Review of Environmental Assessment

Watermark Coal Project

SSD-4975

Submission

Construction Forestry Mining and Energy Union (Mining and Energy Division)

Northern District Branch

April 2013

On 25 October 2012 Shenhua Watermark Pty Limited applied to the Minister, Department of Planning seeking approval for the development of an open cut coal mine and associated infrastructure at the Watermark Coal Mine. Shenhua Watermark is seeking State Significant Development Consent under Division 4.1 of the Environmental Planning and Assessment Act 1979.

The Director General made the Environmental Assessment publicly available on the 28 February 2013 at the DP & I Information Centre Sydney, Gunnedah Shire Councils and Nature Conservation Council.

The CFMEU is pleased to take the opportunity to comment on the Watermark Coal Project and related activities Environmental Assessment.

The Mining and Energy Division is a Division of the Construction, Forestry, Mining & Energy Union (CFMEU), with over 120,000 members, one of the largest in Australia. The Division covers several industries including the coal industry, coal ports, metalliferous mining industries, electrical power generation, oil and gas and the Nation's small coking industry.

The Northern District Branch of the CFMEU Mining and Energy Division, being the branch that on behalf of the organisation which is making the submission is the principal Union representing coal miners in the Northern District coalfields of New South Wales. The Watermark Coal Mine operations is located approximately 15 kilometres south-west of Boggabri and 25 kilometres south-east of Gunnedah near the village of Breeza, and is wholly within the State's Northern District coalfields.

The CFMEU is familiar with the Watermark coal facility site and has engaged the services of an Environmental Consultant with extensive experience in local government and environmental assessments on coal mining related projects.

After reviewing all the material and taking advice, the CFMEU supports the Watermark Coal Project as proposed.

Project Overview

The Project involves:

- The development of an open cut mining operation extracting up to 10 Mtpa of ROM coal from the Hoskissons and Melvilles seams over a period of 30 years;
- Using a standard mining equipment fleet of excavators and shovels, supported by haul trucks, dozers, graders, drill rigs and water carts;
- Progressive rehabilitation of all disturbed areas;
- The co-disposal of tailings and coarse reject within the Overburden Emplacement Areas;
- The construction and operation of a Mine Access Road;
- The construction and operation of administration, workshop and related facilities;
- The construction and operation of a Coal Handling and Preparation Plant with a throughput of 10 Mtpa of ROM coal;
- The construction and operation of a rail spur, rail loop, Kamilaroi Highway rail overpass, associated train load out facility and connection to the Werris Creek to Moree Railway Line;
- Transportation of product coal by rail via the Werris Creek to Moree Railway Line and the Main Northern Railway Line to the Port of Newcastle for export;
- The construction and operation of surface and groundwater management and reticulation infrastructure including pipelines, pumping stations/bore field and associated infrastructure for access to water from the groundwater aquifers in the vicinity of the Project, the Mooki River and private dams to the north-east of the Project boundary;
- The closure of Court Lane, Rowarth Road, Whitby Road, part of the Dip Road (from the intersection of Clift Road to Nea Siding Road) and other unnamed paper roads within the Project boundary;
- The installation of communication and electricity infrastructure; and
- A workforce of approximately 600 full-time equivalent employees during construction and up to approximately 600 full-time equivalent employees and associated contractors during operation of the Project at full production.

The Project will generally be undertaken within the Disturbance Boundary. Some of the infrastructure such as water, power and communications infrastructure will be located outside the Disturbance Boundary (and possibly the Project Boundary). Minor additional disturbance associated with ancillary works including fencing, firebreaks, water diversion structures,

pipelines, a bore field, minor contour banks, access tracks, explosives storage facilities, power lines, sediment and erosion control structures will also be required and are part of the Project for which consent is sought by the proponent.

Stakeholder Engagement

According to the proponent since the granting of Exploration Licence 7223 in October 2008, Shenhua Watermark has been actively undertaking state holder engagement over the Project. The stakeholder engagement activities undertaken for the Project prior to the commencement of the EIS process included:

- Establishment of a local office in Gunnedah with a designated community contact person available at all times and a free call 1800 community input telephone number, dedicated community email and re-paid postal address;
- Dedicated community website;
- More than 300 separate meetings with stakeholders, including government agencies, the NSW Farmers Federation, Aboriginal groups and catchment management groups;
- Presentation to community groups/representatives and Non- Government Organisations;
- Active engagement with the local community on the Project through local media;
- Establishment of a Community Fund and Community Fund Advisory Committee;
- Establishment of a number of Community Reference Groups; and the
- Establishment of a CCC.

The stakeholder engagement program during the preparation of the EIS included consultation with Local, State and Commonwealth government agencies, infrastructure owners, service providers, near neighbours and the Aboriginal and wider local community.

A number of briefings and presentations were provided to Local, State and Commonwealth government agencies, including a Planning Focus Meeting which was held on 4 November 2011. Such consultation efforts provided regulators with an understanding of the Project, some of the key findings from the technical studies and an overview of community stakeholder issues recorded. It also provided further opportunity for regulators to raise any outstanding issues for consideration in the EIS.

The proponent actively engaged with near neighbours and the local community through the distribution of Community Information Sheets, hosting community information sessions and the establishment of Community Reference Groups.

Community information sheets were developed to familiarise the local community with the Project, while providing information regarding specific timelines, the consultation process and the various technical studies associated with the EIS. These were distributed to more than 6 800 community stakeholders in the Gunnedah, Liverpool Plains and Tamworth Local Government Areas and regulatory stakeholders.

Community information sessions were held to provide information on the Project and to gain feedback from the local community in relation to the Project. Details of the community information sessions were included in Community Information Sheet 2 and were also advertised in the Namoi Valley Independent Newspaper, the Northern Daily Leader and Quirindi Advocate from 19 November to 16 December, 2011.

Community Reference Groups focusing on the assessment and management of Koalas, water and the environment for the Project were established by the proponent in March 2011. The primary purpose of the groups was to allow the proponent to work directly with the community to ensure all issues and concerns were identified and addressed in the EIS.

The Aboriginal consultation for the Project was conducted by a team from the proponent, Hansen Bailey Environmental Consultants, AECOM Australia and Connect for Effect in accordance with the relevant guidelines. The consultation process was undertaken in four stages:

- Stage 1 – Notification and registration. Relevant government agencies, Aboriginal organisations and Aboriginal stakeholders were notified of the Project. Aboriginal stakeholders who possess cultural knowledge required to determine the cultural significance of Aboriginal objects or places in the area and/or desired to be consulted regarding the Project were invited to register in the consultation process.
- Stage 2 – Project information, Registered Aboriginal Parties were provided with information regarding the Project and the archaeology and cultural heritage assessment process at meetings and through written correspondence;
- Stage 3 – Survey strategy and conservation values. Registered Aboriginal Parties were encouraged to participate in the preparation of the field survey methodology, the archaeological field assessment survey and the exchange of cultural heritage information.

The activities undertaken during Stage 3 provided input into the development of the draft Aboriginal Archaeological Impact and Assessment and Aboriginal Cultural Heritage Values Assessment; and

- Stage 4 – Draft assessment review. The draft Aboriginal Archaeological Impact Assessment, draft Aboriginal Cultural Heritage Values Assessment and draft Geotechnical of Geomorphology Investigation of WM-GG1-11 and WM-GG3-12 Grinding Groove sites was provided to all Registered Aboriginal Parties for review. All comments received in response to the draft assessments were acknowledged and where practicable incorporated into the revised and final assessments.

Groundwater

A Groundwater Impact Assessment was undertaken by Australasian Groundwater and Environmental Consultants for the Project. The purpose of the assessment was to characterise the existing groundwater system, predict inflows into the mining areas throughout the life of the Project and assessment impacts of the Project on groundwater sources.

Within Exploration Licence 7223, groundwater occurs in the following two main systems:

- The Quaternary/Tertiary alluvial systems of the Upper Namoi alluvium; and
- The older, deeper and poorer quality bedrock that contains localised aquifers within weathered rock, porous sandstones, fractured zones, volcanics and the coal seams of the Gunnedah Basin.

The Upper Namoi alluvium compromises two major formations, the Narrabri Formation and the Gunnedah Formation. The Narrabri Formation is a typical brown clay dominated aquitard overlying gravel layers separated by clays. The Gunnedah Formation has high permeability and yield and is commonly referred to as the primary aquifer system in the region.

The Gunnedah Formation does not exist within the Project Boundary. The closest occurrence of this aquifer is 900 metres from the north-eastern corner of the Eastern Mining Area and more than 1.3 kilometres to the south of the Project Boundary.

The modelling effort indicates that the groundwater seepage into the mining area will average 0.5 ML per day over the life of the Project. The peak annual average seepage into the mining areas is estimated at 2.1 Ml per day in Year 23 as mining advances through higher permeability

material. The predicted cumulative inflow of groundwater over the life of the Project is approximately 5 500 ML, which represents less than 0.1% of the extraction limits set for the Gunnedah-Oxley Basin, Murray Darling Basin Zone as prescribed under the Water Sharing Plan for the Murray-Darling Basin Porous Rock Groundwater Sources.

The depressurisation induced by operations in the Eastern Mining Area extends to a maximum of 1.8 kilometres. This occurs in Year 21 of the mine plan. Groundwater levels are predicted to reduce by 3 metres or less in the Permian underlying the Narrabri Formation, laterally extending up to 0.7 kilometres. The model does not predict drawdown of greater than 1 metre in the Permian underling the Gunnedah Formation due to the Eastern Mining Area.

The depressurisation induced by operations in the Southern Mining Area is predicted to be more extensive and extends to a maximum of 3.2 kilometres in Year 25. The model predicts a drawdown of 25 metres or less in the Permian underlying the Narrabri Formation. The depressurisation in the Permian extends to the south where the overlying Gunnedah Formation is present. At this distance, drawdown in the Gunnedah Formation is predicted to be less than 2 metres.

The depressurisation induced by operations in the Western Mining Area is predicted to be less significant than the Eastern and Southern Mining Areas as it is located in an elevated area where groundwater levels are deeper and the operating life is short. The zone of depressurisation is predicted to extend to a maximum of 1 kilometre in Year 30; however it does not extend in the Permian under the alluvial aquifers.

The depressurisation and associated take of water from the alluvial aquifer is considered to be small and represents a negligible change in groundwater availability to adjacent groundwater users.

The mining areas do not directly intersect the Narrabri and Gunnedah Formations. In a zone immediately around the mining areas, depressurisation in the underlying A Permian strata may induce downward vertical flow from the overlying alluvial aquifers. At a greater distance from the mining areas, a reduced rate of upward flow from the Permian to the alluvium is predicted. The change in upward flow from the Permian to the alluvium due to mining is negligible beyond the immediately adjacent Zone 7 of the Water Sharing Plan for the Upper and Lower Namoi Groundwater Sources 2003. Zones 3 and Zone 8 of the Water Sharing Plan for the Upper and

Lower Namoi Groundwater Sources 2003 report only a very small change. No change in flow rates is predicted for Zones 1, 6 and 10, which are relatively distant from the Project.

The groundwater model found a small increase in the net flow from the Mooki River to the underlying aquifer. The increase in seepage from the Mooki River to the underlying alluvium of 0.13 ML per day represents an undetectable proportion of the total river leakage along the Mooki River of 0.4%.

There is no significant impact on Lake Goran as the groundwater level drawdown is not predicted to exceed 0.01 metres. Lake Goran is an ephemeral lake and does not receive a significant contribution from groundwater and therefore will not be impacted by the Project.

Modelling indicates that the groundwater levels begin to recover after the Eastern Mining Area and Southern Mining Area are backfilled and eventually exceed pre-mining levels. This is due to a higher recharge rate on the overburden material than the pre-mining condition. The higher recharge rate and rehabilitated landform means that there will not be an ongoing water deficit post mining, and a zone of seepage occurs at spill points, which are topographic low points at the base of the Overburden Emplacement Areas.

The predicted groundwater levels within the Western Mining Area final void will slowly recover and reach equilibrium at approximately 303 metres AHD after approximately 2 000 years post-mining. Groundwater levels remain below the regional water table by approximately 1.2 metres, indicating the pit lake void will act as a groundwater sink, not a source. The water level in the final void will therefore stabilise well below the crest of the open cut mining area, and spillage of water into the environment will not occur.

The Project will create a zone of depressurisation induced by mining in the Permian formations underlying the Gunnedah Formation. The average pumping rate from a single licensed agricultural bore in the Upper Namoi alluvium (within 10km of the Project Boundary) is 142 ML per year.

The groundwater model predicts that the volume of water removed from the Zones 3, 7 and 8 of the Water Sharing Plan for the Upper and Lowe Namoi Groundwater Sources 2003 combined is a very small quantity of water being equivalent to no more than the usage from a single licensed

bore in the peak years of mining. The volume pumped from licensed bores from these three zones has averaged 27 898 ML per year between 2006 and 2001.

There are a number of land users that utilise groundwater systems within and adjacent to the Project Boundary, in particular the Gunnedah Formation, for irrigation, stock, domestic and industrial purposes. Within 10 kilometres of the Project Boundary, 35 bores are predicted to experience maximum groundwater level reductions of greater than or equal to 0.1 metres. Of these, four bores adjacent to the Southern Mining Area have a maximum predicted drawdown between 1 metre and 2 metres.

At completion of the Southern Mining Area and Eastern Mining Area, groundwater levels are predicted to largely recover rapidly within approximately five years as the pits are fully backfilled.

The relevant water licences will be required to account for water taken as a result of the Project. The proponent has secured part of these required licences and will purchase the remaining licences within the operating water market. Each of the water sources of which licences are required for the Project has a readily available market of share component which is available to be transferred/purchased by the proponent.

The current groundwater monitoring network will continue to be implemented through the life of the Project along with the development of a Water Management Plan. Additional monitoring bores will also be installed within the predicted zone of depressurisation to assess the extent and rate of depressurisation against model predictions. Trigger levels for water quality parameters will be developed as part of the Water Management Plan to provide mine management with an early warning mechanism that identifies water quality trends departing from historical values. The monitoring program will also measure parameters for groundwater quality and seepage.

Surface Water

A Surface Water Impact Assessment was undertaken by WRM Water and Environment for the Project. The purpose of this assessment was to characterise existing catchments, develop a water balance with consideration of the proposed eater management system and assess the impacts to surface water sources as a result of the Project.

During the life of the Project, there is a potential for the reduction of catchment flows to surrounding waterways, including the Mooki River, Watermark Gully, Native Dog Gully and Lake Goran.

At the completion of mining, the conceptual final landform will influence the local catchment area and drainage regimes. An area of approximately 108 hectares, which originally drained to Lake Goran, will continue to drain to the final void of the Western Mining Area. The final landform will also result in an increase in catchment area draining north via Watermark Gully and to the Mooki River floodplain and a loss in catchment area draining south to Native Dog Gully and the Mooki River floodplain.

In order to minimise the volume of water collected in onsite storages and the need for discharge from the water management system, runoff from undisturbed areas will be redirected around the Project using diversion drains. Sediment-laden runoff from areas disturbed for mining purposes will be collected and treated in sediment dams. The maximum total average salt load associated with this runoff is predicted to reach 65.7 tonnes per day at Year 30, which represents an increase in the pre-mine salt load of approximately 0.8%. Runoff water will only be released from site if the quality is acceptable and during a rainfall event that exceeds the design capacity of the sediment dam. This configuration ensures that the Project does not significantly impact on downstream catchments and water quality.

Modelling suggests that the final void in the Western Mining Area will reach an equilibrium water level of approximately 280 to 290 metres AHD, which is approximately 20 to 30 m below the overflow level of 310 metres AHD.

The current surface water monitoring network will continue to be implemented through the life of the Project along with the development of a Water Management Plan. At commencement of operations, the surface water monitoring program will be expanded to include samples from key storages within the water management system. The current monitoring program will be refined over time in accordance with the mine site's regulatory approved Water Management Plan.

A Sediment and Erosion Control Management Plan will also be prepared in accordance with regulatory frameworks. The design of sediment control measures will be based on the principle of ensuring that runoff from disturbed areas is separated from clean area runoff and collected in sediment dams for treatment.

Flood

A Flood Study was undertaken by WRM Water and Environment as a component of the Surface Water Impact Statement.

Under a 100 year Average Recurrence Interval design flood event along the Mooki River, a small area at the south-east corner of the Disturbance Boundary will be inundated to a depth of up to 1.7 metres with flow velocities of less than 0.1 metre per second. Placement of overburden on this small area will not affect flood behaviour on the floodplain; however, it will reduce the flood storage of the larger Mooki Rover floodplain by approximately 235 Mega litres.

This represents 2% of the flood storage volume in the northern Native Dog Gully floodplain, part of the larger Mooki River floodplain, during a 100 Year Average Recurrence Interval event. The remaining area along the Mooki River will be flood free and will not be impacted by the Project.

The Project will impact Watermark Gully through a reduction in the contributing catchment area by approximately 25%. This consequently affects the magnitude and frequency of flows along the watercourse. At Year 30, the maximum reduction in the associated catchment area will be reached resulting in low flows of 15.1 ML per day at the downstream boundary. This is a decline of 7.8 ML per day from the pre-mining flow conditions. Following cessation of mining, the catchment area draining to Watermark Gully will exceed pre-mining conditions increasing flows to 26.5 ML per day.

This is a measurable change in the flow duration relationship for Watermark Gully given the high variability of runoff in natural watercourses in the area. However, it is considered unlikely that these flow frequency changes will significantly alter the hydraulic characteristics of Watermark Gully, which will readjust to the altered flow regime.

In addition, the Project will partially fill the main channel in the upper reaches of Watermark Gully for the development of the Overburden Emplacement Area associated with the Western Mining Area. This will result in a relocation of the main channel further to the east. A Channel Diversion Plan will be developed for the portion of Watermark Gully directly affected. Detailed design of the channel cross section in the modified reach will be undertaken as part of the detailed design phase to provide a stable channel configuration. The general principles of the design will be to mimic the natural channel features, as far as practical. Changes in flow velocity

and flood levels will be accommodated in the detailed design of the site drainage system. Limited and minor flood levees will be constructed as required in potential inundation areas.

Air Quality

An Air Quality and Greenhouse Gas Impact Assessment were undertaken by PAE Holmes for the Project. The purpose of this assessment was to predict the Project's air quality impacts on receivers in the vicinity of the Project.

Dispersion modelling was undertaken for years 1, 2, 5, 10, 15,21, 25 and 30 of the Project. These representative years were identified as the periods most likely to contain the worst case dust levels from a range of mining activities in various locations within the Project Boundary. The results from the modelling indicate that the Project considered alone and cumulatively with other sources is not predicted to contribute to exceedances of the annual average assessment criteria for total suspected particulates, dust deposition, particulate matter less than 10 microns and particulate matter less than 2.5 microns at privately owned or proponent owned receivers over the life of the Project.

There are six private receivers that are predicted to experience exceedances of the 24 hour average Particulate Matter less than 10 microns assessment criterion for between one and 36 days per year. These maximum impacts represent the worst case operation of the Project under adverse prevailing weather conditions in the event that no proactive management measures to modify or curtail offending activities are taken. It is expected that the proactive management of operations will result in modifications to operations so that these impacts will not be experienced at the suggested receivers.

According to the EIS the proponent has adopted numerous leading practice air quality controls for the Project, based on recommendations of the NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining (Donnelly et al 2011). These controls will be incorporated into the operations of the Project and outlined in an Air Quality Management Plan.

The proponent will also install a comprehensive air quality monitoring network proximal to private sensitive receivers surrounding the Project. This will include real-time dust monitoring

and management system with predictive capabilities to forecast meteorological conditions to understand in advance where the risk of dust emissions may occur.

Greenhouse

The main sources of greenhouse gas emissions from the Project will primarily be associated with electricity consumption, fugitive emissions of carbon dioxide and methane, diesel usage and the transport and end use of the product coal.

The direct greenhouse gas emissions generated by the Project have been estimated to be an average of 0.25 Mt of Carbon Dioxide equivalents per annum. This represents a small portion of global anthropological greenhouse gas emissions. These emissions in themselves will not have any significant impact on global warming. Applying the principles of Ecologically Sustainable Development it is considered that there will be no increase or measurable impact on climate change as a result of the Project.

An Energy Savings Action Plan will be developed in accordance with the relevant legislation and guidelines. The action plan will describe the measures that will be implemented to minimise greenhouse gas emissions and ensure energy efficiency.

Noise

An Acoustics Impact Assessment was undertaken by Bridges Acoustics for the Project. The purpose of this assessment was to predict the Project's construction, operational, and transport noise impacts on receivers in the vicinity of the Project Boundary.

Predictive noise modelling was undertaken for the same years as dust modelling year 1, 2, 5, 10, 15, 21, 25 and 30 of the Project. These representative years were identified as the periods most likely to contain the worst case noise levels. While this situation may occur occasionally, noise levels will generally be lower than the predicted levels. Additional model scenarios were used to determine construction and sleep disturbance noise levels to ensure these issues were comprehensively assessed.

During the construction phase, predicted noise levels generated by the Project are acceptable under the relevant assessment criteria with the exception of receiver 125 under day neutral, day prevailing and night prevailing conditions. Exceedances of the assessment criteria are primarily

associated with construction of the Mine Access Road, Kamilaroi Highway realignment and the rail spur. As such, a Construction Noise Management Plan will be developed by the proponent, which will include a range of mitigation and management measures to control noise and avoid adverse impacts on sensitive receivers during this time.

Throughout the operations phase, a receiver is deemed to be significantly impacted if the predicted operational noise level exceeds the intrusive criteria by greater than 5 dBA. There are six receivers that will experience significant noise impact at residences (14, 32, 60, 62, 103 and 125). There are a further seven vacant properties that will be subject to significant impacts over an area greater than 25% of the property (20, 26, 27, 28, 61, 65 and 116).

If the predicted operational noise level exceeds the intrusive criteria by 2 to 5 dBA the receiver is deemed to experience moderate noise impacts. There are four receivers (13, 25, 39 and 41) that will experience moderate noise impacts at residences. There are a further three vacant properties that will be subject to moderate noise impacts over an area greater than 25% of the property (7, 114 and 119).

A receiver is deemed to experience a mild noise impact if the intrusive criteria are exceeded by less than 2 dBA. There are 13 receivers (10, 12, 16, 22, 35, 40, 43, 44, 99, 104, 105, 106 and 115) that will experience a mild noise impact at residences. There are a further six vacant properties that will be subject to mild noise impacts over an area greater than 25% of the property (21, 31, 42, 108, 112, and 118).

A Noise Management Plan will be prepared for the Project and will include all feasible and reasonable noise controls described in the Acoustics Impact Assessment. The proponent will also establish a noise monitoring network at representative locations surrounding the Project Boundary. This will allow for monitoring to confirm and manage predicted noise levels at receivers.

Blasting

The blasting associated with the Project is predicted to produce ground vibration and over pressure levels well below the relevant amenity criteria at all privately owned residences and structures.

In conjunction with the Acoustics Impact Assessment, a Blasting Impacts on Landforms and Slopes assessment was undertaken by SCT Operations. The purpose of this assessment was to identify the risk associated with mining activities, including blasting, on sensitive sites, landforms and slopes in each mining area.

Slopes, landforms and sensitive sites, such as the Aboriginal grinding grooves, associated with underlying bedrock have a low sensitivity to vibration as these features are able to naturally fluctuate with ground movements. In this regard, the impacts generated from blasting on these features is limited to over break, which is a breakage beyond the excavation limits in the immediate area surrounding blast holes. As such the enforcement of a 100 metre buffer from these features is deemed effective in reducing the potential for over break until other effective risk management measures are established.

A Blast Management Plan will be prepared to ensure that landform stability is maintained and the relevant criteria are met for all privately owned residences and Aboriginal and historic heritage items during blast events with the Project.

Ecology

An Ecological Impact Assessment was undertaken by Cumberland Ecology for the Project. The purpose of the assessment was to characterise the terrestrial and aquatic flora and fauna within the Project Boundary, and assess the impacts of the Project on biodiversity.

Land within the Project Boundary is dominated by low diversity grassland derived from previous clearing of woodland to accommodate agricultural pursuits. Remnant and regrowth open forest and woodland occur as fragmented, narrow tracts along boundary fences and road verges and in isolated patches on hills, steep slopes and in paddocks within the Project Boundary. A substantial area of this vegetation conforms to Box Gum Woodland, a Critically Endangered Ecological Community listed under the EP&BC Act 1999. These vegetation communities contain threatened flora species, including the Lobed Blue Grass and provide suitable habitat for threatened fauna species.

Historical clearing from the agricultural production and relative isolation from more extensive forest and woodland areas has influenced the fauna assemblage within the Project Boundary and its surrounds. As a result, the Project Boundary now supports mostly highly mobile species

resilient to disturbance and isolation, including nine bird species and one bat species. Koalas have also been consistently detected across the Project Boundary and Breeza State Forest in all eucalypt dominated woodland.

Aquatic habitat along the Mooki River and Native Dog Gully is highly degraded. Native riparian and floodplain vegetation has been historically cleared for agriculture and is now practically non-existent with the exception of a few scattered paddock trees. These watercourses provide only highly simplified aquatic habitat with little or no in-stream vegetation or ricks and snags required for aquatic fauna habitation, including macro-invertebrates and fish.

A total of 4 084 hectares of vegetation will be removed progressively over the life of the Project, including 738 hectares of Box Gum Woodland and Derived Native Grassland and 51 hectares of other EP%BC Act 1999 and TSC Act 1995 listed vegetation communities and flora species. The clearance of a large proportion of woodland within the Disturbance Area is likely to represent a loss of locally important habitat for various fauna species.

Extensive vegetation clearing has already and continues to occur in the sub bioregion as a result of agriculture, forestry and other mining projects. The scale of vegetation clearing that will occur as a result of the Project will exacerbate these existing ecological impacts. However, the Project is unlikely to threaten the overall occurrence of the vegetation communities and threatened flora recorded from within the Project Boundary.

Avoiding environmental impacts has been incorporated, where possible, throughout the Project planning and design phase to improve biodiversity outcomes. This has included restricting mining operations from the Breeza State Forest. Critically Endangered Ecological Communities within the Project Boundary, Watermark Gully, Mt Watermark and the Alluvial black soil plains. The Mine and Mine Infrastructure Area adopted for the Project achieves the minimum practical Disturbance Boundary whilst still allowing access to an economically viable portion of the minable coal resource.

A range of management plants will be prepared to guide all faces of biodiversity management and mitigation for the Project. These will each include key performance indicators and measures to prevent adverse impacts on flora and fauna.

Biodiversity Offset Strategy

A Biodiversity Offset Strategy for the Project was developed to mitigate the residual impacts on biodiversity and to address the ecological impacts of the Project in a strategic and meaningful way that will deliver a real biodiversity outcome. The components of the Biodiversity Offset Strategy include:

- Onsite Biodiversity Offsets, comprising:
    - Conservation and ongoing management of existing vegetated land within the Mt Watermark Offset Area and Offset Area 6;
    - Restoration of vegetation communities and associated habitat within the aforementioned offset areas and the Mooki River Offset Area; and
    - Rehabilitation of mined areas.
- Offsite Biodiversity Offsets, comprising:
    - Conservation of existing vegetated areas on land near Barraba, NSW; and
    - Restoration of vegetation communities and associated habitat on land near Barraba, NSW.
- Indirect offsets, such as funding for Landcare, targeted research or recovery planning.

The proponent has identified and secured Offsite Biodiversity Offset Areas to complement the Onsite Biodiversity Areas and to ensure the Project will not result in a net loss of biodiversity. These areas provide similar woodland and forest, including Box Gum Woodland that will be impacted by the Project and offer valuable habitat for native flora and fauna. The Offsite Biodiversity Offset Areas also indirectly connect to nearby national parks and build onto existing proposed offset areas of other mining projects.

The Biodiversity Offset Strategy as a whole will address the predicted loss of vegetation by ultimately providing, the following revegetation and rehabilitation initiatives, 6 366 hectares of Box Gum Woodland and Derived Native Grassland, 1 759 hectares of other listed Endangered Ecological Communities and 4 890 hectares of other woodland vegetation. The Biodiversity Offset Strategy will provide large areas of habitat for threatened species that will be impacted by the Project.

Aboriginal Cultural Heritage

An Aboriginal Cultural Heritage Values Assessment was undertaken by Connect for Effect for the Project. The assessment of cultural significance was undertaken in accordance with the relevant guidelines and in collaboration with the Aboriginal community.

Concerns raised during the consultation with Registered Aboriginal Parties regarding the perceived impact of the Project included:

- The impact on recorded cultural sites or landscape features of significant cultural value;
- The direct impact on two sets of grinding grooves identified as having high cultural value;
- The possible impact on unrecorded subsurface cultural sites or items;
- The potential for increased threat to cultural values, including loss of animal habitats and the drawdown of watercourses;
- The loss of bush foods, medicinal plants, cultural resources, animals and plants;
- Regional inability to access land on which to hunt or gather bush foods and medicinal plants due to changed land tenure. This reflects a core concern regarding the loss of opportunities for knowledge to be passed down from older to younger generations and the inability to retain fundamentally important cultural practices on Country; and
- The landscape as a whole becoming unrecognisable as a result of the Project and cumulative development in the Region. Such loss of known landscapes is perceived to be a serious threat to Aboriginal cultural heritage, both traditionally and contemporarily as stories and knowledge are linked to Country.

To manage the impacts of the Project on cultural heritage, an Aboriginal Archaeology and Cultural Management Plan will be developed with consideration of the suggested management recommendations raised by Registered Aboriginal Parties throughout the consultation period. These recommendations reflect the importance of Aboriginal communities having a greater involvement in managing cultural heritage

Historical Heritage

A Historic Heritage Impact Assessment was undertaken by AECOM Australia for the Project. The purpose of the assessment was to identify and determine the impacts on historic heritage items within the Project Boundary.

A total of 14 historic heritage sites were identified within the Project Boundary. The Project will result in direct impacts (i.e. removal) to 10 historic heritage sites identified within the Disturbance Boundary. These sites will be removed prior to disturbance subject to archival recordings, archaeological test excavation and archaeological salvage if warranted by testing.

A further four historic heritage sites will be indirectly impacted by the Project through changes to the existing visual environment. Once successfully rehabilitated, the elements of the Project will be substantially integrated into the existing landscape and the overall visual impact will be negligible.

Traffic and Transportation

A Traffic and Transport Impact Assessment was undertaken by DC Traffic Engineering. The purpose of the assessment was to quantify traffic generated during the construction and operation phases of the Project and assess potential impacts on the capacity, efficiency and safety of the existing road and rail network.

Early in the construction phase, the Kamilaroi Highway Mine Access Road intersection will be built and opened for improved access to the Project. Under the new configuration, the intersection is predicted to maintain a good to adequate level of service.

In the event that the construction of the Mine Access Road and associated intersection at the Kamilaroi Highway is delayed, all access to the Project will be via the existing Court Lane. Under these conditions, the Kamilaroi Highway/Court Lane intersection will perform at a satisfactory level of service. However, this intersection configuration offers no physical protection for queued or decelerating right hand turning traffic from the Kamilaroi Highway onto Court Lane thereby presenting a potential crash risk. As such, mitigation measures for the Court Lane intersection will be implemented whilst construction of the Kamilaroi Highway / Mine Access Road intersection is underway.

During the peak operations phase, the Kamilaroi Highway / Mine Access Road intersection is predicted to maintain a good to adequate level of service with much of the traffic efficiently absorbed into the existing traffic stream.

The Project will result in the permanent or temporary closure of local roads within the Project Boundary and its immediate surrounds. The entire length of Court Lane, a section of The Dip Road between Cull and Clift Roads and some minor local roads will be permanently closed to accommodate mining operations. Furthermore, any public roads that are within 500 metres of blasting activities for the Project will be required to be temporarily closed for approximately 15 to 20 minutes, including The Dip Road, Clift Road and Werner Road. A range of measures will be implemented to manage traffic safely during these periods.

The Kamilaroi Highway will be realigned in the vicinity of the current intersection with Court Lane. This will involve a minor deviation of the highway to the south of the existing alignment. To minimise road closures along the Kamilaroi Highway, the realigned section of the highway and Mine Access Road will be constructed offline. Minor disruptions are only anticipated during the construction of the new alignment connections to the existing highway.

The existing rail network currently caters for grain exports and a number of existing mining operations. The rail requirements of these operations with consideration of the Project and other mining proposals will have a cumulative impact on the rail network. Together, these existing and proposed operations will generate a total of 47 train movements per haul day on the Werris Creek-Moree Railway Line between Narrabri and Muswellbrook. In response, ARTC has proposed a number of network upgrades to increase the capacity of operational flexibility for existing rail users. These initiatives will assist in relieving the impact of the Project on other and future proposed rail users.

Visual and Lighting

A Visual Impact Assessment was undertaken by JVP Visual Planning and Design for the Project. The purpose of the assessment was to define the character of the surrounding landscape and assess the visual and lighting impacts of the Project.

A conceptual view of the Project (photomontage) was generated for Years 1, 2, 5, 10, 15, 21, 25 and 30.

The visual impacts associated with the Project will affect viewing locations to the north, south, east and west of the Project Boundary; however, such impacts vary in significance and in time during the life of the Project.

Visual effects to the north of the Project Boundary will be created primarily by views to the Eastern Mining Area. During the initial years of operation views to the A Project will be shielded by existing topography. Between Year 3 and 5 the northern most portions of the Overburden Emplacement Areas will be constructed creating a high visual effect.

Visual effects to the east of the Project Boundary will be created primarily by views to the Eastern Mining Area and to a lesser extent the Southern Mining Area. During the initial years of operations, the Eastern Mining Area will create high visual effects until shaping is complete along the northern and eastern faces of the Overburden Emplacement Areas by Year 5 and 15 respectively. High visual effects will also be experienced from the Southern Mining Area, when some views of raw overburden are available over the adjoining tree canopies.

Visual effects to the south of the Project Boundary will be created primarily by views to the Eastern and Southern Mining Areas. Operations will create moderate to high visual effects when views of Overburden Emplacement Areas are available over the adjoining tree canopies.

Visual effects to the west of the Project Boundary will be created primarily by views to the Western Mining Area. This mining area is developed from east to west and therefore the active face of the Overburden Emplacement Area will be orientated to the west, which will create high visual effects during the operational period from approximately Year 24 to Year 30.

Due to the high to moderate sensitivity of nearby receivers, the visual effect of each mining area typically creates high and moderate visual impacts. This will be reduced to moderate and low following completion and rehabilitation of Overburden Emplacement Areas and backfilling of the Eastern and Southern Mining Areas. These impacts will further be reduced to very low as rehabilitation matures. By Year 30, the final landform will be integrated with the existing landscape.

Lighting generated by the Project will predominantly be caused by vehicles and equipment outside the open cut mining areas and by collective operations, including the light generated by the Mine Infrastructure Area.

In most cases, spillage of light to the surrounding environment will be limited as a result of existing topography, Overburden Emplacement Areas and vegetation.

Numerous mitigation measures will be incorporated into the design and operating plans for the Project that will reduce the visual effect and mitigate the visual impact of the Project on viewing locations. Where deemed necessary through consultation with relevant stakeholders, offsite mitigation and management measures will be implemented.

Economics

An Economic Impact Assessment was undertaken by Gillespie Economics for the Project.

In summary the Project will result in the following economic benefits to the NSW economy:

- $1 554 million in annual direct and indirect regional output or business turnover;
- $802 million in annual direct and indirect regional value added;
- $276 million in annual and indirect household income; and
- 3 260 direct and indirect jobs.

The Project will result in the following economic benefits to the regional economy (Gunnedah, Tamworth, Liverpool Plains, Narrabri and Upper Hunter LGA's)

- $913 million in annual direct and indirect regional output or business turnover;
- $507 million in annual direct and indirect regional value added;
- $91 million in annual direct and indirect household income; and
- 1 015 direct and indirect jobs.

The Project will result in the following economic benefits to the local economy (Gunnedah, Tamworth, and Liverpool Plains LHA's)

- $902 million in annual direct and indirect regional output or business turnover;
- $493 million in annual direct and indirect regional value added;
- $80 million in annual direct and indirect household income; and
- 908 direct and indirect jobs.

Based on the above, the Project is considered desirable and justified from an economic efficiency perspective.

Cessation of the Project operation may lead to a reduction in economic activity. Given the uncertain circumstances at the time of Project cessation, it is important for government to

effectively utilise the economic benefits, skills, and expertise generated by the Project to further strengthen and broaden the region's economic base.

In postulating the economic benefits of this Project, the CFMEU would like to make reference to a recent study of the costs of the proposed Cobbora Coal mine (similar to Watermark) which has found that the project will cost NSW $1 billion, rather than the $2 billion benefit to the state predicted by Cobbora Holding Company (CHC).

The Cobbora Coal mine is among seven mining and coal seam gas developments analysed by Economists at Large and the Australia Institute in a report commissioned by the Nature Conservation Council (NCC) of NSW.

The study found economic assessments commissioned by project developers "routinely inflate the estimates of benefits" and exaggerate the number of jobs created, while downplaying the effect on the environment, costs of greenhouse gas emissions, residents' health and the impact on other industries.

The report also questions the value of the practice of buying land to be protected in other areas to "offset" the loss of habitat and vegetation in mining projects, arguing that offset areas may not replace "like with like" and may not be suitable habitat for endangered species.

The CFMEU is not arguing that mines are without economic benefit but we need to examine claims made by mines which at many times may not stand up. It also stresses the importance of maximising return to local communities and creating local employment especially for regions on the fringe of well established coal mining regions.

Project Justification

The Project will assist Australia in continuing to meet the international and local demand for metallurgical and thermal coal, for at least the next 30 years, during which time it is expected that there will continue to be a strong demand for coal. It will also support Australia in maintaining its reputation as a consistent and reliable supplier of metallurgical and thermal coal to its existing and expanding markets.

The Project will maximise the economic value of a significant coal resource by a mine plan that addresses the environmental and socio-economic constraints and the objects of the EP&A Act 1979, including the principles of Ecologically Sustainable Development.

There are substantial social benefits that are expected to enhance the Gunnedah, Liverpool Plains and Tamworth Local Government Areas as a result of the Project. During the operational phase, a total of approximately 908 jobs will be generated in the local Gunnedah, Liverpool Plains and Tamworth LGA's.

On a regional bases the Project is expected to generate a total of approximately 1 015 jobs. These employment opportunities will provide significant benefits to the local region, which is characterised by a high rate of unemployment within the Gunnedah, Liverpool Plains and Tamworth Regional.

In claiming the large number of jobs this Project will provide, the CFMEU wishes to highlight that Whitehaven has been retrenching a large number of employees recently. More importantly they have kept on a handful of contractors and casual employees employed through a secondary labour hire firm. The benefits of the detailed Project operations is principally, through its construction operations, to local communities and therefore it should be a **consent requirement** that fluctuations in labour (of what is the estimated normal operational requirements of the mine) should at the first instance impact on the less permanent forms of contract labour and casual labour supply and also 457 visa's if any.

In creating significant employment opportunities and attracting people to the region, there will be a need for supporting infrastructure and services. As such the proponent is in the advanced stages of discussions with Gunnedah Shire Council, Liverpool Plains Shire Council and Tamworth Regional Council with the view to entering into separate Voluntary Planning Agreements pursuant of Section 93F of the EP & A Act 1979 to provide in kind and monetary contributions to the community.

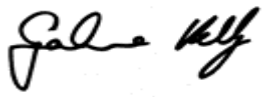
It has been demonstrated that the Project will serve the essential purpose of providing metallurgical and thermal coal for current and future generations and will generate significant economic and social benefits in the process. The Project's social and environmental costs have been avoided or minimised as far as practicable by implementing all reasonable and feasible management and mitigation measures. As a consequence, the socio-economic benefits of the

Project will far out weight its social and environmental costs. Therefore, it is considered the Project is in the public interest.

In Summation

Based on the assessment of environmental and socio-economic considerations which has been multi-disciplinary and involved consultation with the DP&I and other relevant stakeholders, the Watermark Coal Mine Project is anticipated to pose negligible additional environmental impacts when assessed cumulative with other neighbouring operations.

The CFMEU considers that on balance, the Watermark Coal Project is consistent with the objectives of the EP&A Act, and therefore supports the proponent's application.



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DISTRICT SECRETARY