

Albemarle Lithium Pty Ltd

Albemarle Kemerton Plant

Environment Protection and Biodiversity

Conservation Act 1999 Referral

November 2017



Executive summary

Albemarle Lithium Pty Ltd (Albemarle) is proposing to establish the Albemarle Kemerton Plant, a Lithium Hydroxide Product manufacturing plant and associated infrastructure, within the Kemerton Strategic Industrial Area (KSIA), approximately 17 kilometres north-east of Bunbury, Western Australia (WA) (referred to as the Proposal).

Designated under the Greater Bunbury Region Scheme, an approved Structure Plan, and associated Environmental and Water Management Plans, have been developed for the KSIA. The Plans establish the planning framework and implementation requirements to guide construction and operation of industrial developments within the KSIA, while protecting the environmental values of the KSIA. The Albemarle Kemerton Plant will produce up to 100,000 tonne per annum (tpa) of lithium hydroxide monohydrate (Lithium Hydroxide Product) from five 20,000 tpa process trains. The construction of these trains will be staged over the next ten years with construction of the first trains planned to commence in 2018. The plant will process Spodumene ore concentrate supplied from the Talison mine in Greenbushes, the biggest source of spodumene ore concentrate in the southern hemisphere.

The Proposal will create approximately 500 jobs during the construction phase, and more than 500 in the operational phase when the Plant reaches full production, most of whom will be drawn from the nearby towns of Australind, Harvey and Eaton as well as the City of Bunbury. Consultation with key stakeholders including the Shire of Harvey, KSIA industries, and regional development agencies indicates the Plant would be a welcome investment in the South West region.

A site selection process was undertaken to determine a location for the Plant which minimises impact on environmental values within the KSIA. The site which was selected for the Plant limits impact on good to very good condition foraging habitat, and high value native vegetation breeding habitat, for conservation significant black cockatoo species in comparison to other land parcels considered in the KSIA. The selected site also has the least impact on Threatened Ecological Communities (Banksia Woodlands of the Swan Coastal Plain) listed under the *Environment Protection and Biodiversity Conservation Act 1999* out of the land parcels within the KSIA considered for the Proposal.

The Proposal area is sparsely vegetated with more than 90% of native vegetation classified as Degraded or Completely Degraded. The Proposal area supports foraging habitat for black cockatoos, comprising native vegetation and pine plantation. Ecological studies have not identified any active breeding hollows within the Proposal area. The Proposal is relatively remote from urban development, with the nearest sensitive receptors being rural residential areas located more than a kilometre from the Proposal area.

This report has been prepared by GHD for Albemarle Lithium Pty Ltd (Albemarle) and may only be used and relied on by Albemarle for the purpose agreed between GHD and Albemarle as set out in the accepted GHD proposal.

GHD otherwise disclaims responsibility to any person other than Albemarle arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to the preparation of an EPBC Act Referral for the proposed Albemarle Kemerton Plant located in Kemerton Strategic Industrial Area (KSIA).

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Albemarle and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

GHD has not been involved in the submission of the content contained in this report via the Department of Environment and Energy Online Services Portal and has had no contribution to, or review of the content other than that contained in this report. GHD shall not be liable to any person for any error in, omission from, or false or misleading statement in, any part of the EPBC Act Referral for the Albemarle Kemerton Plant Proposal, submitted via the Department of Environment and Energy Online Services Portal by Albemarle.

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1. Section 1 - Summary of your proposed action

1.1 Project Industry Type

Manufacturing.

1.2 Provide a detailed description of the proposed action, including all proposed activities

Albemarle Lithium Pty Ltd (Albemarle) is seeking approval to construct and operate a Lithium Hydroxide Product manufacturing Plant (Albemarle Kemerton Plant) located in Kemerton Strategic Industrial Area (KSIA), approximately 17 kilometres north-east of Bunbury, Western Australia (WA). The Albemarle Kemerton Plant will produce lithium hydroxide monohydrate (Lithium Hydroxide Product), which will be transported by road and then shipped to customers overseas.

The Plant will process up to one million tonnes per year of spodumene ore concentrate (containing 6% lithium oxide) via pyrometallurgical and hydrometallurgical unit operations to produce lithium hydroxide monohydrate (Lithium Hydroxide Product) as the final product. The spodumene ore concentrate will be from the Talison Lithium Australia Pty Ltd (Talison) Lithium Operations located in Greenbushes, WA. Spodumene ore concentrate will be treated via pyrometallurgical and hydrometallurgical unit operations to The Lithium Hydroxide Product will be transported from the Plant to Fremantle Port for export.

Development of the Plant will commence in 2018 subject to final investment decision and receipt of required approvals. Initial production is scheduled to commence by 2020 and the Plant will have an intended operating life of at least 25 years. The Plant will initially produce Lithium Hydroxide Product from a single train at a rate of 20,000 tonnes per annum (tpa), increasing in stages with the addition of up to four more 20,000 tpa trains to a potential output of 100,000 tpa by around 2025.

Establishment of the Plant requires clearing of 89.25 ha of vegetation. The majority of the Plant will be hard surfaced with concrete / bitumen with minimal areas of open ground and vegetation, for example, garden and landscaped areas. For the purposes of construction and connection of some services to the site, a service corridor accommodating potential gas supply, electricity supply, potable water supply, telecommunications and construction access road, will be developed connecting the site with Marriott Road to the south.

The main operational entry / exit point(s) for the Site will be via a yet to be constructed road immediately east of the Site running between Marriott Road and Wellesley Road North. The approvals and development of this road will be managed by the KSIA estate manager, LandCorp and is separate to this Proposal. The routing of the proposed road is provided in the approved Kemerton Structure Plan (and referred to as 'Kemerton Road').

**1.3 What is the extent and location of your proposed action?
Use the polygon tool on the map below to mark the location
of your proposed action**

To be completed online.

**1.4 Please upload images of the proposed area and if available
a compliant GIS file. The accepted file types are: zip, kml,
kmz, shp, pdf, png, gif, jpg**

To be completed online.

**1.5 Provide a brief physical description of the property on which
the proposed action will take place and the location of the
proposed action (e.g. proximity to major towns, or for off-
shore actions, shortest distance to mainland).**

The proposed site of the Albemarle Kemerton Plant (Proposal area) is located in the KSIA, approximately 17 km north-east of Bunbury. The KSIA is a 7,508 ha Industrial Park comprising a 2,024 ha Strategic Industry Zone (Industrial Core), a 284 ha Ancillary Industry Zone (support industry area) and a 5,200 ha Industry Buffer Zone (Buffer) (Raymond 2015). The KSIA was established in 1985 to provide an area for downstream processing and value-adding to the South West regions' primary resources, especially its substantial mineral resources. It is the largest industrial area in the South West of WA and is one of the State's designated strategic industrial areas (Markovic 2015). Existing industrial sites within the KSIA include a titanium dioxide processing Plant, Chlor Alkali Plant, silicon Plant, sand mine, gas and diesel fired peak power stations, gasworks (O₂ and N₂), a lime hydration Plant, wastewater treatment Plant and a landfill.

The Proposal area is located on the northern side of Marriott Road, opposite the Cristal Kemerton titanium dioxide processing plant. The Proposal area is within the industrial core of the KSIA and is currently undeveloped.

The Proposal area will occupy approximately 89.25 hectares (ha) of Lot 510 which extends to approximately 594 ha. The Proposal area has almost entirely been historically cleared, leaving only a small area (6.58 ha) of remnant native vegetation considered to be in good or better condition. The remaining areas of the Proposal area consist of pine plantation, partially cleared pine plantation and previously cleared paddocks with scattered remnant / regrowth vegetation.

**1.6 What is the size of the development footprint or work area?
Provide the development area in hectares if possible**

The total footprint for the Proposal is 89.25 hectares, of which approximately 58.44 ha has previously been cleared for farmland and pine plantation areas, with the remaining area consisting of native vegetation. The areas of native vegetation have been highly modified with only 6.58 ha in good or better condition.

Table 1 Land types within the Proposal area footprint

Land type	Area (ha)
Pine plantation	33.39 ha
Previously cleared farmland with native vegetation re-growth	25.05 ha
Native vegetation	29.26
Cleared access track	1.55 ha
Total	89.25 ha

1.7 Is the proposed action a street address or lot?

Lot

1.7.1 Provide Street Address or Describe the lot number and title

Part Lot 510 on Deposited Plan 50377 (Certificate of Title Volume 2649 Folio 99), Wellesley Road, Wellesley, Western Australia.

1.8 Primary jurisdiction (State)

Western Australia

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

Yes planning approval is required, the application is underway and is expected to be submitted in late 2017/early 2018.

1.10.1 If yes, is there a local government area and council contact for the proposal?

Yes, local government contact details provided. There is no specific council contact as the application has not yet been submitted.

If yes, Council contact officer details

Shire of Harvey

shire@harvey.wa.gov.au

+61 8 9729 0300

1.10.2 Attach copies of local government approvals and consent conditions

Application is yet to be submitted so none are available at this stage.

1.11 Provide an estimated start and estimated end date for the proposed action

Start date: Quarter 2 2018

End date: Quarter 4 2049

1.12 Provide details of the context, planning framework and State and/or Local government requirements

The Proposal area is located within the KSIA, within the Shire of Harvey. The KSIA is a designated Industrial Park under the Greater Bunbury Region Scheme (GBRS) and the Shire of Harvey District Planning Scheme No.1. The Proposal area is zoned 'Kemerton Strategic Industrial' under the Shire of Harvey District Planning Scheme No.1 and 'Industrial' under the GBRS.

The GBRS was referred to the WA Environmental Protection Authority (EPA) under the *Environmental Protection Act 1986* (EP Act) by the Western Australian Planning Commission (WAPC) in August 1996. The EPA formally assessed the GBRS under s48A of the EP Act. The Albemarle Kemerton Plant is being referred to the EPA, as a Proposal under the GBRS, an assessed planning scheme, in accordance with the requirements of Section 38, Part IV of the EP Act.

In addition to the Part IV referral, the Albemarle Kemerton Plant will also require secondary approvals under Part V of the EP Act and Development Approval from the Shire of Harvey.

LandCorp is the registered proprietor of the Property (Lot 510) within which the Proposal area is located. Albemarle has been granted a two year option to lease part of Lot 510. The Lease option area is 230 ha. Once all environmental and planning approvals are obtained Albemarle can exercise the option and enter into a lease with LandCorp for an initial 30 year term. The lease will be for the total Proposal area of 89.25 ha.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders

Albemarle has been engaged in consultation with key stakeholders since late 2016. Those consulted to date include government departments, neighbouring industries, support industries and local government. Those consulted are listed below:

- Department of Water and Environmental Regulation – Environmental Protection Authority Service Unit
- Department of Water and Environmental Regulation – Water Services
- Department of Water and Environmental Regulation – Regulation Services
- Department of Jobs, Tourism, Science and Innovation
- LandCorp
- Department of Energy and Environment
- Cristal Pigment Australia Limited
- Simcoa Operations Pty Ltd
- Port of Bunbury
- Talison Lithium Pty Ltd
- Main Roads WA

- Kemerton Industrial Park Coordinating Committee
- Bunbury Wellington Economic Alliance
- South West Development Commission
- City of Bunbury
- Shire of Harvey

Consultation with industrial operators in the KSIA has been undertaken and has revealed low or no levels of resistance to industrial development in the KSIA by local communities. Simcoa and Cristal have operated for many years successfully and enjoy good relationships with local communities, including for example, holding regular school visits to their sites. The Bunbury area is one of the most rapidly developing in Australia and it is anticipated that the introduction of a new high technology employer will be welcomed.

The Kemerton Industrial Park Coordinating Committee (KIPCC) is a key stakeholder group, comprising representatives of the KSIA's tenants, local communities, local councils and bodies. A presentation was made to the KIPCC in October 2017 outlining the Proposal to establish the Albemarle Kemerton Plant in the KSIA. Albemarle is preparing a public fact sheet to inform the public of key details of the Proposal when it is referred to the WA EPA.

Consultation with key stakeholders including government departments, neighbouring industries, local government and the public will continue as the Proposal progresses.

1.13.1 Attach report(s) on any public consultations undertaken, including with Indigenous stakeholders

Attach Stakeholder Engagement Table (excel).

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

A referral under Section 38, Part IV of the EP Act has been prepared and will be submitted to the EPA in parallel with the EPBC Act referral. The referral comprises a preliminary environmental impact assessment. A formal environmental impact assessment will be required if the EPA decide to assess the Proposal. In summary, the preliminary environmental impact assessment identified potential impacts to:

- flora, vegetation and terrestrial fauna associated with vegetation clearing;
- terrestrial environmental quality associated with potential disturbance of Acid Sulfate Soils within the Proposal Area, and spills of environmentally hazardous materials;
- hydrological processes associated with clearing, establishment of the Plant infrastructure and changes to stormwater flows
- inland waters environmental quality associated with contaminated stormwater and release of environmentally hazardous materials; and
- air quality associated with emissions from the Plant

The impact assessment for the Proposal also indicates that the impacts could be managed under Part V approvals issued under the EP Act rather than formal EPA environmental impact assessment.

1.14.1 Attach copies of Commonwealth, State and/or Territory government approvals and consent conditions

Not applicable.

1.15 Is this action part of a staged development (or component of a larger project)?

No

1.16 Is the proposed action related to other actions or proposals in the region?

No

2. Section 2 – Matters of National Environmental Significance

2.1 Is the proposed action likely to impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to impact on the members of any listed threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat? *

Yes

Black Cockatoos : Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Baudin's Cockatoo (*Calyptorhynchus baudinii*)

The Proposal area is located within the modelled distribution for all three species of black cockatoo. All three species of black cockatoo have been recorded within the Proposal area or surrounding KSIA.

The Proposal area is located within the known feeding and breeding range of the Carnaby's Black Cockatoo and feeding range and predicted breeding range of the Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo (DSEWPaC 2012).

A number of targeted black cockatoo habitat surveys have been undertaken across the Proposal area and surrounding area, including most recently by Eco Logical Australia Pty Ltd (ELA) (2017a; 2017b; 2017c) and GHD (2017). All three species have previously been recorded in the Proposal area or in the surrounding area.

GHD (2017) confirmed the presence of Forest Red-tailed Black Cockatoos (observed) and based on chewed Banksia nuts and Pine Tree cones considered it is likely that Carnaby's Black Cockatoo also utilise the Proposal area.

ELA (2017c) did not observe any black cockatoo species within the Proposal area but recorded evidence of foraging by the Carnaby's Black Cockatoo (chewed pine cones).

The Proposal area provides areas of suitable foraging habitat (62.63 ha) and potential breeding habitat (14.45 ha) for black cockatoos:

- Pine plantation: 33.39 ha foraging habitat
- *Pinus/Eucalyptus* Woodland: 7.90 ha foraging and potential breeding habitat

- Sedgeland: 8.62 ha foraging habitat
- Woodland over Sedgeland: 6.16 ha foraging habitat
- Jarrah / Marri Woodland: 5.94 ha foraging and potential breeding habitat
- *Eucalyptus / Banksia* Woodland: 0.42 ha foraging and potential breeding habitat
- Marri Forest: 0.19 ha foraging and potential breeding habitat

A total of 62.63 ha of suitable foraging habitat is present within the Proposal area. High quality foraging habitat within the Proposal area consists of the Pinus sp. and Eucalyptus/Banksia woodland habitat types. Pine plantation is the most commonly occurring fauna habitat type, covering more than 38% of the Proposal area.

GHD (2017) and Bamford (2011) have identified actual (large Jarrah trees that had DBH greater than 500 mm, had large hollows with potential chews and had been marked previously as habitat trees) and potential breeding trees within the KSIA / surrounding area.

One potential breeding tree is within the Proposal area.

Banksia Woodlands of the Swan Coastal Plain

Remnant vegetation remaining within the Proposal area has been identified as representative of the Federally listed Threatened Ecological Community (TEC) 'Banksia Woodlands of the Swan Coastal Plain'.

The Proposal will result in the clearing of up to 6.37 ha of Banksia Woodland (0.09 ha in Excellent Condition, 6.18 ha in Good condition and 0.1 ha Completely Degraded).

2.4.1 If yes, Impact table

Table 2 Impact table

Species	Impact
Black Cockatoos - Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>), Forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii naso</i>) and Baudin's Cockatoo (<i>Calyptorhynchus baudinii</i>)	
Significant Impact Guidelines	
An assessment of impacts on black cockatoos was undertaken against the Significant Impact Guidelines as presented below.	
<u>Lead to a long-term decrease in the size of an important population of a species</u>	
The Proposal will result in the removal of up to 62.63 ha of suitable foraging habitat and 14.45 ha of potential breeding habitat and one potential breeding tree.	
Black cockatoo habitat is well represented within the locality. The estimated area of suitable foraging habitat available within the Shire of Harvey (based on current extent of Beard (1979) vegetation associations) is estimated to be 87,007.51 ha (GoWA 2016). The Proposal may reduce the overall area of habitat by less than 0.07% within the Shire of Harvey as a result of direct loss of habitat from clearing. The vegetation considered to be suitable foraging habitat is largely contained in Department of Biodiversity, Conservation and Attractions (DBCA)-managed land (approximately 76%).	
The proposed action, without the implementation of species specific mitigation measures, is unlikely to result in a long-term decrease in the size of a population of this species as it is unlikely to substantially:	

Species	Impact
	<ul style="list-style-type: none"> • reduce the overall area of available habitat to the population • reduce the overall area of occupancy of the population • exacerbate existing barrier effects or create new barrier effects • disrupt the breeding cycle of part of the population. <p>Therefore, it is considered that clearance of up to 62.63 ha of suitable foraging habitat, 14.45 ha of potential breeding habitat and one potential breeding tree are unlikely to lead to a long-term decrease in the size of the local population of the Carnaby's Black Cockatoo, Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo.</p> <p><u>Reduce the area of occupancy of an important population</u></p> <p>The Proposal is unlikely to substantially reduce the area of occupancy of the population of Carnaby's Black Cockatoo, Baudin's Cockatoo or Forest Red-tailed Black Cockatoo within the local area or region. The species is known to occur throughout the greater south-west region and Swan Coastal Plain bioregion.</p> <p>The estimated area of suitable foraging habitat available within the Shire of Harvey (based on current extent of Beard (1979) vegetation associations) is estimated to be 87,007.51 ha (GoWA 2016). The Proposal may reduce the overall area of habitat by less than 0.07% within the Shire of Harvey as a result of direct loss of habitat from clearing. The vegetation considered to be suitable foraging habitat is largely contained in DBCA-managed land (approximately 76%). There are large blocks of suitable foraging habitat immediately adjacent to the Proposal area.</p> <p>The removal of 62.63 ha of habitat within the Proposal area is not considered to be substantial for the species in a regional context, due to the extent of the known habitat adjacent to the Proposal area as well as the availability of known and modelled suitable habitat within the locality and region.</p> <p><u>Fragment an existing important population into two or more populations</u></p> <p>The Proposal is unlikely to fragment the population into two or more populations. Much of the Proposal area has previously been cleared and is predominantly in a Degraded to Completely Degraded condition. The Proposal is unlikely to substantially fragment the habitat or impose a physical barrier to the movement of black cockatoos between the habitat within the Proposal area and surrounding habitat areas. Large, contiguous areas of native vegetation of better condition is available adjacent to the Proposal area which currently provide important habitat linkages to surrounding areas. Clearing for the Proposal is unlikely to significantly fragment the habitat available in the local area and/or regional area. Based on the mobility of the species and the availability of suitable habitat adjacent to the Proposal area, fragmentation of potential populations is considered unlikely.</p> <p><u>Adversely affect habitat critical to the survival of a species</u></p> <p>The Proposal is unlikely to affect habitat critical to the survival of the species. Up to 62.63 ha of suitable foraging, 14.45 ha of potential breeding habitat and one potential breeding tree will be cleared for the Proposal. The habitat located within the Proposal area consists of habitat described by the recovery plan as critical for the survival of black cockatoos (DEC 2008; DPAW 2013).</p> <p>Although the Proposal area includes habitat for the Black Cockatoos, it is highly modified. The quality of the vegetation was assessed by ELA (2017 a, b, c) and GHD (2017) and of the</p>

Species	Impact
	<p>foraging / potential breeding habitat 56.17 ha (89.68 %) was assigned a condition rating of Completely Degraded. The remaining 6.46 ha (10.32 %) was rated as Good or better.</p> <p>Given the habitat is highly modified, and well represented adjacent to the Proposal area and in the greater locality, the impacts of the clearing are not considered significant.</p> <p><u>Disrupt the breeding cycle of an important population</u></p> <p>There is 14.45 ha of potential breeding habitat within the Proposal area and one potential breeding tree present. Given the extent of remaining habitat in the region, the Proposal is considered unlikely to disrupt the breeding cycle of an important population of this species.</p> <p><u>Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</u></p> <p>The works associated with the Proposal, may modify and destroy a small proportion of potential habitat for this species, but unlikely to the point that this species would decline significantly. The Project may reduce the overall area of habitat by up to 62.63 ha as a direct loss of habitat from construction. The small scale of this habitat loss within a regional context (i.e. less than 0.07% within the Shire of Harvey) is considered unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitats to the extent that the species is likely to decline.</p> <p><u>Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat</u></p> <p>The Proposal may potentially exacerbate existing invasive species (such as weeds and introduced predators) that already occur within the Proposal area. However, the potential incremental change is considered to be minor and unlikely to significantly impact the value of the black cockatoo habitat adjacent to the Proposal area or black cockatoo individuals.</p> <p>The Proposal is unlikely to result in an invasive species becoming established in the Proposal area to the extent that black cockatoos are substantially impacted.</p> <p><u>Introduce disease that may cause the species to decline</u></p> <p>There is potential that the introduction/spread of Dieback could reduce the flora species diversity and density, and potentially impact on the habitat quality for black cockatoos. Dieback management controls will be implemented during the construction phase of the Proposal.</p> <p>The Proposal is unlikely to introduce a disease (e.g. beak and feather disease virus) that may cause the species to decline. There are no known diseases that may be introduced to the area that may cause the black cockatoo population to decline and it is unlikely that any disease already exists in the Proposal area that may be spread by the activities of the Proposal.</p> <p><u>Interfere substantially with the recovery of the species</u></p> <p>Carnaby's Black Cockatoo:</p> <p>The Proposal is unlikely to interfere substantially with the recovery of Carnaby's Black Cockatoo as it is unlikely to interfere with the recovery actions outlined in the Carnaby's cockatoo (<i>Calyptrorhynchus latirostris</i>) Recovery Plan (DPAW 2013) for this species that is managed by DBCA. Actions in the Recovery Plan include:</p> <ul style="list-style-type: none"> • protect and manage important habitat • conduct research to inform management

Species	Impact
	<ul style="list-style-type: none"> • undertake regular monitoring • manage other impacts • undertake information and communication activities • engage with the broader community. <p>Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo:</p> <p>The Proposal is unlikely to interfere substantially with the recovery of the Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo as it is unlikely to interfere with the recovery actions outlined in the Forest Black Cockatoo (Baudin's Cockatoo <i>Calyptorhynchus baudinii</i> and Forest Redtailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>) Recovery Plan (DEC 2008). The Recovery Plan is managed by DBCA. Actions in the Recovery Plan include::</p> <ul style="list-style-type: none"> • seek the funding required to implement future recovery actions • determine and promote non-lethal means of mitigating fruit damage by Baudin's Black Cockatoo in orchards • eliminate illegal shooting • develop and implement strategies to allow for the use of noise emitting devices in orchards • determine and implement ways to remove feral Honeybees from nesting hollows • identify factors affecting the number of breeding attempts and breeding success and manage nest hollows to increase recruitment • determine and implement ways to minimise the effects of mining and urban development on habitat loss • determine and implement ways to manage forests for the conservation of Forest Black Cockatoos • identify and manage important sites and protect from threatening processes • map feeding and breeding habitat critical to survival and important populations, and prepare management guidelines for these habitats • monitor populations numbers and distribution • determine the patterns and significance of movement • maintain the Cockatoo care program and use other opportunities to promote the recovery of Forest Black Cockatoos.
	<p>Banksia woodlands of the Swan Coastal Plain ecological community</p>
	<p>Remnant vegetation remaining within the Proposal area has been identified as representative of the Federally listed Threatened Ecological Community (TEC) 'Banksia Woodlands of the Swan Coastal Plain' (Banksia Woodland).</p> <p>The Proposal will result in the clearing of up to 6.37 ha of Banksia Woodland in Good condition.</p> <p><u>Significant Impact Guidelines</u></p> <p>An assessment of impacts on the Banksia Woodland TEC was undertaken against the Significant Impact Guidelines as presented below.</p>

Species	Impact
	<p>An action is likely to have a significant impact on a Critically Endangered or Endangered Ecological Community if there is a real chance or possibility that it will:</p>
	<p><u>Reduce the extent of an ecological community</u></p>
	<p>The proposal will result in the permanent clearing of 6.37 ha of Banksia Woodland. The condition of this vegetation has been assessed to be in Excellent (0.09 ha), Good (6.18 ha) and Completely Degraded (0.1 ha) condition. The remnant vegetation within the Proposal area which is representative of the Banksia Woodland TEC, occurs on the edge, and is part of, a larger contiguous area of remnant vegetation that is representative of the Banksia Woodland TEC.</p>
	<p><u>Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines</u></p>
	<p>The proposed clearing is confined to an 87.7 ha area within a 230 ha lease option area within Lot 510 Wellesley Road. 6.37 ha of the proposed vegetation clearing area is mapped as the Banksia Woodland TEC. Approximately 82 ha of vegetation mapped as the Banksia Woodland TEC occurs within the 230 ha lease option area will not be impacted by the Proposal. The proposed clearing will reduce the presence of the Banksia Woodland TEC within the lease option area by approximately 7.8% and will not significantly reduce connectivity of remaining remnant vegetation areas.</p>
	<p><u>Adversely affect habitat critical to the survival of an Ecological Community</u></p>
	<p>This TEC is well represented in the surrounding area and much of it is protected within DBCA lands. 6.18 ha of remnant vegetation representative of the TEC which will be cleared occurs along the western boundary of the Proposal area. The area directly east of this, within the Proposal area, consists of previously cleared paddocks (with some regrowth of remnant vegetation) and partially cleared pine plantations. Located along the boundary of previously cleared land (paddocks), is considered unlikely to impact the survival of the TEC.</p>
	<p>0.42 ha of remnant vegetation representative of the TEC will be cleared from the boundary of an area referred to as the Banksia Block which is remnant vegetation representative of the TEC in very good to excellent condition. The Banksia Block is approximately 12 ha and is south of an area of previously cleared paddocks. Only 3.5% of this area will be cleared and is considered unlikely to impact the survival of the TEC.</p>
	<p>The clearing of 6.37 ha (in total) of this TEC, located along the boundary of previously cleared land (paddocks), is considered unlikely to impact the survival of the TEC.</p>
	<p><u>Modify or destroy abiotic (nonliving) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns</u></p>
	<p>The topography within the Proposal area slopes from west to east, with surface water likely to drain eastward. However, due to its low topography and deep, well-drained sands, there is limited natural surface water flow within the Proposal area. There is no permanent surface water within the Proposal area however a large portion is mapped as geomorphic wetlands. Areas mapped as wetland have been historically modified through clearing and establishment of pine plantations. The hydrology is currently altered through excavation of a drain. The wetland area is almost entirely in Completely Degraded condition and offers little to no ecological value (ELA 2017a).</p>
	<p>The vegetation representing the Banksia Woodland TEC is located on the more elevated areas along the western boundary. The clearing of the Proposal area is unlikely to result in</p>

Species	Impact
	<p>changes to downstream surface water flows or groundwater levels. The clearing activity is considered unlikely to have any impacts on abiotic factors outside the clearing area and thus impacts on the TEC will be limited.</p> <p><u>Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting</u></p> <p>No activities likely to cause a change in species composition are proposed. The small scale of clearing of the TEC within the Proposal area is unlikely to cause a substantial change in species composition of the TEC given the relatively large extent of the Banksia Woodland vegetation occurring in the wider area. Furthermore, disturbance associated with the proposed action will be managed and monitored to ensure no impacts outside of the Proposal boundary.</p> <p><u>Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:</u></p> <ul style="list-style-type: none"> • <u>Assisting invasive species, that are harmful to the listed ecological community, to become established, or</u> • <u>Causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community.</u> <p>A large proportion of the site is already considered to be disturbed as a result of historical clearing, agriculture and pine plantations. A number of weed species have been observed in the area during previous flora and vegetation surveys.</p> <p>Disturbances associated with the Proposal will be managed and monitored to ensure no disturbance outside of the approved development footprint. Management plans will be prepared and implemented as part of the construction and development stages, including hygiene measure for the prevention of spread of weeds and dieback.</p> <p>It is considered unlikely that the Proposal will cause a substantial change in the quality or integrity of an occurrence of an ecological community.</p> <p><u>Interfere with the recovery of an ecological community</u></p> <p>The proposed action is unlikely to interfere with the recovery of the Banksia Woodland TEC, given the occurrence of the TEC within the site as a relatively narrow band along the western boundary situated adjacent to previously cleared, highly disturbed land which covers the majority of the Proposal area.</p> <p>More intact and larger occurrences of the TEC occur to the west, north and south of the Proposal area in the wider locality, much of which is protected within DBCA lands. The proposed clearing area does not represent a key linkage to other remnant vegetation as a large proportion is previously cleared or highly disturbed.</p>

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to impact on the members of any listed migratory species, or their habitat? *

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)? *

No

2.7 Is the proposed action likely to impact on any part of the environment in the Commonwealth land? *

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park? *

No

2.9 Will there be any impact on a water resource related to coal / gas / mining? *

No

2.10 Is the proposed action a nuclear action? *

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas? *

No

2.13 Is the proposed action likely to impact on any part of the environment in the Commonwealth marine area?

No

2.14 Upload any technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral

Uploaded documents online:

Eco Logical Australia (ELA) 2017a, 'Desktop Assessment of Selected Lots within Kemerton Industrial Area'. Prepared for S2V Consulting.

ELA 2017b, 'Kemerton Industrial Area: Additional Assessment of Proposed Access Road Area'. Prepared for S2V Consulting.

ELA 2017c, 'Kemerton Industrial Area Spring Flora and Fauna Survey'. Prepared for S2V Consulting

GHD 2017. 'Albemarle Kemerton Plant Additional Area Biological Assessment'. Prepared for Albemarle Lithium Pty Ltd

***N.B. If the impact is NOT significant, you can provide your reasoning in section 5.2.

Section 3 – Description of the project area

3.1 Describe the flora and fauna relevant to the project area. *

The most recent flora and fauna survey which covers the majority of the Proposal area was conducted by ELA (2017c) and GHD (2017) in spring 2017. The results from the field survey, and from relevés established by ELA in early 2017 (2017a, b), found a total of 32 dominant species within the study area, which includes 20 species of native and 12 species of introduced flora (weeds). The most commonly recorded families included Myrtaceae (6 species), Fabaceae (5 species) and Asteraceae (4 species). The most common genera recorded was *Acacia*, with three species recorded. Of the weed species recorded within the study area, **Zantedeschia aethiopica* (Arum Lily) is listed as a Declared Pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act). Common weed species observed within the study area during the field survey included **Ursinia anthemoides* subsp. *anthemoides* (Ursinia), **Hypochaeris glabra* (Smooth Catsear), **Ehrharta calycina* (Perennial Veldt Grass), and **Cynodon dactylon* (Couch). In particular, **Ehrharta calycina* (Perennial Veldt Grass) is widespread and occurs in previously cleared areas in high densities, such as in the western portion of the study area.

One conservation significant flora species *Acacia semitrullata* (listed as Priority 4 by DBCA) has previously been recorded within the Proposal area (ELA 2017a; 2017b). This species was targeted during the recent field survey with 118 individuals recorded within Proposal area (ELA 2017c, GHD 2017). Following the field survey, the likelihood of occurrence ratings of conservation listed flora species identified in ELA 2017a and 2017b were revised to provide a more accurate reflection of the likelihood of these species occurring, based on the current habitat and condition within the study area. The database searches identified an additional 33 flora species of conservation significance which may occur within the Proposal area. Of these, the likelihood of occurrence for all potentially occurring flora species listed under the EPBC Act and the WC Act was reduced to 'No'. This was due to the study being well surveyed and the lack of suitable habitat available for these species within the study area (ELA 2017c).

ELA (2017c) observed a total of 22 fauna species, or signs of species, during the recent spring field survey, including 19 bird species, two mammal species and one reptile. GHD (2017) recorded 44 fauna species comprising 35 birds, four reptiles and five mammals were recorded within the additional survey area.

Two conservation significant species have been previously recorded within the Proposal area including: Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) listed as Endangered under the EPBC Act and as Endangered (Schedule 2) under the WC Act, and Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii* subsp. *naso*) listed as Vulnerable under the EPBC Act and Vulnerable (Schedule 3) under the WC Act. Evidence of Carnaby's Black Cockatoo and Forest Red-tailed Black-Cockatoo foraging has been previously observed within the study area by ELA (2017a). The Red-tailed Black-Cockatoo was observed (GHD 2017) and evidence of Carnaby's Black Cockatoo, in the form of chewed pine cones, was recorded within the Proposal area (GHD 2017; ELA 2017c).

Following the field survey, the likelihood of occurrence ratings of conservation listed fauna species identified in ELA 2017a and 2017b were revised to provide a more accurate reflection of the likelihood of these species occurring, based on the current habitat and condition within the study area. The database searches identified an additional 54 fauna species of conservation significance which may occur within the study area. Of these, two are considered as likely to

occur within the study area: *Calyptorhynchus baudinii* (Baudin's Cockatoo) and *Merops ornatus* (Rainbow Bee-eater). In addition to these species considered likely to occur, a further four are considered as having the potential to occur:

- *Ardea ibis* (Cattle Egret);
- *Ardea modesta* (Eastern Great Egret);
- *Falco peregrinus* (Peregrine Falcon); and
- *Macropus irma* (Western Brush Wallaby).

The remaining 48 species are considered unlikely to occur in or around the study area.

3.1.1 Attach copies of any flora and fauna investigations and surveys (if applicable)

As per Section 2.14.

3.2 Describe the hydrology relevant to the project area (including water flows). *

Broad wetland mapping has been coordinated by Parks and Wildlife (now Department of Biodiversity Conservation and Attractions) and included in the Geomorphic Wetlands Swan Coastal Plain dataset (Parks and Wildlife 2016b). This dataset contains information on the location, boundaries, classification, management categories and unique feature identifier numbers of wetlands on the Swan Coastal Plain (Parks and Wildlife 2016b).

The Geomorphic Wetlands Swan Coastal Plain dataset indicates there are no 'Conservation' or 'Resource Enhancement' management category wetlands in the Proposal area. There are four 'Multiple Use' wetlands within the Proposal area, three are classified as a sumpland and one as a dampland (UFI 1502, 1503, 1504 and 1505). The management category of 'Multiple Use' is defined as 'Wetlands with few remaining important attributes and functions' (Parks and Wildlife 2013). The objective of Multiple Use wetlands is to use, develop and manage the wetland in the context of ecologically sustainable development and best management catchment planning (Parks and Wildlife 2013).

Areas mapped as wetland within the Proposal area have been historically modified through clearing and establishment of pine plantations and the hydrology is currently altered through excavation of an artificial drainage ditch. The wetland area is also in completely degraded condition, is currently grazed by cattle and has high weed cover. In its current state, the wetland area offers little to no value apart from hydrological function acting as a conduit for stormwater runoff. On occasions when standing water is present, it may provide opportunistic foraging opportunities for wetland birds, however it does not form core habitat which any species would be reliant on (ELA 2017a).

The regional groundwater system has been generally described for the KSIA by Sanders (1974) and Commander (1982). The sands containing the superficial aquifer are fairly permeable and groundwater flows are probably of the order of 15-50 metres (m) per year. Dimmock (1985) determined that the water table in the Bassendean sands occurs on average at about 2 m depth in summer, although it is considerably less than this for the low-lying Joel series soils. Salinity of the unconfined groundwater is variable, mostly in the range of 500-1000 milligrams per litre (mg/L) Total Dissolved Solids per litre and with high levels of iron and carbonate (Commander 1982).

3.2.1 Attach copies of any hydrological investigations

Not applicable.

3.3 Describe the soil and vegetation characteristics relevant to the project area. *

The Proposal area is located in the Swan Coastal Plain bioregion and the Perth (SWA02) subregion as described by the Interim Biogeographic Regionalisation for Australia (IBRA). This subregion is dominated by Banksia or Tuart on sandy soils, *Casuarina obesa* on outwash plains and paperbark in swampy areas. In the east, the plain rises to duricrusted Mesozoic sediments dominated by Jarrah woodland (Mitchell *et al.* 2002).

The Proposal area is located on the Bassendean Dune System. The Department of Agriculture and Food Western Australia (DAFWA) (2007) soil mapping indicates there are four different soil types within the survey area:

- S2c – Dune ridges with deep siliceous yellow brown sands or pale sands with yellow-brown subsoil and slopes up to 15%.
- B1a – Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands with an intensely coloured yellow B horizon occurring within 1 m of the surface; marri and jarrah dominant.
- B6 – Sandplain and broad extremely low rises with imperfectly drained deep or very deep grey siliceous sands.
- B3a – Broad depression and narrow swales between sand ridges with poor to very poorly drained grey and brown sands, with an iron-organic (or siliceous) hardpan at generally less than one metre.

The Proposal area consists primarily of previously cleared farmland and pine plantation. A number of flora and vegetation surveys have previously been conducted over the Proposal area and surrounding area. Based on the results of the ELA (2017a, b, c) and GHD (2017) surveys, nine vegetation communities have been identified within the Proposal area:

- CcKg: *Corymbia* closed forest over mixed shrubland and rushes;
- EmCcXb: *Eucalyptus* and *Corymbia* woodland with isolated trees over open grassland over open forbland on uplands;
- EmKgMr: *Eucalyptus* and *Banksia* low open woodland over tall sparse shrubland and mixed shrubland;
- ErMpJk: *Eucalyptus* isolated trees over *Melaleuca* and *Pinus* sp. low open woodland over sedgeland over very open grassland;
- MpAs: *Melaleuca* low woodland over tall open shrubland;
- PEr: *Pinus* and *Eucalyptus* low open woodland in low lying seasonal dampland;
- Pine plantation;
- PJp: *Pinus* sp. open woodland over closed rushland in low lying seasonal dampland; and
- XbEc: *Xanthorrhoea* open shrubland over Perennial Veldt Grass open grassland in previously cleared farmland.

The most common occurring vegetation communities found within the Proposal area were pine plantation (33.39 ha) and XbEc: *Xanthorrhoea brunonis* open shrubland over **Ehrharta calycina* (Perennial Veldt Grass) open grassland in previously cleared farmland (25.04 ha).

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area. *

Not applicable.

3.5 Describe the status of native vegetation relevant to the project area.

Broad scale (1:250,000) pre-European vegetation mapping of the Swan Coastal Plain has been completed by Beard (1979) at an association level. Similarly, regional vegetation based on major geomorphic units on the Swan Coastal Plain have been mapped by Heddle et al. (1980).

The Heddle *et al.* (1980) mapping indicates the Bassendean complex – central and south is present within the Proposal area. The extent of vegetation complexes described and mapped by Heddle et al. (1980) for the Swan Coastal Plain and the Shire of Harvey have been determined by the south west vegetation remaining extent calculations maintained by DBCA (latest update December 2016 – GoWA 2017). The current extent of Bassendean – central and south vegetation complex within the Swan Coastal plain is less than 30 % of its calculated pre-European extent. However, it is greater than 30 % of its calculated pre-European extent within the Shire of Harvey.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area

Not applicable.

3.7 Describe the current condition of the environment relevant to the project area

The majority of the Proposal area is currently disturbed by cattle grazing, weed invasion, unauthorised access (e.g. unplanned tracks, rubbish dumping, motorbikes) and clearing/logging. As such, 82.79 ha (92.76%) of the Proposal area was mapped as either in Completely Degraded condition or Degraded condition (ELA 2017a, b, c; GHD 2017d).

The remaining 7.24% was mapped to be Good (6.37 ha) and Excellent (0.09 ha) condition. The majority of this area is representative of the 'Banksia Woodlands of the Swan Coastal Plain TEC'.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area

No Commonwealth Heritage Places will be impacted.

3.9 Describe any Indigenous heritage values relevant to the project area

A search of the Aboriginal Heritage Inquiry System did not identify any 'Registered' sites of Aboriginal heritage significance within the Proposal area (Department of Planning and Heritage 2017).

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area

LandCorp is the registered proprietor of Lot 510 on Deposited Plan 50377. LandCorp has entered into a deed granting Albemarle a two year option to lease the part of Lot 510 on Deposited Plan 50377 described in this referral as the Proposal area. Albemarle can exercise the option, and enter into a lease with Landcorp for an initial 30 year term, once all environmental and planning approvals are obtained.

3.11 Describe any existing or any proposed uses relevant to the project area

The land uses for the Proposal area have historically been for agriculture and forestry plantation (pine). Historically the area has been extensively cleared of native vegetation.

The proposed land use for the Proposal area is a Lithium Hydroxide Product manufacturing plant. The Albemarle Kemerton Plant will primarily consist of the processing plant and associated infrastructure, access roads and utilities. The Albemarle Kemerton Plant is designed to have an intended operating life of at least 25 years. A service corridor will be established to accommodate the Plant with gas supply, electricity supply, potable water supply, process water supply, telecommunications and a construction access road.

4. Section 4 – Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

Potential impacts to Matters of National Environmental Significance (as defined in the EPBC Act 1999) have been considered during Proposal design and minimised as far as practical. The Proposal area represents the maximum area to be cleared. Only the area absolutely necessary for the Proposal development will be disturbed. The clearing of 29.26 ha of remnant native vegetation within the Proposal area is considered unavoidable.

Considerable effort has been made by Albemarle during the design phase, to minimise the amount of clearing of native vegetation required for the construction and operation of the processing plant to minimise direct impacts on black cockatoo foraging and breeding habitat and Banksia Woodlands TEC. Within the footprint, opportunities to further reduce clearing will be considered, where practicable.

A site selection process was undertaken by Albemarle to determine a suitable location to establish the Plant within the 230 ha lease option area provided by LandCorp. The aim of the site selection process was to select a Plant location which minimises impact on significant environmental values. Different site configurations within the boundary were assessed for suitability. A number of potential locations within the lease option boundary were screened at a high level due to the presence of significant environmental values including:

- Good to very good condition foraging habitat for conservation significant Black Cockatoo species,
- High value native vegetation breeding habitat for conservation significant Black Cockatoo species, and
- Banksia Woodland TEC in Very Good or Excellent condition.

From this high level assessment, two potential options were identified for the Plant location. An east and a west option. These site options were subject to ecological assessment and the eastern option emerged as the preferred site from this process which is now defined as the Proposal Area for this referral.

Key factors in the decision to select this location were:

- 65% of the site has already been impacted by clearing and grazing for agriculture (approximately 28%), and pine plantation activities (approximately 37%)
- the generally poor condition of vegetation within the Proposal area 92.76% was mapped as either in Completely Degraded (57.75 ha) or Degraded (25.04 ha) condition;
- least impact on vegetation representative of the Banksia Woodlands of the Swan Coastal Plain TEC (6.37 ha or 7.8% of the lease option area);
- high value black cockatoo breeding habitat within native vegetation is avoided; and
- there is limited remnant vegetation in the selected Proposal area, 54.31 ha of native vegetation comprising 29.26 ha native vegetation and 25.05 ha previously cleared farmland with native vegetation re-growth.

The western option, was not selected as it comprises a significantly smaller area of cleared grazing land, a larger area of vegetation representative of the Banksia Woodlands of the Swan

Coastal Plain TEC, and high value breeding habitat within native vegetation for conservation significant Black cockatoo species.

Albemarle has prepared an Environmental Management Plan (EMP) for implementation during the Proposal. The EMP has been submitted with this referral. The mitigation measures are proposed for the planning, pre-construction, construction and post-construction (operational) phases of the Proposal. Environmental management actions proposed to reduce or avoid impacts on Matters of National Environmental Significance include:

- All vegetation proposed to be cleared will be clearly demarcated on site prior to the commencement of Proposal activities. Any vegetation or trees that are to be retained will be marked accordingly.
- Avoidance through establishing protected areas for remnant vegetation comprising a high level of biological diversity (i.e. Banksia Woodlands TEC 'Banksia Block')
- Clearing of vegetation shall not exceed the limits of approved clearing.
- Protection of remaining vegetation from further clearing through restricted access and use of existing tracks.
- Drainage treatments during construction to minimise and/or direct runoff from cleared areas in order to minimise downslope erosion and siltation.
- Dust suppression measures will be regularly implemented on the site during the construction phase to minimise dust emissions from cleared areas.
- Undertake a pre-clearance fauna survey within areas of remnant vegetation, with potential relocation of individuals into the adjacent area of retained habitat or otherwise designated site.
- During clearing operations, a suitably experienced 'fauna spotter' will be employed to search for fauna and any fauna found will be relocated into the neighbouring vegetation. This will include ground searches and tree hollow inspections.
- Staging the clearing of native vegetation in one direction (ideally east to west) to allow fauna to escape towards other habitat
- All staff and contractors involved in clearing activities will be inducted on the potential impacts to fauna and advised to stop works in the vicinity of any injured or shocked animals that are encountered.
- In the event that sick, injured or orphaned native wildlife are located on the Proposal site, the WILDCARE Helpline ((08) 9474 9055) will be contacted for assistance.
- No pets, traps or firearms are allowed within the Proposal area.
- Fauna are not to be fed or intentionally harmed or killed.
- Dieback management controls will be implemented during the construction phase of the Proposal and include controls such as cleaning earth moving machinery of soil and vegetation prior to entry and departure to avoid the introduction and/or spread of weeds and Dieback.
- Any fill brought to the site will be clean and will be free from weeds, pathogens and contamination.
- Restrict movement of machines and other vehicles to the limits of the areas cleared.
- Control/spray identified significant weeds species within the Proposal area prior to construction to limit the amount of propagative material that may be spread during disturbance.

- Monitoring for new weed infestations will be undertaken with any found in Proposal area removed or killed to prevent spread to adjacent areas of native vegetation that are in good or better condition. Monitoring of adjacent areas will also occur.
- Clearing to be timed to minimise impacts on fauna (i.e. where practical, clearing will be avoided during spring).
- Landscape plantings will utilise local seed stock which includes black cockatoo foraging species (e.g. *Eucalyptus*, *Corymbia*, *banksia*, *Hakea*, etc.).

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

The proposal has the potential to impact on Matters of National Environmental Significance, specifically threatened species (Carnaby's Cockatoo, Forest Red-tailed Black Cockatoo and Baudin's Cockatoo) and a Threatened Ecological Community. 62.63 ha of black cockatoo foraging habitat, 14.45 ha of black cockatoo potential breeding habitat and one potential black cockatoo breeding tree will be removed by the Proposal. 6.37 ha of vegetation representative of the Banksia Woodland TEC will be removed.

The proposed environmental outcomes for Black Cockatoos are:

- no mortality of Black Cockatoos as a result of clearing activities associated with the Proposal; and
- no impact on habitat of Black Cockatoos outside the Proposal area as a result of weed or disease spread to adjacent areas, or clearing beyond the Proposal area boundary.

The proposed environmental outcomes for the Banksia Woodland TEC are:

- minimise clearing of the Banksia Woodland TEC through the site selection process, and
- no impact on Banksia Woodland TEC outside the Proposal area as a result of weed or disease spread to adjacent areas, or clearing beyond the Proposal area boundary.

4.3 Attach copies of any supporting documents

Attached document:

GHD Pty Ltd (2017) Albemarle Kemerton Plant Environmental Management Plan (EMP).
Prepared for Albemarle Lithium Pty Ltd. November 2017.

5. Section 5 – Conclusion on the likelihood of significant impacts

5.1 In Section 2 you indicated the below checked boxes to be of significant impact and therefore you consider the action to be a controlled action.

Response online – Results are **No** for all matters.

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

Implementation of the proposed action has the potential to impact three species and one TEC listed as Matters of National Environmental Significance:

- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) – Endangered
- Baudin's Black Cockatoo (*Calyptorhynchus baudinii*) – Vulnerable
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) – Vulnerable
- 'Banksia Woodland of the Swan Coastal Plain' TEC – Endangered

The Department of Environment Policy Statement 1.1 (DE 2013) was referenced to determine whether the impacts of the proposed action are likely to be significant. The Proposal will result in the loss of the following:

- Up to 62.63 ha of black cockatoo foraging habitat, 14.45 ha potential breeding habitat and one potential breeding tree
- Up to 6.37 ha of Banksia Woodland TEC

Black cockatoos

Clearing of the habitat types within the Proposal area is unlikely to result in negative long-term impacts to the three black cockatoo species or interfere substantially with the breeding cycle of any of these species. Black cockatoo habitat is considered to be well represented in the local region. The estimated area of suitable foraging habitat available within the Shire of Harvey is estimated to be 87,007 ha (GoWA 2016). The Proposal may reduce the overall area of habitat by less than 0.07% within the Shire of Harvey as a result of direct loss of habitat from clearing. The vegetation remaining in the region is largely contained in DBCA-managed land (approximately 76%).

An assessment against the significant impact criteria (DE 2013) for Endangered Species (Carnaby's Black Cockatoo) and the significant impact criteria for Vulnerable Species (Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo) was undertaken in section 2. In summary:

- There was one potential breeding tree and no evidence of roosting recorded within the Proposal area.
- Evidence of foraging was recorded within the Proposal area.
- The loss of fauna habitat is unlikely to further fragment local ecological linkages or seriously impact vegetation corridors.

- The majority (92.76 %) of the Proposal area is considered to be in Degraded to Completely Degraded condition.
- The Proposal area is immediately adjacent to large areas of remnant vegetation in better condition.
- With the availability of suitable habitat in the surrounding region and highly mobile nature of black cockatoos, the loss of this relatively small area of suitable habitat is not considered to have a significant impact on the species survival.
- There is no habitat within the survey area that would be considered specific to, or solely relied upon by, the three black cockatoo species known to occur within the area.

It is therefore considered unlikely that the proposed action would cause a significant impact on the Carnaby's Black Cockatoo, Baudin's Black Cockatoo or Forest Red-tailed Black Cockatoo and is therefore not considered a controlled action.

Banksia Woodland TEC

Vegetation representative of the 'Banksia Woodlands of the Swan Coastal Plain' TEC within the Proposal area is mostly in Good condition. However, the area that intersects the Proposal area is relatively small (6.37 ha) and has been previously cleared for farmland. The majority of mapped vegetation representing the TEC occurs in the western portion of the LandCorp lease option area (at least 70 ha) and within the 'Banksia block' (approximately 12 ha), which is far more dense (70 – 100%) and in better condition (Very Good – Excellent) than the vegetation within the Proposal area. The location of the Proposal area was selected to avoid the majority and best quality of TEC vegetation, in order to minimise the impact on this TEC.

6. Section 6 - Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail

As Albemarle's global presence increases, so does their responsibility for protecting the environment. The quality of Albemarle's products, processes and services, in addition to safety and environmental protection play a central role in the corporate policy.

Albemarle's commitment to quality is demonstrated by the company's ability to meet customer requirements, its core values and its commitment to environmental protection.

To ensure that our Lithium & Advanced Materials Organisation correctly recognises these constantly changing needs and takes appropriate action, we operate a quality management system based on relevant quality standards such as ISO 9001. Additional specific standards are relevant for certain branches such as for the pharmaceutical industries. Each production site of Albemarle's Lithium Businesses worldwide has achieved registration against one or more of these quality standards. Added to this, ever more companies / sites are being awarded certification to the environmental management system ISO 14001.

The certificates confirm that Albemarle's Lithium & Advanced Materials Business has reached a high level of quality, safety and environmental protection. All our employees endeavor to further improve the group's performance in these areas. This process is supported by Albemarle through continuous human resources development, amongst others.

The company's management commit to regularly audit the performance of our quality and environmental management system and to ensure continuous improvement.

6.2 Provide details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources.

There have been no proceedings actioned against Albemarle.

6.3 Will the action be taken in accordance with the corporation's environmental policy and planning framework?

Yes

6.3.1 **If YES, If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework**

Albemarle Health, Safety, Security and Environmental Policy Statement is provided as follows:

Governance and Safety Stewardship

We are deeply committed to the well-being of all affected by our activities. Our goal is to maintain an incident-free, secure and healthy workspace for all. As a company and as

individuals, we will take personal responsibility for safety and are committed to ensuring that we cause no harm to ourselves, our co-workers or the communities in which we operate. Conducting business in a safe, secure and environmentally responsible manner is our ethical responsibility and we will comply with all applicable legal requirements and company policies and procedures. We will be empowered to elevate issues to the appropriate level to ensure proper focus and resources are provided in the event we anticipate or must respond to any issue. If necessary, we will discontinue operations in order to take corrective actions and improve conditions before they lead to incidents, and no one will undertake any task unless it can be done in a safe and environmentally responsible manner. We adhere to the principles and expectations of Responsible Care® in our daily operations.

Social Responsibility

We will extend our health, safety, security and environmental philosophy beyond the workplace and seek opportunities to advocate this philosophy in our neighborhoods, in transit and at home. We will endeavor to make a positive impact in our communities through the Albemarle Foundation™ which actively supports the cornerstones of sustainability: education, health and social services, cultural initiatives and volunteerism.

Green Chemistry Principles, Product Safety and Environmental Obligations

It is our obligation and privilege to protect and preserve the environment. We will strive for continuous improvement in environmental performance and will measure our performance against our top performing peers. All of us, from business development to line management, will reduce emissions caused by our operations by optimizing raw material, energy and water usage. We will consider product safety and environmental impact issues of our products throughout the entire life cycle, including inception, design, development, manufacture, storage, transportation, distribution, marketing, use and disposal. We will be responsive to the concerns of our stakeholders and actively seek participation by them in our programs. We will continually search for innovative and sustainable ways to develop solutions that meet environmental and societal needs today and for generations to come.

People and Development

Our greatest asset is our people. We will invest time, energy and money to ensure our employees have the necessary understanding, education, expertise and training to perform tasks in a safe and environmentally responsible manner. We will improve the future by learning from the past. We will collaborate to share information and implement best practices across our organization. We will encourage our employees to perform at their highest potential, empowering them to prevent accidents or incidents before they happen.

Financial Performance

We will make wise investments in our facilities that improve operational efficiencies and ensure compliance with health, safety and environmental policies and standards. Incremental savings are never justified if they create a potential risk to people, property or products. We will continue to seek opportunities to invest in our facilities in a way that promotes enhanced processes and ensures a positive health, safety, security and environmental impact to all of our stakeholders.

6.3.2 Attach copies of any environmental policy and planning framework (If applicable)

Not applicable.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

No

7. Section 7 - Information sources

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference source	Reliability	Uncertainties
Department of Agriculture and Food, Western Australia 2007, <i>Soil-landscape mapping in South-western Australia</i> , Perth, Department of Food and Agriculture.	Government publication. Peer reviewed report.	-
Department of Biodiversity Conservation and Attractions 2007–, <i>NatureMap: Mapping Western Australia's Biodiversity</i> , retrieved May 2017, from http://naturemap.dpaw.wa.gov.au/default.aspx/	Government database	-
Department of Environment and Conservation 2008, Forest Black Cockatoo (Baudin's Cockatoo <i>Calyptorhynchus baudinii</i> and Forest Redtailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>) Recovery Plan. Department of Environment and Conservation, Perth, Western Australia.	Government publication. Peer reviewed report.	
Department of Parks and Wildlife 2013, Carnaby's cockatoo (<i>Calyptorhynchus latirostris</i>) Recovery Plan. Department of Parks and Wildlife, Perth, Western Australia.	Government publication. Peer reviewed report.	
Department of Sustainability, Environment, Water, Populations and Communities 2012, <i>EPBC Act Referral Guidelines for Three Threatened Black Cockatoo Species</i> , Government of Western Australia.	Government publication. Peer reviewed guideline.	-
Hedde, EM, Loneragan. OW and Havel JJ 1980, <i>Vegetation Complexes of the Darling System, Western Australia, in Atlas of Natural Resources, Darling System Western Australia</i> , Department of Conservation and Environment	Peer reviewed publication.	-
Eco Logical Australia Pty Ltd 2017a, Desktop Assessment of Selected Lots within Kemerton Industrial Area, unpublished report prepared for S2V Consulting.	Peer reviewed publication	-
Eco Logical Australia Pty Ltd 2017b, <i>Kemerton Industrial Area Additional Assessment of proposed Access Road Area</i> , unpublished report prepared for S2V Consulting	Peer reviewed report.	-

Reference source	Reliability	Uncertainties
Eco Logical Australia Pty Ltd 2017c, Kemerton Industrial Area Spring Flora and Fauna Survey, unpublished report prepared for S2V Consulting.	Peer reviewed report.	-
Aboriginal Heritage Inquiry System	Government database.	-
Eco Logical Australia Pty Ltd 2013, <i>Targeted Ecological Surveys for Kemerton Industrial Park</i> , unpublished report prepared for Landcorp	Peer reviewed report	-
AECOM Australia Pty Ltd 2012, <i>Kemerton Industrial Park Threatened Orchid Survey</i>	Peer reviewed report	-
M.J. & A.R. Bamford Consulting Ecologists 2011, <i>Black Cockatoo and Western Ringtail Possum habitat Assessment, Kemerton Industrial Park, Bunbury</i> , Unpublished report for Parsons Brinckeroff.	Peer reviewed report	-
Cardno 2010, <i>Kemerton Industrial Core fauna Survey</i> , unpublished report for Landcorp.	Peer reviewed report	-
GHD 2017. ' <i>Albemarle Kemerton Plant Additional Area Biological Assessment</i> '. Prepared for Albemarle Lithium Pty Ltd	Peer reviewed report	

8. Section 8 – Proposed alternatives

8.1 Provide a description of the feasible alternative

No alternatives.

The site location has been carefully selected from a number of potential options in order to minimise impact on the environmental values in the Park, including a 12 ha area of Banksia woodland to the immediate south of the site and an area of re-establishing native vegetation to the south-west.

8.2 Select the relevant alternatives related to your proposed action

- Timeframes
- Locations
- Activities

8.3 Do you have another alternative

No

9. Section 9 – Contacts, signatures and declarations

9.1 Is the person proposing to take the action an Organisation or an Individual?

Organisation – Albemarle Lithium Pty Ltd

9.1.1 Organisation

Job title

Director of Engineering Systems

First name

Stephen

Last name

Buras

Email

stephen.buras@albemarle.com

Address

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ACN

618 095 471

Organisation telephone

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Organisation email

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Job Title:

VP Engineering

First Name:

Edwin

Last Name:

Berends

Email:

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Address

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ACN

618 095 471

Organisation telephone

+31 6 51 98 06 38

Organisation email

edwin.berends@albemarle.com

9.2 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation – Albemarle Lithium Pty Ltd

Details as per Section 9.1.1.

9.3 Is the Referring Party an Organisation or Individual?

Organisation – Albemarle Lithium Pty Ltd

Details as per Section 9.1.1.

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