retain transport facilities considered of value to stakeholders, where practical.
Regulatory Compliance	Compliance with mine closure permitting and regulatory requirements.
	Agreed closure indicators and criteria met and to the satisfaction of the relevant authority.

Table 2-4 Mine Closure Objectives

2.13.5 Management of Mine Closure

An assessment of potential closure risks for the Approved Proposal is outlined within the Mine Closure Plan. As outlined within Covalent Lithium (2019), current information (including baseline studies) does not indicate any significant risks which could inhibit the successful closure and rehabilitation of the Approved Proposal.

To note, visual observations of natural regeneration of native vegetation on previously cleared areas of the abandoned Mt Holland Mine Site, including on abandoned waste rock landforms, may anecdotally infer that post-mining rehabilitation is likely to be viable / achievable.

Potential mine closure risks which may require further consideration include:

- Management of dispersive waste rock materials and associated long term stability of Waste Rock Landforms
- Contaminated sites, specifically the identification of any historically contaminated areas which may require investigation to inform rehabilitation criteria
- Materials balance, management and preservation of rehabilitation materials (topsoil, subsoil and vegetation) for use in progressive rehabilitation activities
- Public safety, in particular, ensuring access to the completed Earl Grey Mine Pit open void at mine closure is restricted

General closure prescriptions to be applied to the Proposal (Approved Proposal and Revised Proposal combined) include:

Decommissioning

Decommissioning will commence following the completion of mining and mineral processing operations, and include the following general actions:

- Cleaning of all plant and equipment
- Removal/draining of all liquids / solids / materials (i.e. clearing out of all stores, chemicals, fuels, lubricants and supplies). Any remaining chemicals and hydrocarbon inventories will be returned to the supplier or sold to a third party
- Remediation of any identified sites of contamination.

Demolition

The following preliminary demolition tasks have been identified for the decommissioning phase:

- Removal of all plant and equipment either for transfer to other sites, salvage (sale), or disposal
- Dismantling of all salvageable infrastructure and removal to temporary salvage laydown areas
- Demolition of other infrastructure and removal to designated disposal sites
- Inert rubble and materials resulting from demolition will be disposed within an approved area (e.g. landfill).
- Liquid or hazardous wastes will be removed to appropriately licensed facilities off site
- Where concrete foundations are not removed, these will be broken and buried / covered with suitable material (e.g. waste rock, subsoil and topsoil)
- Surface pipelines, power cables / lines and security fences will be removed and materials sold or otherwise disposed in an approved area
- Buried pipelines will remain if they cannot be economically salvaged, however will be appropriately drained, flushed and sealed (crimped or capped). Risers will be cut to a minimum of 300 mm below the ground surface
- Any potentially contaminated soils are to be identified and demarcated for remediation.

Remediation

Any areas of potential contamination that remain at closure (following decommissioning and demolition) will be investigated and remediated in accordance with the relevant legislation, management practices, policies and guidelines.

Rehabilitation

Rehabilitation will seek to return cleared / disturbed land areas to a safe, stable and productive self-sustaining condition which is comparable to the surrounding native vegetation. Rehabilitation of cleared/disturbed areas will generally involve:

- Landform designs to have safe and stable slopes
- Landforms to manage water, including water management structures (e.g. crest bunds, toe drains)
- Armouring of final surfaces with competent cover material to achieve surface stability
- Replacement of available topsoil
- On-contour ripping to break soil compaction and increase water infiltration
- Supplementary seeding / planting and fertilising (if required)

Rehabilitation studies and trials will be undertaken during the operations phase to determine the most effective methodologies for rehabilitating the different landforms. Rehabilitated landforms present within the abandoned Mt Holland Mine Site (which have varying degrees of rehabilitation success) would be assessed to further refine rehabilitation designs of new landforms constructed for the Proposal.

The initial rehabilitation objective involves the re-establishment of native vegetation and fauna habitats. A substantial amount of baseline biological data has been collected since 2016 on flora taxa and vegetation communities (refer to Section 5.4 *Biological Surveys*) and fauna habitat (refer to Section 6.4 *Biological Surveys*). This baseline information will inform the establishment of appropriate ecological post-closure completion criteria. Appropriate ecological analogues will be established prior to the commencement of rehabilitation. Rehabilitation trials may also include propagation tests for restricted flora taxa, such as *Banksia sphaerocarpa* var. *dolichostyla*.

Open Mine Pit

Current mine planning and scheduling allows for part of the Earl Grey Mine Pit to be backfilled during mine operations. In-pit backfilling activities are expected to result in a raised landform which covers approximately 50 % of the Mine Pit area. The remainder of the Mine Pit is expected to remain as an open void, with the in-pit waste landform benching down to the pit floor. A post mining safety abandonment bund will be constructed around Mine Pit open void to minimise the potential risk of inadvertent public access.

Following cessation of mining, groundwater levels within the area of the Mine Pit have been modelled to recover resulting in the formation of permanent surface water (in-pit lake) which would function as a groundwater sink (groundwater flow towards and into the Mine Pit). It is anticipated that the surface water quality would be hypersaline, pH neutral with low concentrations of dissolved metals and nutrients.

Waste Landforms

Mining operations will produce approximately 200 million loose cubic metres of waste rock, of which 9 % is oxide waste rock material and 50 % is classified as transitional waste rock material. The oxide material may be dispersive, saline and have a low pH; which is generally not favourable for native vegetation growth. The oxide materials will therefore need to be encapsulated within a Waste Rock Landform using fresh, competent waste rock material (approximately 40 % by volume) including coarse laterite material (both of which are resistant to erosion).

The final Waste Rock Landforms will be designed for long term stability and will be water retaining, with a top surface consisting of an inwardly draining concave profile or water embayments, subject to operational trials / studies. This approach will generally direct rainfall to the centre of the landform for infiltration and evapotranspiration processes. The Waste Rock Landforms will have a crest bund to minimise the potential for surface water runoff down the batter slopes.

As part of rehabilitation earthworks, Waste Rock Landform batter slopes will be battered down to a maximum gradient of 17º, covered with a erosion-resistant materials (e.g. fresh waste rock and subsoil blend) and growth medium, before being on-contour ripped and seeded with an appropriate selection of local, native flora taxa. Waste landform design is expected to be further refined during mine operations through ongoing waste characterisation, soil analysis, rehabilitation trials and monitoring.

The proposed Waste Rock Landform over the existing Tailings Storage Facility (associated with the abandoned Mt Holland Mine Site) is expected to have notable benefits with respect to closure and rehabilitation, with the landform encapsulating the Tailings Storage Facility to achieve:

- reduction in the oxidation rates of existing tailings (which may potentially include acid-forming materials)
- reduction in long-term infiltration rates to the existing tailings, thereby providing an overall reduction in the seepage volume
- prevention of contamination from wind-blown tailings dust
- prevention of contamination resulting from stormwater runoff
- rehabilitation of an existing potentially ‘high-risk’ landform.

Other Infrastructure

Upon closure for the Proposal, and in the absence of any third-party transfer agreements for infrastructure (e.g. to the Shire of Yilgarn), the majority of the infrastructure including buildings, plant, pipelines, tanks and other structures will be decommissioned and removed from site for recycling or scrap. Any remaining structures would be demolished for burial either in situ or in the Mine Pit.

As far as practicable, disturbed areas will be reprofiled to 'blend-in' with the surrounding ground levels and to reinstate natural drainage. These areas would then be 'ripped' on-contour to break-up potentially compacted soils to increase infiltration, before being seeded with local native flora taxa, as required.

Public access will be restricted by rehabilitating of access tracks, except for the main entrance where public access is proposed to be prevented via locked gates. A combination of earthen bunds, gates and signs will also be used to minimise the risk of unauthorised or inadvertent public access.

Rehabilitation Materials Balance

Due to the notable areas of historic land disturbance associated with the abandoned Mt Holland Mine Site, ensuring that adequate materials will be available to complete the rehabilitation works will be an important part of mine closure planning. Based on observations to date, soils suitable for use as a growth medium occur in various abandoned stockpiles of topsoil/subsoil.

While a detailed materials balance has yet to be completed for the Revised Proposal, it is anticipated that a substantial proportion of rehabilitation can be completed using these existing materials, with additional materials sourced from the area of surface excavation of the Mine Pit and the Waste Rock Landform footprints. The Indicative Site Layout provides areas for the stockpiling of rehabilitation materials (topsoil, subsoil and vegetation).

2.14 Local and Regional Context

The Proposal (Approved Proposal and Revised Proposal combined) is positioned at the western edge of the area broadly referred to as the 'Great Western Woodlands'. The Great Western Woodlands occupy an area of approximately 16,000,000 ha extending from the agricultural 'wheatbelt' to the edge of the deserts, and is considered to be the largest intact area of Mediterranean woodland on Earth.

The Great Western Woodlands include open eucalypt woodlands (> 60 % by area), mallee eucalypt woodlands, shrublands and grasslands. Less common habitats in the GWW include granite outcrops, banded ironstone formations, salt lakes and freshwater wetlands (BirdLife 2016).

The Proposal is located within a region with largely intact native vegetation, with > 70,000 ha of native vegetation occurring within a 10 km radius of the mining area for the Proposal (Figure 2-6).

Multiple conservation areas occur within the Great Western Woodlands, with the two closest conservation areas to the Proposal being:

- Jilbadji Nature Reserve (> 200,000 ha) is located approximately 5 km north of the Proposal (Figure 2-6). The Jilbadji Nature Reserve is known to support a variety of fauna taxa, including the 'Threatened' fauna taxon Malleefowl *Leipoa ocellata* (Keighery *et al*. 1995).
- Lake Cronin Nature Reserve (~ 1,000 ha) is located approximately 30 km south of the Proposal. Lake Cronin is the largest example of a semi-permanent freshwater lake in the local region, and the areas in and around the Reserve include sandplains, shrublands and woodlands, supporting a diverse faunal assemblage including *Leipoa ocellata* (EPA 2009).

Under the Interim Biogeographic Regionalisation for Australia (IBRA), the Proposal is located within the Southwest Interzone and Southern Cross Subregion of the Coolgardie Bioregion (Figure 2-7). The Southwest Interzone is the transitional area between the Southwest (Bassian) and Eremaean Provinces. These provinces are determined by vegetation mapping (Beard 1980) and broadly correspond to climactic regions, with the Southwest Province experiencing warm dry summers and cool wet winters and the Eremaean Province experiencing low, irregular rainfall.

The Southern Cross Subregion of the Coolgardie Bioregion is characterised by subdued relief, comprising gently undulating uplands dissected by broad valleys with bands of low greenstone hills and numerous saline playa lakes. The vegetation is dominated by *Eucalyptus* woodlands, shrublands of *Allocasuarina* and *Acacia*, and mixed heath of *Melaleuca* and *Acacia*. The dominant land-uses in this bioregion are Crown Reserves and Unallocated Crown Land (> 65 %), grazing on native pastures (> 15 %), conservation (> 10 %) and dryland agriculture (< 5 %) (Cowan *et al*. 2001). The greenstone hills, alluvial valleys and broad plains of calcareous earths support diverse *Eucalyptus* woodlands. The uplands support mallee woodlands and scrub-heaths on sandplains, gravelly sandplains and lateritic breakaways (Cowan *et al*. 2001). Chains of salt lakes with dwarf shrublands of samphire occur in the valleys.

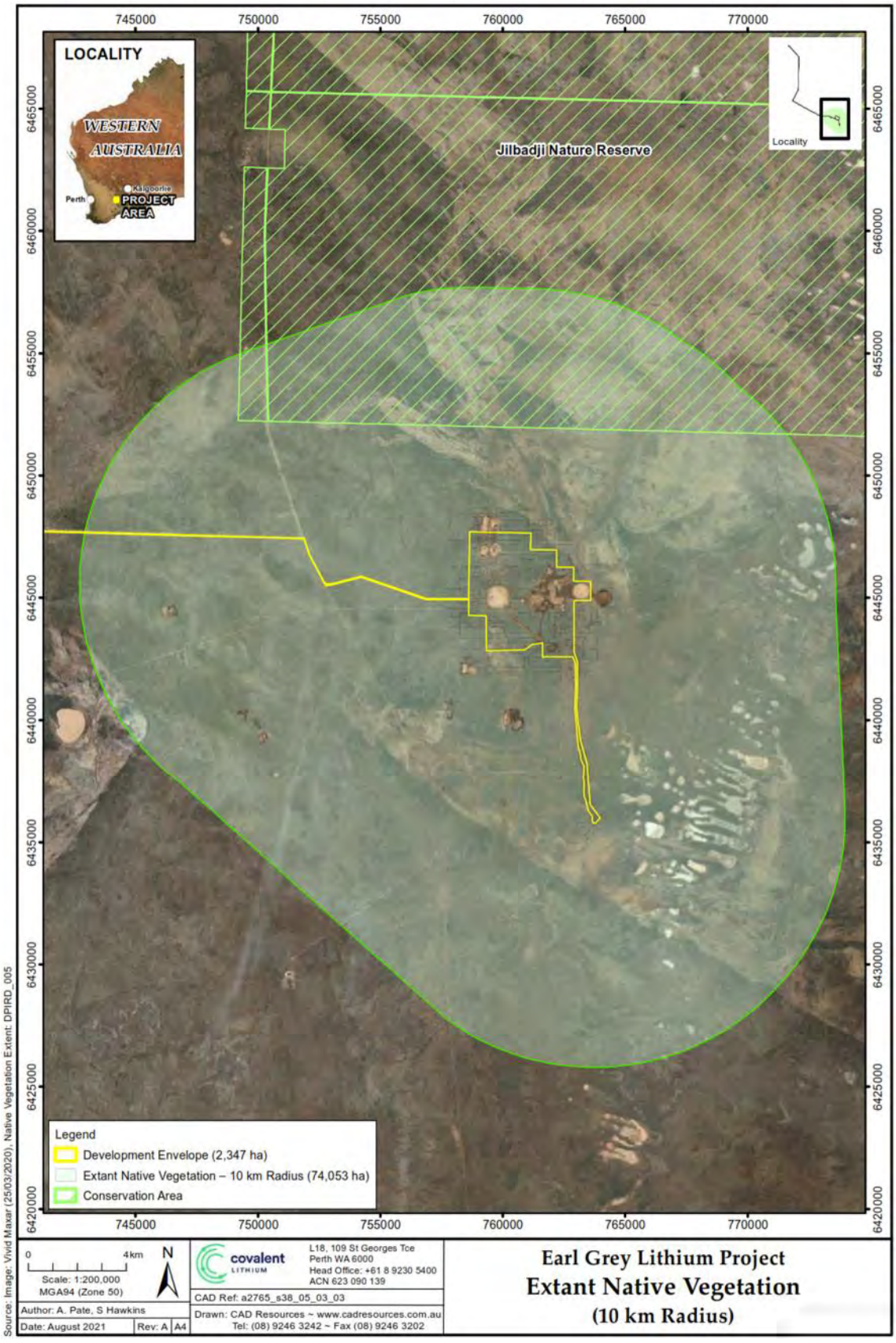


Figure 2-6 Native Vegetation

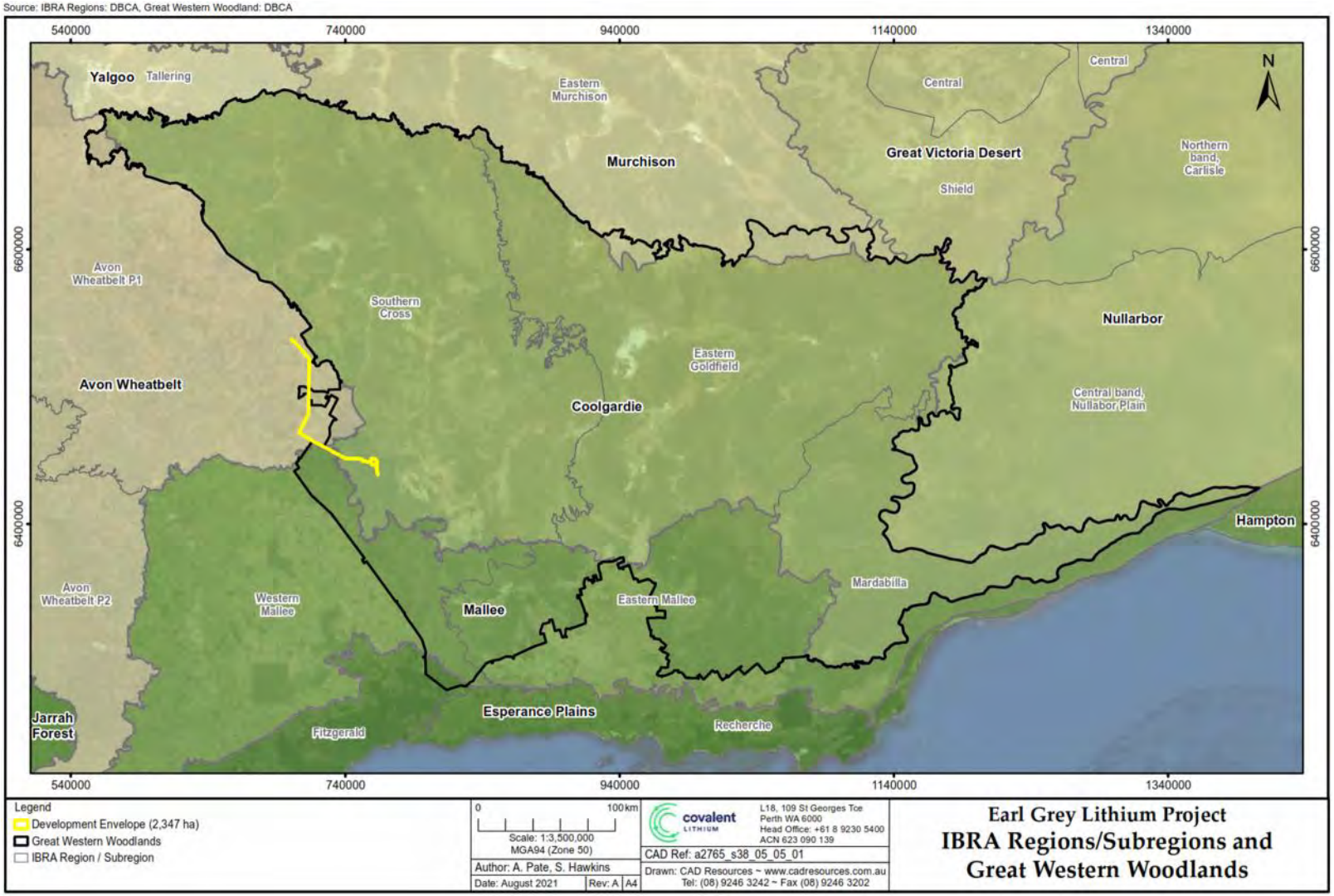


Figure 2-7 IBRA Regions / Subregions and Great Western Woodlands

3 Stakeholder Engagement

Stakeholder consultation is an integral component of Covalent Lithium's planning, assessment and development processes. During planning and assessment for the Proposal (Approved Proposal and Revised Proposal combined), Covalent Lithium has consulted with a range of key stakeholders from both Government and community sectors. Details of these consultations are provided below.

3.1 Key Stakeholders

Covalent Lithium has undertaken consultation with identified key stakeholders for the Proposal, including:

- Commonwealth Government
- State Government
- Local Government
- Community organisations and interest groups, including environmental and heritage groups.

A list of identified key stakeholders for the Proposal is provided in Table 3-1.

3.2 Stakeholder Engagement Process

Stakeholder engagement on the Proposal has been undertaken since late 2016, with this consultation later refined through development and implementation of an external 'Stakeholder Consultation Strategy' to facilitate ongoing social engagement and community investment.

The Stakeholder Consultation Strategy has adopted the principles from the Ministerial Council on Mineral and Petroleum Resources (2005) document *Principles for Engagement with Communities and Stakeholders*. These principles outline the need for:

- Open and effective communication:
  - two–way communication
  - clear, accurate and relevant information
  - timeliness
- Transparency, requiring a process for communication and feedback
- Collaboration, working cooperatively to seek mutually beneficial outcomes
- Inclusiveness, with an aim of recognising, understanding and involving stakeholders early and throughout the process
- Integrity, with engagement undertaken in a manner that fosters mutual respect and trust

Covalent Lithium maintains a record of the outcomes of consultations in a Stakeholder Consultation Register. Consultation to date has comprised predominately of meetings and written correspondence with the identified key stakeholders.

Covalent Lithium is committed to ongoing stakeholder identification, communication, engagement and consultation during the planning phase, through to construction and operation phases, and finally during mine closure.

STAKEHOLDER	KEY INTERESTS
Commonwealth Government	
Department of Agriculture, Water and the Environment (DAEWE)	o Administration of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th), including environmental assessments of *'Matters of National Environmental Significance'*
State Government	
Environmental Protection Authority (EPA) (including Department of Water and Environmental Regulation (DWER) – EPA Services)	o Administration of the State *Environmental Protection Act 1986* (WA) Part IV Environmental Impact Assessment, including environmental assessments for significant Proposals.
Department of Water and Environmental Regulation (DWER)	o Administration of the State *Environmental Protection Act 1986* (WA) Part V Environmental Regulation, including environmental assessments and the granting of Works Approvals and Licences for prescribed activities.
Department of Mines, Industry Regulation and Safety (DMIRS)	o Administration of the State *Mining Act 1978* (WA), including granting of tenements, environmental and mining assessments of Mining Proposals and Mine Closure Plans, and mine safety
Department of Biodiversity, Conservation and Attractions (DBCA)	o Administration of the State *Biodiversity Conservation Act 2016* (WA), including conservation, environmental management, and Licences for *'Threatened'* taxa and ecological communities
Department of Planning, Lands and Heritage (DPLH)	o Administration of the State *Aboriginal Heritage Act 1972* (WA), including Aboriginal heritage sites, representing indigenous requirements and land use.
Department of Fire and Emergency Services (DFES)	o Emergency services, fire management and fire breaks.
Main Roads Western Australia (MRWA)	o Management and use of State public roads
Local Government	
Shire of Yilgarn Shire of Kondinin	o Use of local public roads and infrastructure
Community organisations and interest groups	
Conservation Council of Western Australia Wilderness Society Wildflower Society of Western Australia National Malleefowl Recovery Team	o Conservation of the environment, including flora taxa, fauna taxa and ecological communities

Table 3-1 Key Stakeholders

3.3 Stakeholder Consultation

Covalent Lithium maintains a Stakeholder Consultation Register to identify and record consultation with the identified stakeholders on the Proposal. The Stakeholder Consultation Register identifies the stakeholders consulted, matters discussed, and consultation outcomes/actions. A copy of the Stakeholder Consultation Register is provided at Appendix 2.

The views expressed by key stakeholders have been incorporated into the operational planning and environmental management processes for the Proposal. A number of key outcomes from the stakeholder consultation process include:

- Support for the operational use of existing cleared / disturbed areas of the abandoned Mt Holland Mine Site, with these areas to be rehabilitated at closure.
- Acknowledgement by all parties (including Covalent Lithium) of the biodiversity and conservation values of the local area, and the need for these to be considered in the design and management of the Proposal.

Stakeholder consultation is an ongoing process which Covalent Lithium will continue throughout the operational life of the Proposal.

4 Environmental Factors and Principles

4.1 Key Environmental Factors

The environmental assessment for the Approved Proposal under the State *Environmental Protection Act 1986* (WA) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) considered the potential effect of the Approved Proposal to the following key environmental factors:

- 'Flora and Vegetation' and
- 'Terrestrial Fauna'

Covalent Lithium now propose to amend the Approved Proposal, through an assessment of a 'Revised Proposal'. The Revised Proposal will occur entirely within the previously considered Development Envelope (nil change), and accordingly, the same key environmental factors of 'Flora and Vegetation' and 'Terrestrial Fauna' are anticipated to be applicable to the Revised Proposal.

This Environmental Review Document (ERD) has been prepared to support the environmental assessment process by identifying the biological surveys completed, assess the potential environmental effects, and outline the proposed environmental management approach for the above key environmental factors.

In relation to the assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th), the following 'Matters and National Environmental Significance' were identified in the assessment of the Approved Proposal, and accordingly, are also considered to be relevant to the assessment of the Revised Proposal:

- Flora Taxa –
  - Ironcaps Banksia *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V).
- Fauna Taxa –
  - Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V)
  - Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)

Additionally, in relation to assessment under the State *Environmental Protection Act 1986* (WA), the following flora taxa classified by the State Department of Biodiversity, Conservation and Attractions (DBCA) as 'priority' (no statutory protection) were identified in the assessment of the Approved Proposal, and accordingly, are also considered to be relevant to the assessment of the Revised Proposal:

- Flora Taxa –
  - Mt Holland Microcorys *Microcorys elatoides* (DBCA-P1)

An assessment of the effect of the Proposal to the above flora and fauna taxa are provided within Section 5 *Flora and Vegetation* and Section 6 *Terrestrial Fauna*.

4.2 Principles of Environmental Protection

An objective of the State *Environmental Protection Act 1986* (WA) is to protect the environment having regard to the 'Principles of Environmental Protection', as contained within Section 4A of the Act. An assessment of how the Proposal (Approved proposal and Revised proposal combined) aligns to the Principles of Environmental Protection is presented in Table 4-1.

Table 4-1 Principles of Environmental Protection

PRINCIPLES OF ENVIRONMENTAL PROTECTION	PROPOSAL ALIGNMENT
(1) The Precautionary Principle: *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.* *In application of this precautionary principle, decisions should be guided by:* *(a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *(b) an assessment of the risk-weighted consequences of various options.*	The Proposal has included multiple biological surveys to provide scientific certainty as to the environmental values present within the area of the Proposal and surrounds, enabling the potential environmental effects of the Proposal to be determined. Where possible, the Proposal has been designed to avoid and/or minimise the environmental effect to the identified flora and vegetation values and terrestrial fauna values (refer to Section 3.3 *Mitigation Hierarchy*, Section 5 *Flora and Vegetation* and Section 5 *Terrestrial Fauna*). Environmental management measures have been proposed which seek to avoid and minimise the potential risk of environmental degradation. The Indicative Site Layout for the Proposal seeks to utilise existing cleared / disturbed lands as far as practicable to minimise the effects to the identified values. Covalent Lithium has maintained engagement with relevant Government agencies to minimise any uncertainty surrounding the potential environmental effects and the proposed management. Accordingly, the Proposal is considered to meet the objectives of the *'Precautionary Principle'*.
(2) The Principle of Intergenerational Equity: *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*	The Proposal has been designed to avoid and minimise the potential risk of significant residual effects to the health, diversity or productivity of the environment. The Proposal incorporates management actions to avoid, minimise and rehabilitate the environmental effects (refer Section 4.3 *Mitigation Hierarchy*). These management actions include avoidance and/or minimisation of the effect to the recorded flora and vegetation values and terrestrial fauna values, and the restoration of these values through progressive and post-mining rehabilitation disturbed areas. These management actions seek to maintain and restore the health, diversity and productivity of the environment for the benefit of future generations. Whilst it is acknowledged the Proposal coincides with a number of flora and vegetation values and terrestrial fauna values of listed conservation significance (which cannot be avoided), the environmental effect to those values is not expected to affect the representation, diversity, viability or ecological function of the recorded values at the species, population or community level; such that the potential benefit of such values to future generations will not be compromised. To note, the rehabilitation works will additionally include existing cleared / disturbed areas of the abandoned Mt Holland Mine Site; with this rehabilitation to result in the enhancement of the environmental values for future generations. Accordingly, the Proposal is considered to meet the objectives of the *'Principle of Intergenerational Equity'*.

PRINCIPLES OF ENVIRONMENTAL PROTECTION	PROPOSAL ALIGNMENT
(3) The Principle of the Conservation of Biological Diversity and Ecological Integrity: *Conservation of biological diversity and ecological integrity should be a fundamental consideration.*	Biological surveys have been used to identify and confirm the range and condition of the environmental values present within the area of the Proposal and surrounds. The Proposal is not anticipated to substantially reduce the extent of any biological or ecological values within the local area to an extent that such values will be detrimentally affected. The implementation of progressive and post-mining rehabilitation works will seek to restore and maintain the values affected by the Proposal. Biological diversity and ecological integrity has been a fundamental consideration in the design and proposed management for the Proposal. Accordingly, the Proposal is considered to meet the objectives of the *'Principle of the Conservation of Biological Diversity and Ecological Integrity'*.
(4) Principles Relating to Improved Valuation, Pricing and Incentive Mechanisms: *(a) Environmental factors should be included in the valuation of assets and services.* *(b) The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.* *(c) The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.* *(d) Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solution and responses to environmental problems.*	The economic costs associated with the Proposal will be borne exclusively by Covalent Lithium. The economic costs related to environmental management of the Proposal will include the costs associated with environmental personnel and implementation of the relevant environmental plans (including the costs of rehabilitation works). Funding for these economic costs will be obtained through the commercial sale of the lithium products generated from operation of the Proposal. The environmental effect of the Proposal have been minimised to the lowest level practicable, whilst still achieving Covalent Lithium's mineral resource objectives. Further reductions to the environmental effect of the Proposal, if identified, will be implemented where practicable. Covalent Lithium's commitment to continual improvement is reflected in Covalent Lithium's Environmental Policy (Covalent Lithium 2021a, Appendix 1) and Covalent Lithium's continued statutory compliance with the environmental approvals. Accordingly, the Proposal is considered to meet the objectives of the *'Principles Relating to Improved Valuation, Pricing and Incentive Mechanisms'*.
(5) The Principle of Waste Minimisation: *All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*	Waste would be minimised by adopting the hierarchy of waste controls; avoid, minimise, reuse, recycle and safe disposal. Planning for the Proposal has sought to minimise wastes through the use of cleared materials (topsoil/subsoil and vegetation) in post-exploration rehabilitation works, and through appropriate collection, removal and disposal of all other waste materials. Accordingly, the Proposal is considered to meet the objectives of the *'Principle of Waste Minimisation'*.

4.3 Mitigation Hierarchy

As outlined by the EPA (2021c) document *How to Prepare and Environmental Review Document*, the assessment of a proposal should include consideration of the 'Mitigation Hierarchy'. The Mitigation Hierarchy comprises sequential steps that seek to alleviate the environmental effects of an action as far as practicable. The sequential steps of the Mitigation Hierarchy are:

- Avoid
- Minimise
- Rehabilitate
- Offset

A summary of the steps taken for the Proposal (Approved Proposal and Revised Proposal combined) to align with the Mitigation Hierarchy is outlined below.

Avoid

Avoidance measures seek to prevent or change the potential environmental effects of an action before they occur. As an example, avoidance measures may include adjusting the location, scope and/or timing of an action so as to avoid an environmental effect (i.e. a nil effect outcome).

As many of the recorded environmental values occur broadly across the area of the Proposal and surrounds, there has been limited opportunity to actively avoid flora and vegetation values and terrestrial fauna values; with minimisation then being the key measure (refer to Minimise below). Whilst noting this, Indicative Site Layout for the Proposal has been modified to avoid the following flora and vegetation values, and terrestrial fauna values:

- Flora Taxa –
  - *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V) [1]
  - *Eremophila verticillata* (BC-CE, EPBC-E)
  - *Acacia* sp. Forrestania (DBCA-P1)
  - *Grevillea lissopleura* (DBCA-P1)
  - *Hibbertia tuberculata* (DBCA-P1)
  - *Orianthera exilis* (DBCA-P2)
  - *Hakea pendens* (DBCA-P3)
  - *Verticordia mitodes* (DBCA-P3)
  - *Grevillea neodissecta* (DBCA-P4)
- Vegetation Units
  - Vegetation Units H1, MW8, S4, W7, W10, W14, W15, W17 and W21
- Fauna Taxa –
  - Recently active nest mounds of Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)

[1] Whist noting the Indicative Site Layout for the Proposal avoids individuals of *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V), the current Statement 1118 approval (WA Minister for Environment 2019) and EPBC Decision 2017/7950 approval (DAWE 2020) authorise the removal of up to 2 individuals of this taxon. No change to this authorisation under the Statement 1118 approval or the EPBC Decision 2017/7950 approval is proposed.

Minimise

Minimisation measures seek to reduce the duration, intensity, extent and/or likelihood of environmental effects of an action where such values cannot be completely avoided. As an example, minimisation measures may include adjusting the location, scope or timing of an action so as to result in a reduction in the environmental effect.

During the planning process, the Indicative Site Layout for the Proposal has been modified to reduce the spatial area of native vegetation clearing required, principally through the use of existing cleared / disturbed areas where possible. Where native vegetation clearing is required, the location of the native vegetation clearing has sought to target degraded vegetation (e.g. partly cleared areas from prior mineral exploration drilling tracks and pads) and areas which have a lower abundance of biological values of conservation significance. These modifications have been undertaken principally with a view towards minimising the environmental effects of the Proposal.

The result of these modifications has minimised the environmental effect to the following flora and vegetation values and terrestrial fauna values:

- Vegetation Clearing –
  - Reduction in vegetation clearing by using existing cleared / disturbed land, with such areas comprising ~ 45% of the total area of the Proposal.
- Flora Taxa –
  - *Acacia lachnocarpa* (DBCA-P1)
  - *Baeckea* sp. Forrestania (DBCA-P1)
  - *Brachyloma stenolobum* (DBCA-P1)
  - *Chamelaucium* sp. Parker Range (DBCA-P1)
  - *Eutaxia* sp. North Ironcap (DBCA-P1)
  - *Grevillea marriottii* (DBCA-P1)
  - *Hibbertia* sp. Mt Holland (DBCA-P1)
  - *Labichea rossii* (DBCA-P1)
  - *Microcorys elatoides* (DBCA-P1)
  - *Microcorys* sp. Mt Holland broad-leaf (DBCA-P1)
  - *Daviesia sarissa* ssp. *redacta* (DBCA-P2)
  - *Eutaxia lasiocalyx* (DBCA-P2)
  - *Acacia undosa* (DBCA-P3)
  - *Boronia ternata* var. *promiscua* (DBCA-P3)
  - *Chorizema circinale* (DBCA-P3)
  - *Rinzia triplex* (DBCA-P3)
  - *Stylidium sejunctum* (DBCA-P3)
  - *Teucrium diabolicum* (DBCA-P3)
  - *Verticordia stenopetala* (DBCA-P3)
  - *Eremophila biserrata* (DBCA-P4)
  - *Gyrostemon ditrigynus* (DBCA-P4)
- Vegetation Units –
  - Vegetation Units MW6, MW7, S1, S2, S3, W4, W5, W6, W8, W9, W11, W12, W13, W18, W19, W20 and W22
- 'Priority Ecological Communities' –
  - '*Ironcap Hills vegetation complexes (Mt Holland, Middle, North and South Ironcap Hills, Digger Rock and Hatter Hill) (banded ironstone formation)*'

- Fauna Habitat –
  - Reduction in clearing of fauna habitat (native vegetation) by using existing cleared / disturbed land

Most notably on the above, the Indicative Site Layout for the Proposal comprises > 45 % previously cleared / disturbed land associated with the abandoned Mt Holland Mine Site (383 ha of total 825 ha Indicative Site Layout); thereby substantially reducing the total area of native vegetation clearing required for the Proposal.

Whilst the modifications identified above have resulted in a sub-optimal Indicative Site Layout (compared to a layout with nil environmental constraints), these design modifications have been assessed and adopted to minimise the environmental effect of the Proposal as far as practicable, and to ensure the residual environmental effects can be considered environmentally acceptable.

Rehabilitate

Rehabilitation measures seek to restore environmental values following an action. As an example, rehabilitation measures may include restoration of soils and native vegetation following an action.

Areas of new land disturbance by the Proposal will be rehabilitated with native vegetation. The rehabilitation works will include on-contour ripping of compacted areas and the respreading of rehabilitation materials (vegetation, topsoil and subsoil) that were removed and stockpiled during the initial vegetation clearing.

In addition, all areas of existing cleared / disturbed lands associated with the abandoned Mt Holland Mine Site that will be used by the Proposal will also be rehabilitated with native vegetation. Based on the Indicative Site Layout and conceptual infrastructure designs for the Proposal, it is anticipated that > 200 ha of existing cleared / disturbed lands will be rehabilitated (with the cumulative areas of land rehabilitation estimated at approximately 645 ha). The rehabilitation of these areas will result in a net beneficial environmental outcome from the Proposal (which would otherwise be left cleared / disturbed and remain a liability for the State).

Offset

As outlined by the *WA Environmental Offsets Policy* (Government of Western Australia 2011) and the *WA Environmental Offsets Guidelines* (Government of Western Australia 2014), and supported by the EPA (2014) document *Environment Protection Bulletin No 1 Environmental Offsets*, an 'Environmental Offset' is an action which provides an environmental benefit to counterbalance a significant residual environmental effect or risk of a project. Environmental offsets are determined on a project-by-project basis, and are applied only to significant residual environmental effects (not applied to minor environmental effects).

In assessment of the Approved Proposal, it was concluded the Approved Proposal would result in a significant residual environmental effect to the following flora and vegetation values and terrestrial fauna values:

- Flora Taxa –
  - *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V)
  - *Microcorys elatoides* (DBCA-P1)
- Fauna Habitat –
  - Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)
  - Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V)

As a result, approval of the Proposal under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) identified the following environmental offsets to be required:

- Flora Offset Strategy
  (Covalent Lithium 2020a, Condition 8 of Statement 1118 approval)

- Ironcaps Banksia Conservation Plan
  (Covalent Lithium 2021e, Condition 5 of EPBC Decision 2017/7950 approval)
- Threatened Fauna Land Acquisition Strategy
  (Covalent Lithium 2021f[1], Condition 8 of Statement 1118 approval)
- Fauna Offset Management Plan
  (Covalent Lithium 2021f[1], Condition 4 of EPBC Decision 2017/7950 approval)

The purpose of the Flora Offset Strategy is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides* to be removed by the Proposal through the identification of land areas for conservation purposes (including financial contributions, on-site management, and monitoring) which contain these flora values.

The purpose of the Ironcaps Banksia Conservation Plan is to is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* to be removed by the Proposal through establishing (in rehabilitation works) an equivalent number of individuals within the Development Envelope.

The purpose of the Threatened Fauna Land Acquisition Strategy is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa.

The purpose of the Fauna Offset Management Plan is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa.

The above environmental offsets are considered to provide an appropriate framework through which the significant residual environmental effects of the Approved Proposal can be managed.

For the Revised Proposal, this environmental offsets framework for the Approved Proposal is also considered an appropriate framework through which any additional significant residual environmental effects of the Revised Proposal can be managed.

[1] The requirements of the Threatened Fauna Land Acquisition Strategy (Condition 8 of Statement 1118 approval) and the Fauna Offset Management Plan (Condition 4 of EPBC Decision 2017/7950 approval) have been met through a single offsets document.

5 Flora and Vegetation

5.1 EPA Objective

The EPA's objective for the environmental factor of 'Flora and Vegetation' is:

> *"To protect flora and vegetation so that biological diversity and ecological integrity are maintained"* (EPA 2021d)

5.2 Legislation, Policy and Guidelines

Legislation, guidelines and standards relevant to the key environmental factor of 'Flora and Vegetation' for the Proposal include:

- *Environmental Protection Act 1986* (WA)
- *Biodiversity Conservation Act 2016* (WA)
- *Environment Protection and Biodiversity Conservation Act 1999* (C'th)
- *Statement of Environmental Principles, Factors, Objectives and Aims of EIA* (EPA 2021d)
- *Environmental Factor Guideline: Flora and Vegetation* (EPA 2016a)
- *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b)
- *Wildlife Conservation (Rare Flora) Notice 2018* (WA Minister for Environment 2018a)
- *EPBC Act List of Threatened Flora* (DAWE 2021a)
- *EPBC Act List of Threatened Ecological Communities* (DAWE 2021c)
- *Threatened and Priority Flora List* (DBCA 2018a)
- *Priority Ecological Communities for Western Australia* (DBCA 2020)
- *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (DAWE 2013).
- *WA Environmental Offsets Policy* (Government of WA 2011)
- *WA Environmental Offsets Guidelines* (Government of WA 2014)
- *Environment Protection Bulletin No 1 Environmental Offsets* (EPA 2014)

5.3 Legislative Framework for the Protection of Flora and Vegetation

All native flora taxa in Western Australia is protected under the *Environmental Protection Act 1986* (WA) by virtue of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (WA).

Specific flora taxa may also be afforded special protection under the State *Biodiversity Conservation Act 2016* (WA) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) as a listed 'Threatened' species of flora.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) and the State *Biodiversity Conservation Act 2016* (WA) may both also afford special protection to vegetation as a listed 'Threatened Ecological Community'.

A description[1] of the classifications used in flora and vegetation protection are provided below:

'Threatened' Species –

Threatened species of flora may be declared by the Commonwealth Minister for Environment for special protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) as a 'Matter of 'National Environmental Significance' for the taxon being extinct, facing a risk of extinction, or in need of a conservation program to prevent the taxon from a risk of extinction. Threatened species are allocated a category of 'extinct', 'extinct in the wild', 'critically endangered', 'endangered', 'vulnerable' or 'conservation dependent'; being generally in accordance with the criteria of the International Union for Conservation of Nature (IUCN 2012). The listed Threatened species of flora are outlined within DAWE (2021a).

Threatened species of flora may also be declared by the State Minister for Environment for special protection under the State *Biodiversity Conservation Act 2016* (WA) for it facing a risk of extinction in the wild. Threatened species are allocated a category of 'critically endangered', 'endangered', or 'vulnerable'; being generally in accordance with the criteria of IUCN (2012). The listed Threatened species of flora are outlined within WA Minister for Environment (2018a).

'Priority' Flora –

Priority flora is a classification system of DBCA for flora taxa which are known from one, a few or several occurrences, which may or may not be under threat, or may otherwise be rare. Five priority categories are used, with Priority 1 (P1) being of the highest conservation significance, or identification as a priority for surveying and determining its conservation significance based on the current knowledge of perceived threat(s). As priority flora are identified and determined by DBCA (i.e. not under legislation), priority flora taxa are not afforded any specific legal protection. The list of DBCA-classified 'priority' flora taxa is outlined within DBCA (2018a).

'Threatened Ecological Community' –

A Threatened Ecological Community (TEC) may be declared by the Commonwealth Minister for Environment for protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) as a 'Matter of National Environmental Significance' for vegetation which occurs in a particular type of habitat that is facing a high, very high or extremely high risk of extinction in the wild in the medium-term, near or immediate future. Threatened Ecological Communities are allocated a classification of 'critically endangered', 'endangered' or 'vulnerable'; being generally in accordance with the criteria of IUCN (2012). The listed TECs are outlined within DAWE (2021c).

A TEC may also be declared by the State Minister for Environment for protection under the State *Biodiversity Conservation Act 2016* (WA) for vegetation which occurs in a particular type of habitat that is facing a risk of becoming eligible for listing as a 'collapsed ecological community' (i.e. extensively modified species composition or structure). Threatened Ecological Communities are allocated a classification of 'critically endangered', 'endangered' or 'vulnerable'; being generally in accordance with the criteria of IUCN (2012). The listed TECs are outlined within DBCA (2018b).

'Priority Ecological Community' –

Priority Ecological Community (PEC) is a classification system of DBCA for vegetation which occurs in a particular type of habitat that is known from a few to many occurrences,

[1] Descriptions are consolidated from review of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th), the State *Biodiversity Conservation Act 2016* (WA) and flora literature published by DBCA and DAWE.

which may or may not be managed for conservation, and which may or may not be under threat. Five priority categories are used, with Priority 1 (P1) being of the highest conservation significance and/or a priority for surveying and determining the conservation significance based on the current knowledge of perceived threat(s). As PECs are identified and determined by DBCA (i.e. not under legislation), PECs are not afforded any specific legal protection. The listed PECs are outlined within DBCA (2020).

5.4 Biological Surveys

The flora and vegetation values of the area of the Proposal (Approved Proposal and Revised Proposal combined) and surrounds have been subject to multiple biological surveys, as described within the following biological survey reports (in date order):

- Native Vegetation Solutions (2014) *Targeted Banksia sphaerocarpa var. dolichostyla Survey*. Report prepared by Native Vegetation Solutions for Kidman Resources Ltd.
- Native Vegetation Solutions (2016) *Level 1 Flora and Vegetation Survey Proposed Blue Vein Mine Mt Holland Project Tenement M77/1065*. Report prepared by Native Vegetation Solutions for Kidman Resources Ltd.
- Mattiske Consulting Pty Ltd (2017) *Flora and Vegetation Assessment* of the *Earl Grey, Irish Breakfast and Prince of Wales Prospects*. Report prepared by Angus D and Murdock N of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. Final (Version 4). April 2017.
- Blueprint Environmental Strategies Pty Ltd (2017) *Targeted Surveys for Threatened Flora Species Banksia sphaerocarpa var. dolichostyla*. Report prepared by Blueprint Environmental Strategies Pty Ltd for Kidman Resources Ltd. May 2017.
- Native Vegetation Solutions (2017) *Targeted Search of Threatened Flora for Kidman Resources Limited – Mount Holland Gold Project*. Report prepared by Reid E of Native Vegetation Solutions for Blueprint Environmental Strategies on behalf of Kidman Resources Ltd. October 2017.
- Mattiske Consulting Pty Ltd (2018a) *Flora and Vegetation Assessment Earl Grey Lithium Project*. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. Version 3. March 2018.
- Mattiske Consulting Pty Ltd (2018b) *Memorandum: Earl Grey Lithium Project Statistical Comparison of Vegetation Within Earl Grey Lithium Project with Ironcap Hills Vegetation Complex*. Memorandum prepared by Angus D of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. October 2018.
- Mattiske Consulting Pty Ltd (2019a) *Earl Grey Lithium Project Banksia sphaerocarpa var. dolichostyla (T) Target Survey.* Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 7. January 2019.
- Mattiske Consulting Pty Ltd (2019b) *Earl Grey Lithium Project Conservation Significant Flora Targeted Survey.* Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 7. January 2019.
- Mattiske Consulting Pty Ltd (2019c) *Threatened and Priority Flora Assessment Tenement M77/215 Proposed Tracks and Drill Hole Locations.* Report prepared by Riviera F and Sims Z of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. Final (Version 3). April 2019.
- JBS&G Australia Pty Ltd (2019) *Earl Grey Lithium Mine Regional Flora Survey*. Report prepared by Oversby W and Chesney R of Strategen-JBS&G (JBS&G Australia Pty Ltd) for Covalent Lithium Ltd. July 2019.
- Mattiske Consulting Pty Ltd (2019d) *Threatened and Priority Flora Assessment Earl Grey Lithium Project Pre-Clearance Surveys.* Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Final. December 2019.

- GHD Pty Ltd (2020) *Flora Survey Mt Holland*. Report prepared by Flemington S of GHD Pty Ltd for Covalent Lithium Pty Ltd. March 2020.
- Mattiske Consulting Pty Ltd (2020a) *Flora and Vegetation Assessment Earl Grey Lithium Project Water Pipeline Corridor.* Report prepared by Sims Z and Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 6. May 2020.
- Mattiske Consulting Pty Ltd (2020b) *Flora and Vegetation Assessment Earl Grey Lithium Project Modified Great Eastern Highway Pipeline Alignment and Booster Station Access Areas: Water Pipeline Alignment Supplementary Report*. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 2. September 2020.
- Mattiske Consulting Pty Ltd (2020c) *Earl Grey Lithium Project Introduced Flora (Weed) Survey*. Report prepared by Pereira A and Sims Z of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 3. October 2020.
- Mattiske Consulting Pty Ltd (2020d) *Memorandum: Earl Grey Lithium Project Field Survey 21st – 26th* October 2020. Vegetation health monitoring transects and threatened ecological community assessment. Memorandum prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. October 2020.
- Mattiske Consulting Pty Ltd (2020e) *Memorandum: Earl Grey Lithium Project Field Survey 25th October 2020*. Threatened ecological community assessment. Memorandum prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. November 2020.
- 360 Environmental Pty Ltd (2020) *Targeted Flora Survey Mt Holland Lithium Project.* Report prepared by Walker S of 360 Environmental Pty Ltd for Covalent Lithium Pty Ltd. November 2020.
- Mattiske Consulting Pty Ltd (2021a) *Earl Grey Lithium Project Vegetation Condition Monitoring Transect Establishment.* Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Final. January 2021.
- Mattiske Consulting Pty Ltd (2021b) *Memorandum: Earl Grey Lithium Project Field Survey 14th – 21st March 2021.* Vegetation health monitoring transects. Memorandum prepared by Sims Z of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. March 2021.
- Mattiske Consulting Pty Ltd (2021c) *Threatened and Priority Flora Assessment Earl Grey Lithium Project Pre-Clearance Surveys.* Report prepared by Angus D and Sims Z of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 2. April 2021.

The biological surveys identified above were undertaken over multiple years and seasons by suitably qualified and experienced personnel in the survey and identification of flora taxa and vegetation units. The results of the biological surveys provide a sound basis on which to assess the potential environmental effects of the Proposal to flora and vegetation values.

The results of the biological surveys identify the area of the Proposal and surrounds contain a variety of flora and vegetation values comprising > 350 native vascular flora taxa occurring within > 30 vegetation units. The native flora taxa include 2 'Threatened' flora taxa (including *Banksia sphaerocarpa* var. *dolichostyla*, BC-V, EPBC-V), > 40 DBCA-classified 'priority' flora taxa and 1 DBCA-classified 'priority' ecological community.

The results of the above biological surveys in relation to the Proposal are identified in Figures 5-1 to 5-4. Figures 5-1 to 5-4 identify the most recent composite flora and vegetation survey information (duplicate data from older biological surveys have been removed).

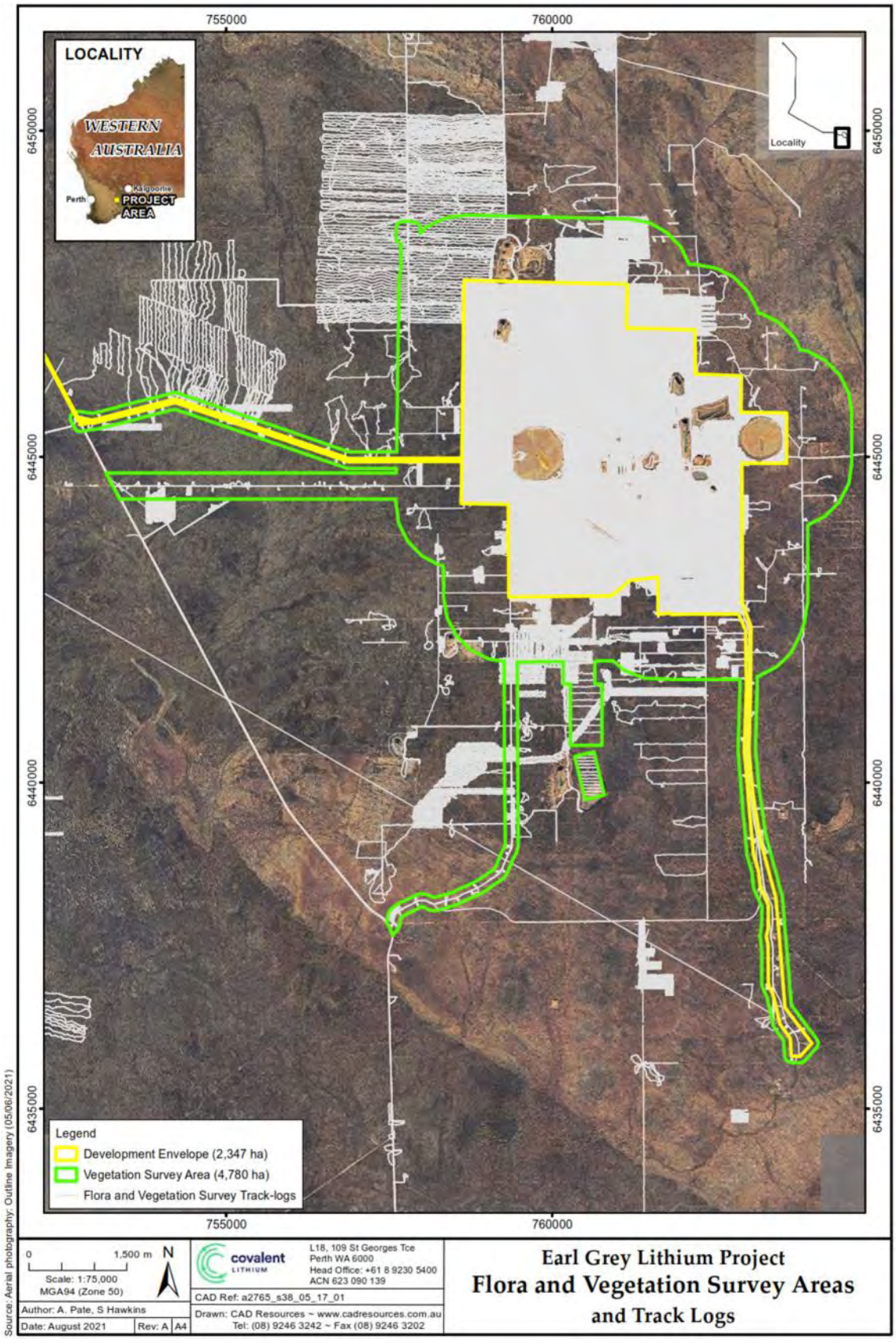


Figure 5-1 Flora and Vegetation Survey Area and Track-logs

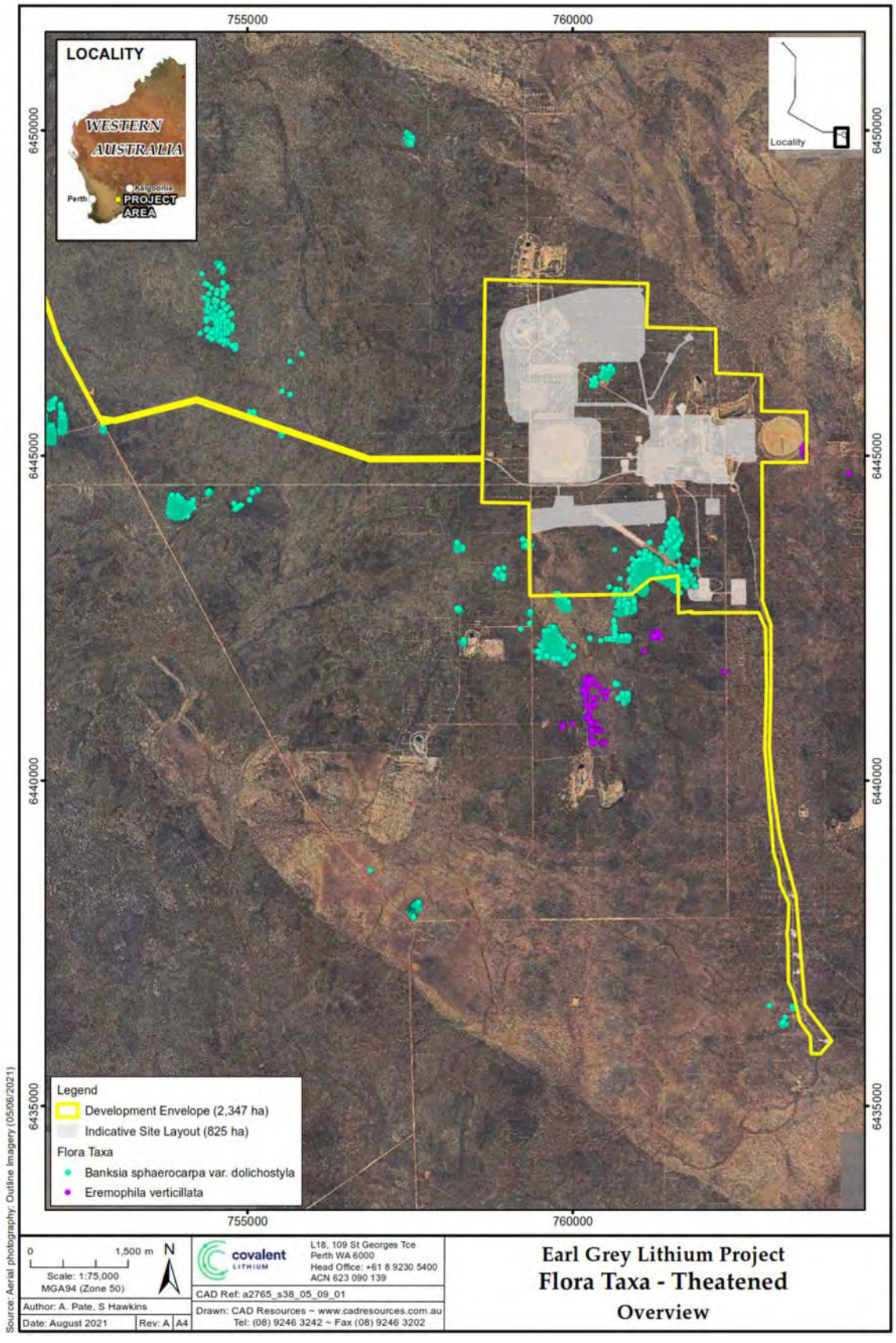


Figure 5-2a Flora Taxa – Threatened Flora

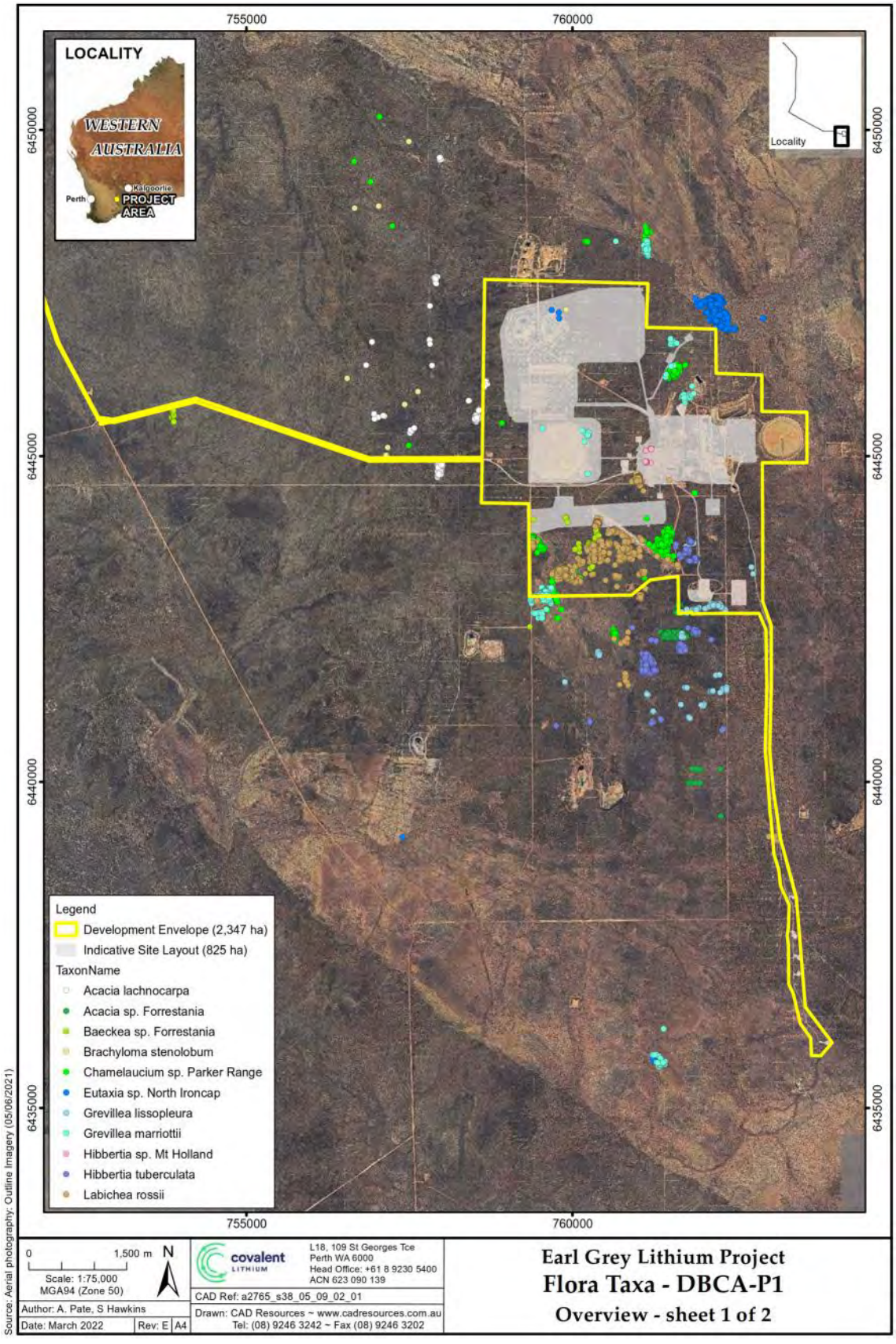


Figure 5-2b(i) Flora Taxa – DBCA-P1

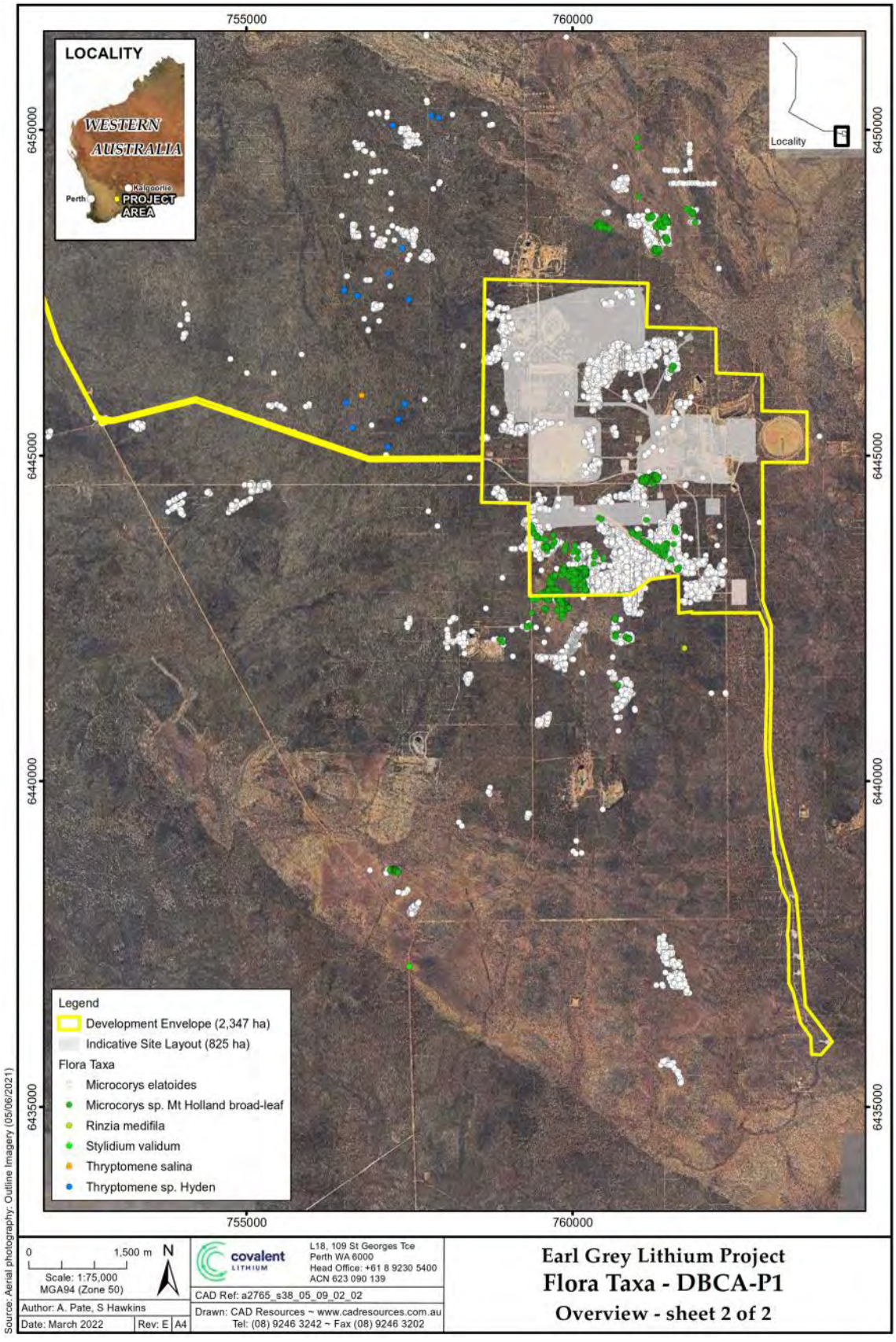


Figure 5-2b(ii) Flora Taxa – DBCA-P1

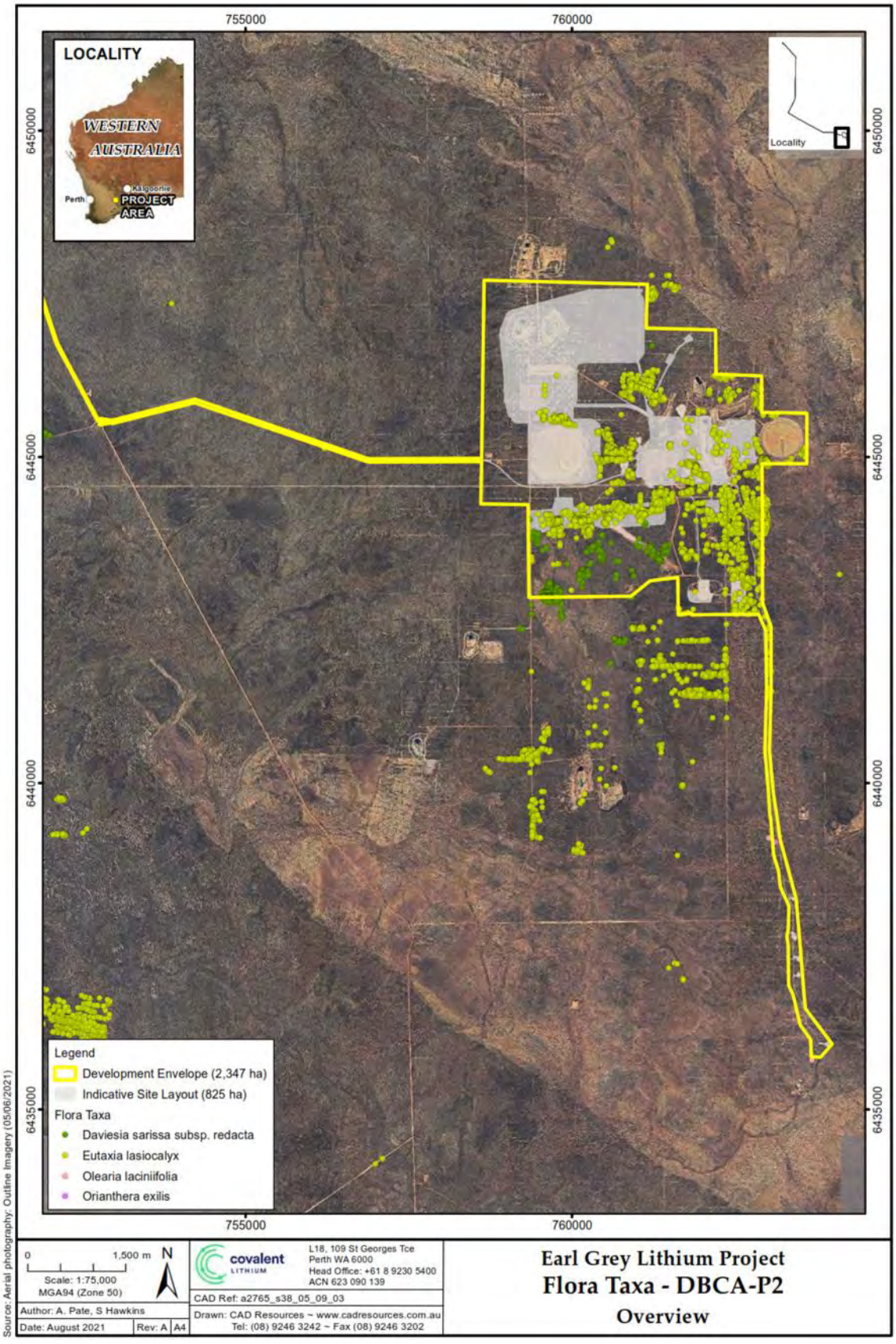


Figure 5-2c Flora Taxa – DBCA-P2

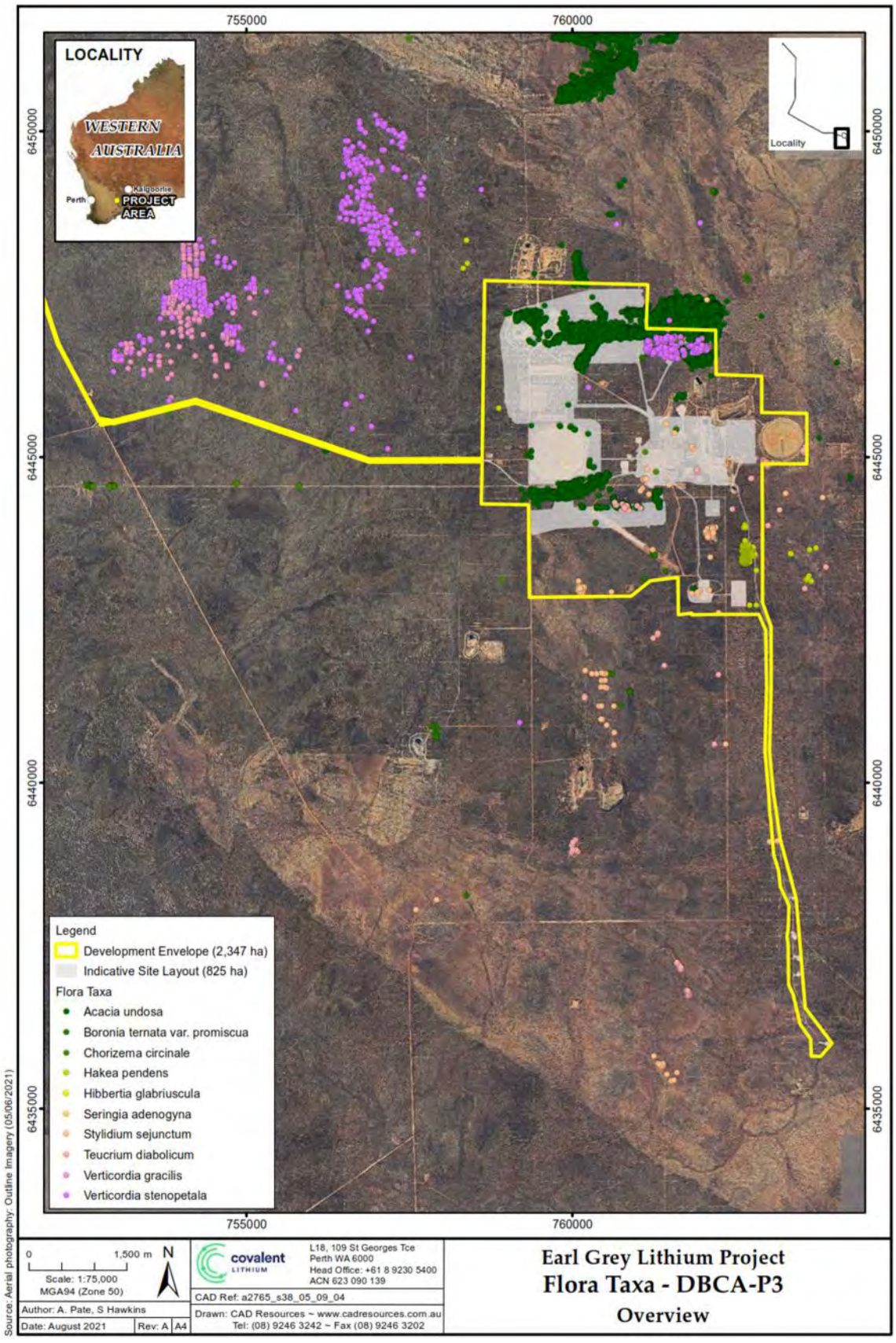


Figure 5-2d Flora Taxa – DBCA-P3

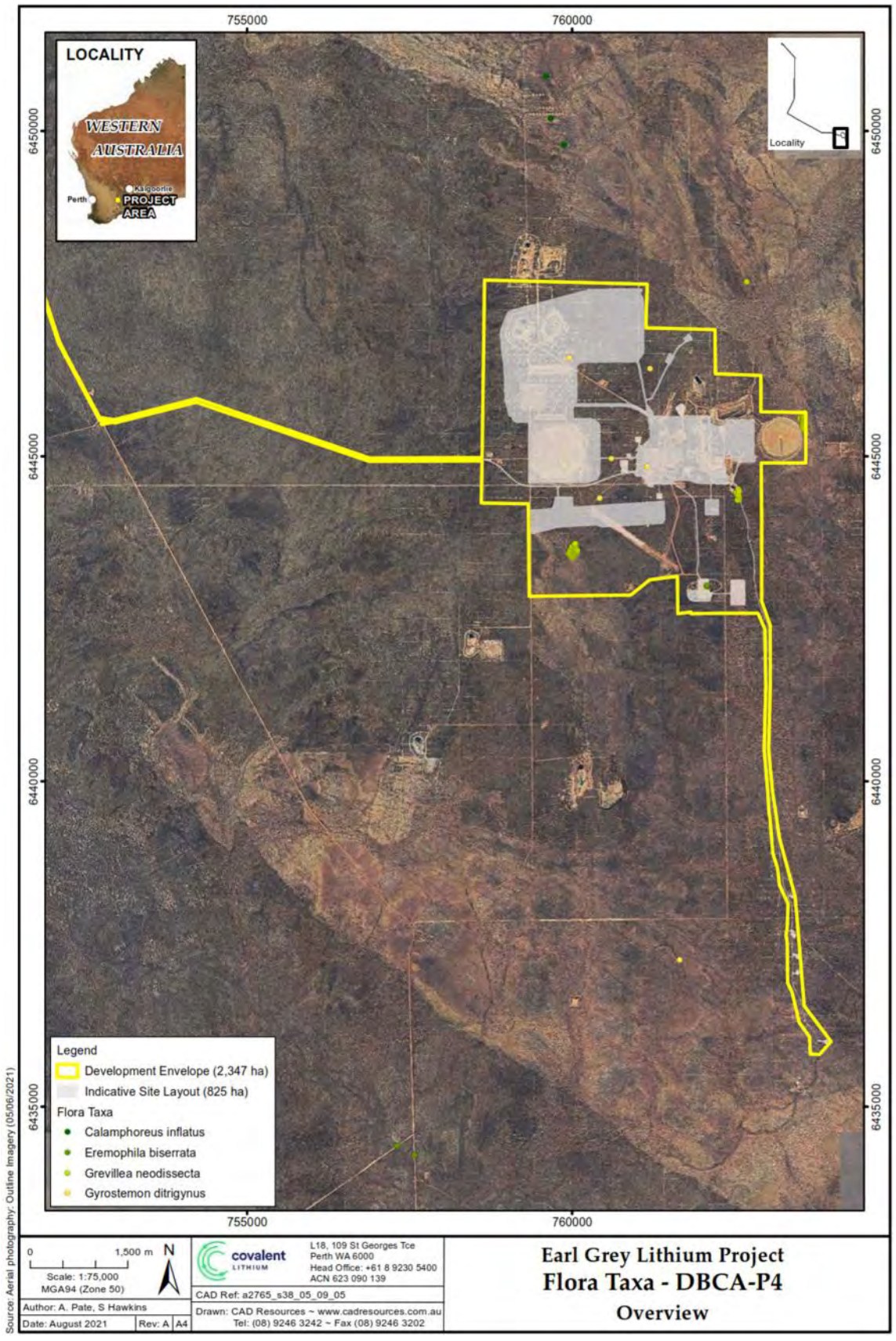


Figure 5-2e Flora Taxa – DBCA-P4

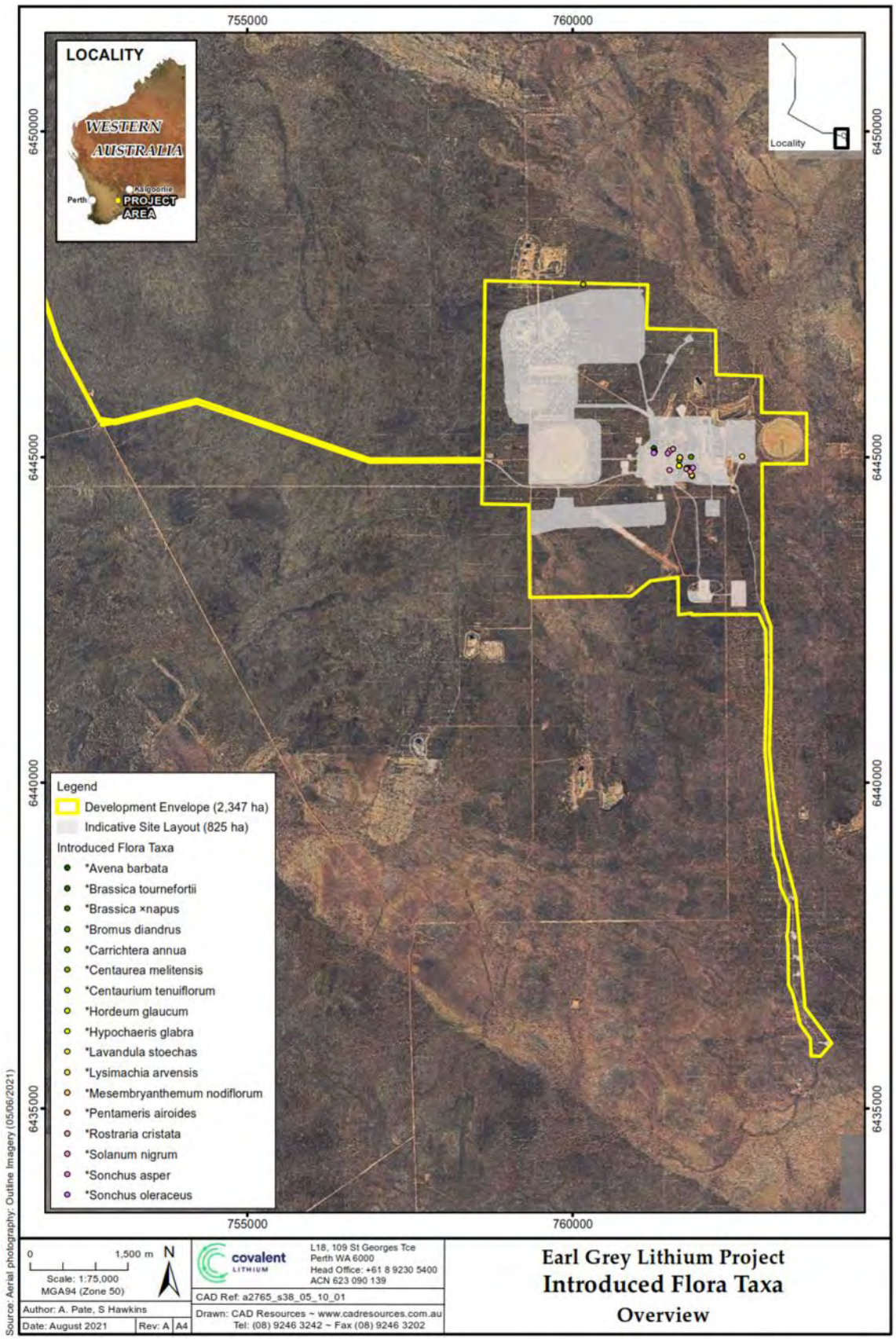


Figure 5-2f Flora Taxa – Introduced Flora Taxa

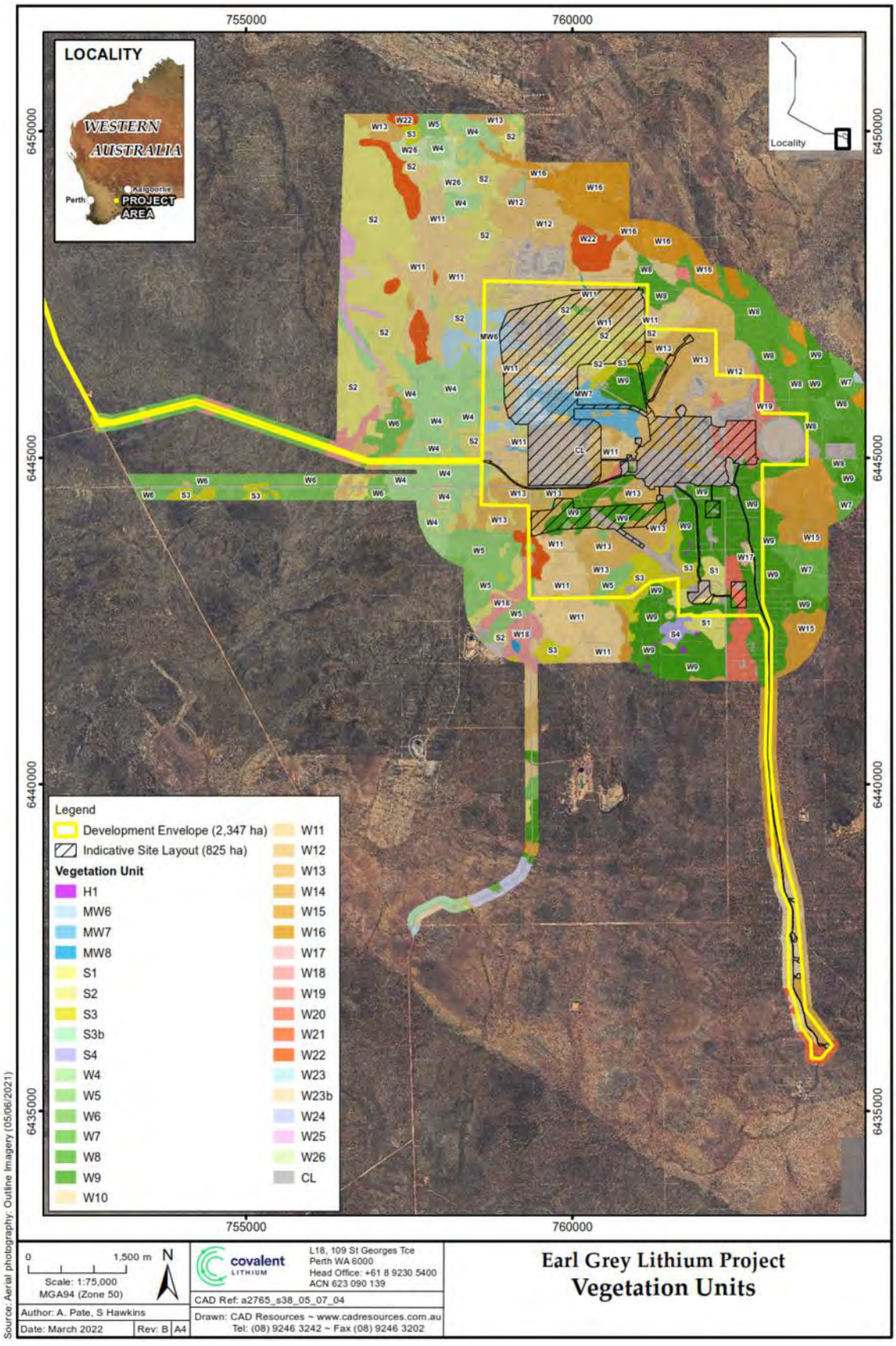


Figure 5-3a Vegetation Units

Figure 5-3b Vegetation Units

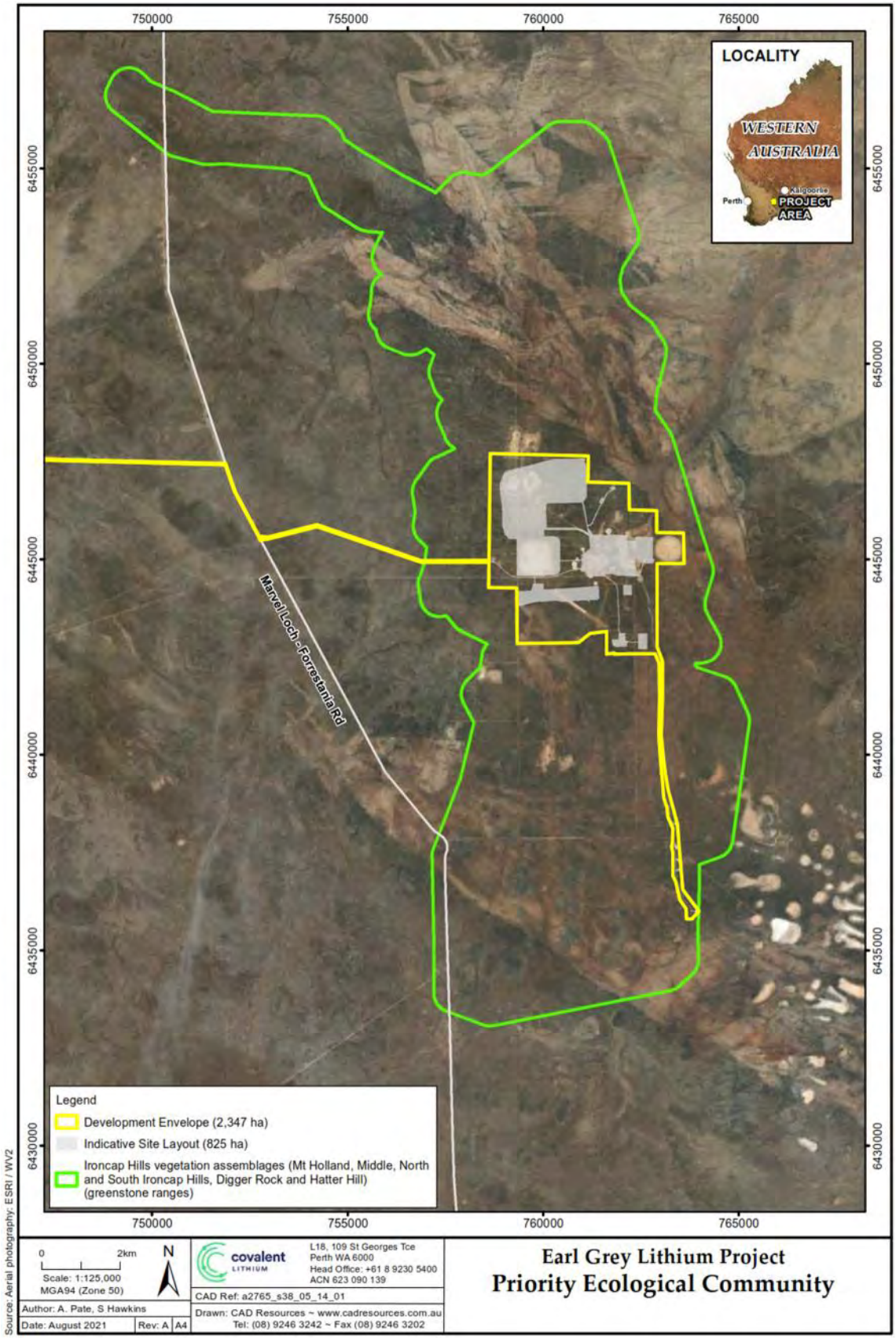


Figure 5-4 Priority Ecological Community

5.5 Mitigation Hierarchy

As outlined by the EPA (2021a) document *How to Prepare and Environmental Review Document*, the assessment of a Proposal should include consideration of the 'Mitigation Hierarchy'. The Mitigation Hierarchy comprises sequential steps that seek to alleviate the environmental effects of an action as far as practicable. The sequential steps of the Mitigation Hierarchy are:

- Avoid
- Minimise
- Rehabilitate
- Offset

A summary of the steps taken for the Proposal (Approved Proposal and Revised Proposal combined) in accordance with the Mitigation Hierarchy in relation to the key environmental factor of 'Flora and Vegetation' is outlined below.

Avoid

Avoidance measures seek to prevent or change the potential environmental effects of an action before they occur. As an example, avoidance measures may include adjusting the location, scope and/or timing of an action so as to avoid an environmental effect (i.e. a nil effect outcome).

As many of the recorded environmental values occur broadly across the area of the Proposal and surrounds, there has been limited opportunity to actively avoid flora and vegetation values; with minimisation then being the key measure (refer to Minimise below). Whilst noting this, Indicative Site Layout for the Proposal has been modified to avoid the following flora and vegetation values:

- Flora Taxa –
  - *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V)[1]
  - *Eremophila verticillata* (BC-CE, EPBC-E)
  - *Acacia* sp. Forrestania (DBCA-P1)
  - *Grevillea lissopleura* (DBCA-P1)
  - *Hibbertia tuberculata* (DBCA-P1)
  - *Orianthera exilis* (DBCA-P2)
  - *Hakea pendens* (DBCA-P3)
  - *Verticordia mitodes* (DBCA-P3)
  - *Grevillea neodissecta* (DBCA-P4)
- Vegetation Units –
  - Vegetation Units H1, MW8, S4, W7, W10, W14, W15, W17 and W21

Minimise

Minimisation measures seek to reduce the duration, intensity, extent and/or likelihood of environmental effects of an action where such values cannot be completely avoided. As an example, minimisation measures may include adjusting the location, scope or timing of an action so as to result in a reduction in the environmental effect.

During the planning process, the Indicative Site Layout for the Proposal has been modified to reduce the spatial area of native vegetation clearing required for the Proposal, principally through the use of

[1] Whist noting the Indicative Site Layout for the Proposal avoids individuals of *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V), the current Statement 1118 approval (WA Minister for Environment 2019) and EPBC Decision 2017/7950 approval (DAWE 2020) authorise the removal of up to 2 individuals of this taxon. No change to this authorisation under the Statement 1118 approval or the EPBC Decision 2017/7950 approval is proposed.

existing cleared/disturbed areas where possible. Where native vegetation clearing is required, the location of the native vegetation clearing has sought to target existing disturbed vegetation (e.g. partial clearing by prior mineral exploration drilling) and areas having a lower abundance of notable biological values. These modifications to the Proposal have been undertaken principally with a view towards minimising the environmental effects.

The result of these modifications has minimised the environmental effect to the following flora and vegetation values:

- Vegetation Clearing –
  - Reduction in vegetation clearing by using existing cleared / disturbed land, with such areas comprising > 45 % of the total area of the Proposal.
- Flora Taxa –
  - *Acacia lachnocarpa* (DBCA-P1)
  - *Baeckea* sp. Forrestania (DBCA-P1)
  - *Brachyloma stenolobum* (DBCA-P1)
  - *Chamelaucium* sp. Parker Range (DBCA-P1)
  - *Eutaxia* sp. North Ironcap (DBCA-P1)
  - *Grevillea marriottii* (DBCA-P1)
  - *Hibbertia* sp. Mt Holland (DBCA-P1)
  - *Labichea rossii* (DBCA-P1)
  - *Microcorys elatoides* (DBCA-P1)
  - *Microcorys* sp. Mt Holland broad-leaf (DBCA-P1)
  - *Daviesia sarissa* ssp. *redacta* (DBCA-P2)
  - *Eutaxia lasiocalyx* (DBCA-P2)
  - *Acacia undosa* (DBCA-P3)
  - *Boronia ternata* var. *promiscua* (DBCA-P3)
  - *Chorizema circinale* (DBCA-P3)
  - *Rinzia triplex* (DBCA-P3)
  - *Stylidium sejunctum* (DBCA-P3)
  - *Teucrium diabolicum* (DBCA-P3)
  - *Verticordia stenopetala* (DBCA-P3)
  - *Eremophila biserrata* (DBCA-P4)
  - *Gyrostemon ditrigynus* (DBCA-P4)
- Vegetation Units –
  - Vegetation Units MW6, MW7, S1, S2, S3, W4, W5, W6, W8, W9, W11, W12, W13, W18, W19, W20 and W22
- 'Priority Ecological Communities' –
  - '*Ironcap Hills vegetation complexes (Mt Holland, Middle, North and South Ironcap Hills, Digger Rock and Hatter Hill) (banded ironstone formation)'*

Most notably on the above, the Indicative Site Layout for the Proposal comprises > 45 % of cleared / disturbed land associated with the abandoned Mt Holland Mine Site (383 ha of total 825 ha Indicative Site Layout); thereby substantially reducing the area of native vegetation clearing required for the Proposal.

Whilst the modifications identified above have resulted in a sub-optimal indicative layout for the Proposal (compared to a layout with nil environmental constraints), these design modifications have been adopted to minimise the environmental effect of the Proposal as far as practicable, and to ensure the residual environmental effects can be considered environmentally acceptable.

Rehabilitate

Rehabilitation measures seek to restore environmental values following an action. As an example, rehabilitation measures may include restoration of soils and vegetation following an action.

All areas of new land disturbance by the Proposal will be rehabilitated with native vegetation. The rehabilitation works will include on-contour ripping of compacted areas and the respreading of rehabilitation materials (vegetation, topsoil and subsoil) that were removed and stockpiled during the initial vegetation clearing.

In addition, all areas of existing cleared / disturbed lands which will be used by the Proposal (excluding the Mine Pit void) will also be rehabilitated with native vegetation. Based on the indicative footprint for the Proposal, it is anticipated that > 200 ha of existing cleared / disturbed lands will be rehabilitated. The rehabilitation of these areas will result in a 'net-benefit' environmental outcome from the Proposal by restoring the flora and vegetation values (which would otherwise be left cleared / disturbed and remain a liability for the State).

Offset

As outlined by the *WA Environmental Offsets Policy* (Government of Western Australia 2011) and the *WA Environmental Offsets Guidelines* (Government of Western Australia 2014), and supported by the EPA (2014) document *Environment Protection Bulletin No 1 Environmental Offsets*, an 'Environmental Offset' is an action which provides an environmental benefit to counterbalance a significant residual environmental effect or risk of a project. Environmental offsets are determined on a project-by-project basis, and are applied only to significant residual environmental effects (not applied to minor environmental effects).

In assessment of the Approved Proposal, the EPA (2019) concluded the Proposal may result in a significant residual environmental effect to the following flora values:

- Flora Taxa –
  - *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V)
  - *Microcorys elatoides* (DBCA-P1)

As a result, approval of the Proposal under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) identified the following environmental offsets to be required:

- Flora Offset Strategy
  (Covalent Lithium 2020a, Condition 8 of Statement 1118 approval)
- Ironcaps Banksia Conservation Plan
  (Covalent Lithium 2021e, Condition 5 of EPBC Decision 2017/7950 approval)

The purpose of the Flora Offset Strategy is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides* to be removed by the Proposal through identification of land areas for conservation purposes (including financial contribution, on-site management and monitoring) which contain these flora values. A Flora Offset Strategy (Covalent Lithium 2020a) has been prepared by Covalent Lithium and submitted to EPA in accordance with Condition 8 of the Statement 1118 approval.

The purpose of the Ironcaps Banksia Conservation Plan is to is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* to be removed by the Proposal through establishing (in rehabilitation works) an equivalent number of individuals within the Development Envelope. An Ironcaps Banksia Conservation Plan (Covalent Lithium 2021e) has been prepared by Covalent Lithium, and subsequently approved by DAWE (2021d) in accordance with Condition 5 of the EPBC Decision 2017/7950 approval.

5.6 Environmental Effects of the Proposal

Based on the completed biological surveys, the Indicative Site Layout for the Proposal coincides with the following flora and vegetation values:

- Flora Taxa –
  - *Acacia lachnocarpa* (DBCA-P1)
  - *Baeckea* sp. Forrestania (DBCA-P1)
  - *Brachyloma stenolobum* (DBCA-P1)
  - *Chamelaucium* sp. Parker Range (DBCA-P1)
  - *Eutaxia* sp. North Ironcap (DBCA-P1)
  - *Grevillea marriottii* (DBCA-P1)
  - *Hibbertia* sp. Mt Holland (DBCA-P1)
  - *Labichea rossii* (DBCA-P1)
  - *Microcorys elatoides* (DBCA-P1)
  - *Microcorys* sp. Mt Holland broad-leaf (DBCA-P1)
  - *Daviesia sarissa* ssp. *redacta* (DBCA-P2)
  - *Eutaxia lasiocalyx* (DBCA-P2)
  - *Acacia undosa* (DBCA-P3)
  - *Boronia ternata* var. *promiscua* (DBCA-P3)
  - *Chorizema circinale* (DBCA-P3)
  - *Rinzia triplex* (DBCA-P3)
  - *Stylidium sejunctum* (DBCA-P3)
  - *Teucrium diabolicum* (DBCA-P3)
  - *Verticordia stenopetala* (DBCA-P3)
  - *Eremophila biserrata* (DBCA-P4)
  - *Gyrostemon ditrigynus* (DBCA-P4)
- 'Priority Ecological Communities' –
  - '*Ironcap Hills vegetation complexes (Mt Holland, Middle, North and South Ironcap Hills, Digger Rock and Hatter Hill) (banded ironstone formation)'*
- Vegetation Units -
  - Vegetation Units MW6, MW7, S1, S2, S3, W4, W5, W6, W8, W9, W11, W12, W13, W18, W19, W20 and W22
- A variety of other flora taxa (not of listed conservation significance)

The Proposal (Approved Proposal and Revised Proposal combined) will be implemented within the Development Envelope (2,347 ha), with the Indicative Site Layout (825 ha) comprising 442 ha of native vegetation to be cleared and 383 ha of existing cleared/disturbed land. Based on the Development Envelope approach, the Proposal is not anticipated to affect all of the flora and vegetation values identified above, however, consideration of all values is required as the Indicative Site Layout is not fixed.

An assessment of the environmental effects of the Proposal to flora and vegetation values is provided below.

5.6.1 Flora Taxa

Native Flora Taxa

The Development Envelope for the Proposal coincides with a number of native flora taxa of listed conservation significance. Table 5-1 identifies the flora taxa coinciding with the Development Envelope and the Indicative Site Layout[1,2], including contextual information on their local and regional distributions. The flora taxa values presented in Table 5-1 reflect the most recent composite surveys results of the biological surveys. It is noted for a number of taxa, data on the regional population is limited based upon available survey information.

In consideration of the number of individuals of each taxon coinciding with the Proposal (Development Envelope and Indicative Site Layout), and the recorded number of individuals and distribution at both the local and regional scales, the environmental effect of the Proposal to flora taxa is not expected to affect the representation, diversity, viability or ecological function of these taxa. Accordingly, the environmental effect of the Proposal to such flora taxa is not considered to be significant. This conclusion is consistent with the environmental assessment of the Approved Proposal as outlined within the Environmental Review Document (Covalent Lithium 2019) and the assessment report of EPA (2019).

Whilst noting the above, as outlined within EPA (2019), the environmental effect of the Approved Proposal to the flora taxa *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V) and *Microcorys elatoides* (DBCA-P1) was considered to be environmentally significant; with a requirement for environmental offsets to be implemented to counterbalance the residual environmental effects as outlined within the environmental approvals under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020). The Revised Proposal will not result in any increase in the effect to *Banksia sphaerocarpa* var. *dolichostyla*, with the increase in effect to *Microcorys elatoides* being limited (512 individuals, equating to < 1 % of the regional population of 85,415 individuals).

Detailed descriptions for each of the flora taxa coinciding with the Proposal is provided within the biological surveys completed for the Proposal, and further summarised in Covalent Lithium (2019).

[1] Flora taxa which do not coincide with the Development Envelope have been excluded from Table 5-1 (due to nil potential effect of the Proposal), however, all flora taxa recorded within the Survey Area are identified in Figure 5-2.

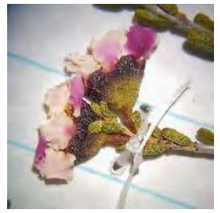
[2] Values may differ from Covalent Lithium (2019) due to more recent biological surveys.

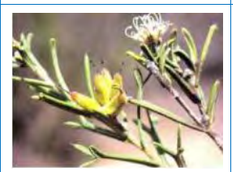
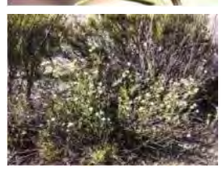
Table 5-1 Flora Taxa recorded within the Development Envelope.

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Banksia sphaerocarpa var. *dolichostyla* (BC-V, EPBC-V)		Description – Dense-canopied shrub or small tree to 4 metres tall with bluish-green and narrowly linear leaves. Flower heads are golden and spherical, and fruiting cones are spherical with often crowded follicles. Habitat – Iron–capped rises on ironstone profiles. It is found in low woodlands to low shrublands with associates which include *Dryandra* and *Allocasuarina* taxa.		*Banksia sphaerocarpa* var. *dolichostyla* has a recorded distribution of > 200 km from near Meriden (west) to near Mt Gordon (east, towards Charles Peak National Park). *Banksia sphaerocarpa* var. *dolichostyla* is one of several variants of the *Banksia sphaerocarpa* group (comprising 6 taxa), which have a broad distribution of ~700 km from Geraldton in the north to Albany in the south, and eastwards into the Goldfields region.	> 24,500 individuals	18,363	5,341	0 [1] (0%) [18, 40]	0 [1] (0%) [18, 40]
Eremophila verticillata (BC-CE, EPBC-E) (previously recorded as *Eremophila* sp. aff. *verticillata*)	  Source: Mattiske (2019b)	Description – Low spreading shrub, up to 0.8 m high, to 1 m wide. Fl. Purple-violet, Nov to Dec. Habitat – Clay loam, loam over limestone. Source: DBCA (2021b)		*Eremophila verticillata* has a recorded distribution of approximately 150 km, known from 22 record locations.	> 11,500 individuals	9,625	844	0 (0%) [0, 0]	0 (0%) [0, 0]

[1] Whist noting the Indicative Site Layout for the Proposal avoids individuals of *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V), the current Statement 1118 approval (WA Minister for Environment 2019) and EPBC Decision 2017/7950 approval (DAWE 2020) authorise the removal of up to 2 individuals of this taxon. No change to this authorisation under the Statement 1118 approval or the EPBC Decision 2017/7950 approval is proposed.

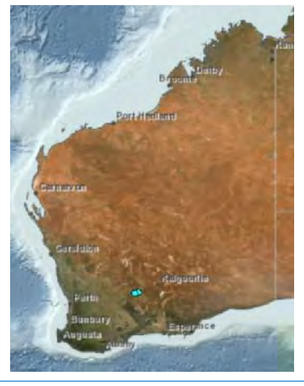
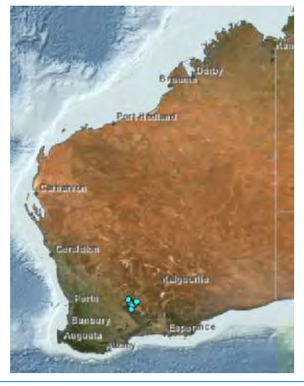
FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Acacia sp. Forrestania (DBCA-P1)	  Source: Mattiske unpublished	Description – Not available Habitat – S4 Vegetation Community (*Eucalyptus* sp. Southern Wheatbelt, *Allocasuarina spinosissima*, *Allocasuarina acutivalvis* low open mallee woodland on light orange gravelly clay on upper-mid slopes. Source: Mattiske (2021c)	Not available	*Acacia* sp. Forrestania has a recorded distribution of approximately 3 km, known from 2 location records. (Mattiske 2021c)	-	7,485	242	0 (0%) [0, 0]	0 (0%) [0, 0]
Acacia lachnocarpa (formerly *Acacia* sp. Mt Holland) (DBCA-P1)	  Source: Ellery B / Angus D in Mattiske (2019b)	Description – Up to 100cm high 80cm wide. Branchlets terete, densely woolly when young, becoming glabrous, ultimately bare with raised projections from remnant leaf and branchlet bases. Habitat – Orange brown sandy clay soils with quartz on flats and slopes. Vegetation Communities W4, S2. Source: Mattiske (2018d).		*Acacia lachnocarpa* has a recorded distribution of approximately 60 km, known from 2 location records.	~ 25,000 (Mattiske 2021c)	14,294	982	502 (2%) [226, 201]	502 (2%) [226, 201]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Baeckea sp. Forrestania (DBCA-P1)	 Source: B Longbottom / Covalent Lithium	Description – Shrub to 0.6 m high. Habitat – Predominately in Vegetation Community W13 (*Eucalyptus rigidula* low open mallee woodland on yellow brown to orange brown clayey sands on flats and slopes) Source: Mattiske (2021c)		*Baeckea* sp. Forrestania has a recorded distribution of approximately 30 km, known from 2 location records.	-	234	176	17 (7%) [1, 0]	17 (7%) [1, 0]
Brachyloma stenolobum (DBCA-P1)	 Source: Hislop & Cranfield (2014) cited in Covalent Lithium (2019)	Description – The only Western Australian species of *Brachyloma*. White flowers and narrowly triangular, adaxially keeled corolla lobes. Habitat – Grows on yellow sandplain as a component of heath. (Hislop & Cranfield 2014). Bare yellow sandy loam flats Source: Mattiske (2021c)		*Brachyloma stenolobum* has a recorded distribution of approximately 140 km, known from 5 location records.	> 600 individuals	13	1	1 (<1%) [0]	1 (<1%) [0]
Chamelaucium sp. Parker Range (DBCA-P1)	  Source: Western Botanical (unpublished)	Description – Not available Habitat – Sandy lateritic soils. Vegetation Communities W1, W13, S3 Source: Mattiske (2021c)		*Chamelaucium* sp. Parker Range has a recorded distribution of approximately 150 km, known from 11 location records.	-	1,324	820	1 (<1%) [0, 29]	1 (<1%) [0, 39]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Eutaxia sp. North Ironcap (DBCA-P1)	  Source: Mattiske unpublished	Description – Erect spindly shrub (broom-like) Habitat – Red sandy clay. Undulating plains. Vegetation Communities W8, W13 Source: DBCA (2021b), Mattiske (2021c)		*Eutaxia* sp. North Ironcap has a recorded distribution of approximately 20 km, known from 2 location records. (Mattiske 2021c)	-	2,349	3	3 (<1%) [0, 0]	3 (<1%) [0, 0]
Grevillea lissopleura (DBCA-P1)	 Source: Mattiske (2019b)	Description – A 0.5-1.5 m high shrub; branchlets hairy, not glaucous. Leaves alternate, Flowers in August. Habitat – Stony loam on banded ironstone; on ridges Source: Mattiske (2021c).		*Grevillea lissopleura* has a recorded distribution of approximately 140 km, known from 7 location records.	-	2,702	924	0 (0%) [0, 6]	0 (0%) [0, 6]
Grevillea marriottii (DBCA-P1)	  Source: Mattiske (2019b)	Description – *Grevillea marriottii* blooms from July to October and produces a terminal raceme irregular inflorescence with green, white or green flowers. Later it forms ribbed ellispoidal glabrous fruit that is 10 to 14 mm. Habitat – The species is known from Yellow or white sand over laterite. On rises or on tops of lateritic cappings.		*Grevillea marriottii* has a recorded distribution of approximately 10 km, known from 15 location records.	-	2,879	725	15 (<1%) [0, 34]	15 (<1%) [0, 34]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Hibbertia sp. Mt Holland (DBCA-P1)	  Source: Mattiske unpublished	Description – Not available Habitat – *Eucalyptus burracoppinensis* and *Allocasuarina acutivalvis* low open mallee woodland on light yellow-brown sandy clay Source: Mattiske (2021c)	Not available	*Hibbertia* sp. Mt Holland has a recorded distribution of > 200 km, known from 3 location records.	-	1,271	22	22 (<2%) [0, 0]	22 (<2%) [0, 0]
Hibbertia tuberculata (formerly *Hibbertia* aff. *oligantha*) (DBCA-P1)	  Source: Mattiske (2019b) / Thompson W in Theile (2019)	Description – Shrub to 0.5 m high, yellow flowers, flowering September to October. Distinguished by combination of sessile flowers with 3–7, narrowly triangular to narrowly ovate bracts, erect stamens with free filaments on one side of the two glabrous carpels, and leaves (2–)3–5 mm long and prominently tuberculate. (Theile 2019) Habitat – Yellow sand, clayey grey sand, red clay, light brown loamy clay. Disturbed ground, utility reserves. Source: DBCA (2021b)	Not available	*Hibbertia tuberculata* has a recorded distribution of approximately 25 km, known from 3 location records.	-	6,925	1,087	0 (0%) [0, 113]	0 (0%) [0, 113]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Labichea rossii (DBCA-P1)	 Source: Mattiske (2019b)	Description – Flowers in late September and early October. Habitat – Grows out of cracks in the massive outcropping banded ironstone, often in the shade of larger shrubs. Source: DBCA (2021b)		*Labichea rossii* has a recorded distribution of < 1 km, known from 2 location records.	-	7,694	7,384	133 (<2%) [113, 429]	400 (5%) [39, 276]
Microcorys elatoides (DBCA-P1) (previously recorded as *Microcorys* sp. Mt Holland)	  Source: Mattiske (2019b)	Description – Dense to open erect, multi-stemmed woody perennial shrub to 120 cm high; leaves terete to sub-terete, without a pungent tip, often arranged in whorls of 3 along the stem. (Covalent Lithium 2019) Habitat – Clayey sands to lateritic clay soils; plains and lateritic slopes. (Covalent Lithium 2019)		*Microcorys elatoides* has a recorded distribution of approximately 10 km, known from 5 location records.	-	85,415	43,011	7,067 (8%) [697, 2,405]	7,579 (9%) [654, 2,740]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Microcorys sp. Mt Holland broad-leaf (DBCA-P1)	  Source: Mattiske unpublished	Description – Dense to open erect, multi-stemmed woody perennial shrub to 120 cm high; leaves terete to sub-terete, without a pungent tip, often arranged in whorls of 3 along the stem. Habitat – Clayey sands to lateritic clay soils; plains and lateritic slopes. Source: DBCA (2021b)		*Microcorys* sp. Mt Holland broad-leaf has a recorded distribution of < 1 km, known from 5 location records.	-	6,565	3,545	341 (5%) [144, 162]	377 (6%) [127, 164]
Daviesia sarissa ssp. *redacta* (DBCA-P2)	 (Source: Mattiske 2019b)	Description – Spreading or sprawling, glaucous shrub to 0.6 m high. Flowers yellow and red/brown, with flowering occurs in September. Habitat – Yellow sand. Plains. Source: DBCA (2021b)		*Daviesia sarissa* ssp. *redacta* has a recorded distribution of approximately 20 km, known from 8 location records.	-	1,516	1,016	1 (<1%) [2, 9]	18 (<1%) [9, 15]
Eutaxia lasiocalyx (DBCA-P2)	 Source: Mattiske (2018d) cited in Covalent Lithium 2019)	Description – Low, spreading, multi–stemmed shrub which grows to 15 cm high. It flowers in November with yellow flowers. Habitat – Grows on red sandy loam and laterite and quartz gravel on gentle lower slopes. Source: DBCA (2021b)		*Eutaxia lasiocalyx* has a recorded distribution of approximately 70 km, known from 12 location records.	-	163,747	31,225	7,215 (4%) [973, 3,215]	8,595 (5%) [980, 2,424]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Orianthera exilis (DBCA-P2)	 Source: Mattiske (2018d) cited in Covalent Lithium (2019)	Description – Low shrub, branches 1.1-1.5mm diameter. Stipule 0.3mm long. Habitat – Brown loam over laterite, Band ironstone (unconfirmed) (Mattiske 2021c)		*Orianthera exilis* has a recorded distribution of approximately 100 km, known from 10 location records.	-	1	1	0 (0%) [0, 1]	0 (0%) [0, 1]
Acacia undosa (DBCA-P3)	 Source: Royal Botanic Gardens, Kew powo.science.kew.org/	Description – Dense, spreading shrub 30 cm to 1.5 m tall. It flowers yellow from July to September. Habitat – Sandy clay loam, clayey sand. Undulating plains, low-lying area. Source: DBCA (2021b)		*Acacia undosa* has a recorded distribution of approximately 280 km, known from 26 location records.	-	141,500	22,880	12,237 (9%) [1,186, 3,642]	12,684 (9%) [1,227, 3,434]
Boronia ternata var. *promiscua* (DBCA-P3)	 Source: Mattiske unpublished	Description – Spreading shrub to 1 m high. Flowers in June or September to October. Habitat – Yellow sandy clay, laterite. Source: DBCA (2021b)		*Boronia ternata* var. *promiscua* has a recorded distribution of approximately 50 km, known from 8 location records.	-	315	22	4 (1%) [2, 0]	4 (1%) [2, 0]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Hakea pendens (DBCA-P3)		Description – Shrub that grows between 2 to 3m high, and 2.5 to 3.1m wide. It produces pink-white flowers in September. Habitat – Grows in stony loam and is found on ironstone ridges. Source: DBCA (2021b)		*Hakea pendens* has a recorded distribution of approximately 160 km, known from 74 location records.	-	1,167	1,142	0 (0%) [0, 44]	0 (0%) [0, 44]
Chorizema circinale (DBCA-P3)	 Source: DBCA in Mattiske (2019b)	Description – Prostrate, scrambling, wiry shrub, to 0.4 m high. Fl. Yellow & orange & red, Sep to Dec. Habitat – Yellow sand, sandy clay with gravel. Flats, margin of gravel pit. Source: DBCA (2021b)		*Chorizema circinale* has a recorded distribution of approximately 280 km, known from 17 location records.	> 1,000 individuals	479	117	53 (5%) [28, 3]	53 (5%) [28, 3]
Rinzia triplex (DBCA-P3)	Not available	Description – Shrub to 1.5 m tall and 1.2 m wide, Petals bright pink at first, becoming paler with age. Distinguished by having 5–11 staminodes. Flowering late June to September. Habitat – Sandy plains in yellow to red, often gravelly or lateritic soils which may contain banded ironstone, dominated by *Acacia*, *Eucalyptus* or *Allocasuarina*, often with *Baeckea elderiana* present. Source: Rye (2017)		*Rinzia triplex* has a recorded distribution of approximately 300 km, known from 32 location records.	> 6,900 individuals (Mattiske 2021c)	24	24	24 (<1%) [0, 0]	24 (<1%) [0, 0]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Stylidium sejunctum (DBCA-P3)	 Source: Botanica (2018)	Description – Caespitose perennial, herb 0.25-0.45 m high. Flowers white/pink-purple, with flowering in September to November. Habitat – Clayey sand or loam, laterite. Outcrops, upper slopes, breakaways. Mallee and *Allocasuarina* shrubland. Source: DBCA (2021b)		*Stylidium sejunctum* has a recorded distribution of approximately 250 km, known from 65 location records.	> 7,000 individuals	1,779	590	26 (<1%) [1, 6]	26 (<1%) [1, 6]
Teucrium diabolicum (DBCA-P3) (formerly *Teucrium* sp. Dwarf)	  Source: Wedge & Davis (2020)	Description – A compact, dwarf shrub, 0.2 m high, 0.1 m wide, suckering from a thick woody rootstock, with white flowers. Flowering recorded in Autumn (March to early May) and spring (late October to mid-November) Habitat – Red cracking clay or clay loam, usually in shallow depressions or on low undulating plains that support low scrub or heath, or in association with low open woodland (e.g. with *Eucalyptus tenuis*). Source: Wedge & Davis (2020)		*Teucrium diabolicum* has a recorded distribution of approximately 240 km, known from 18 location records.	> 50,000 individuals	28,149	11,561	362 (<1%) [3, 120]	485 (1%) [88, 34]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Verticordia mitodes (DBCA-P3)	  Source: E A George in DBCA (2021b)	Description – Spreading shrub to 0.7 m high. Flowers pink-purple, flowering October to December/January. Habitat – Yellow sand. Undulating plains. Source: DBCA (2021b)		*Verticordia mitodes* has a recorded distribution of > 200 km, known from 30 location records.	-	1	0	0 (0%) [0, 1]	0 (0%) [0, 1]
Verticordia stenopetala (DBCA-P3)	  Source: E A Bembt in DBCA (2021b)	Description – Shrub to 0.6 m high, producing pink-purple-red flowers between October and January. Habitat – Recorded growing on yellow sands on undulating plains. Source: DBCA (2021b)		*Verticordia stenopetala* has a recorded distribution of approximately 280 km, known from 31 location records.	-	8,679	1,571	36 (<1%) [44, 95]	36 (<1%) [44, 95]
Eremophila biserrata (DBCA-P4)	  Source: L&M Greeve and B Buirchell in DBCA (2021b)	Description – Prostrate shrub to 3 m wide. Flowers green to yellow-green, with flowering September to November or March. Habitat – Sandy or sandy clay soils. Alluvial flats, salt flats & lakes. Source: DBCA (2021b)		*Eremophila biserrate* has a recorded distribution of > 200 km, known from 31 location records.	-	356	3	3 (<1%) [0, 0]	3 (<1%) [0, 0]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Grevillea neodissecta (DBCA-P4)	 Source: Mattiske unpublished	Description – Shrub to 1 m high. Flowers in January, February, September, October, November or December. Habitat – Vegetation Communities W8, W11 Source: DBCA (2021b), Mattiske (2021c)		*Grevillea neodissecta* has a recorded distribution of approximately 70 km, known from 8 location records.	-	1,981	1,885	0 (0%) [12, 11]	0 (0%) [12, 11]
Gyrostemon ditrigynus (DBCA-P4)	  Source: Esperance Wildflowers (2011)	Description – Shrub to 1.5 m high. Habitat – Recorded exclusively growing on cleared land, principally being drill pads Typically grows on sand, sandy clay, loam. Plains, low ironstone ridges. Source: Mattiske (2021c), DBCA (2021b)		*Gyrostemon ditrigynus* has a recorded distribution of > 400 km, known from 33 location records.	> 50,000 individuals	207	28	3 (<1%) [10, 0]	3 (<1%) [10, 0]

Introduced Flora Taxa

The biological surveys recorded 27 introduced flora taxon (weed) within the Development Envelope. The majority of introduced flora taxa were associated with the existing cleared / disturbed land areas of the abandoned Mt Holland Mine Site. Introduced flora taxa may compete with native flora taxa for resources (e.g. space, water, nutrients), alter the diversity and/or structure within native vegetation units, and degrade the quality of available fauna habitat.

The management of introduced flora taxa is a standard hygiene operational matter for mining operations, with the Proposal operations not representing any greater risk of introduced flora taxa when compared to other mining operations in the local region. Subject to the successful implementation of standard hygiene management practices (control of identified infestations, hygiene of vehicles / equipment arriving to the mining area), the Proposal would not be expected to result in a significant indirect effect from introduced flora taxa.

5.6.2 Vegetation

Regional Vegetation Associations

The Proposal is located in the Southern Cross subregion of the Coolgardie Bioregion, based on the Interim Biogeographic Regionalisation for Australia (IBRA) classifications. Two regional vegetation system associations mapped by Beard (1980) are represented within the Development Envelope, being 'Forrestania 511' and 'Skeleton Rock 519'. Forrestania 511 is characterised by salmon gum and morrel medium woodland. Skeleton Rock 519 is characterised by shrublands and mallee scrub dominated by *Eucalyptus eremophila*.

The Proposal is located within a region with largely intact native vegetated, with > 70,000 ha of native vegetation occurring within a 10 km radius of the Proposal (refer to Figure 2-6). As identified by Table 5-2, clearing of the vegetation associations to date has been limited, with a notable extent of these vegetation associations protected within conservation reserves.

VEGETATION ASSOCIATION	AREA IN SOUTHERN CROSS SUBREGION (PRE-EUROPEAN EXTENT, HA)	% CLEARED	% IN CONSERVATION RESERVES
Forrestania 511	> 150,000	< 0.5 %	10 %
Skeleton Rock 519	> 55,000	1 %	28 %

Table 5-2 Extent of Regional Vegetation Associations (Data source: Government of Western Australia 2018)

Priority Ecological Community

The Proposal coincides with part of the mapped area of a DBCA-classified 'priority' ecological community named 'Ironcap Hills vegetation complexes (Mt Holland, Middle, North and South Ironcap Hills, Digger Rock and Hatter Hill) (banded ironstone formation)' (herein referred to as the 'Ironcap Hills PEC'), with a mapped area of > 15,700 ha.

The DBCA (2020) identifies the Ironcap Hills PEC as a 'Priority 3' ecological community (DBCA-P3), with the key threats being vegetation clearing associated with mining (including exploration) and agricultural grazing. The DBCA (2020) describes the Ironcap Hills PEC as vegetation assemblages on skeletal soils derived from banded ironstone and massive laterites on deeper soils derived from greenstone or decomposing laterites, and includes species rich shrublands or mallee shrublands containing local endemics.

Whilst noting the area of the Proposal coincides with the mapped area of the Ironcap Hills PEC, the vegetation within the area of the Proposal is more consistent with *Eucalyptus* woodland characteristic of flat areas of the Bioregion. The majority of the Development Envelope is situated on sandy, sandy clay or clay loam flats and gentle slopes supporting *Eucalyptus* mallee woodlands over *Melaleuca* shrublands, interspersed with dense *Allocasuarina* scrub. No vegetation units associated with banded ironstone formation geology occur within the Development Envelope.

Two studies of the Ironcap Hills PEC have been completed by Gibson (2004) and Thompson & Allen (2013), with the more recent study focused on the Mt Holland area in the vicinity of the Proposal. Mattiske (2018b) conducted a statistical comparison between the vegetation units in the Development Envelope and the Ironcap Hills PEC and determined a notable dissimilarity, primarily due to the different suite of flora taxa and the differences in species assemblage.

Consequently, whilst the Proposal coincides with the mapped area of the Ironcap Hills PEC, the Proposal does not coincide with any of the vegetation values which define the Ironcap Hills PEC (i.e. a PEC mapping anomaly, rather than the PEC values being affected). Accordingly, the environmental effect of the Proposal to the Ironcap Hills PEC is therefore not considered to be environmentally significant.

Whilst noting the above, Table 5-3 identified the spatial area of the Proposal which coincides with the mapped area of the Ironcap Hills PEC.

PRIORITY ECOLOGICAL COMMUNITY	REGIONAL EXTENT (Mapped Area, ha)	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT)	REVISED PROPOSAL (INDICATIVE SITE LAYOUT)
Ironcap Hills PEC (DBCA-P3)	> 15,000 ha	1,468 ha	385 ha	440 ha

Table 5-3 Priority Ecological Community within the Development Envelope.

Note: Calculation values for the Ironcap Hills PEC within the Development Envelope, Approved Proposal and the Revised Proposal exclude the areas of cleared / disturbed lands as identified in Figure 2-5.

Vegetation Units

The majority of the Proposal is situated on sandy, sandy clay or clay loam flats and gentle slopes supporting *Eucalyptus* mallee woodlands over *Melaleuca* shrublands.

A total of 33 vegetation units have been defined by the biological surveys within the Survey Area, with the Indicative Site Layout coinciding with 21 vegetation units. Table 5-4 identifies vegetation units within the Development Envelope, and the area of each vegetation unit coinciding with the Indicative Site Layout for the Approved Proposal and the Revised Proposal[1].

The Development Envelope includes large cleared / disturbed areas from previous works associated with the abandoned Mt Holland Mine Site. The majority of these areas are completely cleared (devoid of vegetation), however, parts of these areas may still contain small residual patches/individuals in degraded condition; which whilst still comprising some native flora taxa have been deemed as functionally cleared.

In the context of the vegetation units recorded within the Survey Area, the Proposal will generally clear < 10 % of the locally mapped extent, and noting the vegetation units are expected to extend beyond the mapped Survey Area.

None of the vegetation units within the Development Envelope have been formally classified as unique or restricted. As noted in Covalent Lithium (2019), the biological surveys identified vegetation units H1 and W17 as potentially restricted based upon the current survey information, however, the Indicative Site Layout for the Proposal does not coincide with either of these vegetation units.

[1] Values may differ from Covalent Lithium (2019) due to more recent biological survey data.

Table 5-4 Vegetation Units within the Development Envelope

VEGETATION UNIT CODE & DESCRIPTION	FIELD SURVEY RECORDS (Area ha)			
	SURVEY AREA	DEVELOPMENT ENVELOPE	ORIGINAL PROPOSAL (INDICATIVE SITE LAYOUT) (% of Survey Area) [+0–10m, +10–50 m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Survey Area) [+0–10m, +10–50m]
WOODLANDS				
W4: *Eucalyptus flocktoniae* subsp. *Flocktoniae*, *Eucalyptus eremophila* low open mallee woodland over *Melaleuca depauperata*, *Callitris canescens*, *Melaleuca phoidophylla* mid-tall sparse shrubland over *Acacia tetraptera*, *Grevillea acuaria* low isolated heath shrubs on orange brown sandy clay soils with ironstone or quartz pebbles on flats and slopes.	361	24	1 (<1%) [2, 11]	1 (<1%) [2, 11]
W5: *Eucalyptus rigidula*, *Eucalyptus burracoppinensis* low open mallee woodland over *Micromyrtus erichsenii*, *Persoonia helix, Hakea erecta* mid sparse heathland over *Hibbertia rostellata*, *Hibbertia stowardii* low isolated shrubs on gravelly orange brown clayey sand soils on flats and slopes.	156	27	2 (1%) [1, 3]	3 (2%) [1, 4]
W6: *Eucalyptus burracoppinensis, Allocasuarina acutivalvis*, *Allocasuarina spinosissima* tall open mallee woodland over *Hakea erecta*, *Petrophile stricta*, *Banksia laevigata* subsp. *Fuscolutea* mid sparse heathland over *Drummondita hassellii*, *Hibbertia exasperata*, *Psammomoya choretroides* low sparse shrubland on yellow brown sandy soils on flats.	220	13	4 (2%) [5, 24]	4 (2%) [5, 24]
W7: Burnt *Eucalyptus* sp. (*E. cylindriflora, E. flocktoniae* subsp. *flocktoniae, E. prolixa, E. salmonophloia, E. eremophila, E. capillosa* subsp. *polyclada*) low open woodland over *Melaleuca hamata*, *Melaleuca eleuterostachya* mid sparse shrubland over *Daviesia argillacea*, *Acacia hemiteles*, *Acacia deficiens* low sparse heathland on orange brown sandy clay soils on flats.	87	0	0 (0%) [0, 0]	0 (0%) [0, 0]
W8: *Eucalyptus prolixa*, *Eucalyptus salmonophloia*, *Eucalyptus urna* mid mallee woodland over *Santalum acuminatum*, *Daviesia argillacea*, *Melaleuca eleuterostachya* mid sparse heathland over *Acacia merrallii*, *Daviesia argillacea*, *Microcybe multiflora* subsp. *Multiflora* low sparse shrubland on red brown sandy clay flats.	259	6	< 1 (<1%) [<1, <1]	< 1 (<1%) [<1, <1]
W9: *Eucalyptus urna*, *Eucalyptus ravida*, *Eucalyptus prolixa* low mallee woodland over *Melaleuca pauperiflora*, *Dodonaea stenozyga*, *Daviesia argillacea* mid sparse shrubland over *Acacia merrallii*, *Grevillea acuaria*, *Microcybe multiflora* subsp. *Multiflora* low sparse shrubland.	572	285	41 (7%) [13, 59]	51 (9%) [13, 57]
W10: *Eucalyptus* sp. (*E. urna, E. cylindrocarpa, E, rigidula, E gracilis*) low mallee woodland over *Melaleuca pauperiflora*, *Daviesia scoparia* mid sparse shrubland over *Acacia merrallii*, *Grevillea huegelii*, *Olearia muelleri* low sparse shrubland on red clay soils on flats.	55	26	0 (0%) [4, 16]	0 (0%) [4, 16]

VEGETATION UNIT CODE & DESCRIPTION	FIELD SURVEY RECORDS (Area ha)			
	SURVEY AREA	DEVELOPMENT ENVELOPE	ORIGINAL PROPOSAL (INDICATIVE SITE LAYOUT) (% of Survey Area) [+0–10m, +10–50 m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Survey Area) [+0–10m, +10–50m]
W11: *Eucalyptus eremophila*, *Eucalyptus rigidula*, *Eucalyptus flocktoniae* subsp. *Flocktoniae* low mallee woodland over *Melaleuca lateriflora*, *Melaleuca eleuterostachya*, *Melaleuca acuminata* subsp. *Acuminata* mid sparse shrubland over *Grevillea acuaria*, *Acacia hystrix* subsp. *Hystrix*, *Microcybe ambigua* low sparse shrubland on orange brown clay soils on flats.	692	270	113 (16%) [6, 21]	114 (16%) [6, 21]
W12: *Eucalyptus cylindriflora*, *Eucalyptus cylindrocarpa*, *Eucalyptus prolixa* low open mallee woodland over *Melaleuca eleuterostachya*, *Melaleuca lateriflora*, *Daviesia argillacea* mid sparse shrubland over *Grevillea acuaria*, *Acacia merrallii*, *Acacia camptoclada* low sparse shrubland on yellow brown to red brown sandy clay soils on flats.	258	88	11 (4%) [3, 14]	12 (5%) [3, 14]
W13: *Callitris canescens*, *Eucalyptus rigidula* low open mallee woodland over *Micromyrtus erichsenii*, *Persoonia helix*, *Allocasuarina spinosissima* mid tall sparse shrubland over *Beyeria sulcata*, *Drummondita hassellii* low sparse shrubland on yellow brown to orange brown clayey sands on flats and slopes.	426	280	62 (15%) [10, 39]	73 (17%) [10, 39]
W14: Burnt *Eucalyptus salmonophloia*, *Eucalyptus eremophila* mid open woodland over *Santalum acuminatum, Senna artemisioides* subsp. *Filifolia* mid sparse shrubland over *Acacia hemiteles*, *Olearia muelleri* low sparse shrubland on orange brown clay spoils on flats.	61	19	0 (0%) [3, 16]	0 (0%) [3, 16]
W15: Burnt *Allocasuarina acutivalvis*, *Eucalyptus* sp. (*E. cylindriflora, E. eremophila, E, gracilis, E. rigidula, E. burracoppinensis*) low open mallee woodland over *Hakea minyma*, *Melaleuca cordata*, *Melaleuca hamata* mid sparse shrubland over *Dampiera sacculata, Pimelea sulfurea*, *Hybanthus floribundus* subsp. *Floribundus* low sparse forbland.	184	7	0 (0%) [1, 7]	0 (0%) [1, 7]
W17: Burnt *Eucalyptus* sp. (*E. cylindriflora, E. tenuis, E. burracoppinensis, E. eremophila*) low open mallee woodland over *Persoonia helix, Gastrolobium spinosum*, *Acacia assimilis* mid sparse shrubland over *Dampiera tenuicaulis* subsp. *Curvula*, *Glischrocaryon aureum*, *Dampiera eriocephala* low sparse forbland on orange red gravelly sandy loam soils on flats.	3	3	0 (0%) [0, < 1]	0 (0%) [0, < 1]
W18: *Eucalyptus rigidula*. *Eucalyptus platycorys*, *Callitris canescens* low open mallee woodland over *Melaleuca hamata*, *Allocasuarina spinosissima*, *Hakea erecta* mid sparse shrubland over *Hibbertia gracilipes*, *Phebalium obovatum*, *Cyathostemon heterantherus* low sparse shrubland on yellow brown sandy soils on flats.	83	4	< 1 (<1%) [2, 6]	< 1 (<1%) [2, 6]
W19: *Eucalyptus prolixa* low open mallee woodland over *Daviesia argillacea*, *Santalum acuminatum* mid sparse shrubland over *Acacia merrallii*, *Microcybe ambigua*, *Grevillea acuaria* low sparse shrubland on orange-red brown sandy clay soils on flats.	69	54	1 (1%) [1, 4]	32 (46%) [2, 5]

VEGETATION UNIT CODE & DESCRIPTION	FIELD SURVEY RECORDS (Area ha)			
	SURVEY AREA	DEVELOPMENT ENVELOPE	ORIGINAL PROPOSAL (INDICATIVE SITE LAYOUT) (% of Survey Area) [+0–10m, +10–50 m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Survey Area) [+0–10m, +10–50m]
W20: Burnt *Eucalyptus urna*, *Eucalyptus salmonophloia*, *Eucalyptus tenuis* mid open mallee woodland over *Melaleuca pauperiflora* mid sparse shrubland over *Acacia deficiens*, *Daviesia argillacea*, *Daviesia grahamii* low sparse shrubland on red brown clay soils on flats.	48	17	6 (12%) [1, 2]	6 (12%) [1, 2]
W21: *Eucalyptus eremophila*, *Eucalyptus flocktoniae* subsp. *Flocktoniae* low open mallee woodland over *Melaleuca hamata* over *Acacia acanthoclada* subsp. *Acanthoclada*, *Dampiera sacculata*, *Westringia cephalantha* subsp. *Cephalantha* low sparse shrubland on grey brown clayey sand soils on flats and slopes.	21	7	0 (0%) [1, 3]	0 (0%) [1, 3]
W22: *Eucalyptus eremophila* low open mallee woodland over *Melaleuca hamata*, *Melaleuca eleuterostachya*, *Melaleuca laxiflora* mid sparse shrubland over *Hibbertia exasperata*, *Cyathostemon heterantherus*, *Acacia sphacelata* subsp. *Sphacelata* low sparse shrubland on slightly gravelly yellow-orange brown clay soils on flats and slopes.	116	11	0 (0%) [0, < 1]	< 1 (<1%) [<1, 1]
MALLEE WOODLAND				
MW6: *Eucalyptus burracoppinensis, Eucalyptus eremophila mid open mallee woodland over Thryptomene kochii, Melaleuca laxiflora, Acacia acuminata mid open shrubland over Drummondita hasseli, Microcybe ambigua low sparse heathland on grey–brown to orange–brown clay to clay sand, often with scattered ironstone pebbles on flats.*	112	75	46 (41%) [1, 4]	46 (41%) [1, 4]
MW7: *Eucalyptus capillosa* subsp. *Polyclada* mid open mallee woodland over *Allocasuarina spinosissima*, *Callitris canescens*, *Hakea minyma* mid tall sparse shrubland over *Phebalium megaphyllum* low sparse shrubland on orange brown clay soils on flats and slopes.	63	63	26 (41%) [3, 9]	26 (41%) [3, 9]
MW8: *Eucalyptus eremophila* low open mallee woodland over *Melaleuca hamata*, *Leptospermum erubescens*, *Melaleuca lateriflora* mid sparse shrubland over *Thomasia* sp. Salmon Gums (C.A. Gardner s.n. PERTH 02708639), *Darwinia* sp. Karonie (K. Newbey 8503) low sparse shrubland on orange brown clay in minor drainage channel.	2	< 1	0 (0%) [0, <1]	0 (0%) [0, <1]
SHRUBLAND				
S1: *Allocasuarina acutivalvis, Allocasuarina spinosissima* tall closed shrubland over *Hakea subsulcata, Melaleuca cordata, Micromyrtus erichsenii* mid sparse heathland on lateritic orange-red clay soils on flats and lower slopes.	63	27	2 (3%) [1, 5]	2 (3%) [1, 5]

VEGETATION UNIT CODE & DESCRIPTION	FIELD SURVEY RECORDS (Area ha)			
	SURVEY AREA	DEVELOPMENT ENVELOPE	ORIGINAL PROPOSAL (INDICATIVE SITE LAYOUT) (% of Survey Area) [+0–10m, +10–50 m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Survey Area) [+0–10m, +10–50m]
S2: *Allocasuarina acutivalvis, Allocasuarina spinosissima, Eucalyptus burracoppinensis* tall open shrubland over *Thryptomene kochii, Persoonia helix, Micromyrtus erichsenii* mid sparse heathland over *Cyathostemon heterantherus, Hibbertia exasperata, Drummondita hassellii* low sparse shrubland on orange brown clayey sand soils on flats.	660	112	68 (10%) [3, 10]	68 (10%) [3, 10]
S3: *Allocasuarina acutivalvis*, *Eucalyptus burracoppinensis* tall sparse shrubland over *Banksia purdieana*, *Hakea subsulcata*, *Melaleuca cordata* mid sparse shrubland over *Micromyrtus erichsenii*, *Persoonia helix* low isolated shrubs on gravelly yellow brown to orange brown clay to clayey sand soils on flats.	127	62	3 (2%) [1, 5]	3 (2%) [1,5]
S4: *Eucalyptus* sp. Southern Wheatbelt, *Allocasuarina spinosissima*, *A. acutivalvis* low open mallee woodland over *Hakea invaginata*, *Melaleuca cordata*, *Micromyrtus erichsenii* mid sparse shrubland over *Acacia* sp. Forrestania, *Hibbertia* spp. Low sparse shrubland on light orange gravelly clay on upper-mid slopes	14	< 1	0 (0%) [0, 0]	0 (0%) [0, 0]
HEATHLAND				
H1: *Melaleuca cliffortioides*, *Allocasuarina campestris*, *Dodonaea adenophora* mid open heathland over *Grevillea lissopleura* (P1), *Trymalium myrtillus* subsp. *myrtillus* low sparse shrubland on rocky red-brown sandy clay soils on slopes.	2.0	< 1	0 (0%) [0, 0]	0 (0%) [0, 0]
CLEARED / DEGRADED				
CL: Cleared land, includes isolated small patches of degraded vegetation.	686	503	370	383

5.7 Potential Indirect Effects of the Proposal

The Proposal (Approved Proposal and Revised Proposal combined) may have a potential to result in an indirect effect to the flora and vegetation values located immediately adjacent to the area of the Proposal (beyond the area of direct vegetation clearing effects).

Generally, the potential for an indirect effect to flora and vegetation values from the Proposal may include:

- Dust – air emissions of dust during earthworks (which may result in reduced plant photosynthesis and increased plant transpiration)
- Water – use of hypersaline groundwater in dust suppression which could potentially transit into areas of native vegetation (if site drainage is not designed/controlled
- Spills – spills of dangerous goods, chemicals or other products which could potentially transit into areas of native vegetation (if not properly controlled)
- Drainage – changes to surface water drainage which can affect water availability to native vegetation
- Introduced Flora – introduction and/or spread of introduced flora taxa (weeds) during works which may reduce habitat quality or compete for resources (e.g. space, nutrients)
- Fire – potential for fire caused by works (machinery and vehicles), which may alter the natural fire regime (fire frequency and intensity)

As outlined within Covalent Lithium (2019), indirect effects to flora taxa and vegetation units may conservatively occur to a distance of up to 50 m from the area of the Proposal[1].

Whilst noting the conservative 50 m value spatial value identified above, the following are relevant to a risk-based consideration of the potential for indirect environmental effects:

- Spatial Influence –

  For the majority of the potential indirect effects listed above, it is likely that indirect effects will be contained to within the first 5 m to 10 m from the edge of the Proposal. For example, where site drainage contains hypersaline groundwater or spills the potential risk will be limited to any vegetation roots that intersect (or go beneath) such drainage.

  The exceptions to the above is dust and fire, which if uncontrolled, and subject to environmental conditions (e.g. wind), may extend hundreds of metres.

- Likelihood of Occurrence –

  Each potential indirect effect differs, for example, the generation of airborne dust and use of saline water are likely to be constant for any mining operation. By comparison, spills and fire are likely to be infrequent (or not occur at all).

- Proximity to Infrastructure Type –

  Different infrastructure types can be expected to have differing risk profiles for indirect effects. For example, air emissions of dust are likely to be higher for areas where land disturbance is more frequent (e.g. mine pits), however lower where land disturbance is less frequent (tailings storage facilities). Similarly, not all infrastructure types present all risk types, for example mine pits and waste rock landforms (both as

[1] The 50 m value used in Covalent Lithium (2019) for potential indirect effects was based on the DWER (2014) document *Clearing Regulation Fact Sheet 24: Environmentally Sensitive Areas* in which a 50 m separation distance is identified for the protection of Threatened flora taxa.

large open areas) are less likely to present a risk of fire compared to other infrastructure types.

- Consequence –

  Indirect effects may be temporary (i.e. decline in vegetation health) or permanent (loss by mortality). For example, dust air emissions is likely to contribute towards a decline in the health of adjacent vegetation, however, may not result in vegetation loss (e.g. refer to research of Matsuki *et al.* 2016, Turner 2013 and Butler 2009 for variable effects of dust air emissions).

Table 5-1 identifies the number of individuals of each flora taxon occurring within 0 m to 10 m, and within 10 m to 50 m, of the Indicative Site Layout for the Proposal. Table 5-4 identifies the area of each vegetation unit occurring within 0 m to 10 m, and within 10 m to 50 m, of the Indicative Site Layout for the Proposal. The intent of the information presented in Table 5-1 and Table 5-4 is to identify the type and the quantum of the flora taxa and vegetation units within proximity to the Proposal which may have a potential to be indirectly affected by the Proposal. Subject to appropriate mitigation, management and monitoring measures (as outlined within Section 11 *Environmental Management*), the potential for indirect environmental effects are anticipated to be limited (i.e. within 0 m to 10 m) rather than the potential maximum values indicated (i.e. 10 m to 50 m).

Of particular note for consideration of potential indirect environmental effects is the 'Threatened' flora taxon *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V). Whilst noting the direct environmental effects of the Proposal to *Banksia sphaerocarpa* var. *dolichostyla* have been minimised to nil individuals (0 individuals, with direct environmental effects currently approved for 2 individuals), a total of 18 individuals occur within 0 m to 10 m of the Indicative Site Layout for the Proposal, and 40 individuals occur within 10 m to 50 m of the indicative layout for the Proposal. The 18 individuals of *Banksia sphaerocarpa* var. *dolichostyla* occurring within 0 m to 10 m of the Indicative Site Layout, representing approximately < 0.1 % of the total population (> 18,000 individuals), may have a potential to be subject to indirect effects.

The quantum of any indirect environmental effects to flora and vegetation values should be monitored during mining operations to verify the pre-mining predictions. The results of the environmental monitoring can also be used to quantify any significant environmental effects (i.e. loss / mortality) which may require an environmental offset (where the combination of direct effects and indirect effects are significant).

5.8 Cumulative Environmental Effects

As outlined by EPA (2021a), the assessment of the significance of the environmental effects of a proposal should give consideration to the cumulative effects with other existing or foreseeable activities, developments and land uses.

The Proposal will result in in up to 442 ha of clearing of native vegetation, in addition to the existing 503 ha of existing cleared/disturbed land area within the Development Envelope (2,347 ha) that was associated with the abandoned Mt Holland Mine Site. The effect of the Proposal will be an increase the area of the current native vegetation clearing within the Development Envelope from 503 ha to 945 ha.

Whilst noting the increase in vegetation clearing at the local scale (within the Development Envelope), the cumulative effect of vegetation clearing at both a regional and subregional scale will remain < 2 % of total vegetation association cover; such that the Proposal would not be considered to result in a significant cumulative effect to native vegetation at a regional scale.

The cumulative effect to individual flora taxa and vegetation units is unable to be considered with any certainty as a result of mining for the Mt Holland Mine Site occurring in a period (1988 to 2001) when activities were not necessarily subject to pre-disturbance environmental surveys upon which cumulative effects could now be assessed. Whilst noting this, it is generally accepted that many of the flora and vegetation values recorded within the area of the Proposal are likely to have previously extended across local area; such that the effect of the Proposal can be expected to result in a net increase in disturbance to these recorded flora and vegetation values (in addition to the previous disturbance associated with the abandoned Mt Holland Mine Site).

The cumulative effect of future (foreseeable) activities is unknown, however, it is noted there are currently no other proposed developments adjacent to the Proposal which may need to be considered for potential additional cumulative effects to the local flora and vegetation values.

5.9 Environmental Management

5.9.1 Flora and Vegetation Environmental Management Plan

Implementation of the Approved Proposal is managed in accordance with Covalent Lithium's Flora and Vegetation Environmental Management Plan (EMP) (Covalent Lithium 2021g). The Flora and Vegetation EMP was prepared in accordance with Condition 6 of the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA), and generally consistent with the EPA (2021e) document *How to Prepare Environmental Protection Act 1986 Part IV Environmental Management Plans*. The Flora and Vegetation EMP has been subject to review and approval by EPA (2021f).

As outlined within Section 11 *Environmental Management* (below), it is proposed that the direct and potential indirect environmental effects of the Revised Proposal to flora and vegetation values can be appropriately managed in accordance with the following Environmental Management Plans (EMP):

- Flora and Vegetation EMP (Revised)
  (Covalent Lithium 2022a)

The revised Flora and Vegetation EMP incorporates minor revisions to include the additional spatial area of the Revised Proposal, as well as include the more recent biological survey reports and data completed since the previous revision of the Flora and Vegetation EMP. The revised Flora and Vegetation EMP does not propose any changes to the previously approved management and monitoring actions (nil change).

The Flora and Vegetation EMP outlines the operational management and monitoring to minimise and control the effects to flora and vegetation values, including:

- Environmental inductions of site personnel
- Pre-clearance environmental surveys
- Environmental monitoring of –
  - Plant condition/health
  - Dust air emissions
  - Introduced flora (weeds)
  - Census of conservation significant flora
- Adaptive management approach through 'trigger' and 'threshold' criteria
- Reporting
- Ongoing stakeholder consultation

The Flora and Vegetation EMP outlines the operational procedures to ensure the environmental effects of the Proposal are controlled to within the predicted levels.

5.9.2 Environmental Management (General)

In order to manage the general environmental effects of the Proposal, Covalent Lithium has prepared the following EMP for to manage the general environmental effects of the Proposal:

- Construction Environmental Management Plan
  (Covalent Lithium 2020b)

Consistent with the management actions initially outlined within Covalent Lithium (2019), the EMP incorporates the following general environmental management actions:

- Protection of Flora Taxa –
  - Conservation Significant Flora Exclusion Areas (buffer) established to define areas containing *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides* which are not to be cleared/disturbed.
  - Exclusion of access to native vegetation areas containing *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides* including on-site warning signage (environmental monitoring purposes remain authorised)
- Worker Awareness Training –
  - All workers (construction and operation) to attend awareness training, including awareness of conservation significant flora, introduced flora, and fire management
- Land Clearing –
  - Targeted pre–clearance surveys to accurately delineate the number, location and spatial boundaries of conservation significant flora taxa.
  - Annual field survey and recording of all cleared areas
- Dust Management –
  - Minimise the extent of open exposed areas as far as practicable to minimise the area susceptible to dust generation
  - Use dust covers on machinery and use water suppressants on exposed areas,
  - Ensure water sprays and emissions control equipment is properly maintained
  - Minimise saline groundwater overspray through use of dribble bars in roadway dust suppression, and construction of earthen bunds (and/or drains) on road sides to control surface water drainage
  - Minimise vehicle traffic on unsealed roads and other exposed areas where practicable
  - Limit traffic speeds on unsealed roads to nominally ≤ 60 km/h to minimise dust generation
- Hygiene Management –
  - Vehicle hygiene procedure to ensure vehicles entering the mining area are free of introduced flora (plant material and seeds) and soil materials.
  - Topsoil/subsoil and vegetation will be stockpiled separately from other excavated materials to minimise the risk of potential contamination
  - Periodic surveys for introduced flora within the Development Envelope, with any identified infestations to be eradicated (prior to establishment and setting seed).
- Spill Prevention –
  - Spill kits will be located at strategic locations and employees trained in their use
  - Hydrocarbon wastes will be segregated from other wastes and collected for offsite disposal by a licensed contractor
  - All hydrocarbon and chemical storages will be designed and constructed in accordance with relevant Australian Standards

- Pipelines transferring saline water or tailings will be located within bunds, fitted with leak detection systems and routinely inspected
- Water storages storing saline groundwater (or other water not of potable quality) will be lined to prevent / minimise seepage, and maintained with adequate 'freeboard' to cater for inflows associated with 1:100 year 72 hour rainfall event
- Landfill and wastewater treatment plants will be operated in accordance with a Licence granted by DWER under the *Environmental Protection Act 1986* (WA)

- Fire Management –
  - Implement standard fire management procedures including maintenance of fire breaks, a 'Hot Work' permit system, training of personnel in the use of fire suppression equipment, and an Emergency Response Plan
  - Firefighting equipment to be located throughout site locations and in vehicles
  - Vehicles will be restricted to within access tracks and cleared areas
  - Coordination with DBCA and Department of Fire and Emergency Services (DFES) to undertake prescribed burns (if appropriate).

The EMP has been prepared consistent with standard operational controls for mining operations in Western Australia. Implementation of the EMP can be expected to ensure the environmental effects of the Proposal are appropriately managed and controlled to within the predicted levels.

5.9.3 Environmental Offsets

Approval of the Proposal under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) identified the following environmental offsets to be required:

- Flora Offset Strategy
  (Covalent Lithium 2020a, Condition 8 of Statement 1118 approval)
- Ironcaps Banksia Conservation Plan
  (Covalent Lithium 2021e, Condition 5 of EPBC Decision 2017/7950)

The purpose of the Flora Offset Strategy is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides* to be removed by the Proposal through identification of land areas for conservation purposes (including financial contribution, on-site management and monitoring) which contain these flora values. A Flora Offset Strategy (Covalent Lithium 2020a) has been prepared by Covalent Lithium and submitted to EPA in accordance with Condition 8 of the Statement 1118 approval.

The purpose of the Ironcaps Banksia Conservation Plan is to is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* to be removed by the Proposal through establishing (in rehabilitation works) an equivalent number of individuals within the Development Envelope. An Ironcaps Banksia Conservation Plan (Covalent Lithium 2021e) has been prepared by Covalent Lithium, and subsequently approved by DAWE (2021d) in accordance with Condition 5 of the EPBC Decision 2017/7950 approval.

Implementation of the Flora Offset Strategy and the Ironcaps Banksia Conservation Plan can be expected to offset the environmental effects of the Proposal to *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides*.

5.9.4 Rehabilitation and Mine Closure

The areas of the Proposal will be subject to progressive and post-mining rehabilitation of disturbed areas to restore flora and vegetation values. The rehabilitation and mine closure outcomes for the Proposal are outlined within:

- Mine Closure Plan
  (Covalent Lithium 2021d, in accordance with the State *Mining Act 1978* (WA))

Covalent Lithium has prepared the Mine Closure Plan consistent with the DMIRS (2020) document *Statutory Guidelines for Mine Closure Plans*. The Mine Closure Plan has been approved by DMIRS (2021a) in accordance with the *Mining Act 1978* (WA).

The Mine Closure Plan outlines the key information requirements for mine closure, including:

- Proposal summary
- Closure obligations and commitments
- Stakeholder engagement
- Baseline data and analysis
- Post-mining land use
- Risk assessment
- Outcomes and completion criteria
- Closure implementation
- Monitoring and maintenance
- Financial provisions

The Revised Proposal will not alter the mine closure objectives, risks or outcomes; however, it is acknowledged the Mine Closure Plan will require an administrative amendment to reflect the additional spatial area (mapping of closure domains), the rehabilitation monitoring locations and the quantum of the financial provisioning associated with the components of the Revised Proposal.

The Proposal (Approved Proposal and Revised Proposal combined) will be implemented within a 825 ha spatial area (Indicative Site Layout) comprising 442 ha of native vegetation and 383 ha of existing cleared/disturbed land. Covalent Lithium have committed to rehabilitating all land areas utilised by the Proposal (with exception of the Mine Pits); the effect being a that a proportion of the currently cleared / disturbed lands from the previously abandoned Mt Holland Mine Site will be rehabilitated as part of this Proposal. This approach is expected to result in a total of approximately 645 ha of land being rehabilitated by the Proposal; being greater than the 442 ha of new vegetation clearing and representing a 'net benefit' of the Proposal

Generally, the rehabilitation works relevant to the restoration of flora and vegetation values will include:

- Re-contouring of land surfaces and on-contour ripping of compacted ground
- Respreading of rehabilitation materials (topsoil/subsoil and vegetation) that were removed and stockpiled during mine development.
- Monitoring to confirm successful rehabilitation works, with comparison against agreed 'completion criteria' (e.g. foliar cover, diversity)

Implementation of the management actions within the Mine Closure Plan are expected to restore the flora and vegetation values affected by the implementation of the Proposal.

5.9.5 Other Government Approvals

In addition to the plans and strategies described above, as identified within Section 1.7 *Other Government Assessment Processes* (above), Covalent Lithium will be required to prepare and submit an application to DBCA for a Licence under the *Biodiversity Conservation Act 2016* (WA) prior to the taking of individuals of the 'Threatened' flora taxon *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V) (associated with the Approved Proposal). Covalent Lithium will be required to comply with any additional environmental conditions imposed by DBCA in relation to the removal of *Banksia sphaerocarpa* var. *dolichostyla* individuals.

5.10 Conclusion

The Approved Proposal was granted environmental approval in November 2019 through the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019). The Approved Proposal was also granted environmental approval in February 2020 through the EPBC Decision 2017/7950 approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020). These environmental approvals followed an environmental assessment of the Proposal as outlined within an Environmental Review Document (Covalent Lithium 2019) and an assessment report prepared by the EPA (2019).

Covalent Lithium propose to amend the Approved Proposal to incorporate a number of operational and process changes, submitted for environmental assessment as a Revised Proposal. The key change associated with the Revised Proposal will be an increase the area of native vegetation clearing required from 386 ha to 442 ha (15 % increase), within the previously approved Development Envelope. Other changes associated with the Revised Proposal are not anticipated to result in an effect to flora and vegetation values.

Biological surveys have been completed to identify the flora and vegetation values present within the area of the Proposal (Approved Proposal and Revised Proposal combined). The biological surveys have been completed by appropriately qualified personnel and in accordance with the relevant guidance documentation. The biological surveys identify the area of the Proposal and surrounds contain a variety of native flora taxa and vegetation units, including flora taxa of listed conservation significance protected under the State *Biodiversity Conservation Act 2016* (WA) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

In accordance with the 'Mitigation Hierarchy', planning for the Proposal has sought to avoid / reduce the potential environmental effects to the recorded flora and vegetation values as far as practicable. Most notably, the Indicative Site Layout for the Proposal comprises > 45 % previously cleared / disturbed land associated with the abandoned Mt Holland Mine Site (383 ha of total 825 ha Indicative Site Layout); thereby substantially reducing the area of native vegetation clearing required for the Proposal.

The environmental effects of the Proposal – both direct effects and potential indirect effects – have been assessed, with consideration given to both the local and regional extent of such values, the critical habitats and potential threats, and the nature of the works proposed by the Proposal. The biological surveys have identified the majority of the flora and vegetation values recorded have broad local and regional distributions (i.e. not restricted). Whilst noting the Proposal coincides with a number of flora and vegetation values of listed conservation significance (which cannot be avoided), the assessment has identified the environmental effect to those values is generally not expected to affect be significant (i.e. not significantly affect the representation, diversity, viability or ecological function of such values).

The exception to the above is the effect to the flora taxa *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V) and *Microcorys elatoides* (DBCA-P1); for which EPA (2019) has previously determined to be environmentally significant for the Approved Proposal. Environmental conditions were imposed in the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the EPBC Decision 2017/7950 approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) for the management, mitigation and

offset of the effect of the Approved Proposal to these flora values. The Revised Proposal is not expected to result in any increased effect to these taxa.

In order to manage the environmental effects to flora and vegetation values, Covalent Lithium considers the Proposal (Approved Proposal and Revised Proposal combined) can be implemented in accordance with:

- Flora and Vegetation EMP (Revised)
  (Covalent Lithium 2022a, consistent with Condition 6 of Statement 1118)
- Flora Offset Strategy
  (Covalent Lithium 2020a, Condition 8 of Statement 1118 approval)
- Ironcaps Banksia Conservation Plan
  (Covalent Lithium 2021e, Condition 5 of EPBC Decision 2017/7950)
- Construction Environmental Management Plan
  (Covalent Lithium 2020b)
- Mine Closure Plan
  (Covalent Lithium 2021d, in accordance with the State *Mining Act 1978* (WA))

The suite of EMPs outlined above is considered an appropriate framework through which to manage, control and monitor the environmental effects of the Proposal to the identified flora and vegetation values. Additional environmental plans or procedures are not considered to be necessary.

Based on the assessment of the effect of the Proposal to the recorded flora and vegetation values, subject to the implementation of the identified management actions (including environmental offsets), it is considered the EPA objective for the key environmental factor of 'Flora and Vegetation' of can be met.

6 Terrestrial Fauna

6.1 EPA Objective

The EPA's objective for the environmental factor of 'Terrestrial Fauna' is:

> *"To protect terrestrial fauna so that biological diversity and ecological integrity are maintained"* (EPA 2021d)

6.2 Legislation, Policy and Guidance

Legislation, guidelines and standards relevant to the key environmental factor of 'Terrestrial Fauna' for the Proposal include:

- *Environmental Protection Act 1986* (WA)
- *Biodiversity Conservation Act 2016* (WA)
- *Environment Protection and Biodiversity Conservation Act 1999* (C'th)
- *Statement of Environmental Principles, Factors, Objectives and Aims of EIA* (EPA 2021d)
- *Environmental Factor Guideline: Terrestrial Fauna* (EPA 2016c)
- *Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA 2020a)
- *Wildlife Conservation (Specially Protected Fauna) Notice 2018* (WA Minister for Environment (2018b)
- *EPBC Act List of Threatened Fauna* (DAWE 2021b)
- *EPBC Act Migratory Species List* (DAWE 2021e)
- *Threatened and Priority Fauna List* (DBCA 2018c)
- *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (DAWE 2013).
- *WA Environmental Offsets Policy* (Government of WA 2011)
- *WA Environmental Offsets Guidelines* (Government of WA 2014)
- *Environment Protection Bulletin No 1 Environmental Offsets* (EPA 2014)

6.3 Legislative Framework for the Protection of Fauna

Native fauna in Western Australia is protected under the State *Biodiversity Conservation Act 2016* (WA), with native fauna vested with (i.e. the property of) the State.

Specific fauna taxa may also be afforded special protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) and/or the State *Biodiversity Conservation Act 2016* (WA) as a listed 'Threatened' species of fauna.

A description[1] of the classifications used in fauna protection is provided below:

'Threatened' Species –

Threatened species of fauna may be declared by the Commonwealth Minister for Environment for special protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) as a 'Matter of 'National Environmental Significance' for the taxon being extinct, facing a risk of extinction, or in need of a conservation program to prevent the species from a risk of extinction. Threatened species are allocated a category of 'extinct', 'extinct in the wild', 'critically endangered', 'endangered', 'vulnerable' or 'conservation dependent', which is generally in accordance with the criteria of the International Union for Conservation of Nature (IUCN 2012). The listed Threatened species of fauna are outlined within DAWE (2021b).

Threatened species of fauna may also be declared by the State Minister for Environment for special protection under the State *Biodiversity Conservation Act 2016* (WA) for it facing a risk of extinction in the wild in the future. Threatened species are allocated a category of 'critically endangered', 'endangered', or 'vulnerable', which is generally in accordance with the criteria of the International Union for Conservation of Nature (IUCN 2012). The listed Threatened species of fauna are outlined within WA Minister for Environment (2018b).

'Specially Protected Species' –

Specially Protected Species may be declared by the State Minister for the Environment and protected under the *Biodiversity Conservation Act 2016* (WA) under the categories of 'species of special conservation interest', 'migratory species', 'cetaceans', 'species subject to international agreement' 'species otherwise in need of special protection'. The listed Specially Protected Species of fauna are outlined within WA Minister for Environment (2018b)[2].

'Migratory Species' –

Migratory Species may be declared by the Commonwealth Minister for Environment for protection under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th) as a 'Matter of National Environmental Significance' for being a migratory species listed under the *Convention on the Conservation of Migratory Species of Wild Animals 1979* (also commonly referred to as the Bonn Convention), *Japan – Australia Migratory Bird Agreement 1974*, *China – Australia Migratory Bird Agreement 1986* or the *Republic of Korea – Australia Migratory Bird Agreement 2007* (Government of Australia 1979; Government of Australia and Government of Japan 1974; (Government of Australia and Government of the People's Republic of China 1988; Government of Australia and Government of the Republic of Korea 2007). The listed Migratory Species of fauna are outlined by DAWE (2021e).

As outlined above under 'Specially Protected Species', Migratory Species may also be declared by the Western Australian Minister for Environment under the *Biodiversity Conservation Act 2016* (WA) due to it being a 'Migratory Species'.

[1] Descriptions are consolidated from review of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th), the State *Biodiversity Conservation Act 2016* (WA) and fauna literature published by DBCA and DAWE.

[2] As per WA Minister for Environment (2018b) under the former *Wildlife Conservation Act 1950* (WA) in accordance with Schedule 5 (Migratory birds protected under an international agreement), Schedule 6 (Fauna that is of special conservation need as conservation dependent fauna) and Schedule 7 (Other specially protected fauna).

'Priority' fauna' –

Priority fauna is a classification system developed by DBCA for fauna taxa which are known from one, a few or several locations, which may or may not be under threat, or may otherwise be rare. Four priority categories are used, with Priority 1 (P1) being of the highest conservation significance, or identification as a priority for surveying and determining the conservation significance based on the current knowledge of perceived threat. As priority fauna are identified and determined by DBCA (i.e. not under legislation), priority fauna are not subject to any specific legal protection. The list of DBCA-classified priority fauna taxa are outlined by DBCA (2018c).

6.4 Biological Surveys

The terrestrial fauna values of the area of the Proposal and surrounds have been subject to multiple biological surveys, as described within the following biological survey reports (in date order):

- Western Wildlife (2017) *Earl Grey Lithium Project: Level 2 Vertebrate Fauna Survey with Targeted Chuditch and Malleefowl Surveys, 2016 – 2017*. Report prepared by Wilcox J of Western Wildlife for Kidman Resources Ltd. December 2017.
- Bennelongia Environmental Consultants (2018) *Earl Grey Lithium Project Subterranean Fauna Desktop Assessment*. Report prepared by Mittra A of Bennelongia Environmental Consultants (Bennelongia Pty Ltd) for Kidman Resources Ltd. Final (Version 2). October 2018.
- Bennelongia Environmental Consultants (2019) *Earl Grey Lithium Project SRE and Subterranean Fauna Desktop Assessment*. Report prepared by Mittra A and Halse S (Dr) of Bennelongia Environmental Consultants (Bennelongia Pty Ltd) for Covalent Lithium Pty Ltd. Final (Version 2). January 2019.
- Ecoscape Australia Pty Ltd (2019) *Covalent Malleefowl Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. November 2019.
- Ecoscape Australia Pty Ltd (2020a) *2019 Mt Holland Chuditch Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. January 2020.
- Ecoscape Australia Pty Ltd (2020b) *2019 Mt Holland Malleefowl Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. January 2020.
- Ecoscape Australia Pty Ltd (2020c) *Pipeline Fauna Survey*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Revision 0. February 2020.
- Ecoscape Australia Pty Ltd (2020d) *Water Pipeline Fauna Survey*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. June 2020.
- Ecoscape Australia Pty Ltd (2020e) *Blue Vein and Powerline Access Roads Fauna Survey*. Report prepared by Osborn H of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. July 2020.
- Ecoscape Australia Pty Ltd (2020f) *2020 Mt Holland Chuditch Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. August 2020.
- Ecoscape Australia Pty Ltd (2021a) *2020 Malleefowl Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Revision 1. November 2021.

- Ecoscape Australia Pty Ltd (2021b) *Camponotus sp. nr. terebrans (Sugar Ant) Targeted Fauna Survey*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. July 2021.
- Ecoscape Australia Pty Ltd (2021c) *Camponotus sp. nr. terebrans (Sugar Ant) Targeted Fauna Survey*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. August 2021.

The biological surveys identified above were undertaken over multiple years and seasons by suitably qualified and experienced personnel in the survey and identification of fauna taxa and fauna habitats. The results of the biological surveys provide a sound basis on which to assess the potential environmental effects of the Proposal to terrestrial fauna values.

The results of the biological surveys identify the area of the Proposal and surrounds comprise > 120 native vertebrate fauna taxa. The native fauna taxa include 2 'Threatened' fauna taxa, being Malleefowl *Leipoa ocellata* (BC-V, EPBC-V) and Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V), as well as other conservation significant fauna taxa including the Peregrine Falcon *Falco peregrinus* (BC-SPS) and Western Brush Wallaby *Notamacropus irma* (DBCA-P4).

The results of the above biological surveys in relation to the Proposal are identified in Figures 6-1 to 6-2.

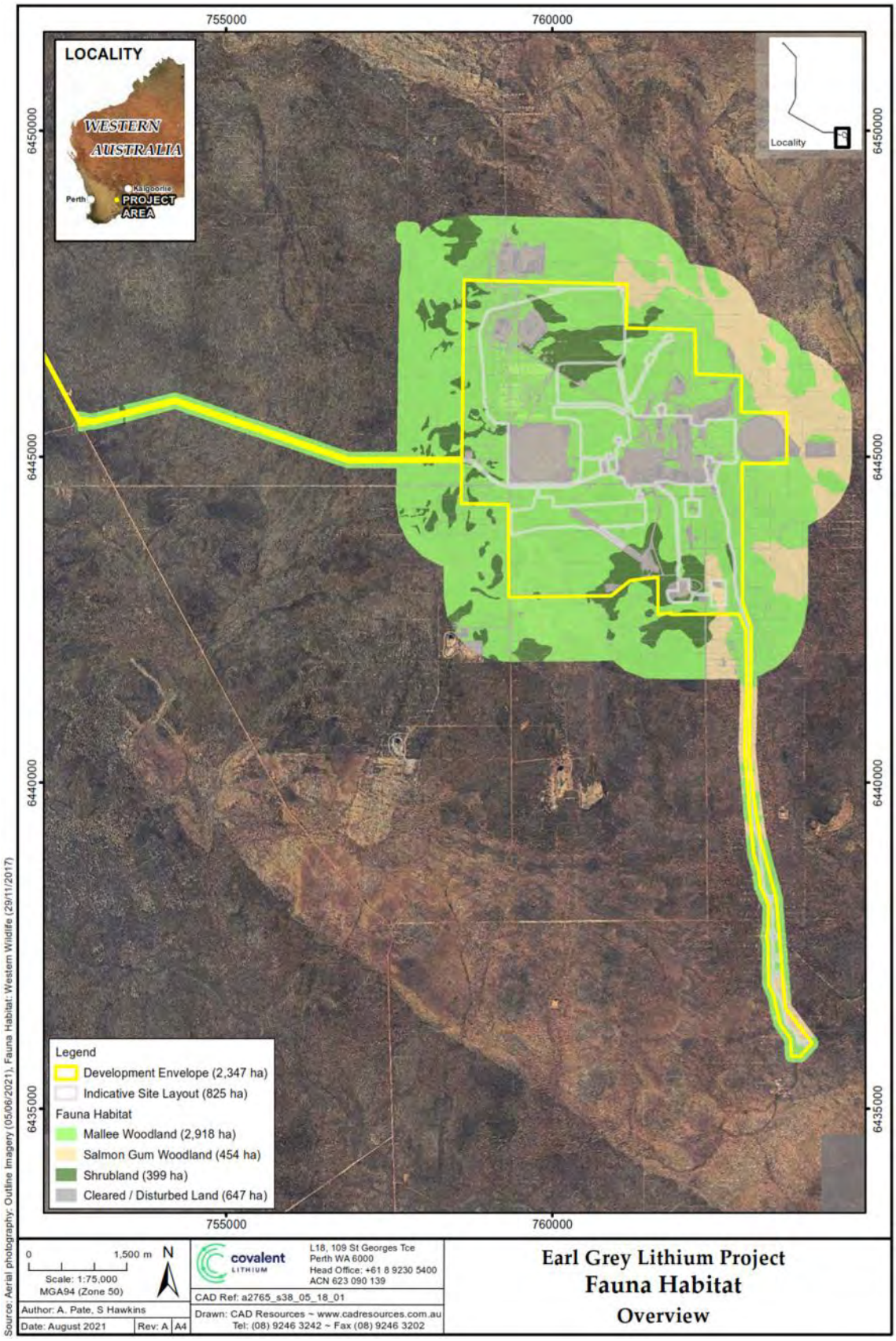


Figure 6-1 Fauna Habitat

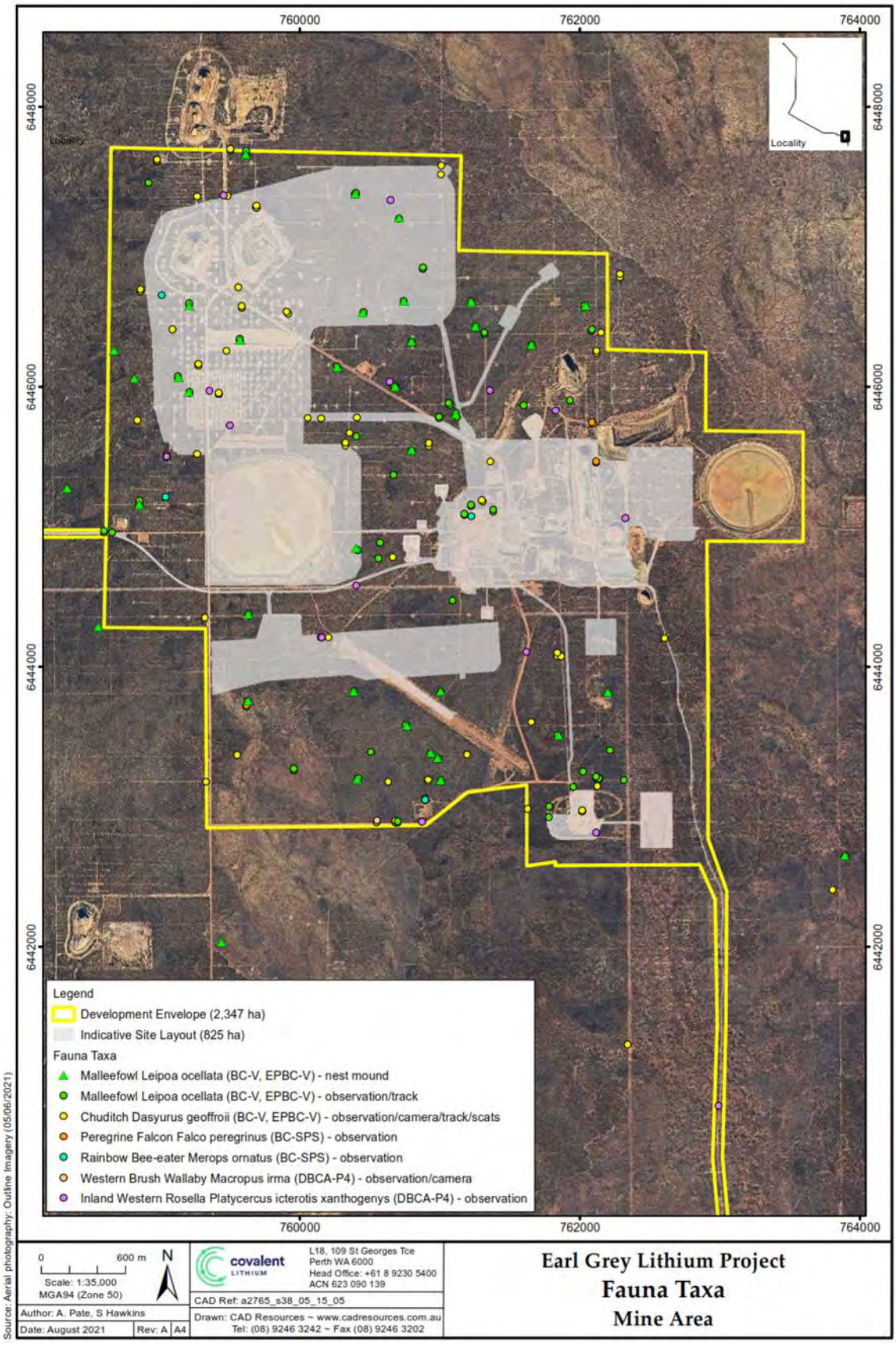


Figure 6-2 Fauna Taxa

6.5 Mitigation Hierarchy

As outlined by the EPA (2021a) document *How to Prepare and Environmental Review Document*, the assessment of a Proposal should include consideration of the 'Mitigation Hierarchy'. The Mitigation Hierarchy comprises sequential steps that seek to alleviate the environmental effects of an action as far as practicable. The sequential steps of the Mitigation Hierarchy are:

- Avoid
- Minimise
- Rehabilitate
- Offset

A summary of the steps taken for the Proposal (Approved Proposal and Revised Proposal combined) in accordance with the Mitigation Hierarchy in relation to the key environmental factor of 'Terrestrial Fauna' is outlined below:

Avoid

Avoidance measures seek to prevent or change the potential environmental effects of an action before they occur. As an example, avoidance measures may include adjusting the location, scope and/or timing of an action so as to avoid an the environmental effect (i.e. a nil effect outcome).

As many of the recorded fauna values occur broadly across the area of the Proposal and surrounds, there has been limited opportunity to actively avoid fauna values; with minimisation then being the key measure (refer to Minimise below). Whilst noting this, Indicative Site Layout for the Proposal has been modified to avoid the following terrestrial fauna values:

- Fauna Taxa –
  - Recently active nest mounds of Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)

The Indicative Site Layout for the Proposal avoids all recorded 'recently active' nest mounds for *Leipoa ocellata,* with a 100 m radius 'exclusion area' additionally applied to the habitat surrounding the nest mounds. This approach seeks to avoid the recorded breeding locations in order to minimise the potential risk of the Proposal to affect the local *Leipoa ocellata* breeding.

Minimise

Minimisation measures seek to reduce the duration, intensity, extent and/or likelihood of environmental effects of an action where such values cannot be completely avoided. As an example, minimisation measures may include adjusting the location, scope or timing of an action so as to result in a reduction in the environmental effect.

During the planning process, the Indicative Site Layout for the Proposal has been modified to reduce the spatial area of native vegetation clearing required, principally through the use of existing cleared/disturbed areas where possible, in order to minimise the clearing of native vegetation providing habitat to fauna. Where native vegetation clearing has been required, the location of the native vegetation clearing has sought to target existing disturbed vegetation (e.g. partial clearing by prior mineral exploration drilling) in preference to undisturbed areas that provide greater habitat quality. These modifications to the Proposal have been undertaken principally with a view towards minimising the environmental effects.

The result of these modifications has minimised the environmental effect to the following fauna values:

- Fauna Habitat –
  - Reduction in clearing of fauna habitat (native vegetation) by using existing cleared / disturbed land

Most notably on the above, the Indicative Site Layout for the Proposal comprises > 45 % previously cleared / disturbed land associated with the abandoned Mt Holland Mine Site (383 ha of total 825 ha Indicative Site Layout); thereby substantially reducing the area of fauna habitat (native vegetation) clearing required for the Proposal.

Whilst the modifications identified above have resulted in a sub-optimal Indicative Site Layout for the Proposal (compared to a layout with nil environmental constraints), these design modifications have been adopted to minimise the environmental effect of the Proposal as far as practicable, and to ensure the residual environmental effects can be considered environmentally acceptable.

Rehabilitate

Rehabilitation measures seek to restore environmental values following an action. As an example, rehabilitation measures may include restoration of soils and vegetation following an action.

All areas of new land disturbance by the Proposal will be rehabilitated with native vegetation to seek to restore fauna habitat. The rehabilitation works will include on-contour ripping of compacted areas and the respreading of rehabilitation materials (vegetation and topsoil/subsoil) that were removed and stockpiled during the initial vegetation clearing.

In addition, all areas of existing cleared / disturbed lands which will be used by the Proposal (excluding the Mine Pit void) will also be rehabilitated with native vegetation to restore fauna habitat. Based on the indicative footprint for the Proposal, it is anticipated that > 200 ha of existing cleared / disturbed lands will be rehabilitated (with the cumulative area of land rehabilitation estimated at 645 ha). The rehabilitation of these areas will result in a 'net-benefit' environmental outcome from the Proposal by restoring the fauna habitat values (which would otherwise be left cleared / disturbed and remain a liability for the State).

Offset

As outlined by the *WA Environmental Offsets Policy* (Government of Western Australia 2011) and the *WA Environmental Offsets Guidelines* (Government of Western Australia 2014), and supported by the EPA (2014) document *Environment Protection Bulletin No 1 Environmental Offsets*, an *'Environmental Offset'* is an action which provides an environmental benefit to counterbalance a significant residual environmental effect or risk of a project. Environmental offsets are determined on a project-by-project basis, and are applied only to significant residual environmental effects (not applied to minor environmental effects).

In assessment of the Approved Proposal, the EPA (2019) concluded the Proposal may result in a significant residual environmental effect to the following fauna values:

- Fauna Habitat –
  - Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)
  - Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V)

As a result, approval of the Proposal under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) identified the following environmental offsets to be required:

- Threatened Fauna Land Acquisition Strategy
  (Covalent Lithium 2021f, Condition 8 of Statement 1118 approval)
- Fauna Offset Management Plan
  (Covalent Lithium 2021f, Condition 4 of EPBC Decision 2017/7950 approval)

The purpose of the Threatened Fauna Land Acquisition Strategy is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected

habitat area(s) for these taxa. A Threatened Fauna Land Acquisition Strategy (Covalent Lithium 2021f) has been prepared by Covalent Lithium and submitted to EPA in accordance with Condition 8 of the Statement 1118 approval.

The purpose of the Fauna Offset Management Plan is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa. A Fauna Offset Management Plan (Covalent Lithium 2021f) has been prepared by Covalent Lithium, and subsequently approved by DAWE (2021f) in accordance with Condition 4 of the EPBC Decision 2017/7950 approval.

6.6 Environmental Effects of the Proposal

Based on the completed environmental surveys, the Proposal (Approved Proposal and Revised Proposal combined) coincides with the following fauna values:

- Fauna Habitat, including for –
  - 'Threatened' fauna taxa –
    - Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)
    - Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V)
  - other conservation significant fauna taxa –
    - Peregrine Falcon *Falco peregrinus* (BC-SPS)
    - Rainbow Bee-eater *Merops ornatus* (BC-SPS)
    - Western Brush Wallaby *Notamacropus irma* (DBCA-P4)
    - Inland Western Rosella *Platycercus icterotis* ssp. *xanthogenys* (DBCA-P4)

An assessment of the environmental effects of the Proposal to fauna values is provided below.

6.6.1 Vertebrate Fauna Taxa

The area of the Proposal and surrounds provides habitat for the 'Threatened' species of fauna Malleefowl *Leipoa ocellata* (BC-V, EPBC-V) and Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V), and other fauna taxa of listed conservation significance including Peregrine Falcon *Falco peregrinus* (BC-SPS), Rainbow Bee-eater *Merops ornatus* (BC-SPS), Western Brush Wallaby *Notamacropus irma* (DBCA-P4) and Inland Western Rosella *Platycercus icterotis xanthogenys* (DBCA-P4). No direct removal (taking) of individuals of these fauna taxa is proposed by the Proposal (i.e. no removal of live individuals).

Whilst habitat for fauna taxa will be cleared for the Proposal, the above listed conservation significant fauna taxa are all highly mobile and can be expected to move into adjacent areas of native vegetation during native vegetation clearing; without direct mortality of individuals.

The biological surveys noted the area of the Proposal may also potentially provide habitat for other fauna taxa of listed conservation significance based on regional fauna records; however such taxa were not recorded by the biological surveys. These other fauna taxa potentially include Carnaby's Cockatoo *Calyptorhynchus latirostris* (BC-E, EPBC-E), Red-tailed Phascogale *Phascogale calura* (BC-E, EPBC-E), Fork-tailed Swift *Apus pacificus* (BC-SPS, EPBC-M), Lake Cronin Snake *Paroplocephalus atriceps* (DBCA-P3) and Central Long–eared Bat *Nyctophilus major tor* (DBCA-P4). The absence of these fauna taxa from the biological surveys is expected to arise from (one, or a combination of) factors including the Proposal being at the extent of their recorded distributions, the Proposal area being unlikely to form significant breeding/foraging habitat (including fly-over areas for the avifauna taxa), or the densities of such taxa (if present) being too low for detection. The above listed fauna taxa were not recorded by the biological surveys, and accordingly, no direct removal (taking) of individuals of these fauna taxa is proposed.

The Proposal area and surrounds additionally provides habitat for a variety of other native vertebrate fauna taxa which are not of listed conservation significance. Whilst a number of these other fauna taxa are also highly mobile (e.g. birds), many taxa are have lower mobility (e.g. lizards, frogs) and mortality of such

individuals during land clearing can be anticipated. These other fauna taxa are not of conservation significance generally due to their broad local and regional distributions, and accordingly, a significant effect to the broader local and regional populations of these other fauna taxa is not anticipated.

Based upon the factors above, the effect of the Proposal to fauna taxa individuals is not anticipated to significantly affect the representation, diversity, viability or ecological function of fauna taxa. Accordingly, the environmental effect of the Proposal to fauna taxa is not considered to be environmentally significant.

6.6.2 Short Range Endemic Invertebrate Fauna Taxa

Short range endemic (SRE) invertebrate fauna are fauna taxa with naturally limited distributions of less than 10,000 km^2, with their limited distributions typically a result of poor dispersal powers, confinement to discontinuous or restricted habitats, slow growth and low fecundity (Harvey 2002). Western Australian invertebrate groups that consist principally of SRE invertebrate fauna include *Gastropoda* (snails and slugs, both freshwater and terrestrial), *Oligochaeta* (earthworms), *Onychophora* (velvet worms), *Araneae* (mygalomorph spiders), *Schizomida* (schizomids), *Diplopoda* (millipedes), *Phreatoicidea* (phreatoicidean crustaceans), and *Decapoda* (freshwater crayfish).

As outlined within Covalent Lithium (2019), a desktop review by Bennelongia (2017) identified that whilst potential of SRE invertebrate fauna are likely to occur within the area of the Proposal and surrounds, previous fauna studies and the distribution of available fauna habitats would suggest that the invertebrate taxa present are likely to be widespread (not restricted). An assessment of the potential habitats were considered based on the vegetation unit mapping and fauna habitat mapping, with habitat suitability for SRE invertebrate fauna based on the availability of moisture, soil structure, geological diversity, vegetation type and extent of shade and shelter. The extent of the habitats beyond the Development Envelope were assessed, as well as extent of habitat connectivity and the presence of habitat isolates (which might indicate a potential dispersal restriction). Floristic, soil and climate characteristics were moderately consistent across the habitats present; suggesting that they are likely to represent similar habitats from the viewpoint of SRE invertebrate fauna. Unique habitats (e.g. rocky outcrops) suitable for some specialist (restricted) SRE invertebrate fauna taxa were absent.

In consideration of the extent and connectivity of habitats, and the absence of barriers for dispersal, the SRE invertebrate fauna likely to occur within the area of the Proposal were anticipated to be widespread. The spatial extent of the Proposal is not considered significant in consideration of the likely spatial range of the SRE invertebrate fauna taxa which may be present. Overall, the proposal was considered unlikely to present any conservation implications for SRE invertebrate fauna taxa.

6.6.3 Fauna Habitat

Three broad fauna habitats were defined by Western Wildlife (2017) within the Development Envelope, as identified by Figure 6-1. The fauna habitats were identified during the fauna surveys on the basis of vegetation mapping (Mattiske 2018a), as described below:

Mallee Woodland

Mallee woodland is a common habitat within the Development Envelope. The 'mallee woodland' habitat describes a structural type, however within the habitat there is variability in flora taxa composition and the density of the shrubland understory, ranging from minimal understory to dense shrubland. Mallee woodlands can be further divided on the basis of the underlying soil type (sands, sandy-clays or clay-loam) as this can influence the ground-dwelling fauna which occur. As the mallee trees are relatively small in diameter, this habitat generally lacks tree hollows for nesting (although scattered hollow-bearing trees may be present). Where the understory is dense, it provides nesting habitat for small birds. Mallee woodland habitat potentially supports conservation significant fauna taxa including *L. ocellata* and *D. geoffroii*

Salmon Gum Woodland

Salmon Gum Woodland is a less common habitat, occurring mostly in the eastern and southern parts of the Development Envelope. The Salmon Gum Woodland is characterised by an open canopy of Salmon Gum (*Eucalyptus salmonophloia*), sometimes with Merrit (*Eucalyptus flocktoniae*) and Sand Mallee (*Eucalyptus eremophila*), over a sparse shrub understorey on clay flats. Salmon Gum Woodland provides tall hollow-bearing trees and large fallen logs which provide shelter and nesting opportunities for a variety of fauna taxa. Salmon Gum Woodland potentially supports the conservation significant fauna taxon *D. geoffroii*.

Shrubland

Shrublands are common but patchy in occurrence within the Development Envelope. Shrublands occur on sandy-clay flats, gravelly sands and lateritic rises and vary in composition, but are usually dominated by flora taxa of the genus *Allocasuarina*, *Hakea*, *Acacia*, *Banksia* and/or *Melaleuca*. Although sparse low mallee eucalypts may be present, the Shrublands habitat generally lack large trees. The dense structure of the Shrubland habitat vegetation provides shelter and nesting habitat for ground-dwelling birds. When in flower, shrubland habitats are likely to attract a suite of nectar-feeding bird taxa. Shrublands also occur in small patches throughout the Mallee Woodland Habitat, however at a scale too small to be mapped. Shrublands potentially support conservation significant fauna taxa including *L. ocellata*, *D. geoffroii* and *M. irma*.

The Indicative Site Layout (825 ha) comprises 442 ha of fauna habitat (native vegetation) which will be cleared, and 383 ha of existing cleared/disturbed land. The use of existing cleared / disturbed land minimises the potential effect of the Proposal to the identified fauna habitats.

The fauna habitats in the local area are extensive, with > 70,000 ha of native vegetation (providing fauna habitat) within a 10 km radius of the Proposal (Figure 2-6). In relation to the fauna taxa recorded, *Leipoa ocellata* and *Dasyurus geoffroii* both have a spatial distribution of > 1,500 km, extending from Denham (north) to Albany (south) and eastwards to the South Australian border.

Whilst noting the broad extent of fauna habitats identified above, the assessment of the Approved Proposal (Covalent Lithium 2019; EPA 2019) concluded the environmental effect to the fauna habitats for *L. ocellata* and *D. geoffroii* may be environmentally significant; with environmental conditions subsequently imposed requiring specified environmental offsets to counterbalance to effect to the fauna habitats (WA Minister for Environment 2019; DAWE 2020). As the Revised Proposal will result in an increase in the extent of clearing of fauna habitats for *L. ocellata* and *D. geoffroii*, additional environmental offsets may be considered appropriate to counterbalance to effect to the fauna habitats for these taxa.

The Approved Proposal was not assessed as likely to result in a significant effect to the fauna habitat for other recorded conservation significant fauna taxa (*F. peregrinus*, *Merops ornatus*, *Notamacropus irma* or *P. icterotis xanthogenys*). Similarly, the Revised Proposal is considered unlikely to result in a significant effect to fauna habitat for these other fauna taxa.

Table 6-1 identifies the extent of the fauna habitats recorded within the Development Envelope. Table 6-1 also provides comparison to the broader extent of the mapped habitats within the Great Western Woodlands and the Survey Area.

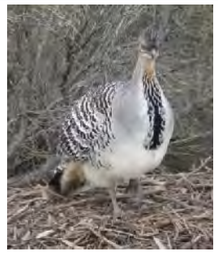
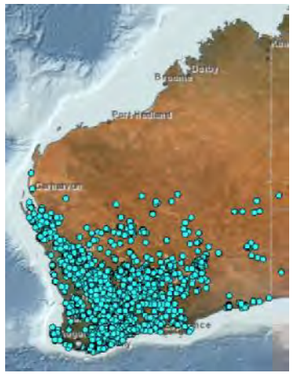
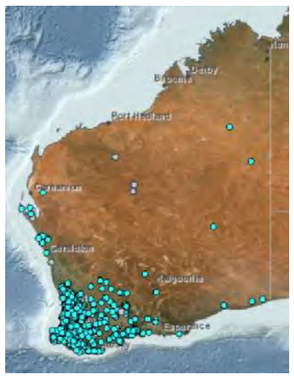
Table 6-2 identifies the extent of the habitats occurring within the Development Envelope used by each fauna taxon. With the exception of *L. ocellata*, all other fauna taxa of listed conservation significance may utilise all fauna habitat types occurring within the Development Envelope.

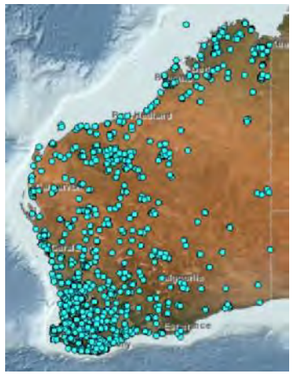
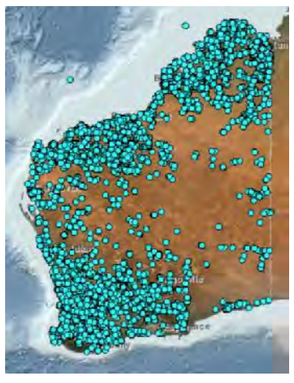
FAUNA HABITAT	(Area ha)				
	GREAT WESTERN WOODLANDS	SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of GWW Area) [+0-10m, +10-50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of GWW Area) [+0-10m, +10-50m]
Mallee Woodland[1]	> 1,170,000	2,918	1,239	307 (<1%) [54, 220]	363 (<1%) [54, 220]
Salmon Gum Woodland[1]	> 7,370,000	454	42	6 (<1%) [4, 19]	6 (<1%) [4, 19]
Shrubland[2]	> 3,210,000	399	200	73 (<1% [5, 19]	73 (<1%) [5, 19]
Cleared	-	647	503	370	383
TOTAL	-	4,418	2,347	756	825

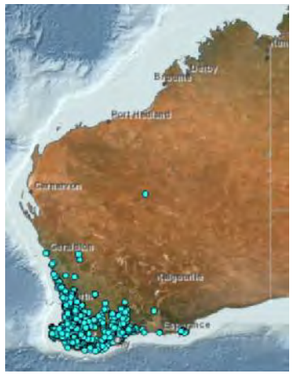
Table 6-1 Fauna Habitats within the Development Envelope.

Notes: [1] Habitat area for Mallee Woodland and Salmon Gum Woodland as mapped by Beard (1990) cited in Covalent Lithium (2019). [2] Habitat area for Shrubland as identified in Watson *et al.* (2008).

Table 6-2 Fauna Taxa Habitats within the Development Envelope

FAUNA TAXA (Conservation Status)	IMAGE	DESCRIPTION	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (Area, ha)	FIELD SURVEY RECORDS (Area, ha)			
						SURVEY AREA (Area, ha)	DEVELOPMENT ENVELOPE (Area, ha)	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (Area, ha) (% of Survey Area) [+0-10m, +10-50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (Area, ha) (% of Survey Area) [+0-10m, +10-50m]
Leipoa ocellata (BC-V, EPBC-V)	 Source: Globe Environments 2008	Large (~2 kg) brown and grey ground-dwelling bird which builds large nest-mounds on the ground made of leaf litter and soil materials. Breeding pairs mate for life, with the eggs are incubated in the nest mound. Parents take no part in chick rearing, with chicks emerging from the nest mound completely self-sufficient.		> 1,500 km extending from Denham (north) to Albany (south) and eastwards to the South Australian border (DBCA 2021). Recorded across all mainland states of Australia except Queensland.	DBCA (2021) identifies > 4,500 location records across Western Australia. Estimated total ~100,000 breeding individuals with Extent of Occurrence of 4,000,000 ha (Garnett & Crowley 2000 cited in BirdLife 2021). Majority of records in Western Australia occur in the mid-west, south-west, wheatbelt and south coast areas. Recorded breeding throughout the Great Western Woodlands (BirdLife 2016).	3,317 (Mallee Woodland and Shrubland)	1,439	380 (11%) [59, 239]	436 (13%) [59, 239]
Dasyurus geoffroii (BC-V, EPBC-V)	 Source: Western Wildlife (2018)	Carnivorous marsupial with mostly brown fur and distinctive white spots. Chuditch previously occurred throughout most of mainland Australia, however is now largely restricted to the south-west of WA, with lesser numbers in the mid-west, wheatbelt and south-coast areas. Occurs in a range of habitats, but predominantly in Eucalyptus forests and woodlands, mallee shrublands and heathlands. Home ranges are large (up to 15 km^2), with individuals typically occurring in low densities. (DAWE 2012a; DBCA 2017).		> 1,500 km extending from Denham (north) to Albany (south) and eastwards to the South Australian border (DBCA 2021). Majority of records in Western Australia occur within south-west area.	DBCA (2021) identifies > 4,000 location records across Western Australia. Estimated total population < 10,000 individuals (DEC 2007 cited in DAWE 2012a).	3,771 (Mallee Woodland, Salmon Gum Woodland and Shrubland)	1,481	386 (10%) [63, 258]	442 (12%) [63, 258]

FAUNA TAXA (Conservation Status)	IMAGE	DESCRIPTION	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (Area, ha)	FIELD SURVEY RECORDS (Area, ha)			
						SURVEY AREA (Area, ha)	DEVELOPMENT ENVELOPE (Area, ha)	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (Area, ha) (% of Survey Area) [+0-10m, +10-50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (Area, ha) (% of Survey Area) [+0-10m, +10-50m]
Falco peregrinus (BC-SPS)	 Source: D Watts cited in Parks and Wildlife Service Tasmania (2011)	Large raptor (bird of prey), with a black hood with yellow eye-ring and a black-tipped yellow bill. Although widespread throughout the world, it occurs in low densities. Occurs in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. Requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water. Pairs mate for life and maintain a home range ~ 20-30 km^2. Rather than building a nest, it lays its eggs in recesses of cliff faces, tree hollows or in the large abandoned nests of other birds (Birdlife 2021).		> 2,500km, extending from Albany in the south to near Kununurra in the north, and eastwards to the border of South Australia DBCA 2021). Extent of Occurrence of > 38,000,000,000 ha, with conservation status of 'Least Concern'. Globally also occurs in Europe, Asia, Africa and the Americas (BirdLife 2021).	DBCA (2021) identifies > 1,500 location records across Western Australia. Recorded within the Great Western Woodlands as widely-dispersed, commonly associated with banded ironstone formations, breakaways and granite outcrops (BirdLife 2016).	3,771 (Mallee Woodland, Salmon Gum Woodland and Shrubland)	1,481	386 (10%) [63, 258]	442 (12%) [63, 258]
Merops ornatus (BC-SPS)	 Source: Jones (2013) cited in Queensland Government 2021)	Medium-sized bird coloured green or blue-green on the forehead and chestnut on the back of the head, and is the only bee-eater in Australia (BirdLife 2021).		> 2,500km, extending from Albany in the south to near Kununurra in the north, and eastwards to the border of South Australia DBCA 2021). Global population > 1,000,000 individuals, with Extent of Occurrence of > 1,720.000,000 ha. Conservation status of 'Least Concern'. Globally is resident to Indonesia, Papua New Guinea, Solomon Islands and Timor-Leste, and vagrant to Japan, Taiwan and China (Birdlife 2021).	DBCA (2021) identifies > 16,000 location records across Western Australia. Common summer migrant recorded from across the Great Western Woodlands (BirdLife 2016).	3,771 (Mallee Woodland, Salmon Gum Woodland and Shrubland)	1,481	386 (10%) [63, 258]	442 (12%) [63, 258]

FAUNA TAXA (Conservation Status)	IMAGE	DESCRIPTION	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (Area, ha)	FIELD SURVEY RECORDS (Area, ha)			
						SURVEY AREA (Area, ha)	DEVELOPMENT ENVELOPE (Area, ha)	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (Area, ha) (% of Survey Area) [+0-10m, +10-50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (Area, ha) (% of Survey Area) [+0-10m, +10-50m]
Notamacropus irma (DBCA-P4)	 Source: Perth Zoo (2021)	Pale to mid grey with distinct white facial stripe, black and white ears, black hands and feet. Long tail with crest of black hair towards extremity. Taxon was very common in the early days of European settlement, with large numbers traded commercially for skins. Range has been reduced and fragmented due to clearing for agriculture, with a decline in abundance within most remaining habitat. Optimum habitat is open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland (DBCA n.d.).		> 1,000 km, extending across the south-west of Western Australia from Esperance (south) to Augusta (west), and north towards Geraldton (DBCA 2021). Conservation status of 'Least Concern' (Perth Zoo 2021) .	DBCA (2021) identifies > 3,600 location records across Western Australia.	3,771 (Mallee Woodland, Salmon Gum Woodland and Shrubland)	1,481	386 (10%) [63, 258]	442 (12%) [63, 258]
Platycercus icterotis ssp. *xanthogenys* (DBCA-P4)	 Source: BirdLife (2021)	Smallest of the rosella taxa, usually seen in pairs or small parties. Two subspecies occur which vary by physical colour differences, however the subspecies may interbreed with varying colour on the back. Sub-species *xanthogenys* occurs in woodlands of the wheatbelt area, whereas the subspecies *icterotis* occurs in high rainfall areas on the south-west coast (BirdLife 2021).		> 500 km from north of Esperance (east), west towards Albany (south) and north to Moora (DBCA 2021) Global population has not been quantified, however the taxon is relatively common (del Hoyo *et al.* 1997 cited in BirdLife 2021). Conservation significance considered of 'Least Concern' (BirdLife 2021).	DBCA (2021) identifies 115 location records across Western Australia for subspecies x*anthogenys*. Occurs across the wheatbelt, where it is now rare, and was an uncommonly recorded taxon with a patchy distribution in the south-west of the Great Western Woodlands (BirdLife 2016).	3,771 (Mallee Woodland, Salmon Gum Woodland and Shrubland)	1,481	386 (10%) [63, 258]	442 (12%) [63, 258]

6.7 Potential Indirect Effects of the Proposal

As outlined within Covalent Lithium (2019), in addition to the direct environmental effects of the Proposal to fauna values associated with the clearing of fauna habitat (native vegetation), the Proposal may have a potential for an indirect effect to the recorded fauna values through:

- Inadvertent Injury / Mortality – injury or mortality resulting from vehicle collision or entrapment within mining areas.
- Fragmentation – potential for the fragmentation of habitat resulting in loss of habitat quality
- General Disturbance – potential to disturb fauna through the generation of noise, light, vibration and/or dust.
- Fire – potential for fire caused by works (machinery and vehicles), which may alter the natural fire regime (fire frequency and intensity)
- Introduced Fauna Taxa – introduction and/or spread of introduced fauna taxa which may predate or compete with native fauna for resources (e.g. space, food sources)

An assessment of the potential for indirect effects to fauna taxa is provided below.

Inadvertent Injury / Mortality

The movement of light and heavy haulage vehicles on roads has a potential to result in inadvertent collision with native fauna, resulting in injury or mortality. Road mortalities are undesirable for both fauna welfare and vehicle safety. Fauna taxa with greatest risk of vehicle collision are those with more limited mobility (e.g. reptiles, frogs, small mammals, dependent young or nocturnal species) and those which may actively bask on roads (reptiles) or forage on road edges (e.g. birds).

For the Proposal, the risk of vehicle collision can be minimised by restricting isolated vegetation disturbance and restricting vehicle speeds. The Indicative Site Layout has sought to consolidate operational areas where possible, thereby minimising the clearing of roads / tracks within fauna habitat areas. Vehicle speeds within mining areas will be limited (nominally ≤ 60 km/h) which will assist to minimise the risk of vehicle collision with fauna taxa.

Although many fauna taxa are likely to avoid human activities (refer to *General Disturbance* below), there is potential risk that some fauna may enter areas of the mine operations and become trapped in water storage structures or open ground excavations. Steep sided or slippery structures may prevent fauna escape, resulting in mortality. Consistent with standard mine operational controls, water storage structures will include fauna egress mating to assist in fauna escape, and where practicable, ground excavations (> 1 m depth) will have sloped sides to allow for fauna escape (slope ≤ 2:1, ≤ 100 m between egress points).

Fragmentation

Connected (uncleared) landscapes allow fauna to freely move, forage and breed. Habitat fragmentation occurs when large contiguous area of native vegetation are broken-up (dissected) into smaller areas, with varying degrees of linkage retained (depending on the extent of fragmentation). Generally, fauna are better able to persist in a modified landscape when vegetation patches are large and there are greater links between patches.

For the Proposal, the broader landscape generally provides continuous woodland and shrubland habitats, of which < 2 % by area has been cleared historically within the Coolgardie Region and the Southern Cross Subregion.

The Indicative Site Layout (825 ha) comprises 442 ha of fauna habitat (native vegetation) to be cleared and 383 ha of existing cleared / disturbed land. The Indicative Site Layout for the Proposal has been largely centred around the existing disturbance associated with the abandoned Mt Holland Mine Site; which has fragmented the existing fauna habitat through land clearing for

mine pits, waste rock landforms and extensive areas of mineral exploration drill lines and pads. Noting this existing fragmentation, and the Indicative Site Layout being centred around this existing disturbance, new fragmentation by the Proposal will be limited.

In the context of the extensive areas of fauna habitat at a local and regional scale, and the Proposal being centred around the existing disturbance for the abandoned Mt Holland Mine Site, it is considered unlikely that the additional clearing of fauna habitat (native vegetation) for the Proposal would significantly affect fauna through fragmentation.

General Disturbance

The Proposal will result in a number of potential general disturbances through noise, light, vibration and dust from various mining-related activities. The effect of noise, light, vibration and dust may result in a temporary decline in the perceived quality of fauna habitat immediately adjacent to the Proposal (for the time period in which the disturbance exists), with fauna generally be expected to avoid he disturbance, and potentially, not undertake normal behaviours in proximity to the disturbance (e.g. foraging, breeding).

Whilst noting the above, based upon on other mining operations in Western Australia (e.g. where fauna taxa such as *L. ocellata* continue to forage and breed in close proximity to mining operations), the spatial extent of any such indirect effects can be expected to be spatially limited (to immediate edge of the mining activities) and time-limited (duration of mining activities); such that significant indirect effects to fauna taxa from general disturbance is unlikely to be significant.

Fire

Various mining equipment (e.g. vehicles) and activities (e.g. welding) may have a risk of causing the ignition of fire. An incidence of fire, if uncontrolled, may have a potential to result in short-term habitat degradation (temporary loss of foraging / breeding habitat) across a potentially large area. Changes in fire frequency and/or fire intensity may further have a potential for long-term structural change in the fauna habitats.

Fauna taxa such as *L. ocellata* and *D. geoffroii* are likely to occur throughout the area of the Proposal and surrounds, although are likely to be absent in any recently burnt areas. For these taxa, large-scale fires have a potential to result in a loss of denning sites (breeding) and prey (food sources) for *D. geoffroii*, and a loss of leaf-litter for *L. ocellata* in building nest mounds.

Fire management is a standard operational matter for mining operations, with the Proposal operations not representing any greater fire risk when compared to other mining operations in the local region. Subject to the successful implementation of standard fire management practices (fire management training, fire extinguishers within vehicles), the Proposal would not be expected to result in a significant indirect effect to native fauna taxa or fauna habitats.

Introduced Fauna Taxa

The biological surveys recorded a number of introduced fauna taxa, including European rabbit (*Oryctolagus cuniculus*), European red fox (*Vulpes vulpes*), feral cat (*Felis catus*) and dingo/dog (*Canis lupus dingo / Canis lupus*) (Western Wildlife 2017). Introduced fauna taxa may predate on native fauna, or compete with native fauna for resources (e.g. space, food sources).

Mining operations may have the potential to attract introduced fauna through the provision of water supplies (water storage dams) and food supplies (foraging at camp sites), and with roads/tracks facilitating their movement through fauna habitat areas (potentially allowing for increased predation on native fauna which may also utilise the roads/tracks). For *L. ocellata* and *D. geoffroii*, predation by feral cats and the European red fox have been identified as key threatening processes (DAWE 2007, 2012).

The management of introduced fauna taxa is a standard operational matter for mining operations, with the Proposal operations not representing any greater risk of introduced fauna when compared

to other mining operations in the local region. Subject to the successful implementation of standard management practices for introduced fauna (e.g. waste management to minimise foraging, fencing of water storage dams), the Proposal would not be expected to result in a significant indirect effect to native fauna taxa or fauna habitats.

6.8 Cumulative Environmental Effects

The Proposal will result in the clearing of up to 442 ha of fauna habitat (native vegetation); being in addition to the current 503 ha of existing cleared / disturbed land associated with the abandoned Mt Holland Mine Site (within the Development Envelope). The effect of the Proposal will be an increase the area of the current fauna habitat clearing within the area of the Development Envelope from 503 ha to 945 ha.

At a local scale (10 km radius) existing clearing / disturbance accounts for approximately 967 ha (1 %) by area, with the majority of the fauna habitat remaining (> 70,000 ha, 99 %) (Figure 2-6). The Proposal will have the effect of increasing the clearing of fauna habitat at the local scale by 442 ha (0.6 %, from 970 ha to 1,409 ha). Noting the fauna habitat types coinciding with the Proposal (Mallee Woodland, Salmon Gum Woodland, Shrubland) are not restricted, the effect of the Proposal to fauna habitats (both in area and type) at the local scale is not considered to be environmentally significant.

The cumulative effect of future (foreseeable) activities is unknown, however, it is noted there are currently no other proposed developments adjacent to the Proposal which may need to be considered for potential additional cumulative effects to the local fauna values.

It is noted the Proposal will be subject to progressive and post-mining rehabilitation works which will seek to restore the fauna habitat values at the completion of mining. Based on the current Indicative Site Layout, the Proposal will be implemented within a 825 ha spatial area comprising 442 ha of native vegetation and 383 ha of cleared/disturbed land. Covalent Lithium has committed to rehabilitating all land areas utilised by the Proposal (with exception of the Mine Pits); the effect being a that a proportion of the currently cleared/disturbed lands associated with the abandoned Mt Holland Mine Site will be rehabilitated as part of this Proposal. This approach is expected to result in a total of approximately 645 ha of land being rehabilitated by the Proposal; being greater than the 442 ha of fauna habitat (native vegetation) to be cleared by the Proposal.

6.9 Environmental Management

6.9.1 Terrestrial Fauna Environmental Management Plan

Implementation of the Approved Proposal is managed in accordance with Covalent Lithium's Terrestrial Fauna EMP (Covalent Lithium 2020c). The Terrestrial Fauna EMP was prepared in accordance with Condition 7 of the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA), and generally consistent with the EPA (2021e) document *How to Prepare Environmental Protection Act 1986 Part IV Environmental Management Plans*. The Flora and Vegetation EMP has been subject to review and approval by EPA (2020b).

As outlined within Section 11 *Environmental Management* (below), it is proposed that the direct and potential indirect environmental effects of the Revised Proposal to flora and vegetation values can be appropriately managed in accordance with the following Environmental Management Plans (EMP):

- Terrestrial Fauna EMP (Revised)
  (Covalent Lithium 2022b)

The revised Terrestrial Fauna EMP incorporates minor revisions to include the additional spatial area of the Revised Proposal, as well as include the more recent biological survey reports and data completed since the previous revision of the Terrestrial Fauna EMP. The revised Terrestrial Fauna EMP does not propose any changes to the previously approved management and monitoring actions (nil change).

The Terrestrial Fauna EMP outlines the operational management and monitoring to minimise and control the environmental effect of the Proposal to fauna values, specifically for *L. ocellata* and *D. geoffroii*, including:

- Environmental inductions of site personnel
- Pre-clearance environmental surveys
- Procedure for the capture/release of *L. ocellata* and *D. geoffroii* (if required)
- Environmental monitoring of *L. ocellata* and *D. geoffroii*
- Adaptive management approach through 'trigger' and 'threshold' criteria
- Reporting

The Terrestrial Fauna EMP outlines the operational procedures to ensure the environmental effects of the Proposal to fauna values are controlled to within the predicted levels.

6.9.2 Environmental Management (General)

In order to manage the general environmental effects of the Proposal, Covalent Lithium has prepared the following EMP for to manage the general environmental effects of the Proposal:

- Construction Environmental Management Plan (Covalent Lithium 2020b)

Consistent with the management actions initially outlined within Covalent Lithium (2019), the EMP incorporates the following general environmental management actions:

- Protection of Fauna Taxa –
  - Fauna Exclusion Areas (100 m buffer) established to identify recorded locations of recently active *L. ocellata* nest mounds which are not to be cleared / disturbed
  - Exclusion of access to native vegetation areas containing recently active *L. ocellata* nest mounds including on-site warning signage (environmental monitoring purposes remain authorised)
- Worker Awareness Training –
  - All workers (construction and operation) to attend awareness training, including awareness of conservation significant fauna, introduced fauna, and fire management
  - Sightings or interactions with *L. ocellata* and *D. geoffroii* to be reported to environmental personnel and retained on a fauna register
  - Sightings or interactions with introduced fauna will be reported to environmental personnel and retained on a fauna register
- Land Clearing –
  - The location of recorded *L. ocellata* nest mounds and any identified *D. geoffroii* dens will be maintained on a register to inform proposed land clearing activities
  - Environmental personnel (fauna specialist) to be present during land clearing to ensure identification and avoidance of *L. ocellata* (nest mounds) and *D. geoffroii* (dens), and to undertake capture / release of individuals, if required. The environmental personnel will hold a Licence from DBCA under the *Biodiversity Conservation Act 2016* (WA) for handling of fauna (relocation), and have access to a care facility if dealing with injured fauna.
  - Land clearing will be undertaken outside the *L. ocellata* breeding period (April to June), where possible. If land clearing is required to be undertaken within

the *L. ocellata* breeding period, a pre-clearance fauna survey will be completed to identify and record any *L. ocellata* active nest mounds, with clearing excluded from within 100 m of any active nest mound until after the breeding period.

If land clearing of an active *L. ocellata* nest mound is required during the breeding season (i.e. cannot be reasonably avoided), consultation will be undertaken with DBCA on any processes required for the removal and incubation of any *L. ocellata* eggs which may be present, and subsequently, the future release of any hatched *L. ocellata* chicks within suitable habitats outside of the Development Envelope.

- Annual field survey and recording of all cleared areas

- Traffic Management –
  - Limit traffic speeds to nominally ≤ 60 km/h within mining areas to minimise the risk of inadvertent vehicle collision with native fauna (in particular for *L. ocellata*)
- Dust Management –
  - Minimise the extent of open exposed areas as far as practicable, and undertake standard dust suppression activities, to minimise the area of fauna habitat which may be susceptible to dust generation
- Noise Management –
  - Minimise the risk of disturbance to fauna taxa from noise emissions through machinery and equipment compliance with relevant noise standards and installation of noise attenuation measures.
- Lighting Management –
  - Minimise the risk of disturbance to fauna taxa from light emissions through site lighting directed towards plant areas, with minimal light spill into any adjacent fauna habitat
- Fauna Safety –
  - Construction pipes, culverts, or similar structures (greater than 0.5 m diameter) in which fauna may take refuge will be inspected to identify any fauna (and allow for fauna relocation) prior to installation or movement
  - Excavations (holes or trenches > 1 m depth) will be secured against fauna entry (e.g. covered, fenced) to minimise fauna entrapment, or constructed with egress (slope ≤ 2:1, ≤ 100 m between egress points) to allow for fauna escape
  - Excavations will be inspected by environmental personnel (fauna specialist) after sunrise and before sunset on each day, and prior to any backfilling, to identify and remove any trapped fauna from the excavations
  - Water storage dams will be fenced to minimise the risk of fauna entry, and include egress matting to allow for fauna escape in the event of inadvertent fauna access
  - Waste facilities will be fenced/covered to minimise fauna attraction/access
- Introduced Fauna –
  - Sightings or interactions with introduced fauna will be reported to environmental personnel and retained on a fauna register
  - Waste facilities will be fenced / covered to minimise attraction / access by introduced fauna
  - Control of introduced fauna (culling, trapping) will be undertaken in cooperation with DBCA regional control programs

- Fire Management –
  - Implement standard fire management procedures including maintenance of fire breaks, a 'Hot Work' permit system, training of personnel in the use of fire suppression equipment, and an Emergency Response Plan)
  - firefighting equipment to be located throughout site locations and in vehicles
  - Vehicles will be restricted to within access tracks and cleared areas
  - Coordination with DBCA and Department of Fire and Emergency Services (DFES) to undertake prescribed burns (if appropriate).

The EMP has been prepared consistent with standard operational controls for mining operations in Western Australia. Implementation of the EMP can be expected to ensure the environmental effects of the Proposal are appropriately managed and controlled to within the predicted levels.

6.9.3 Environmental Offsets

Authorisation of the Approved Proposal under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) identified the following environmental offsets to be required:

- Threatened Fauna Land Acquisition Strategy
  (Covalent Lithium 2021f; Condition 8 of Statement 1118 approval)
- Fauna Offset Management Plan
  (Covalent Lithium 2021f; Condition 4 of EPBC Decision 2017/7950)

The purpose of the Threatened Fauna Land Acquisition Strategy is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Approved Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa. A Threatened Fauna Land Acquisition Strategy (Covalent Lithium 2021f) has been prepared by Covalent Lithium and submitted to EPA in accordance with Condition 8 of the Statement 1118 approval.

The purpose of the Fauna Offset Management Plan is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Approved Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa. A Fauna Offset Management Plan (Covalent Lithium 2021f) has been prepared by Covalent Lithium, and subsequently approved by DAWE (2021f) in accordance with Condition 4 of the EPBC Decision 2017/7950 approval. Implementation of the Threatened Fauna Land Acquisition Strategy / Fauna Offset Management Plan can be expected to offset the environmental effects of the Approved Proposal to *L. ocellata* and *D. geoffroii*.

The Revised Proposal will not alter the objectives, risks or outcomes for fauna; however, it is acknowledged additional area of fauna habitat clearing associated with the Revised Proposal may require an addition of land acquisition environmental offset which is proportionate to the land acquisition area for the Approved Proposal. Accordingly, Covalent Lithium has prepared the following EMP for to outline the approach to environmental offsets for the Revised Proposal:

- Fauna Offset Strategy
  (Covalent Lithium 2022c)

The Fauna Offset Strategy for the Revised Proposal will seek to provide for the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for *Leipoa ocellata* and *Dasyurus geoffroii*; consistent with the environmental offset approach for the Approved Proposal. Further detail on the Fauna Offset Strategy is outlined within Section 8 *Environmental Offsets*.

6.9.4 Rehabilitation and Mine Closure

The areas of the Proposal will be subject to progressive and post-mining rehabilitation of disturbed areas to restore the fauna habitat values. The rehabilitation and mine closure outcomes for the Proposal will be outlined within:

- Mine Closure Plan
  (Covalent Lithium 2021d, in accordance with the State *Mining Act 1978* (WA))

Covalent Lithium have prepared the Mine Closure Plan consistent with the DMIRS (2020) document *Statutory Guidelines for Mine Closure Plans*. The DMIRS Guideline replaces the former DMIRS & EPA (2015) Guideline which was in effect during the assessment of the Approved Proposal.

The Mine Closure Plan has been prepared submitted to DMIRS for assessment in accordance with the *Mining Act 1978* (WA). The Mine Closure Plan has subsequently been assessed and approved by DMIRS (2021a).

The Mine Closure Plan outlines the key information requirements for mine closure, including:

- Proposal summary
- Closure obligations and commitments
- Stakeholder engagement
- Baseline data and analysis
- Post-mining land use
- Risk assessment
- Outcomes and completion criteria
- Closure implementation
- Monitoring and maintenance
- Financial provisions

The Revised Proposal will not alter the mine closure objectives, risks or outcomes; however, it is acknowledged the Mine Closure Plan will require an administrative amendment to reflect the additional spatial area (mapping of closure domains), the rehabilitation monitoring locations and the quantum of the financial provisioning associated with the Revised Proposal.

Based upon the Indicative Site Layout (825 ha), the area of the Proposal (Approved Proposal and Revised Proposal combined) comprises 442 ha of native vegetation (to be cleared) and 383 ha of cleared / disturbed land associated with the abandoned Mt Holland Mine Site. Covalent Lithium has committed to rehabilitating all land areas utilised by the Proposal (with exception of the Mine Pits) to restore fauna habitats; the effect being a that a proportion of the currently cleared / disturbed land areas associated with the abandoned Mt Holland Mine Site will be rehabilitated as part of this Proposal. This approach is expected to result in a total of approximately 645 ha of fauna habitat being rehabilitated by the Proposal; being greater than the 442 ha of fauna habitat to be cleared by the Proposal.

Generally, the rehabilitation works relevant to the restoration of fauna habitat will include:

- Re-contouring of land surfaces and on-contour ripping of compacted ground
- Respreading of rehabilitation materials (topsoil / subsoil and vegetation) that were removed and stockpiled during mine development.
- Monitoring to confirm successful rehabilitation works, with comparison against agreed ‘completion criteria’ (e.g. foliar cover, diversity)

Implementation of the management actions outlined within the Mine Closure Plan is expected to restore the fauna habitat values removed by implementation of the Proposal.

6.9.5 Other Government Approvals

In addition to the plans and strategies described above, as identified within Section 1.7 *Other Government Assessment Processes* (above), environmental personnel for Covalent Lithium will be required to hold a Licence from DBCA under the *Biodiversity Conservation Act 2016* (WA) for the handling of fauna (relocation). Covalent Lithium will comply with any additional environmental conditions imposed by DBCA in relation to the handling of fauna taxa.

6.10 Conclusion

The Approved Proposal was granted environmental approval in November 2019 through the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019). The Approved Proposal was also granted environmental approval in February 2020 through the EPBC Decision 2017/7950 approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020). These environmental approvals followed an environmental assessment of the Proposal as outlined within an Environmental Review Document (Covalent Lithium 2019) and an assessment report prepared by the EPA (2019).

Covalent Lithium propose to amend the Approved Proposal to incorporate a number of operational and process changes, submitted for environmental assessment as a Revised Proposal. The key change associated with the Revised Proposal will be an increase the area of native vegetation clearing required from 386 ha to 442 ha (15 % increase), within the previously approved Development Envelope. Other changes associated with the Revised Proposal are not anticipated to result in an effect to fauna values.

Biological surveys have been completed to identify the fauna values present within the area of the Proposal (Approved Proposal and Revised Proposal combined). The biological surveys have been completed by appropriately qualified personnel and in accordance with the relevant guidance documentation. The biological surveys identify the area of the Proposal and surrounds contain a variety of native fauna taxa, including fauna taxa of listed conservation significance under the State *Biodiversity Conservation Act 2016* (WA) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

In accordance with the 'Mitigation Hierarchy', planning for the Proposal has sought to avoid / reduce the potential environmental effects to the recorded fauna habitats as far as practicable.

The environmental effect of the Proposal – both direct effects and potential indirect effects – have been assessed, with consideration given to both the local and regional extent of such values, the key habitats and potential threats, and the nature of the works proposed by the Proposal. The biological surveys have identified the majority of the fauna values recorded have broad local and regional distributions (i.e. not restricted). Whilst noting the Proposal coincides with a number of fauna values of listed conservation significance (which cannot be avoided), the assessment has identified the environmental effect to those values is generally not expected to affect be significant (i.e. not significantly affect the representation, diversity, viability or ecological function of such values).

The exception to the above is the effect to the fauna habitat of the taxa *Leipoa ocellata* (BC-V, EPBC-V) and *Dasyurus geoffroii* (BC-V, EPBC-V) for which EPA (2019) has previously determined may be environmentally significant. Environmental conditions have been imposed in the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the EPBC Decision 2017/7950 approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) for the Approved Proposal to manage, mitigate and offset the effects to the fauna habitats used by these taxa.

In order to manage the environmental effects to fauna values, Covalent Lithium considers the Proposal (Approved Proposal and Revised Proposal combined) can be implemented in accordance with:

- Terrestrial Fauna EMP
  (Covalent Lithium 2022b, consistent with Condition 7 of Statement 1118)
- Fauna Offset Strategy
  (Covalent Lithium 2022c, consistent with Condition 8 of Statement 1118 approval and Condition 4 of EPBC Decision 2017/7950)
- Threatened Fauna Land Acquisition Strategy / Fauna Offset Management Plan
  (Covalent Lithium 2021f, Condition 8 of Statement 1118 approval and Condition 4 of EPBC Decision 2017/7950)
- Construction Environmental Management Plan
  (Covalent Lithium 2020b)
- Mine Closure Plan
  (Covalent Lithium 2021d, in accordance with the State *Mining Act 1978* (WA))

The suite of EMPs outlined above is considered appropriate to manage, control and monitor the environmental effects of the Proposal to the identified fauna values. Additional environmental plans or procedures are not considered to be necessary.

Based on the assessment of the effect of the Proposal to the recorded fauna values, subject to the implementation of the identified management actions (including environmental offsets), it is considered the EPA objective for the key environmental factor of 'Terrestrial Fauna' of can be met.

7 Other Environmental Factors

The EPA (2021d) document *Statement of Environmental Principles, Factors, Objectives and Aims of EIA* identifies a number of other environmental factors to be considered for the Proposal (in addition to 'Flora and Vegetation' and 'Terrestrial Fauna'), being:

- Landforms
- Terrestrial Environmental Quality
- Subterranean Fauna
- Inland Waters
- Air Quality
- Greenhouse Gas Emissions
- Benthic Communities and Habitat
- Coastal Processes
- Marine Environmental Quality
- Marine Fauna
- Human Health
- Social Surroundings

The Approved Proposal was considered unlikely to result in a significant effect to the above environmental factors, and accordingly, these factors were not subject to detailed environmental assessment within the assessment reports of Covalent Lithium (2019) or EPA (2019).

Similarly, the Revised Proposal is considered unlikely to result in a significant effect to the above environmental factors, and accordingly, these factors have not been subject to detailed environmental assessment within this Environmental Review Document. Whilst noting this, Table 7-1 provides a summary assessment of how these other environmental factors have been considered for the Proposal (Approved Proposal and Revised Proposal combined).

Table 7-1 Assessment and Management of Other Factors.

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
Theme: Land				
Landforms	EPA Objective: *"To maintain the variety and integrity of distinctive physical landforms so that environmental values are protected."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Landforms (EPA 2018a)	Whilst noting the Proposal is located at the abandoned Mt Holland Mine Site, the landmark of Mount Holland (to 477 m Australian Height Datum (AHD)) is located south of the Proposal. Land topography within the Development Envelope is generally subdued, with land elevation ranging between 460 m AHD in the north-west to 390 m AHD in the south-east. Natural land gradients across the Development Envelope are gentle, being typically < 2 degrees. There are no distinctive, unique, or restricted landforms within the Development Envelope (Kidman & Blueprint 2017). The abandoned Mt Holland Mine Site is largely unrehabilitated, with part of the natural landforms altered through excavation of Mine Pits (depth) and construction of Waste Rock Landforms and Tailings Storage Facilities (elevated structures).	The Proposal will involve the excavation of a Mine Pit (depth), and the construction of a Waste Rock Landform and Tailings Storage Facility (elevated structures). The effect of these works will result in a change to the physical landforms within the Development Envelope. Further, the Proposal will require the clearing of native vegetation and soils within parts of the Development Envelope; resulting in a physical change to the environmental values currently supported by the landforms. Progressive and post-mining rehabilitation works will seek to restore the environmental values within the physically altered landforms. The progressive and post-mining rehabilitation works will include parts of the abandoned Mt Holland Mine Site (for areas used for the Proposal). Altered landforms currently exist within the Development Envelope, including landforms that are currently unrehabilitated (and therefore of limited environmental value). The physical landform alterations by the Proposal will not be inconsistent with the previously approved landform alterations (however, will be rehabilitated to restore environmental values). Noting the absence of distinctive, unique, or restricted landforms, and that the landform alterations proposed for the Proposal are not inconsistent with the current landforms, the effect of the Proposal to landforms is not considered to be environmentally significant.	Noting there are no distinctive, unique, or restricted landforms within the Development Envelope, and that the landform alterations proposed are not inconsistent with the current landforms, the effect of the Proposal to landforms is not considered to be environmentally significant. In order to manage the general environmental effects of the Proposal, Covalent Lithium has prepared the following EMP for to manage the environmental effects of the Proposal: o Mine Closure Plan (Covalent Lithium 2021d) Consistent with the management actions initially outlined within Covalent Lithium (2019), the Mine Closure Plan incorporates general environmental management actions for progressive and post-mining rehabilitation works (including within previously cleared-disturbed lands) expected to restore the environmental values associated with landforms. The Proposal is not expected to result in a significant detrimental effect to the variety, integrity, ecological function or environmental values of landforms within the Development Envelope. Accordingly, the EPA's objective for the environmental factor of *'Landforms'* can be met.

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
Terrestrial Environmental Quality	EPA Objective: *"To maintain the quality of land and soils so that environmental values are protected."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Terrestrial Environmental Quality (EPA 2016d)	Mining in the area has a history spanning > 30 years, with mining at the Mt Holland Mine Site having commenced in year 1988 and continuing until 2001. Numerous other mine pits occur within a 10 km radius. The abandoned Mt Holland Mine Site is largely unrehabilitated, with significant disturbance to the land and soils that are both surficial and at depth/elevation (Mine Pit, Waste Rock Landforms, Tailings Storage Facilities). Within the Development Envelope (2,347 ha) there is approximately 503 ha of cleared / disturbed land, as identified by Figure 2-5. The remainder of the land areas within the Development Envelope comprises native vegetation, totalling 1,844 ha, ranging in health condition from 'Excellent' to 'Poor'. Soil and landform assessment within the development Envelope identified 2 soil/landform units comprising gently undulating sandplain with duplex sandy gravel, and broad valleys and drainage lines with yellow/brown loamy duplex (MBS 2017c).	Covalent Lithium proposes to maximise the use of existing cleared / disturbed lands as far as practicable in order to minimise the disturbance of land and soils associated with new land clearing. The use of existing cleared / disturbed lands includes the proposed reuse of the existing Western Tailings Storage Facility, which following use by the Proposal, would enable this facility to be covered and closed appropriately. Many of the infrastructure components for the Proposal will be surficial (i.e. limited to the ground surface), however, a number infrastructure components will result in substantial land and soil disturbance (i.e. Mine Pit, Waste Rock Landforms). The waste rock types to be excavated from the Mine Pit include 'fresh' waste rock (geochemically benign, erosion resistant), 'transitional' waste rock (slightly-moderately saline, low soluble toxicants, varying erosion resistance) and 'oxide' waste rock (low soluble toxicants, saline, dispersive). Geochemical characterisation of waste rock (MBS 2017b, 2020a, 2020b, 2021a, 2021b) has confirmed the majority of the waste rock materials are non-acid forming and therefore not anticipated to be an environmental risk to the surrounding land, soils and groundwater. The proposed Tailings Storage Facility does not intersect any major surface water drainage lines or creek lines, and groundwater occurs at a depth of > 50 m with no groundwater-dependent vegetation present. Groundwater quality is typically saline to hypersaline. The proposed 'wet'	Covalent Lithium proposes to maximise the use of existing cleared / disturbed lands as far as practicable. This approach will minimise the minimise the disturbance of land and soils associated with new land clearing. Tailings and waste rock disposal have been geochemically assessed and are considered not to present a significant additional risk to terrestrial environmental quality. In order to manage the general environmental effects of the Proposal, Covalent Lithium has prepared the following EMPs to manage the environmental effects of the Proposal: o Construction EMP (Covalent Lithium 2020b) o Mine Closure Plan (Covalent Lithium 2021d) Consistent with the management actions initially outlined within Covalent Lithium (2019), the EMP and Mine Closure Plan incorporate general environmental management actions aimed at protecting and minimising the effect to terrestrial environmental quality, and with the proposed progressive and post-mining rehabilitation works (including within previously cleared-disturbed lands) expected to restore the land and soils values associated with terrestrial environmental quality. Physical and geochemical characterisation of waste rock materials will be an ongoing process during mining; consistent with the conditions imposed by DMIRS under the State *Mining Act 1978* (WA) for the Approved Proposal. The approach for ongoing physical and geochemical

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
			Tailings Storage Facility has been subject to a number of engineering design assessments, peer reviews and geochemical assessments (Coffey 2021; SRK 2020, 2021; P O'Bryan & Assoc. 2021; ATC Williams 2021; MBS 2017a, G Campbell & Assoc 2021), with the geochemical assessments confirming the tailings to be environmentally benign (non-reactive, non-polluting, non-acid forming, moderately alkaline) with no significant environmental risks identified (including nil risk to groundwater). In context with the above, Coffey (2021) and Graeme Campbell & Associates (2021) identify stringent control measures to prevent seepage are not necessary, with management via standard seepage minimisation (i.e. water removal and recycling via decant pump, cut-off trench beneath perimeter embankment).	characterisation provides a mechanism by which waste rock material properties are identified, managed and appropriately disposed of in a manner which minimises the potential for risk to the environment. The Proposal is not expected to result in a significant detrimental effect to the quality of land or soils, or the ecological and social values which they support. Accordingly, the EPA's objective for the environmental factor of 'Terrestrial Environmental Quality' can be met.
Subterranean Fauna	EPA Objective: *"To protect subterranean fauna so that biological diversity and ecological integrity are maintained."* (EPA 2021d) EPA Guidance: o Technical Guidance: Subterranean Fauna Survey (EPA 2016e)	Subterranean fauna assessment (Bennelongia 2018, 2019) indicates the area of the Proposal is unlikely to support a significant subterranean faunal community as a result of unsuitable geologies, hypersaline groundwater and depth to groundwater. Low connectivity exists between fractured rock aquifers at the Proposal (Mine Pit and borefield) and the calcrete aquifers to the south. Potential subterranean fauna habitat in palaeochannel units, including calcrete, will not be removed through excavations by the Proposal. Groundwater in the area of the Proposal is hypersaline and therefore not expected to support a stygofauna community.	The Proposal is considered unlikely to result in a significant effect to subterranean fauna, noting the area of the Proposal has been assessed as unlikely to support a significant subterranean faunal community due to unsuitable geologies, hypersaline groundwater and depth to groundwater. Groundwater abstraction for the Proposal will be consistent with the abstraction volumes previously assessed and approved for the borefield; such that any subterranean fauna (if present) would not be subject to significant additional environmental effects.	The Proposal is considered unlikely to result in a significant effect to subterranean fauna, noting the area of the Proposal has been assessed as unlikely to support a significant subterranean faunal community due to unsuitable geologies, hypersaline groundwater and depth to groundwater. Accordingly, the EPA's objective for the environmental factor of *'Subterranean Fauna'* can be met. No management actions with respect to subterranean fauna are proposed.

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
Theme: Water				
Inland Waters	EPA Objective: *"To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Inland Waters (EPA 2018b)	The Proposal is located in the Lake Eva sub-catchment of the Avon / Yilgarn Basin. Within the Development Envelope, there are no recorded groundwater dependent ecosystems, or temporary or permanent surface water features (e.g. wetlands). There are no recorded beneficial uses of the surface water or groundwater in proximity to the Proposal. Natural surface water drainage within the abandoned Mt Holland Mine Site has been altered due to the construction of landforms such as Mine Pits, Waste Rock Landforms and Tailings Storage Facilities, as well as through construction of minor infrastructure components including roads and earthen bunds. Surface water drainage generally occurs as surface 'sheet flow'. Surface water drainage is expected to be high in suspended solids due to concentration of flows from unrehabilitated lands, but otherwise being of good quality (low contaminants). Surface water drainage from the existing Tailings Storage Facilities may be expected to be of poorer quality due to contamination from the historic tailings processing. Groundwater in the local area has been recorded as saline to hypersaline. Within the mining area of the Proposal, groundwater has been encountered at approximately 60 m to 70 m below the ground level, and indicated to be low-yielding in volume. Groundwater for the Proposal will be sourced from a higher-yielding shallow caprock aquifer located	The Proposal will result in an alteration of local surface water drainage within the Development Envelope through the construction of landforms such as Mine Pits, Waste Rock Landforms and Tailings Storage Facilities, as well as through construction of minor infrastructure components including roads and earthen bunds. The Proposal does not intersect any major surface water drainage lines or creek lines. The effect of the Proposal to surface water drainage will be locally confined (nil effect beyond the Development Envelope), with the changes not inconsistent with the prior authorised landform changes associated with the abandoned Mt Holland Mine Site. Noting the absence of recorded groundwater dependent ecosystems and temporary/ permanent surface water features, the environmental effect of the Proposal to surface water is unlikely to be environmentally significant. Groundwater occurs at depth (> 50 m below ground level) and is typically saline to hypersaline. Groundwater for the Proposal will be sourced from a higher-yielding shallow caprock aquifer located within the southern extent of the Development Envelope. The groundwater hydrology is well understood from the > 10 years of operation associated with the abandoned Mt Holland Mine Site. Groundwater abstraction for the Proposal will be in accordance with the prior assessment and approval by DWER in accordance with the	In order to manage the general environmental effects of the Proposal, Covalent Lithium has prepared the following EMP for to manage the environmental effects of the Proposal: o Construction EMP (Covalent Lithium 2020b) Consistent with the management actions initially outlined within Covalent Lithium (2019), the EMP incorporates standard mine operational controls aimed at protecting and minimising the effect to surface water and groundwater, which generally include – o Groundwater abstraction for the Proposal will be in accordance with the prior assessment and approval by DWER in accordance with the *Rights in Water and Irrigation Act 1914* (WA). o Surface water will be allowed to continue to flow via culverts / floodways (i.e. surface water flows not stopped or diverted), such that downstream surface water flows will continue to environmental values downgradient o Within the Processing Area, diversion bunds will be installed to separate potentially contaminated surface waters, with such waters re-used or transferred to the Tailings Storage Facility or a lined dam. o Pipelines transferring saline water or tailings will be positioned within earthen bunds to contain any potential discharges from leaks/ruptures, and fitted with automated leak detection systems to provide an early warming of

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
		within the southern extent of the Development Envelope. Groundwater quality is indicated to contain low-level elevated metal concentrations.	*Rights in Water and Irrigation Act 1914* (WA). Accordingly, the groundwater requirements for the proposal have been subject to prior assessment and approval, and accordingly, are not anticipated to be environmentally significant. The waste rock types to be excavated from the Mine Pit include 'fresh' waste rock (geochemically benign, erosion resistant), 'transitional' waste rock (slightly-moderately saline, low soluble toxicants, varying erosion resistance) and 'oxide' waste rock (low soluble toxicants, saline, dispersive). Geochemical characterisation of waste rock (MBS 2017b, 2020a, 2020b, 2021a, 2021b) has confirmed the majority of the waste rock materials are non-acid forming and therefore not anticipated to be an environmental risk to the surrounding land, soils and groundwater. The proposed 'wet' Tailings Storage Facility has been subject to a number of engineering design assessments, peer reviews and geochemical assessments (Coffey 2021; SRK 2020, 2021; P O'Bryan & Assoc. 2021; ATC Williams 2021; MBS 2017a, G Campbell & Assoc 2021), with the geochemical assessments confirming the tailings to be environmentally benign (non-reactive, non-polluting, non-acid forming, moderately alkaline) with no significant environmental risks identified (including nil risk to groundwater). In context with the above, Coffey (2021) and Graeme Campbell & Associates (2021) identify stringent control measures to prevent seepage are not necessary, with management via standard seepage minimisation (i.e. water removal and	any leak/rupture. Pipelines will be routinely inspected for operability and maintenance. o Operational management (as above) will be supported by opportunistic water quality sampling of surface waters, and routine water quality sampling of groundwater. Covalent Lithium will undertake environmental monitoring of the groundwater surrounding the Tailings Storage Facility during mine operations, as part of understanding any potential environmental effects which may effect mine closure. The environmental monitoring will involve monitoring of groundwater levels and groundwater quality from water samples collected from groundwater bores established surrounding the Tailings Storage Facility. To additionally note, the progressive and post-mining restoration of parts of the abandoned Mt Holland Mine Site, including actions to reinstate natural surface water drainage as far as practicable, can be expected to result in an improvement in the management of surface water within such areas. In consideration of the potential environmental effect of the Proposal to inland waters, and the standard operational management actions proposed, the Proposal is not expected to result in a significant detrimental effect to inland waters (surface water and groundwater). Accordingly, the EPA's objective for the environmental factor of 'Inland Waters' can be met.

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
			recycling via decant pump, cut-off trench beneath perimeter embankment). The Tailings Storage Facility will be designed and constructed consistent with the DMIRS (2013) document *Code of Practice: Tailings Storage Facilities in Western Australia*. To avoid doubt, the Proposal does not include any requirement for direct water discharge into the environment (to surface water or to groundwater).	
Theme: Air				
Air Quality	EPA Objective: *"To maintain air quality and minimise emissions so that environmental values are protected."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Air Quality (EPA 2020c)	The abandoned Mt Holland Mine Site is largely unrehabilitated, with approximately 503 ha of cleared / disturbed land areas within the Development Envelope that are susceptible to wind-blown air emissions of dust. The remainder of the Development Envelope comprises native vegetation in which air emissions of dust are likely to be low. There are no existing land uses or residential dwellings in the vicinity of the Proposal that could be affected by changes in air quality.	Air emissions of dust from mining operations can occur from activities including land clearing, drilling, blasting, excavation, loading and unloading of ore and waste rock, vehicle movements on unsealed roads, and from wind passing over cleared land areas. Dust has the potential to detrimentally affect the health of flora and vegetation through shading, limiting gaseous transfer and/or an increase leaf temperature. Based upon previous studies, the potential effect of dust air emissions to flora and vegetation is likely to be limited to the area adjacent to the mining operations (approximately < 10 m) with the environmental effect being a temporary reduction in the vegetation health condition (rather than mortality).	Air emissions of dust from mining operations can occur from a variety of activities, with the potential effect to flora and vegetation values able to be minimised through standard operational controls In order to manage the general environmental effects of the Proposal, Covalent Lithium has prepared the following EMP for to manage the environmental effects of the Proposal: o Construction EMP (Covalent Lithium 2020b) o Mine Closure Plan (Covalent Lithium 2021d) Consistent with the management actions initially outlined within Covalent Lithium (2019), the EMP and Mine Closure Plan incorporates general environmental management actions aimed at protecting and minimising the effect of air emissions, including minimising the extent of cleared (exposed) areas, suppression of dust through dampening with groundwater, water sprays and emissions control on processing equipment, minimising vehicle traffic and vehicle speeds on unsealed roads, and

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
				rehabilitation of cleared / disturbed land areas. Implementation of the above management actions is expected to ensure that the potential environmental effect of the Proposal to air quality is minimised and controlled to an acceptable level. In consideration of the potential environmental effect of the Proposal on air quality, and the management actions proposed to minimise air emissions of dust, the Proposal is not expected to result in a significant detrimental effect to air quality. Accordingly, the EPA's objective for the environmental factor of 'Air Quality' can be met.
Greenhouse Gas Emissions	EPA Objective: *"To reduce net greenhouse gas emissions in order to minimise the risk of environmental harm associated with climate change."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Greenhouse Gas Emissions (EPA 2020d)	Not applicable	The Proposal will result in the generation of greenhouse gas emissions from burning of diesel fuels in generators and mining vehicles (light vehicles and heavy haulage). Subject to site layout constraints (e.g. locations of conservation significant flora taxa and fauna taxa), the Indicative Site Layout has been designed to minimise the length of vehicle haulage routes in order to minimise diesel fuel use in mining vehicles. Power supply to the Proposal may be sourced through a standard electricity transmission line (grid connection); with the consideration of greenhouse gas emissions for that energy applicable to the energy source/provider (not the Proposal). The Revised Proposal includes provision (option) for a nominal 12 megawatt Solar Plant; which, if implemented (subject to economic assessment), would be expected to result in a net reduction in the	Due to the relatively small spatial size and the low mining rate/volume for the Proposal (in comparison to other larger-scale mining operations, for example, iron ore mining), the anticipated greenhouse gas emissions from the Proposal are not anticipated to be environmentally significant. Whilst noting the above, greenhouse gas emission volumes will be measured and reported in accordance with the Commonwealth *National Greenhouse and Energy Reporting Act 2007* (C'th). In consideration of the anticipated low greenhouse gas emissions from the mine operations, and with emissions measurement and reporting through other legislative processes, it is considered the EPA's objective for 'Greenhouse Gas Emissions' can be met.

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
			anticipated greenhouse gas emissions for the Revised Proposal (in comparison to the Approved Proposal). Modelling of greenhouse gas emissions by Greenbase (2021) indicates the anticipated emissions from the Proposal during mining operations to be approximately 84,000 t CO_2-e (annual average, Scope 1 emissions), with these emissions reduced to approximately 70,000 t CO_2-e where the emissions are offset by the proposed Solar Plant (annual average, Scope 1 emissions). In a case whereby electricity is purchased from a third-party (i.e. Scope 2 emissions) in lieu of on-site generation, Greenbase (2021) estimates the total emissions from the Proposal during mining operations to be approximately 75,000 t CO_2-e (annual average, Scope 1 and Scope 2 emissions combined). Scope 3 emissions have been estimated at approximately 665,000 t CO_2-e (annual average, Scope 3 emissions only). Benchmarking of greenhouse gas emissions against publicly available information for other Australian hard-rock lithium mines indicates the emissions intensity of the Proposal (i.e. t CO_2-e emissions per tonne spodumene concentrate produced) is in-line with (or lower than) the benchmark sies (Greenbase 2021). Due to the relatively small spatial size and low mining rate / volume (in comparison to larger-scale mining operations, e.g. iron ore mining), the anticipated greenhouse gas emissions from the Proposal are not anticipated to be environmentally significant.	

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
Theme: Sea				
Benthic Communities and Habitat	EPA Objective: *"To protect benthic communities and habitats so that biological diversity and ecological integrity are maintained."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Benthic Communities and Habitats (EPA 2016f)	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable – the Proposal is not located in proximity to the marine environment.
Coastal Processes	EPA Objective: *"To maintain the geophysical processes that shape coastal morphology so that the environmental values of the coast are protected."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Coastal Processes (EPA 2016g)	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable – the Proposal is not located in proximity to the marine environment.

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
Marine Environmental Quality	EPA Objective: *"To maintain the quality of water, sediment and biota so that environmental values are protected."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Marine Environmental Quality (EPA 2016h)	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable – the Proposal is not located in proximity to the marine environment.
Marine Fauna	EPA Objective: *"To protect marine fauna so that biological diversity and ecological integrity are maintained."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Marine Fauna (EPA 2016i)	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable – the Proposal is not located in proximity to the marine environment.	Not applicable – the Proposal is not located in proximity to the marine environment.
Theme: People				
Social Surroundings	EPA Objective: *"To protect social surroundings from significant harm."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Social Surroundings (EPA 2016j)	The Holland Track, a local four-wheel drive vehicle track, passes to the south and east of the Development Envelope, intersecting the Indicative Site Layout at the southern end (borefield road). Public use of the Holland Track is known to be intermittent / infrequent. The area of the Proposal does not contain any Registered or reported sites / objects of Aboriginal heritage protected	Use of the Holland Track is intermittent / infrequent. The Proposal is not expected to affect access or use (including amenity of use) of the Holland Track. The area of the Proposal does not contain any Registered or reported sites / objects of heritage significance protected under either the *Aboriginal Heritage Act 1972* (WA) or the *Heritage Act 2018* (WA).	The Proposal will not affect access, use or amenity of the Holland Track. Consideration of signage may be appropriate to minimise the potential for risk of inadvertent public access to the mining operations via the Holland Track. The area of the Proposal does not contain any recorded sites / objects of heritage significance under either the *Aboriginal Heritage Act 1972* (WA) or the *Heritage Act 2018* (WA).

FACTOR	EPA OBJECTIVE AND GUIDANCE	NATURAL AND HUMAN ENVIRONMENT	POTENTIAL ENVIRONMENTAL EFFECT	MANAGEMENT AND PREDICTED OUTCOME
		under the State *Aboriginal Heritage Act 1972* (WA). The area of the Proposal does not contain any recorded site of cultural heritage significance protected under the State *Heritage Act 2018* (WA).		With the exception of consideration of operational signage for the Holland Track, no management actions with respect to Social Surroundings are proposed. Accordingly, the EPA's objective for the environmental factor of *'Social Surroundings'* can be met.
Human Health	EPA Objective: *"To protect human health from significant harm."* (EPA 2021d) EPA Guidance: o Environmental Factor Guideline: Human Health (EPA 2016k)	Not applicable – the Proposal is not located in proximity to occupied residences (receptors) for which human health could be affected.	Not applicable – the Proposal is not located in proximity to occupied residences (receptors) for which human health could be affected.	Not applicable – the Proposal is not located in proximity to occupied residences (receptors) for which human health could be affected.

8 Environmental Offsets

8.1 Environmental Offsets for Approved Proposal

As outlined by the *WA Environmental Offsets Policy* (Government of WA 2011) and the *WA Environmental Offsets Guidelines* (Government of WA 2014), and as supported by the EPA (2014) document *Environment Protection Bulletin No 1 Environmental Offsets*, an 'Environmental Offset' is an action which provides an environmental benefit to counterbalance a significant residual environmental effect or risk of a project. Environmental offsets are determined on a project-by-project basis, and are applied only to significant residual environmental effects (not applied to minor environmental effects).

In the environmental assessment of the Approved Proposal by EPA (2019), it was concluded the Approved Proposal may result in a significant residual environmental effect to the following flora and vegetation values and fauna values:

- Flora Taxa -
  - *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V)
  - *Microcorys elatoides* (DBCA-P1)
- Fauna Habitat -
  - Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)
  - Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V)

As a result, the subsequent approvals under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) identified the following environmental offsets to be required for the Approved Proposal:

- Flora Offset Strategy
  (Covalent Lithium 2020a, Condition 8 of Statement 1118 approval)
- Ironcaps Banksia Conservation Plan
  (Covalent Lithium 2021e, Condition 5 of EPBC Decision 2017/7950)
- Threatened Fauna Land Acquisition Strategy
  (Covalent Lithium 2021f, Condition 8 of Statement 1118 approval)
- Fauna Offset Management Plan
  (Covalent Lithium 2021f, Condition 4 of EPBC Decision 2017/7950 approval)

The purpose of the Flora Offset Strategy is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides* to be removed by the Approved Proposal through identification of land areas for conservation purposes (including financial contribution, on-site management and monitoring) which contain these flora values. A Flora Offset Strategy (Covalent Lithium 2020a) has been prepared by Covalent Lithium and submitted to EPA in accordance with Condition 8 of the Statement 1118 approval.

The purpose of the Ironcaps Banksia Conservation Plan is to is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* to be removed by the Approved Proposal through establishing (in rehabilitation works) an equivalent number of individuals within the Development Envelope. An Ironcaps Banksia Conservation Plan (Covalent Lithium 2021e) has been prepared by Covalent Lithium, and subsequently approved by DAWE (2021d) in accordance with Condition 5 of the EPBC Decision 2017/7950 approval.

The purpose of the Threatened Fauna Land Acquisition Strategy is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Approved Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat

area(s) for these taxa. A Threatened Fauna Land Acquisition Strategy (Covalent Lithium 2021f) has been prepared by Covalent Lithium and submitted to EPA in accordance with Condition 8 of the Statement 1118 approval.

The purpose of the Fauna Offset Management Plan is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Approved Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa. A Fauna Offset Management Plan (Covalent Lithium 2021f) has been prepared by Covalent Lithium, and subsequently approved by DAWE (2021f) in accordance with Condition 4 of the EPBC Decision 2017/7950 approval.

8.2 Environmental Offsets for Revised Proposal

The Revised Proposal will occur entirely within the previously assessed Development Envelope (nil change), and accordingly, the same key environmental factors of 'Flora and Vegetation' and 'Terrestrial Fauna' are considered to apply to the Revised Proposal.

The environmental approvals for the Approved Proposal under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) provide an established framework for the application of environmental offsets; with this framework considered to equally to provide an appropriate framework for the consideration and application of environmental offsets for the Revised Proposal.

Flora and Vegetation

In regard to the key environmental factor of 'Flora and Vegetation', the additional area of native vegetation clearing and other process changes associated with the Revised Proposal is not considered to result in any significant detrimental effect to the flora taxa of listed conservation significance. Accordingly, an additional environmental offset for the key environmental factor of Flora and Vegetation has not been proposed for the Revised Proposal.

With specific regard to the flora taxon *Microcorys elatoides* (DBCA-P1), whilst the Revised Proposal will result in an increase in the number of individuals to be removed (in addition to the Approved Proposal), the environmental effect to *Microcorys elatoides* in no longer considered to be environmentally significant. In the environmental assessment of the Approved Proposal, the EPA (2019) identified the effect to *Microcorys elatoides* (DBCA-P1, then known as *Microcorys* sp. Mt Holland) to be of concern as a newly discovered flora taxon with a restricted distribution and < 11,000 individuals recorded regionally (with a projected estimate of < 45,000 individuals). The Approved Proposal was anticipated to affect approximately 14 % of the projected regional population estimate. As outlined within this ERD, the known regional population of *Microcorys elatoides* is now substantially larger with > 85,000 individuals recorded; with the Approved Proposal and the Revised Proposal (combined) to remove < 9 % of recorded regional population (being notably lower than the originally estimated 14 % in the 2019 assessment). In the context of the substantially larger regional population, the environmental effect of the Approved Proposal and the Revised Proposal (combined) to *Microcorys elatoides* is not considered to be environmentally significant, and accordingly, additional environmental offsets have not been proposed for this taxon.

Whilst noting the above, it is acknowledged the Flora Offset Strategy and the Ironcaps Banksia Conservation Plan will require a minor administrative amendment to reflect the changes to the boundaries of the Flora Exclusion Areas (and any consequent changes to the flora monitoring locations) associated with the Revised Proposal.

Terrestrial Fauna

In regard to the key environmental factor of 'Terrestrial Fauna', the additional area of fauna habitat (native vegetation) clearing of 56 ha associated with the Revised Proposal will result in an increase in the clearing of fauna habitat available for *Leipoa ocellata* and *Dasyurus geoffroii*, which whilst independently may not be considered environmentally significant, in combination with the fauna habitat clearing for the Approved Proposal (386 ha), may be considered environmentally significant at a local scale.

Covalent Lithium proposes to provide an addition of a land acquisition environmental offset for fauna habitat clearing associated with the Revised Proposal which is proportionate to the land acquisition environmental offset applied to the Approved Proposal, and within the established environmental offsets framework for the Approved Proposal under the State *Environmental Protection Act 1986* (WA) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th), through implementation of a:

- Fauna Offset Strategy (Covalent Lithium 2022c)

The Fauna Offset Strategy for the Revised Proposal will seek to provide for the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for *Leipoa ocellata* and *Dasyurus geoffroii*; consistent with the environmental offset approach for the Approved Proposal.

The Fauna Offset Strategy aligns to the objectives and actions of the following guidance documents:

- *Malleefowl (Leipoa ocellata) National Recovery Plan* (DAWE 2007)
- *Chuditch (Dasyurus geoffroii) National Recovery Plan* (DAWE 2012a)

Both National Recovery Plans have been endorsed by the Commonwealth Minister for Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th), and identify the accepted approach and methodology for the recovery of each taxon.

As outlined within the Fauna Offset Strategy, Covalent Lithium has identified a number of preliminary land acquisition targets which contain potentially suitable habitat for both *Leipoa ocellata* and *Dasyurus geoffroii*. Biological surveys have been undertaken to confirm the suitability of the habitat for *Leipoa ocellata* and *Dasyurus geoffroii*, and to determine the presence of these taxa.

The land acquisition targets being considered are currently privately owned. Accordingly, the Fauna Offset Strategy (publicly available version) redacts information which may identify the specific locations of the land acquisition targets being considered.

The area of native vegetation with each of the land acquisition targets range in size from approximately 500 ha to 2,100 ha. As the area of native vegetation required as an environmental offset for the Revised Proposal is limited (approximately 220 ha required to offset 56 ha of native vegetation clearing (nominally at 1:4 offset ratio)), each of the land acquisition targets will meet 100 % of the offset requirement for the Revised Proposal. The specific area required for the environmental offset will be subject to an assessment of each of the land acquisition targets in accordance with the DAWE (2012b) *Offsets Assessment Guide* (commonly referred to as the EPBC Offsets Calculator).

Subject to endorsement of the approach outlined within the Fauna Offset Strategy by EPA and DAWE (and other key stakeholders, as may be appropriate), Covalent Lithium would seek to acquire the land acquisition target(s) for subsequent inclusion into the State reserve system (to be managed by DBCA) and protected for the purpose of conservation. It is proposed that Covalent Lithium would provide financial resources targeting the following key actions to counterbalance the additional effect to fauna habitat associated with the Revised Proposal:

- Land acquisition of the offset site(s)
- Introduced fauna control (which conceptually may include predator baiting/capture, exclusion fencing)
- Biological monitoring of the population
- Environmental management

Table 8-1 identifies how the above approach aligns to the management actions outlined within the DAWE (2007) *Malleefowl (Leipoa ocellata) National Recovery Plan*.

Table 8-2 identifies how the above approach aligns to the management actions outlined within the DAWE (2012a) *Chuditch (Dasyurus geoffroii) National Recovery Plan*.

In addition to the land parcels already identified by Covalent Lithium in the Fauna Offset Strategy, DBCA has identified to Covalent Lithium an additional land parcel containing approximately 660 ha of native vegetation which may be suitable for consideration as an additional land acquisition target for the Revised Proposal. Preliminary biological surveys are being undertaken of this land parcel to assess the suitability of the fauna habitat for *Leipoa ocellata* and *Dasyurus geoffroii*. If this additional land parcel is considered suitable, the land parcel will be incorporated within a subsequent revision of the Fauna Offset Strategy to allow for the consideration of this land parcel for acquisition as an environmental offset.

Residual Impact Significance Model

The *WA Environmental Offsets Guidelines* (Government of WA 2014) identifies a *Residual Impact Significance Model* table for consideration of environmental offsets. A completed Residual Impact Significance Model table is provided at Table 8-3.

PROPOSED OFFSET ACTION	ALIGNMENT TO RECOVERY PLAN
Land Acquisition of Offset Site(s)	*Action 1.1 Retain areas that support Malleefowl, and those that support Malleefowl habitat, and protect them from incremental clearing.*
	Action 5.1 Develop strategic corridors of native vegetation to connect patches of habitat that are suitable for Malleefowl.
Introduced Fauna Control	*Action 2.3 Erect adequate fencing to protect Malleefowl habitat.*
	Action 2.4 Reduce rabbit numbers where they are abundant in or near Malleefowl habitat.
	Action 4.2 Reduce fox numbers in small and isolated habitat remnants.
	Action 4.3 Reduce fox numbers in large areas of native habitat where Malleefowl densities have declined and fox predation is a likely explanation for such declines.
Biological Monitoring	*Action 9.1 Analyse and review monitoring data. Recommend improvements and develop site-specific management plans for monitoring sites, consistent with a national adaptive management design.*
	Action 10.1 Detail the distribution of Malleefowl in remote areas of SA and WA by field surveys, and describe the habitats in which Malleefowl are found.
Environmental Management	*Action 9.2 Monitor and manage existing monitoring sites across Australia.*
	Action 17.1 Publicise the recovery effort, beneficial management practices, and the contributions made by community groups.

Table 8-1 Alignment of Proposed Environmental Offsets to the DAWE (2007) *Malleefowl (Leipoa ocellata) National Recovery Plan*

PROPOSED OFFSET ACTION	ALIGNMENT TO RECOVERY PLAN
Land Acquisition of Offset Site(s)	*Action 1. Retain and improve habitat critical for survival* o *Identify areas of remnant vegetation that can be protected or enhanced through re-vegetation.* o *New areas of suitable habitat acquired through land acquisition process.* o *Habitat identified through Environmental Impact Assessment and negotiated through off-set.*
	Action 7. Undertake and monitor translocations to increase the extent of occurrence o *Develop a translocation strategy.* *Monitor the success of past and future translocations.*
Introduced Fauna Control	*Action 4. Continue, expand and improve baiting of foxes and feral cats* o *Encourage baiting programs on other land tenures.* o *Effective baiting programs (e.g. Western Shield Program1) for feral cats and foxes.*
Biological Monitoring	*Action 5. Determine population abundance and distribution of Chuditch populations* o *Identify, develop protocols and implement monitoring at 'key populations'.*
	Action 6. Establish reference sites for monitoring Chuditch population abundance to evaluate the effectiveness of fox and cat control o *Identify reference sites spread across the range of Chuditch which incorporate where fox and potentially cat control will take place.* o *Monitor Chuditch populations at reference sites to determine the effectiveness of fox and cat control.*
	Action 7. Undertake and monitor translocations to increase the extent of occurrence o *Develop a translocation strategy.* o *Monitor the success of past and future translocations.*
Environmental Management	*Action 9. Coordinate recovery implementation* o *Involve relevant stakeholders in the coordination and implementation of this recovery plan through their participation in the Chuditch Recovery Team.*

Table 8-2 Alignment of Proposed Environmental Offsets to the DAWE (2012a) *Chuditch (Dasyurus geoffroii) National Recovery Plan*.

Table 8-3 Residual Impact Significance Model.

PART IV ENVIRONMENTAL FACTORS	VEGETATION AND FLORA							ALL FACTORS
						SUBTERRANEAN FAUNA		
					MARINE FAUNA			
		BENTHIC HABITAT AND COMMUNITIES			BENTHIC HABITAT AND COMMUNITIES			
				TERRESTRIAL FAUNA				
	RARE FLORA	THREATENED ECOLOGICAL COMMUNITIES	REMNANT VEGETATION	WETLANDS & WATERWAYS	CONSERVATION AREAS	HIGH BIOLOGICAL DIVERSITY	HABITAT FOR FAUNA	OTHER
Residual impact that is environmentally unacceptable or cannot be offset	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Significant residual impacts that will require an offset – *All significant residual impacts to species and ecosystems protected by statute or where the cumulative impact is already at a critical level*	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Significant residual impacts that may require an offset – *Any significant residual impact to potentially threatened species and ecosystems, areas of high environmental value or where the cumulative impact may reach critical levels if not managed*	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	The Approved Proposal has been authorised to remove up to 386 ha of native vegetation providing fauna habitat for the 'Threatened' fauna taxa Malleefowl *Leipoa ocellata* (EPBC-V, BC-V) and Chuditch *Dasyurus geoffroii* (EPBC-V, BC-V); and for which the requirement for environmental offsets have previously been determined. The Revised Proposal seeks to remove an additional 56 ha of native vegetation providing fauna habitat for Malleefowl and Chuditch. Whilst the clearing of 56 ha of fauna habitat clearing is unlikely to independently result in a significant effect to Malleefowl or Chuditch, Covalent Lithium has proposed to offset the environmental effect to this fauna habitat through a land acquisition environmental offset; being consistent with the approach of the environmental conditions for the Approved Proposal previously determined by EPA. Refer to Section 6 *Terrestrial Fauna*, Section 8 *Environmental Offsets* and Section 11 *Environmental Management*.	Not applicable

PART IV ENVIRONMENTAL FACTORS	VEGETATION AND FLORA					SUBTERRANEAN FAUNA		ALL FACTORS
					MARINE FAUNA			
		BENTHIC HABITAT AND COMMUNITIES			BENTHIC HABITAT AND COMMUNITIES			
				TERRESTRIAL FAUNA				
	RARE FLORA	THREATENED ECOLOGICAL COMMUNITIES	REMNANT VEGETATION	WETLANDS & WATERWAYS	CONSERVATION AREAS	HIGH BIOLOGICAL DIVERSITY	HABITAT FOR FAUNA	OTHER
Residual impacts that are not significant	Not applicable – The Approved Proposal has been authorised to remove up to 2 individuals of the 'Threatened' flora taxon *Banksia sphaerocarpa* var. *dolichostyla* (EPBC-V, BC-V); and for which the requirement for environmental offsets have previously been determined. The Revised Proposal will not result in any change or increase in effect to Threatened flora taxa. Refer to Section 5 *Flora and Vegetation*.	Not applicable – No 'Threatened Ecological Communities' occur within the vicinity of the Approved Proposal or the Revised Proposal. Refer to Section 5 *Flora and Vegetation*.	Not applicable – The Approved Proposal and Revised Proposal are located within a region with largely intact native vegetation, with > 70,000 ha of native vegetation occurring within a 10 km radius. Accordingly, the area of the Approved Proposal and Revised Proposal does not comprise native vegetation that could be considered a significant remnant in an area that has been extensively cleared. Refer to Section 2.14 *Local and Regional Context*.	Not applicable – No wetlands or waterways occur within the vicinity of the Approved Proposal or the Revised Proposal. Refer to Section 7 *Other Environmental Factors*.	Not applicable – The Approved Proposal and the Revised Proposal do not occur within, or in the near vicinity of, any conservation area. The nearest conservation area is the Jilbadji Nature Reserve, located approximately 5 km north, with no potential for proposal-related effects. Refer to Section 2.14 *Local and Regional Context*.	Not applicable – The area of the Approved Proposal and the Revised Proposal may be considered to be within an area of high biodiversity, in particular, for flora taxa. Environmental offsets have previously been established for the effect of the Approved Proposal to flora taxa, including for the Threatened' flora taxon *Banksia sphaerocarpa* var. *dolichostyla* (EPBC-V, BC-V). The Revised Proposal will result in the removal of individuals of a number of DBCA-classified 'priority' flora taxa. The effect of the Revised Proposal is not considered to result in significant impact to these flora taxa in addition to that previously authorised for the Approved Proposal. The Revised Proposal is not anticipated to substantially reduce the extent of any biological or ecological values within the local area to an extent that such values will be detrimentally affected. Refer to Section 5 *Flora and Vegetation*.	Not applicable – No additional effects to fauna habitat are anticipated in addition to the effects outlined above. Refer to Section 6 *Terrestrial Fauna*.	Not applicable – The Approved Proposal and the Revised Proposal will not result in a significant effect to other environmental factors. Refer to Section 7 Other Environmental Factors.

9 Matters of National Environmental Significance

The Approved Proposal was granted environmental approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) in February 2020 through the EPBC Decision 2017/7950 (DAWE 2020). The environmental approval followed an environmental assessment of the Approved Proposal as outlined within an Environmental Review Document (Covalent Lithium 2019) and an assessment report by the EPA (2019). The Approved Proposal was assessed in accordance with the Bilateral Agreement (Commonwealth of Australia and the State of Western Australia 2014), whereby the EPA, on behalf of DAWE, undertook a single environmental assessment of the Proposal to satisfy the environmental assessment requirements of both the State *Environmental Protection Act 1986* (WA) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

The approved 'action' under the EPBC Decision 2017/7950 approval is to "*clear native vegetation to undertake open cut mining and processing of lithium ore, at the abandoned Mt Holland Mine Site"*. As the Revised Proposal is consistent with the approved action, and that the Revised Proposal will occur entirely within the assessed Development Envelope for the Approved Proposal, the Revised Proposal has been submitted to DAWE for assessment in accordance with Section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (C'th). Section 143 allows for the Commonwealth Minister for Environment (or as delegated to DAWE) to vary the environmental conditions attached to the EPBC Decision 2017/7950 approval for the management of the additional environmental effects of the Revised Proposal.

This Environmental Review Document (ERD) has been prepared to support the environmental assessment process for the Revised Proposal by identifying the biological surveys completed, assess the potential environmental effects, and outline the proposed environmental management approach. Consistent with the Approved Proposal, the environmental values listed as 'Matters of National Environmental Significance' (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th) coinciding with the Revised Proposal are:

- Flora Taxa -
  - Ironcaps Banksia *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V)
- Fauna Habitat -
  - Malleefowl *Leipoa ocellata* (BC-V, EPBC-V)
  - Chuditch *Dasyurus geoffroii* (BC-V, EPBC-V)

In regard to *Banksia sphaerocarpa* var. *dolichostyla*, whilst the Proposal (Approved Proposal and Revised Proposal combined) coincides with individuals of this taxon, the Revised Proposal will not result in any environmental effect greater than previously assessed and approved for the Approved Proposal. Accordingly, further consideration of the effect to *Banksia sphaerocarpa* var. *dolichostyla* is not considered to be necessary.

In regard to *Leipoa ocellata* and *Dasyurus geoffroii*, the Proposal (Approved Proposal and Revised Proposal combined) will result in an increase in the extent of fauna habitat (native vegetation) clearing utilised by these taxa (in addition to that assessed for the Approved Proposal), and accordingly, further consideration of the environmental effects relevant to the *Environment Protection and Biodiversity Conservation Act 1999* (C'th) is considered appropriate.

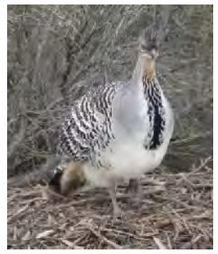
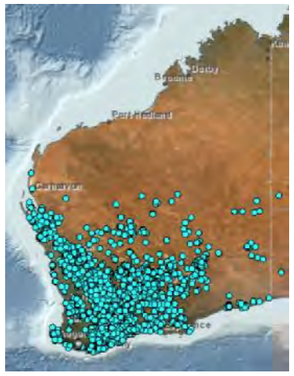
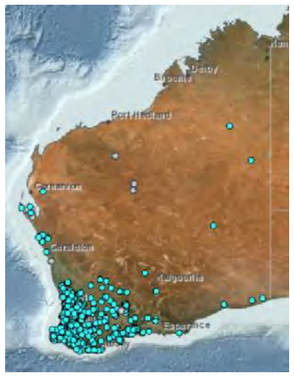
9.1 Assessment of Environmental Effects of the Revised Proposal

An assessment of the environmental effect of the Revised Proposal to the fauna habitat of *Leipoa ocellata* and *Dasyurus geoffroii* is outlined within Section 6 *Terrestrial Fauna.*

No direct effect to live individuals of either *Leipoa ocellata* or *Dasyurus geoffroii* is expected from the Revised Proposal.

The Revised Proposal will result in an increase in the extent of fauna habitat (native vegetation) clearing, in addition to that previously assessed and approved for the Approved Proposal. Table 9-1 identifies the extent of the fauna habitats occurring within the Development Envelope used by *Leipoa ocellata* and *Dasyurus geoffroii*, with comparison of the effect of the Approved Proposal and the Revised Proposal. The Revised Proposal is expected to result in a localised reduction in the extent of available habitat for *Leipoa ocellata* and *Dasyurus geoffroii*, noting the broader local and regional distributions of each taxon.

Table 9-1 Fauna Taxa Habitats within the Development Envelope

FAUNA TAXA (Conservation Status)	IMAGE	DESCRIPTION	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (Area, ha)	FIELD SURVEY RECORDS (Area, ha)			
						SURVEY AREA (Area, ha)	DEVELOPMENT ENVELOPE (Area, ha)	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (Area, ha) (% of Survey Area) [+0-10m, +10-50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (Area, ha) (% of Survey Area) [+0-10m, +10-50m]
Leipoa ocellata (BC-V, EPBC-V)	 Source: Globe Environments 2008	Large (~2 kg) brown and grey ground-dwelling bird which builds large nest-mounds on the ground made of leaf litter and soil materials. Breeding pairs mate for life, with the eggs are incubated in the nest mound completely self-sufficient.		> 1,500 km extending from Denham (north) to Albany (south) and eastwards to the South Australian border (DBCA 2021). Recorded across all mainland states of Australia except Queensland.	DBCA (2021) identifies > 4,500 location records across Western Australia. Estimated total ~100,000 breeding individuals with Extent of Occurrence of 4,000,000 ha (Garnett & Crowley 2000 cited in BirdLife 2021). Majority of records in Western Australia occur in the mid-west, south-west, wheatbelt and south coast areas. Recorded breeding throughout the Great Western Woodlands (BirdLife 2016).	3,317 (Mallee Woodland and Shrubland)	1,439	380 (11%) [59, 239]	436 (13%) [59, 239]
Dasyurus geoffroii (BC-V, EPBC-V)	 Source: Western Wildlife (2017)	Carnivorous marsupial with mostly brown fur and distinctive white spots. Chuditch previously occurred throughout most of mainland Australia, however is now largely restricted to the south-west of WA, with lesser numbers in the mid-west, wheatbelt and south-coast areas. Occurs in a range of habitats, but predominantly in Eucalyptus forests and woodlands, mallee shrublands and heathlands. Home ranges are large (up to 15 km^2), with individuals typically occurring in low densities. (DAWE 2012a; DBCA 2017).		> 1,500 km extending from Denham (north) to Albany (south) and eastwards to the South Australian border (DBCA 2021). Majority of records in Western Australia occur within south-west area.	DBCA (2021) identifies > 4,000 location records across Western Australia. Estimated total population < 10,000 individuals (DEC 2007 cited in DAWE 2012a).	3,771 (Mallee Woodland, Salmon Gum Woodland and Shrubland)	1,481	386 (10%) [63, 258]	442 (12%) [63, 258]

The DAWE (2013) document *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* identifies *'significant impact criteria'* to assist in determining whether the effect of a Proposal on a Matter of National Environmental Significance is likely to be environmentally significant, or not.

Consistent with the assessment of the Approved Proposal as outlined within Covalent Lithium (2019), in consideration of the Guidelines relevant to 'Vulnerable' taxa within DAWE (2013), for each of *Leipoa ocellata* and *Dasyurus geoffroii*, the Revised Proposal is not expected to:

- Lead to a long-term decrease in the size of a population
- Reduce the area of occupancy of the species
- Fragment an existing population into two or more populations
- Adversely affect habitat critical to the survival of a species
- Disrupt the breeding cycle of a population
- Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- Result in invasive species that are harmful to the species becoming established in the species' habitat
- Introduce disease that may cause the species to decline
- Interfere with the recovery of the species

Whilst noting the above, the environmental assessment by EPA (2019) determined the environmental effect of the Approved Proposal to the fauna habitat of *Leipoa ocellata* and *Dasyurus geoffroii* may be environmentally significant. As the Revised Proposal will result in a further reduction of the fauna habitat available to these taxa (in addition to that considered for the Approved Proposal), accordingly, the environmental effect of the Revised Proposal may also be considered to be environmentally significant.

As outlined within Section 8 *Environmental Offsets*, the authorisation of the Approved Proposal under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) identified the following environmental offsets to be required:

- Threatened Fauna Land Acquisition Strategy
  (Covalent Lithium 2021f; Condition 8 of Statement 1118 approval)
- Fauna Offset Management Plan
  (Covalent Lithium 2021f; Condition 4 of EPBC Decision 2017/7950)

The purpose of the Threatened Fauna Land Acquisition Strategy is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Approved Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa. A Threatened Fauna Land Acquisition Strategy (Covalent Lithium 2021f) has been prepared by Covalent Lithium and submitted to EPA in accordance with Condition 8 of the Statement 1118 approval.

The purpose of the Fauna Offset Management Plan is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Approved Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa. A Fauna Offset Management Plan (Covalent Lithium 2021f) has been prepared by Covalent Lithium, and subsequently approved by DAWE (2021f) in accordance with Condition 4 of the EPBC Decision 2017/7950 approval. Implementation of the Threatened Fauna Land Acquisition Strategy / Fauna Offset Management Plan can be expected to offset the environmental effects of the Approved Proposal to *L. ocellata* and *D. geoffroii*.

The Revised Proposal will not alter the objectives, risks or outcomes for fauna; however, it is acknowledged additional area of fauna habitat clearing associated with the Revised Proposal may require an addition of land acquisition environmental offset which is proportionate to the land acquisition area for the Approved Proposal. Accordingly, Covalent Lithium has prepared the following EMP for to manage the general environmental effects of the Proposal:

- Fauna Offset Strategy (Covalent Lithium 2022c)

The additional environmental offset will similarly seek to provide for the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for *Leipoa ocellata* and *Dasyurus geoffroii*, and align to the objectives and actions of the following guidance documents:

- *Malleefowl (Leipoa ocellata) National Recovery Plan* (DAWE 2007)
- *Chuditch (Dasyurus geoffroii) National Recovery Plan* (DAWE 2012a)

Subject to endorsement of the approach outlined within the Fauna Offset Strategy by EPA and DAWE (and other key stakeholders, as may be appropriate), Covalent Lithium would seek to acquire the land acquisition target(s) for subsequent inclusion into the State reserve system (to be managed by DBCA) and protected for the purpose of conservation.

9.1 Approval of Revised Proposal

In March 2022, the DAWE (2022) granted approval of the variation to allow for implementation of the Revised Proposal in accordance with Section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (C'th).

Accordingly, the environmental assessment and approval processes for the Revised Proposal under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th) has been completed.

10 Holistic Impact Assessment

The effect of the Proposal (Approved Proposal and Revised Proposal combined) to the key environmental factors of 'Flora and Vegetation' (Section 5) and 'Terrestrial Fauna' (Section 6) have been assessed individually above. Whilst the Proposal coincides with a number of flora taxa, vegetation units and fauna taxa of conservation significance, the environmental effect of the Proposal to these values is generally not considered to be environmentally significant. The environmental effect to these values can be appropriately managed in accordance with the established framework of environmental management plans and environmental offsets applicable to the Approved Proposal through the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the EPBC Decision 2017/7950 approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020).

Noting the inextricable link between flora and vegetation with terrestrial fauna, the connections and interactions between parts of the environment should also be considered to inform a 'holistic view' of the effects to the environment as a whole.

As identified within Section 5 *Flora and Vegetation* and Section 6 *Terrestrial Fauna*, the biological surveys recorded a variety of flora taxa, vegetation units and terrestrial fauna taxa of conservation significance, and as a whole, the area of the Proposal and surrounds therefore has significant biodiversity value. The significant biodiversity values of the area are acknowledged and accepted by Covalent Lithium within this assessment document.

Whilst acknowledging the biodiversity values of the area of the Proposal and surrounds, also noted within the biological surveys is the significant area of existing cleared / disturbed lands associated with the abandoned Mt Holland Mine Site. Whilst financial bonds were secured by the State Government to fund the closure and rehabilitation of the abandoned mine, at over a decade later such areas remain cleared / disturbed and remain a liability for the State. Covalent Lithium has sought to utilise areas of the existing cleared / disturbed land area for the Proposal as far as practicable, with existing cleared / disturbed areas equating to > 45 % previously cleared / disturbed land associated with the abandoned Mt Holland Mine Site (383 ha of total 825 ha Indicative Site Layout). This approach will minimise the environmental effects of the Proposal (i.e. minimise clearing of native vegetation / fauna habitat), however also noting that Covalent Lithium will then adopt the responsibility for rehabilitation for such areas (and thus reducing the liability of the State). The effect of this approach is that > 200 ha of existing cleared / disturbed land will be rehabilitated by Covalent Lithium (and in addition to the rehabilitation of the new clearing areas for the Proposal); representing a net environmental benefit from the Proposal.

The Proposal seeks a balance of both biodiversity conservation and mining for the area of the Proposal and surrounds; acknowledging both conservation and mining as accepted land uses/values. Consistent with the Mitigation Hierarchy, the Proposal has been substantially modified (confined area of operations, use of existing cleared / disturbed areas) to minimise the environmental effect of the Proposal as far as practicable, and to ensure the residual environmental effects can be considered environmentally acceptable.

The Approved Proposal includes authorisation for new native vegetation clearing of up to 386 ha within a 2,347 ha Development Envelope. The Revised Proposal will require an additional 56 ha of native vegetation clearing, thereby increasing the total area of native vegetation clearing for the Proposal from 386 ha to 442 ha (15 % increase). In consideration of the broader extent of native vegetation / fauna habitats occurring within the Development Envelope and the broader local area (> 70,000 ha within a 10 km radius), the environmental effect of the Proposal is not anticipated to result in a significant environmental effect (i.e. not significantly affect the representation, diversity, viability or ecological function of the environmental values present).

The Proposal will be implemented over a period of approximately 40 years. The longer-term effects of the Proposal to the recorded biological values will be largely counterbalanced through progressive and post-mining rehabilitation works; which will seek to restore many of these values affected through the native vegetation / fauna habitat clearing. Subject to the completion of successful rehabilitation to restore the

biological values, the Proposal would not be considered to have a significant long-term effect to the biodiversity or conservation values of the local area.

In relation to other environmental factors (e.g. 'Landforms', 'Greenhouse Gas Emissions', 'Social Surroundings', etc) the Proposal is not considered likely to result in a significant effect when considered as individual factors, nor a significant effect when considered in a holistic view with other environmental factors.

Key stakeholders have been consulted extensively on the Approved Proposal, and with further consultation having commenced for the Revised Proposal. The views expressed by key stakeholders has been incorporated into the operational planning and environmental management processes for the Proposal.

In consideration of the scale of the Proposal (442 ha of native vegetation clearing), the broader distribution of biological values across the local area and surrounds (> 70,000 ha, 10 km radius), the application of the Mitigation Hierarchy to minimise effects, and the established framework of environmental management plans and environmental offsets, when the separate environmental factors for the Proposal are considered together, the effects of the Proposal to the biological values are not considered to be environmentally significant.

Covalent Lithium has taken the following into account in its assessment of the Revised Proposal as a whole:

- The biodiversity values (flora and vegetation, terrestrial fauna) of the local and regional area as recorded by the biological surveys
- The proposed avoidance and mitigation measures implemented consistent with the Mitigation Hierarchy
- Legislation, guidelines and standards relevant to the key environmental factors of 'Flora and vegetation' and 'Terrestrial Fauna'
- The effect of the Proposal to the recorded biodiversity values, in context with both local and regional distributions
- Proposed environmental management and environmental offsets consistent with the existing statutory approvals framework applied to the Approved Proposal

In consideration of the above, Covalent Lithium considers the Revised Proposal to be environmentally acceptable.

11 Environmental Management

11.1 Environmental Policy

Covalent Lithium is the Proponent for the Proposal (Approved Proposal and Revised Proposal combined). A copy of Covalent Lithium's Environment Policy is provided at Appendix 1 (Covalent Lithium 2021a).

Covalent Lithium recognises its responsibility in ensuring its activities are performed in an environmentally conscious manner, which for the Proposal includes:

- Environmentally responsible business practises been identified, implemented and promoted
- A commitment to return the Proposal to a safe, stable, non-polluting, self-sustaining agreed end land use
- Provision of training to all employees and contractors regarding environmental responsibilities
- Enhancing the understanding of the surrounding biodiversity and impact of the Proposal through monitoring programs
- Efficient use of resources to minimise waste
- Complying with legal requirements and reporting on environmental performance to internal and external stakeholders
- Continually assessing environmental risks and potential impacts of activities
- Ensuring risk based objectives, targets and standards are established
- Continuous improvement in environmental performance through development and achievement of key performance indicators
- Communication and consultation with employees, contractors, the community, regulators and other relevant stakeholders
- Commitment to provide adequate and appropriate resources to achieve environmental goals and objectives
- Alignment and maintenance of the Environmental Management System with ISO14001.

11.2 Environmental Management Plans

The suite of Environmental Management Plans (EMPs) outlined below for the Approved Proposal are considered appropriate to manage, control and monitor the environmental effects of the Revised Proposal to the identified flora and vegetation values and terrestrial fauna values.

Based on the assessment of the effect of the Revised Proposal to the recorded flora and vegetation values and terrestrial fauna values, subject to the implementation of the identified EMPs, it is considered EPA objectives for the key environmental factor of 'Flora and Vegetation' and the key environmental factor of 'Terrestrial Fauna' can be met for the Revised Proposal.

11.2.1 Flora and Vegetation Environmental Management Plan

As outlined within Section 11 *Environmental Management* (below), it is proposed that the direct and potential indirect environmental effects of the Proposal (Approved Proposal and Revised Proposal combined) to flora

and vegetation values can be appropriately managed in accordance with the following Environmental Management Plans (EMP):

- Flora and Vegetation EMP (Revised)
  (Covalent Lithium 2022a, consistent with Condition 6 of Statement 1118)

A copy of the revised Flora and Vegetation EMP is provided at Appendix 2.

The Flora and Vegetation EMP has been prepared in accordance with Condition 6 of the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA), and generally consistent with the EPA (2021e) document *How to Prepare Environmental Protection Act 1986 Part IV Environmental Management Plans*. The management and monitoring actions within the Flora and Vegetation EMP has been subject to prior review and approval by EPA (2021f).

The Flora and Vegetation EMP outlines the operational management and monitoring to minimise and control the environmental effect of the Proposal to flora and vegetation values, including:

- Environmental inductions of site personnel
- Pre-clearance environmental surveys
- Environmental monitoring of -
  - Plant condition/health
  - Dust air emissions
  - Introduced flora (weeds)
  - Census of conservation significant flora
- Adaptive management approach through 'trigger' and 'threshold' criteria
- Reporting
- Ongoing stakeholder consultation

The Flora and Vegetation EMP outlines the operational procedures to ensure the environmental effects of the Proposal (Approved Proposal and Revised Proposal combined) are controlled to within the predicted levels.

The approved Flora and Vegetation EMP is currently being implemented for the development and operation of the Approved Proposal. Covalent Lithium considers the revised Flora and Vegetation EMP, which incorporates the area of the Revised Proposal, can similarly be implemented for the development and operation of the Proposal.

11.2.2 Terrestrial Fauna Environmental Management Plan

Covalent Lithium considers the direct and potential indirect environmental effects of the Proposal (Approved Proposal and Revised Proposal combined) to terrestrial fauna values can be appropriately managed in accordance with the following EMP:

- Terrestrial Fauna EMP (Revised)
  (Covalent Lithium 2022b, consistent with Condition 7 of Statement 1118)

A copy of the revised Terrestrial Fauna EMP is provided at Appendix 3.

The Terrestrial Fauna EMP has been prepared in accordance with Condition 7 of the Statement 1118 approval under the State *Environmental Protection Act 1986* (WA), and generally consistent with the EPA (2021e) document *How to Prepare Environmental Protection Act 1986 Part IV Environmental Management Plans*. The management and monitoring actions within the Terrestrial Fauna EMP has been subject to prior review and approval by EPA (2020b).

The Terrestrial Fauna EMP outlines the operational management and monitoring to minimise and control the environmental effect of the Proposal to fauna values, specifically for *L. ocellata* and *D. geoffroii*, including:

- Environmental inductions of site personnel
- Pre-clearance environmental surveys
- Procedure for capture and release of *L. ocellata* and *D. geoffroii* (if required)
- Environmental monitoring of *L. ocellata* and *D. geoffroii*
- Adaptive management approach through 'trigger' and 'threshold' criteria
- Reporting

The Terrestrial Fauna EMP outlines the operational procedures to ensure the environmental effects of the Proposal (Approved Proposal and Revised Proposal combined) to fauna values are controlled to within the predicted levels.

The approved Terrestrial Fauna EMP is currently being implemented for the development and operation of the Approved Proposal. Covalent Lithium considers the revised Terrestrial Fauna EMP, which incorporates the area of the Revised Proposal, can similarly be implemented for the development and operation of the Proposal.

11.2.3 Environmental Management (General)

In order to manage the environmental effects of the Proposal, Covalent Lithium has prepared the following EMP for to manage the general environmental effects of the Proposal:

- Construction Environmental Management Plan (Covalent Lithium 2020b)

Consistent with the management actions initially outlined within Covalent Lithium (2019), the EMP incorporates the following general environmental management actions:

- Protection of Flora Taxa -
  - Conservation Significant Flora Exclusion Areas (buffer) established to define areas containing *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides* which are not to be cleared/disturbed
  - Exclusion of access to native vegetation areas containing *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides* including on-site warning signage (environmental monitoring purposes remain authorised)
- Protection of Fauna Taxa -
  - Fauna Exclusion Areas (buffer) established to identify recorded locations of recently active *L. ocellata* nest mounds which are not to be cleared/disturbed.
  - Exclusion of access to native vegetation areas containing recently active *L. ocellata* nest mounds including on-site warning signage (environmental monitoring purposes remain authorised)
- Worker Awareness Training -
  - All workers (construction and operation) to attend awareness training, including awareness of conservation significant flora and fauna taxa, introduced flora and fauna taxa, and fire management
  - Sightings or interactions with *L. ocellata* and *D. geoffroii* to be reported to environmental personnel and retained on a fauna register

- Sightings or interactions with introduced fauna will be reported to environmental personnel and retained on a fauna register

- Land Clearing -
  - Targeted pre–clearance surveys to accurately delineate the number, location and spatial boundaries of conservation significant flora taxa.
  - The location of recorded *L. ocellata* nest mounds and *D. geoffroii* dens will be maintained on a register to inform proposed land clearing activities
  - Environmental personnel (fauna specialist) present during land clearing to ensure identification and avoidance of *L. ocellata* (nest mounds) and *D. geoffroii* (dens), and to undertake capture and release, if required. The environmental personnel will hold a Licence from DBCA under the *Biodiversity Conservation Act 2016* (WA) for handling of fauna (relocation), and have access to a care facility if dealing with injured fauna
  - Land clearing will be undertaken outside the *L. ocellata* breeding period (April to June), where possible. If land clearing is required to be undertaken within the *L. ocellata* breeding period, a pre-clearance fauna survey will be completed to identify and record any *L. ocellata* active nest mounds, with clearing excluded from within 100 m of any active nest mound until after the breeding period

    If land clearing of an active *L. ocellata* nest mound is required during the breeding season (i.e. cannot be reasonably avoided), consultation will be undertaken with DBCA on processes required for the removal and incubation of any *L. ocellata* eggs which may be present and the future release of any hatched *L. ocellata* chicks within suitable habitats outside the Development Envelope
  - Annual field survey and recording of all cleared areas

- Dust Management -
  - Minimise the extent of open exposed areas as far as practicable, and undertake standard dust suppression activities, to minimise the area of native vegetation / fauna habitat which may be potentially susceptible to dust generation
  - Use dust covers on machinery and use water suppressants on exposed areas,
  - Ensure water sprays and emissions control equipment is properly maintained
  - Minimise saline groundwater overspray through use of dribble bars in roadway dust suppression, and construction of earthen bunds (and/or drains) on road sides to control surface water drainage
  - Minimise vehicle traffic on unsealed roads and other exposed areas where practicable,
  - Limit traffic speeds on unsealed roads to nominally ≤ 60 km/h to minimise dust generation

- Hygiene Management -
  - Vehicle hygiene procedure to ensure vehicles entering the mining area are free of introduced flora (plant material and seeds) and soil materials.
  - Topsoil/subsoil and vegetation will be stockpiled separately from other excavated materials to minimise the risk of potential contamination
  - Periodic surveys for introduced flora within the Development Envelope, with any identified infestations to be eradicated (prior to establishment and setting seed).

- Spill Prevention -
  - Spill kits will be located at strategic locations and employees trained in their use
  - Hydrocarbon wastes will be segregated from other wastes and collected for offsite disposal by a licensed contractor
  - All hydrocarbon and chemical storages will be designed and constructed in accordance with relevant Australian Standards
  - Pipelines transferring saline water or tailings will be located within bunds, fitted with leak detection systems and routinely inspected
  - Water storages storing saline groundwater (or other water not of potable quality) will be lined to prevent / minimise seepage, and maintained with adequate 'freeboard' to cater for inflows associated with 1:100 year 72 hour rainfall event.
  - Landfill and waste water treatment plants will be operated in accordance with a Licence granted by DWER under the *Environmental Protection Act 1986* (WA).
- Fire Management -
  - Implement standard fire management procedures including maintenance of fire breaks, a 'Hot Work' permit system, training of personnel in the use of fire suppression equipment, and an Emergency Response Plan
  - Firefighting equipment to be located throughout site locations and in vehicles
  - Vehicles will be restricted to within access tracks and cleared areas
  - Coordination with DBCA and Department of Fire and Emergency Services (DFES) to undertake prescribed burns (if appropriate).
- Fauna Safety -
  - Construction pipes, culverts, or similar structures (greater than 0.5 m diameter) in which fauna may take refuge will be inspected to identify any fauna (and allow for fauna relocation) prior to installation or movement
  - Excavations (holes or trenches > 1 m depth) will be secured against fauna entry (e.g. covered, fenced) to minimise fauna entrapment, or constructed with egress (slope ≤ 2:1, ≤ 100 m between egress points) to allow for fauna escape
  - Excavations will be inspected by environmental personnel (fauna specialist) after sunrise and before sunset on each day, and prior to any backfilling, to identify and remove any trapped fauna from the excavations
  - Water storage dams will be fenced to minimise the risk of fauna entry, and include egress matting to allow for fauna escape in the event of inadvertent fauna access
  - Waste facilities will be fenced/covered to minimise fauna attraction/access
- Traffic Management -
  - Limit traffic speeds to nominally ≤ 60 km/h within mining areas to minimise the risk of inadvertent vehicle collision with native fauna (in particular for *L. ocellata*)
- Noise Management -
  - Minimise the risk of disturbance to fauna taxa from noise emissions through machinery and equipment compliance with relevant noise standards and installation of noise attenuation measures

- Lighting Management -
  - Minimise the risk of disturbance to fauna taxa from light emissions through site lighting directed towards plant areas with minimal light spill into any adjacent areas of fauna habitat
- Introduced Fauna -
  - Sightings or interactions with introduced fauna will be reported to environmental personnel and retained on a fauna register
  - Waste facilities will be fenced/covered to minimise attraction/access by introduced fauna
  - Control of introduced fauna (culling, trapping) will be undertaken in cooperation with DBCA regional control programs

The EMP has been prepared consistent with standard operational controls for mining operations in Western Australia. Implementation of the EMP can be expected to ensure the environmental effects of the Proposal are appropriately managed and controlled to within the predicted levels.

The Construction EMP is currently being implemented for the development and operation of the Approved Proposal. Covalent Lithium considers the Construction EMP can be readily updated to reflect the change to the Indicative Site Layout (i.e. change to mapping only) prior to implementation of the Revised Proposal.

11.2.4 Environmental Offsets

Flora and Vegetation

Approval of the Proposal under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) identified the following environmental offsets to be required:

- Flora Offset Strategy
  (Covalent Lithium 2020a, Condition 8 of Statement 1118 approval)
- Ironcaps Banksia Conservation Plan
  (Covalent Lithium 2021e, Condition 5 of EPBC Decision 2017/7950)

The purpose of the Flora Offset Strategy is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides* to be removed by the Proposal through identification of land areas for conservation purposes (including financial contribution, on-site management and monitoring) which contain these flora values. A Flora Offset Strategy (Covalent Lithium 2020a) has been prepared by Covalent Lithium and submitted to EPA in accordance with Condition 8 of the Statement 1118 approval.

The purpose of the Ironcaps Banksia Conservation Plan is to is to counterbalance the number of individuals of *Banksia sphaerocarpa* var. *dolichostyla* to be removed by the Proposal through establishing (in rehabilitation works) an equivalent number of individuals within the Development Envelope. An Ironcaps Banksia Conservation Plan (Covalent Lithium 2021e) has been prepared by Covalent Lithium, and subsequently approved by DAWE (2021d) in accordance with Condition 5 of the EPBC Decision 2017/7950 approval.

Implementation of the Flora Offset Strategy and the Ironcaps Banksia Conservation Plan can be expected to continue to offset the environmental effects of the Proposal to *Banksia sphaerocarpa* var. *dolichostyla* and *Microcorys elatoides*.

To note, the Revised Proposal will not result in any increase in the environmental effect to the flora taxa *Banksia sphaerocarpa* var. *dolichostyla* in addition to that assessed and approved for the Approved Proposal, and with the increase in effect to *Microcorys elatoides* being limited (512 individuals, equating

to < 1 % of the regional population of 85,415 individuals). Accordingly, amendment to the Flora Offset Strategy and the Ironcaps Banksia Conservation Plan is not considered to be necessary for the Revised Proposal.

Terrestrial Fauna

Approval of the Proposal under the State *Environmental Protection Act 1986* (WA) (WA Minister for Environment 2019) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th) (DAWE 2020) identified the following environmental offsets to be required:

- Threatened Fauna Land Acquisition Strategy
  (Covalent Lithium 2021f; Condition 8 of Statement 1118 approval)
- Fauna Offset Management Plan
  (Covalent Lithium 2021f; Condition 4 of EPBC Decision 2017/7950)

The purpose of the Threatened Fauna Land Acquisition Strategy is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa. A Threatened Fauna Land Acquisition Strategy (Covalent Lithium 2021f) has been prepared by Covalent Lithium and submitted to EPA in accordance with Condition 8 of the Statement 1118 approval.

The purpose of the Fauna Offset Management Plan is to counterbalance the area of foraging and breeding habitat for *L. ocellata* and *D. geoffroii* cleared for the Proposal through the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for these taxa. A Fauna Offset Management Plan (Covalent Lithium 2021f) has been prepared by Covalent Lithium, and subsequently approved by DAWE (2021f) in accordance with Condition 4 of the EPBC Decision 2017/7950 approval.

The Revised Proposal will result in the clearing of an additional 56 ha of fauna habitat (native vegetation) in addition to the clearing of fauna habitat for the Approved Proposal (386 ha). Accordingly, Covalent Lithium proposes to provide an addition of a land acquisition environmental offset for fauna habitat clearing associated with the Revised Proposal, within the established environmental offsets framework for the Approved Proposal under the State *Environmental Protection Act 1986* (WA) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th). The addition of a land acquisition environmental offset for the Revised Proposal will similarly seek to provide for the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for *Leipoa ocellata* and *Dasyurus geoffroii*.

Covalent Lithium proposes to provide an addition of a land acquisition environmental offset for fauna habitat clearing associated with the Revised Proposal which is proportionate to the land acquisition environmental offset applied to the Approved Proposal, and within the established environmental offsets framework for the Approved Proposal under the State *Environmental Protection Act 1986* (WA) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (C'th), through implementation of a:

- Fauna Offset Strategy (Revised Proposal)
  (Covalent Lithium 2022c)

A copy of the revised Fauna Offset Strategy is provided at Appendix 3.

The Fauna Offset Strategy for the Revised Proposal will seek to provide for the acquisition, management (for conservation), monitoring and rehabilitation of currently unprotected habitat area(s) for *Leipoa ocellata* and *Dasyurus geoffroii*; consistent with the environmental offset approach for the Approved Proposal.

The Fauna Offset Strategy aligns to the objectives and actions outlined within the *Malleefowl (Leipoa ocellata) National Recovery Plan* (DAWE 2007) and the *Chuditch (Dasyurus geoffroii) National Recovery Plan* (DAWE 2012a). Both National Recovery Plans have been endorsed by the Commonwealth Minister for Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (C'th), and identify the accepted approach and methodology for the recovery of each taxon.

As outlined within the Fauna Offset Strategy, Covalent Lithium has identified a number of preliminary land acquisition targets which contain potentially suitable habitat for both *Leipoa ocellata* and *Dasyurus geoffroii*. Biological surveys have been undertaken to confirm the suitability of the habitat for *Leipoa ocellata* and *Dasyurus geoffroii*, and to determine the presence of these taxa.

The land acquisition targets being considered are currently privately owned. Accordingly, the Fauna Offset Strategy (publicly available version) redacts information which may identify the specific locations of the land acquisition targets being considered.

The area of native vegetation with each of the land acquisition targets range in size from approximately 500 ha to 2,100 ha. As the area of native vegetation required as an environmental offset for the Revised Proposal is limited (approximately 220 ha required to offset 56 ha of native vegetation clearing (1:4 offset ratio)), each of the land acquisition targets will meet 100 % of the offset requirement for the Revised Proposal.

11.2.5 Mine Closure Plan

The areas of the Proposal will be subject to progressive and post-mining rehabilitation of disturbed areas to restore the flora and vegetation values and terrestrial fauna habitat values. The rehabilitation and mine closure outcomes for the Proposal will be implemented as outlined within:

- Mine Closure Plan
  (Covalent Lithium 2021d, in accordance with the State *Mining Act 1978* (WA))

The Mine Closure Plan has been prepared consistent with the requirements of the DMIRS (2020) document *Statutory Guidelines for Mine Closure Plans*.

The Mine Closure Plan has been prepared submitted to DMIRS for assessment in accordance with the *Mining Act 1978* (WA). The Mine Closure Plan has subsequently been assessed and approved by DMIRS (2021a).

The Mine Closure Plan outlines the key information requirements for mine closure, including:

- Proposal summary
- Closure obligations and commitments
- Stakeholder engagement
- Baseline data and analysis
- Post-mining land use
- Risk assessment
- Outcomes and completion criteria
- Closure implementation
- Monitoring and maintenance
- Financial provisions

The Revised Proposal will not alter the mine closure objectives, risks or outcomes; however, it is acknowledged the Mine Closure Plan will require an administrative amendment to reflect the additional spatial area (mapping of closure domains), the rehabilitation monitoring locations and the quantum of the financial provisioning associated with the Revised Proposal

Based on the current Indicative Site Layout, the Proposal will be implemented within a 825 ha spatial area comprising 442 ha of native vegetation and 383 ha of cleared/disturbed land. Covalent Lithium have committed to rehabilitating all land areas utilised by the Proposal (with exception of the Mine Pits); the effect being a that a proportion of the currently cleared / disturbed lands from the abandoned Mt Holland Mine Site will also be rehabilitated as part of this Proposal. This approach is expected to result in a total of approximately 645 ha of land being rehabilitated by the Proposal; resulting in a net environmental benefit for the Proposal.

Generally, the rehabilitation works relevant to the restoration of flora and vegetation values, and terrestrial fauna habitat values, will include:

- Re-contouring of land surfaces and on-contour ripping of compacted ground
- Respreading of rehabilitation materials (topsoil/subsoil and vegetation) that were removed and stockpiled during mine development.
- Monitoring to confirm successful rehabilitation works, with comparison against agreed 'completion criteria' (e.g. foliar cover, diversity)

Implementation of the management actions within the Mine Closure Plan is expected to restore the flora and vegetation values and the terrestrial fauna habitat values affected through implementation of the Proposal.

11.3 Other Government Approvals

In addition to the plans and strategies described above, as identified within Section 5 *Flora and Vegetation* (above), Covalent Lithium will be required to prepare and submit an application to DBCA for a Licence under the *Biodiversity Conservation Act 2016* (WA) prior to the taking of individuals of the 'Threatened' flora taxon *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V). Covalent Lithium will be required to comply with any additional environmental conditions imposed by DBCA in relation to the removal of *Banksia sphaerocarpa* var. *dolichostyla* individuals.

Further, as identified within Section 6 *Terrestrial Fauna* (above), environmental personnel for Covalent Lithium will also be required to hold a Licence from DBCA under the *Biodiversity Conservation Act 2016* (WA) for the handling of fauna (relocation), prior to any relocation of individuals of *Leipoa ocellata* or *Dasyurus geoffroii* (if relocation is required). Covalent Lithium will be required to comply with any additional environmental conditions imposed by DBCA in relation to the Licence.

12 Study Team

Development of this Environmental Review Document has involved a range of supporting consultants to Covalent Lithium. The key consultants and their contributions are acknowledged and appreciated.

Strategen-JBS&G
JBSG.com.au

- Project Management
- Regional Flora Survey

Globe Environments Australia Pty Ltd
GlobeEnvironments.com.au

- Project Management
- Environmental Impact Assessment

CAD Resources
CADResources.com.au

- Mapping and GIS Services

Mattiske Consulting
Mattiske.com.au

- Flora and Vegetation Survey

Native Vegetation Solutions
NativeVegSolutions.com.au

- Flora and Vegetation Survey

Blueprint Environmental Strategies
BlueprintStrategies.com.au

- Flora and Vegetation Survey

GHD
GHD.com

- Flora and Vegetation Survey

360 Environmental
360Environmental.com.au

- Flora and Vegetation Survey

Ecoscape
Ecoscape.com.au

- Terrestrial Fauna Survey

Western Wildlife
WesternWIldlife.com.au

- Terrestrial Fauna Survey

Bennelongia
Bennelongia.com.au

- Desktop SRE and Subterranean Fauna Survey

MBS

MBSEnvironmental.com.au

- Geochemical Assessment
- Soil and Landform Assessment

13 References

ATC Williams Pty Ltd (2021) *Mt Holland Lithium Project Independent Peer Review of IWL/TSF Design Report*. Report prepared by Noske C of ATC Williams Pty Ltd for Covalent Lithium Pty Ltd.

Beard J S (1980) *A new phytogeographic map of Western Australia.* Western Australian Herbarium Research Notes 3: 37-58.

Bennelongia Environmental Consultants (2018) *Earl Grey Lithium Project Subterranean Fauna Desktop Assessment*. Report prepared by Mittra A of Bennelongia Environmental Consultants (Bennelongia Pty Ltd) for Kidman Resources Ltd. Final (Version 2). October 2018.

Bennelongia Environmental Consultants (2019) *Earl Grey Lithium Project SRE and Subterranean Fauna Desktop Assessment*. Report prepared by Mittra A and Halse S (Dr) of Bennelongia Environmental Consultants (Bennelongia Pty Ltd) for Covalent Lithium Pty Ltd. Final (Version 2). January 2019.

BirdLife Australia (2016) *Birds of the Great Western Woodlands*. Report prepared by Fox E, McNee S and Douglas T for BirdLife Australia and The Nature Conservancy.

BirdLife International (2021) *IUCN Red List for Birds*. Accessed from BirdLife International at http://www.birdlife.org. July 2021.

Blueprint Environmental Strategies Pty Ltd (2017) *Targeted Surveys for Threatened Flora Species Banksia sphaerocarpa var. dolichostyla*. Report prepared by Blueprint Environmental Strategies Pty Ltd for Kidman Resources Ltd. May 2017.

Botanica Consulting (2011) *Priority Search - Chamelaucium sp. Parker Range (P1)*. Report prepared by Williams J of Botanica Consulting for Cazaly Resources Western Areas Ltd. May 2011

Botanica Consulting (2018) *Detailed Flora & Vegetation Survey and Targeted Flora Survey of the New Morning Project*. Report prepared by Pick L of Botanica Consulting for Western Areas Ltd. Version 1. October 2018.

Butler R (2009) *Vulnerability of Plant Functional Types to Dust Deposition in the Pilbara, NW Australia.* Honours Thesis. The University of Western Australia School of Plant Biology. October 2009.

Coffey Services Australia Pty Ltd (2021) *Mt Holland Lithium Project IWL/TSF Design Report*. Report prepared by Coffey Services Australia Pty Ltd for Covalent Lithium Pty Ltd. Revision 1. July 2021.

Commonwealth of Australia and the State of Western Australia (2014) *Bilateral Agreement: Bilateral Agreement made under Section 45 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) Relating to Environmental Assessment.*

Covalent Lithium Pty Ltd (2019) *Earl Grey Lithium Project Environmental Review Document.* Prepared for Covalent Lithium Pty Ltd by JBS&G Australia Pty Ltd (formerly as Strategen Environmental Consultants Pty Ltd). Version 6. January 2019.

Covalent Lithium Pty Ltd (2020a) *Earl Grey Lithium Project Ironcaps Banksia Offsets Strategy.* Flora Offset Strategy prepared in accordance with Condition 8 of the Statement 1118 approval. Report prepared by Whitley L of Strategen-JBS&G for Covalent Lithium Pty Ltd. Revision 1. April 2020.

Covalent Lithium Pty Ltd (2020b) *Earl Grey Lithium Project Construction Environmental Management Plan.* Report prepared by Longbottom B of Covalent Lithium Pty Ltd. Revision 0. December 2020.

Covalent Lithium Pty Ltd (2020c) *Earl Grey Lithium Project Terrestrial Fauna Environmental Management Plan.* Terrestrial Fauna Environmental Management Plan prepared in accordance with Condition 4 of the Statement 1118 approval. Report prepared by Whitley L and Puglisi S of Strategen-JBS&G for Covalent Lithium Pty Ltd. Revision 3. September 2020.

Covalent Lithium Pty Ltd (2021a) *Environment Policy*. Revision 2. April 2021.

Covalent Lithium Pty Ltd (2021b) *Earl Grey Lithium Project (EPBC Decision 2017/7950) Request for Variation to Conditions.* Letter from Covalent Lithium Pty Ltd to the Commonwealth Department of Agriculture, Water and the Environment requesting a variation to conditions of the EPBC Decision 2017/7950 approval in accordance with s143 of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. October 2021.

Covalent Lithium Pty Ltd (2021c) *Earl Grey Lithium Project Mining Proposal Stage 1.* Report prepared by Covalent Lithium Pty Ltd. DMIRS Reg ID 96491. Version 1. May 2021.

Covalent Lithium Pty Ltd (2021d) *Earl Grey Lithium Project Mine Closure Plan.* Report prepared by Covalent Lithium Pty Ltd. DMIRS Reg ID 91617. Version 2. February 2021.

Covalent Lithium Pty Ltd (2021e) *Earl Grey Lithium Project Conservation Plan for Ironcaps Banksia Banksia sphaerocarpa var. dolichostyla.* Banksia sphaerocarpa Conservation Plan submitted in accordance with Condition 5 of the EPBC 2017-7950 approval. Report prepared by Hawkins S of Globe Environments Australia Pty Ltd and Whitley L of Strategen-JBS&G for Covalent Lithium Pty Ltd. Revision 2. February 2021.

Covalent Lithium Pty Ltd (2021f) *Earl Grey Lithium Project Threatened Fauna Offset Management Plan.* Threatened Fauna Land Acquisition Strategy submitted in accordance with Condition 8 of the Statement 1118 approval and Fauna Offset Management Plan submitted in accordance with Condition 4 of the EPBC Decision 2017/7950 approval). Report prepared by Whitley L of Strategen-JBS&G for Covalent Lithium Pty Ltd. Revision 0. March 2021.

Covalent Lithium Pty Ltd (2021g) *Earl Grey Lithium Project Flora and Vegetation Environmental Management Plan.* Report prepared by Whitley L of Strategen-JBS&G for Covalent Lithium Pty Ltd. Revision 5. February 2021.

Covalent Lithium Pty Ltd (2022a) *Earl Grey Lithium Project Flora and Vegetation Environmental Management Plan.* Report prepared by Whitley L of Strategen-JBS&G and Pate A of Covalent Lithium Pty Ltd. Revision 6. April 2022.

Covalent Lithium Pty Ltd (2022b) *Earl Grey Lithium Project Terrestrial Fauna Environmental Management Plan.* Report prepared by Whitley L and Puglisi S of Strategen-JBS&G and Pate A of Covalent Lithium Pty Ltd. Revision 4. April 2022.

Covalent Lithium Pty Ltd (2022c) Offsets *Earl Grey Lithium Project (Revised Proposal) Fauna Offset Strategy.* Report prepared by Hawkins S of Globe Environments Australia Pty Ltd for Strategen-JBS&G on behalf of Covalent Lithium Pty Ltd. Revision B. April 2022.

Cowan M, Graham G and McKenzie N (2001) Coolgardie 2 (COO 2 – Southern Cross Subregion). In: *A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002*. Edited by May J E and McKenzie N L. Department of Biodiversity, Conservation and Attractions (formerly as the Department of Conservation and Land Management).

Department of Agriculture and Food (2017) *Western Australian Organism List*. https://www.agric.wa.gov.au/bam/western–australian–organism–list–waol.

Department of Agriculture, Water and the Environment (2007) *National Recovery Plan for Malleefowl Leipoa ocellata.* National Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 (C'th). Report prepared by Benshemesh J (Dr) of the Department for Environment and Heritage South Australia for the Commonwealth Department of Agriculture, Water and the Environment (formerly as the Department of the Environment).

Department of Agriculture, Water and the Environment (2012a) *Chuditch (Dasyurus geoffroii) National Recovery Plan*. National Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 (C'th). Report prepared by Dunlop J and Morris K of the Department of Biodiversity, Conservation and Attractions Western Australia (formerly as the Department of Environment and Conservation) for the Commonwealth Department of Agriculture, Water and the Environment (formerly as the Department of Sustainability, Environment, Water, Population and Communities). July 2012.

Department of Agriculture, Water and the Environment (2012b) *Offsets Assessment Guide*. October 2012.

Department of Agriculture, Water and the Environment (2013) *Matters of National Environmental Significance Significant Impact Guidelines 1.1*. Prepared by the Department of Agriculture, Water and the Environment (formerly as the Department of the Environment).

Department of Agriculture, Water and the Environment (2020) *Earl Grey Lithium Project*. EPBC Decision 2017/7950. Approval of the Department of Agriculture, Water and the Environment under s130 and s133 of the Environment Protection and Biodiversity Conservation Act 1999 (C'th) granted to Covalent Lithium Pty Ltd for the Earl Grey Lithium Project. February 2020.

Department of Agriculture, Water and the Environment (2021a) *Species Profile and Threats Database – EPBC Act List of Threatened Flora*. Accessed March 2021.

Department of Agriculture, Water and the Environment (2021b) *Species Profile and Threats Database – EPBC Act List of Threatened Fauna*. Accessed March 2021.

Department of Agriculture, Water and the Environment (2021c) *EPBC Act List of Threatened Ecological Communities*. Accessed March 2021 from the Department of Agriculture, Water and the Environment website at www.environment.gov.au /biodiversity/threatened.

Department of Agriculture, Water and the Environment (2021d) *EPBC 2017/7950: Earl Grey Lithium Project, WA – Ironcaps Banksia Conservation Plan*. Approval of the Ironcaps Banksia Conservation Plan in accordance with Condition 5 of the EPBC 2017-7950 approval. February 2021.

Department of Agriculture, Water and the Environment (2021e) *EPBC Act Migratory Species List.* Accessed March 2021 from the Department of Agriculture, Water and the Environment website at https://www.environment.gov.au/cgi-bin/sprat/public/publicshowmigratory.pl

Department of Agriculture, Water and the Environment (2021f) *EPBC 2017/7950: Earl Grey Lithium Project – Fauna Offset Management Plan*. Approval of the Threatened Fauna Offset Management Plan in accordance with Condition 4 of the EPBC 2017-7950 approval. March 2021.

Department of Agriculture, Water and the Environment (2022) *Variation to Conditions Attached to Approval: Earl Grey Lithium Project (EPBC 2017/7950)*. Approval of the Department of Agriculture, Water and the Environment under s143 of the Environment Protection and Biodiversity Conservation Act 1999 (C'th) granted to Covalent Lithium Pty Ltd to allow for the Earl Grey Lithium Project Revised Proposal. March 2022.

Department of Biodiversity, Conservation and Attractions (2017) *Fauna Profile: Chuditch Dasyurus geoffroii*.

Department of Biodiversity, Conservation and Attractions (2018a) *Threatened and Priority Flora List*. December 2018. Accessed March 2021 from the Department of Biodiversity, Conservation and Attractions website https://www.dpaw.wa.gov.au/images/plants-animals/threatened-species/threatened_ecological_communities_endorsed_by_the_minister_for_the_environment_june_2018.pdf

Department of Biodiversity, Conservation and Attractions (2018b) *List of Threatened Ecological Communities Endorsed by the Western Australian Minister for Environment*. June 2018. Accessed March 2021 from the Department of Biodiversity, Conservation and Attractions website www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

Department of Biodiversity, Conservation and Attractions (2018c) *Threatened and Priority Fauna List*. Accessed March 2021 from the Department of Biodiversity, Conservation and Attractions website https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/threatened_and_priority_fauna_list.xlsx

Department of Biodiversity, Conservation and Attractions (2020) *Priority Ecological Communities for Western* Australia. Version 30. Prepared by the Species and Communities Program of the Department of Biodiversity, Conservation and Attractions. July 2020.

Department of Biodiversity, Conservation and Attractions (2021a) *NatureMap.* Website of the Department of Biodiversity, Conservation and Attractions at https://naturemap.dbca.wa.gov.au/. Accessed June 2021, July 2021.

Department of Biodiversity, Conservation and Attractions (2021b) *FloraBase.* Website of the Department of Biodiversity, Conservation and Attractions at https://florabase.dpaw.wa.gov.au/. Accessed August 2021.

Department of Biodiversity, Conservation and Attractions (n.d.) *Western Brush Wallaby Macropus irma (Jourdan, 1837).* Accessed from the Department of Biodiversity, Conservation and Attractions at https://library.dbca.wa.gov.au/static/FullTextFiles/071535.pdf. Accessed July 2021.

Department of Mines, Industry Regulation and Safety (2013) *Code of Practice: Tailings Storage Facilities in Western Australia*. Prepared by the Department of Mines, Industry Regulation and Safety (formerly as the Department of Mines and Petroleum).

Department of Mines, Industry Regulation and Safety (2020) *Statutory Guidelines for Mine Closure Plans*. March 2020.

Department of Mines, Industry Regulation and Safety (2021a) *Approval for Mining Proposal – Earl Grey Lithium Project Mining Proposal, Stage 1, Version 2 for G77/129, G77/130, G77/132, G77/133, G77/134, G77/136, G77/137, L77/199, L77/205, L77/207, L77/295, M77/1065, M77/1066 & M77/1080. Registration ID: 91617*. Approval of Mining Proposal and Mine Closure Plan for the Earl Grey Lithium Project granted by the Department of Mines, Industry Regulation and Safety to Covalent Lithium Pty Ltd. Registration ID 91617. April 2021.

Department of Mines, Industry Regulation and Safety (2021b) *Approval for Mining Proposal – Earl Grey Lithium Project Mining Proposal, Stage 1, for G77/129, G77/130, G77/132, G77/133, G77/134, G77/136, G77/137, L77/199, L77/207, L77/295, L77/301, L77/313, L77/322, L77/323, M77/1065, M77/1066 & M77/1080.* Approval of revised Mining Proposal for the Earl Grey Lithium Project granted by the Department of Mines, Industry Regulation and Safety to Covalent Lithium Pty Ltd. Registration ID 96491. June 2021.

Department of Mines, Industry Regulation and Safety and the Environmental Protection Authority (2015) *Guidelines for Preparing Mine Closure Plans*. Report prepared by the Department of Mines, Industry Regulation and Safety (formerly as the Department of Mines and Petroleum) and the Environmental Protection Authority. May 2015.

Department of Water and Environmental Regulation (2014) *Clearing Regulation Fact Sheet 24 Environmentally Sensitive Areas*. August 2014.

Department of Water and Environmental Regulation (2019a) *Groundwater Licence GWL180267.* Groundwater Licence granted under s5C of the Rights in Water and Irrigation Act 1914 (WA) to MH Gold Pty Ltd and SQM Australia Pty Ltd. Version 4. August 2019.

Department of Water and Environmental Regulation (2019b) *Groundwater Licence GWL201377.* Groundwater Licence granted under s5C of the Rights in Water and Irrigation Act 1914 (WA) to MH Gold Pty Ltd and SQM Australia Pty Ltd. Version 2. February 2019.

Department of Water and Environmental Regulation (2021) *Groundwater Licence GWL205547.* Groundwater Licence granted under s5C of the Rights in Water and Irrigation Act 1914 (WA) to Covalent Lithium Pty Ltd. Version 1. February 2021.

Ecoscape Australia Pty Ltd (2019) *Covalent Malleefowl Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. November 2019.

Ecoscape Australia Pty Ltd (2020a) *2019 Mt Holland Chuditch Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. January 2020.

Ecoscape Australia Pty Ltd (2020b) *2019 Mt Holland Malleefowl Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. January 2020.

Ecoscape Australia Pty Ltd (2020c) *Pipeline Fauna Survey*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Revision 0. February 2020.

Ecoscape Australia Pty Ltd (2020d) *Water Pipeline Fauna Survey*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. June 2020.

Ecoscape Australia Pty Ltd (2020e) *Blue Vein and Powerline Access Roads Fauna Survey*. Report prepared by Osborn H of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. July 2020.

Ecoscape Australia Pty Ltd (2020f) *2020 Mt Holland Chuditch Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. August 2020.

Ecoscape Australia Pty Ltd (2021a) *2020 Malleefowl Monitoring*. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Revision 1. November 2021.

Ecoscape Australia Pty Ltd (2021b) *Camponotus sp. nr. terebrans (Sugar Ant) Targeted Fauna Survey*. Targeted field survey of the proposed Solar Plant area. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. July 2021.

Ecoscape Australia Pty Ltd (2021c) *Camponotus sp. nr. terebrans (Sugar Ant) Targeted Fauna Survey*. Targeted field survey of the Development Envelope. Report prepared by Turner B of Ecoscape Australia Pty Ltd for Covalent Lithium Pty Ltd. Final. August 2021.

Environmental Protection Authority (2009) *Advice on Conservation Values and Review of Nature Reserve Proposals in the Lake Cronin Region: Advice of the Environmental Protection Authority to the Minister for Environment under Section 16(e) of the Environmental Protection Act 1986.* Report 1329, Perth Western Australia.

Environmental Protection Authority (2014) *Environmental Protection Bulletin No. 1: Environmental Offsets.*

Environmental Protection Authority (2016a) *Environmental Factor Guideline: Flora and Vegetation*. December 2016.

Environmental Protection Authority (2016b) *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment*. December 2016.

Environmental Protection Authority (2016c) *Environmental Factor Guideline: Terrestrial Fauna*. December 2016.

Environmental Protection Authority (2016d) *Environmental Factor Guideline: Terrestrial Environmental Quality*. December 2016.

Environmental Protection Authority (2016e) *Technical Guidance: Subterranean Fauna Survey*. December 2016.

Environmental Protection Authority (2016f) *Environmental Factor Guideline: Benthic Communities and Habitats*. December 2016.

Environmental Protection Authority (2016g) *Environmental Factor Guideline: Coastal Processes.* December 2016.

Environmental Protection Authority (2016h) *Environmental Factor Guideline: Marine Environmental Quality*. December 2016.

Environmental Protection Authority (2016i) *Environmental Factor Guideline: Marine Fauna*. December 2016.

Environmental Protection Authority (2016j) *Environmental Factor Guideline: Social Surroundings.* December 2016.

Environmental Protection Authority (2016k) *Environmental Factor Guideline: Human Health*. December 2016.

Environmental Protection Authority (2018a) *Environmental Factor Guideline: Landforms*. June 2018.

Environmental Protection Authority (2018b) *Environmental Factor Guideline: Inland Waters*. June 2018.

Environmental Protection Authority (2019) *Earl Grey Lithium Project.* Report 1651. October 2019.

Environmental Protection Authority (2020a) *Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. June 2020.

Environmental Protection Authority (2020b) *Earl Grey Lithium Project – Ministerial Statement 1118 – Terrestrial Fauna Environmental Management Plan – Approved.* Approval of the Terrestrial Fauna Environmental Management Plan under Condition 7 of the Statement 1118 approval granted to Covalent Lithium Pty Ltd by the Environmental Protection Authority (Department of Water and Environmental Regulation EPA Services). Reference DWERT5152. September 2020.

Environmental Protection Authority (2020c) *Environmental Factor Guideline: Air Quality*. April 2020.

Environmental Protection Authority (2020d) *Environmental Factor Guideline: Greenhouse Gas Emissions*. April 2020.

Environmental Protection Authority (2021a) *How to Prepare and Environmental Review Document - Instructions*. October 2021.

Environmental Protection Authority (2021b) *Earl Grey Lithium Project – Inquiry under Section 46 of the Environmental Protection Act 1986 to amend Ministerial Statement 1118*. Report 1697. January 2021.

Environmental Protection Authority (2021c) *How to Identify the Content of a Proposal – Instruction and Template*. Version 1. October 2021.

Environmental Protection Authority (2021d) *Statement of Environmental Principles, Factors, Objectives and Aims of EIA*. Version 4. October 2021.

Environmental Protection Authority (2021e) *How to Prepare Environmental Protection Act 1986 Part IV Environmental Management Plans – Instructions*. Version 2. October 2021.

Environmental Protection Authority (2021f) *Earl Grey Lithium Project – Ministerial Statement 1118 – Flora and Vegetation Environmental Management Plan – Approved.* Approval of the Flora and Vegetation Environmental Management Plan under Condition 6 of the Statement 1118 approval granted to Covalent Lithium Pty Ltd by the Environmental Protection Authority (Department of Water and Environmental Regulation EPA Services). Reference DWERT5151. March 2021.

Esperance Wildflowers (2011) *Gyrostemon ditrigynus – Wheel Fruit*. Accessed August 2021 from http://esperancewildflowers.blogspot.com/2011/06/gyrostemon-ditrigynus-wheel-fruit.html. Website dated June 2011.

GHD Pty Ltd (2020) *Flora Survey Mt Holland*. Report prepared by Flemington S of GHD Pty Ltd for Covalent Lithium Pty Ltd. March 2020.

Gibson N (2004) Flora and vegetation of the Eastern Goldfields Ranges: Part 7. Middle and South Ironcap, Digger Rock and Hatter Hill. In: *Journal of the Royal Society of Western Australia*. Volume 98, Pages 49 - 62.

Glossop Consultancy (2021) *Qualitative Risk Assessment of Solid Samples from the Earl Grey Deposit (Mt Holland) for Fibrous Minerals*. Report prepared by Glossop L (Dr) of Glossop Consultancy for Covalent Lithium Pty Ltd. October 2021.

Government of Australia (1979) *Convention on the Conservation of Migratory Species of Wild Animals*. Bonn Convention. Australian Treaty Series 1991, ATS 32.

Government of Australia and Government of Japan (1981) *Japan - Australia Migratory Bird Agreement 1974*. Australian Treaty Series 1981 No 6.

Government of Australia and Government of the People's Republic of China (1988) *China - Australia Migratory Bird Agreement 1986*. Australian Treaty Series 1988 No 22.

Government of Australia and Government of the Republic of Korea (2007) *Republic of Korea - Australia Migratory Bird Agreement 2007*. Australian Treaty Series 2007, ATS 24.

Government of Western Australia (2011) *WA Environmental Offsets Policy*. September 2011.

Government of Western Australia (2014) *WA Environmental Offsets Guidelines*. August 2014.

Government of Western Australia (2018) *2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report)*. Current as of December 2017. WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics.

Graeme Campbell and Associates Pty Ltd (2021) *Mt Holland Project: Geochemical Characterisation of Process-Tailings-Slurry Sample - Implications for Tailings Management*. Report prepared by Campbell G D (Dr) of Graeme Campbell and Associates Pty Ltd for Coffey Services Australia Pty Ltd on behalf of Covalent Lithium Pty Ltd. February 2021.

Greenbase Pty Ltd (2021) *Earl Grey Lithium Project Greenhouse Gas Assessment Scope 1, 2, & 3 Emissions*. Report prepared by Alba Vega G and Eynon F of Greenbase Pty Ltd (Greenbase Environmental Accountants) for Covalent Lithium Pty Ltd. Version 1. December 2021.

Harvey M S (2002) Short–range Endemism amongst the Australian Fauna: Some Examples from Non-marine environments. In: *Invertebrate Systematics*. Volume 16, No. (4): 555.

International Union for Conservation of Nature (2012) *IUCN Red List Categories and Criteria*. Version 3.1 Second Edition.

JBS&G Australia Pty Ltd (2019) *Earl Grey Lithium Mine Regional Flora Survey*. Report prepared by Oversby W and Chesney R of Strategen-JBS&G (JBS&G Australia Pty Ltd) for Covalent Lithium Ltd. July 2019.

Keighery G J, McKenzie N L and Hall N J (1995) *The Biological survey of the Eastern Goldfields region of Western Australia. Part 11 Boorabbin - Southern Cross Study Area. Part 12, Barlee - Menzies Study Area*. Records of the Western Australian Museum Supplement 49. Western Australian Museum, Perth.

Kidman Resources Limited and Blueprint Environmental Strategies Pty Ltd (2017) *Environmental Review Document: Earl Grey Lithium Project – Environmental Protection Act 1986 and Environment Protection and Biodiversity Conservation Act 1999 Referral*. Report prepared by Kidman Resources Limited and Blueprint Environmental Strategies Pty Ltd for Kidman Resources Limited. May 2017.

Land Access Solutions (2017) *Archaeological Survey Report – Kidman Resources Limited Earl Grey Lithium Project, Goldfields, WA*. Report prepared by Land Access Solutions for Kidman Resources Limited.

Martinick Bosch Sell Pty Ltd (2017a) *Earl Grey Lithium Project Process Tailings Geochemical Assessment*. Report prepared by Allen D (Dr) and North M (Dr) of Martinick Bosch Sell Pty Ltd for Kidman Resources Ltd. Final Report (Revision 2). December 2017.

Martinick Bosch Sell Pty Ltd (2017b) *Earl Grey Lithium Project Waste Rock Characterisation*. Report prepared by North M (Dr) of Martinick Bosch Sell Pty Ltd for Kidman Resources Ltd. Final Report (Revision 2). May 2017.

Martinick Bosch Sell Pty Ltd (2017c) *Earl Grey Lithium Project Soil and Landform Assessment*. Report prepared by Allen D (Dr) of Martinick Bosch Sell Pty Ltd for Kidman Resources Ltd. Final Report (Revision 2). May 2017.

Martinick Bosch Sell Pty Ltd (2019) *Kwinana Lithium Refinery Process Residues Geochemical Assessment*. Report prepared by du Pleiss G, Robson T (Dr) and North M (Dr) of Martinick Bosch Sell Pty Ltd for Covalent Lithium Pty Ltd. Final Report Amended (Version 3). November 2019.

Martinick Bosch Sell Pty Ltd (2020a) *Earl Grey Lithium Project Waste Rock Characterisation Phase 1*. Report prepared by North M (Dr), Robson T (Dr) and Lekmine G (Dr) of Martinick Bosch Sell Pty Ltd for Covalent Lithium Pty Ltd. Revision A2. September 2020.

Martinick Bosch Sell Pty Ltd (2020b) *Earl Grey Lithium Project Waste Rock Characterisation Phase 2*. Report prepared by North M (Dr), Robson T (Dr) and Lekmine G (Dr) of Martinick Bosch Sell Pty Ltd for Covalent Lithium Pty Ltd. May 2020.

Martinick Bosch Sell Pty Ltd (2021a) *Earl Grey Lithium Project Waste Rock and Ore Characterisation Phase 1*. Report prepared by North M (Dr), Robson T (Dr) and Lekmine G (Dr) of Martinick Bosch Sell Pty Ltd for Covalent Lithium Pty Ltd. Revision A3. January 2021.

Martinick Bosch Sell Pty Ltd (2021b) *Earl Grey Lithium Project Waste Rock and Ore Characterisation Phase 1 Extended Geochemical Assessment*. Report prepared by Lekmine G (Dr) and North M (Dr) of Martinick Bosch Sell Pty Ltd for Covalent Lithium Pty Ltd. Final Report. November 2021.

Matsuki M, Gardner M R, Smith A, Howard R K and Gove A (2016) Impacts of Dust on Plant Health, Survivorship and Plant Communities in Semiarid Environments. In: *Austral Ecology*. February 2016.

Mattiske Consulting Pty Ltd (2017) *Flora and Vegetation Assessment* of the *Earl Grey, Irish Breakfast and Prince of Wales Prospects*. Report prepared by Angus D and Murdock N of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. Final (Version 4). April 2017.

Mattiske Consulting Pty Ltd (2018a) *Flora and Vegetation Assessment Earl Grey Lithium Project*. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. Version 3. March 2018.

Mattiske Consulting Pty Ltd (2018b) *Memorandum: Earl Grey Lithium Project Statistical Comparison of Vegetation Within Earl Grey Lithium Project with Ironcap Hills Vegetation Complex*. Memorandum prepared by Angus D of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. October 2018.

Mattiske Consulting Pty Ltd (2019a) *Earl Grey Lithium Project Banksia sphaerocarpa var. dolichostyla (T) Target Survey.* Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 7. January 2019.

Mattiske Consulting Pty Ltd (2019b) *Earl Grey Lithium Project Conservation Significant Flora Targeted Survey.* Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 7. January 2019.

Mattiske Consulting Pty Ltd (2019c) *Threatened and Priority Flora Assessment Tenement M77/215 Proposed Tracks and Drill Hole Locations.* Report prepared by Riviera F and Sims Z of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. Final (Version 3). April 2019.

Mattiske Consulting Pty Ltd (2019d) *Threatened and Priority Flora Assessment Earl Grey Lithium Project Pre-Clearance Surveys.* Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Final. December 2019.

Mattiske Consulting Pty Ltd (2020a) *Flora and Vegetation Assessment Earl Grey Lithium Project Water Pipeline Corridor.* Report prepared by Sims Z and Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 6. May 2020.

Mattiske Consulting Pty Ltd (2020b) *Flora and Vegetation Assessment Earl Grey Lithium Project Modified Great Eastern Highway Pipeline Alignment and Booster Station Access Areas: Water Pipeline Alignment Supplementary Report*. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 2. September 2020.

Mattiske Consulting Pty Ltd (2020c) *Earl Grey Lithium Project Introduced Flora (Weed) Survey*. Report prepared by Pereira A and Sims Z of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 3. October 2020.

Mattiske Consulting Pty Ltd (2020d) *Memorandum: Earl Grey Lithium Project Field Survey 21st – 26th* October 2020. Vegetation health monitoring transects and threatened ecological community assessment. Memorandum prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. October 2020.

Mattiske Consulting Pty Ltd (2020e) *Memorandum: Earl Grey Lithium Project Field Survey 25th October 2020*. Threatened ecological community assessment. Memorandum prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. November 2020.

Mattiske Consulting Pty Ltd (2021a) *Earl Grey Lithium Project Vegetation Condition Monitoring Transect Establishment.* Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Final. January 2021.

Mattiske Consulting Pty Ltd (2021b) *Memorandum: Earl Grey Lithium Project Field Survey 14th – 21st March 2021.* Vegetation health monitoring transects. Memorandum prepared by Sims Z of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. March 2021.

Mattiske Consulting Pty Ltd (2021c) *Threatened and Priority Flora Assessment Earl Grey Lithium Project Pre-Clearance Surveys.* Report prepared by Angus D and Sims Z of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 2. April 2021.

Ministerial Council on Mineral and Petroleum Resources (2005) *Principles for Engagement with Communities and Stakeholders*.

Native Vegetation Solutions (2014) *Targeted Banksia sphaerocarpa var. dolichostyla Survey*. Report prepared by Native Vegetation Solutions for Kidman Resources Ltd.

Native Vegetation Solutions (2016) *Level 1 Flora and Vegetation Survey Proposed Blue Vein Mine Mt Holland Project Tenement M77/1065*. Report prepared by Native Vegetation Solutions for Kidman Resources Ltd.

Native Vegetation Solutions (2017) *Targeted Search of Threatened Flora for Kidman Resources Limited - Mount Holland Gold Project*. Report prepared by Reid E of Native Vegetation Solutions for Blueprint Environmental Strategies on behalf of Kidman Resources Ltd. October 2017.

Parks and Wildlife Service Tasmania (2011) *Peregrine Falcon, Falco peregrinus*. Accessed December 2014 from the Parks and Wildlife Service Tasmania website at http://www.parks.tas.gov.au/?base=20866. Dated October 2011.

Peter O'Bryan & Associates (2021) *Mt Holland Lithium Project Integrated Waste Landform / Tailings Storage Facility Geotechnical Review*. Report prepared by O'Bryan P and Barnard G of Peter O'Bryan and Associates and Covalent Lithium Pty Ltd. February 2021.

Queensland Government (2021) *Species Profile Merops ornatus (Rainbow Bee-eater)*. Accessed July 2021 from the Queensland Government website at https://apps.des.qld.gov.au/species-search/details/?id=1764#.

Rye B L (2017) An expanded circumscription and new infrageneric classification of Rinzia (Myrtaceae: Chamelaucieae). In: *Nuytsia*. Volume 28. Pages 39 to 93. January 2017.

SRK Consulting (Australasia) Pty Ltd (2018) *Mt Holland TSF Siting and Disposal Options Assessment*. Memorandum prepared by Kendall S and Moreno P of SRK Consulting (Australasia) Pty Ltd for Covalent Lithium Pty Ltd (formerly as Western Australia Lithium).

SRK Consulting (Australasia) Pty Ltd (2020) *Phase 1 Wet Tailings Storage Facility Concept Summary*. Report prepared by Rola J, Kendall S and Eldridge J of SRK Consulting (Australasia) Pty Ltd for Covalent Lithium Pty Ltd. June 2020.

SRK Consulting (Australasia) Pty Ltd (2021) *Mt Holland Lithium Project: WTSF Site Investigation Report*. Report prepared by Rola J of SRK Consulting (Australasia) Pty Ltd for Covalent Lithium Pty Ltd. June 2020.

Theile K R (2019) Hibbertia tuberculata (Dilleniaceae), a New, Rare Species from Western Australia. In: *Nuytsia*. Volume 30. Pages 335-338. December 2019.

Thompson W and Allen J (2013) Flora and Vegetation of Greenstone Formations of the Yilgarn Craton: The Northern Forrestania Greenstone Belt (Mount Holland area). In: *Conservation Science Western Australia*. Volume 8, No. 3. Pages 277-294.

Turner G F (2013) *Vulnerability of Vegetation to Mining Dust at the Jack Hills, Western Australia*. Masters Thesis. The University of Western Australia School of Plant Biology. November 2013.

URS Australia Pty Ltd (2002) *Bounty Gold Mine Borefield Aquifer Review July 2001 to June 2002*.

Wedge J A and Davis R W (2020) Better the Devil You Know: Teucrium diabolicum (Lamiaceae), A new Species from Mining Tenements in the Coolgardie Bioregion. In: *Nuytsia*. Volume 31. Pages 129 to 133. June 2020.

Rye B L (2017) An expanded circumscription and new infrageneric classification of Rinzia (Myrtaceae: Chamelaucieae). In: *Nuytsia*. Volume 28. Pages 39 to 93. January 2017.

Watson A (Dr), Judd S (Dr) Watson J (Dr), Lam A and McKenzie D (2008) The Extraordinary Nature of the Great Western Woodlands. Prepared for the Wilderness Society.

Western Australia Minister for Environment (2018a) Wildlife Conservation Act 1950: Wildlife Conservation (Rare Flora) Notice 2018. In: *Government Gazette*. September 2018.

Western Australia Minister for Environment (2018b) Wildlife Conservation Act 1950: Wildlife Conservation (Specially Protected Fauna) Notice 2018. In: *Government Gazette*. September 2018.

Western Australia Minister for Environment (2019) *Earl Grey Lithium Project*. Statement 1118. Approval of the Western Australian Minister for Environment under s45(5) of the Environmental Protection Act 1986 (WA) granted to Covalent Lithium Pty Ltd for the Earl Grey Lithium Project. November 2019.

Western Australia Minister for Environment (2021) *Earl Grey Lithium Project*. Statement 1167. Approval of the Western Australian Minister for Environment under s46 of the Environmental Protection Act 1986 (WA) granted to Covalent Lithium Pty Ltd for the Earl Grey Lithium Project. May 2021.

Western Heritage Research Pty Ltd (2005) *A Report of an Ethnographic Survey of Mining Tenements at the Mounty Mine, Near Forrestania*. Report prepared by Glendenning W of Western Heritage Research Pty Ltd for Montague Resources NL.

Western Wildlife (2017) *Earl Grey Lithium Project: Level 2 Vertebrate Fauna Survey with Targeted Chuditch and Malleefowl Surveys, 2016 – 2017*. Report prepared by Wilcox J of Western Wildlife for Kidman Resources Ltd. December 2017.

360 Environmental Pty Ltd (2020) *Targeted Flora Survey Mt Holland Lithium Project.* Report prepared by Walker S of 360 Environmental Pty Ltd for Covalent Lithium Pty Ltd. November 2020.

14 Appendices