BENGALLA MINE

DEVELOPMENT CONSENT MODIFICATION
Response to Submissions

for

Bengalla Mining Company Pty Limited

October 2015

Hansen Bailey

ENVIRONMENTAL CONSULTANTS

BENGALLA MINE

DEVELOPMENT CONSENT MODIFICATION

RESPONSE TO SUBMISSIONS

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15 October 2015

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RESPONSE TO SUBMISSIONS

for

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1 INTRODUCTION

This section outlines the status of Bengalla in the approvals process and explains the purpose of this Response to Submissions (RTS) document.

1.1 BACKGROUND

Bengalla Mining Company Pty Limited (BMC) operates the Bengalla Mine (Bengalla) in the Upper Hunter Valley of NSW. Bengalla is situated approximately 130 kilometres (km) north-west of Newcastle and 4 km west of the township of Muswellbrook.

In 2013, BMC sought a new Development Consent under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to enable continued mining operations at Bengalla for a further 24 years.

On 3 March 2015, BMC was granted Development Consent State Significant Development (SSD-5170) by the Secretary of the Department of Planning and Environment (DP&E). This consent authorised the continued operations at up to 15 Million tonnes per annum (Mtpa) of Run of Mine (ROM) coal until 2039. The application for development consent was supported by the *'Continuation of Bengalla Mine Environmental Impact Statement'* (Bengalla EIS) (Hansen Bailey, 2013).

On 12 August 2015, BMC made an application for the Modification of SSD-5170 under section 96(2) of the EP&A Act. The application for development consent modification was supported by the *'Bengalla Development Consent Modification Statement of Environmental Effects'* (Modification SEE) (Hansen Bailey, 2015).

The Modification SEE is being sought to facilitate:

- Alterations to various water management infrastructure components including:
    - Utilisation of the Satellite Pit as a temporary dirty water catchment dam;
    - Relocation of the Staged Discharge Dam Hunter River Salinity Trading Scheme (HRSTS) staged discharge release point;
    - Construction of clean water diversion levees in locations other than those already approved; and
    - Revised locations for the proposed relocation of the Hunter River and Washery Dams.

- Additional locations for the siting of the Explosives Storage Facility; and
- The placement of fill from the excavation of Clean Water Dam 1 (CW1) adjacent to it.

The Modification SEE was placed on public exhibition from Thursday 20 August until Monday 7 September 2015. A total of nine regulatory submissions were received by DP&E following the public exhibition of the Modification SEE. No submissions from the general public, special interest groups or non-government organisations were received.

1.2 DOCUMENT PURPOSE

This RTS has been prepared by Hansen Bailey Environmental Consultants (Hansen Bailey) on behalf of BMC to support the Modification to SSD-5170 currently being sought under section 96(2) of the EP&A Act. The document responds to the submissions raised by regulatory stakeholders during the public exhibition period.

1.3 DOCUMENT STRUCTURE

This RTS is structured as follows:

- **Section 2** outlines of the submissions received from stakeholders;
- **Section 3** provides comprehensive responses to the issues raised by regulatory agencies;
- **Section 4** provides a conclusion to the RTS;
- **Section 5** lists the abbreviations used within this RTS; and;
- **Section 6** outlines all materials referenced within this RTS.

Appendix A provides a copy of each original submission received in relation to the Modification SEE.

Appendix B provides a design drawing of the CW1 Emplacement Area - General Arrangement.

2 SUBMISSIONS RECEIVED

This section provides a summary of the submissions received in relation to the Modification SEE.

2.1 SUMMARY OF SUBMISSIONS

Following public exhibition of the Modification SEE, a total of nine submissions from regulatory agencies were received. In addition, DP&E has also requested several additional items of information.

No submissions from the general public, special interest groups or non-government organisations were received.

All original submissions are included in **Appendix A**.

2.2 REGULATORY AGENCIES

The following regulatory agencies provided a submission in relation to the Modification SEE:

- Commonwealth Department of the Environment (DoE);
- NSW Environment Protection Authority (EPA);
- Office of Environment and Heritage (OEH);
- Department of Industry, Resources and Energy (DRE);
- Muswellbrook Shire Council (MSC);
- NSW Health, Hunter New England Local Health District;
- Department of Primary Industries - NSW Office of Water (NOW); and
- Dams Safety Committee (DSC); and
- Roads and Maritime Services (RMS).

All relevant components of the regulator submissions have been addressed within this report.

3 REGULATORY SUBMISSIONS

*This section responds to the submissions received from regulatory authorities identified in **Section 2.2**. A response to each of the issues identified from each regulator is provided below. The original submissions are presented in **Appendix A**.*

3.1 DEPARTMENT OF PLANNING AND ENVIRONMENT

3.1.1 Additional Clarification

Issue

DP&E have requested additional clarification in regard to the following items:

1. *Provide a new figure showing the Project Boundary and the mining titles within it (request via email dated 15 September 2015).*
2. *Identify the areas within the catchment for the Satellite Pit that will generate clean or dirty water. A figure or figures showing the catchment and which sections are clean water and which are dirty water would be beneficial (request via email dated 15 September 2015).*
3. *Update the water balance to include inputs from captured dirty water and the outputs for watering of rehabilitation. Demonstrate how the 2,702 general water access licence units held by licensees of BMC can be used for mining purposes (request via email dated 15 September 2015).*
4. *Provide an expanded justification for using Satellite Pit as a temporary water storage. Further explanation of the activities in the catchment which cause the Satellite Pit Diversion Dam to be unsuitable is required (request via email dated 15 September 2015).*
5. *Provide an updated comparison of the approved biodiversity offset and the modified total area of disturbance and unmodified area of disturbance. A table format would be suitable, comparing each vegetation community (request via email dated 15 September 2015).*
6. *Include a comparison to the approved disturbance area of the Mt Pleasant mine to the proposed disturbance area for the diversion drains for CW -1 (request via email dated 16 September 2015).*
7. *Expand upon justification and findings of the hazard analysis associated with the new location for explosives facility. In particular the proximity to Bengalla Road (request via email dated 15 September 2015).*

Response

1. A figure depicting the Project Boundary along with existing mining authorisations and those mining lease application areas currently being sought is provided on **Figure 1**.
2. Addressed in **Section 3.6** and **Figure 2.**
3. Addressed in **Section 3.6**.
4. Addressed in **Section 3.2**.

5. Addressed in **Section 3.4.3**.
6. Addressed in **Section 3.4.3**.
7. Explosives Storage Facility – see below.

The final location of the Explosives Storage Facility is still being investigated by BMC. As noted in Section 3.3 and Section 6.7.1 of the Modification SEE the alternate location, to be positioned within the Explosives Storage Facility Envelope, will be constructed in accordance with AS 2187:1998 *Explosives - Storage, Transport and Use – Storage* and relevant NSW Occupational Health and Safety (OH&S) regulations.

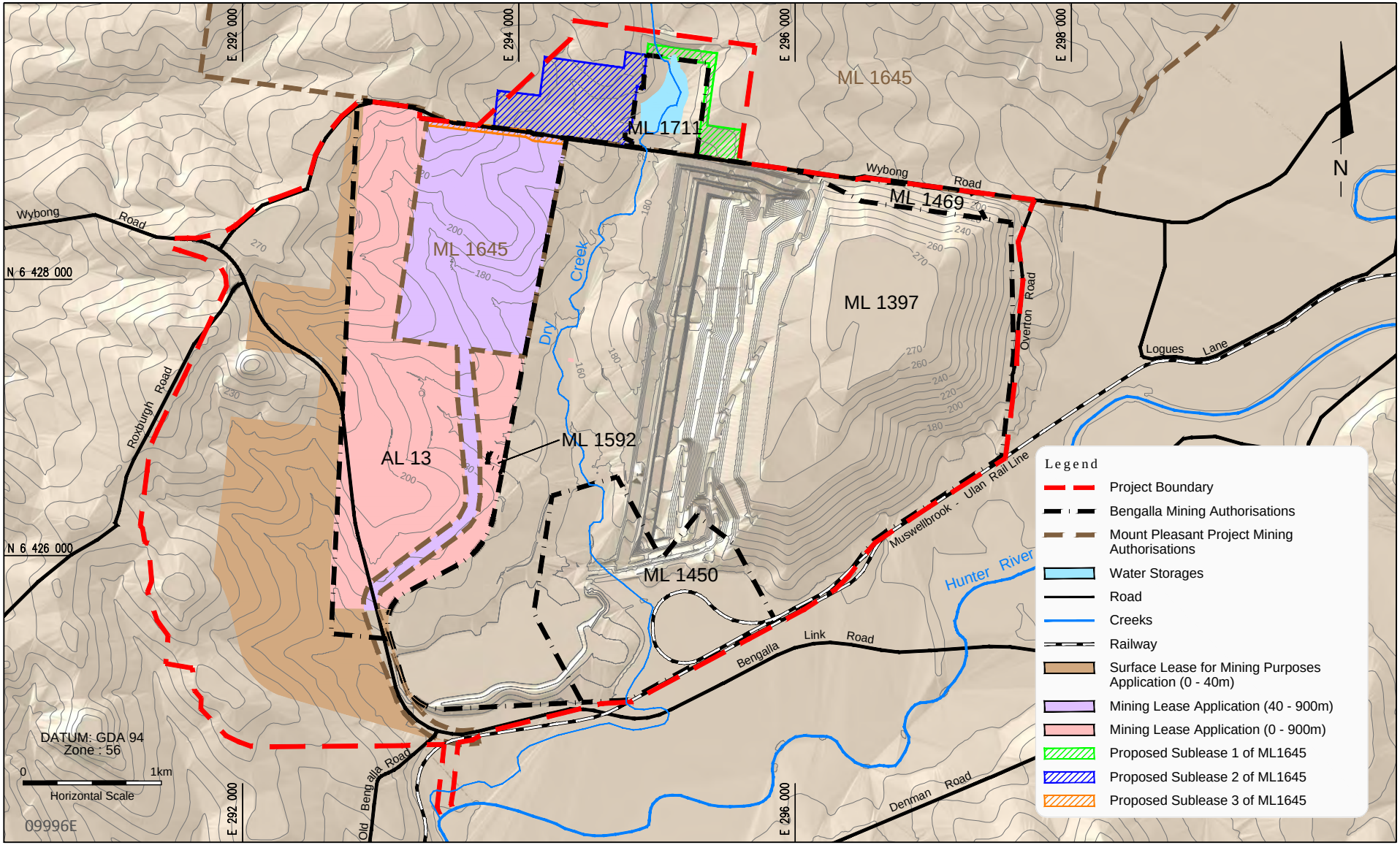
The Explosives Storage Facility Envelope is situated in the central portion of the approved Disturbance Boundary area and is approximately 1 km from its existing position. The Explosives Storage Facility Envelope will provide efficient and safe access by light and heavy vehicles by limiting travel via active open cut mining areas and the Main OEA. The Modification will not require any other changes to the approved storage capacity, type or use of explosives.

Considerations regarding the final location of the Explosives Storage Facility within the envelope includes the proximity of the Explosives Storage Facility to the Bengalla Road. It is anticipated that the Explosives Storage Facility will be sited appropriately from the Bengalla Road consistent with necessary storage and locations guidelines.

BMC currently holds two licences to store explosives and associated materials, being 07-100151-001 and XSTR100151 for the existing Bengalla Explosive Precursor Storage Facility and Explosives Storage Facility respectively.

BMC will ensure the relocated Explosives Storage Facility will be consistent with the general arrangement of the existing facility. The relocated Explosives Storage Facility will be securely fenced and enclosed by an earthen safety bund. Appropriately qualified and licensed contract personnel will access the area and handle explosive materials and explosive precursors. All storage facilities will satisfy the following requirements:

- Facilities will be designed, constructed, inspected and maintained in accordance with the requirements of the Dangerous Goods Act and the relevant Australian Standards;
- All facilities will be secure and protected from damage and theft;
- Designs will ensure appropriate access for firefighting;
- Where possible any chemical containers and storage facilities will be designed to minimise any physical damage due to temperature extremes, moisture, corrosive mists or vapours and vehicles; and
- All substances shall be stored in the areas or facilities provided.



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Mining Lease Applications and Transfers

FIGURE 1

3.2 DEPARTMENT OF THE ENVIRONMENT

3.2.1 EPBC Approval 2012/6378

Issue

The Department would like to offer the following comments for your consideration:

- *Implementation of the Modification may result in inconsistencies with the EPBC Approval 2012/6378 (EPBC approval) as follows:*
    - *Removal of vegetation beyond the clearance boundary defined in Condition 1 and Schedule 1*
    - *Clearance of 6 hectares (ha) of critically endangered White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum Woodland) and habitat for EPBC-listed species, if this causes the clearing limits specified in Conditions 1 and 3 to be exceeded*
- *EPBC conditions 5, 6 and 7 require compliance with NSW development consent conditions 23 to 25 and/or 44 to 46 (Schedule 3), dated 3 March 2015. Modification of these development consent conditions may necessitate review of the EPBC approval conditions to ensure that residual impacts to EPBC matters are not significant;*
- *Use of the satellite pit as a replacement water storage for the Satellite Pit Diversion Dam may increase the volume of mine affected water generated by the project and decrease the volume of clean water discharged to the Hunter River. The Department notes the proponent's assessment that this part of the modification is necessary to avoid the discharge of sediment and mine affected water into the Hunter River: however, the rationale for this statement is unclear in the absence of changes to coal extraction volumes and rates. The Department suggests that further clarification is sought in relation to any changes mine affected water generation and handling, together with identification of any changes to the volume of clean water captured and discharged from the site, to assist assessment of the likelihood and significance of impacts to water resources.*

Response

In regard to Point 1, BMC engaged ecological experts Cumberland Ecology to undertake an Assessment of Significance for EPBC Act listed species and communities as part of this Modification. As detailed in the Modification SEE Ecological Impact Assessment, Cumberland Ecology have determined that, providing that the recommended mitigation measures are implemented, the Modification will not result in a significant impact to EPBC listed species or communities. The detailed results from the EPBC Assessment of Significance are contained within Appendix C of the Modification SEE.

Points 2 is noted.

In regard to Point 3, Section 4.4.1 of the SEE noted the activities, subject of this Modification, do not include the extraction of any additional coal. They relate purely to *"associated infrastructure that is not part of the extraction process"* (the extraction process itself was all assessed and approved under EPBC 2012/6378).

BMC notes that the Modification will not require the use of any additional water to facilitate the operation but rather only changes to the location and timing from which water is sourced and or directed.

Figure 2 presents the 'mine water management catchment area' associated with the Modification Year 4 Mine Plan. This mine water management catchment area presents the proposed changes to the water management system as sought in this Modification. Surface water runoff captured in the mine water management catchment area has been included in the revised Site Water Balance.

The rationale for the change to the surface water management regime was a more detailed design of mining activities to be undertaken in the areas west of active mining demonstrated that a more efficient and effective design of that water management regime which provided greater protection to the nearby Hunter River was available (namely that proposed in the Modification). The detailed design demonstrated that a larger part of the area west of active mining will be effected earlier by mining activities than was previously envisaged.

In comparison to the approved operations the proposed change to the mine water management system results in the following changes to the external water supply requirements as modelled in the revised Site Water Balance:

External Water Supply Requirements

- The median (50th percentile) raw water requirement from an external source is between 1,200 and 1,500 ML/a during Years 5 to 24 (currently approximately 1,500 ML/a); and
- The 99th percentile raw water requirement from an external source is between 1,800 ML/a and 1,950 ML/a during Years 5 to 24 (currently 2,200 ML/a).

As can be seen above the Modification will result in a general decrease in requirement to source water from the Hunter River due to the increased surface water catchment due to increase in dirty water proposed to be intercepted by mining activities as a consequence of the Modification.

Detailed results from the revised Site Water Balance are detailed in the Surface Water Impact Assessment (WRM, 2015) and are summarised in Section 6.2 of the Modification SEE.

Additional Justification

BMC has existing obligations under SSD-5170 and Environment Protection Licence (EPL 6538). The SSD-5170 and EPL 6538 contains obligations specific to water management at the BMC premises. For example under section 120 of the NSW *Protection of the Environment Operations Act 1997* (POEO Act) BMC is required to prevent the pollution of

waters. In the context of mining activities, wherever there is the possibility of surface water run off from areas where mining activities are occurring and there is the possibility of those surface waters being sediment laden water (dirty water) then there will (in general) be a need for BMC to control (or catch) those waters to prevent their infiltration into the environment. Any release of waters by the BMC at the premises can only occur with the authority of EPL 6538. Specifically:

- EPL 6538. Condition 3, clause L1.1 provides that the licensee must comply with section 120 of the POEO Act;
- SSD-5170. Condition 23 of Schedule 3 provides 'Unless an EPL or the EPA authorises otherwise, the Applicant shall comply with section 120 of the POEO Act and the *Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002*'; and
- SSD-5170. Condition 24 Schedule 3 provides that 'The Applicant shall ensure mining operations comply with the [following] performance measures … *to the satisfaction of the Secretary Maximise as far as reasonable and feasible the diversion of clean water around disturbed areas on site … Design, install and maintain any temporary clean water diversion infrastructure to minimise erosion potential at discharge locations'*.

The Modification Overview Year 4 Mine Plan (see **Figure 2**) details a number of mining activities that will generate sediment laden water (dirty water) that BMC is obligated to control as identified by the 'mine water management catchment area'. The control of that sediment laden water (dirty water) will occur within the BMC mine water management system. The water contained within the BMC mine water management system cannot be mixed with clean water. It is not possible for the mining activities described in the Modification SEE to occur with the currently approved Satellite Pit Diversion Dam remaining a clean water dam. Therefore the Satellite Pit Diversion Dam is not required and the sediment laden water (dirty water) will be controlled (caught) by the Satellite Pit and then that water integrated into the BMC mine water management system.

3.3 NSW ENVIRONMENT PROTECTION AUTHORITY

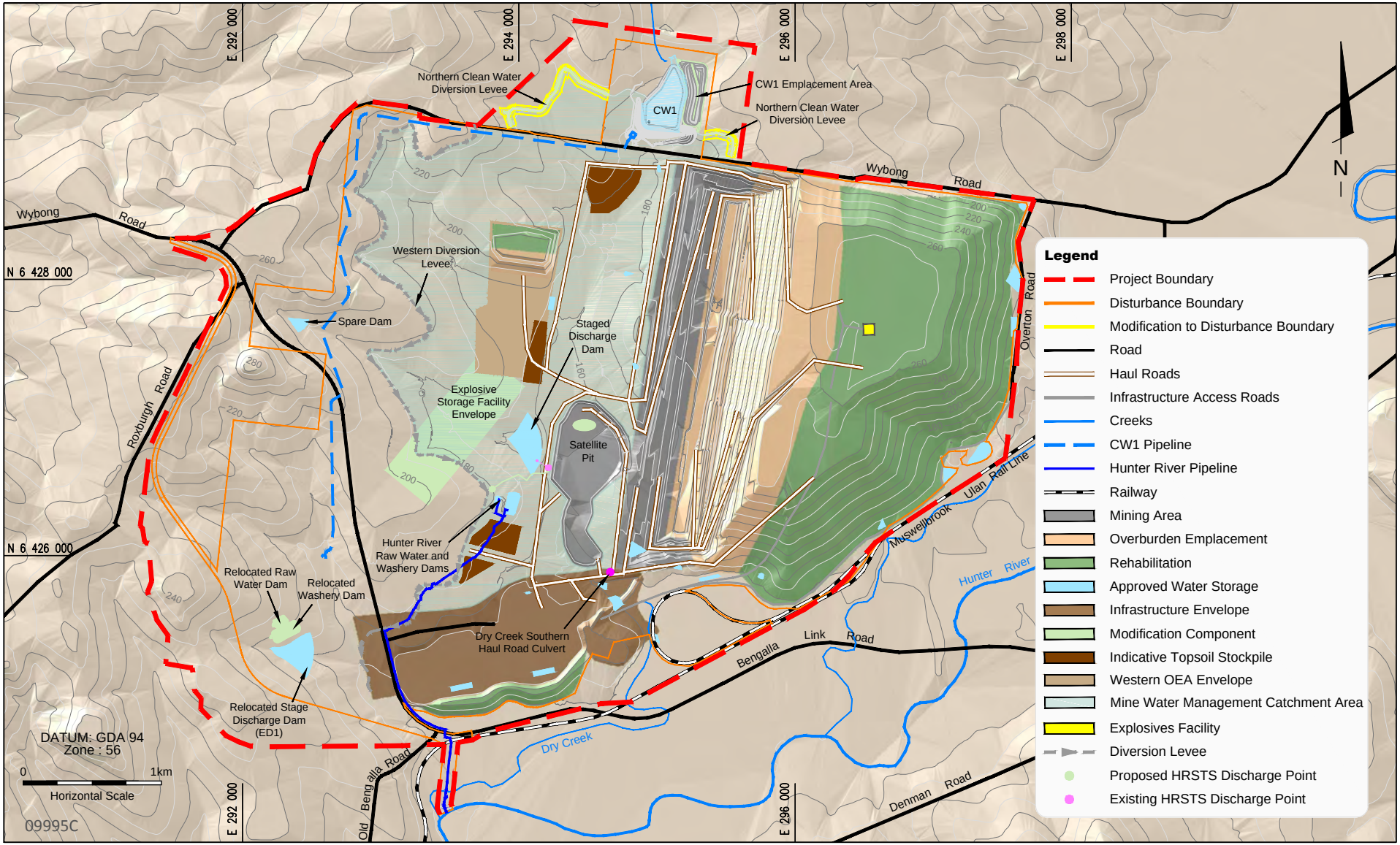
3.3.1 HRSTS Discharge Monitoring Location

Issue

The SEE details the proposed relocation of the HRSTS discharge monitoring point. The licensee will be required to submit a licence variation application for EPL 6538 under the Protection of the Environment Operations Act 1997 (POEO Act) to authorise the relocation of the HRSTS discharge and monitoring point.

Response

Noted. BMC will submit to the EPA a licence variation application for EPL 6538 prior to the relocation of the Bengalla HRSTS discharge and associated monitoring point.



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Modification Overview Year 4 Mine Plan

FIGURE 2

3.4 OFFICE OF ENVIRONMENT AND HERITAGE

3.4.1 Aboriginal Cultural Heritage Assessment

Issue

OEH supports the management and mitigation measures provided for Aboriginal archaeology and cultural heritage items as described in the Modification SEE. OEH has no additional recommendations or concerns with respect to Aboriginal cultural heritage and the proposed development consent modification.

Response

Noted.

3.4.2 Flooding and Floodplain Management

Issue

OEH found that the floodplain management components of the SEE are generally supported by OEH.

Response

Noted.

3.4.3 Threatened Species

Issue

OEH noted that the Modification would result in the clearance of 9.1 ha of land to construct the two clean water diversion levees in the Dry Creek catchment. About 6.1 ha of the new development footprint is White Box-Yellow Box-Blakely's Red Gum Grassy Woodland Endangered Ecological Community (Box Gum Woodland EEC). OEH noted that the assessment of the additional EEC vegetation was considered 'not significant' and thus no biodiversity offset was proposed. The assessment was anecdotal, and not based on the 'NSW Biodiversity Offsets Policy for Major Projects' (OEH 2014a).

Under the current biodiversity offsets policy the scale of any likely impact on threatened biodiversity is measured by the 'Framework for Biodiversity Assessment' (OEH 2014b). This requires an assessment of a project using the BioBanking credit calculator and the provisions of specific data in a 'Biodiversity Assessment Report'.

In reviewing the proposal under the current biodiversity offsetting policy OEH notes that the assessment has not followed the requirements of this policy; particularly that no BioBanking credit calculator assessment was provided, that few of the requirements of the Biodiversity Assessment Report have been met, and that no biodiversity offsets have been proposed.

Response

Ecological Impact Assessment Outcome

An Ecological Impact Assessment was completed by Cumberland Ecology (Cumberland Ecology, 2015) for the Modification and was presented in Appendix C. The Modification to Disturbance Boundary area contains a total of 6.1 ha of vegetation which conforms to the Grey Box/White Box Intergrade Grassy Woodland and Derived Native Grassland (Box Gum Woodland and Derived Native Grassland), listed as an EEC and CEEC under both the TSC Act and EPBC Act respectively. The Ecological Impact Assessment considered the direct and indirect impacts within the Assessments of Significance for both TSC Act and EPBC Act listed communities.

The Ecological Impact Assessment concluded that providing that the recommended mitigation measures are implemented, the Modification was not considered to result in a significant impact to Box Gum Woodland and Derived Native Grassland. As a result of this no compensation measures were proposed for the Modification.

Framework for Biodiversity Assessment Outcome

In their submission, OEH notes that the Ecological Impact Assessment completed for the Modification SEE did not utilise the *NSW Biodiversity Offsets Policy for Major Projects* and *Framework for Biodiversity Assessment* to generate a Biodiversity Assessment Report. OEH further notes that if the BioBanking Assessment Methodology was applied (assuming the clearance of 9.07 ha of vegetation all assigned to HU 701) this would generate 139 ecosystem credits.

Discussion

Beyond the fact that the Ecological Impact Assessment has concluded that the Modification is not considered to result in a significant impact to Box Gum Woodland and Derived Native Grassland two other factors support the reasoning that no further compensatory measures are necessary, these are:

- The scale of the existing approved Biodiversity Offset Strategy (BOS) as detailed in the *Continuation of Bengalla Mine Response to Submissions* (Bengalla RTS) (Hansen Bailey, 2014) and listed in SSD-5170 and EPBC Approval 2012/6378; and
- A consideration of the already approved operations associated with the adjacent Mount Pleasant Project.

The following sections discuss these two components in the context of the additional disturbance proposed by the Modification.

Existing Approved Biodiversity Offset Strategy and Assessment Methodology

The Bengalla RTS provided a detailed account of the Bengalla BOS developed to compensate for the impacts arising from the Continuation of Bengalla Mine Project (BCMP). The existing approved BOS contains a total of 6,215 ha of land and extends over three distinct Biodiversity Offset Areas, described as follows:

- Kenalea Properties Offset Area (4,097 ha);
- Black Mountain Offset Area (1,222 ha); and
- Merriwa River Offset Area (897 ha).

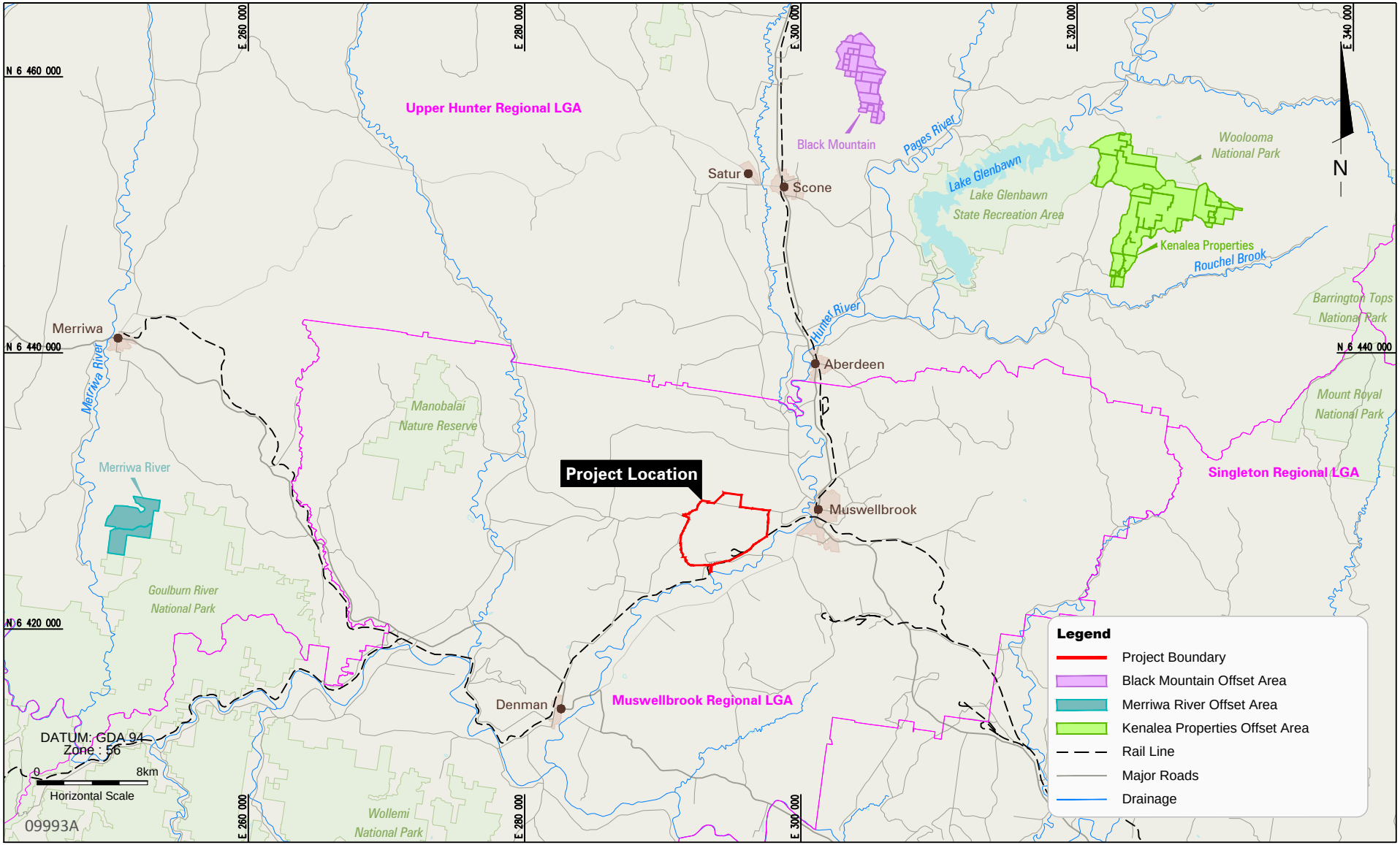
The locations of the Biodiversity Offset Areas are shown in **Figure 3**.

The Biodiversity Offset Areas include areas of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (DNG) (referred to hereafter as "Box Gum Woodland and Derived Native Grassland"). This is listed as a C/EEC under both TSC and EPBC Acts.

The Biodiversity Offset Areas contain 1,720 ha of Box Gum Woodland C/EEC and 1,500 ha of Derived Native Grassland C/EEC and a total of 6,215 ha of Native Remnant Vegetation (including 2,508 ha of non-EEC listed native woodland/open forest). A detailed list of the vegetation communities present on the BOS is provided in **Table 1**.

All threatened flora and fauna species that are predicted to be impacted by the BCMP were known or considered likely to occur on the Biodiversity Offset Areas. The fauna investigations illustrated that all Biodiversity Offset Areas contain excellent habitat for threatened species including the orchid *Cymbidium canaliculatum,* woodland birds, woodland bats and Squirrel Glider. *Cymbidium canaliculatum* and 11 of the threatened fauna species, known or likely to occur within the BCMP Disturbance Boundary were recorded within the BOS along with an additional six threatened species not known within the Disturbance Boundary including Spotted-tailed Quoll, Greater Long-eared Bat and Large-eared Pied-bat.

The Biodiversity Offset Areas were assessed against NSW state and Federal offsetting requirements (available at the time) to assist in evaluating the type and quantum of offsets required. These methods included assessment of the vegetation removal against OEH's *Principles for the Use of Biodiversity Offsets in NSW* (13 Principles), *NSW Offset Principles for Major Projects* (7 Principles), *NSW OEH Interim Policy on Assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State Significant Infrastructure (SSI) Projects* (Chief Executive Officer OEH, 2011) (including BioBanking assessments) along with assessment against DoE's EPBC Act *Environmental Offsets Policy* (including assessment using the Offsets Assessment Guide).



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Biodiversity Offset Areas

FIGURE 3

Table 1
BOS Vegetation Communities

Vegetation Community	Status	Kenalea Properties (ha)	Black Mountain (ha)	Merriwa River (ha)	Total (ha)
Upland Grassy Box Woodland	C/EEC	N/A	57	N/A	57
Midland Grassy Box Woodland	C/EEC	N/A	226	N/A	226
Lowland Grassy Box Woodland	C/EEC	N/A	438	N/A	438
Grey Box/White Box Intergrade - Blakely's Red Gum - Yellow Box Grassy Woodland	C/EEC	975	N/A	N/A	975
Box Woodland on Basalt	C/EEC	N/A	N/A	23	23
Subtotal (C/EEC Woodland)					**1,718**
Grey Box/White Box Intergrade - Blakely's Red Gum - Yellow Box Grassy Woodland Derived Native Grassland	(C/EEC)	1500	N/A	N/A	1,500
Subtotal (C/EEC Derived Grassland)					**1,500**
Total CEEC					**3,220**
Dry Rainforest	EEC	9	N/A	N/A	9
Total EEC					**9**
Ironbark Grassy Woodland	Not Listed	N/A	135	N/A	135
Narrow-leaved Ironbark Grassy Woodland	Not Listed	2	N/A	N/A	2
Narrow-leaved Ironbark Alluvial Open Forest	Not Listed	N/A	N/A	51	51
Ironbark Open Forest on Sandstone (Narrow-leaved Ironbark)	Not Listed	N/A	N/A	178	178
Subtotal (Narrow-leaved Ironbark Woodland)					**365**
Ribbon Gum - Pittosporum Forest	Not Listed	N/A	89	N/A	89
Socketwood Vine Thicket	Not Listed	N/A	2	N/A	2
Sydney Blue Gum Forest	Not Listed	N/A	8	N/A	8
Midland Shrubby Box Woodland	Not Listed	N/A	156	N/A	156
River Oak Forest	Not Listed	N/A	5	N/A	5
Callitris Open Forest	Not Listed	N/A	N/A	128	128
Ironbark Open Forest on Sandstone (Red Ironbark)	Not Listed	N/A	N/A	303	303
Low Open Forest - Scrub Complex on Sandstone Plateaus	Not Listed	N/A	N/A	113	113
Mallee Open Forest on Narrabeen Conglomerate	Not Listed	N/A	N/A	9	9

Vegetation Community	Status	Kenalea Properties (ha)	Black Mountain (ha)	Merriwa River (ha)	Total (ha)
Sheltered Open Forest Complex in Sandstone Gullies	Not Listed	N/A	N/A	57	57
Redgum Alluvial Open Forest	Not Listed	N/A	N/A	35	35
Blakely's Red Gum - White Box/Grey Box Intergrade Shrubby Woodland (non-C/EEC)	Not Listed	566	N/A	N/A	566
Silvertop Stringybark - Blakely's Red Gum Shrubby Woodland (non-C/EEC)	Not Listed	409	N/A	N/A	409
Silvertop Stringybark - Rough-barked Apple Shrubby Woodland (non-C/EEC)	Not Listed	526	N/A	N/A	526
Silvertop Stringybark/ Messmate/ Sydney Blue Gum moist shrub/grass tall open forest on ranges of the lower North Coast	Not Listed	10	N/A	N/A	10
Silvertop Stringybark/White Box Intergrade shrubby open forest	Not Listed	28	N/A	N/A	28
Silvertop Stringybark - Blakely's Red Gum Shrubland	Not Listed	16	N/A	N/A	16
Riparian River Oak Open Forest	Not Listed	55	N/A	N/A	55
Subtotal (Other Woodland)					**2,516**
Derived grass and herblands	Not Listed	N/A	105	N/A	105
Subtotal (Other Grassland)					**105**
Total					**6,215**

The results of the assessment indicated that the Project provided a BOS which adequately offset the residual impacts of the Project.

In previous correspondence received from OEH dated 8 May 2014 in response the Bengalla RTS it was acknowledged that the BOS addresses the requirements of the *Principles for the use of biodiversity offsets in NSW.* Further it was noted that BOS achieved the key principle (Principle 10) whereby the 'like-for-like or better' requirement is achieved.

Details regarding how the BioBanking Assessment and Ratios Approach to offsetting compares to the Modification SEE impacts is provided below. These methodologies have been examined in this response as they provided a quantitative approach to more readily enable a comparison to the approved BOS with regard to OEH's submission in relation to the Modification SEE.

BioBanking Assessment

BioBanking surveys and BioBank Credit Calculator assessments (prior to the release of the *NSW Biodiversity Offsets Policy for Major Projects* and *Framework for Biodiversity Assessment*) were undertaken for the BCMP. The results of the Biobanking Assessments comparing the approved SSD-5170 Disturbance Boundary area and the approved Bengalla BOS properties are provided in **Table 2** below. Complete BioBanking Credit Reports are provided in the Bengalla RTS.

Results indicate that the BCMP required 29,080 ecosystem credits to offset the impacts of 881 ha of native vegetation within the Disturbance Boundary and that, in return, the BOS provides for a total of 64,710 ecosystem credits. This is a net surplus of credits of 35,630 ecosystem credits.

Modification Impacts

In their response to the Modification SEE, OEH noted that should the additional 9.07 ha of disturbance proposed due to the Modification be input into the current BioBanking Assessment Methodology then this would generate the requirement to compensate with 139 ecosystem credits.

When considered with respect to the approved SSD-5170 BOS the additional 139 ecosystem credits represents only 0.4% of Bengalla's required 29,080 ecosystem credits which would still leave BMC with a net surplus of 35,491 ecosystem credits. The additional 139 ecosystem credits suggested by OEH does not represent a significant impact.

Table 2
BioBanking Assessment Summary

Vegetation Group	Approved Disturbance Boundary (Ecosystem Credits)	Approved BOS Offset (Ecosystem Credits)
Box Gum Woodland and Derived Native Grassland C/EEC	15,660	34,801
EECs	1,144	92
Narrow-leaved Ironbark	12,276	5,214
Other native vegetation	0	24,603
Total	**29,080**	**64,710**

Vegetation Removal and Offset Ratios

The BCMP impacts associated with the approved SSD-5170 Disturbance Boundary area and a summary of the BOS offset vegetation community ratios in accordance with the *NSW OEH Interim Policy on Assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State Significant Infrastructure (SSI) Projects* (Chief Executive Officer OEH, 2011) is provided in **Table 3**.

Table 3 indicates the BOS provides woodland and grassland habitat for threatened species at over a 7:1 ratio and will also provide a total of 3,220 ha of Box Gum Woodland and Derived Native Grassland providing an overall C/EEC offset ratio of 6:1.

Modification Impacts

As outlined in Section 6.1 of the SEE the Modification would result in the additional disturbance to 6.1 ha of Box Gum Woodland and Derived Native Grassland C/EEC. Given BMC's existing BOS the additional disturbance would result in minor changes (see **Table 3**) to the ratios developed in accordance with the *NSW OEH Interim Policy on Assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State Significant Infrastructure (SSI) Projects* (Chief Executive Officer OEH, 2011) as presented in the Bengalla RTS.

Table 3
Summary of Offset Vegetation Communities and Ratios

Vegetation Group	Existing Approval			Modification SEE		
	Disturbance Boundary (ha)	Total BOS (ha)	Ratio	Modification Disturbance Boundary (ha)	Revised Total Disturbance (ha)	Revised Ratio
Box Gum Woodland C/EEC	73.2	1,719.7	23.5:1	2.79	75.99	22.6:1
Box Gum Woodland Derived Native Grassland C/EEC	462.1	1,500.1	3.2:1	3.31	465.41	3.2:1
Total C/EEC	535.3	3,219.8	6.0:1	6.1	541.4	5.9:1
Total Vegetation	881.6	6,214.5	7.1:1	9.1	890.7	7.0:1

Interaction with the Mount Pleasant Project

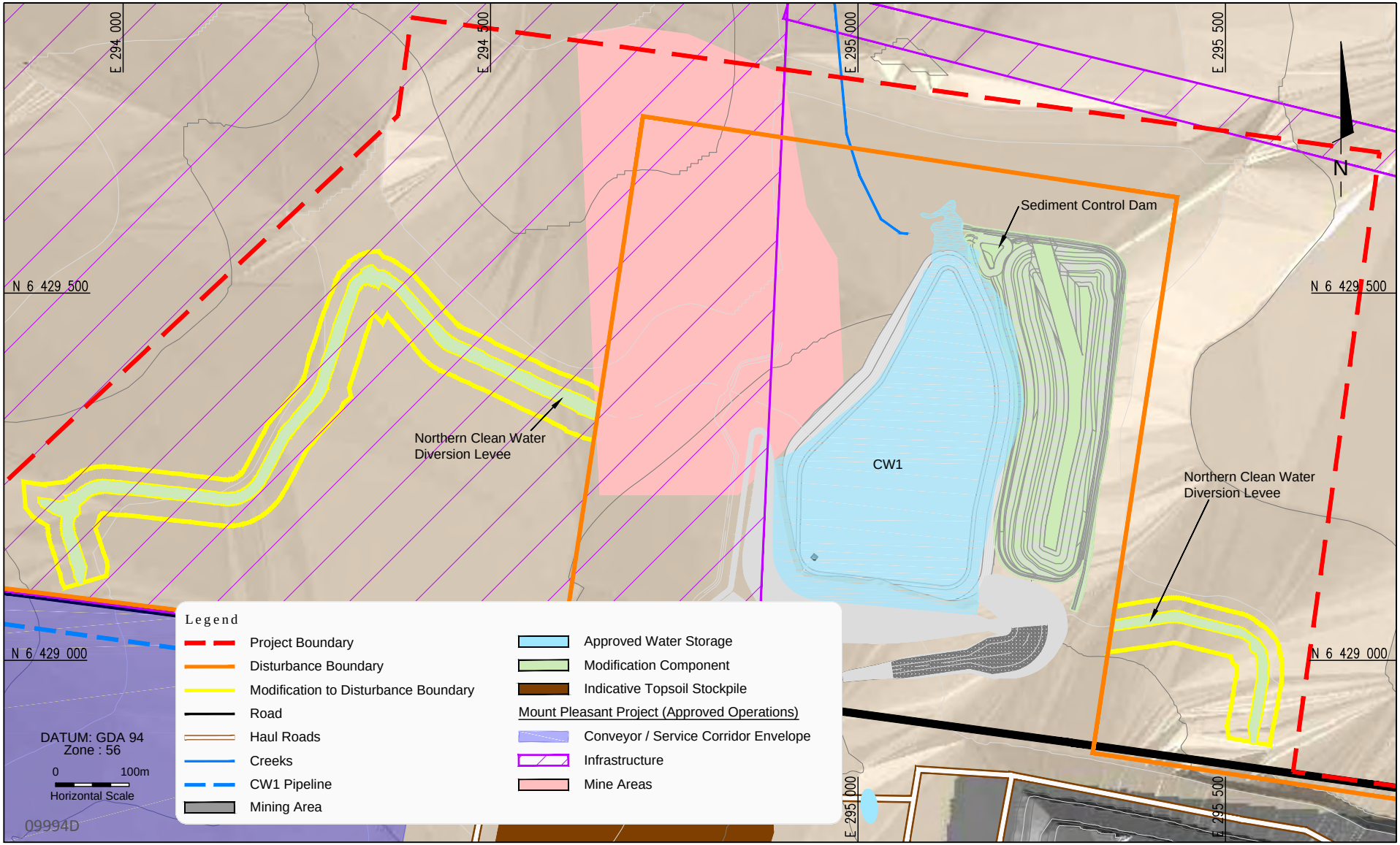
The Mount Pleasant Project is wholly owned by Coal & Allied, subsidiary of Rio Tinto Coal Australia (RTCA). It is located to the immediate north of BMC's mining operations. The Mount Pleasant Project was granted development consent (DA 92/97) in 1999, which was supported by the *Mount Pleasant Mine Environmental Impact Statement* (Mount Pleasant EIS) (ERM Mitchell McCotter, 1997). The Mount Pleasant Project has approval for the construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities at a production rate of up to 10.5 Mtpa ROM coal.

In 2011 a modification to DA 92/97 was approved and supported by the *Mount Pleasant Project Modification Environmental Assessment Report* (Mount Pleasant 2010 EA) (EMGA Mitchell McLennan, 2010). This modification allowed the mine infrastructure to be sited within an infrastructure envelope / mine area, as opposed to the specific locations specified in the Mount Pleasant EIS. The modification also provided the option of a conveyor / service corridor as an alternative to the approved rail facilities.

The Mount Pleasant Project interactions with BMC's approved operations and the Modification is presented conceptually on **Figure 4**.

Relevantly to the Modification SEE the Mount Pleasant Project has been granted EPBC Approval 2011/5795. As identified on **Figure 4** the western Northern Clean Water Diversion Drain is located wholly within an area approved for disturbance associated with the Mount Pleasant Project Infrastructure Envelope / mine area. Only the eastern Northern Clean Water Diversion Drain (2 ha total area) is located in an area outside of any approved disturbances.

In their response OEH noted that the additional 9.07 ha of disturbance proposed by the Modification SEE would generate an offset requirement of 139 ecosystem credits (assigning all vegetation to HU 701). As the eastern Northern Clean Water Diversion Drain (2 ha total area) is located in an area outside of any approved disturbances (see **Figure 4**) this reduces the proportional impact to 31 ecosystem credits which represents 0.1% of the total 29,080 ecosystem credits assessed within the BCMP Disturbance Boundary area. Further to this the existing BOS currently provides for an additional 35,630 ecosystem credits to offset the impacts of the BCMP.



BENGALLA MINE

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

Mount Pleasant Project Interactions

FIGURE 4

Biodiversity Offset Requirement Conclusion

The Ecological Impact Assessment completed for the Modification SEE concluded, that providing that the recommended mitigation measures are implemented, the Modification was not considered to result in a significant impact to native vegetation. As a result of this no compensation measures were proposed for the Modification.

BMC maintains an approved BOS to offset the impacts of the BCMP (SSD-5170). Previous assessment of the BOS, using a variety of assessment methods, has indicated that the offsets developed for SSD-5170 adequately compensated for the impacts of the BCMP. The Modification SEE does not significantly alter the capability of the existing BOS to offset the Modification SEE impacts. For example the 139 ecosystem credits (as suggested by OEH) represents 0.4% of the total 29,080 assessed within the BCMP Disturbance Boundary area. Further to this the existing BOS currently provides for an additional 35,630 credits to offset the impacts of the BCMP.

In addition, the Modification to the Disturbance Boundary area sought in this Modification is partially located within an approved disturbance area (which has been offset in accordance with EPBC Approval 2011/5795) associated with the Mount Pleasant Project. Only 2 ha of land associated with this Modification correlates to land not already approved for disturbance under the EPBC Approval 2011/5795. The additional 2 ha of land generates 31 ecosystem credits which represents 0.1% of the total 29,080 ecosystem credits assessed within the BCMP Disturbance Boundary area. Further to this the existing BOS currently provides for an additional 35,630 credits to offset the impacts of the BCMP.

Therefore BMC contends that this Modification is not a significant impact to native vegetation and does not require additional compensatory measures.

3.5 DIVISION OF RESOURCES AND ENERGY

3.5.1 Responsibilities and Requirements

Issue

NSW Industry, Skills and Regional Development, Division of Resources and Energy (DRE) has reviewed the Bengalla Mine Development Consent Modification Statement of Environmental Effects and has no objections to the proposed modification.

Should the project be approved the proponent will be required to submit to DRE:

- *A new Mining Operations Plan (MOP) which addresses the modified consent elements; and*
- *A Rehabilitation Cost Estimate (RCE) accompanying the new MOP application.*

Response

Noted.

3.6 NSW DEPARTMENT OF PRIMARY INDUSTRIES – OFFICE OF WATER

3.6.1 Water Allocation

Issue

Bengalla Mine holds 1455 ML high security and 4562 ML general security licences from Zone 1 of the Hunter Regulated River Water Source. These have been previously incorporated into the site water balance modelling up to the year 2016 at the previous mine production limits of 8 and 10 Mt ROM per annum. A recent modification to the consent permits resource extraction up to 15 Mt ROM coal per annum, which significantly amends the water balance.

During an extended period of drought, the high security shares are likely to receive close to 1 ML per share, while general security may receive a much lower volume per share, and as low as 0 ML per share. The site water balance does not take this into account, but appears to assume 100% allocation (i.e. 1 ML per share) will apply to all climate scenarios. This must be clarified, as shortfalls of several hundred megalitres will occur if allocations are lowered after Year 7 (median rainfall) or Year 3 (dry rainfall) scenarios.

The 2006-2007 water year is an example of a drought year, and in that year high security allocations reached 0.92 ML per share while general security allocations only reached 0.35 ML per share.

Response

As noted in Section 4.3.5 of the SEE the Modification will not result in an increase of the maximum approved water take from water sources regulated under the *Water Management Act 2000* (WM Act).

BMC holds Water Access Licences (WALs) with sufficient share component totalling 5,955 units (comprising 1,455 high security units and 4,500 general security units) to account for the maximum predicted take for the life of the Project from the Hunter Regulated River Water Source (Management Zone 1A). BMC maintains exclusive rights for the dedicated use (to support mining activities) of at least 2,763.7 units (comprising 1,449.9 high security units and 1,313.8 general security units) under these WALs owned by the Bengalla Joint Venture for the Project. The remaining units of the WALs (comprising 3,191.3 units) are currently subject to use by licensees of BMC owned land for agricultural purposes. Of the 3191.3 units, 5.1 high security units and 2702.2 general security units are available for the BMC to access to assist with operational water requirements.

The Surface Water Impact Assessment (WRM, 2015) completed for the Modification SEE noted that the 99th percentile raw water requirement from an external source is between 1,770 and 1,920 ML/a during Years 5 to 24.

Using the historical information provided by NOW indicating that in the 2006/2007 water year high security allocations reached 0.92 ML per share while general security allocations only reached 0.35 ML per share the possible allocation BMC could be entitled can be calculated as follows:

- 1,449.9 (dedicated high security units) x 0.92 = 1,333.9 units
- 1,313.8 (dedicated general security units) x 0.35 = 459.9 units
- 5.1 (available licenced high security units) x 0.92 = 4.7 units
- 2,702.2 (available licenced general security units) x 0.35 = 945.8
- Total available units = 2,744.3 units (2006/2007 water year)

As demonstrated above BMC has sufficient Hunter River licences and allocations to account for maximum production level water demands under sever dry conditions (up to 1,920 ML/a) at reduced allocation rates (using 2006/2007 example). That is there are 824.3 units available in excess of the requirement in the 2006/2007 water year example.

If, under even more severe dry conditions, additional surface water rights are required in order to draw additional water from the Hunter River for supplementing operational requirements then BMC may seek to acquire additional units on the Hunter Regulated River on the open market. This market is an active market with over 10,000 High Security and over 75,000 General Security units located in Zone 1 and almost 22,000 High and over 130,000 General Security units across the entire water source.

Further to the above, if no additional licences are available on the open market and/or Hunter River allocations are reduced beyond levels necessary to sustain the projected production levels then operations can be modified as required.

Conclusion

The activities which comprise the Modification will not cause any increase in the water take from the Hunter Regulated River Water Source. The approved development will not require water from the Hunter River Regulated Water Source greater than what is held except in extreme circumstances (i.e. worse than 2006/2007) where alternatives would include acquiring additional water rights from the market or changing (reducing) operations below the maxima approved.

3.6.2 Water Demands

Issue

Water demands identified do not include water for site rehabilitation and revegetation, which would be a significant demand during extended dry conditions.

Without rehabilitation, revegetation and maintenance watering estimations during dry years, mine water demand may be approximately double that presented in the SEE. This should be properly included, to allow a volumetric estimate of water demands and potential shortfalls to be made, and to understand licensing requirements from runoff harvesting and take which is not exempt under the Harvestable Rights Orders under the Water Management Act 2000 or another exempt supply.

Response

The Surface Water Impact Assessment (WRM, 2015) completed for the Modification SEE included a revised Site Water Balance to account for the change in operations associated with the Project. Since operations commenced in 1998, BMC has not used its water allocation entitlement for the watering of large areas of rehabilitation (beyond small quantities for gardens and tree plantings). Further, watering of rehabilitation was not proposed to be completed for the Modification and as a result was not included as a site water demand.

In the future BMC may water areas of rehabilitation during dry conditions or to establish tree growth. Should watering vegetation be required it is anticipated that any quantities would be negligible and not result in a significant change to the site water balance.

3.6.3 Surface Water Catchment

Issue

It should be noted that groundwater supply is negligible to non-existent. As with many mines, runoff harvesting supplies the majority of mine water requirements. Unfortunately, although the catchment area of mine dams (including sediment basins and dams) is reported, the annual runoff capture volumes are not. This is a significant omission, as runoff harvesting is the most sensitive input to climatic conditions, and should be presented in detail.

Response

As noted in Section 6.2.1 of the Modification SEE, the water balance modelling completed for the Bengalla EIS Surface Water Impact Assessment (WRM, 2013) was the basis adopted for the Modification assessment. The computer based OPSIM model has been used to simulate and assess the dynamics of the site water balance at Bengalla Mine (incorporating this Modification) under varying climatic sequences across five representative mine stages (Years 1 (existing), 4, 8, 15 and 24) previously utilised for the Bengalla EIS. Although the catchment areas will continually change as mining progresses, these modelled years will provide a good representation of conditions over the 24 year Project life.

The revised Site Water Balance included key modelling inputs associated with the operational changes sought by the Modification and resulting catchment area runoff. **Figure 2** presents the mine water management catchment area associated with the Modification Year 4 Mine Plan. Surface water runoff captured in the mine water management catchment area has been included in the revised Site Water Balance to reflect the primary changes to water management proposed by the Modification.

Results from the revised Site Water Balance are detailed in the Surface Water Impact Assessment (WRM, 2015) and summarised in Section 6.2 of the Modification SEE.

3.6.4 Muswellbrook Water Source

Issue

The site water balance assesses the Hunter Regulated River water supply volumes however it is considered there are significant gaps in the water balance assessment in relation to water sourced from the Muswellbrook Water Source.

Response

The Bengalla EIS (Hansen Bailey, 2013) provides background into the Harvestable Rights associated with the Project. The Bengalla EIS notes that a WAL is not required to take and use water by means of harvestable rights dams in accordance with the applicable harvestable rights order under the WM Act. Harvestable rights may be available to account (wholly or partially) for the take of water from a water source.

The area from which surface water runoff is collected and proposed to be diverted into the Satellite Pit (the area east of the Western diversion levee) is heavily affected by mining activities and accordingly all run off from that area is to be controlled as sediment laden (dirty water) and accordingly kept out of the catchment. The Satellite Pit is therefore to be characterised as an excluded work being a dam for the capture containment and recirculation of drainage/effluent to prevent the contamination of a water source.

The maximum take from the Muswellbrook Water Source is estimated at 39 ML/year. BMC's calculated harvestable right has been determined to be 109 ML per water year.

BMC has previously nominated Spare Dam and Relocated Staged Discharge Dam as shown on **Figure 2** as its harvestable rights dams from which water can be taken and used without a WAL. These dams have an annual average capture volume of 60.9 ML (less than the capacity allowed under the Harvestable rights Order).

3.6.5 Information Recommendations

Issue

1. *Water demand figures for drought incidence to total site usage, including likely irrigation on active rehabilitation, and sustenance to regenerating vegetative cover under the four rainfall scenarios used (10% wet, median, 90% dry and 99% dry conditions).*
2. *Likely variations in dust suppression requirements under the above rainfall scenarios (esp. under four-eight year travelling dry years, say using the 1937-48 drought).*
3. *Separation of capture and re-use of contaminated site runoff (which is exempt) to sediment basin harvesting (which may not be exempt), including annual volumes and nomination of which dams from Table 3.6 of Appendix D (Surface Water) are considered Harvestable Rights Dams.*
4. *Identification of annual volumetric requirements from the Muswellbrook Water Source through mine life.*

Response

Responses to each of the above recommendations have been addressed within the document in the following locations:

1. See **Section 3.6.2**.
2. See **Section 3.6.1**.
3. See **Section 3.6.3** and Section **3.6.4**.
4. See **Section 3.6.4**.

3.7 MUSWELLBROOK SHIRE COUNCIL

3.7.1 Use of the Satellite Pit

Issue

Council has no significant concerns with this aspect of the proposed modification as it appears appropriate for the future indicated mining operations and does not create additional environmental concerns.

Response

Noted.

3.7.2 Relocation of the HRSTS Release Point

Issue

Subject to detailed design and the implementation of this new HRSTS discharge point prior to the establishment of the Satellite Pit, Council considers this proposed modification to be appropriate for the future indicated mining operations and it does not create significant adverse impacts to the environment.

Response

As noted in **Section 3.3.1**, BMC will submit to the EPA a licence variation application for EPL 6538 prior to the relocation of the Bengalla HRSTS discharge and associated monitoring point.

3.7.3 Assessment of Significant to C/EEC Vegetation Communities

Issue

The Assessment of Significance (AoS) should not take into account mitigation or compensation measures. Council believes the AoS should assess the worst case scenario to appropriately determine the impact and need for a Species Impact Statement or Biobanking Assessment and EPBC referral.

Response

In responses received from DoE (see **Section 3.2**) and OEH (see **Section 3.4**) the methodology used to determine the impacts of the Modification was not commented on. OEH

noted that the FBA was required to be utilised to determine credits required to offset the Modification which is discussed in detail in **Section 3.4**.

3.7.4 Revised Location for the Hunter River and Washery Dam

Subject to the detailed design of these storages, Council does not have any significant concerns for the approval of this element of the Modification.

Response

Noted.

3.7.5 Placement of Fill from CW1 Immediately Adjacent to CW1

Council has several concerns in relation to this emplacement. These concerns include:

- *The batter slopes are indicated as being up to 1V:2H. Council is concerned about the practicality of stabilisation of this batter. A sediment control dam is shown for the Emplacement Area but the functioning of the overall emplacement stabilisation is not considered to be clearly articulated.*
- *Temporary erosion control measures have been described in the SEE as being implemented and maintained until the materials are relocated. The SEE provides no information on the likely life of the emplacement and thus Council is concerned about the maintenance of this area*
- *Any sediment, should it enter CW1 and remain in suspension, would be pumped through the discharge pipeline prior to discharge to Dry Creek downstream of any LDP.*

Council does not consider this aspect of the proposed modification should be approved. Should the Department grant this aspect of the modification then Council is of the opinion that stringent requirements should be imposed on the implementation and maintenance of the constructed erosion control works for this modified emplacement.

Response

Geotechnical stability modelling and design of erosion and sediment control measures have been completed for the CW1 Emplacement Area by Parsons Brinkerhoff. Based on this work the CW1 Emplacement Area shall have the following characteristics:

- Slopes will comprise 2H:1V batters with 5 m wide benches. The benches will be at maximum 8 m vertical spacing except for an isolated upper section at the south-west corner of the CW1 Emplacement Area;
- The benches will be graded and report to a toe drain that then reports to the sediment control dam at the north-west corner of the CW1 Emplacement Area.
- The CW1 Emplacement Area will have an average crest width of 25 m and along the crest the average depth of fill, measured from the existing ground level, is approximately 17 m. The bottom 10 m of CW1 Emplacement Area includes the vast majority of the stockpile volume and will be compacted to minimum 95% Standard.

From 10 m above existing ground level the stockpile will be nominally compacted to achieve minimum 90% Standard Compaction;

- A hydraulically applied heavy compost blanket will be applied to all 2H:1V batter slopes and the benches for erosion and sediment control. The heavy compost blanket will be applied from vehicles driven along the benches. This product has been successfully applied previously at Bengalla and numerous other Hunter Valley mine sites. The top of the CW1 Emplacement Area will be topsoiled and seeded;
- The sediment control dam has been designed to meet the requirements of *Managing Urban Stormwater: Soils and Construction, Volume 2E, Mines and quarries* (2008). Using these guidelines the dam was sized for the 95th percentile 5 day rainfall event with the spillway designed to convey the 1 in 100 year average recurrence interval peak flow event. The adoption of these criterion means that the dam is adequately sized should it need to remain operational for more than 3 years. Otherwise the dam will only be required to be operational until vegetation is sufficiently established on the stockpile that runoff no longer needs to be treated via the sediment control dam in the same manner that other constructed areas are revegetated and again become part of the clean water catchment; and
- Should it be required, the CW1 Emplacement Area has been designed to remain in place for the life of CW1. If the stockpile is not removed prior to this time it will be reshaped into the impoundment area and flattened to appropriate permanent batter slopes. The stockpile will be inspected and maintained by BMC until this time.

A detailed general arrangement design plan of the CW1 Emplacement Area incorporating the engineering parameters listed above is included in **Appendix B**.

Following approval of this Modification BMC will update the existing Water Management Plan (WMP) (BMC, 2015) and Mining Operations Plan.

3.7.6 Relocation of the Explosives Storage Facility

Issue

Council notes that part of this envelope is located on the upslope of the Western Diversion Levee which is a clean water diversion levee. As such, should the facility be located to the west of the Western Diversion Levee then appropriate erosion control measures should be implemented and maintained for the life of the facility to provide sediment and erosion protection for any disturbed area in the clean water catchment for the Western Diversion Levee.

Council has no additional concerns in respect to the approval of this element of the proposed modification.

Response

Noted. The Western Diversion Levee will be constructed in accordance with applicable NSW guidelines

3.8 NSW HEALTH – HUNTER NEW ENGLAND LOCAL HEALTH DISTRICT

3.8.1 Impacts Summary

Issue

The SEE for the Modification has been reviewed with particular attention being paid to issues such as air quality, noise and water, which may have an impact on human health.

The SEE indicates that the proposed modification are unlikely to have any negative impact to existing air quality; only minor, insignificant changes to short term construction noise levels; no changes to operational noise levels; and no additional impact on off-site water. For these reasons the HNEH believes the modification would have minimal health impact and is satisfied with existing approval conditions.

Response

Noted.

3.9 DAMS SAFETY COMMITTEE

3.9.1 Prescribed Dams

Issue

The DSC has reviewed the Environmental Impact Statement for the Bengalla Mine Continuation Project - Mod 1. There is already an existing prescribed dam on the Project site (the Bengalla Staged Discharge Dam), and as part of the Continuation Project two new dams will be built which have also been prescribed by the DSC, these are the new Bengalla Staged Discharge Dam and the Bengalla Cleanwater Dam. The DSC has already delineated notification areas around each of these three dams and prior to mining proceeding within these notification areas, Bengalla Mine needs to gain permission from the Minister.

Bengalla has already been in consultation with the DSC and has gained DSC endorsement for mining within the notification areas and DSC is in the process of informing the Minister of their endorsement of the Project. During the course of the Continuation project a major void is also being developed to divert water away from the operational pit. The proposed void has no embankments and is therefore not of concern to the DSC.

Response

Noted.

3.10 ROADS AND MARATIME SERVICE

3.10.1 Response and Requirements

Issue

Roads and Maritime has reviewed the information provided and has no objections to or requirements for the proposed modification as it is considered it will not have any significant impact on the classified (State) road network.

Response

Noted.

4 CONCLUSION

Following public exhibition of the Modification SEE, a total of nine submissions from regulatory agencies were received. No submissions from the general public, special interest groups or non-government organisations were received. All regulatory submissions have been addressed within this RTS.

The Modification SEE and this RTS confirm, that with the implementation of all of the reasonable and feasible management and mitigation measures proposed, the minor modifications sought to Bengalla Mine will have no material environmental impacts and will result in a more environmentally robust water management system on the mine site.

In this regard, BMC proposes to continue to operate the Project in accordance with the management and monitoring measures provided in SSD-5170 along with those presented in the Modification SEE.

* * *

for
HANSEN BAILEY

Jason Martin
Senior Environmental Scientist

James Bailey
Director

5 ABBREVIATIONS

Table 4 provides a list of abbreviations used in this RTS.

Table 4
Abbreviations

Abbreviation	Description
a	Annual
AEMR	Annual Environmental Management Report
AHD	Australian Height Datum
ANZECC guidelines	Australian New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000)
ARI	Average Recurrence Interval
AS	Australian Standard
BCAM	Biodiversity Certification Assessment Methodology
BCMP	Continuation of Bengalla Mine Project
BJV	Bengalla Joint Venture
BMC	Bengalla Mining Company Pty Limited
BOMP	Biodiversity Offset Management Plan
BOS	Biodiversity Offset Strategy
BVT	Biometric Vegetation Type
CEEC	Critically Endangered Ecological Community
CW1	Clean Water Dam 1
Dirty Water	Sediment laden water and/or mine water
DNG	Derived Native Grassland
DoE	Commonwealth Department of the Environment
DP&E	NSW Department of Planning & Environment
DPI - Agriculture	NSW Department of Primary Industries – Office of Agricultural Sustainability & Food Security
DRE	NSW Division of Resources and Energy
DSC	Dam Safety Committee
EEC	Ecological Endangered Community
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning & Assessment Act 1979
EP&A Regulation	Environmental Planning & Assessment Regulation 2000
EPA	NSW Environment Protection Authority

Abbreviation	Description
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
EPL	Environmental Protection Licence
FBA	Framework for Biodiversity Assessment
ha	Hectares
Hansen Bailey	Hansen Bailey Environmental Consultants
HRSTS	Hunter River Salinity Trading Scheme
km	Kilometre
LGA	Local Government Area
M	Million
Mining Activities	Mining and/or activities associated with mining for example topsoil stockpiles
ML	Megalitres
MNES	Matters of National Environmental Significance
MOP	Mining Operations Plan
MSC	Muswellbrook Shire Council
Mtpa	Million tonnes per annum
NOW	NSW Office of Water
OEH	NSW Office of Environment & Heritage
POEO Act	*Protection of the Environment Operations Act 1997*
ROM	Run-of-mine
RTCA	Rio Tinto Coal Australia
RTS	Response to Submissions
SSD	State Significant Development
SSI	State Significant Infrastructure
TSC Act	*Threatened Species Conservation Act 1995*
WAL	Water Access Licence
Water Act	*Water Act 1912*
WM Act	*Water Management Act 2000*
WSP	Water sharing plan

6 REFERENCES

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- Department of Land and Water Conservation (1999) *Draft Guidelines for Establishing Stable Drainage Lines on Rehabilitated Minesites.*
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- ERM Mitchell McCotter (1997), *Mount Pleasant Mine Environmental Impact Statement*
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- NSW DoP (2011a), *Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Planning*.
- NSW DoP (2011b), *Hazardous Industry Planning Advisory Paper No. 6 – Hazard Analysis*.
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- Office of Environment and Heritage (2014b), *Framework for Biodiversity Assessment.*
- Office of Environment and Heritage (2011), *Interim Policy on Assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State Significant Infrastructure (SSI) Projects* NSW Office of Environment and Heritage, Sydney.
- WRM (2015), *Surface Water Impact Assessment* prepared for the Bengalla Development Consent Modification Statement of Environmental Effects.
- WRM (2013), *Surface Water Impact Assessment* prepared for the C*ontinuation of Bengalla Mine Environmental Impact Statement* September 2013.

APPENDIX A

Original Submissions Received

Australian Government
Department of the Environment

EPBC Ref: 2012/6378

Mr Carl Dumpleton
Senior Planning Officer
Resource Assessments and Compliance
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Dumpleton

Comment on proposed modification (Mod 1) to Bengalla Mine Continuation Project (NSW reference: SSD-5170 Mod 1)

Thank you for providing the Department of the Environment (the Department) with the opportunity to comment on the proposed modification to the Bengalla Mine Continuation Project (the modification).

The Bengalla Mine Continuation Project (EPBC 2012/6378) (the Project) was assessed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and approved by a delegate of the Minister for the Environment on 27 May 2015, subject to 17 conditions. The controlling provisions for the Project under the EPBC Act are listed threatened species and communities (s18 and 18A) and water resources (s24D and 24E). Following review of the modification, the Department would like to offer the following comments for your consideration:

- Implementation of the modification may result in inconsistencies with the EPBC approval 2012/6378 (EPBC approval) as follows:
  - Removal of vegetation beyond the clearance boundary defined in Condition 1 and Schedule 1
  - Clearance of 6 hectares (ha) of critically endangered *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Box Gum Woodland) and habitat for EPBC-listed species, if this causes the clearing limits specified in Conditions 1 and 3 to be exceeded
- EPBC conditions 5, 6 and 7 require compliance with NSW development consent conditions 23 to 25 and/or 44 to 46 (Schedule 3), dated 3 March 2015. Modification of these NSW development consent conditions may necessitate review of the EPBC approval conditions to ensure that residual impacts to EPBC matters are not significant
- Use of the Satellite Pit as a replacement water storage for the Satellite Pit Diversion Dam may increase the volume of mine affected water generated by the project and decrease the volume of clean water discharged to the Hunter River. The Department notes the proponent's assessment that this part of the modification is

necessary to avoid the discharge of sediment and mine affected water into the Hunter River; however, the rationale for this statement is unclear in the absence of changes to coal extraction volumes and rates. The Department suggests that further clarification is sought in relation to any changes to mine affected water generation and handling, together with identification of any changes to the volume of clean water captured and discharge from the site, to assist assessment of the likelihood and significance of impacts to water resources.

If you have any questions about the process, please contact the project officer, Tim Kaminskas by email to post.approvals@environment.gov.au, or telephone 02 6275 9516 and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely

Rod Whyte
Director
Post Approvals Section
Compliance and Enforcement Branch
Environmental Standards Division
02 September 2015

Department of Industry
Resources & Energy

OUT15/23197

Carl Dumpleton
Senior Planning Officer
Resource Assessments and Compliance
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Email: carl.dumpleton@planning.nsw.gov.au

Dear Mr Dumpleton

Bengalla Mine Continuation Project Modification 1
(SSD-5170 Mod 1)

I refer to your email dated 14 August 2015 regarding the Bengalla Mining Company Pty Ltd application to modify the consent for its Bengalla Mine to provide additional locations for the explosives storage facility; move the fill from Clean Water Dam 1 and changes to the approved water management system.

NSW Industry, Skills and Regional Development, Division of Resources & Energy (DRE) has reviewed the *Bengalla Mine Development Consent Modification Statement of Environmental Effects* and has no objections to the proposed modification.

Should the project be approved the Proponent will be required to submit to DRE:

- A new Mining Operations Plan (MOP) which addresses the modified consent elements; and
- A Rehabilitation Cost Estimate (RCE) accompanying the new MOP application. The tool to prepare the RCE ('ESB26 Rehabilitation Cost Calculation Tool') is available on the DRE website at http://www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-and-forms/pgf.

Should you have any enquires regarding this matter please contact Julie Moloney, Principal Adviser, Industry Coordination on (02) 4931 6549.

Yours sincerely

Adrian Delany
A/Director Industry Coordination
31.8.15

Jason Martin

From: Heather Middleton <heather.middleton@damsafety.nsw.gov.au>
Sent: Thursday, 20 August 2015 2:31 PM
To: Carl Dumpleton
Subject: Bengalla Mine Continuation Project - Mod 1

Dear Carl,

Re: Bengalla Mine Continuation Project - Mod 1

The DSC has reviewed the Environmental Impact Statement for the Bengalla Mine Continuation Project - Mod 1. There is already an existing prescribed dam on the Project site (the Bengalla Staged Discharge Dam), and as part of the Continuation Project two new dams will be built which have also been prescribed by the DSC, these are the new Bengalla Staged Discharge Dam and the Bengalla Cleanwater Dam. The DSC has already delineated notification areas around each of these three dams and prior to mining proceeding within these notification areas, Bengalla Mine needs to gain permission from the Minister.

Bengalla has already been in consultation with the DSC and has gained DSC endorsement for mining within the notification areas and DSC is in the process of informing the Minister of their endorsement of the Project. During the course of the Continuation project a major void is also being developed to divert water away from the operational pit. The proposed void has no embankments and is therefore not of concern to the DSC.

If there are any queries in regard to the above please do not hesitate to contact Heather Middleton on 98428076.

Kind regards

Heather Middleton | Mining Regulation Officer
Dams Safety Committee | Level 3, 10 Valentine Avenue, Parramatta NSW 2150
Postal: Locked Bag 5123, Parramatta NSW 2124 / Australia

email: heather@damsafety.nsw.gov.au | Ph: (02) 9842 8076 | Fax: (02) 9842 8071
www.damsafety.nsw.gov.au

NSW EPA

Our reference: DOC15/360215, EF13/2634
Contact: Kurt Sorensen (02) 4908 6827
Electronic correspondence to: hunter.region@epa.nsw.gov.au

NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Mr Carl Dumpleton

Dear Mr Dumpleton

BENGALLA MINING COMPANY PTY LIMITED
CONTINUATION PROJECT – SSD -5170 MODIFICATION 1

I refer to your email to the Environment Protection Authority (EPA) dated 14 August 2015 inviting the EPA to make a submission regarding the Bengalla Continuation Project - Modification 1 (SSD-5170 Mod 1). Thankyou for extending the date for submission of the EPA's response to 14 September 2015.

The EPA understands that the project involves:

- Alterations to various water management infrastructure items;
- A larger footprint of the approved explosives storage facility;
- Emplacement of fill from excavation of the clean water (CW1) dam to occur adjacent to the dam;
- An increase of approximately 9.1 hectares to the previously identified disturbance boundary to construct the northern clean water diversion levee. This represents a 0.1% increase in total disturbance; and
- Relocation of the Hunter River Salinity Trading Scheme (HRSTS) discharge and monitoring point.

The EPA has reviewed the project as detailed in the report titled *'Bengalla Mine Development Consent Modification Statement of Environmental Effects'* (the SEE) dated August 2015 and provides the following comments.

Air Quality

The EPA has reviewed the air quality impact assessment provided with the SEE and concludes that any additional air quality impacts can be managed under existing conditions of the Environment Protection Licence (EPL) 6538.

PO Box 488G Newcastle NSW 2300
Email: hunter.region@epa.nsw.gov.au
117 Bull Street, Newcastle West NSW 2302
Tel: (02) 4908 6800 Fax: (02) 4908 6810
ABN 43 692 285 758
www.epa.nsw.gov.au

Noise Impacts

The EPA has reviewed the noise impact assessment provided with the SEE and concludes that any additional noise quality impacts can be managed under existing conditions of EPL 6538.

Water Quality Impacts

The EPA has reviewed the proposed modification to various water management infrastructure items as detailed in the SEE. The results of the site water balance modelling show that the mine water management system can be operated in accordance with the existing conditions of EPL 6538.

Environment Protection Licence

The SEE details the proposed relocation of the HRSTS discharge and monitoring point. The licensee will be required to submit a licence variation application for EPL 6538 under the *Protection of the Environment Operations Act 1997* (POEO Act) to authorise the relocation of the HRSTS discharge and monitoring point.

The EPA considers impacts of the modification to generally be consistent with environmental outcomes compared to those currently approved.

The EPA has no objection to the project proceeding as described in the SEE. The EPA is satisfied that the current conditions on EPL 6538 can accommodate the modification.

Please contact Kurt Sorensen on (02) 4908 6827 if you require any further information regarding this matter.

Yours sincerely

11.9.15

KAREN MARLER
Head Regional Operations Unit – Hunter
Environment Protection Authority

Hunter New England Local Health District
Hunter New England Population Health
Direct Contact Details
Phone: (02) 4924 6477 Fax: (02) 4924 6490
Email: carolyn.herlihy@hnehealth.nsw.gov.au

NSW GOVERNMENT | Health
Hunter New England
Local Health District

4 September 2015

Mr Carl Dumpleton
Senior Planning Officer, Resource Assessments and Compliance
NSW Planning & Environment
GPO Box 39
Sydney NSW 2001

Dear Mr Dumpleton

BENGALLA MINE CONTINUATION PROJECT MODIFICATION 1 - SSD 5170 Mod 1

I refer to your email of 14 August 2015 inviting Hunter New England Health (HNEH) to review and provide comment on the modification application for the Bengalla Mine Continuation Project.

The modification involves:

- Changes to the approved water management system, including additional dirty water storage, relocating a discharge point and revising two dam locations;
- The placement of fill from the excavation of Clean Water Dam 1 adjacent to it; and
- Additional locations for the siting of the explosives storage facility.

The Statement of Environmental Effects (SEE) for the modification has been reviewed with particular attention being paid to issues such as air quality, noise, and water, which may have an impact on public health.

The SEE indicates that the proposed modifications are unlikely to have any negative impact to existing air quality; only minor, insignificant changes to short term construction noise levels; no change to operational noise levels; and no additional impact on off-site water. For these reasons HNEH believes the modification would have minimal health impact and is satisfied with existing approval conditions.

Should you require any additional information in relation to the above, please telephone Ms Carolyn Herlihy, Environmental Health Officer on (02) 4924 6477.

Yours sincerely

Dr Tony Merritt
Acting Service Director - Health Protection

Hunter New England Local Health District
ABN 63 598 010 203

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muswellbrook shire council

Enquiries
Please ask for Steve McDonald
Direct 02 6549 3700
Our references
Your reference

7 September 2015

Department of Planning and Environment
22-33 Bridge Street
SYDNEY NSW 2000

Dear Sir/Madam

BENGALLA MINE CONTINUATION PROJECT - MODIFICATION 1 STATEMENT OF ENVIRONMENTAL EFFECTS

1 Introduction

Bengalla Mining Company Pty Limited (BMC) operates the Bengalla Mine in the Upper Hunter Valley of New South Wales.

Bengalla Mine is situated approximately 130 kilometres north-west of Newcastle and 4 kilometres west of the township of Muswellbrook.

On 3 March 2015, BMC was granted Development Consent (State Significant Development (SSD) 5170) by the Secretary of Department of Planning and Environment. This consent authorised the continued operations at a production rate of up to 15 Million tonnes per annum of Run of Mine coal until 2039. The application for development consent was supported by the 'Continuation of Bengalla Mine Environmental Impact Statement' (Hansen Bailey, 2013).

BMC is now seeking approval from the NSW Minister for Planning or their delegate for a modification to its State Significant Development SSD-5170.

GHD have been engaged to prepare a submission on the Bengalla Mine Continuation Project – Modification 1 Statement of Environmental Effects (SEE) on behalf of Muswellbrook Shire Council (MSC)

This report outlines the review of the SEE identifying key issues, information or assessment gaps and any other aspects which may impact on MSC's operations and the LGA.

2 Documents reviewed

The following primary document was reviewed:

- Development Consent Modification Statement of Environmental Effects (SEE), dated August 2015.

Other documents considered to provide background information included:

- Development Consent Modification Environmental Assessment (EA), dated June 2015.
- Ecology Assessment, Appendix C to SEE, dated June 2015.

- Surface Water Assessment, Appendix D to SEE, dated June 2015.
- Air Quality Assessment, Appendix E to SEE, dated June 2015.
- Acoustic Assessment, Appendix F to SEE, dated June 2015.
- Aboriginal Archaeology Assessment, Appendix G to SEE, dated 2015.
- The Surface Water Impact Assessment, Appendix J to the Continuation of Bengalla Mine Environmental Impact Statement, dated September 2013.
- Coal Mining Land Use Strategy, Muswellbrook Shire Council.
- Rehabilitation Management Plan, Bengalla Mining Company, dated April 2013.

3 Overview of proposal

In overview the proposal was described in the SEE as including:

- Utilisation of the Satellite Pit as a temporary dirty water catchment dam.
- Relocation of the Staged Discharge Dam Hunter River Salinity Trading Scheme staged discharge release point.
- Construction of clean water diversion levees in locations other than those already proposed.
- Revised location for the proposed relocation of the Hunter River and Washery Dams.
- Additional (possible alternative) location for the Explosives Storage Facility.
- Placement of fill from the excavation of CW1 immediately adjacent to CW1.

4 Approved works

The existing approvals for the Bengalla Mine permit:

- Satellite Pit Diversion Dam is shown on Figure 4 of the SEE (Year 4 Approved Mine Plan) but does not show in Figure 5 (Year 4 Modified Mine Plan).
- Construction of Clean Water dam (CW1) at a located north of Wybong Road with pumping of water from CW1 to Dry Creek– shown on Figure 4 (Year 4 Approved Mine Plan).
- Construction of Northern Clean Water Diversion Levees – not shown on Figure 4 (Year 4 Approved Mine Plan) but shown on Figure 5 (Year 4 Modified Mine Plan).
- Additional (possible alternative) Explosives Storage Facility – shown on Figure 5 (Year 4 Modifies Mine Plan).
- Relocation of the following dams at sizes similar and function to the pre relocated:
  - Staged Discharge Dam – shown on the Figure 4 (Year 4 – Approved Mine Plan) and retained on Figure 5. Figure 5 makes no reference to relocation of the discharge release poin.t
  - Washery Dam – shown as being relocated by year 4 as indicated on Figures 4 of SEE.
  - Raw Water Dam – shown as relocated by years 4 in SEE.

5 Issues overview

Use of Satellite Pit as a dirty water catchment dam.

The SEE indicates that prior to excavation of the Satellite Pit the existing culvert at the Southern Haul Road crossing of Dry Creek will be closed forming a closed catchment area between the Satellite Pit Diversion Dam and Southern Haul Road and extending westward to the Western Diversion Drain. The storage volume within this closed catchment will need to be of sufficient volume to prevent the discharge of contaminated water into the downstream reach of Dry Creek.

Additionally, prior to closure of the Southern Haul Road culvert, it will be necessary to relocate the EPL 6538 HRST discharge location. This is discussed in detail below. Relocation of the HRST discharge location will permit monitoring of discharges into the Western Diversion Levee.

The current approval shows operation of the Southern Pit Diversion Dam until at least Year 4. This structure is located upstream of the Satellite Pit on Dry Creek while the proposed modification indicates removal of the Satellite Pit Diversion Dam by Year 4.

Mining within the Satellite Pit is nominated as taking approximately 6 months. Once mining of the Satellite Pit is completed the proposed modification would permit part of the Satellite Pit (Satellite Dam) to be used as a dirty water dam until approximately 2019 or it is intercepted by mining operations.

The SEE does not provide detailed information on the potential discharge or use of water that drains into the proposed Satellite Dam. In the absence of information it has been assumed that the water will be either evaporated, used within the site water operations to reduce the extraction of water from the Hunter River or pumped to the Staged Discharge Dam for potential release under the HRSTS.

Subject to detailed design and confirmation of the structure sizing and the assumption of water use/disposal from the proposed Satellite Dam, Council has no significant concern with this aspect of the proposed modification as it appears appropriate for the future indicated mining operations and does not create additional environmental concerns.

Relocation of the Staged Discharge Dam Hunter River Salinity Trading Scheme staged discharge release point

The proposed relocation is linked to the creation of the Satellite Pit dam and the closure of the culvert at the Dry Creek crossing of the Southern Haul Road.

The proposed relocation is described as being at a location where discharge water from the Staged Discharge Dam will be pumped to a discharge point in the Western Diversion Levee. Council has interpreted this as meaning that the water will be discharged on the upslope side of the Western Diversion Levee so that it can flow along the levee and thence eventually to Dry Creek.

An indicative location of the proposed HRSTS discharge point is shown on Figure 5.

Subject to detailed design and the implementation of this new HRSTS discharge point prior to the establishment of the Satellite Pit, Council considers this proposed modification to be appropriate for the future indicated mining operations and it does not create significant adverse impacts to the environment.

Construction of clean water diversion levees in locations other than those already proposed.

Clean water diversion levees to direct clean water into CW1 were identified in the approved EIS. The proposal is to relocate the diversions as a result of the further investigations associated with the detailed design of the diversions.

The SEE contains minimal information on the design of the diversion levees. The proposed locations of the levees are shown in Figure 6 of the SEE.

Council notes the addition of 9.1 ha to the approved disturbance area for construction of the diversion levees.

The proposed relocation of the diversions requires the disturbance and removal of vegetation outside disturbance areas previously approved. The SEE states that approximately 6.1 ha of Box Gum Woodland and Derived Native Grassland and 2.28 ha of Low Diversity Derived Native Grassland/ Exotic Pasture will be impacted. Box Gum Woodland and Derived native Grassland is listed as an EEC and CEEC under both the NSW *Threatened Species Conservation Act 1995* (TSC) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC).

The ecological assessment undertaken in the SEE concludes that there will be no significant impact on the TSC and EPBC listed communities.

The proposed relocation requires approximately 6.1 ha of EEC and CEEC to be impacted. The SEE text states that this impact is reduced to 1.55 ha as the majority of the vegetation community will only be temporarily impacted. Rehabilitation of the diversions to there previous condition following construction is proposed as a method of reducing the impact on EEC and CEEC vegetation communities. As such, the assessment of significance (AoS) has used mitigation/ compensatory measures to reduce the impact.

The AoS should not take into account mitigation or compensatory measures. Council believes the AoS should assess worse case scenario to appropriately determine the impact and need for a Species Impact Statement or Biobanking Assessment and EPBC referral.

Council also has concerns with the proposed rehabilitation of the EEC and CEEC areas for the following reasons:

- SEE and Ecological Assessment contain conflicting rehabilitation methods.
- The success of stabilisation of the impacted areas using the methods described is questionable due to soil structure changes and potential for erosion prior to establishment of groundcover.
- The success of re-establishing the vegetation to EEC and CEEC using the methods described is questionable due to potential for weed establishment and unknown seed bank.

Section 4.4.1 of the SEE outlines the justification for the Modification not being referred to the Federal Minister for approval under the EPBC Act. Council believes that there is an inconsistency between the outcomes of the Ecology Assessment and the discussion in the SEE text, specifically pertaining to the condition of the Box Gum Woodland and Derived Native Grassland community. The SEE text states that the vegetation community is degraded while the Ecology Assessment did not identify that the Box Gum Woodland and Derived Native Grassland community as being degraded. Furthermore if the vegetation was degraded it would not meet the definition of a CEEC.

Revised location for the proposed relocation of the Hunter River and Washery Dams

Figure 5 of the SEE indicates the Raw Water Dam and Washery Dam will be relocated to positions adjacent to ED1 and the SEE text indicates the relocation will be required by around 2019. Buy reference to Appendix D of the EA it would appear that ED1 is an approved storage that will eventually replace the Staged Discharge Dam.

The proposed locations for the new Raw Water Dam and the new Washery Dam are shown as being within the catchment of ED1 and outside the Western Diversion Levee.

Subject to the detailed design of these storages, Council does not have any significant concerns for the approval of this element of the modification.

Placement of fill from the excavation of CW1 immediately adjacent to CW1

Figure 6 of the SEE provides a diagrammatic representation of the proposed CW1 Emplacement Area which is shown as being within the approved disturbance boundary. The proposed Emplacement Area is shown immediately east of CW1. Associated text within the SEE indicates the maximum batter slope for the emplacement will be 1V:2H.

Figure 6 appears to show a clean water diversion levee around the emplacement.

Council has several concerns in relation to this emplacement. The concerns include:

- The batter slopes are indicated as being up to 1V : 2H. Council is concerned about the practicality of stabilisation of this batter. A sediment control dam is shown for the Emplacement Area but the functioning of the overall emplacement stabilisation is not considered to be clearly articulated.
- Temporary erosion control measures have been described in the SEE as being implemented and maintained until the materials are relocated. The SEE provides no information on the likely life of the emplacement and thus Council is concerned about the maintenance of this area.
- Any sediment, should it enter CW1 and remain in suspension, would be pumped through the discharge pipeline prior to discharge to Dry Creek downstream of any LDP.

Council does not consider this aspect of the proposed modification should be approved. Should the Department grant this aspect of the approved modification then Council is of the opinion that stringent requirements should be imposed on the implementation and maintenance of the constructed erosion control works for this modified emplacement.

Relocation of the Explosives Storage Facility.

The explosives storage facility is shown on Figure 4 of the SEE (Year 4 – Approved Mine Plan) as being located on the existing OEA in a fully bunded area.

The identified Explosive Storage Facility Envelope is shown on Figure 5 for the proposed modification.

Council does notes that part of this envelope is located upslope of the Western Diversion Levee which is a clean water diversion levee. As such, should the facility be located to the west of the Western Diversion Levee then appropriate erosion control measures should be implemented and maintained for the life of the facility to provide sediment and erosion protection for any disturbed area in the clean water catchment for the Western Diversion levee.

Council has made the assumption that the explosive storage facility or facilities proposed for construction in this area would be required to meet all applicable legislation and safety requirements.

Council has no additional concerns in respect to the approval of this element of the proposed modification.

6 Summary of submission issues

- The AoS should assess worse case scenario (not including mitigation or compensatory measures) to appropriately determine the impact and need for a Species Impact Statement or Biobanking Assessment and EPBC referral.
- The method of rehabilitation for EEC and CEEC areas temporarily impacted to ensure successful return to previous condition is unclear.
- The placement of fill from the excavation of CW1 immediately adjacent to CW1 should not be approved. Should the Department grant this aspect of the approved modification then Council is of the opinion that stringent requirements should be imposed on the implementation and maintenance of the constructed erosion control works for this modified emplacement.
- It is noted that part of this envelope is located upslope of the Western Diversion Levee which is a clean water diversion levee. As such, should the facility be located to the west of the Western Diversion Levee then appropriate erosion control measures should be implemented and maintained for the life of the facility to provide sediment and erosion protection for any disturbed area in the clean water catchment for the Western Diversion levee.

Yours faithfully

S McDonald

Steve McDonald
GENERAL MANAGER

Jason Martin

From: Wayne Jones <wayne.jones@dpi.nsw.gov.au>
Sent: Monday, 7 September 2015 12:11 PM
To: Carl Dumpleton
Subject: Bengalla Mine Continuation Project (SSD 5170 Mod 1)

Hi Carl

Please see following draft DPI comments on the above project. Formal response will follow asap.

Regards
Wayne

Wayne Jones | Land Use Planning Coordinating Officer
Department of Primary Industries
Level 48, MLC Centre, 19 Martin Place Sydney NSW 2000
T:02 9338 6867 | E: wayne.jones@dpi.nsw.gov.au

OUT15/23892

Mr Carl Dumpleton
Resource Assessments
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Carl.Dumpleton@planning.nsw.gov.au

Dear Mr Dumpleton,

Bengalla Mine Continuation Project (SSD 5170 Mod 1)
Proposed Modification

I refer to your email dated 14 August 2015 requesting advice from the Department of Primary Industries (DPI) in respect to the above matter.

Comment by DPI Water
The Department of Primary Industries - Water (DPI Water) has reviewed the Statement of Environmental Effects (SEE) for the Bengalla Mine Continuation Project MOD 1. DPI Water's comments are outlined as follows.

Mine Water Balance

The mine water balance relies upon the following components:

- Runoff capture and harvesting,
- Groundwater ingress,
- Regulated river pumping,
- Recapture and reuse of any runoff which reports to mine water storages.

Bengalla Mine holds 1455ML high security and 4562ML general security licences from Zone 1 of the Hunter Regulated River Water Source. These have been previously incorporated into the site water balance modelling up to the year 2016 at the previous mine production limits of 8 and 10 Mt ROM per annum. A recent modification to the consent permits resource extraction up to 15 Mt ROM coal per annum, which significantly amends the water balance.

During an extended period of drought, the high security shares are likely to receive close to 1 ML per share, while general security may receive a much lower volume per share, and as low as 0 ML per share. The site water balance does not take this into account, but appears to assume 100% allocation (ie 1 ML per share) will apply to all climate scenarios. This must be clarified, as shortfalls of several hundred megalitres will occur if allocations are lowered after Year 7 (median rainfall) or Year 3 (dry rainfall) scenarios. Information about historical water allocations in the Hunter Regulated River can be found online at: http://www.water.nsw.gov.au/water-licensing/registers. The 2006-2007 water year is an example of a drought year, and in that year high security allocations reached 0.92 ML per share while general security allocations only reached 0.35 ML per share.

Net water demand to the site will increase over time. Demand reported in the SEE outlines CHPP throughput will increase from the existing 830ML per annum to 1164ML per annum. Stockpile dust suppression will also increase from 115ML to 150ML per annum. Other water demands vary from year to year. In addition, water demands identified do not include water for site rehabilitation and revegetation, which would be a significant demand during extended dry conditions.

It should be noted that groundwater supply is negligible to non-existent. As with many mines, runoff harvesting supplies the majority of mine water requirements. Unfortunately, although the catchment area of mine dams (including sediment basins and dams) is reported, the annual runoff capture volumes are not. This is a significant omission, as runoff harvesting is the most sensitive input to climatic conditions, and should be presented in detail.

Without rehabilitation, revegetation and maintenance watering estimations during dry years, mine water demand may be approximately double that presented in the SEE. This should be properly included, to allow a volumetric estimate of water demands and potential shortfalls to be made, and to understand licensing requirements from runoff harvesting and take which is not exempt under the Harvestable Rights Orders under the *Water Management Act 2000* or another exempt supply.

The water balance is incomplete. The nominal demand barely exceeds regulated river supply under extended dry conditions, for only core industrial activities. Water supply for revegetation and rehabilitation purposes is not raised, and it is unclear how management and maintenance of regeneration and maintenance of dump and final landform slopes will occur.

The site water balance assesses the Hunter Regulated River water supply volumes however it is considered there are significant gaps in the water balance assessment in relation to water sourced from the Muswellbrook Water Source.

Erosion and Sediment Control

The SEE outlines appropriate erosion and sediment control measures as outlined in the current WMP for the mine will be in place whilst works as part of the modification are carried out. DPI Water consider appropriate measures should be in place prior to construction and until the sites are stabilised, to minimise potential impacts on surface water and groundwater in the locality.

Recommendations:

It is recommended the following information is supplied to allow DPI Water to provide more accurate advice on the proposed modification.

1. Water demand figures for drought incidence to total site usage, including likely irrigation on active rehabilitation, and sustenance to regenerating vegetative cover under the four rainfall scenarios used (10% wet, median, 90% dry and 99% dry conditions).

2. Likely variations in dust suppression requirements under the above rainfall scenarios (esp. under four-eight year travelling dry years, say using the 1937-48 drought).

3. Separation of capture and re-use of contaminated site runoff (which is exempt) to sediment basin harvesting (which may not be exempt), including annual volumes and nomination of which dams from Table 3.6 of Appendix D (Surface Water) are considered Harvestable Rights Dams.

4. Identification of annual volumetric requirements from the Muswellbrook Water Source through mine life.

For further information please contact Christie Jackson, Water Regulation Officer, (Tamworth office) on (02) 6763 1426 or at christie.jackson@dpi.nsw.gov.au.

Comment by Office of Agricultural Sustainability & Food Security
As per arrangements for mining applications that impact on agricultural land, the Office of Agricultural Sustainability & Food Security will respond direct to your Department.

For further information please contact Rob Williamson, Leader Regional Services (Orange office) on 6391 3166, or at: robert.williamson@dpi.nsw.gov.au.

DPI Fisheries and Crown Lands have no comments on the proposed modifications.

NSW GOVERNMENT | Office of Environment & Heritage

Your reference: SSD-5170 MOD 1
Our reference: DOC15/317145-9
Contact: Robert Gibson, 4927 3154

Mr Carl Dumpleton
Senior Planning Officer
Resource Assessments and Compliance
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Dumpleton

RE: REVIEW OF BENGALLA MINE CONTINUATION PROJECT MODIFICATION 1 - STATEMENT OF ENVIRONMENTAL EFFECTS

I refer to your email dated 14 August 2015 requesting comment on the Statement of Environmental Effects (SEE) for a modification to the approved Bengalla Continuation Project State Significant Development (SSD-5170). This Modification is sought under section 96(2) of the Environmental Planning and Assessment Act 1979 and involves:

- additional locations for the approved explosives storage facility
- moving the fill from Clean Water Dam 1 to a new location
- changes to the approved water management system, including additional dirty water storage, relocating a discharge point and revising two dam locations.

The Office of Environment and Heritage (OEH) has undertaken a review of the SEE titled 'Bengalla Mine: Development Consent Modification Statement of Environmental Effects for Bengalla Mining Company Pty Limited. August 2015', prepared by Hansen Bailey and dated August 2015. OEH's detailed comments are provided in **Attachment A**.

In summary, OEH has concerns with the assessment of threatened biodiversity and the absence of any biodiversity offsets for proposed impacts. OEH requests that these concerns be appropriately addressed prior to recommended conditions of approval being provided for threatened biodiversity. OEH did not identify any Aboriginal cultural heritage or flooding issues so long as all regulatory requirements are followed.

If you require any further information regarding this matter please contact Robert Gibson, Regional Biodiversity Conservation Officer, on 4927 3154.

Yours sincerely

7 SEP 2015

RICHARD BATH
Senior Team Leader Planning, Hunter Central Coast Region
Regional Operations

Enclosure: Attachment A

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Level 4/26 Honeysuckle Drive Newcastle NSW 2300
rog.hcc@environment.nsw.gov.au
ABN 30 841 387 271
www.environment.nsw.gov.au

ATTACHMENT A: OEH REVIEW OF BENGALLA CONTINUATION PROJECT - STATEMENT OF ENVIRONMENTAL EFFECTS – SECTION 96 MODIFICATION TO SSD-5170 (MOD 1)

The Office of Environment and Heritage (OEH) has reviewed the Statement of Environmental Effects (SEE) (Hansen Bailey, 2015) for the Bengalla Mine Continuation Project MOD 1 in relation to potential impacts on Aboriginal cultural heritage, flooding and threatened biodiversity. Detailed comments are provided below.

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

OEH has reviewed the 'Aboriginal Archaeological Due Diligence Assessment' prepared by AECOM Australia Pty Ltd (AECOM, 2015). This report was commissioned by Hanson Bailey Environmental Consultants (Hansen Bailey) on behalf of Bengalla Mining Company, June 2015 and presented in Appendix G of the SEE. The due diligence assessment was undertaken to inform the assessment of additional lands required to facilitate the construction of clean water diversions levees within the project area, with respect to any additional impacts to Aboriginal cultural heritage sites and values.

OEH notes that the proponent has undertaken to temporarily fence of the three AHIMS registered sites (# 37-2-1492, # 37-2-2896, # 37-2-2897) that are within the project area with a minimum buffer of five metres to exclude the sites from any potential impacts. OEH supports this mitigation measure. OEH further notes that the previously recorded site (# 37-2-1468) and the newly recorded sites (BM-AS27-15 & BM-IA24-15 {AHIMS numbers not yet allocated}) are to be salvaged in accordance with the Bengalla Mine Aboriginal Cultural Heritage Management Plan. OEH supports this management strategy and has no additional recommendations or concerns with respect to Aboriginal cultural heritage and the proposed development consent modification.

FLOODING AND FLOODPLAIN MANAGEMENT

OEH has reviewed the SEE, particularly Appendix D (WRM Water & Environment Pty Ltd, 2015) for flooding and floodplain management issues for this project. Following this review it appears that the works proposed with this modification primarily impact water management within the mine area itself. There are no adverse impacts on surface flooding of private properties as a result of the proposed development, based on the information provided in the SEE. Nevertheless, the proponent must ensure that all works do not produce adverse flooding impacts on adjacent or downstream properties. This includes the location and construction of levees for clean water runoff.

There is significant information within the SEE with regard to water management on-site, including the location and construction of water management infrastructure and controlled mine water releases to the Hunter River. OEH has assumed that the relevant government agencies, including but not limited to the NSW Office of Water / Department of Primary Industries are have been consulted as part of this development consent modification process.

The proponent is responsible for flood emergency management procedures within its own site. The occupation and use of this site should place no extra requirements on the State Emergency Services for assistance during flood times.

In its current form, the floodplain management components of the proposal are generally supported by OEH.

Recommended Conditions of Consent

1. The proponent is to ensure that there are no adverse flooding impacts on property owned by entities other than the proponent as a result of the works on this site.

2. The occupation and use of this site should place no extra requirements on the State Emergency Services for assistance during flood times.

THREATENED SPECIES

OEH reviewed the Ecological Assessment (Cumberland Ecology, 2015) presented in Appendix C of the SEE to ascertain likely impacts of the project on threatened biodiversity. The proposed modification would result in the clearance of 9.1 hectares (ha) of land to construct two clean water diversion levees in the Dry Creek catchment. About 6.1 ha of the new development footprint is White Box – Yellow Box – Blakey's Red Gum Grassy Woodland Endangered Ecological Community (Box-Gum Woodland EEC). The levee is anticipated to result in the permanent clearing of about 1.3 ha of Box-Gum Woodland EEC (0.6 ha woodland and 0.7 ha derived native grassland) and the temporary clearing of 4.9 ha of Box-Gum Woodland EEC (2.2 ha woodland and 2.7 ha derived native grassland). The proposal is to rehabilitate the area of temporary disturbance back to its pre-MOD 1 vegetation state. OEH notes that the assessment of this additional clearing of EEC vegetation was considered 'not significant' and thus no biodiversity offset was proposed. The assessment was anecdotal, and not based on the 'NSW Biodiversity Offsets Policy for Major Projects' (Office of Environment and Heritage, 2014a).

Under the current biodiversity offsets policy the scale of any likely impact on threatened biodiversity is measured by the Framework for Biodiversity Assessment (Office of Environment and Heritage, 2014b). This requires an assessment of a project using the current BioBanking Credit Calculator and the provision of specific data in a 'Biodiversity Assessment Report'. OEH's main role is to ensure that the policy is implemented correctly. Presently the policy is in a transitional period in which the consent authority, in this case the Department of Planning and Environment can apply some flexibility in the way that this policy is implemented (Office of Environment and Heritage, 2014a: p. 5).

In reviewing the proposal under the current biodiversity offsetting policy notes that the assessment has not followed the requirements of this policy; particularly that no BioBanking credit calculator assessment was provided, that few of the requirements of the Biodiversity Assessment Report have been met, and that no biodiversity offset have been proposed. These are described below.

BioBanking credit calculator assessment and offset requirement

The SEE does not contain a BioBank assessment of the proposed impact using the BioBanking Assessment Methodology (Office of Environment and Heritage, 2014). This is required under current biodiversity offsetting policy. Therefore, OEH ran this calculator using available details provided in the SEE and assuming values for missing data (see Biodiversity Assessment Report Requirements below). Based on this assessment the clearance of 9.07 ha of vegetation (all assigned to HU 701) generates 139 ecosystem credits to be offset. Thus the project has a biodiversity offset requirement.

Biodiversity Assessment Report requirements

The Ecological Assessment does not fully comply with the requirements of the Biodiversity Assessment Report requirements as required under the Framework for Biodiversity Assessment. Those requirements are summarised in Appendix 7 of the Framework for Biodiversity Assessment (Office of Environment and Heritage, 2014b). Most of the missing Biodiversity Assessment Report data requirements stem from the absence of a BioBanking Credit Calculator assessment and the absence of any proposed biodiversity offset in the SEE. Other missing components relate to an overly-brief summary of threatened species survey effort for the development site (e.g. no maps of survey sites relied on by this assessment), no consideration of survey effort in relation to OEH threatened species survey guidelines (Department of Environment and Conservation, 2004; Department of Environment and Climate Change, 2009), and no maps of local threatened species survey results. The proponent needs to provide this data in order for OEH to complete its required assessment.

Biodiversity offset requirements

The proponent's assessment of the proposed clearing of 6.1 ha of Box-Gum Woodland EEC was considered to be 'not significant' after running the '7-part test'. This appears to be the main reason why no biodiversity offset was proposed for this modification. Instead the following three mitigation measures are proposed:

1. mature tree retention, where possible, in the 5.56 ha buffer zone
2. pre-clearance assessments by a suitably-qualified ecologist and clearance supervision to 'soft-fell' habitat trees and translocate any animals resident in the clearing area
3. revegetation of the buffer zone to pre-MOD 1 vegetation condition; use of erosion, sedimentation and pollution control measures during and after construction (Cumberland Ecology, 2015: p. 6.1).

As described in the Framework for Biodiversity Assessment, there are some circumstances where a biodiversity offset is not required (Office of Environment and Heritage, 2014b: Table 4). OEH acknowledges that the scale of the impact is small, however, it is the nature and quality of the vegetation and threatened species habitat effected that determines offsetting obligations. However, in this instance all available data shows that an offset will be required. As such OEH would have expected the SEE to address the provision of biodiversity offsets and/or compensatory measures under Section 6 'Impacts, Management and Mitigation' and Chapter 5 of the Ecology Study.

OEH notes that the proposed impact area (both clearing and buffer zone) on vegetation is approximately 9 ha of vegetation (including about 6.1 ha of Box-Gum Woodland). This generated approximately 139 ecosystem credits. The current market value of ecosystem credits in the Hunter Region is around $2,000 per credit and as such the biodiversity value of the 9 ha of native vegetation to be removed is in the order of $278,000. OEH recommends that the proponent should either retire the appropriate biodiversity credits or provide appropriate supplementary measures, equivalent to the biodiversity value that is being lost, to either a site specific environmental project that benefits threatened species or towards an action(s) that benefits a likely potential threatened species (as listed under OEH's 'Saving Our Species' program) (Office of Environment and Heritage, 2014a). To determine the exact number of biodiversity credits the proposed impact area would generate, OEH recommends that the proposal be assessed under the BioBanking Assessment Methodology (Office of Environment and Heritage 2014c) using the full complement of required data collected from the site. If the proponent does not wish to undertake such an initiative then OEH would expect a suitable biodiversity offset (commensurate to the impact site) be set aside and managed in perpetuity under one of the following conservation mechanisms:

- the establishment of BioBanking sites with BioBanking agreements under the *Threatened Species Conservation Act 1995*
- the dedication of land under the *National Parks and Wildlife Act 1974*
- a Trust Agreement under the *Nature Conservation Trust Act 2001*
- a Planning Agreement under s93F of the *Environmental Assessment and Planning Act 1979*.

Note: OEH no longer supports public positive covenant under s88E of the *Conveyancing Act 1919* or Conservation Agreements under the *National Parks and Wildlife Act 1974* as appropriate conservation mechanisms to secure and/or manage biodiversity offsets.

Conclusion

OEH is not able to provide recommended conditions for approval for threatened biodiversity for this project until deficiencies in the SEE are addressed.

References:

AECOM Australia Pty Ltd. (2015). *Aboriginal Archaeological Due Diligence Assessment.* June 2015. AECOM Australia Pty Ltd, Brisbane. http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7221

Cumberland Ecology (2015) *Bengalla Mine – Section 96(2) Modification to SSD-5170. Ecological Assessment for Hansen Bailey.* June 2015. Cumberland Ecology, Carlingford Court.
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7221

Department of Environment and Conservation (2004) *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities. Working Draft.* November 2004. NSW Department of Environment and Conservation, Sydney. www.environment.nsw.gov.au/surveys/BiodiversitySurveyGuidelinesDraft.htm

Department of Environment and Climate Change (2009) *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians*. April 2009. Department of Environment and Climate Change (NSW), Sydney. www.environment.nsw.gov.au/resources/threatenedspecies/09213amphibians.pdf

Hansen Bailey (2015) *Bengalla Mine: Development Consent Modification Statement of Environmental Effects for Bengalla Mining Company Pty Limited. August 2015.* Hansen Bailey, Singleton. http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7221

Office of Environment and Heritage (2014a) *NSW Biodiversity Offsets Policy for Major Projects. September 2014.* NSW Office of Environment and Heritage, Sydney www.environment.nsw.gov.au/resources/biodiversity/140672biopolicy.pdf

Office of Environment and Heritage (2014b) *Framework for Biodiversity Assessment. September 2014.* NSW Office of Environment and Heritage, Sydney www.environment.nsw.gov.au/resources/biodiversity/140675fba.pdf

Office of Environment and Heritage (2014c) *BioBanking Assessment Methodology 2014.* September 2014. Office of Environment and Heritage, Sydney. www.environment.nsw.gov.au/biobanking/bbreview.htm.

WRM Water & Environment Pty Ltd (2015) Bengalla Modification Surface Water Impact Assessment. 11 August 2015. WRM Water & Environment Pty Ltd, Spring Hill. http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7221

OEH – SEPTEMBER 2015

Transport
Roads & Maritime
Services

31 August 2015

SF2012/004164
CF2015/003868
DC

Resource Assessments
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Mr Carl Dumpleton

DENMAN ROAD (MR209): SECTION 96 LOT: 2 DP: 663773 BENGALLA ROAD, BENGALLA (SSD – 5170 MOD 1)

Dear Mr Dumpleton,

I refer to your email dated 14 August 2015 regarding the proposed modification to State Significant Development SSD SSD-5170, forwarded to Roads and Maritime Services for comment.

Roads and Maritime understands the proposal is for:

- Additional locations for the approved explosives storage facility;
- Moving the fill from Clean Water Dam 1 to a new location; and
- Changes to the approved water management system, including additional dirty water storage, relocating a discharge point and revising two dam locations.

Roads and Maritime Responsibilities

Transport for NSW and Roads and Maritimes' primary interests are in the road network, traffic and broader transport issues. In particular, the efficiency and safety of the classified road network, the security of property assets and the integration of land use and transport.

In accordance with the *Roads Act 1993*, Roads and Maritime has powers in relation to road works, traffic control facilities, connections to roads and other works on the classified road network. Denman Road (MR209) is a classified (State) road. Roads and Maritime concurrence is required for connections to Denman Road with Council consent, under Section 138 of the Act. Council is the roads authority for this road and all other public roads in the area.

Roads and Maritime Response and Requirements

Roads and Maritime has reviewed the information provided and has no objections to or requirements for the proposed modification as it is considered it will not have any significant impact on the classified (State) road network.

Roads and Maritime Services
59 Darby Street, Newcastle NSW 2300 | Locked Bag 2030 Newcastle NSW 2300 DX7813 Newcastle
T 02 4924 0688 | **E** Development.Hunter@rms.nsw.gov.au **www.rms.nsw.gov.au | 13 22 13**

On the Minister's determination of this matter, it would be appreciated if a copy of the modification of the Project Approval is forwarded to Roads and Maritime for record and / or action purposes.

Please contact me on 4924 0688 if you require further advice.

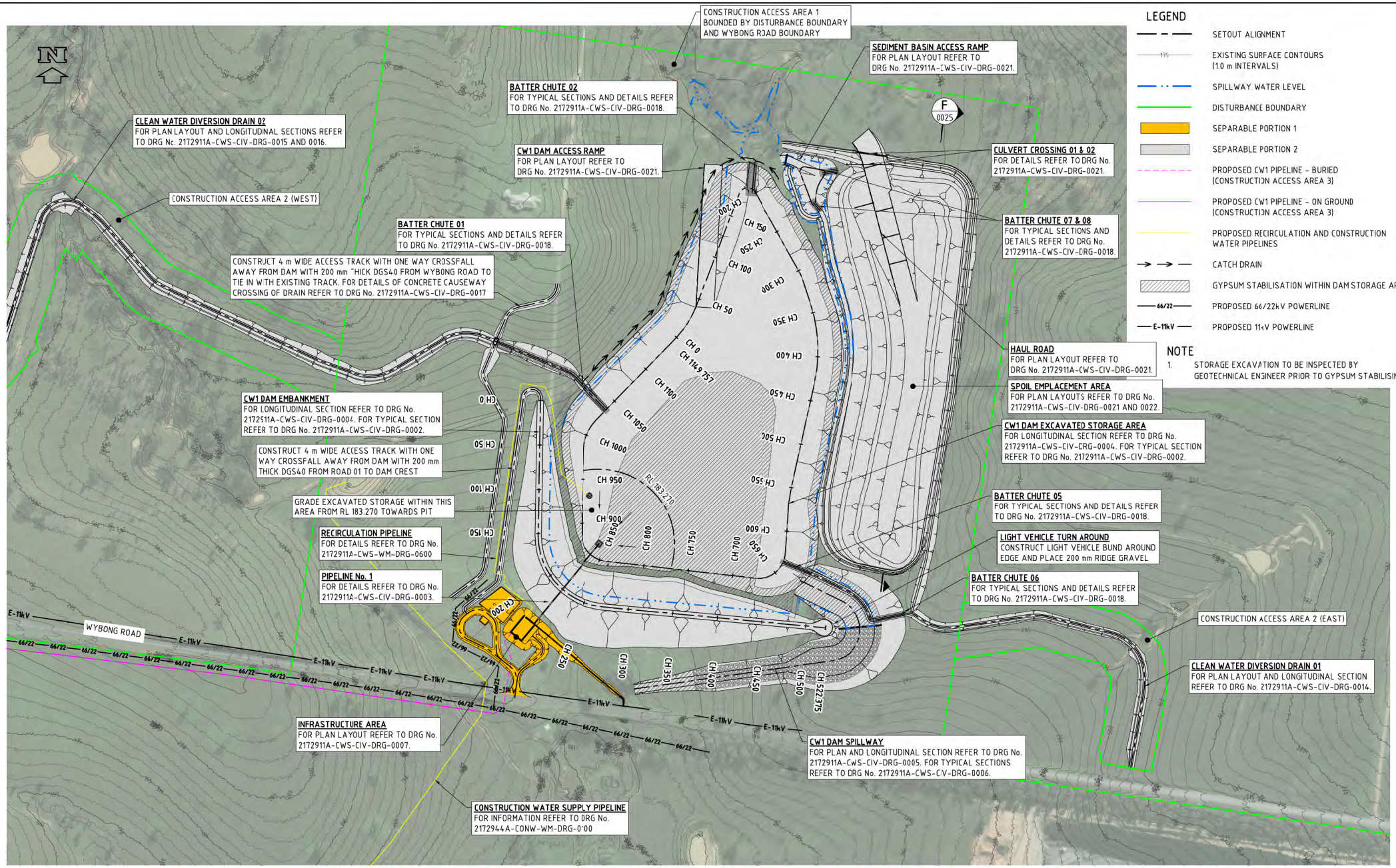
Yours sincerely

Kellee McGilvray
Manager Land Use Assessment
Hunter Region

APPENDIX B

CW1 Emplacement Area – General Arrangement

2172911A-CWS-CIV-DRG-0001



GENERAL ARRANGEMENT

SCALE 1:2000

CONSTRUCTION ISSUE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
0	25.08.15	ISSUED FOR CONSTRUCTION	JH	AMR	TE	PW

SCALES
0 20 40 80 120
Full Size 1:2000 ; Half Reduction 1:4000
SCALE (m)

A1 ORIGINAL
DO NOT SCALE THIS DRAWING - USE FIGURED DIMENSIONS ONLY
VERIFY ALL DIMENSIONS ON SITE

APPROVED FOR AND ON BEHALF OF PARSONS BRINCKERHOFF AUSTRALIA PTY LIMITED
SIGNED
DATE

PARSONS BRINCKERHOFF
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CLIENT
BENGALLA
BENGALLA MINING COMPANY

PROJECT
DRY CREEK PROJECT
CLEAN WATER SYSTEM
GENERAL ARRANGEMENT

PROJECT No.	AREA	DISCIPLINE	CONTENT	NUMBER	REV.
2172911A-	CWS	- CIV -	DRG-	0001	0

100mm AT FULL SIZE

Plotted By: HashieJ Plot Date: 25/08/15 - 16:46 Cad File: \\AFNTLFPS01\proj\B\Bengalla_Mining_Company\2172911A_DRY_CREEK_RELOCATION_DETAILED\09_CADD\Drawings\2172911A-CWS-CIV-DRG-0001.dwg