

## Checklist for request for EPA consent to undertake minor or preliminary work under Section 41A(3) of the *Environmental Protection Act 1986*

Information to be provided	Provided?
<b>1. Information required to be submitted</b>	
1.1. Proposal Title	<input checked="" type="checkbox"/>
1.2. Assessment No.	<input checked="" type="checkbox"/>
<b>2. Information regarding proposed Minor or Preliminary Work</b>	
2.1. Details of the work proposed	<input checked="" type="checkbox"/>
2.2. Information which demonstrates that the work is associated with the implementation of the proposal	<input checked="" type="checkbox"/>
2.3. Details of the potential environmental impacts caused or likely to be caused by the work	<input checked="" type="checkbox"/>
2.4. Details of any decommissioning or rehabilitation works which would be carried out should the overall proposal not be implemented	<input checked="" type="checkbox"/>
2.5. Information which explains how the impact can be reversed (e.g. through rehabilitation)	<input checked="" type="checkbox"/>
2.6. Environmental justification for undertaking the work	<input checked="" type="checkbox"/>
<b>3. Other information (where relevant)</b>	
3.1. Spatial data showing the location and area of the work	<input checked="" type="checkbox"/>
3.2. Details of consultation with relevant stakeholders	<input checked="" type="checkbox"/>
<b>Documentation to submit a request</b>	<b>Attached?</b>
Completed checklist (this sheet) attached to the section 41A(3) request	<input checked="" type="checkbox"/>
Electronic copy of the request, including any applicable spatial data and other relevant information	<input checked="" type="checkbox"/>



**KALIUM**  
LAKES



**Preston**  
Consulting

# **BEYONDIE SULPHATE OF POTASH PROJECT**

**ASSESSMENT No.2138**

**MINOR OR PRELIMINARY WORKS APPLICATION**

22 March 2018

**PREPARED FOR KALIUM LAKES POTASH PTY LTD**

**BY PRESTON CONSULTING PTY LTD**

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# 1 BACKGROUND

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Kalium Lakes Potash Pty Ltd (Kalium Lakes) is a public listed company with approximately 2,400 square kilometres (km) of granted exploration and miscellaneous tenements at the eastern margin of the East Pilbara region of Western Australia (WA). Kalium Lakes is currently focused on its Beyondie Sulphate of Potash Project (the Project). The Project seeks to develop a sub-surface Brine deposit to produce approximately 150 kilotonne per annum (ktpa) of Sulphate of Potash (SOP) and by-products. The process will involve evaporation and processing operations at the Beyondie, Ten Mile and Sunshine Lakes area, which are located approximately 160 kilometres south east of Newman, and 75 km east of the Kumarina Roadhouse, in the eastern Pilbara region of WA (Figure 1).

Kalium Lakes referred the Project to the Environmental Protection Authority (EPA) on the 30<sup>th</sup> October, 2017. The Project is currently being formally assessed by the EPA under Part IV of the *Environmental Protection Act 1986* (EP Act) at the level of Environmental Review – no public review.

The Project includes the development of evaporation and crystalliser ponds, installation of production bores, trenches, pumps, pipelines, purification facility, access road upgrades, natural gas pipeline, and expansion of accommodation village, buildings, services and utilities (including water, power and waste disposal), disposal of excess salt.

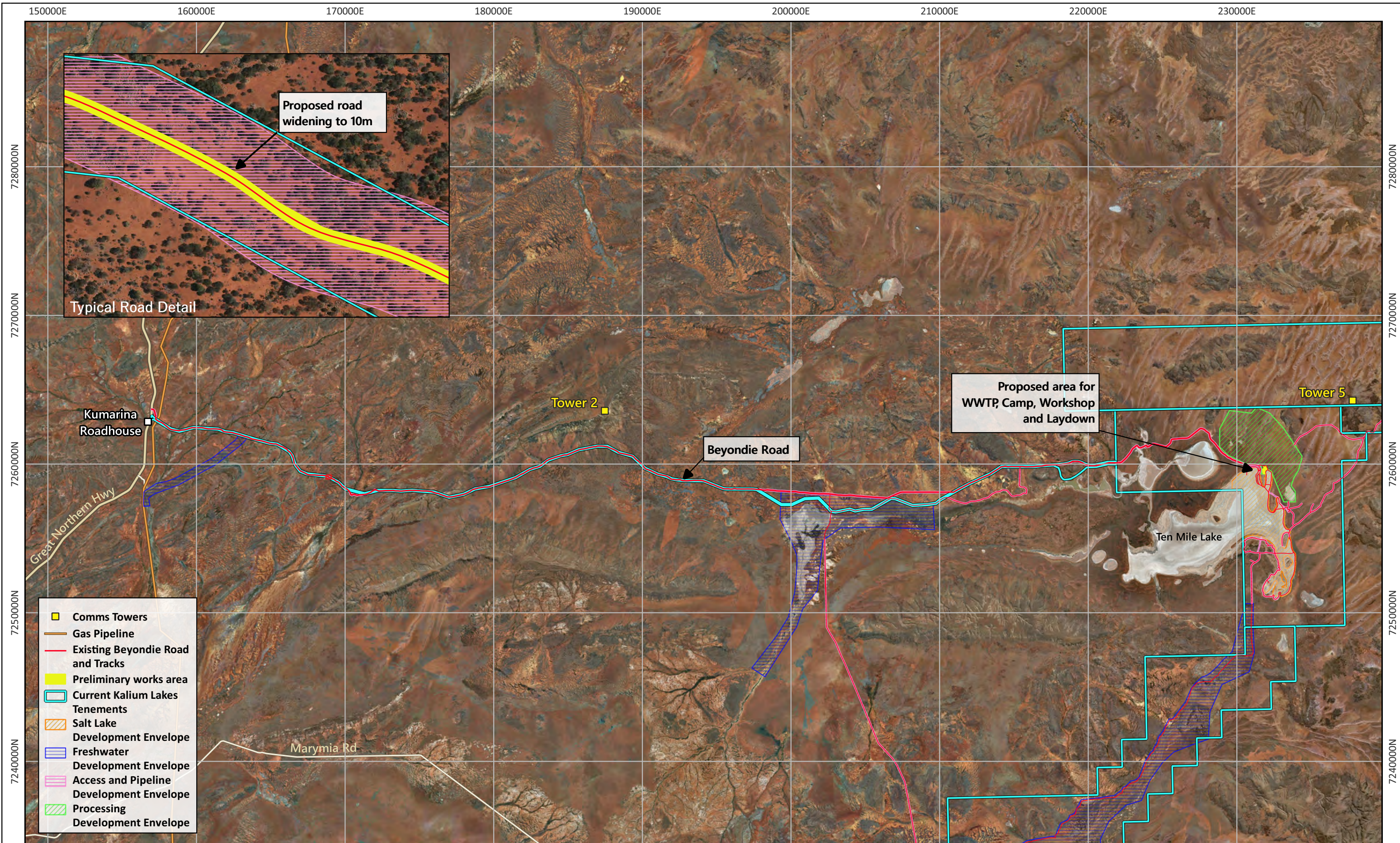
This Minor and Preliminary Works Application details a proposal to undertake minor or preliminary works in order to allow the upgrade of an accommodation camp, workshop area wastewater treatment plant (WWTP), communication towers and the widening of the site access road to support the implementation of the Project.

The requested minor or preliminary works are considered justified and necessary as they will allow:

- Major construction to commence in the dry season, which will reduce the likelihood of erosion and washouts; and
- The commencement of operations within the optimal time of year for evaporation i.e. August through to December prior to the wet season rainfall of January to March.







0	ISSUED FOR APPROVAL	HR	RvN	BH	
Rev	Description	Drn	Chk	App	

Projection: GDA94 MGA 51  
 1:230,000  
 0 2 4 6 8 10 m



**Beyondie Potash Project Minor and Preliminary Works - Beyondie Road**

KLP18020	21/3/2018
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Figure 1: Location of the Project and minor or preliminary works



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## 2 PROPOSED MINOR OR PRELIMINARY WORKS

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### 2.1 DETAILS OF PROPOSED WORKS

All proposed minor and preliminary works are upgrades of existing infrastructure developed during the investigations phase of the Project.

### 2.2 SITE ACCESS ROAD UPGRADE

Current access to the Project is via a 6 m wide site access road. Kalium Lakes proposes to upgrade this access road to allow transport of equipment and machinery to the Project. Widening of the access road from 6 m to 10 m will be required, across a distance of approximately 78 km, with road realignments, resulting in the disturbance area of up to 32 ha. The location of the proposed widening of Beyondie Road is shown in Figure 1.

### 2.3 ACCOMMODATION CAMP UPGRADE

The capacity of the accommodation camp is proposed to be upgraded from 16 rooms to 100 rooms to house the additional personnel required during the construction of the Project. The location of the upgraded accommodation camp is shown in Figure 1 and Figure 2.

The upgraded accommodation camp will consist of:

- catering mess room;
- room accommodation modules;
- ablution modules;
- service centre;
- gymnasium
- laundries
- general stores;
- freezer and cool rooms;
- waste storage;
- potable water treatment; and
- WWTP.

Power will be supplied initially by a series of diesel fueled generators of an adequate size for the village. Fresh water will be supplied via an existing solar powered water bore 8 km to the south of the existing facility.

Approximately 35 m<sup>3</sup>/day of wastewater will be produced from the accommodation camp toilets, bathroom, kitchen and laundry facilities. Wastewater will be treated on site using a dedicated wastewater treatment plant (WWTP) licenced under Part V of the EP Act (Figure 2). Treated wastewater will be disposed of via water cart dust suppression (preferred option), to a dedicated



irrigation area or onto the surface of Ten Mile Lake. Vegetation within the irrigation area will not be cleared. Excess biomass (sludge) will be disposed of at a licenced facility.

## **2.4 WORKSHOP UPGRADE**

The existing maintenance shed will be upgraded to allow for general repairs and servicing of construction equipment. The location of the upgraded workshop area is shown in Figure 2.

## **2.5 COMMUNICATION TOWERS**

The existing communication towers will be upgraded from temporary to permanent towers to allow for adequate mobile phone services. No additional land disturbance will be required. The location of the communication towers to be upgraded area shown in Figure 1.

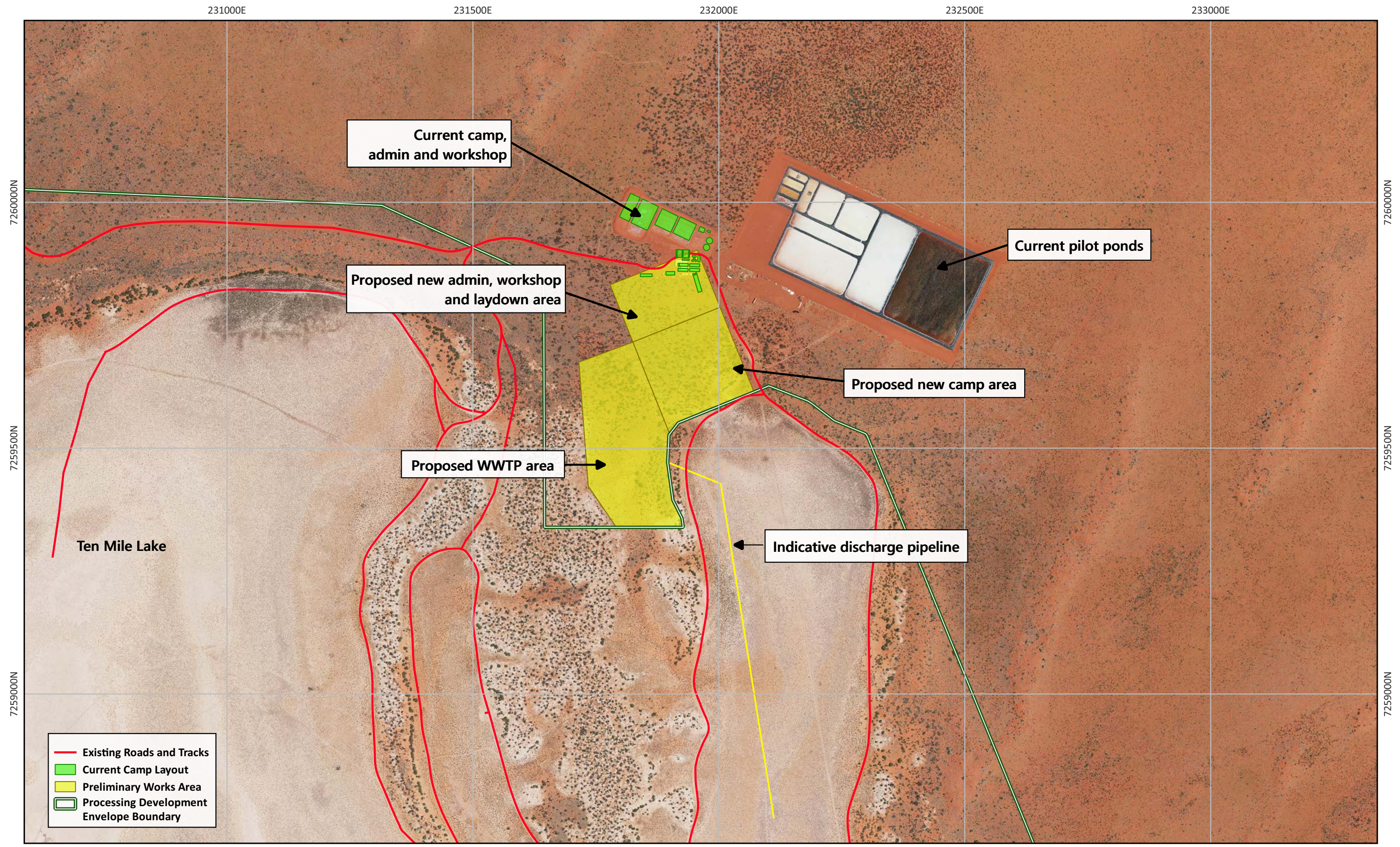
## **2.6 ASSOCIATION WITH IMPLEMENTATION OF PROPOSAL**

The proposed minor or preliminary works are directly associated with the implementation of the Beyondie Sulphate of Potash Project (Assessment No. 2138). The upgrades to the site access road, accommodation camp, workshop, WWTP and communication towers are considered necessary to support the personnel required to complete the construction of, and operate the Project.

In the event the Project should not proceed, Kalium Lakes believes that undertaking minor or preliminary works will not commit Kalium Lakes in any manner to further implementation of the overall proposal.







0	ISSUED FOR APPROVAL	HR	RvN	BH	
Rev	Description	Drn	Chk	App	

Projection: GDA94 MGA 51  
 1:7,000  
 0 75 150 225 300 m



**Beyondie Potash Project Minor and Preliminary Works - Camp and Workshop**

KLP18021	21/3/2018
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Figure 2: Layout of proposed upgrades to WWTP, accommodation camp and workshop



## 3 POTENTIAL ENVIRONMENTAL IMPACTS

### 3.1 DISTURBANCE OF FLORA AND VEGETATION

Flora and vegetation surveys of the Project, including the proposed minor or preliminary works area, were undertaken by Phoenix Environmental Sciences (Phoenix) (2018a; Appendix 1).

The implementation of the proposed minor or preliminary works will require an additional 44.5 ha of vegetation disturbance.

This direct impact is not expected to be significant due to the relatively small clearing area proposed (44.5 ha), which is predominantly widening of existing disturbance over a large portion (over 80 km) of a relatively uncleared landscape. The present vegetation comprises widespread communities well-represented at a regional level (all >90% of pre-European extent remaining) and no Threatened Ecological Communities protected under the *Wildlife Conservation Act 1950* (WC Act) or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were recorded (Phoenix, 2018a; Appendix 1). Furthermore, the significance of the disturbance is considered to be reduced as the proposed disturbance areas have been designed to expand on existing clearing wherever practicable rather than developing new disturbance areas.

No impacts to flora of conservation significance are anticipated as no such species have been recorded in the proposed minor or preliminary works area. In the event wastewater is discharged to Ten Mile Lake via a pipeline, disturbance to habitat for the Priority 1 *Tecticornia* species identified (Samphire shrublands vegetation type) will be minimal.

### 3.2 DISTURBANCE OF FAUNA HABITAT

Fauna surveys of the Project, including the proposed minor or preliminary works area, were undertaken by Phoenix (2018b; Appendix 2, 2018c).

The implementation of the proposed minor or preliminary works will require an additional 44.5 ha of fauna habitat disturbance. The potential direct impact associated with this are:

- Localised loss of fauna habitat due to clearing;
- Injury or death to fauna from clearing activities or vehicle strikes, and
- Injury or death of fauna from entrapment.

The potential impacts to fauna and habitats are not expected to be significant due to:

- The relatively small clearing area proposed (44.5 ha), which is predominantly widening of existing disturbance over a large portion (over 80 km) of a relatively uncleared landscape;
- The majority of the minor or preliminary works area comprises shrubland and grassland on sandplain, and to a lesser extent shrubland and grassland on dune, which are well represented in surrounding area (Phoenix, 2018b; Appendix 2);
- The proposed clearing predominantly avoids dune fauna habitat;





- Existing cleared areas are being expanded as part of the proposed minor and preliminary works (upgrades to existing infrastructure areas or roads); and
- No impacts to short-range endemic fauna are anticipated as none were recorded in the minor or preliminary works area.

Habitats present in the minor or preliminary works area are suitable to support fauna of conservation significance such as the Greater Bilby (*Macrotis lagotis*) (Vulnerable under the EPBC Act and the WC Act), Brush-tailed Mulgara (*Dasyercus blythi*) (Priority 4) and Northern Marsupial Mole (*Notoryctes caurinus*) (Priority 4). These fauna or significant portions of their habitat were not recorded in the minor and preliminary works area, and therefore potential impacts are not expected to be significant. Injury or death to fauna from clearing activities, vehicle strikes and entrapment are considered to be able to be minimised through the implementation of appropriate management measures.

### **3.3 DISPOSAL OF WASTE AND TREATED WASTEWATER**

Potential impacts from the WWTP are expected to be assessed and managed under a Works Approval and Licence Application submitted to DWER under Part V of the EP Act.

### **3.4 INDIRECT IMPACTS**

Potential indirect impacts associated with the proposed minor or preliminary works include:

- Damage to vegetation/fauna habitats due to increased risk of fire;
- Degradation of vegetation due to introduction or spread of weeds;
- Degradation of vegetation due to dust deposition;
- Disruption to fauna behaviour due to light pollution or noise;
- Disruption to surface water flows due to infrastructure, and
- Competition for resources, injury or death from introduction of vermin.

These potential indirect impacts are expected to be minor in scale and considered to have minimal effect as they can be easily minimised through the implementation of industry-standard management measures.

### **3.5 DECOMMISSIONING, REHABILITATION AND IMPACT REVERSAL**

Detailed information about the decommissioning and rehabilitation of the proposed minor or preliminary works will be provided in the Mining Proposal and Mine Closure Plan submitted to DMIRS to obtain approval for the proposed works under *the Mining Act 1978*.

In the event the overall proposal is not implemented, Kalium Lakes considers that the potential impacts from the minor or preliminary works can be reversed through rehabilitation efforts as the area of disturbance is relatively small (44.5 ha) and in the surrounding area there is extensive



vegetation in excellent condition with prime habitat connectivity. The infrastructure comprising the minor or preliminary works can be easily removed and rehabilitated:

- Surface infrastructure will be removed and taken offsite;
- Any concrete pads will be broken up and buried;
- Standard rehabilitation procedures will be implemented on cleared areas such as:
  - Topsoil will be kept and stored during the proposed works and re-spread during rehabilitation; and
  - Revegetation will be monitored and managed if required to aid in the reestablishment of suitable vegetation communities.

### 3.6 ENVIRONMENTAL JUSTIFICATION

The requested preliminary works are considered justified and necessary in order for Kalium Lakes to avoid construction of the works within the wettest part of the year (January-March), which increases the likelihood of erosion and washouts.

The Project is reliant on the April - December period for the fastest rates of evaporation and salt crystallisation. The upgrades proposed in this minor or preliminary works are considered environmentally justified as their upfront construction will allow the project to capitalise on the April - December period by having infrastructure in place to support personnel required for construction and operation.





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## 4 OTHER INFORMATION

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### 4.1 SPATIAL DATA

Spatial data showing the location of the proposed minor or preliminary works is provided with this submission.

### 4.2 STAKEHOLDER CONSULTATION

Kalium Lakes met with DWER on 13 February 2018 to discuss the works approvals relevant to the Project. The Works Approval and Licencing requirements for a WWTP was confirmed and discussed in this meeting.

Future consultation with DMIRS is planned to discuss the scope and submission of a Mining Proposal and Mine Closure Plan relevant to this minor or preliminary works application.

Significant consultation has also been conducted regarding the full Project. Commonwealth, State and Local Government authorities have been briefed to ensure any issues, concerns or suggestions are identified and, where appropriate, addressed or responded to by Kalium Lakes. Corporate and community stakeholders have also been consulted to inform them of the Project and discuss any opportunities or concerns that the stakeholders would like to raise and resolve any concerns.

A summary of stakeholders consulted about the Project is provided below:

- Department of the Environment and Energy;
- DWER;
- Department of Jobs, Tourism, Science and Innovation
- DMIRS;
- Department of Biodiversity, Conservation and Attractions;
- Department of Transport;
- Main Roads WA;
- Mid-West Port Authority;
- Gingirana Native Title claim group;
- MNR Native Title claim groups;
- Kumarina Pastoral Station;
- Marymia Pastoral Station;
- Kumarina Roadhouse;
- APA (Goldfields Gas Pipeline);
- Cosmopolitan Minerals;
- Drillabit; and
- Murchison Copper Mines



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## 5 CONCLUSION

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Kalium Lakes considers the development of the minor or preliminary works will not have a significant environmental impact. Any impacts will be readily reversible through rehabilitation given the relatively small proposed disturbance area, short duration and simple nature of the works proposed. Kalium Lakes does not believe that implementation of the requested works will alter or affect the EPA's decision in relation to the Environmental Factors currently under formal assessment through the Environmental Review process.

Kalium Lakes considers that the potential environmental impacts relating to the minor or preliminary works can be adequately managed under the Part V of the EP Act and *Mining Act 1978* processes managed by DWER and DMIRS respectively.





## 6 GLOSSARY

Term	Meaning
DEC	Department of Environment and Conservation
DoEE	Department of Environment and Energy
DoH	Department of Health
DoW	Department of Water
DotE	Department of the Environment (Commonwealth)
DMIRS	Department of Mines, Industry Regulation and Safety
DWER	Department of Water and Environment Regulation
EPA	Environmental Protection Authority (WA)
EP Act	<i>Environmental Protection Act 1986</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
ha	Hectares
Kalium Lakes	Kalium Lakes Potash Pty Ltd
km	Kilometres
ktpa	Kilo tonne per annum
m	Metres
PF	Priority Flora
Phoenix	Phoenix Environmental Sciences Pty Ltd
Proposal	As defined under the EP Act - a project, plan, programme, policy, operation, undertaking or development or change in land use, or amendment of any of the foregoing, but does not include scheme.
SOP	Sulphate of Potash
SRE	Short-range Endemic
TEC	Threatened Ecological Communities – plant communities listed as being threatened and legally protected under the <i>Wildlife Conservation Act 1950</i> and / or the <i>Environment Protection and Biodiversity Conservation Act 1999</i>
TF	Threatened Flora
WA	Western Australia
WC Act	<i>Wildlife Conservation Act 1950</i> (WA)
WWTP	Wastewater Treatment Plant



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## 7 REFERENCES

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Department of Environment (2005), *Draft Siting, Design, Operation and Rehabilitation of Landfills – Best Practice Environmental Management Guidelines*. November 2005.

Department of Health (2009) *National Guidelines for Water Recycling: Managing Health and Environmental Risks 2006* (DoH Guidelines).

Environmental Protection Authority (2017). *Environmental Impact Assessment Procedures Manual, 2017*. October 2017.

Phoenix Environmental Sciences (2017). *Level 1 Subterranean Fauna Assessment for the Beyondie Potash Project*. Prepared for Kalium Lakes Potash Pty Ltd. June 2017.

Phoenix Environmental Sciences (2018a). *Flora and Vegetation Survey for the Beyondie Potash Project*. Prepared for Kalium Lakes Ltd.

Phoenix Environmental Sciences (2018b). *Terrestrial Fauna Survey for the Beyondie Potash Project*. Prepared for Kalium Lakes Ltd.

Phoenix Environmental Sciences (2018c). *Waterbird and Aquatic Invertebrate Survey for the Beyondie Potash Project*. Prepared for Kalium Lakes Potash Pty Ltd.



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## 8 APPENDICES

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The following Appendices have been provided with this electronic submission:

**Appendix 1:** Phoenix Environmental Sciences (2018a). *Flora and Vegetation Survey for the Beyondie Potash Project*. Prepared for Kalium Lakes Ltd.

**Appendix 2:** Phoenix Environmental Sciences (2018b). *Terrestrial Fauna Survey for the Beyondie Potash Project*. Prepared for Kalium Lakes Ltd.

