[redacted]

From: [redacted]
Sent: Thursday, 2 October 2014 8:46 AM
To: [redacted]
Subject: RE: New Acland Stage 3: further info re flora impacts

Thanks [redacted] – that's great

From: [redacted]@newhopegroup.com.au]
Sent: Thursday, 2 October 2014 8:31 AM
To: [redacted]
Subject: RE: New Acland Stage 3: further info re flora impacts

[redacted]

Apologies for not completing this yesterday. There were matters that we could not conclude last night. The team is finalising this with all urgency this morning.

Regards,

[redacted]
Project Manager - New Acland Project
.....
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.....

NEW HOPE
GROUP

From: [redacted]
Sent: Wednesday, 1 October 2014 8:56 AM
To: [redacted]
Subject: RE: New Acland Stage 3: further info re flora impacts

[redacted]

This will be completed today.

Regards,

[redacted]
Project Manager - New Acland Project
.....

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NEW HOPE GROUP

From: [redacted]@coordinatorgeneral.qld.gov.au]
Sent: Tuesday, 30 September 2014 2:50 PM
To: [redacted]
Cc: New Acland Coal 3; [redacted]@ehp.qld.gov.au); [redacted]@environment.gov.au); [redacted]
Subject: RE: New Acland Stage 3: further info re flora impacts

Hi [redacted]

Just wanted to confirm that as discussed in Friday's draft EA conditions meeting, matters requested below relevant to both State and Cwlth ecology assessments that have not yet been addressed in the attached still need to be provided as a priority.

Also as discussed in the meeting, a full revision of chapter 7 viz. State ecology is not required as long as the information provided discusses the rail spur assessment-impacts-mitigation (refer to below for some specifics requested); and confirms the information NHG will provide updates that contained in <<insert relevant chapter/appendix>> of the EIS/AEIS. Same approach for the MNES information requested.

Advice appreciated on likely ETA for this information.

Thanks

[redacted]

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From: [redacted]
Sent: Tuesday, 23 September 2014 4:23 PM
To: [redacted]@newhopegroup.com.au)
Cc: newaclandproject@coordinatorgeneral.qld.gov.au; [redacted]@ehp.qld.gov.au); [redacted]@environment.gov.au)
Subject: FW: New Acland Stage 3: further info re flora impacts

Hi [redacted]

Thanks for the send-through yesterday of amended figure 7-6 which shows the full rail corridor and confirmation of additional 2ha impact of poplar box.

1) Given the additional impact, I will need EIS chapter 7 to be updated to confirm the entire rail spur has been considered in its assessments – e.g. at a minimum: updating EIS figure 7-3: Location of flora survey sites; and EIS figure 7-4: Location of fauna survey sites (this was requested in my initial email of 10/9/14, so perhaps that's being worked on already). Also associated tables that detail survey type, duration and date need to be reviewed; along with survey methodology.

In dition, EIS chapter 7 makes conclusions about fauna which may prefer poplar box that was not located – e.g. collared delma; yakka skink; five-clawed worm-skink; and fauna that was located – e.g. koala; and flora that may co-locate that was confirmed on-site: finger panic grass; belson's panic, so it needs to be made clear that such discussions include the rail spur.

EIS chapter 7 also says poplar box along the rail spur is located outside the disturbance footprint.

These matters, along with the quantum of poplar impacted, and any other references in the chapter that are relevant need to be updated so regulators can be certain the base work has been addressed.

Appreciated if the updated chapter could be provided with 'tracked changes' applied.

I note that Appendix M of the AEIS is being updated re the offset calculations, so that's great.

Also needed is:

2) (i) Koala Management Plan and commitments – please confirm if any amendments are needed to the KMP or AEIS information to take into account the additional 2ha of poplar box.
(ii) confirm the amount of impacted koala habitat for both the spur and mine. Within this, clarify why the EMP says 4.2ha of koala habitat will be cleared; the AEIS KMP says 18ha; and the EIS chapter 7 says 10.3ha of koala habitat will be impacted
(iii) quantify the amount of koala habitat that will be rehabilitated in the NC corridor
(iv) fig. 4.1 of the AEIS KMP shows stage 1 and stage 2 rehab, but there's no discussion in the document to expand on this – what does this mean?

3) MNES - [redacted] has requested the following: *The survey work on the rail loop should be reflected in the mapping for MNES. The potential habitat for MNES species should be defined, particularly for Belson's Panic which has been identified on site and requires offsetting.*

Given the additional information, a clear description of the locations where the Austral Cornflower were identified along the rail spur and the suitable habitat to be impacted for this species would also require inclusion.

With regard to the Grey-headed Flying-fox (GHFF) I need to get further clarification of the importance of the site given the known roost sites at Toowoomba and Dalby. The information I have available is that while the majority of foraging occurs within 15 km of the roost site GHFF can forage up to 50 km from roost sites which covers the Acland area.

Revised maps that show MNES flora mapping sites, fauna mapping sites and TECs that include the spur are therefore required. Additional to above, the EIS says Austral Cornflower will not be impacted on the rail corridor, but the map confirms a location on the spur – discussion is therefore needed.

An ETA of when the above will be provided is needed ASAP given we are currently writing CGER chapters. Delivery of the above needs to be prioritised to ensure close-out of the CGER is not delayed.

Thanks

[redacted]

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From: [redacted]@newhopegroup.com.au]
Sent: Monday, 22 September 2014 3:33 PM
To: [redacted]
Subject: RE: Flora and fauna survey sites; REs; TECs

[redacted]

We can confirm that the analysis in the EIS and AEIS on flora and fauna presence and impacts includes consideration of the rail spur and that the proposed offset areas of 250 ha in section 6.2 of the Biodiversity Offsets Strategy (Appendix M of the AEIS) comprises a co-location of the following REs: 11.3.2, 11.3.17, 11.9.5, 11.9.10 and 11.9.13, which also include the Brigalow TECs.

We acknowledge that there is something not right within the tables in the Appendix M because the REs disturbed for the corridor, listed below, are not shown:

RE	Veg Comm	Status	Area (ha)
11.3.2	Poplar Box	Of Concern	0.423572
11.3.17	Poplar Box	Of Concern	1.771856
Total			2.195428

We will get back to you with detail of the findings ASAP, but please rest assured that New Hope is committed to providing full offsets for all impacted REs and on top of that, New Hope will look into restoring koala habitat areas locally, as shown in Figure 4.1 (page 12) of the KSPM.

Pls also find attached Figure 7.6 (Flora Fig) ☺!

Cheers,

[redacted]
Manager Environment, Policy and Approvals
.....
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W: *newhopegroup.com.au*
.....

NEW HOPE
GROUP

From: [redacted]@coordinatorgeneral.qld.gov.au]
Sent: Wednesday, 17 September 2014 4:07 PM
To: [redacted]
Subject: RE: Flora and fauna survey sites; REs; TECs

Hi [redacted]

Further to below, as discussed I'll need your response to confirm if analysis in the EIS and AEIS on flora and fauna presence and impacts includes consideration of the rail spur, and that ultimately, that the spur impacts are included in the offsets calculations.

On MNES, [redacted] has been ill the past couple of days and so we won't receive his feedback until Monday.

Ho[redacted]/er an early heads-up that further information on the flying-fox MNES species will be needed. The EIS states there have been sightings on-site, but does not specify/map where; or discuss when, how many; or habitat location/impacts. [redacted] will be providing further about this.

Apologies this has come late in the game, however I'd say this information should be available, possibly in the original project EIS.

Thanks

[redacted]

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From: [redacted]@newhopegroup.com.au]
Sent: Wednesday, 10 September 2014 4:40 PM
To: [redacted]
Subject: RE: Flora and fauna survey sites; REs; TECs

Hi [redacted]

The rest of the team is out of the office this afternoon.

I will check with them tomorrow morning.

Regards,

[redacted]
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.....

NEW HOPE
GROUP

From: [redacted]@coordinatorgeneral.qld.gov.au]
Sent: Wednesday, 10 September 2014 2:50 PM
To: [redacted]
Subject: FW: Flora and fauna survey sites; REs; TECs

A re-send to correct address this time – cheers [redacted]

[redacted]

From: [redacted]
Sent: Wednesday, 10 September 2014 2:46 PM
To: [redacted]
Subject: Flora and fauna survey sites; REs; TECs

Hi [redacted]

Are there maps in the EIS docs that show flora and fauna survey sites; REs; and TECs that include the total rail corridor?

Also – is there any discussion on the impact on the above specific to the 8km rail?

Leads appreciated.

Thanks

[redacted]

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received it in error, you must not use the e-mail, or the information in it, in any way. If you are not the intended recipient of this communication please delete and destroy all copies
and telephone the New Hope Group immediately.

[redacted]

From: [redacted]
Sent: Thursday, 2 October 2014 12:12 PM
To: [redacted]@ehp.qld.gov.au); [redacted]@dnrm.qld.gov.au); [redacted]@dnrm.qld.gov.au); [redacted]@environment.gov.au)
Cc: newaclandproject@coordinatorgeneral.qld.gov.au; [redacted]@ozemail.com.au)
Subject: FW: New Acland Project - Response to draft EA and General Clarifications No.2
Attachments: Project Memorandum No. 2_ Version 2.pdf; New Acland Project - Response to draft EA and General Clarifications

Hi All,

Post-AEIS for New Acland Stage 3 further information: the attached PDF responses to matters including:

- DOTE information request re MNES (particularly Austral cornflower; flying-fox)
- Response to NRM Water Act conditions
- Further information to inform revision of dEA, including revised ecology assessments/offsets calcs that take into account the post-AEIS identified ~1.5ha of Poplar Box
- OCG information requests including SIA, road diversions, koala habitat amounts

This is the 2nd post-AEIS information provision – for completeness, see attached email for 25/9/14 memo

EHP – revised dEA is requested. Please let me know asap if further is needed to condition for rail spur ecology. Please advise likely approach re koala offset requirements given quotas provided – this will help my team's assessment considerations.

NRM – [redacted] – your thoughts on WAct conditions appreciated.

If possible – response by early next week appreciated.

Many thanks

[redacted]

(EIS/AEIS docs here: http://www.dsdip.qld.gov.au/assessments-and-approvals/project-s-environmental-impact-assessment-documents.html)

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Customers first Ideas into action Unleash potential Be courageous Empower people

From: [redacted]@newhopegroup.com.au]
Sent: Thursday, 2 October 2014 11:47 AM
To: [redacted]
Cc: [redacted]@globalskm.com)
Subject: New Acland Project - Response to draft EA and General Clarifications No.2

Hi [redacted]

Find attached our response to various clarifications.

Regards,

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.....

NEW HOPE
GROUP

Project Memorandum No. 2

JACOBS

To	[redacted]	**Date**	02 October 2014
From	[redacted]		
Copy	[redacted]		
Subject	**New Acland Coal Mine Stage 3 Project – Project Memorandum No. 2**		

1. Introduction

The purpose of this Project Memorandum is to provide further clarification on specific issues discussed in the Project Memorandum 1 Clarification meeting held on 26/09/2014, as well as respond to the following correspondence:

- Information requests from CoG on behalf of DoTE regarding Terrestrial Ecology, received 23/09/2014;
- Information requests from DNRM regarding additional proposed conditions, received 23/09/2014; and
- Information requests from CoG regarding SIA, received 25/09/2014.

2. IML Details

Three Parcel Prospecting Permits (PPP) were lodged with DNRM in Rockhampton the week commencing 29/09/2014. NHG is awaiting receipt of confirmation from the Department regarding the submission and relevant PPP numbers. Once NHG receives this confirmation the intention is to lodge the IMLA within the following week.

3. Surface Water

3.1 EA Condition Review and Update

Following review of the information provided by EHP a new simplified MAW release condition has been proposed. The key objective of the new release condition is to facilitate the release of good quality Mine affected water in a manner that does not result in environmental harm. Due to the poorly defined channel and ephemeral nature of Lagoon Creek monitoring of data, the following methodology is proposed:

- Allowance for commencement to release on a single minimum flow threshold in Lagoon and or Spring Creeks.
- A cease to release water quality target at the downstream boundary of the mine lease. Monitoring of this water quality will be undertaken using real-time telemetric water quality readings.
- Allowance for release at a restricted rate following the cease of flow in Lagoon and Spring Creeks. This allowance will be based on a minimum receiving water flow discharge criteria at the downstream Oakey Creek gauges.

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To facilitate the above it is proposed that two real-time telemetric gauges will be installed on Lagoon Creek upstream and downstream of the Mine. The gauges will be rated to provide a relationship between level and flow. This approach will also allow the volume of flow to be estimated over a given period of time. The gauges will also be equipped with real time EC and PH readings.

Lagoon Creek is an ephemeral creek with relatively short flow duration. The allowance for a release after flow ceases is to allow for the attenuation of runoff in the mine affected catchments from the same rainfall event. It is proposed to allow this release for a maximum of 7 days after the event on the condition that there is flow in the downstream Oakey Creek gauging stations. It is proposed that the New Hope Group (NHG) will utilise existing DNRM flow gauges at Oakey Creek at Fairview to monitor the receiving water flow discharge criteria in Oakey Creek. It is noted that the newly installed gauge at Jondaryan may also provide a suitable future monitoring point. However it is recommended that this is after an additional period of time to allow the flow exceedance curve to be established.

Under the proposed revised condition high salinity water which will not meet the downstream water quality release conditions will not be released from the site.

Following discussions with EHP it is noted that the following changes have been made to the EA conditions (Refer to **Attachment A**).

- Table F1 remains as presented on 26/09/2014. These points represent a point on each creek at the approximate location of the downstream mine lease boundary. While releases will be made upstream of these points (as specified in the mine affected water source column) it is proposed that the control is a water quality target monitored at these locations.
- Table F2 remains as presented on 26/09/2014. This table indicates the cease to release water quality targets that will apply to the release points in Table F1.
- Conditions F8 and F9 have been changed to illustrate that monitoring will occur within 2,000 m of the release to waters. This represents the likely maximum distance from the Environmental Dam's to the downstream lease boundary at which the releases will be monitored as specified in Table F1. As per discussions on the 26/09/2014, this value has changed from 50 m to reflect a more appropriate distance for the proposed release condition which is based on a cease to release target.
- Table F3 remains largely as presented on 26/09/2014. However, a flow threshold of greater than 0 m^3/s has been applied for Spring Creek. The represents a condition similar to the current release conditions on Spring Creek and is considered appropriate as this catchment is considerably smaller than Lagoon Creek. Furthermore, no changes are proposed to the storages that release to Spring Creek as part of the revised Project.
- Conditions F12 and F13 have been removed as they are duplicates of conditions F10 and F11.
- Table F4 remains. It is noted that discussions on the 26/09/2014 suggested Table F4 be removed as the water quality targets are the same as that presented in Table F2. The water quality targets are the same as the simplified release condition is based on one water quality target at the downstream boundary. However, Table F4 has been left in to allow these same water quality targets to also be measured for the upstream monitoring stations listed in Table F5.
- Table F5 remains as presented on 26/09/2014. It is noted that monitoring of points between the upstream monitoring point and downstream monitoring point have been removed as part of the decision to move to a simplified release condition. As per the discussion on the

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26/09/2014, the distances in the notes under Table F5 have also been changed to reflect the larger distances associated with the simplified release condition. 7 km represents the maximum creek length between the point upstream of the revised Project operations and the downstream lease boundary.

4. Groundwater

4.1 EA Condition Review and Update

Refer to **Attachment A**.

4.2 Amended Attachment 2 – DNRM Suggested Conditions

Refer to **Attachment B**.

5. Terrestrial Ecology

5.1 Rail Spur Ecology Assessments – Survey Methodology

The rail spur crosses land used for agriculture and has been cleared for many years. The rail spur also crosses Lagoon Creek which is a shallow depression that lacks riparian vegetation. The agricultural use of the land along the rail spur alignment has principally included cropping, which has resulted in the clearing of native vegetation and ploughing to allow the planting of crops and pastures. The survey efforts are presented in Figure 2 of the Revised Biodiversity Offset Strategy (**Attachment C**).

Flora

Identification of plant communities was undertaken including an assessment of the presence of ecological communities as listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Data for each quadrat and transect were recorded in a standardised format to record information regarding species presence, species richness and vegetation community assemblages.

The methodology was generally consistent with that put forward in the publication "Methodology for Survey and Mapping of Vegetation and Regional Ecosystems in Queensland". A handheld Geographic Positioning System (GPS) was used to record locations of specific floristic data and assist in mapping. The overall condition of the site vegetation was recorded, including the extent of modification and weed invasion.

A preliminary list of target endangered, vulnerable and near threatened (EVNT) flora taxa was generated through database searches, including a search of the EPBC Act Protected Matters Search Tool. Targeted searches were completed for threatened flora species listed under the EPBC Act. Cropper (1993) suggests that a general traverse is a suitable method for detecting the presence of rare species during flora surveys. As such, several traverses were undertaken as part of the field surveys within areas of suitable habitat.

Searches for threatened species (i.e. *Rhaponticum australe*, *Homopholis belsonsii*, *Bothriochloa biloba* and *Digitaria porrecta*) were undertaken within areas of known and suitable habitat such as roadside easements and less disturbed woodlands. Locations of any threatened species located

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within the Project site were recorded using a hand held GPS and the approximate number of individuals present was recorded for each location.

Fauna

The focus of fauna surveys for the revised Project has been on areas of vegetation, habitat and areas that have not been the significantly affected by past land use, where there is the greatest opportunity to locate the species being surveyed.

Fauna observations were made along the length of the rail spur as vegetation surveys were being carried out. Active trapping was not conducted, as the status of the alignment is in such a disturbed condition, it is considered a very low likelihood of the listed species would be encountered in this area of the revised Project area, due to the condition of habitat.

Surveys for fauna have not located any of the EPBC or Nature Conservation Act list species along the rail spur.

The conclusions reported in **Section 7** of the draft EIS, regarding the presence of listed fauna species also apply to the rail spur, as well as the MLA50232.

5.2 Appendix M - Revised Biodiversity Offset Strategy

The Biodiversity Offset Strategy has been updated, to incorporate the impact of the rail spur on Regional Ecosystems 11.3.2 and 11.3.17, which are poplar box communities (refer to **Attachment C**).

The Biodiversity Offset Strategy also reflects the Queensland Environmental Offset Policy, (Version 1.0), as the basis for the offset to be prepared and delivered by NAC.

The Biodiversity Offset Strategy describes the impacts of the revised Project to Matters of National and State Environmental Significance. The Offset delivery plan will define the details of the offset package, as required by the *Environmental Offset Act 2014* and *Environmental Offset Regulation 2014*.

5.3 Koala Management Plan and Commitments

The Koala Management Plan (KMP) identified 18 ha of koala habitat as being affected by the revised Project. This is the area of the four regional ecosystems that constitute koala habitat within the revised Project disturbance area, listed in **Table 5.1**. The area of koala habitat impacted by the revised Project in the KMP did not acknowledge the area of poplar box woodland affected by the rail spur, which is koala habitat, an area of 1.5 ha. **Table 5.1** confirms that area of koala habitat estimated to be impacted by the revised Project is 19.5 ha.

Table 5.1 : Area of koala habitat impacted by the revised Project

RE	Regional Ecosystem	Area (ha)
11.3.2	*Eucalyptus populnea* woodland on alluvial plains	4.8
11.3.17	*Eucalyptus populnea* woodland with *Acacia harpophylla* and/or *Casuarina cristata* on alluvial plains	7.0

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RE	Regional Ecosystem	Area (ha)
11.9.10	*Acacia harpophylla*, *Eucalyptus populnea* open forest on Cainozoic fine-grained sedimentary rocks	4.1
11.9.13	*Eucalyptus moluccana* or *E. microcarpa* open forest on fine grained sedimentary rocks	3.6
Total		19.5

NAC is committed to the delivery of the actions in the KMP to mitigate the impact of the revised Project on koala habitat. The actions provided in the KMP remain unchanged, following the change of impact from 18 ha to 19.5 ha to koala habitat.

The KMP currently commits NAC to a wide range of actions to reduce the impact of the revised Project on koalas. These actions are listed in Table 4-1 and Table 4-2 of the KMP. The actions in Table 4-1 deal specifically with mitigating the loss of koala habitat. Actions that NAC will undertake include development and delivery of a rehabilitation plan along within the conservation zone to establish koala habitat and to provide vegetated linkages between areas of koala habitat within the mining lease. The KMP commits NAC to tree densities and location for rehabilitation works and fencing.

The area of the koala habitat to be rehabilitated will be determined as part of the development of the rehabilitation plan. The area of rehabilitation will be based on the area of the impact to koala habitat and be in proportion with the loss of habitat.

The rehabilitation areas presented in Figure 4-1 of the KMP show that NAC will undertake extensive rehabilitation works along the length of Lagoon Creek, within the mining lease, to improve the quality of habitat. Figure 4-1 also shows that NAC is negotiating the rehabilitation of koala habitat on land owned by another party.

5.4 EA Condition Review and Update

The corrected area of impact to Matters of State environmental Significance is provided in Table H4 (refer to **Attachment A**). The area of maximum impact to Regulated Vegetation Of Concern Regional Ecosystem 11.3.2 and 11.3.17 has been increased to reflect the impact from the rail spur. The revised area of these Regional Ecosystems is shown in Table H4.

5.5 DoTE Response - Austral Cornflower

The Austral cornflower has been located within the road reserve of the Jondaryan-Muldu Road, outside the disturbance area of the revised Project.

Figures included in the draft EIS and AEIS show the Austral cornflower coinciding with the alignment of the rail spur. The rail spur is located outside the road reserve of the Jondaryan-Muldu Road, in the adjacent property, to the south of the Jondaryan-Muldu Road.

Surveys for the Austral cornflower located the species in three locations, as shown in **Figure 7-7** of the draft EIS. The scale of the figure and line width show that one location of the Austral cornflower is affected by the rail spur.

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Location data for the Austral cornflower was captured by a hand-held GPS. These hand-held GPS have a tolerance of 16 m on location data. Consequently, while **Figure 7-7** shows that one incidence of the Australe cornflower occurring on the rail spur, this point is within the road reserve of the Jondaryan-Muldu Road and not impacted by the rail spur.

5.6 DoTE Response – Grey-headed Flying-fox foraging habitat

The Grey-headed Flying-fox was seen in the revised Project site, on one occasion in 1999. This record was reported in the EIS for the initial mine development, that was prepared in December 1999. The species has not been recorded during ecology surveys undertaken since this time. Camps of the Grey-headed Flying-fox have not been located within the revised Project area.

Foraging habitat for the Grey-headed Flying-fox is present within the revised Project area as eucalypt communities. These communities are poplar box, mountain coolibah and gum-topped box woodlands. The area of these communities within the revised Project area is 280 ha. The area of foraging habitat (communities dominated by eucalypt, angophora and corymbia) that will be affected by the revised Project is 76 ha, leaving an area of foraging habitat this is unaffected by the revised Project of 204 ha.

The foraging habitat for the Grey-headed Flying-fox is present across the Darling Downs and locally in the Acland area. Foraging habitat is present on private properties, as well as within National Parks (e.g. Bunya Mountains National Park, Crows Nest National Park) and reserves across the region. With the Grey-headed Flying-fox able to range up to 50 km from a camp to forage, an area of 785,700 ha is available for the species to forage within. The loss of foraging habitat affected by the revised Project, an area of 76 ha, is insignificant to the available area of foraging habitat that is present in the area surrounding the known camps near Toowoomba.

Foraging habitat for the Grey-headed Flying-fox will remain available throughout the revised Project area and on adjacent properties. These locations are along Lagoon Creek, adjacent to the rail loop, west of the Manning Vale Pit, patches to the west and east of Acland-Muldu Road, to the south of Acland and a large area of Mountain Coolibah on the southern boundary of MLA50232.

Areas of suitable habitat will be retained (an area of 204 ha) and enhanced, especially along Lagoon Creek and outside the mine pits (refer to the Conservation Zone Management Plan provided in **Appendix J.6** of the draft EIS). NAC will also deliver a rehabilitation plan to mitigate the impact of the revised Project on koalas, as described in the KMP. The rehabilitation to be carried out for the koala will also provide additional areas of foraging habitat for the Grey-headed Flying-fox.

6. EA Conditions V2

Please refer to **Attachment A**.

7. SIA

7.1 Road Closures

1a As part of the finalisation of the AEIS and the preparation of the CG Report this issue needs to be addressed with clear mitigation and management strategies in place that are included in New Acland's commitment register and can be clearly referenced in the CG Report.

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Issue 1: Additional fuel and running costs associated with closures

The mitigation and management strategies considered as part of the change of travel distances did not include cost but the most direct route to minimise travel distances. Refer to **Section 5.1.6.2** and **Section 5.1.6.3** of the AEIS for the additional travel distances. It should be noted that the majority of affected landholders have a relatively small change in travel distances. The furthest additional travel distance (31 km) route is for one landholder located within Acland accessing Jondaryan-Muldu Road.

Issue 2: Inconvenience for having to travel additional distances
Section 5.1.6.2 and **Section 5.1.6.3** of the AEIS provide a detailed description of additional travel distances for affected landholders within close proximity to the revised Project site. The majority of affected landholders will have to travel an additional 0 km to 19 km to access properties located within the key road network. The furthest additional travel distance (31 km) route is for one concerned landholder located within Acland accessing Jondaryan-Muldu Road.

Issue 3: Additional travelling time incurred

Section 5.1.6.2 and **Section 5.1.6.3** of the AEIS submission provides a detailed description of additional travel distances for key affected landholders within close proximity of the revised Project site.

Issue 4: Loss of direct access across the region

Access across this region has not been lost but has been redirected via key routes which are as follows:

- North – south access via the realigned Jondaryan Muldu-Road;
- Access to Acland township via Oakay Cooyar Rd - Acland Sabine Road; and
- East- west access will be maintained via Warrego Highway or Peachey-Maclagan Road.

Issue 5: Potential road safety issues

Expected road impacts and safety issues related to the proposed closures will be addressed in the detailed design phase within the Road Use Management Plan (RMP) and the Traffic Management Plans (TMP) reports that will be submitted to DTMR and TRC when the project execution contracts have been awarded.

Issue 6: Will this commitment result in the road being fully sealed from Acland to the intersection with the Oakey Cooyar Road

The proposed key access road to Acland is via Acland-Sabine Road. New Hope is committed to fully seal the key access route (Acland Sabine-Road).

Issue 7: What is the timing for the completion of this work to minimise the impacts on residents accessing Acland.

Construction schedules and methods will be addressed in detail within the the RMP and the TMP reports that will be submitted to DTMR and TRC when the project execution contracts have been awarded. However, it is envisaged that the upgrade works along Acland-Sabine Road will be undertaken first prior to any road closures to ensure that access to Acland township is maintained at all times and the impacts are minimised.

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Issue 8: What mitigation will be considered for the following direct impacts (east – west movement, south west to north east movements, Acland township to north west/south west and School bus pick up routes)

Section 13.13 of the draft EIS provides a list of proposed mitigation measures for both the construction and operation phase.

Detailed mitigation measures and strategies related to the impact of the proposed road closures and diversions will be outlined within the RMP and the TMP documents which will be undertaken when the project execution contracts have been awarded. These documents will be submitted to DTMR and TRC for approval.

On-site (the relevant roads), provisions of advance notice and clear signage of changes in traffic conditions will be in place to warn road users of the proposed road closures and diversions.

School Bus Route

The school bus route that will be affected is S24 Quinalow to Oakey State High School. NHG has consulted with the operator of this route, Lawries Transport, on 14 and 15 July 2014 and confirmed that the proposed road changes will not have any adverse impacts on his operation.

Further engagement with Queensland Transport on the school bus route has indicated that, an alternative route will not be decided until a) the revised Project is approved, and b) the Department has time to assess the application. The Department's feedback was that they are unlikely to make changes until the road closures are applied for. It is also considered likely that the students living along the Acland Sabine Road would meet the bus at the Oakey-Cooyar Road. In this case, the other students on the bus would travel up the Oakey-Cooyar Road, instead of through Acland, which isn't expected increase the travelling distance. As per standard practice, Acland-Sabine road families more than 1 km from the bus stop would be entitled to apply for a subsidy for getting students to the new bus stop.

Issue 9: Strategies to better manage, mitigate or provide alternatives that reduce road closure impacts on residents

Detailed mitigation measures and strategies related to the impact of the proposed road closures and diversions will be outlined within the RMP and the TMP documents which will be undertaken when the Project execution contracts have been awarded. These documents will be submitted to DTMR and TRC for approval.

On-site (the relevant roads), provisions of advance notice and clear signage of changes in traffic conditions will be in place to warn road users of the proposed road closures and diversions.

Issue 10: Consideration needs to be given to a west east / east west route that minimises the impacts for affected residents

The key direct routes proposed across the region are suitable for general traffic. Minor roads providing access to farming properties would not be safe for general traffic. Childs Road is an unsealed dirt road that provides property access to the neighbouring farming property. The intersection of Childs Road and Jondaryan-Muldu Road will be realigned to accommodate a grade level crossing. This road is not suitable as the key access road for general traffic to access Acland. Therefore, the proposed travel route assessment undertaken does not include Childs Road as a key access route to Acland.

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Note: As outlined above, NHG is committed to sealing Acland-Sabine Road as it is proposed to be the key route to Acland.

7.2 Community Reference Group/Community Information Sessions/Community newsletters.

2a Does the Community Reference Group still meet.

The Community Reference Group (CRG) meetings have/or will, take place in the 2014 calendar year during February, March, April, May, July, September, October, November, and possibly December. CRG members have the discretion to hold meetings every second month during periods of high commitments, such as during school holidays.

2b Have these meetings taken place monthly since May 2014.

CRG meetings have taken place as per the annual schedule in May, July and September. Next meetings will be held in October, November, and possibly December.

2c Are the minutes available to view.

Meeting minutes are available on the New Acland website. CRG members review the minutes at the forward meeting before the minutes are placed on the website, therefore minutes of the meeting held on 15 September 2014 are yet to be endorsed and uploaded.

2d Can you clarify if any further session have been carried out or are being undertaken as part of the AEIS public review period.

The AEIS has been discussed at the September CRG meeting as part of NHG's ongoing engagement with the community. The CRG comprises the following representatives of the community:

Name	Affiliation	Representing
[redacted]	[redacted]	Agriculture/Farming Neighbours Acland region
[redacted]	South East Regional Manager, AgForce Queensland	Agriculture/Farming
[redacted]	President, Oakey Chamber of Commerce Various Oakey community groups	Business Oakey community
[redacted]	Director of Nursing/Facility Manager, Oakey Hospital	Health
[redacted]	Councillor, Toowoomba Regional Council	Toowoomba Regional Council
[redacted]	Chairperson, Oakey Reconciliation Committee	Indigenous Oakey Community
[redacted]	[redacted] Various Jondaryan community groups	Agriculture/Farming Jondaryan community

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Name	Affiliation	Representing
[redacted]	[redacted] Rural Fire Brigade Landcare Various Jondaryan community groups	Agriculture/Farming Neighbours Jondaryan community Emergency Service Environment
[redacted]	[redacted] Business owner	Rural Business Northern Communities e.g. Quinalow, Maclagan, Goombungee, Kulpi etc.
[redacted]	Project Coordinator, South Myall Catchment Landcare Group	Environment Northern Communities e.g. Quinalow, Maclagan, Goombungee, Kulpi etc.
[redacted]	[redacted] Oakey State High School	Education

The NHG Community Information Centre in Oakey has been operating extended opening hours during this period with two dedicated Community Liaison Officers available to discuss any aspect of the AEIS.

Further to this, neighbours of the Mine have been personally contacted and offered free printed copies and electronic copies of the AEIS. Many are also currently receiving personal visits from NHG staff.

A number of community information sessions are forthcoming as per commitments contained within the AEIS. These include:

- A session presenting and allowing for comment on the Acland Management Plan and road access around Acland;
- A session in Jondaryan providing further comment to residents about the activities to take place at the JRLF, followed by regular visits by community staff through operation and decommissioning of the JRLF; and
- Yearly community information sessions for landholders in the area around the Mine.

2e As these are available every quarter is there one for June 2014 and if so when do expect it to be available on the website. Are you expecting that there will there be a newsletter for October 2014?

The mid-year edition of the Acland Community Newsletter was delayed due to unavoidable resourcing issues and subsequent attempts to capture relevant and up-to-date information. This edition is currently being distributed via Australia Post. A further newsletter is currently under development for release in December 2014.

7.3 Jondaryan Rail Load Out Facility

3a Given the concerns expressed by residents in relation to air quality, noise, dust and associated consultation process what consultation and engagement strategies have been employed by NAC to inform residents and the general community of this change in work practice.

The EA amendment application at Jondaryan is not a change in work practice because 5.2 Mtpa throughput was previously authorised until 31 December 2012 and 4.9 Mtpa throughput was

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authorised from 1 January 2013 until 31 December 2013. The EA amendment is a request to extend the 5.2Mtpa throughput until the relocation of the JRLF.

NAC is aware of concerns expressed by residents and in response to these concerns, as part of the amendment application, has requested to reduce the stockpile capacity from 600,000 tonnes to 250,000 tonnes.

This EA amendment application is subject to a separate approval process and NAC will engage with key stakeholders through its existing consultation processes and forums.

NAC has also publically committed in **Section 1.4.3** and **5.1.4.1** of the AEIS not to increase throughput at the JRLF above 5.2 Mtpa.

7.4 Acland War Memorial

4a Although partial abandonment of the MLA has removed the Acland War Memorial from the application, please advise whether it is still the intension for TRC to acquire the public land and maintain the public facilities. It is unclear in the AEIS what NACs intentions are. The War Memorial is still noted in relevant commitments as well as the Acland Management Plan. These would need to be revised if the park was to remain in the hands of council.

In 2011, NHG, through its Acland Pastoral Company, paid the former Queensland Department of Environment and Resource Management for the purchase of an area of State Land, which includes the Tom Doherty Park in Acland. As a result, NHG has a Purchase Agreement in place (and has already paid for the purchase) that would be enacted on the grant of the proposed Mining Lease for the revised Project.

The retention of Acland, including the Tom Doherty Park, is a key commitment of the revised Project. The recent official removal of Acland from the Mining Lease Area for the revised Project, demonstrates that NHG is serious about fulfilling this commitment.

As part of the AEIS supplied to the Coordinator-General for the revised Project's Environmental Impact Statement, NHG has outlined an Acland Management Plan, which includes maintenance and management initiatives for the Tom Doherty Park. Consultation activities, including a public engagement session, are being rolled out to ensure that locals are able to provide feedback on not only the Park, but road access around the Acland area.

8. EM Plan Update

This document will be progressively updated in line with clarifications and EA conditions.

Yours sincerely

[redacted]

NAP EIA Project Manager
Phone: [redacted]

Mobile: [redacted]
E-mail: [redacted]@jacobs.com

Attachment A – EA Conditions V2

Attachment A

Recommended conditions for an amended environmental authority for the New Acland mining operations (Stage 3) issued under the *Environmental Protection Act 1994.*

DEHP to include the relevant ERAs within the Environmental Authority for the revised Project.

Schedule A - General

A1 This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.

A2 In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with Figure 1 (Revised Project Overview – Mine Area).

A3 The holder of this environmental authority must:

a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority

b) maintain such measures, plant and equipment in a proper and efficient condition

c) operate such measures, plant and equipment in a proper and efficient manner

d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

Monitoring

A4 Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than 5 years.

A5 Upon request from the administering authority, copies of monitoring records and reports will be made available and provided to the administering authority's nominated office within 10 business days or an alternative timeframe agreed between the administering authority and the holder.

A6 Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this environmental authority should be reviewed for effectiveness in minimising the likelihood of environmental harm on an annual basis, and amended promptly if required, unless a particular review date and amendment program is specified in the plan, system or program.

A7 The environmental authority holder must ensure that all works relevant to the environmental authority must be conducted by an appropriately ~~suitably~~ qualified person.

Original A7 removed - OK

Financial assurance

A8 The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.

A9 The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.

Risk management

A10 The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standards Australia Risk management – Principles and guidelines (AS/NZS ISO 31000:2009), or the latest edition of a Standards Australia for risk management, to the extent relevant to environmental management, prior to the commencement of mining activities.

Notification of emergencies, incidents and exceptions

A11 The holder of this environmental authority must notify the administering authority by written notification within 24 hours after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.

A12 Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:

a) results and interpretation of any samples taken and analysed

b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm

c) proposed actions to prevent a recurrence of the emergency or incident.

Complaints

A13 The holder of this environmental authority must record all environmental complaints received about the mining activities including:

a) name, address and contact number for of the complainant

b) time and date of complaint

c) reasons for the complaint

d) investigations undertaken

e) conclusions formed

f) actions taken to resolve the complaint

g) any abatement measures implemented

h) person responsible for resolving the complaint.

A14 The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

Third-party reporting

A15 The holder of this environmental authority must:

a) within 1 year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority

b) obtain further such reports at regular intervals, not exceeding 3 yearly intervals, from the completion of the report referred to above; and

c) provide each report to the administering authority within 90 days of its completion.

A16 Where a condition of this environmental authority requires compliance with a standard, policy or guideline and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must:

a) comply with the amended or changed standard, policy or guideline within 2 years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to conditions H12 to H45, the time specified in that condition

b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

Schedule B - Air

Dust and particulate matter monitoring

B1 The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place:

a) Dust deposition of 120 milligrams per square metre per day, averaged over 1 month, when monitored in accordance with the most recent version of Standards Australia AS/NZS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method.

b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than 5 exceedances recorded each year, when monitored in accordance with the most recent version of either:

1. Standards Australia AS/NZS 3580.9.6 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM_{10} high volume sampler with size-selective inlet - Gravimetric method; or

2. Standards Australia AS/NZS 3580.9.9 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM_{10} low volume sampler - Gravimetric method.

c) A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - Total suspended particulate matter (TSP) - High volume sampler gravimetric method.

Schedule C - Waste management

C1 Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.

C2 The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.

C3 The holder of this environmental authority may dispose of inert waste (packing material) associated with blasting into open pits, buried in such a manner that it will not impede saturated aquifers.

Disposal of Tyres

C4 Where practicable, scrap tyres resulting from the mining activities can be disposed of into open pits provided tyres are placed as deeply in the spoil as reasonably possible and this practice does not cause an unacceptable fire risk or compromise mine safety.

C5 Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

Waste Rock Management

C6 Subject to the release limits defined in Schedules E and F, all reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to any groundwater or watercourse

Tailings disposal

C7 Tailings must be managed in accordance with procedures contained within the current plan of operations. These procedures must include provisions for:

a) containment of tailings

b) the management of seepage and leachates both during operation and the foreseeable future

c) the control of fugitive emissions to air

d) maintaining records of the relative locations of any other waste stored within the tailings

e) rehabilitation strategy

f) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.

Schedule D - Noise

Noise limits

D1 The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that noise emissions generated by the mining activities do not cause exceedances of the levels specified in Tables D1a and D1b when measured at any sensitive or commercial place.

D2 The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in **Table D1a – Noise limits (Construction and Operations on MLs 50170 & 50216 (until the commencement of mining operations on ML 50232)) and Table D1b – Noise limits (operations)** to be exceeded at a sensitive place or commercial place.

Table D1a – Noise limits (Construction and Operations on MLs 50170 & 50216 (until the commencement of mining operations on ML 50232))

Noise level dB(A) measured	Monday to Saturday			Sunday and Public Holidays		
	7am – 6pm	6pm – 10pm	10pm – 7am	9am – 6pm	6pm – 10pm	10pm – 9am

as						
	Noise measured at a 'Noise sensitive place'					
$L_{Ar, 1\ hour}$	50	45	40	50	45	40
LAmax	-	-	50	-	-	50

Delete LAmax for current operations.

Request addition to the definitions section that operations to be defined as when the first coal resource is extracted

Table D1b – Noise limits (Operations)

Noise level dB(A) measured as	Monday to Saturday			Sunday and Public Holidays		
	7am – 6pm	6pm – 10pm	10pm – 7am	9am – 6pm	6pm – 10pm	10pm – 9am
	Noise measured at a 'Noise sensitive place'					
LAeq,adj,1 hr	42	42	37	42	42	37
LAmax	-	-	50	-	-	50

D3 Noise limits in Table D1a – Noise limits (**Construction and Operations on MLs 50170 & 50216 (until the commencement of mining operations on ML 50232)**) only apply for 2 years after the commencement of construction activities on mining lease 50232 as stated in the plan of operations.

D4 If monitoring indicates the potential for exceedance of the relevant limits in Table D1 – Noise Limits at a sensitive receptor then the environmental authority holder must immediately implement noise abatement measures to avoid exceeding the relevant limits.

Include rails limits ??????

Comment [SS(1]: EHP to provide revised tables including rail limits

Airblast overpressure nuisance

D5 The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table D2 – Blasting noise limits** to be exceeded at a sensitive place or commercial place.

Table D2 – Blasting air blast overpressure and vibration limits

Blasting noise limits	Sensitive or commercial limits	
	Monday to Friday 7am to 6pm Saturday 9am to 1pm	Monday to Friday 6pm to 7am

		Saturday 1pm to 9am Sunday and Public Holidays
Airblast overpressure	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 bB (Linear) Peak at any time	No blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting

Monitoring and reporting

D6 Noise monitoring and recording must include the following descriptor characteristics and matters:

a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 min)

b) background noise LA90

c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels

d) atmospheric conditions including temperature, relative humidity and wind speed and directions

e) effects due to any extraneous factors such as traffic noise

f) location, date and time of monitoring

g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range .

D7 The holder of this environmental authority must develop and implement a blast monitoring program to monitor compliance with **Table D2 – Blasting air blast overpressure and vibration limits** for:

a) at least 90% of all blasts undertaken on this site in each <insert period for example, month or year> at the nearest sensitive place or commercial place to the centroid of the blast.

b) all blasts conducted during any time period specified by the administering authority at the nearest sensitive place or commercial place.

Schedule E - Groundwater

Contaminant release

E1 The holder of this environmental authority must not release contaminants with the potential to cause environmental harm to groundwater.

Monitoring and reporting

E2 ~~All determinations of groundwater quality and biological monitoring must be performed by an appropriately qualified person.~~

E3 Groundwater quality and levels must be monitored at the locations and frequencies defined in **Table E1 - Groundwater monitoring locations and frequency** for quality characteristics identified in **Table E2 - Groundwater quality triggers and limits**.

Table E1 - Groundwater monitoring locations and frequency

Monitoring Point	Aquifer Compliance Bore (C)	Location (GDA94 – Zone 56)		Parameter[1] and Monitoring Frequency
		Easting (m)	Northing (m)	
2289P	Coal measures (C)	371159	6983345	Groundwater levels: monthly Groundwater quality: Six monthly to include: Al, As, Ca, Se, Cl, Cu, F, Fe, Total N, K, Mg, Mn, Na, SO_4, HCO_3, TDS, EC, pH
2291P	Coal measures (C)	374514	6979846	
18P	Coal measures (C)	370922	6982454	
25P	Basalt (C)	374040	6981870	
26P	Coal measures (C)	374160	6982790	
27P	Coal measures (C)	373254	6983367	
28P	Coal measures (C)	372222	6983790	
843	Basalt (C)	370592	6981096	
848	Coal measures (C)	370599	6981536	
81P	Coal measures (C)	374897	6979451	
82P	Coal measures (C)	373591	6978627	
83P	Coal measures (C)	371748	6979492	
84P	Basalt (C)	370249	6982000	
BMH1	Basalt (C)	369552	6982017	
CSMH1	Coal measures (C)	375298	6977149	
109P	Basalt	368157	6982191	
122PGC	Coal measures	370550	6977650	
114P	Coal measures	371700	6975850	
116P	Coal measures	374114	6974945	
119PGC	Coal measures	371503	6973150	
120WB	Coal measures	367417	6975928	

Monitoring Point	Aquifer Compliance Bore (C)	Location (GDA94 – Zone 56)		Parameter[1] and Monitoring Frequency
		Easting (m)	Northing (m)	
121WB	Coal measures	368366	6978254	
1A	Basalt	TBA	TBA	
1B	Coal measures	TBA	TBA	
2A	Basalt	TBA	TBA	
2B	Coal measures	TBA	TBA	
3A	Basalt	TBA	TBA	
3B	Coal measures	TBA	TBA	
4A	Basalt	TBA	TBA	
4B	Coal measures	TBA	TBA	
4C	Marburg Sandstone	TBA	TBA	
5A	Oakey Creek alluvium	TBA	TBA	
5B	Coal measures	TBA	TBA	
5C	Marburg Sandstone	TBA	TBA	
6	Coal measures	TBA	TBA	
7A	Basalt	TBA	TBA	
7B	Coal measures	TBA	TBA	
8	Mine Pit Backfill	TBA	TBA	

1 - Aluminium (Al), Arsenic (As), Calcium (Ca), Selenium (Se), Chloride (Cl), Copper (Cu), Fluorine (F), Iron (Fe), Total Nitrogen (Total N), Potassium (K), Magnesium (Mg), Manganese (Mn), Sodium (Na), Sulphate (SO_4), Bicarbonate (HCO_3), Total dissolves solids (TDS), Electrical conductivity (EC), Acidity/alkalinity (pH)

Table E2 - Groundwater quality triggers and limits

Parameter	Units	Contaminant Limit	Monitoring frequency
Al	mg/l	5.0	Half yearly
As	mg/l	.05	Half yearly
Ca	mg/l	1000	Half yearly
Se	mg/l	0.02	Half yearly
Cl	mg/l	TBA	Half yearly
Cu	mg/l	1.0 [2]	Half yearly
F	mg/l	TBA	Half yearly

Parameter	Units	Contaminant Limit	Monitoring frequency
Fe	mg/l	TBA	Half yearly
NO_3	mg/l	400	Half yearly
NO_2	mg/l	30	Half yearly
K	mg/l	TBA	Half yearly
Mg	mg/l	TBA	Half yearly
Mn	mg/l	TBA	Half yearly
Na	mg/l	TBA	Half yearly
SO_4	mg/l	1000	Half yearly
HCO_3	mg/l	TBA	Half yearly
TDS	mg/l	5000 [2,3]	Half yearly
EC	mg/l	7460 [2,3,4]	Half yearly
pH	unit	TBA	Half yearly

1 – Based on Stockwater limits defined in ANZECC (2000)

2 – Defined for beef cattle based on landholder bore survey results

3 – Existing bores 27P, 28P, 2289 and 118P background levels already exceed this limit prior to mine operation

4 – Based on EC to TDS conversion factor of 0.67 as per ANZECC (2000)

5 – Parameter (contaminant) limits may be already exceeded for some new (yet to be drilled) monitoring bores, as has been identified for bores 27P, 28P, 2289 and 118P. NAC will sample all monitoring bores immediately after drilling to confirm that baseline (pre-Stage 3) water quality parameters are within the limits specified in Table E2. Should baseline water quality parameters fall outside the limits specified in Table E2, NAC will propose alternate limits for those bores as part of the EA after a second round of sampling to confirm the exceedances

E4 Groundwater levels when measured at the monitoring locations specified in **Table E1 -Groundwater monitoring locations and frequency** must not exceed the groundwater level trigger change thresholds specified in **Table E3 - Groundwater level monitoring** below.

Table E3 – Groundwater level monitoring

Monitoring Point	Level trigger threshold[1]

[1] To be provided – NAC will propose water level trigger thresholds for bores identified in Table E3 following 12 months of monitoring of the new bores and following the first update of the groundwater model, but prior to operation of the revised Project.~~stated in the EMP that locally relevant trigger levels would be available 31 October 2013.~~

2289P	TBA
2291P	TBA
18P	TBA
25P	TBA
26P	TBA
27P	TBA
28P	TBA
843	TBA
848	TBA
81P	TBA
82P	TBA
83P	TBA
84P	TBA
BMH1	TBA
CSMH1	TBA
109P	TBA
122PGC	TBA
114P	TBA
116P	TBA
119PGC	TBA
120WB	TBA
121WB	TBA
1A	TBA
1B	TBA
2A	TBA
2B	TBA
3A	TBA
3B	TBA
4A	TBA
4B	TBA
4C	TBA
5A	TBA
5B	TBA

Monitoring Point	Level trigger threshold[1]
5C	TBA
6	TBA
7A	TBA
7B	TBA
8	TBA

Exceedance Investigation

E5 If quality characteristics of groundwater from compliance bores identified in **Table E1 - Groundwater monitoring locations and frequency** exceed any of the trigger levels stated in **Table E2 - Groundwater quality triggers and limits** or exceed any of the groundwater level trigger threshold stated in **Table E3 - Groundwater level monitoring**, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and complete an investigation in accordance with the ANZECC and ARMCANZ 2000.

E6 Results of monitoring of groundwater from compliance bores identified in **Table E1 - Groundwater monitoring locations and frequency**, must not exceed any of the limits defined in **Table E2 - Groundwater quality triggers and limits. Redundant Condition??**

Bore construction and maintenance and decommissioning.

E7 The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring

Schedule F – Water Update.

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F1 Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.

F2 Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in **Table F1 - Mine affected water release points, sources and receiving waters** and depicted in Figure 1 attached to this environmental authority.

Table F1 - Mine affected water release points, sources and receiving waters

Release Point (RP) [1]	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)	Mine Affected Water Source and Location [1]	Monitoring Point	Receiving waters description
ED1	27° 15' 40.5603" S	151° 41' 48.32659" E	ED1	Overflow from ED1	Spring Creek
ED2	27° 16' 54.96167" S	151° 41' 36.83113" E	ED2	Overflow from ED2	Spring Creek
ED3	27° 18' 29.40913" S	151° 42' 50.52694" E	ED3	Overflow from ED3	Lagoon Creek
ED4	27° 17' 41.49436" S	151° 41' 33.60156" E	ED4	Overflow from ED4	Spring Creek
ED5	TBA	TBA	ED5	Overflow from ED5	Lagoon Creek
ED6	TBA	TBA	ED6	Overflow from ED6	Lagoon Creek
ED7	TBA	TBA	ED7	Overflow from ED7	Lagoon Creek
RP1	27° 14' 47.364" S	151° 40' 36.2028" E	ED1	Road Crossing	Spring Creek
RP2	27° 19' 26.68" S	151° 41' 7.02 E	ED 2, ED3, ED4, ED5	Road Crossing	Lagoon Creek

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1 - ED – Environmental Dam

F3 The release of mine affected water to waters in accordance with condition F2 must not exceed the release limits stated in **Table F2 - Mine affected water release limits** when measured at the monitoring points specified in **Table F1 - Mine affected water release points, sources and receiving waters** for each quality characteristic.

Table F2 - Mine affected water release limits

Quality Characteristic	Release Limits	Monitoring frequency
Electrical conductivity (uS/cm)	1500	Real time telemetry for EC and pH Daily grab samples if telemetry not available.

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pH (pH Unit)	6.0 (minimum) 9.0 (maximum)	If telemetry is unavailable, the first sample must be taken as soon as practical following commencement of release
Total suspended solids (mg/l)	To Be Determined.	Daily during release (the first sample must be taken within 2 hours of commencement of the release)

F4 The release of mine affected water to waters from the release points must be monitored at the locations specified in **Table F1 - Mine affected water release points, sources and receiving waters** for each quality characteristic and at the frequency specified in **Table F2 - Mine affected water release limits**. When circumstances prevent the monitoring required by conditions F3 and F4 during or following severe weather events the administering authority must be notified within 48 hours.

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Mine Affected Water Release Events

F5 The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows in Lagoon ~~and Spring~~ Creek~~.~~.

F6 Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition F2 must only take place during periods of natural flow in accordance with the receiving water flow criteria for discharge specified in **Table F2 - Mine affected water release limits** for the release point(s) specified in **Table F1 - Mine affected water release points, sources and receiving waters**, for discharge specified in **Table F3 - Mine affected water release during flow events**.

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F7 The release of mine affected water to waters in accordance with condition F2 must not exceed the Maximum Release Rate (for all combined release point flows) for each receiving water flow criterion for discharge specified in **Table F3 - Mine affected water release during flow events** when measured at the monitoring points specified in **Table F1 - Mine affected water release points, sources and receiving waters**.

F8 The holder of the environmental authority is authorised to release contaminants to waters of Lagoon or Spring Creek in a manner that will ensure the level of electrical conductivity within the receiving waters will not exceed 1500 µs/cm at any time~~r~~, ~~50~~ 2000 ~~within~~ 50 metres ~~downstream from~~of the ~~discharge point~~Mine Lease boundary, as a result of the discharge. ~~Any release to waters must only occur where there is an existing minimum flow in receiving waters upstream of the discharge point to provide adequate dilution such that 1500 µs/cm is not exceeded outside the mixing zone.~~

F9 The holder of the environmental authority must undertake monitoring at regular intervals during release to waters within 50 metres of the ML boundary~~at a point 20050 metres downstream of the discharge~~, to ensure that the level of electrical conductivity does not exceed the release limits shown in Table F3 – Mine affected water release during flow events. If monitoring indicates that 1500 µs/cm is exceeded, release of wastewaters must cease immediately.

F10 The daily quantity of mine affected water released from each release point must be measured and recorded.

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F11 Release to waters must be undertaken so not as to cause erosion of the bed and banks of the receiving waters or cause material build-up of sediment in such waters.

Table F3 - Mine affected water release during flow events

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Receiving waters/ stream	Release Point (RP)	Gauging station	Gauging Station (GDA94)	Gauging Station (GDA94)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for discharge (m^3/s)
Lagoon Creek	RP2~~1~~	(GS1) Lagoon Creek at DS1 (GS3) DNRM Gauging Station 422350A Oakey Creek at Fairview	TBC	TBC	Continuous Real Time	**Medium Flow** Lagoon Creek 0.05 m3/s **Low Flow** Oakey Creek 0.1 m3/s For a period of 7 days after natural flow events that exceed 0.05 m3/s in Lagoon Creek or until oakey creek stops flowing.
~~Spring Creek~~	~~RP2~~	~~GS2 Southern Creek at SCD1~~	~~27° 14' 47.364" S~~	~~151° 40' 36.2028" E~~	~~Continuous Real Time~~	~~Spring Creek >0.0 m3/s~~

Notification of Release Event

F12 The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information:

a) release commencement date/time

b) details regarding the compliance of the release with the conditions of Department Interest: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume)

c) release point/s

d) release rate

e) release salinity

f) receiving water/s including the natural flow rate.

Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local Administering Authority via email or facsimile.

F13 The environmental authority holder must notify the administering authority as soon as practicable and nominally no later than 24 hours after cessation of a release event of the cessation of a release notified under Condition F12 and within 28 days provide the following information in writing:

a) release cessation date/time

b) natural flow rate in receiving water

c) volume of water released

d) details regarding the compliance of the release with the conditions of Department Interest; Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume)

e) all in-situ water quality monitoring results

f) any other matters pertinent to the water release event.

Note: Successive or intermittent releases occurring within 24 hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions F12 and F13, provided the relevant details of the release are included within the notification provided in accordance with conditions F12 and F13.

Notification of Release Event Exeedance

F14 If the release limits defined in **Table F2 - Mine affected water release limits** are exceeded, the holder of the environmental authority must notify the administering authority within 24 hours of receiving the results.

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F15 The environmental authority holder must, within 28 days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing:

a) the reason for the release

b) the location of the release

c) the total volume of the release and which (if any) part of this volume was non-compliant

d) the total duration of the release and which (if any) part of this period was non-compliant

e) all water quality monitoring results (including all laboratory analyses)

f) identification of any environmental harm as a result of the non-compliance

g) all calculations

h) any other matters pertinent to the water release event.

Receiving Environment Monitoring and Contaminant Trigger Levels

F16 The quality of the receiving waters must be monitored at the locations specified in **Table F5 - Receiving water upstream background sites and downstream monitoring points** for each quality characteristic and at the monitoring frequency stated in **Table F4 - Receiving waters contaminant trigger levels**.

Table F4 - Receiving waters contaminant trigger levels

Quality Characteristic	Trigger Level	Monitoring Frequency
pH	6.5 – 9.0	Daily during the release
Electrical Conductivity (µS/cm)	~~700~~1,500	
Total Suspended solids (mg/L)	To Be Determined. Turbidity may be required to assess ecosystems impacts and can provide instantaneous results.	
Sulphate (SO_4^{2-}) (mg/L)	250 (Protection of drinking water Environmental Value)	

Table F5 - Receiving water upstream background sites and downstream monitoring points

Monitoring Points	Receiving Waters Location Description	Latitude (GDA94)	Longitude (GDA94)
Upstream Background Monitoring Points			
LCU1	Lagoon Creek at a point upstream of mine	27° 18' 9.7728" S	151° 44' 23.136" E
SCU1~~LCU2~~	Spring Creek at a point upstream of mine	27° 14' 18.7728" S	151° 41' 31.2864" E
Downstream Monitoring Points			
LCD1	Lagoon Creek downstream of mine	27° 18' 35.64" S	151° 43' 4.3536" E
LCD2	Lagoon Creek downstream of mine	27° 18' 37.36" S	151° 43' 1.8768" E
SCD1	Spring Creek at a point downstream of mine	27° 14' 47.364" S	151° 40' 36.2028" E
~~AW20~~	~~Downstream of Environmental Dam 2 and Environmental Dam 4~~	~~27° 17' 46.1228" S~~	~~151° 41' 16.0147" E~~
~~AH2~~	~~Located approximately 5 km downstream of the downstream boundary of ML50232~~	~~27° 21' 0.365" S~~	~~151° 38' 14.965" E~~
~~AE4~~	~~Located downstream and immediately adjacent to the northern extent of Manning Vale East and Willeroo pits~~	~~27° 19' 2.91" S~~	~~151° 42' 20.47" E~~
DS1	Located at the downstream boundary of ML50232	27° 19' 26.68" S	151° 41' 7.02 E

Table F5 - Receiving water upstream background sites and downstream monitoring points notes:

a) *The upstream monitoring point should be within 1km of the upstream ML and watercourse boundary ~~1km 7km~~ the release point.*

b) *The downstream point should not be greater than ~~250m~~ within 50 metres of the ML boundaryat~~2km from the release point~~.*

c) *The data from background monitoring points must not be used where they are affected by releases from other mines.*

F17 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in **Table F4 - Receiving waters contaminant trigger levels** during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and:

a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or

b) where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining

1. details of the investigations carried out

2. actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

F18 All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.

Water reuse

F19 Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the consent of the third party).

Annual Water Monitoring Reporting

F20 The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format:

a) the date on which the sample was taken

b) the time at which the sample was taken

c) the monitoring point at which the sample was taken

d) the measured or estimated daily quantity of mine affected water released from all release points

e) the release flow rate at the time of sampling for each release point

f) the results of all monitoring and details of any exceedances of the conditions of this environmental authority

g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

Temporary Interference with waterways

F21 Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources and Mines

(or its successor) *Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities*.[2]

Water Management Plan

F22 A Water Management Plan must be developed by an appropriately qualified person and implemented.

Stormwater and Water sediment controls

F23 An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

F24 Stormwater, other than mine affected water, is permitted to be released to waters from:

a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition F23

b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F22, for the purpose of ensuring water does not become mine affected water.

Schedule G - Sewage treatment

G1 All effluent released from the treatment plant must be monitored at the frequency and for the parameters specified in **Table G1 – Sewage Effluent Quality Targets for Dust Suppression and Irrigation.**

Table G1 - Sewage Effluent Quality Targets for Dust Suppression and Irrigation

Contaminant	Unit	Release limit	Limit type	Frequency
5-day Biochemical oxygen demand (uninhibited)	mg/L	20	Maximum	Quarterly
Faecal coliforms, based on the average of a minimum of five samples collected	Colonies/100ml	1000	Maximum	Quarterly
pH	pH units	6.0 –	Range	Quarterly

[2] This recommended condition is in the EM Plan (condition F35) but may not be relevant as an approval is not required.

		9.0.		

G2 Sewage effluent used for dust suppression or irrigation must not exceed sewage release limits defined in **Table G1 – Sewage Effluent Quality Targets for Dust Suppression and Irrigation.**

G3 Sewage effluent used for dust suppression or irrigation must not cause spray drift or overspray to any sensitive place.

G4 Subject to condition G5, sewage effluent from sewage treatment facilities must be reused or evaporated and must not be directly released from the sewage treatment plant to any water way or drainage line.

G5 In periods of wet weather or following wet weather, when no irrigation of effluent is reasonable practicable and when effluent storage ponds are full, the release of effluent to waters is permitted ~~from the overflow point of Environmental Dam 2 and~~ in accordance with the release limits in **Table F2 - Mine affected water release limits and locations specified in Table ????.**

G6 The holder of the environmental authority must ensure that irrigation of effluent is carried out in such a manner that prevents and or minimises environmental harm.

G7 The holder of this environmental authority is authorised to accept treated wastewater from the Wetalla Wastewater Reclamation Facility and the RO Plant.

Schedule H - Land and rehabilitation

H1 The holder of the environmental authority must not cause any disturbance within 50 metres of the high bank of Lagoon Creek (buffer zone) as shown on EM Plan Figure 3-7 (Lagoon Creek Buffer Zone) unless in accordance with condition H2 and H3.

H2 The holder of the environmental authority is authorised to construct and maintain a flood protection levee and access road for inspection purposes, with the toe of the levee being no closer than 50 metres from the high bank of Lagoon Creek as shown on EM Plan Figure 3-7 (Lagoon Creek Buffer Zone).

H3 The holder of the environmental authority is authorised to access the 50 metre buffer zone as shown on Figure 3-7 (Lagoon Creek Buffer Zone) for the purposes of maintaining the integrity of the flood protection levee, fire management, riparian conservation and weed management purposes.

H4 The holder of the environmental authority is authorised to construct and maintain an appropriately engineered haul road crossing of Lagoon Creek as part of the access route for coal haulage and other purposes from the Willaroo mining area (within MLs 50216 and 50232) to the Mine Industrial Area (within ML50170). The haul road crossing structure within Lagoon Creek must not significantly impede the ephemeral flow regime or create a barrier for fish movement during periods of flow within the creek.

H5 The final design level of the levee crest must be above the predicted 1,000 year ARI event flood level.

H6 Any section of the outside face of the levee must be treated with cover material and grass seeded (unless rock armoured) within three months of completion of the earthworks for that section of the outside face of the levee.

H7 The condition of the levee must at a minimum be assessed:

a) By the environmental authority holder within one week of any storm of intensity greater than 25 mm of rain within three hours; and

b) By a suitably qualified and experienced person at least once per year between the months of May and October inclusive (i.e. during the 'dry' season and before the onset of the 'wet' season).

H8 Remedial works identified as necessary during assessments conducted under condition H7 must be commenced within 30 days unless delayed by inclement weather or resource availability.

H9 Any actions and incidents on site that may impact upon the integrity of the levee bank must be notified to the administering authority in accordance with condition A11.

H10 Land disturbed by mining must be rehabilitated in accordance with **Table H1 - Rehabilitation Requirements**.

Table H1 - Rehabilitation Requirements

Mine Domain	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
Solid Waste Rock Disposal	Safe	Site safe for humans and animals	Structurally safe and shallow slopes (geotechnically stable). No hazardous materials (geochemically benign).	Monitoring / observation demonstrates safe site
	Non-polluting	No environmental harm attributed to adverse chemical conditions within the waste rock dumps	Minimise erosion through selective placement of mine waste, adequate vegetation cover. Runoff and seepage does not cause environmental harm	Suitable for low intensity grazing. Runoff and discharge water (including seepage) meets specified limits.
	Stable	Minimise erosion	Wastes selectively placed above and below original ground level to agreed slopes.	Suitable for low intensity grazing

Mine Domain	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
			Adequate ground cover established to control erosion. Runoff control measures (contour banks, etc) effective in controlling erosion.	
	Self-sustaining	To return to agreed grazing land capability	Slope and other landform design criteria achieved. Establish adequate vegetation cover.	Refer Table H2 and Table H3
Tailings Dams	Safe	Site safe for humans and animals	Structurally safe (geotechnically stable). Adequate capping. Accessibility to voids is permanently removed.	Monitoring / observation demonstrates safe site
	Non-polluting	Acid mine drainage will not cause environmental harm	Adequately capped. Minimise erosion through adequate vegetation cover. Runoff and seepage controlled by water management.	Monitoring meeting release limits. Suitable for low intensity grazing
	Stable	Minimise erosion	Stored in both pits below natural surface level and in dams above natural surface. Establish adequate vegetation cover.	Monitoring demonstrates revegetation success. No structural erosion present. Suitable for low intensity grazing
	Self-sustaining	To return to agreed grazing land capability	Monitoring demonstrates successful revegetation.	Refer Table H2 and Table H3
Mine Infrastructure Areas	Safe	Site safe for humans and animals	Hazardous materials removed.	Monitoring / observation demonstrates safe site

Mine Domain	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
	Non-polluting	Undertake contaminated land assessment.	Remediate contamination so that runff and seepage are of good quality.	Monitoring meeting release limits.
	Stable	Minimise erosion	Remove infrastructure or allow continued use of useful infrastructure. Establish adequate vegetation cover.	Slope will be a maximum of 17° (30%)
	Self-sustaining	To return to agreed grazing land capability	Return to previous use (grazing). Establish adequate groundcover.	Refer Table H2 and Table H3
Linear Infrastructure areas	Safe	Site safe for humans and animals	Structurally safe (geotechnically stable).	Monitoring / observation demonstrates safe site
	Non-polluting	No environmental harm attributed to adverse chemical conditions within the rehabilitation areas.	Runoff and seepage controlled by water management (e.g. dams).	Monitoring meeting release limits.
	Stable	Minimise erosion	Remove infrastructure, rip reshape and revegetate or allow continued use of useful infrastructure.	Suitable for low intensity grazing
	Self-sustaining	To return to agreed grazing land capability	Monitoring demonstrates successful revegetation.	Refer Table H2 and Table H3

Table H2 – Rehabilitation Acceptance Criteria – Grazing Lands

Land	Acceptance Criteria – Grazing Land

Suitability Class	Non-polluting	Stability and Sustainability Land Use					
	Active Rill / Gully Erosion	Vegetation Cover	Native and Exotic Grass Species Diversity (spp./ha)	Slopes	Geotechnical Stability	Active Rill / Gully Erosion	Declared Weeds
2 to 5	absence	> 50%	≥ 4	maximum 17°	stable	absence	absence

Table H3 – Rehabilitation Acceptance Criteria – Treed Areas

Land Suitability Class	Acceptance Criteria – Grazing Land Treed Areas						
	Non-polluting	Stability and Sustainable Land Use					
	Active Rill / Gully Erosion	Vegetation Cover (including tree / shrub canopy)	Native Tree / Shrub & Native / Exotic Grass Species Diversity (spp./ha)	Slopes	Geotechnical Stability	Active Rill / Gully Erosion	Declared Weeds
2 to 5	absenc	> 50%	*Eucalypt*	Maximu	stable	absen	absenc

	e		*us* spp. ≥ 2 *Acacia* spp. ≥ 2 Other tree / shrub spp. ≥ 2 Grass ≥ 3	m 17°		ce	e

H11 Rehabilitation must commence progressively in accordance with the plan of operations.

Regulated Dams and Levees

H12 The consequence category of any structure must be assessed by a suitable qualified and experienced person in accordance with the *Manual for Assessing Categories and Hydraulic Performance of Structures* (EM635) at the following times:

a) Prior to the design and construction of the structure, if it is not an existing structure; or

b) If it is an existing structure, prior to the adoption of this schedule; or

c) Prior to any change in its purpose or the nature of its stored contents.

H13 A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence for more than one structure.

H14 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

Design and construction of a regulated structure

H15 Condition H16 to H20 inclusive do not apply to existing structures

H16 All regulated structures must be designed by and constructed under the supervision of a suitable qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

H17 Construction of a regulated structure is prohibited unless the holder has submitted a consequence category assessment report and certification to the administering authority has been certified by a suitable qualified person for the design and the design plan and the associated operating procedures in compliance with the relevant condition of this authority.

H18 Certification must be provided by the suitable qualified and experienced person who oversees the preparation of the design plan set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635), and must be recorded in the Regulated Dams/Levees register.

H19 Regulated structures must:

a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635);

b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:

1. floodwaters from entering the regulated dam from any watercourse or drainage line; and

2. wall failure due to erosion by floodwaters arising from any watercourse or drainage line.

c) (only for regulated dams associated with a failure to contain seepage) have the floor and sides of the dam designed and constructed to prevent of minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

H20 Certification by the suitable qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure and state that:

a) The 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure;

b) Construction of the regulated structure is in accordance with the design plan.

Operation of a regulated structure

H21 Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority:

a) One paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition H17.

b) A set of 'as constructed' drawings and specifications, and

c) Certification of those 'as constructed drawings and specifications' in accordance with condition H18, and

d) Where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan;

e) The requirements of this authority relating to the construction of the regulated structure have been met;

f) The holder has entered the details required under this authority into a Register of Regulated Dams; and

g) There is a current operational plan for the regulated structures.

H22 For existing structures that are regulated structures:

a) Where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purposes of sharing DSA volume across the system, the holder must submit to the administering authority within 12 months of the commencement of this condition a copy of the certified system design plan including that structure; and

b) There must be a current operational plan for the existing structures.

H23 Each regulated structure must be maintained and operated for the duration of its operational life until decommissioned and rehabilitated in a manner that is consistent with the current operational plan and if applicable the current design plan and associated certified 'as constructed' drawings.

Mandatory reporting level

H24 Conditions H25 to H28 inclusive apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

H25 The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of the dam it is clearly observable.

H26 The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

H27 The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence on any unauthorised discharges from the regulated dam.

H28 The holder must record any changes to the MRL in the Register of Regulated Structures.

Design storage allowance

H29 The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on

actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.

H30 By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume) to meet the Design Storage Allowance (DSA) volume of the dam (or network of linked containment systems).

H31 The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment system) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

H32 The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

Annual inspection report

H33 Each regulated dam must be inspected each calendar year by a suitable qualified and experienced person.

H34 At each inspection the condition and adequacy of all components of the regulated structure must be assessed and a suitable qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure.

H35 The suitable qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

H36 The holder must:

a) Within 20 business days of receipt of the annual inspection report provide to the administering authority:

1. The recommendations section of the anneal inspection report; and

2. If applicable, any actions being taken in response to those recommendations; and

b) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this information to the administering authority within 10 business days of receipt of the request.

Transfer arrangements

H37 The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to and Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

Decommissioning and rehabilitation For clarity can this section be separated into dams and general rehabilitation areas

Dams

H38 Dams must not be abandoned but be either:

a) Decommissioned and rehabilitated to achieve compliance with condition H39; or

b) Be left in-situ for a beneficial use(s) provided that:

1. It no longer contains contaminants that will migrate into the environment; and

2. It contains water of a quality that is demonstrated to be suitable for the intended beneficial use(s); and

3. The administrating authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following cessation of the resource activity.

General Rehabilitation Areas

H39 After decommissioning, all significantly disturbed land caused by carrying out of the resource activity must be rehabilitated to meet the final acceptance criteria:

a) The landform is safe for humans and fauna;

b) The landform is stable with no subsidence of erosion gullies for at least three (3) years;

c) Any contaminated land (e.g. contaminated soils) is remediated and rehabilitated;

d) Not allow acid mine drainage; or

e) There is no ongoing contamination to waters (including groundwater);

f) All significantly disturbed land is reinstated as defined in Table H1;

g) For land that is not being cultivated by the landholder:

1. Groundcover, that is not a declared pest species is established and self-sustaining;

2. Vegetation of similar species richness and species diversity to pre-selected analogue sites is established and self-sustaining; and

3. The maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance caused by carrying out of the resource activity.

h) For land that is cultivated by the landowner, cover crop is revegetated, unless the landholder will be preparing the site for cropping within 3 months of resource activities being completed.

Register of Regulated Dams

H40 A Register of Regulated Dams must be established and maintained by the holder for each regulated dam

H41 The holder must provisionally enter the required information in the Register of Regulated Dams when a design plan for a regulated dam is submitted to the administering authority.

H42 The holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition H21 and H22 has been achieved.

H43 The holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day.

H44 All entries in the Register of Regulated Dams must be approved by the chief executive offices for the holder of this authority, or the delegate, as being accurate and correct.

H45 ~~The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Dams, in the electronic format required by the administering authority.~~ **Can this be requested at the time of Annual Return rather than be contained within the EA.**

Contaminated Land

H46 Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.

H47 Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H10.

H48 Minimise the potential for contamination of land by hazardous contaminants.

Biodiversity offsets

H49 Significant residual impacts to prescribed matters of State environmental significance must not exceed the maximum authorised significant residual impact area listed for that matter in **Table H4 - Matters of State Environmental Significance**.

NOTE: Deemed conditions in Sections 18, 22, 24 and 25 of the *Environmental Offsets Act 2014* are taken to be conditions of this authority.

H50 The holder of the environmental authority must provide an environmental offset for the following maximum significant residual impacts on matters of State environmental significance in accordance with the requirements of the *Environmental Offsets Act 2014* (including deemed conditions), the *Environmental Offsets Regulation 2014* and the Queensland Environmental Offsets Policy 2014.

Table H4 – Matters of State Environmental Significance Update

Matters of State environmental significance	Estimated Maximum extent (ha) of impact [1]
Matters of State environmental significance	Estimated Maximum extent (ha) of impact
Regulated Vegetation Endangered Regional Ecosystems:	
11.3.1	12 ha
11.3.21	35.9 ha
11.9.5	12.6 ha
Regulated Vegetation Of Concern Regional Ecosystems:	
11.3.2	4.8 ha
11.3.17	7.0 ha
11.8.11	4.1 ha
11.9.10	4.1 ha
11.9.13	3.6 ha
Regulated Vegetation Watercourse:	
11.3.2	2.39 ha
Listed Species:	
Koala – *Phascolarctos cincereus* Special Least Concern	As set out in the Offset delivery plan
Belson's Panic – *Homopholis belsonii* Endangered	

~~Note 1 – Estimated maximum extents have been taken from Biodiversity Offset Strategy, New Acland Coal Mine Stage 3 Project, June 2014. Impacts associated~~

~~with the Rail spur have not been provided or included. Impacts of the proposed rail spur will need to be assessed and appropriate conditions, including offset requirements, applied in an approval.~~

H51 Significant residual impacts are not authorised on any Matters of State Environmental Significance not identified in **Table H4 – Matters of State Environmental Significance**.

Comments – Environmental Management Plan

As New Acland Coal made an application to amend the existing EA for the mining operation, and this was made prior to the commencement of the 'greentape' version of the Environmental Protection Act 1994, an EM Plan would need to be finalised under s.201 of the Act (version 7B 2007) before a draft EA could be issued. – **Acknowledged.**

The final draft EA submitted by the proponent would need to be consistent with and if necessary address the findings and requirements of the EIS Assessment Report, including the stated conditions for the EA. – **Acknowledged.**

Definitions – model mining

Words and phrases used throughout this environmental authority are defined below. Where a definition for a term used in this environmental authority is not provided within this environmental authority, but is provided in the EP Act 1994 or subordinate legislation, the definition in the EP Act or subordinate legislation must be used.

'acid rock drainage' means any contaminated discharge emanating from a mining activity formed through a series of chemical and biological reactions, when geological strata is disturbed and exposed to oxygen and moisture.

'airblast overpressure' means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dBL).

'appropriately qualified person' means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

'background', with reference to the water schedule means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken.

Explanatory note— **'certification', 'certifying'** or **'certified'**

Only include regulated structures version of this definition if environmental authority controls regulated structures in the conditions.

'certification', 'certifying' or **'certified'** by an appropriately qualified and experienced person in relation to a design plan or an annual report regarding dams/structures, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

a) exactly what is being certified and the precise nature of that certification;

b) the relevant legislative, regulatory and technical criteria on which the certification has been based;

c) the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and

d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

'blasting' means the use of explosive materials to fracture:

a) rock, coal and other minerals for later recovery; or

b) structural components or other items to facilitate removal from a site or for reuse.

'chemical' means:

a) an agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and *Veterinary Chemicals Code Act 1994* (Commonwealth); or

b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council; or

c) a lead hazardous substance within the meaning of the Workplace Health and Safety Regulation 1997;

d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or

e) any substance used as, or intended for use as:

   (i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or

   (ii) a surface active agent, including, for example, soap or related detergent; or

   (iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or

   (iv) a fertiliser for agricultural, horticultural or garden use; or

   (v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or

   (vi) manufacture of plastic or synthetic rubber.

'commercial place' means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

'construction' or **'constructed'** in relation to a regulated structure includes building a new regulated structure and lifting or otherwise modifying an existing regulated structure, but does not include investigations and testing necessary for the purpose of preparing a design plan.

'disturbance' of land includes:

a) compacting, removing, covering, exposing or stockpiling of earth;

b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;

c) carrying out mining within a watercourse, waterway, wetland or lake;

d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;

e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or

f) releasing of contaminants into the soil, or underlying geological strata.

However, the following areas are not included when calculating areas of 'disturbance':

a) areas off lease (e.g. roads or tracks which provide access to the mining lease);

b) areas previously disturbed which have achieved the rehabilitation outcomes;

c) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);

d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner.

e) disturbance that pre-existed the grant of the tenure.

'EC' means electrical conductivity.

'effluent' treated waste water released from sewage treatment plants.

'hazard category' means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams'.

'infrastructure' means water storage dams, levees,, roads and tracks, buildings and other structures built for the purpose of the mining activity.

'land' in the 'land schedule' of this document means land excluding waters and the atmosphere, that is, the term has a different meaning from the term as defined in the *Environmental Protection Act 1994*. For the purposes of the *Acts Interpretation Act 1954*, it is expressly noted that the term 'land' in this environmental authority relates to physical land and not to interests in land.

'land use' –means the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

'leachate' means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

'licensed place' means the mining activities carried out at the mining tenements detailed in Table # (page #) of this environmental authority.

'm' means metres.

'mine affected water':

a) means the following types of water:
   i) pit water, tailings dam water, processing plant water;
   ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the Environmental Protection Regulation 2008 if it had not formed part of the mining activity;

iii) rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;
iv) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;
v) groundwater from the mine's dewatering activities;
vi) a mix of mine affected water (under any of paragraphs i)-v) and other water.

b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:
i) land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success; or
ii) land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:
a. areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;
b. evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff; or
iii) both.

'measures' includes any measures to prevent or minimise environmental impacts of the mining activity such as bunds, silt fences, diversion drains, capping, and containment systems.

'NATA' means National Association of Testing Authorities, Australia.

'natural flow' means the flow of water through waters caused by nature.

'non polluting' means having no adverse impacts upon the receiving environment.

'peak particle velocity (ppv)' means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mm/s).

'protected area' means – a protected area under the *Nature Conservation Act 1992*; or

a) a marine park under the *Marine Parks Act 1992*; or

b) a World Heritage Area.

'receiving environment' in relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused. The receiving environment includes (but is not limited to):

a) a watercourse;

b) groundwater; and

c) an area of land that is not specified in Schedule # – Table # (Authorised Activities) of this environmental authority.

The term does not include land that is specified in Schedule # – Table # (Authorised Activities) of this environmental authority.

'receiving waters' means the waters into which this environmental authority authorises releases of mine affected water.

'rehabilitation' the process of reshaping and revegetating land to restore it to a stable landform

'release event' means a surface water discharge from mine affected water storages or contaminated areas on the licensed place.

'RL' means reduced level, relative to mean sea level as distinct from depths to water.

'representative' means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

'saline drainage' The movement of waters, contaminated with salts, as a result of the mining activity.

'sensitive place' means:

a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or

b) a motel, hotel or hostel; or

c) an educational institution; or

d) a medical centre or hospital; or

e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or

f) a public park or gardens.

Note: The definition of 'sensitive place' and 'commercial place' is based on Schedule 1 of EPP Noise. That is, a sensitive place is inside or outside on a dwelling, library & educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial & retail activity, protected area or an area identified under a conservation plan under *Nature Conservation Act 1992* as a critical habitat or an area of major interest, marine park under *Marine Parks Act 2004*, park or garden that is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.

A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company. Accommodation for mine employees or contractors is a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or a related company.

For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

'the Act' means the *Environmental Protection Act 1994*.

'µS/cm' means micro siemens per centimetre.

'watercourse' has the same meaning given in the *Water Act 2000*.

'water quality' means the chemical, physical and biological condition of water.

'waters' includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), storm water channel, storm water drain, and groundwater and any part thereof.

Definitions – Structures which are dams or levees

Affected person is someone whose drinking water can potentially be impacted as a result of discharges from a dam or their life can be put at risk due to dwellings or workplaces being in the path of a dam break flood.
Annual inspection report means an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan);

a) against recommendations contained in previous annual inspections reports;
b) against recognised dam safety deficiency indicators;
c) for changes in circumstances potentially leading to a change in consequence category;
d) for conformance with the conditions of this authority;
e) for conformance with the 'as constructed' drawings;
f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems);
g) for evidence of conformance with the current operational plan.

Annual exceedance probability or AEP the probability that at least one event in excess of a particular magnitude will occur in any given year.
Assessed or **assessment** by a suitably qualified and experienced person in relation to a consequence assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

a) exactly what has been assessed and the precise nature of that determination;
b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;
c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria

Associated works in relation to a dam, means:

a) operations of any kind and all things constructed, erected or installed for that dam; and
b) any land used for those operations.

Authority means an environmental authority or a development approval.
Certification means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this Manual, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of

Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).
Certifying, **certify or certified** have a corresponding meaning as 'certification'
Construction or constructed in relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for the purpose of preparing a design plan.
Consequence in relation to a structure as defined, means the potential for environmental harm resulting from the collapse or failure of the structure to perform its primary purpose of containing, diverting or controlling flowable substances.
Consequence category means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.
Dam means a land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and **associated works**.
Dam crest volume means the volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (for example, via spillway).
Design plan is a document setting out how all identified consequence scenarios are addressed in the planned design and operation of a regulated structure.
Design storage allowance or DSA means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an **annual exceedance probability** (AEP) specified in that Manual.
Designer for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.
Development approval means a development approval under the *Integrated Planning Act 1997* or the *Sustainable Planning Act 2009* in relation to a matter that involves an environmentally relevant activity under the *Environmental Protection Act 1994*.
Emergency action plan means documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact.
Existing structure means a structure that was in existence prior to the adoption of this schedule of conditions under the authority.
Extreme Storm Storage – means a storm storage allowance determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority
Flowable substance means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.
Holder means:

a) where this document is an environmental authority, any person who is the holder of, or is acting under, that environmental authority; or

b) where this document is a development approval, any person who is the registered operator for that development approval.

Hydraulic performance means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

Levee means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of **water** or **flowable substances** at any other times.

Low consequence dam means any dam that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*; and

Mandatory reporting level or MRL means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.

Manual means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.

Modification or modifying (see definition of 'construction')

Operational plan includes:

a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance);

b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

Register of Regulated Dams includes**:**

a) Date of entry in the register;

b) Name of the dam, its purpose and intended/actual contents;

c) The consequence category of the dam as assessed using the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635);

d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;

e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;

f) For the regulated dam, other than in relation to any levees –

    i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;

    ii. Coordinates (latitude and longitude in GDA94) within five metres

at any point from the outside of the dam including its storage area

iii. Dam crest volume (megalitres);
iv. Spillway crest level (metres AHD).
v. Maximum operating level (metres AHD);
vi. Storage rating table of stored volume versus level (metres AHD);
vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
viii. Mandatory reporting level (metres AHD);

g) The design plan title and reference relevant to the dam;

h) The date construction was certified as compliant with the design plan;

i) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;

j) Details of the composition and construction of any liner;

k) The system for the detection of any leakage through the floor and sides of the dam;

l) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;

m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;

n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

Regulated dam means any dam in the significant or high consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.
Regulated structure includes land-based containment structures, levees, bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.
Residual drilling material means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.
Structure means dam or levee.
Spillway means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges form the dam, normally under flood conditions or in anticipation of flood conditions.
Suitably qualified and experienced person in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 2002*, and has demonstrated competency and relevant experience:

a) for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.

b) for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

Note: It is permissible that a suitably qualified and experienced person obtain

subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.

System design plan means a plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system.

Void means any constructed, open excavation in the ground.

Watercourse has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means a river, creek or stream in which water flows permanently or intermittently—

a) in a natural channel, whether artificially improved or not; or

b) in an artificial channel that has changed the course of the watercourse.

Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

Waters includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and banks of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater.

Water year means the 12-month period from 1 July to 30 June.

Wet season means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

JACOBS

Attachment B – DNRM suggested conditions

Attachment 2 – Department of Natural Resources and Mines Suggested Conditions

Recommendations to the Coordinator-General regarding imposed conditions – New Acland Coal Mine Stage 3 Project

Water Act 2000 - Water security[1]

a) In accordance with condition E3[2]? and E4 of the Environmental Authority, the proponent must collect data that identifies natural groundwater level trends for identification of water level impact to authorised water users from the mining operation[3] on authorised water users.

b) Within 2 years [4]following the Coordinator - General Evaluation Report, the proponent must provide a report to each potentially unduly affected authorised water user and the administering authority. The report must include a summary of the collected baseline information and address potential impacts to the groundwater supplies of those users.

c) In the report required by condition (b), the proponent must:

   i. Identify operational bores for each potentially affected authorised water user

   ii. For each operational bore:

      1. Identify natural groundwater levels and water quality;
      2. Identify the condition and supply capacity of the bore;
      3. Identify the operational requirements and current use of the bore;
      4. Clearly outline the predicted decrease in water level at the bore due to proposed mining operations;
      5. Provide an initial assessment of the likely water supply impacts to the affected authorised water users, and timing of those impacts, during and following the project activity;
      6. Outline of the potential future actions (make good measures) which would ensure the potentially affected authorised water users will have access to a reasonable quantity and quality of water for the authorised use and purpose of the bore/s.

[1] This will replace the existing E5 in the NAC AEIS EMP.
The condition also provides certainty regarding 'Make good', particularly with the proposed changes to the *Water Act 2000* and *Mineral Resources Act 1989* with regard to access to mines for 'Associated Water' negating the requirement for a Water Licence under the *Water Act 2000* and the proposed transition to Chapter 3 of the *Water Act 2000* for proponents that take 'Associated water' i.e. requirement for baseline assessments and 'Make Good'.
The Water Reform and Other Legislation Amendment Bill 2014 has recently been introduced. The timing and final make up of the legislation is uncertain. Proponents that may require a water licence to dewater will have the option to seek approval prior to the legislation coming into effect or wait (if timing allows) to proceed under the new groundwater management arrangements. This will be up to the individual proponent.

[2] WQ baseline condition in Environmental Authority (EA). Check the numbering.
[3] General monitoring condition – Link to an EA condition.
[4] Baseline monitoring condition identifying requirements and report in c)

d) The proponent[5] must ~~enter into agreement~~negotiate in good faith with all potentially 'unduly affected' water users (as defined in conditions of the water licence or relevant legislation at the time) about the make good measures outlined in condition (c), or other negotiated arrangement.

e) The agreement[6] must be entered into, at least 3 years prior to the time an 'unduly affected' water user is predicted to become 'unduly affected' due to dewatering operations (based on the latest version of the Acland Coal project numerical groundwater model at the time).

General requirements – Commonwealth Basin Plan aquifers

Oakey Creek Alluvial aquifer[7]

a) Following collection and analysis of groundwater monitoring data obtained from monitoring bores in the Walloon Coal Measures and Oakey Creek Alluvium (pursuant to condition E4? of the Environmental Authority) and as a component of the 2nd and subsequent reviews of the New Acland Coal numerical groundwater model pursuant to Condition E6? of the Environmental Authority, the proponent must present a peer reviewed report outlining the impact on the Oakey Creek Alluvial aquifer for approval by the relevant administering authority. The report must:
    1. Establish any identified impact associated with mining activities, if any, on the Oakey Creek Alluvial aquifer
    2. Include an assessment of natural and potential pumping based water level variation caused by non mining authorised users, in the Oakey Creek Alluvial aquifer
    3. Outline any requirements for additional modelling or monitoring required
b) If the investigation under Condition a) concludes that there is an identified impact on the Oakey Creek Alluvial aquifer as a result of mining activities, the proponent must determine the volumetric impact associated with the identified impact.

[5] Requirement to make good.
[6] Provides an opportunity for the proponent to 'stage' negotiation of agreements, considering the timeframe.
[7] The AEIS has identified a potential minor modelled impact on the Oakey Creek Alluvium. The Oakey Creek Alluvium is part of the Commonwealth Basin Plan Sustainable Diversion Limit (SDL) Area referred to as the Condamine Alluvium – Tributaries. The Basin Plan identifies that this SDL Area is subject to a reduction of 5 Gigalitres. This will occur through a federally funded buyback program. The details of how this buyback will occur are yet to be released by the Federal Government.
The Basin Plan identifies that any 3rd party impact on this resource will need to be addressed by the State. Potentially this situation will exist through NAC mining activities.
This condition does two things:

1) Provides a process for further investigation as to the impact on the Oakey Creek Alluvium and requires the proponent to quantify that impact;

2) Stipulates that any volumetric impact will need to be managed through an 'Offset arrangement'.

c) If the impact is determined to be the result of mining activities, the proponent may be required to construct additional monitoring bores. Additional monitoring bores are to be incorporated in the Groundwater Monitoring and Management Plan pursuant to condition E5? and obtain any necessary authorities as a result.
d) The proponent must offset any take of water from the Oakey Creek Alluvial aquifer identified in Condition b) as determined by the relevant administrative authority.

Main Range Volcanics aquifer[8]

a) The proponent must determine the long term volumetric impact of the take of water from the Main Range Volcanics aquifer and incorporate this into the 2nd review of the New Acland Coal numerical groundwater model pursuant to Condition E6? of the Environmental Authority.
b) The proponent must offset any long term take of water in excess of any allocation held by the proponent averaged over a 3-year period from the Main Range Volcanics aquifer to be reported to ~~as determined by~~ the relevant administrative authority and accounted for in any groundwater model verification and refinement (Review) undertaken as part of the Schedule for Groundwater Impact Prediction, Validation and Review.

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DNRM is proposed as the agency responsible for these recommendations.

[8] The AEIS has identified an impact on the Main Range Volcanics aquifer. The Main Range Volcanics is part of the Commonwealth Basin Plan Sustainable Diversion Limit (SDL) Area referred to as the Condamine Basalts. The Basin Plan identifies that this SDL Area is at SDL volume and therefore additional take will trigger the Basin Plan requirement that identifies that any 3rd party impact on this resource will need to be addressed by the State. This situation will exist through NAC mining activities. The Commonwealth Basin Plan will come into effect in 2019.

Recommendations regarding potentially linked Environmental Authority (EA) conditions relevant to water level monitoring and model review – for discussion with DEHP and OCG - New Acland Coal Mine Stage 3 Project

E4[9]? Groundwater Management and Monitoring Program

A Groundwater Management and Monitoring Program must be developed[10] and certified by an appropriately qualified person which addresses all phases of the mining operation approved under this environmental authority. The groundwater management and monitoring program must be provided to the administering authority for approval with the baseline monitoring program in condition E3. The groundwater management and monitoring program must be developed to ensure that the plan meets the following objectives:

a) Validation of groundwater numerical model (including review of boundary and recharge conditions) to refine and confirm accuracy of groundwater impacts predicted;
b) Groundwater level monitoring in all identified geological units present across and adjacent to the mine site to confirm existing groundwater flow patterns and monitor drawdown impacts;
c) Estimation of groundwater inflow to mine workings and surface water ingress to groundwater from flooding events using the groundwater model;
d) Monitoring in any identified source aquifers for alternative water supplies, relevant to any approval issued under the *Water Act 2000* for the project;
e) Monitoring of geological units throughout all phases of project life including for the period post-closure in accordance with Appendix [11]?;
f) Identifying monitoring bores that will be replaced due to mining activities; and
g) To ensure all potential groundwater impacts from mine dewatering and mine water and waste storage facilities (artificial recharge) are identified, mitigated and monitored.

E4? Monitoring Program Review

The groundwater management and monitoring program required under Condition E4? must be reviewed by an appropriately qualified person in conjunction with the Groundwater Model Review (Condition E6) with a report provided on the outcome of the review to the administering authority by < insert date 2[12] years from issuance of the EA> and then no later than 1 July every 3 years following. The review must include:

a) an assessment of the outcome of the groundwater management and monitoring program against the objectives in E4?
b) a review of the adequacy of the monitoring locations, frequencies and groundwater quality triggers specified in Table E[13]?, E?
c) a review of the validity of the groundwater monitoring program against the regular model predictions

[9] Numbering to be incorporated into proposed EA WQ conditions
[10] This refers to the GWIMP in the AEIS
[11] The duration of post mining monitoring should be clarified
[12] Need to align with E6? timing
[13] Link to existing EA tables

E6? Groundwater model review

The numerical model in the reports titled 'Groundwater Model Technical addendum' - New Acland Coal Stage 3 Project AEIS (13 August 2014) must be reviewed to incorporate groundwater monitoring data and measured mine dewatering volumes from the groundwater management and monitoring program in condition E4? and E5?. The review must be conducted within 2 years of commencement of any mining activities associated with any Stage 3 New Acland Coal mine box cut excavation and at least every 3 years thereafter, or at other intervals specified by the administering authority in writing, if the observed groundwater levels are not consistent with those predicted by the groundwater model.

The review must provide a revised numerical groundwater model which incorporates additional relevant data associated with the Oakey Creek alluvial aquifer. The revised model must include:

a) Review of the hydrogeological conceptualisation used in the previous model
b) An update of the predicted impacts
c) Revised water balance model
d) Review of assumptions used in the previous model
e) Predictions of changes in groundwater levels for a range of scenarios
f) Information about any changes made since the previous model, including data changes
g) A report outlining the justification for the refined model and the outputs of the refined model
h) An evaluation of the accuracy of the of the predicted changes in groundwater levels and recommended actions to improve the accuracy of model predictions

E7? A report outlining the findings and any recommendations from the review under condition E6?, must be completed by an appropriately qualified person and submitted to the administering authority for approval no later than 3[14]? months after the commencement of the review.

[14] Timing to be confirmed

JACOBS

Attachment C – Appendix M Revised Biodiversity Offset Strategy

NEW HOPE GROUP

BIODIVERSITY OFFSET STRATEGY

New Acland Coal Mine Stage 3 Project

SEPTEMBER 2014

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1. Introduction

New Acland Coal Pty Ltd (NAC) has developed this Biodiversity Offset Strategy (the Strategy) in accordance with the Queensland Environmental Offsets Policy (Version 1.0) 2014 (QEOP) and the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC) Environmental Offsets Policy 2012 (EOP), for the construction of the revised New Acland Stage 3 Project (the revised Project).

The Strategy discusses the State and Commonwealth offset requirements for the revised Project including:

- Policy requirements
- Offset approach
- Impacts on Matters of State environmental significance
- Impacts on Commonwealth threatened species and communities
- Proposed offsets for significant residual impacts on Matters of State environmental significance
- Proposed offsets for significant residual impacts on Commonwealth threatened species and communities
- Securing offsets
- Management of offsets

2. Policy Requirements

Two offset policies apply to the revised Project, at the State and Commonwealth levels. The offset requirements for the revised Project and each applicable policy have been assessed within this Strategy.

The offset policies to be considered for the revised Project are:

- *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offset Policy 2012* (EPBC EOP)
- *Queensland Environmental Offsets Policy 2014* Version 1.0 (QEOP)

2.1. EPBC EOP

The following has been extracted from the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offset Policy 2012*.

The use of offsets to compensate for adverse impacts to heritage values is appropriate in some circumstances. In cases where offsetting of adverse impacts on heritage values is considered possible and appropriate, the principles of this policy apply with regard to determining what constitutes a suitable offset. Offsets for impacts on heritage values should improve the integrity and resilience of the heritage values of the property involved. This may include offsets in areas adjacent to the property.

The EPBC Act environmental offsets policy has five key aims, to:

1. ensure the efficient, effective, timely, transparent, proportionate, scientifically robust and reasonable use of offsets under the EPBC Act
2. provide proponents, the community and other stakeholders with greater certainty and guidance on how offsets are determined and when they may be considered under the EPBC Act
3. deliver improved environmental outcomes by consistently applying the policy
4. outline the appropriate nature and scale of offsets and how they are determined
5. provide guidance on acceptable delivery mechanisms for offsets.

2.2. QEOP

The main purpose of the Queensland *Environmental Offsets Act 2014* is to counterbalance the significant residual impacts of particular activities on prescribed environmental matters through the use of environmental offsets.

The supporting QEOP provides a decision-support tool to enable consistent assessment by administering agencies of offset proposals provided by authority holders to satisfy offset conditions.

An offset condition may only be imposed on an authority for a prescribed environmental matter. Prescribed environmental matters are:

- a Matter of National Environmental Significance (MNES)
- a Matter of State Environmental Significance (MSES)
- a Matter of Local Environmental Significance (MLES).

The revised Project will provide an offset for the significant residual impacts to both matters of National and State Environmental Significance. This requirement will be included in the revised Project's Environmental Authority (EA) that will set out the impact to Matters of State Environmental Significance.

3. Offset Approach

3.1. Avoidance

The revised Project avoids mining within Acland and includes a buffer zone along Lagoon Creek, where a revegetation program will be implemented over the life of the revised Project. The revised Project also avoids Poplar Box and Brigalow vegetation near the rail loop. Figure 1 shows the location of the revised Project, while Figure 2 sets out the revised Project's footprint.

Impacts on all ecological values have been avoided and minimised as far as practicable. The revised Project will use ongoing opportunities to further avoid impacts at a local scale through the detailed design and construction phases.

3.2. Residual Impacts

The revised Project will impact on Threatened Ecological Communities (TEC), Endangered and Of Concern Regional Ecosystems (REs), watercourse vegetation and threatened species (Figure 2).

TECs are those communities listed as threatened under the Commonwealth EPBC Act. REs are those vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil. A community that is a TEC can correspond with an RE, but not necessarily.

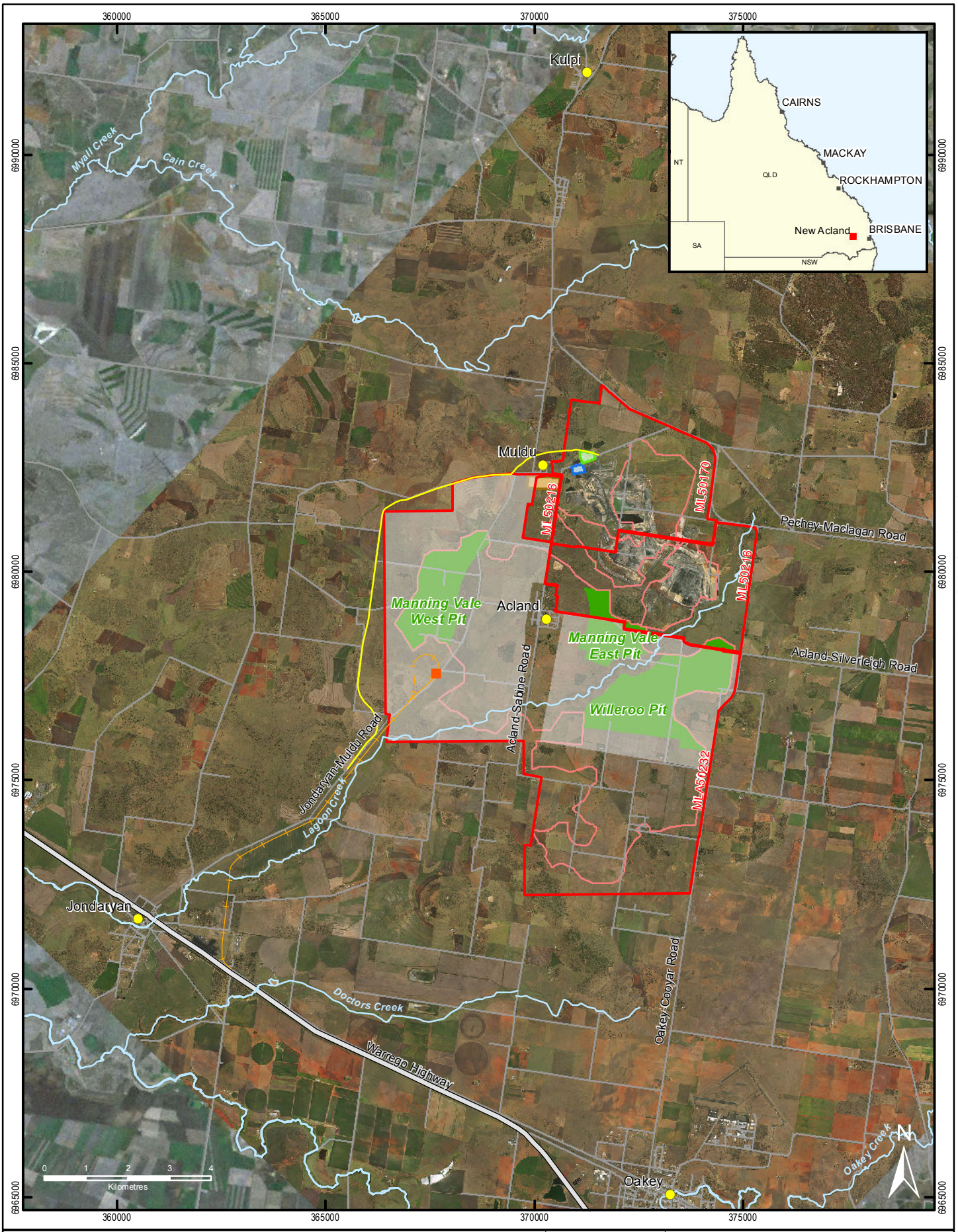
The residual and unavoidable impacts resulting from clearing required for the revised Project will be offset in accordance with the EPBC EOP and QEOP. The offsets proposed are intended to satisfy both policies, for example, one offset for Brigalow will satisfy both the EPBC EOP and QEOP requirements.

Residual impacts requiring offsets under EPBC EOP and QBOP have been calculated for the revised Project and verified using the EOP offset calculator. Where watercourses, as defined under the *Vegetation Management Act 1999* (VMA) will be impacted upon by clearing, the area requiring offsetting has been calculated by applying the applicable buffers as per the regional vegetation management code and Department of Natural Resources and Mines (DNRM) stream order mapping. This buffer has been applied to the field verified vegetation mapping.

The Department of Environment and Heritage Protection (DEHP) Biodiversity Planning Assessment Mapping identifies regional corridors across the project area. The value attributed to connectivity has been based on impacts on Endangered and Of Concern REs, watercourses and protected species within the corridor areas. Additionally, with the proposed mitigation measures for fragmentation, barrier effects and reduction in vegetation communities and habitats, the overall function of the corridors are not expected to be compromised or significantly impacted.

The impacts on flora and fauna protected under the EPBC and *Nature Conservation Act 1992* (NCA) that are classified and known to occur on the site have been included in this strategy. The offsets that are proposed under the EPBC EOP and QEOP provide a net

environmental gain and cover all of the significant residual impacts associated with the revised Project.



LEGEND

- Towns and Localities
- Train Loadout Facility
- Rail Spur
- Roads
- Creeks
- Jondaryan-Muldu Road Diversion
- Proposed Extent of Surface Rights Area
- Coal Resource Area
- Mining Tenements
- Stage 3 Pit Areas
- CHPP Precinct
- Material Handling Facility
- Mine Industrial Area

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 1 - Revised Project Overview

Scale 1:120,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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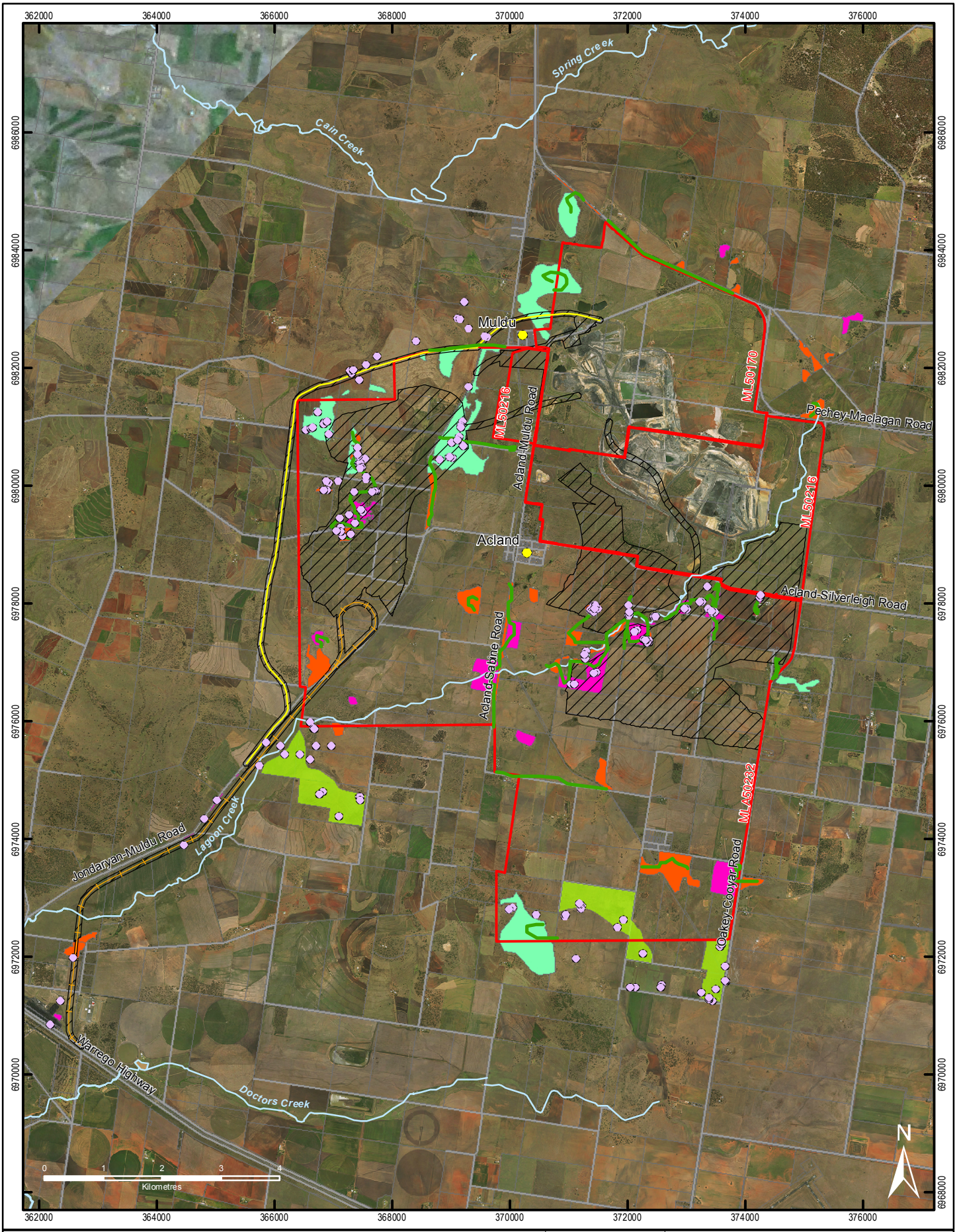

LEGEND

- Towns and Localities
- Vegetation & Biocondition Sites
- Flora Transects
- Rail Spur
- Roads
- Creeks
- Jondaryan-Muldu Road Diversion
- Cadastre
- Mining Tenements
- Disturbance Footprint Area
- Proposed Bluegrass Offset Locations

Observed Regional Ecosystems

- Endangered
- Of Concern
- Least Concern

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 2 - Location of Flora Survey Sites

Scale 1:85,000 on A4

Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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4. Impacts on Matters of State Environmental Significance

The revised Project will have an impact on the following Matters of State Environmental Significance:

- remnant endangered regional ecosystems;
- remnant endangered grassland regional ecosystems Regional ecosystems;
- remnant of concern regional ecosystems;
- remnant of concern grassland regional ecosystems;
- watercourse regional ecosystem;
- fauna listed as Endangered, Vulnerable, Near Threatened and special least concern under the *Nature Conservation Act 1992*; and
- flora listed as Endangered, Vulnerable or Near Threatened under the *Nature Conservation Act 1992*.

Matters of State Environmental Significance are listed on Table 1.

The Matters of State Environmental Significance affected by the revised Project are a combination of endangered and of concern regional ecosystems, a watercourse regional ecosystem and flora and fauna listed in the *Nature Conservation Act 1992*.

An area of 2.39 ha of the poplar box woodland (11.3.2) falls within 50 metres of Lagoon Creek, which is a stream order 2, making the area of the community that is adjacent to Lagoon Creek a Matter of State Environmental Significance.

Table 1 Impact to Matters of State Environmental Significance

RE	VMA Class	BVG 1: 1M	Short Description (Regulation)	Total area (ha)	% riparian "Regional" corridor	% "State" terrestrial corridor	Area in Stream Order Buffer
11.3.1	E	25a	*Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains	12.0	0	0	0
11.3.2	OC	17a	*Eucalyptus populnea woodland on alluvial plains*	4.8	0	0	2.39 (SO2)
11.3.17	OC	25a	*Eucalyptus populnea* woodland with *Acacia harpophylla* and/or *Casuarina cristata* on alluvial plains	7.0	0	0	0
11.3.21	E	30a	*Dichanthium sericeum* and/or *Astrebla* spp. grassland on alluvial plains. Cracking clay soils	35.9	0	0	0

RE	VMA Class	BVG 1: 1M	Short Description (Regulation)	Total area (ha)	% riparian "Regional" corridor	% "State" terrestrial corridor	Area in Stream Order Buffer
11.8.11	OC	30b	*Dichanthium sericeum* grassland on Cainozoic igneous rocks	4.1	0	0	0
11.9.5	E	25a	*Acacia harpophylla* and/or *Casuarina cristata* open forest on fine-grained sedimentary rocks	12.6	0	0	0
11.9.10	OC	25a	*Eucalyptus populnea*, *Acacia harpophylla, open forest on fine-grained sedimentary rocks*	4.1	0	0	0
11.9.13	OC	13d	*Eucalyptus moluccana* or *E. microcarpa* open forest on fine grained sedimentary rocks	3.6	0	0	0

Listed species	NC Status	Description
Phascolarctos cinereus - Koala	Special least concern	Poplar box woodland, that is habitat for the Koala will be cleared for the revised Project in the Manning Vale West pit, in areas adjacent to Lagoon Creek and along the rail spur.
Digitaria porrecta - Finger panic grass	Near threatened	One isolated patch in western part of the revised Project area, in the Manning Vale West Pit.
Homopholis belsonii - Belson's panic	Endangered	Twelve patches found in the bluegrass dominated grassland community and are found in the Manning Vale West Pit and the Willaroo Pit, to the south of Lagoon Creek. This species has been found in the shelter of trees in the brigalow and poplar box vegetation communities.

E – Endangered; OC – Of Concern

5. Impacts on Federal threatened species and communities

The revised Project will result in the clearing of 64.7 ha of two threatened ecological communities, as listed in Table 2.

Three flora species that are listed under either the EPBC Act have been recorded from the revised Project site and are within the disturbance footprint. The affected species are listed Table 2.

The EPBC Offset calculator the each of the Matters of National Environmental Significance is included in Appendix A. The justification of the scores used in the Offset calculators is also provided in Appendix A.

Table 2 Impact on MNES

Matters of National Environmental Significance Impacts			
Threatened Ecological Community	EPBC Act Status	Significantly Impacted	Primary reason for the outcome
Bluegrass dominant grasslands of the Brigalow Belt Bioregions (North and South)	Endangered	Yes – 40.1 ha	Significant impact as per the MNES Guidelines Version 1.1
Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	Yes – 24.6 ha	Significant impact as per the MNES Guidelines Version 1.1 Brigalow
Listed Flora Species			
Bothriochloa biloba (lobed blue grass)	Vulnerable	Yes	Significant impact as per the MNES Guidelines Version 1.1
Digitaria porrecta (finger panic grass)	Endangered	Yes	Significant impact as per the MNES Guidelines Version 1.1
Homopholis belsonii (Belson's panic)	Vulnerable	Yes	Significant impact as per the MNES Guidelines Version 1.1

6. Proposed offsets for residual impacts on Matters of State Environmental Significance

The impact of the revised Project on Matters of State Environmental Significance is described below and presented in Table 3.

Brigalow Offset

The total Brigalow impact of the revised Project on brigalow is 28.7 ha, which includes both Queensland and Commonwealth listed communities, comprised of RE 11.3.1, RE 11.9.5 and RE 11.9.10.

NAC is currently investigating several options with regard to suitable Brigalow offset areas within the Bioregion. The Brigalow offset for Queensland and Commonwealth impacts will be collocated to improve the ecological benefit of the offset and to improve the management effectiveness of the offset.

Natural grasslands Offset

The bluegrass community consists of RE 11.3.21 and 11.8.11. Of this, the entire 40 ha is listed by Queensland and Commonwealth legislation that require to be offset. An area of 247 ha has been identified on the NHG's property as being suitable for the location of the bluegrass offset and should satisfy the Queensland and Commonwealth offset policies. The three listed grass species that may be impacted by the revised Project have been identified as occurring within the proposed offset area, and so will be collocated within the natural grasslands offset area.

Poplar box and Gum-topped box Offset

NAC is investigating options for the establishment of an offset for poplar box (RE 11.3.2 and 11.3.17) and gum-topped box (RE 11.9.13) in the Bioregion. Initial information has identified that an appropriate area is available to offset the clearing of 15.4 ha of these communities. Investigations are continuing and discussions are planned with third party landholders on whose property the offset may be located.

Fauna listed under Nature Conservation Act

Habitat for the Koala, a special least concern species under the *Nature Conservation Act 1992*, will be cleared for the revised Project. The revised Project will impact an area of approximately 19.5 ha of potential Koala habitat that meets the criteria of "habitat critical to the survival" of Koala and includes REs 11.3.2, 11.3.17, 11.9.10 and 11.9.13. Details of impacted areas for each RE and proposed offset areas can be found in Table 3.

Plants listed under Nature Conservation Act

Two species of plant listed under the *Nature Conservation Act 1992* will be affected by the revised Project. These species are *Digitaria porrecta* and *Homopholis belsonii*.

These species will be translocated and re-established within areas of bluegrass dominant grassland offset, to be located to the south of the revised Project on land owned by NAC.

Table 3 Proposed State Offsets

RE	Regional Ecosystem	Common Name	Cth Status	VM Status	Area cleared (ha)
11.3.1	*Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains	Brigalow	Endangered	Endangered	12.0
11.9.5	*Acacia harpophylla* and/or *Casuarina cristata* open forest on fine-grained sedimentary rocks	Brigalow	Endangered	Endangered	12.6
11.9.10	*Acacia harpophylla*, *Eucalyptus populnea* open forest on Cainozoic fine-grained sedimentary rocks	Brigalow	-	Of concern	4.1
11.3.21	*Dichanthium sericeum* and/or *Astrebla* spp. grassland on alluvial plains. Cracking clay soils	Bluegrass grass dominated natural grassland	Endangered	Endangered	35.9
11.8.11	*Dichanthium sericeum* grassland on Cainozoic igneous rocks	Bluegrass grass dominated natural grassland	Endangered	Of concern	4.1
11.3.2	*Eucalyptus populnea* woodland on alluvial plains	Poplar box	-	Of concern	4.8
11.3.17	*Eucalyptus populnea* woodland with *Acacia harpophylla* and/or *Casuarina cristata* on alluvial plains	Poplar box	-	Of concern	7.0
11.9.13	*Eucalyptus moluccana* or *E. microcarpa* open forest on fine grained sedimentary rocks	Gum topped box	-	Of concern	3.6

7. Proposed offsets for residual impacts on Federal threatened species and communities

The offset areas for TEC and species have been calculated using the EPBC Offset calculator and the assessment of the condition of TECs within the revised Project site. Table 4 lists the areas to be provided as an offset.

For the Brigalow offset, the area of impact has been calculated as 24.6 ha, being the area of the constituent regional ecosystems – 11.3.1 and 11.9.5. With this area and an assessment of the condition of the community and an conservative estimate for the time of a patch of brigalow to reach ecological benefit and area of 60 ha is produced from the calculator. This area has been used as the size of the brigalow offset to be secured. Once a patch of brigalow has been identified and assessed, this area will need to be revised, with a site assessment of the condition of the offset site.

The bluegrass dominant grassland will be offset on land owned by NAC. The area of land that is suitable for use as a grassland and listed species offset is 247 ha. This area has been determined by condition assessment completed in 2013. The area of impact and the assessment of the condition of the impacted communities have been used in the EPBC Offset calculator to determine the expected area of offset needed to offset the impact to the bluegrass dominant grassland.

Table4 Proposed Federal Offsets

Threatened Species or Community	Area (ha)	Proposed Offset
Brigalow (Acacia harpophylla dominant and co-dominant)	24.6	60 ha within an area of naturally regenerating Brigalow that is part of the Brigalow TEC is being investigated to satisfy both the EPBC EOP requirement and the QEOP requirement
Bluegrass dominant grasslands of the Brigalow Belt Bioregions (North and South)	40.1	90 ha of Bluegrass dominated grasslands will be required to offset the impact to this community. An area of 247 ha is available for this offset.
Bothriochloa biloba (lobed blue grass)	70	70 ha of grasslands will be required to offset the impact to this species. An area of 247 ha is available for this offset.
Digitaria porrecta (finger panic grass)	165	165 ha of grasslands will be required to offset the impact to this species. An area of 247 ha is available for this offset.
Homopholis belsonii (Belson's panic)	87	87 ha of grasslands will be required to offset the impact to this species. An area of 247 ha is available for this offset.

7.1. Brigalow TEC Offset

The total Brigalow impact for the revised Project is 24.6 ha has been classified as the EPBC listed TEC (comprised of REs 11.3.1 and RE 11.9.5).

NAC is currently investigating several options with regard to suitable Brigalow offset areas within the Bioregion. The Brigalow TEC offset will be collocated with the State offset and will contribute to a greater environmental outcome due to the larger patch size.

An offset of approximately 60 ha is expected to be needed to offset the impact of the revised Project on the Brigalow TEC.

7.2. Natural grasslands Offset

The bluegrass dominated natural grasslands consists of REs 11.3.21 and 11.8.11. Of this, the entire 40.1 ha is captured by the EPBC offset requirements. The proposed bluegrass offset of 90 ha has been identified on the NAC's property and this should satisfy both Commonwealth and State offset policies. The three listed grass species that may be impacted by the revised Project have been identified as occurring within the proposed offset area, and so will be collocated within the natural grasslands offset area.

8. Delivery of Biodiversity Offsets

The next phase of the process after the revised Project has been approved and issued with an amended EA will be to finalise arrangements for the potential offset areas. NAC will deliver a proponent driven offset, where an Offset delivery plan will be prepared.

The Offset delivery plan will be prepared that will:

- describe how the environmental offset will be undertaken and how the conservation outcome will be achieved
- account for and manage risks of the offset failing to achieve a conservation outcome
- outline the governance arrangements of the offset and describe the monitoring and auditing processes of these arrangements
- describe the offset size and scale that is proportionate to the significant residual impact that the offset will address

The Offset delivery plan will:

- describe the prescribed environmental matter to which the offset condition relates;
- state whether the offset condition will be delivered, wholly or partly, on the land on which the environmental offset will be undertaken;
- include particulars of, or a description sufficient to identify, the land on which the environmental offset will be undertaken; and identify, and contain details of, any person with an interest in the land on which the environmental offset will be undertaken;
- describe the existing land use of the land on which the environmental offset will be undertaken and any impact that land use may have on the delivery of the offset;
- state:
  - the measures the NAC will take to secure the land on which the environmental offset will be undertaken as a legally secured offset area;
  - why NAC considers the stated measures are reasonable and practicable;
  - the period during which NAC will take these measures;
  - why NAC considers the stated period is reasonable for the purpose of securing the land.

There are several legally binding mechanisms NAC will consider for securing the offset areas. These area:

- an environmental offset protection area, under Section 30 of the Environmental Offsets Act 2014;

- 'gazettal as a protected area (e.g. a nature refuge)' under the NCA;
- 'voluntary declaration of an area of high nature conservation value' under the VMA; or
- use of a 'covenant' under the *Land Title Act 1994* or *Land Act 1994*.

9. Management of Offset Areas

The Offset delivery plan will be prepared for each offset site to meet the requirements of the EPBC EOP and QEOP. The Offset delivery plan will include information on the threats and the management actions required at each offset site to abate those threats. The Offset delivery plan will contain an estimate of the costs of management and will provide a monitoring program that will extend until the management outcomes are achieved.

Management actions may include:

- management of grazing;
- weed management;
- feral pest management;
- management of fire; and
- if applicable, active revegetation.

The length of active management will be influenced by the condition of vegetation, type of habitat, climatic conditions and vegetation on site, as well as existing management issues.

Appendix A – EPBC Offset Calculator

EPBC Calculator Inputs - Brigalow TEC

Calculator Variable	Input	Explanation	Reference document/s
Impact description	Clearing of a threatened ecological community for construction of the revised Project	Residual impact on Brigalow in revised Project area (24.6 ha). Community is present in small, fragmented areas of brigalow are located along Lagoon Creek that flows through the revised Project area	Appendix H.1 MNES Report.
Impact area	24.6 ha residual impact	Field surveys to confirm presence of brigalow community, consistent with listing advice. Condition of vegetation was recorded by BioCondition surveys (Eyre et al. 2011) and by using the listing advice condition criteria.	Appendix H.1 MNES Report; Appendix G Terrestrial Ecology Field Survey Results BioCondition – A Condition Assessment Framework for Terrestrial Biodiversity in Queensland – Assessment Manual (Eyre et al. 2011)
Quality of vegetation impacted (0-10)	5	Components of habitat quality for consideration in the EPBC Act offsets assessment guide include site condition, site context and species stocking rate. Site condition - Condition of the vegetation was found to be impacted by clearing, weed infestation and grazing. Site condition score 6. Site context – Patches of the community are scattered and fragmented across the landscape, with limited connection to other areas of vegetation. There is some connection long Lagoon Creek. Site condition score 5. Species stocking rate – Surveys found a dominance of common species, with no listed fauna and one listed flora species.	Appendix G Terrestrial Ecology Field Survey Results Ecological Equivalence Methodology Guideline Version 1 (DERM, 2011)

Calculator Variable	Input	Explanation	Reference document/s
		The species stocking rate is considered to be low. Species stocking rate is 4. The average score across the three components is 5.	
Proposed offset Area	60 ha	Area of Brigalow community that NAC is seeking to secure on a third party property.	
Risk related time horizon	20 years	Offset will be secured "in perpetuity" so the maximum timeframe has been used.	
Time until ecological benefit	15 years	The time until benefit is 15 years, as the Brigalow community will be present on the offset property.	
Start area	60 ha	Area of Brigalow community that NAC is seeking to secure on a third party property.	
Start quality	5	The start quality is an estimate and is to be confirmed once negotiations with the third party landholder allow for NAC to undertake a survey of the potential offset site.	
Risk of loss (%) without offset	15%	The risk of loss without an offset is estimated to be 15% on the basis that the loss of the community from clearing is low due to the operation of clearing controls (Qld Vegetation Management Act and Cth EPBC Act). It is very unlikely that there will be approvals in place for the clearing of vegetation and there is not pending threat of clearing. This level of risk has been assigned as the clearing of vegetation on these properties needs planning approval from the State and Commonwealth governments, as it is both remnant vegetation and a threatened ecological community. While approval for the clearing of vegetation is possible, an applicant will need to provide information to the regulators on the impact of the development of the values of the vegetation and provide an offset for the residual impact of the clearing.	
Future quality without offset (scale of 0-10)	4	The future quality of the vegetation is anticipated to decline slightly over the 15 year period of the evaluation. This is as a result of the gradual increase in impact of weeds and grazing and the likely continued exclusion of fire.	

Calculator Variable	Input	Explanation	Reference document/s
Risk of loss (%) with offset	5%	Risk of loss of the Brigalow community at an offset site is considered to be 5%. The offset site will be protected and managed to improve the quality of the community. A covenant placed on title of the offset property will avert the risk of loss of the offset area as the landowner will not be able to obtain development approval that has an impact on the offset.	
Future quality with offset (scale of 0-10)	8	The future quality of the offset vegetation will be 8. This is on the basis that the Brigalow community is present at the site and will respond to management and removal of threats (weeds, grazing) to lead to regeneration of the community.	
Confidence in result (quality)	50%	Confidence in the quality result is rated a relatively low level, as the offset site has yet to be inspected and the quality of the existing vegetation to be evaluated. Without specific knowledge of the offset vegetation, a very conservative level of confidence has been applied.	
Confidence in result (risk of loss)	50%	Confidence in the risk result is rated a relatively low level, as the offset site has yet to be inspected and the quality of the existing vegetation to be evaluated. Without specific knowledge of the offset vegetation, a very conservative level of confidence has been applied.	

EPBC Calculator Inputs - Bluegrass dominant grasslands of the Brigalow Belt Bioregions (North and South)

Calculator Variable	Input	Explanation	Reference document/s
Impact description	Clearing of a threatened ecological community for construction of the revised Project	Residual impact on Bluegrass dominant grasslands in revised Project area (40.1 ha). The community is present in scattered areas along Lagoon Creek and patch in Manning Vale west pit.	Appendix H.1 MNES Report.
Impact area	40.1 ha residual	Field surveys to confirm presence of Bluegrass dominant grasslands community,	Appendix H.1 MNES Report;

Calculator Variable	Input	Explanation	Reference document/s
	impact	consistent with listing advice. Condition of vegetation was recorded by BioCondition surveys (Eyre et al. 2011) and by using the listing advice condition criteria.	Appendix G Terrestrial Ecology Field Survey Results BioCondition – A Condition Assessment Framework for Terrestrial Biodiversity in Queensland – Assessment Manual (Eyre et al. 2011)
Quality of vegetation impacted (0-10)	5	Components of habitat quality for consideration in the EPBC Act offsets assessment guide include site condition, site context and species stocking rate. Site condition - Condition of the vegetation was found to be impacted by clearing, weed infestation and grazing. Site condition score 6. Site context – Patches of the community are scattered and fragmented across the landscape, with limited connection to other areas of vegetation. Site condition score 5. Species stocking rate – Surveys found a dominance of common species, with no listed fauna and one listed flora species. The species stocking rate is considered to be low. Species stocking rate is 4. The average score across the three components is 5.	
Proposed offset Area	90 ha	This is the area of the grassland community that NAC has on its land, adjacent to the revised Project.	
Risk related time horizon	20 years	Offset will be secured “in perpetuity” so the maximum timeframe has been used.	
Time until ecological benefit	15 years	The time until benefit is 15 years, as the grassland community will be present within the offset sites, however will require management of weeds and grazing the achieve the realisation of the offset objectives.	
Start area	90 ha	This is the area of the grassland community that NAC has on its land, adjacent to the	

Calculator Variable	Input	Explanation	Reference document/s
		revised Project.	
Start quality	4	The start quality has been derived from surveys of the disturbance area of the revised Project. The start quality of 4 reflects that there is encroachment of woody vegetation at the edges of some of the community, use of the community for grazing and the widespread presence of weeds that compete with native species within the community.	
Risk of loss (%) without offset	15%	The risk of loss without an offset is estimated to be 15% on the basis that the loss of the community from clearing is low due to the operation of clearing controls (Qld Vegetation Management Act and Cth EPBC Act). This level of risk has been assigned as the clearing of vegetation at the offset sites needs planning approval from the State and Commonwealth governments, as it is both remnant vegetation and a threatened ecological community. While approval for the clearing of vegetation is possible, an applicant will need to provide information to the regulators on the impact of the development of the values of the vegetation and provide an offset for the residual impact of the clearing.	
Future quality without offset (scale of 0-10)	3	The future quality of the vegetation is anticipated to decline slightly over the 15 year period of the evaluation. This is as a result of the gradual increase in impact of weeds and grazing.	
Risk of loss (%) with offset	5%	Risk of loss of the grassland community at an offset site is considered to be 5%. The offset site will be protected and managed to improve the quality of the community. A covenant placed on title of the offset property will avert the risk of loss of the offset area as the landowner will not be able to obtain development approval that has an impact on the offset.	
Future quality with offset (scale	8	The future quality of the offset vegetation will be 8. This is on the basis that the grassland community is present at the site	

Calculator Variable	Input	Explanation	Reference document/s
of 0-10)		and will respond to management and removal of threats (weeds, grazing) to lead to regeneration of the community.	
Confidence in result (quality)	75%	Confidence in the quality result is rated at 75%, as the sites have been surveyed and there is knowledge of the current state of both the impact area and offset area.	
Confidence in result (risk of loss)	75%	Confidence in the risk result is rated at 75%, as there is knowledge of the management of the impact and offset sites and the risks that are present with the management of the offset.	

EPBC Calculator Inputs - Homopholis belsonii

Calculator Variable	Input	Explanation	Reference document/s
Impact description	Clearing of a threatened species for construction of the revised Project	Residual impact on *Homopholis belsonii* in revised Project area (70.8 ha). The species is associated with poplar box woodland (RE 11.3.2), mountain coolibah woodland (RE11.8.5), poplar box/brigalow woodland (RE11.3.17) and brigalow/poplar box open forest (RE 11.9.10).	Appendix H.1 MNES Report.
Impact area	70.8 ha residual impact	Field surveys to confirm presence of *Homopholis belsonii*.	Appendix H.1 MNES Report; Appendix G Terrestrial Ecology Field Survey Results BioCondition – A Condition Assessment Framework for Terrestrial Biodiversity in Queensland – Assessment Manual (Eyre et al. 2011)
Quality of vegetation impacted (0-10)	5	Components of habitat quality for consideration in the EPBC Act offsets assessment guide include site condition, site context and species stocking rate. Site condition - Condition of the vegetation was found to be impacted by clearing, weed	

Calculator Variable	Input	Explanation	Reference document/s
		infestation and grazing. Site condition score 6. Site context – Patches of the community are scattered and fragmented across the landscape, with limited connection to other areas of vegetation. Site condition score 4. Species stocking rate – Surveys found a dominance of common species, with no listed fauna and one listed flora species. The species stocking rate is considered to be medium. Species stocking rate is 5. The average score across the three components is 5.	
Proposed offset Area	Proposed offset areas	90 ha	
Risk related time horizon	20 years	Offset will be secured "in perpetuity" so the maximum timeframe has been used.	
Time until ecological benefit	15 years	The time until benefit is 15 years, to allow for the successful establishment of the species at offset sites and for the plants to reproduce.	
Start area	Proposed offset areas	87 ha	
Start quality	4	The start quality has been derived from surveys of the disturbance area of the revised Project. The start quality of 4 reflects that there is encroachment of woody vegetation at the edges of some of the communities in which *Homopholis belsonii* is located, use of the community for grazing and the widespread presence of weeds that compete with *Homopholis belsonii* within the communities.	
Risk of loss (%) without offset	15%	The risk of loss of the species without an offset is estimated to be 15% on the basis that the loss of the species from clearing is low due to the operation of clearing controls (Qld Nature Conservation Act and Cth EPBC Act). This level of risk has been assigned as the clearing of the species on the offset properties needs planning approval from the State and Commonwealth governments, as the species is a listed under both Queensland and Commonwealth legislation.	

Calculator Variable	Input	Explanation	Reference document/s
		While approval for the clearing of vegetation is possible, an applicant will need to provide information to the regulators on the impact of the development of the values of the species and provide an offset for the residual impact of the clearing.	
Future quality without offset (scale of 0-10)	3	The future quality of the vegetation community in which the species is found is anticipated to decline slightly over the 15 year period of the evaluation. This is as a result of the gradual increase in impact of weeds and grazing.	
Risk of loss (%) with offset	5%	Risk of loss of the species at an offset site is considered to be 5%. The offset site will be protected and managed to improve the quality of the community. A covenant placed on title of the offset property will avert the risk of loss of the offset area as the landowner will not be able to obtain development approval that has an impact on the offset.	
Future quality with offset (scale of 0-10)	8	The future quality of the offset vegetation will be 8. This is on the basis that the community in which the species is present at the site and will respond to management and removal of threats (weeds, grazing) to lead to regeneration of the species. The species will also be translocated where it will establish additional communities of the species.	
Confidence in result (quality)	85%	Confidence in the quality result is rated at 85%, as the sites have been surveyed and there is knowledge of the current state of both the impact area and offset area.	
Confidence in result (risk of loss)	85%	Confidence in the risk result is rated at 85%, as there is knowledge of the management of the impact and offset sites and the risks that are present with the management of the offset.	

EPBC Calculator Inputs - Digitaria porrecta

Calculator Variable	Input	Explanation	Reference document/s
Impact description	Clearing of a threatened species for	Residual impact on *Digitaria porrecta* in revised Project area (101 ha). The species is associated with poplar box woodland (RE	Appendix H.1 MNES Report.

Calculator Variable	Input	Explanation	Reference document/s
	construction of the revised Project	11.3.2), mountain coolibah woodland (RE 11.8.5), poplar box/brigalow woodland (RE 11.3.17) and bluegrass dominant native grassland (RE 11.3.21).	
Impact area	101 ha residual impact	Field surveys to confirm presence of *Digitaria porrecta*.	Appendix H.1 MNES Report; Appendix G Terrestrial Ecology Field Survey Results BioCondition – A Condition Assessment Framework for Terrestrial Biodiversity in Queensland – Assessment Manual (Eyre et al. 2011)
Quality of vegetation impacted (0-10)	5	Components of habitat quality for consideration in the EPBC Act offsets assessment guide include site condition, site context and species stocking rate. Site condition - Condition of the vegetation was found to be impacted by clearing, weed infestation and grazing. Site condition score 6. Site context – Patches of the community are scattered and fragmented across the landscape, with limited connection to other areas of vegetation. Site condition score 4. Species stocking rate – Surveys found a dominance of common species, with no listed fauna and one listed flora species. The species stocking rate is considered to be medium. Species stocking rate is 5. The average score across the three components is 5.	Appendix G Terrestrial Ecology Field Survey Results Ecological Equivalence Methodology Guideline Version 1 (DERM, 2011)
Proposed offset Area	Proposed offset area	165 ha	
Risk related time horizon	20 years	Offset will be secured “in perpetuity” so the maximum timeframe has been used.	
Time until ecological benefit	15 years	The time until benefit is 15 years, to allow for the successful establishment of the species at offset sites and for the plants to	

Calculator Variable	Input	Explanation	Reference document/s
		reproduce.	
Start area	Proposed offset area	165 ha	
Start quality	4	The start quality has been derived from surveys of the disturbance area of the revised Project. The start quality of 4 reflects that there is encroachment of woody vegetation at the edges of some of the communities in which *Digitaria porrecta* is located, use of the community for grazing and the widespread presence of weeds that compete with *Digitaria porrecta* within the communities.	
Risk of loss (%) without offset	15%	The risk of loss of the species without an offset is estimated to be 15% on the basis that the loss of the species from clearing is low due to the operation of clearing controls (Qld Nature Conservation Act and Cth EPBC Act). This level of risk has been assigned as the clearing of the species on the offset properties needs planning approval from the State and Commonwealth governments, as the species is a listed under both Queensland and Commonwealth legislation. While approval for the clearing of vegetation is possible, an applicant will need to provide information to the regulators on the impact of the development of the values of the species and provide an offset for the residual impact of the clearing.	
Future quality without offset (scale of 0-10)	3	The future quality of the vegetation community in which the species is found is anticipated to decline slightly over the 15 year period of the evaluation. This is as a result of the gradual increase in impact of weeds and grazing.	
Risk of loss (%) with offset	5%	Risk of loss of the species at an offset site is considered to be 5%. The offset site will be protected and managed to improve the quality of the community. A covenant placed on title of the offset property will avert the risk of loss of the offset area as the landowner will not be able to obtain development approval that has an impact	

Calculator Variable	Input	Explanation	Reference document/s
		on the offset.	
Future quality with offset (scale of 0-10)	8	The future quality of the offset vegetation will be 8. This is on the basis that the community in which the species is present at the site and will respond to management and removal of threats (weeds, grazing) to lead to regeneration of the species. The species will also be translocated where it will establish additional communities of the species.	
Confidence in result (quality)	80%	Confidence in the quality result is rated at 80%, as the sites have been surveyed and there is knowledge of the current state of both the impact area and offset area.	
Confidence in result (risk of loss)	80%	Confidence in the risk result is rated at 80%, as there is knowledge of the management of the impact and offset sites and the risks that are present with the management of the offset.	

EPBC Calculator Inputs - Bothriochloa biloba

Calculator Variable	Input	Explanation	Reference document/s
Impact description	Clearing of a threatened species for construction of the revised Project	Residual impact on *Bothriochloa biloba* in revised Project area (35.9 ha). The species is associated with bluegrass dominant native grassland (RE 11.3.21)	Appendix H.1 MNES Report.
Impact area	35.9 ha residual impact	Field surveys to confirm presence of *Bothriochloa biloba*.	Appendix H.1 MNES Report; Appendix G Terrestrial Ecology Field Survey Results BioCondition – A Condition Assessment Framework for Terrestrial Biodiversity in Queensland – Assessment Manual (Eyre et al. 2011)

Calculator Variable	Input	Explanation	Reference document/s
Quality of vegetation impacted (0-10)	5	Components of habitat quality for consideration in the EPBC Act offsets assessment guide include site condition, site context and species stocking rate. Site condition - Condition of the vegetation was found to be impacted by clearing, weed infestation and grazing. Site condition score 6. Site context – Patches of the community are scattered and fragmented across the landscape, with limited connection to other areas of vegetation. Site condition score 4. Species stocking rate – Surveys found a dominance of common species, with no listed fauna and one listed flora species. The species stocking rate is considered to be medium. Species stocking rate is 5. The average score across the three components is 5.	
Proposed offset Area	Proposed offset area	70 ha	
Risk related time horizon	20 years	Offset will be secured "in perpetuity" so the maximum timeframe has been used.	
Time until ecological benefit	15 years	The time until benefit is 15 years, to allow for the successful establishment of the species at offset sites and for the plants to reproduce.	
Start area	Proposed offset area	70 ha	
Start quality	4	The start quality has been derived from surveys of the disturbance area of the revised Project. The start quality of 4 reflects that there is encroachment of woody vegetation at the edges of some of the communities in which *Bothriochloa biloba* is located, use of the community for grazing and the widespread presence of weeds that compete with *Bothriochloa biloba* within the communities.	
Risk of loss (%) without offset	15%	The risk of loss of the species without an offset is estimated to be 15% on the basis that the loss of the species from clearing is low due to the operation of clearing controls (Qld Nature Conservation Act and Cth EPBC Act).	

Calculator Variable	Input	Explanation	Reference document/s
		This level of risk has been assigned as the clearing of the species on the offset properties needs planning approval from the State and Commonwealth governments, as the species is a listed under both Queensland and Commonwealth legislation. While approval for the clearing of vegetation is possible, an applicant will need to provide information to the regulators on the impact of the development of the values of the species and provide an offset for the residual impact of the clearing.	
Future quality without offset (scale of 0-10)	3	The future quality of the vegetation community in which the species is found is anticipated to decline slightly over the 15 year period of the evaluation. This is as a result of the gradual increase in impact of weeds and grazing.	
Risk of loss (%) with offset	5%	Risk of loss of the species at an offset site is considered to be 5%. The offset site will be protected and managed to improve the quality of the community. A covenant placed on title of the offset property will avert the risk of loss of the offset area as the landowner will not be able to obtain development approval that has an impact on the offset.	
Future quality with offset (scale of 0-10)	8	The future quality of the offset vegetation will be 8. This is on the basis that the community in which the species is present at the site and will respond to management and removal of threats (weeds, grazing) to lead to regeneration of the species. The species will also be translocated where it will establish additional communities of the species.	
Confidence in result (quality)	80%	Confidence in the quality result is rated at 80%, as the sites have been surveyed and there is knowledge of the current state of both the impact area and offset area.	
Confidence in result (risk of loss)	80%	Confidence in the risk result is rated at 80%, as there is knowledge of the management of the impact and offset sites and the risks that are present with the management of the offset.	