

**Bulga Optimisation Project
Eastern Emplacement Area and Tailings Storage Modification
(SSD-4960 MOD 1)**

Environmental Assessment Report

Section 96(2) of the *Environmental Planning and Assessment Act 1979*

1. BACKGROUND

The Bulga Coal Complex (the Complex) is an open cut and underground coal mining operation located approximately 12 kilometres southwest of Singleton in the Upper Hunter Valley (see **Figure 1**). The Complex has been operating since 1982 and is owned and operated by Bulga Coal Management Pty Limited (BCM), which is majority owned by Glencore Coal Pty Limited.



Figure 1: Location of Bulga Coal Complex

Current operations at the Complex are approved under two separate development consents. The surface operations, including open cut mining, coal processing and transport, were approved by the Planning Assessment Commission (the Commission) on 1 December 2014 under development consent SSD-4960 for the Bulga Optimisation Project. The underground operations were approved by the then Minister Assisting the Minister for Infrastructure and Planning on 23 February 2004 under DA 376-8-2003. Under these consents, BCM is allowed to:

- extract up to 12.2 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal from its open cut mining operations until 31 December 2035;
- extract up to 14 Mtpa of ROM coal from its underground mining operations until 23 February 2031;
- process up to 20 Mtpa of ROM coal at its onsite coal handling and processing plant (CHPP); and
- transport up to 20 Mtpa of product coal from the site via rail.

This modification only applies to operations under SSD-4960. No changes are required to DA 376-8-2003.

2. PROPOSED MODIFICATION

Following the approval of SSD-4960, BCM has identified opportunities to optimise the design of the approved Eastern Emplacement Area and to address pending operational constraints through the development of a new tailings storage facility in the Main Pit. BCM is therefore seeking to modify SSD-4960 under section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

2.1 Eastern Emplacement Area (EEA)

The EEA is an out-of-pit emplacement area located outside of the active mining area, to the east of Broke Road, just north of the Complex's CHPP and rail loading facility. The EEA is approved for the emplacement of overburden material with co-disposed coarse rejects and paste thickened tailings.

The current EEA is designed to avoid the privately-owned Stage 1 Mushroom Composting Facility (MCF), located immediately east of the Complex (see **Figure 2**). The original Environmental Impact Statement (EIS) for SSD-4960 proposed the acquisition and relocation of the MCF so that the land could be used for overburden emplacement. However, BCM was unable to reach an agreement with Mushroom Composters Pty Ltd, the owners of the MCF, and BCM subsequently revised the design of the EEA to avoid the three lots of land associated with the MCF.

BCM and Mushroom Composters Pty Ltd have since negotiated a commercial agreement for BCM to purchase part of the unused land surrounding the MCF (Lot 1 DP 136366 and Lot 82 DP 1006883) and extend the EEA onto this land, subject to the approval of this modification. The remaining property, which contains the MCF (Lot 81 DP 1006883), would be retained and the MCF would remain in operation, allowing both operations to coexist.

This extension of the EEA onto the vacant land to the southeast of the MCF would provide additional overburden capacity, allowing BCM to remove the northern part of the EEA from its design (see **Figure 3**). This also has the benefit of removing the need to construct a haul road bridge to the northern part, across MCF's access road off Broke Road. The redesigned EEA would reduce the operational interaction with the MCF and reduce the visual and dust impacts to the north-northeast of the Complex.

The redesigned EEA would result in the total project area increasing from approximately 4672 to 4879 hectares (ha) to include the two new properties, however the total disturbance footprint would decrease by 4 ha. Other than a change in location there are no other proposed changes to the size and height of the EEA or the emplacement material. Construction of the EEA is expected to occur approximately between mine plan Years 3 to 9, roughly 2017 to 2023.

2.2 Main Pit Tailings Disposal

BCM is currently permitted to dispose of CHPP by-product tailings material into the Deep Pit, Bayswater Pit and underground workings. However, Bulga underground operations are expected to be suspended in mid 2018 (earlier than previously anticipated) which means there is no longer sufficient capacity to dispose of tailings in the underground workings without sterilising future coal resources. BCM has since identified a further in-pit tailings storage facility opportunity in the Main Pit.

The proposed Main Pit tailings storage facility would have an approximate capacity of 7.5 gigalitres (GL) and would be designed and managed similarly to the existing approved in-pit tailings storage areas. Fine tailings from the CHPP would be emplaced in the in-situ open cut mine void up to approximately RL 0 m AHD and would be subsequently capped and rehabilitated.

The modification would not change the total quantity of tailings material produced from the Complex, but would change the disposal location to the area shown in **Figure 2**. While some connection pipes and pumps to the Main Pit would be required, the existing water management infrastructure would largely remain unchanged. No additional surface disturbance would be required for the new tailings facility.

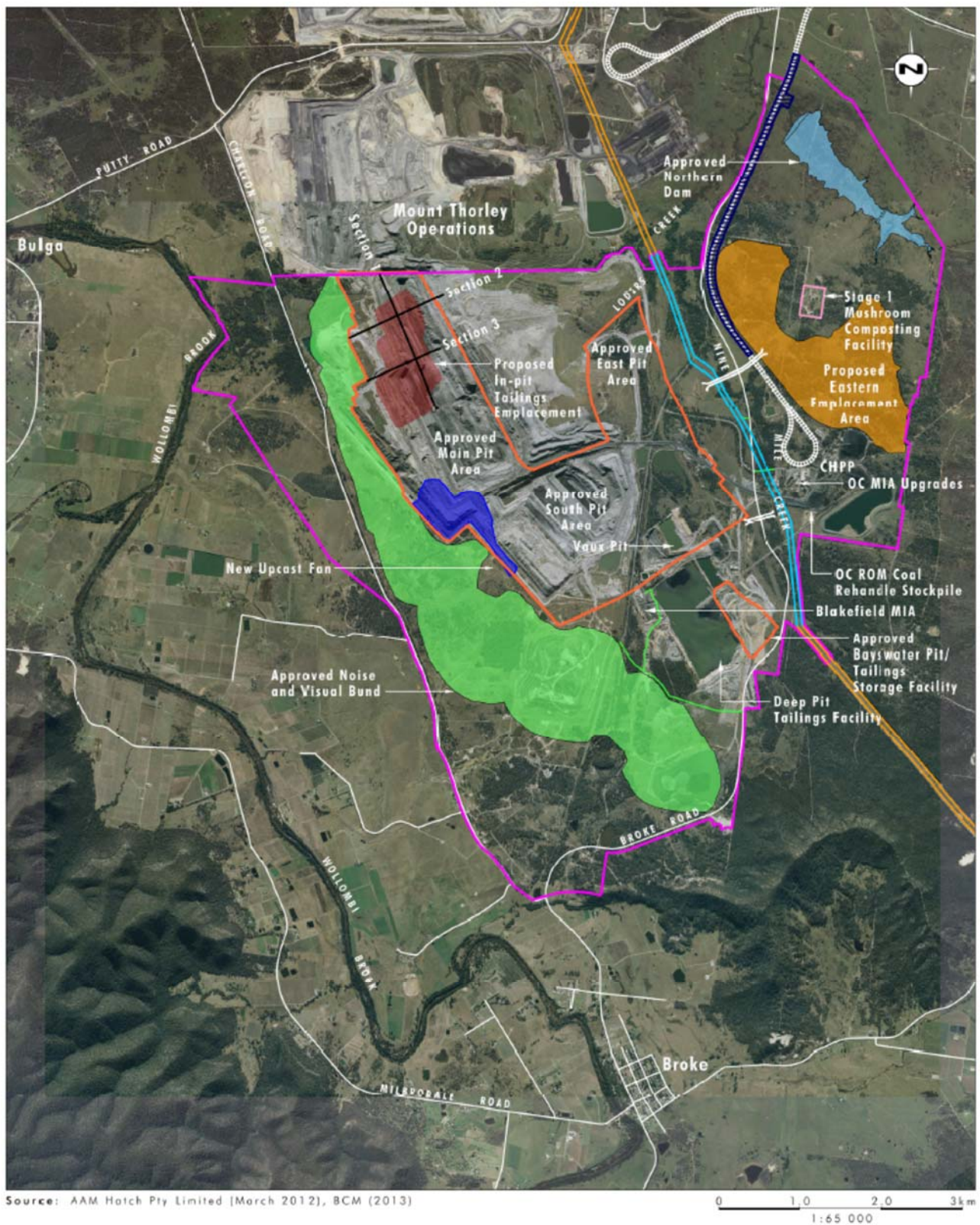


Figure 2: Proposed modifications

There are no changes proposed to any other aspect of the approved mining operations, including mining methods, mining areas, mining fleet, hours of operation and extraction quantities.

The proposed modification is described further in the Statement of Environmental Effects (SEE, see **Appendix A**), prepared by Umwelt (Australia) Pty Ltd, which accompanied the application.

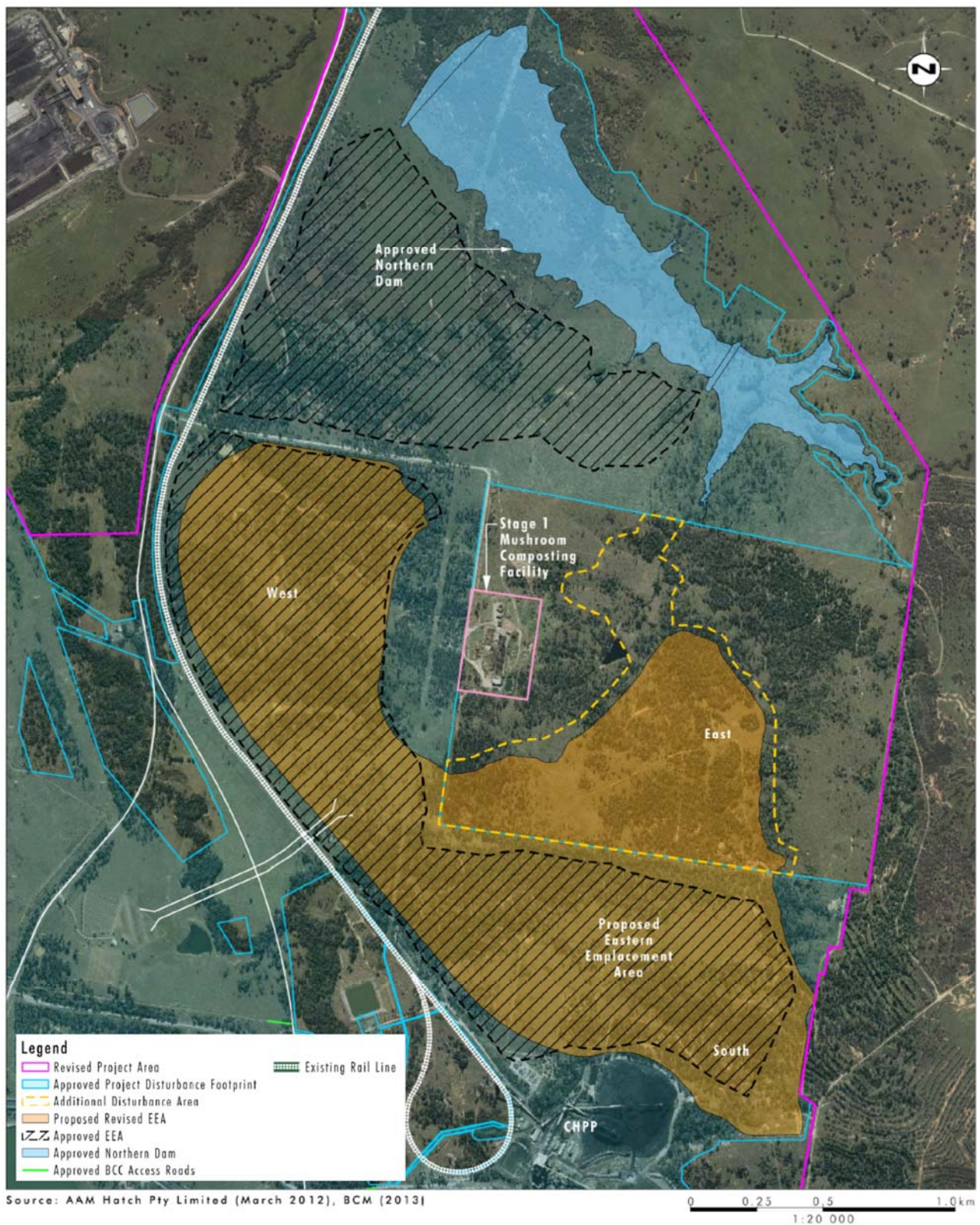


Figure 3: Proposed redesigned EEA

3. STATUTORY CONTEXT

3.1 Section 96(2)

SSD-4960 was granted in December 2014 under Part 4 of the EP&A Act. Section 96 of the EP&A Act allows for a development consent to be modified by the consent authority that granted the original consent.

The proposal would not change any of the core elements of the project including mining, processing or transportation methods, total resource recovery, production rates, operational hours, pit dimensions, employee numbers, mining intensity and the volume of material to be emplaced. Given that the proposal would change the location of overburden and tailings emplacement and the overall disturbance footprint of the development, the Department considers that the modification would involve more than minimal environmental impact.

The Department is satisfied that the proposed modification to the existing development consent is within the scope of section 96(2) of the EP&A Act, and may be determined accordingly.

3.2 Approval Authority

The Minister for Planning is the approval authority for the proposed modification. Under the Minister's delegation of 14 September 2011, the Planning Assessment Commission must determine the application, as BCM has declared political donations by an affiliated company, Glencore Australia Holdings Pty Limited.

3.3 Other Licences

Mining activities at the Complex are also regulated under an Environmental Protection Licence (EPL 563) granted under the *Protection of the Environment Operations Act 1997*. The Department understands that an EPL variation would be required to address the revised project area.

BCM also holds three mining leases granted under the *Mining Act 1992*. These leases do not encompass the MCF land required for the redesigned EEA (ie Lot 1 and Lot 82). BCM has submitted a mining lease application (MLA 525) over the proposed additional EEA disturbance area and has followed the site verification certificate process required under clause 50A of the EP&A Regulation.

In accordance with Part 4AA, Division 3 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP), BCM was granted a Site Verification Certificate (SVC 7725) on 18 August 2016 which certifies that the additional disturbance area is not Biophysical Strategic Agricultural Land (BSAL). BCM's MLA will be assessed should the Commission approve this modification.

3.4 Environmental Planning Instruments

A number of environmental planning instruments (EPIs) apply to the modification, including the:

- Mining SEPP;
- SEPP (State and Regional Development) 2011;
- SEPP No 33 – Hazardous and Offensive Development;
- SEPP No 44 – Koala Habitat Protection;
- SEPP No 55 – Remediation of Land; and
- Singleton Local Environmental Plan 2013.

The Department has considered the modification against the relevant provisions of these EPIs, as well as BCM's consideration of these matters. Based on this assessment, the Department considers that the proposed development can be undertaken in a manner that is generally consistent with the aims, objectives and provisions of the EPIs.

3.5 Commonwealth Approval

The Bulga Optimisation Project has an existing approval (2012/6637) under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). BCM did not refer the modification to the Commonwealth Department of the Environment & Energy as it considers that the proposed works would be undertaken in accordance with the scope of the existing approval.

4. CONSULTATION

Following receipt of the modification application and the accompanying SEE, the Department:

- placed a public exhibition notice in the *Singleton Argus* and *Hunter Valley News* on 13 July 2016;
- publicly exhibited the application and accompanying SEE from 13 to 27 July 2016 on the Department's website and at its Information Centre, Singleton Council's office and the Nature Conservation Council's office;

- notified each person who made a submission in relation to the original SSD application; and
- notified relevant State Government authorities and Singleton Council.

The Department is satisfied that the above notification process met the requirements of the EP&A Act and the EP&A Regulation.

In response to the notification process, Department received ten submissions from government agencies (see **Appendix B**). No special interest group or individual community submissions were received.

BCM provided a Response to Submissions (RTS) document to address concerns raised in agency submissions (see **Appendix C**). A summary of the issues raised and BCM's response is provided below.

Division of Resources and Energy within the Department of Industry (DRE) requested additional information regarding the final landform and tailings disposal to enable it to adequately assess if the modified project could achieve sustainable rehabilitation outcomes.

The additional information was provided by BCM in its RTS. DRE subsequently advised that it was satisfied that BCM had adequately addressed its issues. DRE also acknowledged that sustainable rehabilitation outcomes could be achieved and no further conditions of consent were recommended. The Department's consideration of the final landform and rehabilitation are set out in **Section 5.6** below.

Department of Primary Industries (DPI) requested additional information regarding licensing provisions under the *Water Management Act 2000* and the disturbance of watercourses and riparian areas, having regard to DPI Water's *Guidelines for Controlled Activities on Waterfront Land*. DPI also requested a map to demonstrate that the EEA does not overlie any highly productive alluvial aquifers.

BCM provided the additional information in its RTS. Following review, DPI provided recommended conditions of consent for water management and water licensing. The Department's consideration of surface water and groundwater impacts are set out in **Section 5.5** below.

Office of Environment and Heritage (OEH) did not identify any major issues with the proposal. OEH noted that, while the biodiversity assessment did not follow the Framework for Biodiversity Assessments (FBA), it was satisfied that the methodology used was acceptable as there would be no net change in disturbance to native vegetation, in terms of both extent and biodiversity values. The Department's assessment of biodiversity impacts is set out in **Section 5.3** below.

OEH also provided comments on Aboriginal cultural heritage and flooding and floodplain management, however no concerns were raised. The Department's assessment of Aboriginal cultural heritage and surface water impacts are set out respectively in **Sections 5.4** and **5.5** below.

The **Heritage Division of OEH** noted that no items of State heritage significance would be affected by the modification; however it requested a plan reflecting the location of known heritage items in relation to the proposed modification works. BCM provided a map in its RTS identifying the location of historic heritage items in relation to the redesigned EEA. Following review, the Heritage Division identified that it had no further concerns. The Department's consideration of historic heritage impacts is set out in **Section 5** below.

The **Environmental Protection Authority** (EPA) noted that the modification was unlikely to result in an increase to potential impacts from mining operations, and therefore it did not have any specific comments or proposed conditions of consent.

Singleton Council (Council) did not have any specific concerns over the modification and noted that the redesigned EEA was a direct result of BCM resolving and minimising issues with Mushroom Compost Pty Ltd.

Australian Rail Track Corporation had no comments on the modification, as the proposed changes are unlikely to impact rail infrastructure or rail movements.

Roads and Maritime Services had no objections to the modification as it would have no significant impact on the State road network.

Hunter New England Population Health and Transport for NSW reviewed the SEE but had no comments on the proposal.

5. ASSESSMENT

The Department has assessed the merits of the proposed modification in accordance with the relevant objects and requirements of the EP&A Act. As part of this assessment, the Department has considered the:

- modification application and accompanying SEE;
- relevant content of the previous EIS, current environmental management plans and monitoring results;
- agency submissions received and the RTS;
- existing conditions of consent; and
- relevant EPIs, policies and guidelines.

The Department considers that the key issues associated with the proposed modification to the EEA are air quality, noise, biodiversity, Aboriginal cultural heritage, surface water and rehabilitation and final landform. It is important to note that the proposed additional EEA area has already been subject to detailed environmental assessment as part of the EIS that supported the SSD-4960 application. As discussed in **Section 2.1** above, the project as originally proposed included acquisition and use of the MCF land, however the development application was subsequently revised to exclude this area due to issues between Mushroom Composters Pty Ltd and BCM that were unresolved at that time.

The Department considers that the key issues associated with the proposed new tailings storage facility are groundwater impacts, rehabilitation and final landform. The Department notes that no additional surface disturbance or dust generating activities are required for the facility and as such, the tailings storage facility is not discussed in **Sections 5.1 to 5.4** below.

5.1 Air Quality

5.1.1 Predicted Impacts

The SEE included an air quality impact assessment undertaken by Jacobs Group (Australia) Pty Ltd in June 2016. The impact assessment used air quality dispersion modelling to predict dust emissions from the Complex with the proposed redesigned EEA and compared these results to the relevant predictions for the approved project.

This modelling included predictions of the worst-case (Year 3) particulate matter (PM₁₀) emissions at the nearest sensitive receiver locations, being the MCF and six private residences (1A, 3, 8, 323, 324 and 325) to the north-northwest of the Complex along Mitchell Line of Road. The Department accepts that the modification would be unlikely to change the air quality impacts for all other sensitive receivers to the south and west of the Complex.

The air quality dispersion model for the approved project was also refined to include revised emissions inventories to reflect reduced estimates of material handling quantities. The reduced material handling quantities and the model refinements resulted in a significant decrease in predicted dust emissions from the Complex. The impact assessment also concluded that the slightly smaller disturbance area and shorter haul routes associated with this modification would result in a minor decrease in dust emissions from the Complex.

The predicted maximum 24 hour average PM₁₀ concentrations decreased by at least 5 micrograms/cubic metre (µg/m³) at all six private residences to the north-northwest of the Complex, with the predictions now ranging from 17 to 25 µg/m³. The predicted days above the 24-hour criteria of 50 µg/m³ have also decreased to 4 or less. These decreases are largely due to the model refinements.

In contrast, the predicted annual average PM₁₀ concentrations increased at 5 of the 6 private residences, largely due to a change in background PM₁₀ assumptions. The increases ranged from 4 to 6 µg/m³, up to a maximum of 21 µg/m³, which remains well below the long-term assessment criteria of 30 µg/m³.

No material changes to air quality impacts were predicted at the MCF.

The Department is satisfied with BCM's assessment of air quality impacts and notes that the modified EEA layout would not cause any significant change to air quality impacts at sensitive receivers. The Department is also satisfied that the modified project could continue to meet the relevant air quality criteria in the consent.

5.1.2 Proposed Avoidance, Mitigation and Management

BCM is currently required to adhere to contemporary air quality management conditions and strict air quality assessment criteria set out in the EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*, and to prepare and implement an Air Quality Management Plan.

In addition to these standard air quality conditions, BCM is required to establish a Technical Review Committee (TRC) to oversee the management of air quality impacts on the MCF during operation and rehabilitation of the EEA. BCM, in consultation with the TRC, is also required to prepare and implement an EEA Management Framework (EEAMF) to establish appropriate air quality assessment criteria and trigger levels for the MCF, including management procedures and monitoring programs. These additional requirements were imposed based on the close proximity of the MCF to the EEA and the need to manage air quality impacts on this neighbouring industrial/agriculture business.

The TRC was formed in 2015 and on 13 May 2016 the EEAMF was approved by the Secretary. The EEAMF agreed on a short-term air quality assessment criterion for the MCF during regular operating hours, being 91 $\mu\text{g}/\text{m}^3$ (PM_{10} 13-hour average). The criterion was calculated on the basis of:

- a 24-hour average PM_{10} exposure of less than 60 $\mu\text{g}/\text{m}^3$ based on the Victorian EPA's *Protocol for Environmental Management for Extractive Industries*, adjusted for a 13-hour on-site working day; and
- a background exposure of 23 $\mu\text{g}/\text{m}^3$ based on measurements from OEH's Singleton air quality monitoring station, adjusted for the remaining 11 off-site hours.

The Department considers this criterion remains suitable to protect the healthy and amenity of the MCF workers, whilst appropriately reflecting the MCF's industrial work environment.

In the SEE, BCM requested that conditions related to the TRC and EEAMF (conditions 19 to 22 of Schedule 3) be removed from the consent. The Department considers that these conditions should remain in place to ensure the air quality impacts on the MCF continue to be mitigated and managed over the period that the two operations co-exist. The TRC and the EEAMF should therefore remain in force until the EEA is fully rehabilitated, unless the MCF suspends or closes operations prior to this.

Nevertheless, the Department has proposed some minor changes to the requirements of the EEAMF to reflect the existing commercial agreement between Mushroom Composters Pty Ltd and BCM. The Department understands that Mushroom Composters Pty Ltd has agreed to sell some of the unused land surrounding the MCF to BCM for the EEA and the remaining property would no longer require compulsory acquisition rights. With this existing commercial agreement in place and considering the management procedures in the approved EEAMF, the Department is satisfied that it is appropriate to remove the relevant land acquisition requirements (conditions 19(j) and 21 of Schedule 3) from the consent.

The Department considers that no further changes to air quality conditions or amendments are necessary.

5.2 Noise

5.2.1 Predicted Impacts

The SEE included a noise impact assessment undertaken by Global Acoustics Pty Ltd in June 2016. The impact assessment predicted noise emissions from the Complex including the proposed redesigned EEA and compared these results to the relevant predictions for the approved project.

The redesigned EEA has the potential to alter the topographical shielding for some receivers, particularly to the northeast of the Complex, who would have otherwise had some operational noise shielded by the northern part of the EEA that would no longer be developed.

The noise impact assessment remodelled predicted noise levels for all sensitive receivers for Years 4, 7, 13 and 19. Other than the redesigned EEA, no other model refinements were made. The noise modelling predicted that, as a result of this modification, there would be nil or minimal (± 1 decibel [dB]) change in noise impacts for the majority of sensitive receivers.

The exceptions are at receivers 8 and 325. During Year 4, the predicted noise levels for receiver 8 decrease by up to 2 dB. For receiver 325, the day time predictions increase from 28 to 30 dB in Year 13 and from 25 to 28 dB in Year 17. Despite these increases the noise levels would remain below the consent criteria of 37 dB(A) for the day, evening and night time periods.

The noise impact assessment concluded that the modification would result in insignificant changes to noise emissions for all assessed stages and for all sensitive receivers and that any minor increases in noise would be indiscernible compared to existing background levels.

Considering these predictions, the Complex would continue to meet its approved noise assessment criteria. The Department is satisfied with BCM's assessment of noise impacts and agrees with its findings that there would be no significant change in the noise impacts on sensitive receivers.

The Department notes that the MCF was not specifically assessed in the noise impact assessment, as it is a commercial enterprise. However, the Department understands that the Complex would continue to meet the amenity criteria for an industrial premises under the *Industrial Noise Policy* (INP).

5.2.2 Proposed Avoidance, Mitigation and Management

The Department is satisfied that the proposed modification would not significantly increase noise emissions from the Complex and therefore considers that no additional noise related conditions or amendments to the consent are necessary. The existing condition requiring BCM to prepare and implement a Noise Management Plan is sufficient to ensure that appropriate noise management and mitigation measures are adopted to meet the noise criteria in the consent, even during adverse weather conditions. The Department is also satisfied that the current voluntary noise mitigation and land acquisition entitlements remain adequate and no changes are required.

5.3 Biodiversity

5.3.1 Predicted Impacts

The proposed additional EEA disturbance area has been assessed in previous impact assessments, surveys, reports and flora and fauna monitoring data. The SEE's assessment of potential ecology impacts largely relied on these previous studies. However, a biometric vegetation field survey and targeted threatened flora surveys were also undertaken in January 2016 to further supplement and validate the previous studies.

The biometric vegetation survey confirmed the presence of 4 native woodland and 1 derived native grassland vegetation communities within the additional EEA area. The biometric vegetation results were further used to identify areas within the currently approved disturbance footprint that could be relinquished to ensure no net change in the total area of native vegetation disturbance. To balance approximately 86.6 ha of new disturbance required for the redesigned EEA, BCM identified approximately 91 ha of similar or better quality vegetation to relinquish (see **Table 1** and **Figure 4**).

Table 1: Vegetation community comparisons

Vegetation Community	Corresponding Biometric Vegetation Type (BVT)	Area to be Impacted by proposed EEA (ha)	Area to be Relinquished (ha)
Central Hunter Grey Box - Ironbark Woodland (TEC/EEC)	HU905 - Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter [Moderate to Good Condition]	40.6	48.43
Central Hunter Grey Box - Ironbark Derived Native Grassland	HU905 - Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter [Derived Native Grassland (DNG) Condition]	39.5	40.85
Central Hunter Swamp Oak Forest	HU945 - Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley [Moderate to Good Condition]	4.77	0.49
Central Hunter Bull Oak Forest Regeneration	HU906 - Bull Oak grassy woodland of the central Hunter Valley [Moderate to Good Condition]	0.88	1.1
Riparian Derived Grassland	HU945 - Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley [Moderate to Good Riparian Condition]	0.44	0
Water body		0.43	0.11
Total		86.62	90.98

As shown in **Table 1**, the modification would result in a net decrease of approximately 4 ha of vegetation disturbance. This includes an 8 ha decrease in disturbance to the *Central Hunter Grey Box - Ironbark Woodland*, a threatened ecological community under the *Threatened Species Conservation Act 1995* (TSC Act) and an endangered ecological community under EPBC Act.

In addition to considering disturbance of vegetation communities, the SEE's ecology assessment investigated disturbance in terms of threatened ecosystem-credit species. Previously recorded species from in or around the project and species identified in the Biobanking Credit Calculator were reassessed to determine if the proposed modification would alter the outcomes. The assessment concluded that it was unlikely that any

threatened ecosystem-credit species would be significantly impacted by the proposed modification when compared to the approved impacts.

A threatened species assessment under section 5A of the EP&A Act was also undertaken to demonstrate that the proposed modification would not result in a significant impact on threatened species, endangered populations or threatened ecological communities.

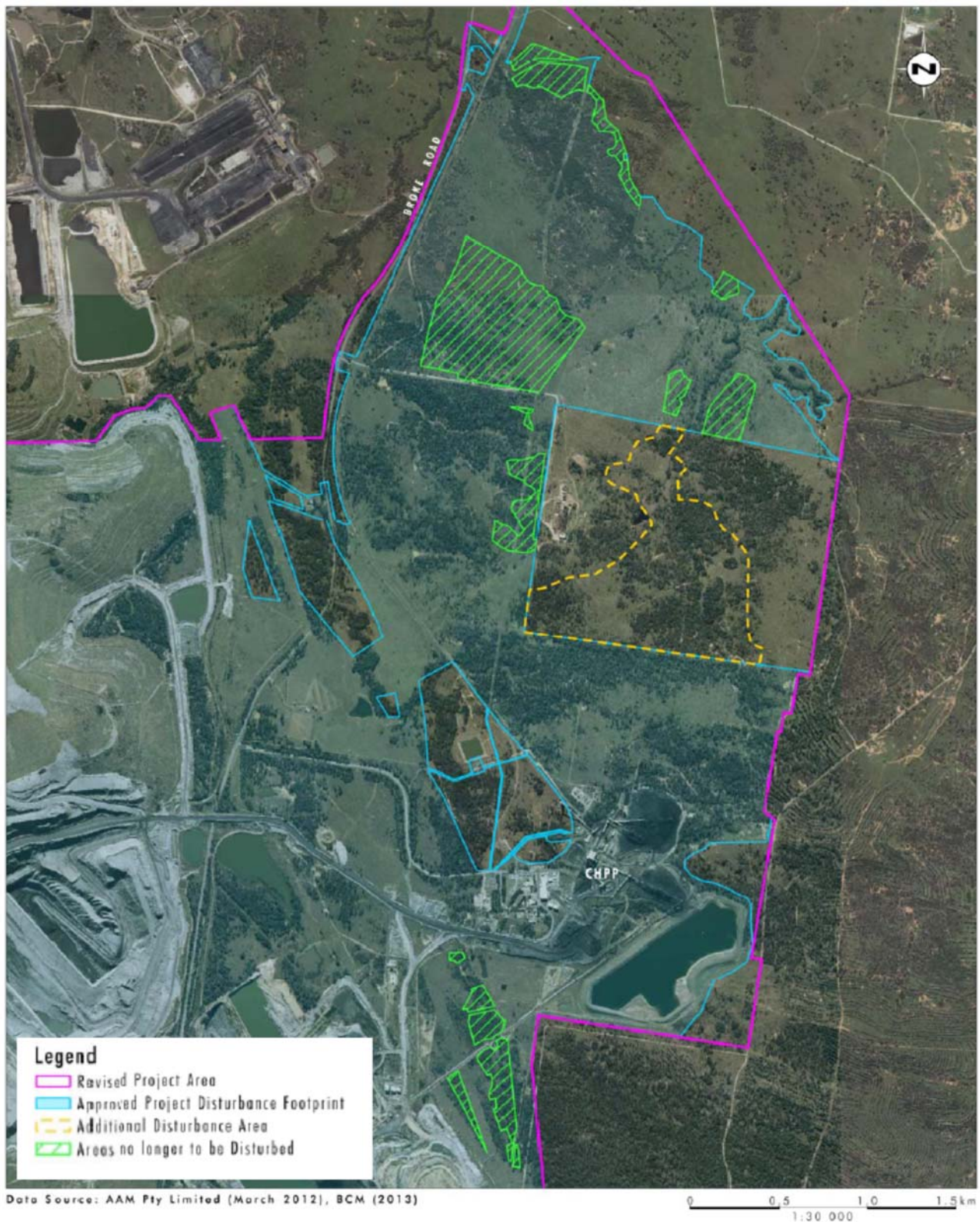


Figure 4: Revised Disturbance Footprints

5.3.2 Proposed Avoidance, Mitigation and Management

Given the modification would result in no net increase to native vegetation disturbance, BCM has not proposed any changes to its existing offsetting requirements.

In its submission, OEH advised that while the threatened biodiversity assessment in the SEE was not completed fully in accordance with the requirements of the FBA, it agreed that the current offset package was sufficient, since the proposed additional EEA area was previously considered in developing the offset package for the original SSD-4960 application. OEH also advised that future modifications involving new areas of clearing must be completed in accordance with the FBA and the relevant offsets policy.

The Department is also satisfied with the proposed approach and considers that no additional conditions or amendments to the consent are required. The existing condition requiring a Biodiversity Management Plan remains sufficient to ensure biodiversity impacts are appropriately mitigated and managed. The Department notes that BCM would be required to update this Biodiversity Management Plan, if the modification is approved, to reflect the revised disturbance areas.

5.4 Aboriginal Cultural Heritage

5.4.1 Predicted Impacts

The proposed additional EEA disturbance area was assessed in the EIS's Aboriginal cultural heritage assessment that supported the SSD-4960 application. The SEE also included an Aboriginal cultural heritage assessment undertaken by OzArk Environmental and Heritage Management Pty Limited in June 2016, which built on the results of the previous assessment and included a field survey conducted in February 2016.

This recent assessment confirmed there are three sites within the proposed disturbance area that would be impacted by the redesigned EEA, being:

- BOP OS-2 (AHIMS ID 37-6-2836), an artefact scatter;
- BOP SC-3 (AHIMS ID 37-6-2847), a site complex that has been partially salvaged; and
- BOP IF-8, a previously unrecorded isolated find, identified during the 2016 field survey.

All three sites have been assessed as having low archaeological significance due to the low density of artefacts and existing levels of disturbance from agricultural land use, historic land clearance and erosion. Nonetheless, the assessment concluded that they have high cultural significance, as they are indicators of past Aboriginal occupation. No archaeologically sensitive areas or landforms were identified in the proposed disturbance area and there is a low potential for the discovery of additional artefacts within this area.

5.4.2 Proposed Avoidance, Mitigation and Management

BCM proposed to salvage the three impacted sites by recording, collecting and safe-keeping all surface artefacts in accordance with the category 3 management procedures in its Aboriginal Cultural Heritage Management Plan.

The Department is satisfied that the proposed management measures would be adequate to ensure the three archaeological sites are adequately salvaged prior to commencing nearby ground disturbance. The Department has proposed updating Appendix 10 of the consent to reflect the three sites to be impacted by the modification. This includes updating Figure 1, moving BOP OS-2 from Table 1 to Table 2 and adding BOP IF-8 to Table 2.

The Department also notes that four sites (BOP IF-1, BOP IF-2, BOP SC-2 and BOP SC-4) previously predicted to be impacted by the development of the northern part of the EEA, have already been collected under the 2015 salvage program and should therefore remain in Table 2. No additional Aboriginal cultural heritage related conditions or amendments to the consent are considered necessary.

5.5 Water

As described in the SEE, the proposed modifications is unlikely to result in any additional surface water or groundwater impacts when compared to the approved project.

Surface water run-off would continue to be managed in accordance with OEH's *Managing Urban Stormwater: Soils and Construction - Volume 1 and Volume 2E Mines and Quarries*, which is currently incorporated in the Complex's Integrated Water Management System (IWMS) and the Water Management Plan.

The redesigned EEA would include variations in vertical relief to prevent surface water ponding. Water drainage structures in the vicinity of the redesigned EEA would also be revised to capture dirty water and divert clean water away from the EEA. This would require construction of a new sediment dam (S23).

The RTS provided further information on BCM's water licensing and water management provisions to demonstrate that the Complex has adequate surface water storages and that BCM holds sufficient licensed allocations under the *Water Management Act 2000*. The modification would result in a net reduction in the capture of clean water run-off, meaning that the total estimated clean water take would remain within the Complex's harvestable rights allowance of 440 megalitres per year.

Other than minor changes to water management infrastructure, the current IWMS for the Complex would continue to be sufficient to manage surface water on site. The proposed Main Pit tailings storage facility would also be managed and operated under the IWMS. Tailings would be pumped to the facility and decant water would be recovered, treated and recirculated into the IWMS. As the same total quantity of tailings would be emplaced, no additional water quantity would be produced compared to the currently approved tailings emplacement system.

The SEE included a brief assessment of potential groundwater impacts from the proposed tailings storage facility. The Department, DPI and DRE all requested additional information on the proposed tailings management. The RTS clarified that the Main Pit tailings storage facility would be managed under the Complex's existing tailings management plan, which includes a strategy to maximise decant water recovery and minimise seepage into the surrounding environment.

The RTS also included a groundwater review prepared by AGE Consultants Pty Ltd in November 2016. This groundwater review assessed potential risks to the groundwater regime associated with the proposed revised tailings strategy and concluded that fine tailings disposal in the Main Pit is unlikely to produce significant additional impacts, beyond the approved tailings emplacement activities. Similar to other mining voids used for tailings disposal at the Complex, the Main Pit is considered to be an acceptable tailings storage facility because mining-induced depressurisation of the surrounding strata creates a localised groundwater sink, minimising the potential for groundwater seepage into the surrounding environment.

The Department is satisfied that existing and proposed management measures would be sufficient to minimise surface and groundwater impacts, but considers that the conditions of consent should be strengthened. Accordingly, the Department has proposed updated water management performance measures for mine water storages and tailings storages.

Following DPI's advice, the Department has also proposed minor revisions to the consent's Site Water Balance requirements to include details of Water Access Licences held for the project, and to the Surface Water Management Plan requirements to ensure the plan includes details of drainage works for erosion and sediment structures. Rehabilitation objectives for the final landform have also been strengthened to include a final landform that minimises long-term groundwater seepage.

Otherwise, the existing condition requiring a Water Management Plan remains sufficient to ensure that BCM effectively manages its water impacts.

5.6 Rehabilitation and Final Landform

The SEE included a revised final landform to accommodate the proposed redesigned EEA. The final landform would be generally consistent with the currently approved conceptual final landform. Using the same design principles and rehabilitation objectives, the redesigned EEA would be constructed to a height of approximately RL 150 m AHD with selected areas emplaced up to RL 165 m AHD, and would incorporate micro and macro relief features to blend into the surrounding natural landscape.

The RTS included additional information on final land uses, rehabilitation and mine closure. BCM confirmed the final land use for the EEA would be a sustainable native ecosystem. This is consistent with the final land use described in the approved project. The project would continue to be progressively rehabilitated and native vegetation communities, similar to the communities listed in **Table 2** above, would be established.

The proposed tailing storage facility would not alter the approved final landform, but would change the timing of emplacement. Upon completion of tailings disposal in the Main Pit, the dry tailings material would be capped with approximately 100 m of suitable material to isolate and consolidate the tailings. This would reduce

permeability and limit the movement of groundwater, minimising the potential for oxidation and acid formation, and preventing spontaneous combustion.

The Department notes that detailed rehabilitation and mine closure objectives and final landform commitments would be further defined in the Rehabilitation Management Plan, required under the existing consent, and the Mining Operations Plan required under the existing mining leases.

The Department is satisfied that the proposed final landform and final land use would be consistent with the approved project. As required under the consent, BCM must meet strict rehabilitation objectives, conduct progressive rehabilitation and prepare and implement a Rehabilitation Management Plan. The Department is generally satisfied that these conditions remain suitable, however it considers that the rehabilitation objectives should be strengthened to include a final landform that is sustainable and compatible with surrounding land uses and revegetation that establishes native vegetation areas that complement and improve local and regional biodiversity.

5.7 Other impacts

Other minor impacts are discussed in **Table 2** below.

Table 2: Other impacts

<i>Issue</i>	<i>Impact and Consideration</i>	<i>Recommendation</i>
<i>Historic Heritage</i>	<ul style="list-style-type: none"> The additional EEA area was assessed in an earlier European Heritage Assessment prepared for the original EIS. No items of State heritage significance were identified in the vicinity of the additional EEA area. The existing heritage management requirements would be adequate to ensure historic heritage impacts are minimised 	No additional conditions or amendments are considered necessary.
<i>Visual Amenity</i>	<ul style="list-style-type: none"> The SEE included a visual analysis to assess potential visual impacts of the redesigned EEA on surrounding sensitive receivers. The radial analysis indicated that the additional EEA may be visible from one private residence to the northeast, along Mitchell Line of Road. Following a request from the Department, BCM provided a photomontage in the RTS showing the predicted view from the potentially-affected private residence. The photomontage sufficiently demonstrated that the redesigned EEA would continue to be visually obscured by a natural ridgeline and roadside vegetation. While the analysis focused on the additional EEA area, the Department understands that visual amenity would not materially change as a result of removing the northern EEA area. 	No additional conditions or amendments are considered necessary.
<i>Socio-economic</i>	<ul style="list-style-type: none"> The redesigned EEA would be located further away from the nearest sensitive receivers on Mitchell Line of Road. There would be no change in the Complex's construction or operational workforce. The redesigned EEA reflects reduced land use conflict with the neighbouring MCF and allows for both operations to co-exist. Disposing of tailings in the Main Pit instead of the underground workings ensures that remaining underground coal resources are protected from sterilisation and available for future extraction. 	No additional conditions or amendments are considered necessary.

6. CONCLUSION

The Department has completed its assessment of the proposed modification, including consideration of the potential environmental, social and economic impacts and the relevant requirements of the EP&A Act.

BCM is seeking to partially modify the Bulga Optimisation Project's overburden and tailings emplacement areas. The Department considers the proposed changes are justified and the Department is satisfied that the emplacement areas have been appropriately designed to minimise environmental impacts.

The Department is satisfied that, with the existing and proposed management measures in place, the proposed modification would result in:

- no material change to currently approved operations at the Complex;
- no material change to approved environmental impacts; and
- long-term socio-economic benefits associated with continued coexistence of the Complex and the MCF.

The Department is therefore satisfied that the proposed modification is in the public interest, and is approvable, subject to conditions.

7. RECOMMENDED CONDITIONS

The Department has drafted a recommended notice of modification (see **Appendix D**) and a consolidated version of the consent as it is proposed to be modified (see **Appendix E**). The Department considers that the environmental impacts of the project can be managed through the amended conditions of consent.

The Department has proposed a new figure for the Development Layout in Appendix 2 of the consent that shows the redesigned EEA and the additional tailings storage facility.

In addition to the proposed conditions described above, the Department has taken the opportunity to review the consent and update a number of conditions to reflect current practice and contemporary drafting standards. These include:

- updating definitions to reflect current agency names and terminology;
- replacing the word 'shall' with 'must';
- updating agency references to reflect current agency responsibilities;
- providing additional clarification in the blasting conditions;
- updating the conservation bond condition to require triennial reviews;
- providing for management plans to be prepared and then 'implemented from time to time as approved by the Secretary';
- contemporising a number of conditions in Schedule 5 relating to environmental management, monitoring, auditing and reporting;
- updating the reference to the CCC guideline to reflect the Department's release of the 2016 *Community Consultative Committee Guidelines for State Significant Projects*; and
- revising all relevant consent figures to show the modified project approval boundary and disturbance footprint.

BCM has reviewed and accepted the recommended conditions of consent.

8. RECOMMENDATION

It is **RECOMMENDED** that the Planning Assessment Commission, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report, noting that the Department considers that the modification is approvable, subject to conditions;
- **determines** that the proponent's request is a modification under section 96(2) of the EP&A Act; and
- if the Commission determines to modify the approval, **signs** the attached notice of modification (see **Appendix D**).



Howard Reed
Director
Resource Assessments

21-12-16



23/12/16

Oliver Holm
Executive Director
Resource Assessments and Compliance

APPENDIX A: STATEMENT OF ENVIRONMENTAL EFFECTS

See the Department's website at www.majorprojects.planning.nsw.gov.au

APPENDIX B: SUBMISSIONS

See the Department's website at www.majorprojects.planning.nsw.gov.au

APPENDIX C: RESPONSE TO SUBMISSIONS

See the Department's website at www.majorprojects.planning.nsw.gov.au

APPENDIX D: NOTICE OF MODIFICATION

APPENDIX E: CONSOLIDATED CONSENT
