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Regulatory Correspondence



Planning & Environment

Resource Assessments

Mining Projects

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Ref: 11/06551

Mr William Vatovec
Chief Operating Officer
KEPCO Australia Pty Ltd
Suite 1301, Level 13, 141 Walker St
North Sydney NSW 2060

Dear Mr Vatovec

State Significant Development - Secretary's Requirements Bylong Coal Project (SSD 14_6367)

In response to your letter dated 20 October 2014, please find attached revised Secretary's requirements for the preparation of an Environmental Impact Statement (EIS) for the Bylong Coal Project. The description of the development in the Secretary's Requirements has been changed in response to your advice that the production rate is now proposed to be 6.5 million tonnes of coal a year over a period of 25 years, as opposed to the production rate of 6 million tonnes of coal a year over a period of 29 years included in the Secretary's requirements issued on 23 June 2014.

The revised Secretary's requirements are based on the information you have provided to date, and have been prepared in consultation with the relevant government agencies. They have incorporated the recommendations of the Mining & Petroleum Gateway Panel. The agencies' comments were included as Attachment 2 to the Secretary's requirements issued on 23 June 2014. Copies of the panel's report and Conditional Gateway Certificate were included in Attachment 3.

Please note that the Department may alter these requirements at any time, and that you must consult further with the Department if you do not lodge a development application and EIS for the project by 23 June 2016.

Please contact the Department at least two weeks before you plan to submit the development application and EIS for the project. This will enable the Department to:

- confirm the applicable fee (see Division 1AA, Part 15 of the *Environmental Planning and Assessment Regulation 2000*); and
- determine the number of copies (hard-copy and CD-ROM) of the EIS required.

It is important for you to recognise that the Department will review the EIS for the project before putting it on public exhibition. If it fails to adequately address these requirements, you will be required to submit an amended EIS.

Yours sincerely

David Kitto
A/Executive Director
Resource Assessments
As the Secretary's delegate

Secretary's Environmental Assessment Requirements

State Significant Development

Section 78A(8A) of the *Environmental Planning and Assessment Act 1979*

Application Number	SSD 14_6367
Development	<p>The Bylong Coal Project, which includes:</p> <ul style="list-style-type: none"> • developing new open cut and underground mining operations on the site to extract up to 6.5 million tonnes of coal a year over a period of 25 years; • developing a range of associated infrastructure to support the proposed mining operations; • exporting coal from the site by rail; and • progressively rehabilitating the site.
Location	55 km northeast of Mudgee
Applicant	KEPCO Bylong Australia Pty Ltd
Date of Issue	23 June 2014
General Requirements	<p>The Environmental Impact Statement (EIS) for the development must comply with the requirements in:</p> <ul style="list-style-type: none"> • Clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i>; and • the Mining & Petroleum Gateway Panel's Conditional Gateway Certificate. <p>In particular, the EIS must include:</p> <ul style="list-style-type: none"> • a full description of the development, including: <ul style="list-style-type: none"> – the resource to be extracted, demonstrating efficient resource recovery within environmental constraints; – the mine layout and scheduling; – minerals processing; – associated infrastructure, including any temporary workers accommodation; – a waste (overburden, tailings, etc.) management strategy, dealing with the EPA's requirements (see Attachment 2); – a water management strategy, dealing with the Mining & Petroleum Gateway Panel's, EPA's, Department of Primary Industries' and (Commonwealth) Department of the Environment's requirements (see Attachments 2 & 3); – a rehabilitation strategy, dealing with the Mining & Petroleum Gateway Panel's, NSW Resource & Energy's and Department of Primary Industries' requirements (see Attachments 2 & 3); and – the likely interactions between the development and any other existing, approved or proposed mining development in the vicinity of the site; • a list of any approvals that must be obtained before the development may commence; • an assessment of the likely impacts of the development on the environment, focussing on the specific issues identified below, including: <ul style="list-style-type: none"> – a description of the existing environment likely to be affected by the development, <u>using sufficient baseline data</u>; – an assessment of the likely impacts of all stages of the development, including any cumulative impacts, taking into consideration any relevant laws, environmental planning instruments, guidelines, policies, plans and industry codes of practice; – a description of the measures that would be implemented to mitigate

	<p>and/or offset the likely impacts of the development, and an assessment of:</p> <ul style="list-style-type: none"> ○ whether these measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented; ○ the likely effectiveness of these measures; and ○ whether contingency plans would be necessary to manage any residual risks; <p>- a description of the measures that would be implemented to monitor and report on the environmental performance of the development if it is approved;</p> <ul style="list-style-type: none"> • a consolidated summary of all the proposed environmental management and monitoring measures, identifying all the commitments in the EIS; • consideration of the development against all relevant environmental planning instruments (including Part 3 of the <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>); and • the reasons why the development should be approved having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development. <p>While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies, and plans that may be relevant to the environmental assessment of this development.</p> <p>In addition to the matters set out in Schedule 1 of the <i>Environmental Planning and Assessment Regulation 2000</i>, the development application must be accompanied by a signed report from a suitably qualified expert that includes an accurate estimate of the:</p> <ul style="list-style-type: none"> • capital investment value (as defined in Clause 3 of the <i>Environmental Planning and Assessment Regulation 2000</i>) of the development, including details of all the assumptions and components from which the capital investment value calculation is derived; and • jobs that would be created during each stage of the development.
<p>Key Issues</p>	<p>The EIS must address the following specific issues:</p> <ul style="list-style-type: none"> • Subsidence – including an assessment of the likely conventional and non-conventional subsidence effects and impacts of the development, and the potential environmental consequences of these effects and impacts on both the natural and built environment, paying particular attention to those features that are considered to have significant economic, social or environmental values; • Land – including: <ul style="list-style-type: none"> - an assessment of the likely impacts of the development on the soils and land capability of the site and surrounds, paying particular attention to any biophysical strategic agricultural land (BSAL), having regards to the Mining & Petroleum Gateway Panel's and Department of Primary Industries' requirements (see Attachments 2 & 3); - an assessment of the likely agricultural impacts of the development, paying particular attention to the mapped equine critical industry cluster in the area; - an assessment of the likely impacts of the development on landforms (topography), including: <ul style="list-style-type: none"> ○ the potential subsidence impacts on cliffs, rock formations and steep slopes; and ○ the long term geotechnical stability of any new landforms (such as mine waste emplacements); - an assessment of the compatibility of the development with other land uses in the vicinity of the development in accordance with the requirements in Clause 12 of <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>;

- **Water** – including:
 - an assessment of the likely impacts of the development on the quantity and quality of the region's surface and groundwater resources, having regard to the Mining & Petroleum Gateway Panel's, EPA's, Department of Primary Industries' and (Commonwealth) Department of the Environment's requirements (see Attachments 2 & 3);
 - an assessment of the likely impacts of the development on aquifers, watercourses, riparian land, water-related infrastructure, and other water users; and
 - an assessment of the likely flooding impacts of the development;
- **Air Quality** – including:
 - an assessment of the likely air quality impacts of the development in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*, including the likely PM_{2.5} emissions (see Attachment 2); and
 - an assessment of the likely greenhouse gas impacts of the development, dealing with OEH's requirements (see Attachment 2);
- **Noise & Blasting** – including:
 - an assessment of the likely operational noise impacts of the development (including construction noise) under the *NSW Industrial Noise Policy*, paying particular attention to the obligations in chapters 8 and 9 of the policy;
 - if a claim is made for specific construction noise criteria for certain activities, then this claim must be justified and accompanied by an assessment of the likely construction noise impacts of these activities under the *Interim Construction Noise Guideline*;
 - an assessment of the likely road noise impacts of the development under the *NSW Road Noise Policy*;
 - an assessment of the likely rail noise impacts of the development under the *NSW Rail Infrastructure Noise Guideline*; and
 - an assessment of the likely blasting impacts of the development on people, animals, buildings and infrastructure, and significant natural features, having regard to the relevant ANZEC guidelines;
- **Biodiversity** – including:
 - an assessment of the likely biodiversity impacts of the development, having regard to OEH's, the Department of Primary Industries' and the (Commonwealth) Department of Environment's requirements (see Attachment 2);
 - a comprehensive offset strategy to ensure the development maintains or improves the terrestrial and aquatic biodiversity values of the region in the medium to long term.
- **Heritage** – including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development having regard to OEH's and the Heritage Council of NSW's requirements (see Attachment 2);
- **Transport** – including an assessment of the likely transport impacts of the development on the capacity, condition, safety and efficiency of the local and State road and rail network;
- **Visual** – including an assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, paying particular attention to the creation of new landforms (overburden dumps, bunds, etc.), and minimising the lighting impacts of the development;
- **Public Safety** - including an assessment of the likely risks to public safety, paying particular attention to potential subsidence risks, bushfire risks, and the transport, handling and use of any dangerous goods;
- **Social & Economic** – including:
 - an assessment of the likely social impacts of the development (including perceived impacts), paying particular attention to any impacts on Bylong village; and

	<ul style="list-style-type: none">- an assessment of the likely economic impacts of the development, paying particular attention to:<ul style="list-style-type: none">o the significance of the resource;o economic benefits of the project for the State and region; ando the demand for the provision of local infrastructure and services.
Consultation	<p>During the preparation of the EIS, you must consult with relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners.</p> <p>The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed in the EIS.</p>

ATTACHMENT 1

Environmental Planning Instruments, Policies, Guidelines & Plans

Noise & Blasting	
	NSW Industrial Noise Policy and associated Application Notes (EPA)
	NSW Road Noise Policy (EPA)
	NSW Rail Infrastructure Noise Guideline (EPA)
	Interim Construction Noise Guideline (EPA)
	Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC)
Air	
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA)
	Coal Mine Particulate Matter Control Best Practice – Site Specific Determination Guideline (EPA)
	Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion in the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)
	National Greenhouse Accounts Factors (Commonwealth)
Biodiversity	
	Draft NSW Biodiversity Offset Policy for Major Projects (OEH)
	BioBanking Assessment Methodology (OEH)
	Environmental Offsets Policy (Commonwealth DoE)
	NSW State Groundwater Dependent Ecosystem Policy (NOW)
	Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW)
	State Environmental Planning Policy No. 44 – Koala Habitat Protection
Water	
Water Sharing Plans	Hunter Unregulated and Alluvial Water Sources 2009
General	Information Guidelines for Proposals Relating to the Development of Coal Seam Gas and Large Coal Mines where there is a Significant Impact on Water Resources (Commonwealth DoE)
Groundwater	NSW State Groundwater Policy Framework Document (NOW)
	NSW State Groundwater Quality Protection Policy (NOW)
	NSW State Groundwater Quantity Management Policy (NOW)
	NSW Aquifer Interference Policy 2012 (NOW)
	Australian Groundwater Modelling Guidelines 2012 (Commonwealth)
Surface Water	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	Guidelines for the Assessment & Management of Groundwater Contamination (EPA)
	NSW Government Water Quality and River Flow Objectives (EPA)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA)
	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC)
Hunter River Salinity Trading Scheme (EPA)	
Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA)	

	Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (DECC)
	Managing Urban Stormwater: Treatment Techniques (EPA)
	Managing Urban Stormwater: Source Control (EPA)
	Technical Guidelines: Bunding & Spill Management (EPA)
	Environmental Guidelines: Use of Effluent by Irrigation (EPA)
	A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)
	NSW Guidelines for Controlled Activities (NOW)
Flooding	Floodplain Development Manual (OEH)
	Floodplain Risk Management Guideline (OEH)
Land	
	Agfact AC25: Agricultural Land Classification (NSW Agriculture)
	Agricultural Impact Statement Technical Notes (DPI)
	Soil and Landscape Issues in Environmental Impact Assessment (NOW)
	Landslide Risk Management Guidelines (Australian Geomechanics)
	State Environmental Planning Policy No. 55 – Remediation of Land
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)
Heritage	
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
	Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DP&E)
	Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH)
	Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (OEH)
	NSW Heritage Manual (OEH)
	Statements of Heritage Impact (OEH)
	Hunter Regional Environmental Plan 1989 (Heritage)
Traffic	
	Guide to Traffic Generating Development (RMS)
	Road Design Guide (RTA) & relevant Austroads Standards
Public Safety	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Hazardous and Offensive Development Application Guidelines – Applying SEPP 33
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
Resource	
	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (JORC)
Waste	
	Waste Classification Guidelines (DECC)
Rehabilitation	
	Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Strategic Framework for Mine Closure (ANZMEC-MCA)
Environmental Planning Instruments – General	
	State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
	State Environmental Planning Policy (State and Regional Development) 2011
	State Environmental Planning Policy (Infrastructure) 2007
	Mid-Western Regional LEP 2012

**ATTACHMENT 2
AGENCIES' CORRESPONDENCE**



Australian Government
Department of the Environment

EPBC Ref: 2014/7133

Howard Reed
Manager, Mining Projects
NSW Planning & Infrastructure
GPO Box 39
Sydney NSW 2001

**Environmental assessment requirements (Matters of National Environmental Significance Terms of Reference) for bilateral assessment process
Bylong Coal Project, NSW (EPBC 2014/7133)**

Dear Mr Reed

I refer to the email of 18 March 2014 requesting the Department of the Environment's input into the Director-General's requirements (under the NSW *Environmental Planning and Assessment Act 1979*) for environmental assessment for the above proposal, deemed a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 12 March 2014.

The proposed action, the Bylong Coal Project, involves the construction and operation of open cut and underground mining operations and associated infrastructure, on Bylong Valley Way, north-east of Mudgee, New South Wales.

The action is likely to have a significant impact on the following matters of National Environmental Significance (MNES):

- Listed threatened species and communities (sections 18 & 18A), and
- A water resource, in relation to coal seam gas development and large coal mining development (sections 24D & 24E).

In accordance with the bilateral assessment process for this project, I have attached the Environment Assessment requirements (Matters of National Environmental Significance Terms of Reference, Attachment 2) under the EPBC Act for input into the Director-General Requirements. The Director-General is required to notify the proponent of these requirements. I also note that the administrative procedures in relation to the bilateral assessment processes are being prepared and will apply to this assessment process once finalised. Please note that that the table at Appendix 1 of Attachment 2 to the MNES Terms of Reference should only be completed if the EIS does not contain a separate chapter addressing MNES.

The assessment must include enough information about the action and its relevant impacts to allow the Minister for the Environment to make an informed decision on whether or not to approve the action under the EPBC Act. In light of this, I have provided a summary of the Department's key concerns regarding potential impacts to matters of national environmental significance at Attachment 1.

If you have any questions about the enclosed information or requirements, please contact, Colette Boraso, by email to colette.boraso@environment.gov.au, or telephone 02 6274 2204 and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely



Mahani Taylor
Director
NSW Section
South-Eastern Australia Environment Assessments

31 March 2014

Attachment 1

Listed threatened species and communities

White Box, Yellow Box, Blakely's Red Gum Grassy Woodland and Derived Native Grassland (critically endangered)

The proposed action is likely to have a significant impact on White Box, Yellow Box, Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW). Based on the information provided in the referral, the action will directly impact WBGW by ~583 ha (29 ha woodland and 554 ha grassland). However, the method of determining the extent of WBGW was not provided.

Due to the scale of the project and the choice of the longwall mining method, it is likely that additional areas of WBGW will be indirectly impacted by subsidence, which can lead to habitat modification resulting from surface cracking, soil erosion due to slumping and changes in gradients, increased mixing of groundwater and surface water and hydrological changes to groundwater and surface water, including ponding. Based on the information provided, additional survey work and a detailed subsidence impact assessment will be undertaken during the assessment to determine the extent of the impact to WBGW.

Large-eared Pied Bat (*Chalinolobus dwyeri*)

The Large-eared Pied Bat population recorded onsite is an important population due to the high number of individuals present. The proposed action will remove at least 230 ha of foraging habitat and mine subsidence may impact cave roosting habitat, thereby reducing the area of occupancy of an important population, adversely affecting habitat critical to the survival of a species and disrupt the breeding cycle of an important population. The referral states that subsidence impacts will be discussed further in the assessment.

New Holland Mouse (*Pseudomys novaehollandiae*)

The New Holland Mouse (NHM) population recorded on site is an important population because it is the westernmost record of this species within the vicinity of the Wollemi National Park, which indicates that this is important population as is at the edge of the species' range. The proposed action will result in the reduction of an unknown amount of available habitat for the NHM. The listing advice states that loss and modification of habitat due to factors such as land development and a priority action listed in the conservation advice is to ensure regional planning maintains connectivity for this species.

Regent Honeyeater (*Anthochaera phrygia*)

The recovery plan for the Regent Honeyeater states that White Box, Yellow Box and Yellow Gum that grow on fertile soils on gently sloping foothills and plains appear to be critical to the survival of the Regent Honeyeater. This includes remnant trees and small patches of woodland in farmland and partly cleared agricultural land. Most areas of habitat are utilised intermittently and during its use, critical habitat is of utmost importance during its period of use. Clearing and fragmentation of WBGW is likely to be of greatest significance to the species because it greatly diminishes the capacity of the species to move across the landscape. Fragmentation also affects the species on a broad scale as the summer flowering of yellow box provides food for breeding birds. The recovery plans says that lack of access to dependable nectar flows at critical times, due to clearance of the most fertile stands, the poor health of many remnants, and competition for nectar from other honeyeaters, may be a major cause of the decline of this species.

The Regent Honeyeater has been recorded on site. The proposed action supports habitat, including habitat critical to the survival of the species and is ~100 km from Capertee Valley breeding area. Approximately 29 ha of critical foraging habitat and 201 ha of foraging habitat will be cleared as a result of the proposed action.

Other listed species

Based on the information provided in the EPBC Act referral, threatened flora and fauna species known to occur or with the potential to occur onsite will be the subject of detailed impacts assessments during the assessment. As detailed impact assessments were not completed for these remaining species, insufficient information has been provided to determine the likelihood of a significant impact on the following listed species as a result of the proposed action. Therefore, on the basis of all the information available to the Department, the Department considers that there is a real chance or possibility that project activities will significantly impact on the following:

- *Ozothamnus tessellatus* (Vulnerable) – recorded onsite, suitable habitat present and a large proportion of the population occurs on an neighbouring site;
- *Tylophora linearis* (Vulnerable) – recorded onsite at two locations and suitable habitat present;
- *Prostanthera discolour* (Vulnerable) – recorded on site suitable habitat present;
- Brush-tailed Rock-wallaby (*Petrogale penicillata*, Vulnerable) – recorded onsite and, recently, a new sub-population was discovered on the property adjacent to the proposed development;
- Spotted-tail Quoll (*Dasyurus maculatus maculatus*, Endangered) – records onsite and 230 ha of foraging habitat to be directly impacted and the referral states there is potential for the species to breed on site;
- South-eastern Long-eared Bat (*Nyctophilus corbeni*, Vulnerable) – records onsite and recorded in the locality;
- *Homoranthus darwinioides* (Vulnerable) – suitable habitat present and recorded in the locality;
- Ingram's Zieria (*Zieria ingramii*, Endangered) – suitable habitat present and recorded in the locality;
- Swift parrot (*Lathamus discolour*, Endangered) – suitable foraging habitat onsite;
- Pink-tailed Worm-lizard (*Aprasia parapulchella*, Vulnerable) – suitable habitat present and recorded in the locality, and
- Broad-headed Snake (*Hoplocephalus bungaroides*, Vulnerable) – suitable habitat present and recorded in the locality.

A water resource, in relation to a large coal mining development or coal seam gas development

Based on the information provided in the EPBC Act referral, the proponent's preliminary risk assessments showed that a significant impact on water resources is considered likely, therefore, relevant groundwater and surface water assessments will be completed during the assessment. The following impacts are discussed in the referral documentation.

Groundwater

The impacts of the proposed project on groundwater include:

- acceleration of groundwater drawdown effects, changes to groundwater flow directions and changes to groundwater quality
- potential for further depressurisation of aquifer systems' in the area through the mine void and underground dewatering
- increased groundwater seepage in the underground mine workings
- impacts of subsidence on the alluvial groundwater systems
- acceleration of loss of groundwater yield at existing bore locations
- long term changes (post mine closure) to groundwater levels, groundwater quality and flow direction.

Surface water

The impacts of the proposed project on surface water include:

- potential for increased turbidity and sedimentation resulting in impacts to water quality downstream (the Bylong River and associated tributaries)
- potential for additional demands on existing water sources
- changes to the catchment areas, with consequent impacts on catchment yields and drainage downstream of the site
- potential impacts to other licensed users of surface water sources
- requirement for discharge of surplus water, with potential consequent impacts on downstream water quality and quantities
- post-mining surface water impacts on catchment yields, water quality and quantity.

In addition to the impacts discussed above, the Department also considers that given the number of existing and proposed mines in the area (>10) regional cumulative impacts on surface and groundwater resources may arise.

Given the scale and nature of the proposed project, the sensitive receiving environments downstream of the proposed action, the lack of information in the referral documentation groundwater, and the information available to the Department, the Department considers that there is a real chance or possibility that the proposed action is likely to have a significant impact on a water resource.

Attachment 2

Matters of National Environmental Significance Terms of Reference

References:

- *Environment Protect and Biodiversity Conservation Act 1999* - section 51-55, section 96A(3)(a)(b), 101A(3)(a)(b), section 136, section 527E;
- *Environment Protect and Biodiversity Conservation Regulations 2000* - Division 3.2, 3.02(a)(b)(ii)(iii), Division 5.2, Schedule 4;
- *Bilateral Agreements* - Item 18.1, Item 18.5, Schedule 1; and
- *Policy - Environment Protect and Biodiversity Conservation Act 1999 Environmental Offsets Policy* October 2012.

1 THE ACTION

The Environmental Impact Statement (EIS) must describe in detail all construction, operational and (if relevant) decommissioning components of the action. This must include the precise location of all works to be undertaken (including associated offsite works and infrastructure), structures to be built or elements of the action that may have impacts on matters of national environmental significance (MNES).

The description of the action must also include details on how the works are to be undertaken (including stages of development and their timing) and design parameters for those aspects of the structures or elements of the action that may have relevant impacts.

The EIS must also include how the action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action.

2 THE ENVIRONMENT INCLUDING MNES

The EIS must include a description of the environment and management practices of the proposal site and the surrounding areas and other areas that may be affected by the action. Include the relevant MNES protected by controlling provisions of Part 3 of the EPBC Act:

- (a) Listed threatened species and communities (including suitable habitat) that are or are likely to be present in the vicinity of the site, including the following details:
 - i. Details of the scope, timing/effort (survey season/s) and methodology for studies or surveys used to provide information on the listed species/community/habitat at the site (and in areas that may be impacted by the project). Include details of:
 - best practice survey guidelines are applied; and
 - how they are consistent with (or a justification for divergence from) published Australian Government guidelines and policy statements.
- (b) a description of the important water resources within the site and in surrounding areas, which is consistent with the most recent version of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development's *Information Guidelines for Proposals Relating to the Development of Coal Seam Gas and Large Coal Mines where there is a Significant Impact on Water Resources*, and
- (c) a description of water related assets that are dependent on any important water resources, including an estimation of the water requirements of those assets (i.e. regional water use).

3 IMPACTS

- (a) The EIS must include a description of all of the relevant impacts of the action on MNES (identified in Section 2). Impacts during the construction, operational and (if relevant) the decommissioning phases of the project must be addressed, and the following information provided:
- i. a description of the relevant impacts of the action;
 - ii. a detailed analysis of the nature and extent of the likely direct, indirect and consequential impacts relevant to MNES, including likely short-term and long-term impacts;
 - iii. a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;
 - iv. any technical data and other information used or needed to make a detailed assessment of the relevant impacts;
- (b) The EIS should identify and address cumulative impacts, where potential project impacts are in addition to existing impacts of other activities (including known potential future expansions or developments by the proponent and other proponents in the region and vicinity).
- (c) The EIS should also provide a detailed assessment of any likely impact that this proposed action may facilitate on the relevant MNES at the local, regional, state, national and international scale.
- (d) The documentation provided must include information addressing all relevant impacts on water resources and water related values. This must include, but not be limited to, potential impacts to Matters of National Environmental Significance. The information must be consistent with the most recent version of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development's *Information Guidelines for Proposals Relating to the Development of Coal Seam Gas and Large Coal Mines where there is a Significant Impact on Water Resources*, which is available at <http://www.environment.gov.au/coal-seam-gas-mining/>.

4 AVOIDANCE AND MITIGATION MEASURES / ALTERNATIVES

Avoidance and Mitigation Measures

The EIS must provide information on proposed avoidance and mitigation measures to manage the relevant impacts of the action on MNES.

The EIS also must take into account relevant agreements and plans that cover impacts on MNES including but not limited to:

- any recovery plan, conservation advice for the species or community;
- any threat abatement plan for a process that threatens the species;
- any wildlife conservation plan for the species; and
- any Strategic Assessment.

The EIS must include, and substantiate, specific and detailed descriptions of the proposed avoidance and mitigation measures, based on best available practices and must include the following elements:

- (a) A consolidated list of avoidance and mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action on MNES, including:
- i. a description of proposed avoidance and mitigation measures to deal with relevant impacts of the action, including mitigation measures proposed to be taken by State/Territory governments, local governments or the proponent;
 - ii. assessment of the expected or predicted effectiveness of the mitigation measures, including the scale and intensity of impacts of the proposed action and the on-ground benefits to be gained through each of these measures;
 - iii. a description of the outcomes that the avoidance and mitigation measures will achieve;
 - iv. any statutory or policy basis for the mitigation measures; and
 - v. the cost of the mitigation measures.
- (b) A detailed outline of a plan for the continuing management, mitigation and monitoring of relevant MNES impacts of the action, including a description of the outcomes that will be achieved and any provisions for independent environmental auditing.
- (c) Where appropriate, each project phase (construction, operation, decommission) must be addressed separately. It must state the environmental outcomes, performance criteria, monitoring, reporting, corrective action, contingencies, responsibility and timing for each environmental issue.
- (d) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program.

Alternatives

The EIS must include any feasible alternatives to the action to the extent reasonably practicable, including:

- (a) if relevant, the alternative of taking no action;
- (b) a comparative description of the impacts of each alternative on the NES matters protected by controlling provisions of Part 3 of the EPBC Act for the action; and
- (c) sufficient detail to make clear why any alternative is preferred to another.

Short, medium and long-term advantages and disadvantages of the options must be discussed.

5 RESIDUAL IMPACTS / OFFSETS

The EIS must provide details of:

- (a) the likely residual impacts on MNES that are likely to occur after the proposed activities to avoid and mitigate all impacts are taken into account.
 - i. Include the reasons why avoidance or mitigation of impacts is not reasonably achieved; and
 - ii. Identify the significant residual impacts on MNES.

Offset Package (if relevant)

The EIS must include details of an offset package to be implemented to compensate for the residual significant impact of the project, as well as an analysis about how the offset meets the requirements in the Department's *Environment Protect and Biodiversity Conservation Act 1999* Environmental Offsets Policy October 2012 (EPBC Act Offset Policy).

The offset package can comprise a combination of direct offsets and other compensatory measures, so long as it meets the requirements of the EPBC Act Offset Policy. Offsets should align with conservation priorities for the impacted protected matter and be tailored specifically to the attribute of the protected matter that is impacted in order to deliver a conservation gain.

Offsets should compensate for an impact for the full duration of the impact.

Offsets must directly contribute to the ongoing viability of the MNES impacted by the project and deliver an overall conservation outcome that improves or maintains the viability of the MNES as compared to what is likely to have occurred under the status quo, that is if neither the action nor the offset had taken place.

Note offsets do not make an unacceptable impact acceptable and do not reduce the likely impacts of a proposed action. Instead, offsets compensate for any residual significant impact.

Offsets required by the State/Territory can be applied if the offsets meet the Department's EPBC Act Offset Policy.

The EIS must provide:

- (a) Details of the offset package to compensate for significant residual impacts on MNES; and
- (b) An analysis of how the offset package meets the requirements of the EPBC Act Offsets Policy.

Further details of information requirements for EPBC Act offset proposals are provided at [Appendix B](#).

6 ENVIRONMENTAL RECORD OF PERSON(S) PROPOSING TO TAKE THE ACTION

The information provided must include details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

- (a) the person proposing to take the action; and
- (b) for an action for which a person has applied for a permit, the person making the application.

If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must also be included.

7 ECONOMIC AND SOCIAL MATTERS

The economic and social impacts of the action, both positive and negative, must be analysed. Matters of interest may include:

- (a) details of any public consultation activities undertaken, and their outcomes;
- (b) details of any consultation with Indigenous stakeholders.

- (c) projected economic costs and benefits of the project, including the basis for their estimation through cost/benefit analysis or similar studies;
- (d) employment opportunities expected to be generated by the project (including construction and operational phases).

Economic and social impacts should be considered at the local, regional and national levels. Details of the relevant cost and benefits of alternative options to the proposed action, as identified in Section 4 above, should also be included.

8 INFORMATION SOURCES PROVIDED IN THE EIS

For information given in the EIS, state:

- (a) the source of the information;
- (b) how recent the information is;
- (c) how the reliability of the information was tested;
- (d) what uncertainties (if any) are in the information; and
- (e) what guidelines, plans and/or policies did you consider.

9 CONCLUSION

An overall conclusion as to the environmental acceptability of the proposal on MNES, including:

- (a) a discussion on the consideration with the requirements of the EPBC Act, including the objects of the EPBC Act, the principles of ESD and the precautionary principle ([Appendix C](#));
- (b) reasons justifying undertaking the proposal in the manner proposed, including the acceptability of the avoidance and mitigation measures; and
- (c) if relevant, a discussion of residual impacts and any offsets and compensatory measures proposed or required for significant residual impacts on MNES, and the relative degree of compensation and acceptability.

Appendix A

Table: ToR addressed by Assessment Documentation

ToR Number	Requirement	Section in Assessment Documentation
1	Action	
2a	Environment, including MNES	
2b	Water resources	
2c	Water related assets and dependent ecosystems	
3a	Impacts	
3b	Cumulative impacts	
3c	Detailed assessments of impacts on MNES	
3d	Impacts on water resources	
4a	Avoidance and mitigation measures	
4b	Management, mitigation and monitoring plan	
4c	Phased mitigation	
4d	Agency responsibility	
5	Residual impacts / offsets	
6	Environmental record of the person(s) proposing to take the action	
7	Economic and social matters	
8	Information sources provided in the EIS	
9	Conclusion	

Appendix B

Information requirements for EPBC Act offset proposals

- Details in relation to the proposed offsets package, including:
 - the location and size, in hectares, of any offset site(s);
 - maps clearly showing for each offset site:
 - the relevant ecological features;
 - the landscape context; and
 - the cadastre boundary.
 - the current tenure arrangements (including zoning and ownership) of any proposed offset sites;
 - confirmed records of presence (or otherwise) of relevant protected matter(s) on the offset site(s); and
 - detailed information regarding the presence and quality of habitat for relevant protected matter(s) on the offset site. The quality of habitat should be assessed in a manner consistent with the approach outlined in the document titled *How to use the offset assessment guide* available at:
<http://www.environment.gov.au/epbc/publications/environmental-offsets-policy.html>.
- Provide information and justification regarding how the offsets package will deliver a conservation outcome that will maintain or improve the viability of the protected matter(s) consistent with the *EPBC Act environmental offsets policy* (October 2012) including:
 - management actions that will be undertaken that improve or maintain the quality of the proposed offset site(s) for the relevant protected matter(s). Management actions must be clearly described, planned and resourced as to justify any proposed improvements in quality for the protected matter(s) over time;
 - the time over which management actions will deliver any proposed improvement or maintenance of habitat quality for the relevant protected matter(s);
 - the risk of damage, degradation or destruction to any proposed offset site(s) in the absence of any formal protection and/or management over a foreseeable time period (20 years). Such risk assessments may be based on:
 - presence of pending development applications, mining leases or other activities on or near the proposed offset site(s) that indicate development intent;
 - average risk of loss for similar sites; and
 - presence and strength of formal protection mechanisms currently in place.
 - the legal mechanism(s) that are proposed to protect offset site(s) into the future and avert any risk of damage, degradation or destruction.
- Provide information regarding how the proposed offsets package is additional to what is already required, as determined by law or planning regulations, agreed to under other schemes or programs or required under an existing duty-of-care.
- The overall cost of the proposed offsets package; including costs associated with, but not limited to:
 - acquisition and transfer of lands/property;
 - implementation of all related management actions; and
 - monitoring, reporting and auditing of offset performance.

Appendix C

**THE OBJECTS OF THE ENVIRONMENT PROTECTION AND BIODIVERSITY
CONSERVATION ACT 1999, PRINCIPLES OF THE ECOLOGICALLY
SUSTAINABLE DEVELOPMENT AND THE PRECAUTIONARY PRINCIPLE**

3 Objects of the Act

- (a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and
- (b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and
- (c) to promote the conservation of biodiversity; and
 - (ca) to provide for the protection and conservation of heritage; and
- (d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples; and
- (e) to assist in the co-operative implementation of Australia's international environmental responsibilities; and
- (f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
- (g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

3A Principles of Ecologically Sustainable Development

The following principles are *principles of ecologically sustainable development*.

- (a) Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.
- (b) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- (c) The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
- (d) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.
- (e) Improved valuation, pricing and incentive mechanisms should be promoted.

Precautionary principle

The *precautionary principle* is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.



Resources
& Energy

OUT14/5884

Mr Clay Preshaw
Team Leader
Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Preshaw

**Bylong Coal Project (SSD 14_6367)
Director General's Requirements**

I refer to your email of 4 February 2014 and request at the Planning Focus Meeting held on 13 February 2014, for input from NSW Trade & Investment, Regional Infrastructure & Services, Division of Resources & Energy (DRE) to the Director General Requirements (DGRs) for the proposed Bylong Coal Project.

DRE has reviewed the *Preliminary Environmental Assessment Bylong Coal Project - Background Document* dated January 2014 and provides the following comments which are directed at specific areas of DRE's responsibility for this proposal:

MINING TITLE

As coal is a prescribed mineral under the *Mining Act 1992*, the proponent is required to hold an appropriate mining title from DRE in order to mine the mineral.

For mining purposes as prescribed by the section 6 of the *Mining Act 1992*, in so far as the mining purposes are to be carried out in connection with and in the immediate vicinity of a mining lease in respect of a mineral, the proponent is required to hold an appropriate mining title.

Any Environmental Impact Statement (EIS) for this project should clearly identify existing mineral titles, mineral title applications and the final proposed mining lease area(s) for the project site and areas surrounding the proposed project area and address the environmental impacts and management measures for the mining and mining purpose activities as licensed under the *Mining Act 1992*.

Department of Trade & Investment, Regional Infrastructure & Services
Division of Resources and Energy
PO Box 344 Hunter Region Mail Centre NSW 2310
516 High St Maitland NSW 2323
Tel: 02 4931 6666 Fax: 02 4931 6776
ABN 72 189 919 072
www.industry.nsw.gov.au

PROJECT DESCRIPTION

So that the project and its environmental interactions can be understood, the EIS should provide a comprehensive description of all aspects (including the mineral extraction and mining purposes) of the project. In terms of text, plans or charts, it must also clearly show the proposed extent and sequence of the development.

IDENTIFICATION OF THE PROJECT'S COAL RESOURCE AND RESERVE

The EIS must contain resource and reserve statement that has been prepared in accordance with the Joint Ore Reserve Committee (JORC) code (2012) and signed off by a Competent Person in accordance with the JORC code.

The statement must include resource and reserve estimates for each coal seam proposed to be mined. The statement must also include the coal quality parameters for each seam, product specifications and yields.

DESCRIPTION OF EXISTING ENVIRONMENT, IDENTIFICATION OF IMPACTS AND CONSTRAINTS

All areas affected by the proposal should be shown in the context of the natural and built environments. This should be in sufficient detail to enable an understanding of the scale of impacts and gauge the effectiveness of proposed control measures.

The EIS should state the interaction between the proposed mining activities and the existing environment and so include a comprehensive description of the following activities and their impacts:

- Mine layout and scheduling, including maximising opportunities for progressive final rehabilitation. The final rehabilitation schedule should be mapped against key production milestones (i.e. ROM tonnes) of the mine layout sequence before being translated to indicative timeframes throughout the mine life. The mine plan should maximise opportunities for progressive rehabilitation;
- Mineral processing and handling, washery rejects handling and disposal management activities;
- Infrastructure facilities and storage requirements;
- Surface and groundwater usage and management;
- Mine closure including rehabilitation and decommissioning activities.

Impacts associated with the operational and post closure stages of the project must also be identified in detail and control management strategies outlined. The identification and description of impacts must draw out those aspects of the site that may present barriers or limitations to effective rehabilitation and which may limit the mine closure potential of the land. The following are the key issues to be addressed in the EIS that are likely to have a bearing on rehabilitation and mine closure.

- An evaluation of current rehabilitation techniques and performance against existing rehabilitation objectives and completion criteria;
- An assessment and life of mine management strategy of the potential for geochemical constraints to rehabilitation (e.g. acid rock drainage, spontaneous combustion etc.), particularly associated with the

management of overburden/interburden and reject material. Based on this assessment, the EIS is to document the processes that will be implemented throughout the mine life to identify and appropriately manage geochemical risks that may affect the ability to achieve sustainable rehabilitation outcomes;

- A life of mine tailings management strategy, which details measures to be implemented to avoid the exposure of tailings material that may cause environmental risk, as well as promote geotechnical stability of the rehabilitated landform;
- Existing and surrounding landforms (showing contours and slopes) and how similar characteristics can be incorporated into the post-mining final landform design. This should include an evaluation of how the key geomorphological characteristics evident in stable landforms within the natural landscape can be adapted to the materials and other constraints associated with the site;
- Where a void is proposed to remain as part of the final landform, the assessment is to provide details in regards to the following:
 - a constraints and opportunities analysis of final void options, including backfilling, to justify that the proposed design is the most feasible and environmentally sustainable option to minimise the sterilisation of land post-mining;
 - a preliminary geotechnical assessment to identify the likely long term stability risks associated with the proposed remaining high wall(s) and low wall(s) along with associated measures that will be required to minimise potential risks to public safety;
 - outcomes of the surface and groundwater assessments in relation to the likely final water level in the void. This should include an assessment of the potential for fill and spill along with measures required be implemented to minimise associated impacts to the environment and downstream water users.
- Surface water flow and flooding regimes and how these will be impacted and mitigated by the project both during and after mining has ceased. This is to include an evaluation of potential impacts from the final void on both surface and groundwater quality and flow regimes.
- Where underground mining is proposed, conduct a groundwater assessment to determine the likelihood and associated impacts of groundwater accumulating and subsequently discharging (e.g. acid or neutral mine drainage) from the workings post cessation of mining. The assessment should include a consideration of the likely controls required to either prevent or mitigate against these risks as part of the closure plan for the site
- An assessment of the biological resources associated with the proposed disturbance area and how they can be practically salvaged for utilisation in rehabilitation (i.e. topsoil, seed banks, tree hollows and logs, native seed etc.). This should include an evaluation of how topsoil/subsoil of suitable quality can be direct-returned for use in rehabilitation;

- The flora, fauna and ecological attributes of the disturbed area should be recorded and placed in a regional context;
- An evaluation of current land capability class and associated condition. The EIS should characterise soils across the proposed area of surface disturbance and assess their value and identify opportunities and constraints for use in rehabilitation;
- Where an agricultural land use is proposed, the EIS should:
 - Demonstrate that the landscape will be returned to the Agricultural Suitability Class that existed before mining commenced or better;
 - Where the intended land use is likely to be grazing, the existing capacity in terms of Dry Sheep Equivalent or similar must be calculated and a timeframe from vegetation establishment be given for the return to agricultural production to at least the existing stock capacity;
 - Provide information on how soil would be developed in order to achieve the proposed stock capacity.
- Where an ecological land use is proposed, the EIS should demonstrate that the revegetation strategy (e.g. seed mix, habitat features, corridor width etc.) has been developed in consideration of the target vegetation community(s).

REHABILITATION AND MINE CLOSURE

The Division of Resource & Energy's (DRE) role focuses on ensuring that mined land in NSW is effectively rehabilitated and returned to beneficial post mining land uses. This is undertaken by requiring mine operators to have strategies in place to ensure the rehabilitation of all mined land, and strategies for an orderly transition from a mining land use to an agreed stable and beneficial post mining use. At the EIS stage, the strategies may be conceptual in nature. Each of the following aspects of rehabilitation planning should be addressed in the strategy:

Post Mining Land Use – the proponent must identify and assess post mining land use options and provide a statement of the preferred post mining land use outcome in the EIS. This should include a discussion of how the final land use(s) are aligned with relevant local and regional strategic land use objectives as well as the benefits of the post mining land to the surrounding environment, a subsequent landowner, the local community and the state of NSW.

Rehabilitation Objectives and Domains – a set of project rehabilitation objectives and completion criteria must be included that clearly define the environmental outcomes required to achieve the final land use for each domain. The completion criteria must be specific, measurable, achievable, realistic and time-bound.

If necessary, objective criteria may be presented as ranges rather than finite indicator levels. Subjective criteria may also apply where a gap in technical knowledge is experienced. Further refinement of these criteria will be undertaken and included in the Rehabilitation Management Plan (RMP).

Conceptual Final Landform Design – a drawing at an appropriate scale with final landform contours should be provided. This design should incorporate key geomorphological characteristics evident in stable landforms within the surrounding natural landscape. A justification statement must be included within the EIS where it is found that incorporation of natural characteristics into the final landform is not practical.

The final landform drawing should identify the following attributes; vegetation types; biodiversity habitat features; contaminated areas; final voids; drainage infrastructure and how it will integrate with adjacent creek systems; access and internal roads; fencing design; and other remaining infrastructure such as sheds, dams, bores and pipelines. The plan will also need to demonstrate how the rehabilitation strategy integrates with adjacent land uses.

SCOPE OF REHABILITATION AND DECOMMISSIONING ACTIVITIES

The EIS is to include a detailed description of the scope of decommissioning and rehabilitation activities required to meet the nominated closure objectives and completion criteria for each domain. The scope of these activities must be developed in consideration of the existing environment, identification of impacts and constraints as listed above,

Monitoring and Research: Outline the proposed monitoring programs that will be implemented to assess how rehabilitation is trending towards the nominated land use objectives and completion criteria. This should include details of the process for triggering intervention and adaptive management measures to address potential adverse results as well as continuously improve rehabilitation practices.

In addition, an outline of proposed rehabilitation research programs and trials, including objectives, are to be included in the EIS. This should include details of how the outcomes of research are considered as part of the ongoing review and improvement of rehabilitation practices.

Post-closure maintenance: Describe how post-rehabilitation areas will be actively managed and maintained in accordance with the intended land use(s) in order to demonstrate progress towards meeting the closure objectives and completion criteria in a timely manner.

SUBSIDENCE

The proposed mine layout should be designed and management systems be developed, taking into consideration identified subsidence, existing surface structures and stakeholder and community issues. The EIS should provide assessment of subsidence levels associated with underground mining, using best available predictive formulae.

The EIS should identify if the predicted subsidence will result in fracture connectivity to the surface, and the environmental consequence to the ground surface, groundwater aquifers and groundwater dependant ecosystems of the predicted subsidence. Baseline assessment of the surface features above the proposed mining areas must be sufficient to identify environmental features at risk, and appropriate setback or protection zones if necessary for sensitive features.

Private Properties

The proponent should address the potential subsidence impacts to private properties in the EIS, including:

- Adequate characterisation of potentially affected private properties;
- Mine layout options optimised to manage subsidence impacts to meet the performance criteria determined during the planning process.

Additional requirements regarding subsidence issues will be provided in a supplementary response after site inspection of the project area has been undertaken by DRE's Principal Subsidence Engineer.

OTHER CONSIDERATIONS

Mining Operations Plan (MOP)

If the project is approved, prior to commencement the proponent will be required to submit and have approved a Mining Operations Plan (MOP) or, if the pending *Mining Act 1992* amendments have commenced, a Rehabilitation and Environmental Management Plan (REMP).

Rehabilitation Security Bond - A review of the rehabilitation security bond will also be undertaken prior to project commencement.

Should you have any enquires regarding this matter please contact Vince Fallico, Project Officer, Industry Coordination on 8281 7340.

Yours sincerely



Adrian Delany
Acting Director
Industry Coordination

19.2.14



Department of Primary Industries

OUT14/6168

Mr Clay Preshaw
Mining Projects
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

26 FEB 2014

Clay.Preshaw@planning.nsw.gov.au

Dear Mr Preshaw,

Bylong Coal Project [SSD 14_6367] Request for input into Director General Requirements

I refer to your email dated 4 February 2014 to the Department of Primary Industries in respect to the above matter.

Comment by Fisheries NSW

Fisheries NSW has concerns in relation to the potential impact of the proposal on the delivery of surface water from the upper catchments of the Bylong River to the Goulburn River. This is a significantly large catchment and the groundwater assessment in the background documentation determined that the alluvial aquifer is sandy and highly permeable.

Fisheries NSW has serious concerns about connectivity between the pit and the river through this aquifer and requires that the Surface Water Management Assessment must include the interaction with the Groundwater Assessment to assess this risk and the potential reduction in delivery of water downstream to the receiving waters, including the Goulburn River.

The proposed assessment of the aquatic habitats should also include;

- an assessment of those areas upstream that may contain permanent refuge areas and,
- if found, a sampling component to determine potential impacts on migratory species.

For further information please contact Scott Carter, Senior Conservation Manager, (Port Stephens Office) on 4916 3931, or at scott.carter@dpi.nsw.gov.au

Comment by Crown Lands

Crown Lands have provided comment in Attachment A.

For further information please contact Kay Oxley, Senior Natural Resource Management Officer, (Orange Office) on 6391 4334 or at kay.oxley@lands.nsw.gov.au.

Comment by NSW Office of Water

NSW Office of Water recommend that the EIS be required to include:

- Assessment of any water licensing requirements (including those for ongoing water take post-closure).
- Details of water proposed to be taken (including through inflow and seepage) from each water source as defined by the relevant Water Sharing Plan.
- The identification of an adequate and secure water supply for the life of the mine. Confirmation that water can be sourced from an appropriately authorised and reliable supply. This is to include an assessment of the current market depth where water entitlement is required to be purchased and will need to demonstrate consistency with the rules of the relevant Water Sharing Plan. It is recommended consideration be given to the potential for the project to trigger a reduced Available Water Determination in the water source and the associated impact to existing users and the project.
- Assessment of impacts on surface and ground water sources (both quality and quantity), watercourses, riparian land, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts. This is to include an assessment to meet the requirements of the NSW Aquifer Interference Policy (2012).
- Proposed surface and groundwater monitoring.
- A detailed and consolidated site water balance.
- Details surrounding the final landform of the site, including final void management and rehabilitation measures.
- Consideration of relevant policies and guidelines.

Detailed comment is found in Attachment B.

For further information please contact Hemantha Desilva, Senior Water Regulation Officer (Newcastle Office) on 4904 2525 or at hemantha.desilva@water.nsw.gov.au

Comment by Office of Agricultural Sustainability & Food Security

In accordance with procedures for mining projects that affect agricultural the Office of Agricultural Sustainability & Food Security has responded to direct to your Department by letter dated 18 February, 2014.

For further information please contact Rob Williamson, Leader Land Use Planning (Orange office) on 6391 3166, or at: rob.williamson@dpi.nsw.gov.au.

Yours sincerely

Kristian Holz
Director, Policy Coordination, Corporate Planning & Governance

Attachment A

**Bylong Coal Project [SSD 14_6367]
Request for Input into Director General Requirements
Comment by NSW Trade & Investment-Crown Lands**

The project impacts on a number of Crown land parcels, some of which are subject to licences held by others – refer **Table 1**. The EIS needs to:

- (i) Fully detail actual impact on each of the Crown land parcels likely to be affected.
- (ii) Demonstrate that there has been consultation undertaken by the Company with relevant licence holders, including the Local Land Services Board, Mid Western Regional Council and private licence holders.
- (iii) Address the Crown land parcels that will be directly impacted by open cut mining, overburden emplacement and subsidence by underground mining operations. It is considered that the maintenance of the final landform should not be the responsibility of Crown Lands. Compulsory acquisition should be considered within the Conditions of Consent issued by the Department of Planning and Infrastructure, in consultation with Crown Lands.

It is noted that various Crown land parcels are currently subject to an Application for Licence by Cockatoo Coal Pty Ltd (parent company of KEPCO Bylong Australia Pty Ltd) and could potentially be used as biodiversity offsetting areas. Consultation with Crown Lands should be undertaken by the Company during the preparation of the *Environmental Impact Statement* to determine the likelihood of such a proposal and the proposed long term management of Reserves.

Table 1 Crown Land Details and Potential Impacts

Lot	DP	Account	Holder	Purpose	Mining Impacts
1	722162	Licence 351125	ACN 000 690 648 Pty Ltd	Grazing	Open Cut Mine
4	755438	Licence 351125	ACN 000 690 648 Pty Ltd	Grazing	Open Cut Mine
56	755420	Reserve 755420 LANDS06/138 (subject to application for purchase by Wallings Pastoral Pty Ltd)	-	Future Public Requirement	Subsidence from underground mining
57	755420	Reserve 755420 (subject to Licence Application to Cockatoo coal for Environmental Studies – site investigation)	-	Future Public requirement	Subsidence from underground mining
65	755417	Reserve 51002	Rural Lands Protection Board	Camping, Travelling Stock	No direct impact
85	755438	No features found			No direct impact
91	722302	Reserve 190030	Mid Western Regional Council Crown Reserves Reserve Trust	Bush Fire Brigade Purposes	No direct impact
95	45337	Reserve 96491	-	Access	No impact
97	45338	Reserve 96491	-	Access	No direct impact
98	704724	Licence 357510	ACN 000690 648 Pty Ltd	Grazing	Overburden Emplacement
165	755421	Reserve 79462 (Subject to Licence Application to Cockatoo Coal for	-	Generally	No impact.

		Environmental Studies –site investigation			
166	755421	Reserve 79462 (subject to Licence Application to Cockatoo coal for Environmental Studies – site investigation)	-	Generally	No impact. Could potentially be used as a Biodiversity Offset Area by the company.
194	755421	Licence 480932 general) (subject to Licence Application to Cockatoo coal for Environmental Studies – site investigation	Suntala Pty Ltd	Agriculture, environmental protection grazing	No impact. Could potentially be used as a Biodiversity Offset Area by the company.
195	755421	Reserve 79462 (subject to Licence Application to Cockatoo coal for Environmental Studies – site investigation	-	Generally	No impact. Could potentially be used as a Biodiversity Offset Area by the company.
208	755421	Licence 480932 (General) (subject to Licence Application to Cockatoo coal for Environmental Studies – site investigation	Suntala Pty Ltd	Agriculture, environmental protection grazing	No impact. Could potentially be used as a Biodiversity Offset Area by the company.
214	755421	No features found. (subject to Licence Application to Cockatoo coal for Environmental Studies – site investigation			No impact. Could potentially be used as a Biodiversity Offset Area by the company.
7001	1068900	Reserve 3291	Rural Lands Protection Board	Camping	No impact.
7002	1068900	Reserve 3291	Rural Lands Protection Board	Camping	No impact.
7004	1001788	Reserve 79462 (subject to Licence Application to Cockatoo coal for Environmental Studies – site investigation	-	Generally	No impact. Could potentially be used as a Biodiversity Offset Area by the company.
7010	1068901	Licence 497927	Cockatoo Coal Ltd	Monitoring Gauge	No Impact.
7300	1137901	Reserve 755438	-	Future Public Requirements	Impacted by overburden emplacement.
7303	1140010	755421 (LANDS06/138)	-	Future Public Requirements	No impact.

End Attachment A

Attachment B

Bylong Coal Project [SSD 14_6367] Request for Input into Director General Requirements Additional Comment by the NSW Office of Water

Relevant Legislation

The Environmental Impact Statement (EIS) should take into account the objects and regulatory requirements of the *Water Act 1912* and *Water Management Act 2000* (WMA 2000), as applicable. Proposals and management plans should be consistent with the Objects (s.3) and Water Management Principles (s.5) of the WMA.

Water Sharing Plans

- The proposal is located within the area covered by the Water Sharing Plan (WSP) for the Hunter Unregulated and Alluvial Water Sources 2009.

The EIS is required to:

- Demonstrate how the proposal is consistent with the relevant rules of the WSP including rules for access licences, access licence dealings, distance restrictions for water supply works and rules for the management of local impacts in respect of surface water and groundwater sources, ecosystem protection, water quality and surface-groundwater connectivity.
- It is recommended consideration be given to the potential for the project to trigger a reduced Available Water Determination in the water source and the associated impact to existing users and the project.
- Provide a description of any site water use (amount of water from each water source) and management including all sediment dams, clear water diversion structures with detail on the location, design specifications and storage capacities for all the existing and proposed water management structures.
- Provide an analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any relevant WSP.
- Provide a detailed and consolidated site water balance.

Relevant Policies and Guidelines

The EIS should take into account the following policies (as applicable):

- Guidelines for Controlled Activities on Waterfront Land (2012);
- Aquifer Interference Policy (2012) (use the guide document [Assessing a proposal against the NSW Aquifer Interference Policy](#))
- NSW State Rivers and Estuary Policy (1993);
- NSW State Groundwater Policy Framework Document (1997);
- NSW State Groundwater Quality Protection Policy (1998);
- NSW State Groundwater Dependent Ecosystems Policy (2002); and
- Department of Primary Industries Risk Assessment Guidelines for Groundwater Dependent Ecosystems (2012).
- NSW Water Extraction Monitoring Policy (2007)
- Australian Groundwater Monitoring Guidelines (2012)
- Access Licence Dealing Principles Order (2004)

Refer:

<http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/default.aspx>

The EIS needs to demonstrate the proposal is consistent with the spirit and principles of these policy documents.

Licensing Considerations

The EIS is required to provide:

- Identification of water requirements for the life of the mine in terms of both volume and timing (including predictions of potential ongoing groundwater take following the cessation of operations at the site - i.e. evaporative loss from open voids or inflows).
- Details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction from each water source as defined in the relevant Water Sharing Plan/s and all water supply works to take water.
- Explanation of how the required water entitlements will be obtained (i.e. through a new or existing licence/s, trading on the water market, controlled allocations etc.).
- Information on the purpose, location, construction and expected annual extraction volumes including details on all existing and proposed water supply works which take surface water, (pumps, dams, diversions, etc).
- Details on all bores and excavations for the purpose of investigation, extraction, dewatering, testing and monitoring. All predicted groundwater take must be accounted for through adequate licensing.
- Details on existing dams/storages (including the date of construction, location, purpose, size and capacity) and any proposal to change the purpose of existing dams/storages.
- Details on the location, purpose, size and capacity of any new proposed dams/storages.

Water allocation account management rules, total daily extraction limits and rules governing environmental protection and access licence dealings also need to be considered.

The Harvestable Right gives landholders the right to capture and use for any purpose 10 % of the average annual runoff from their property. The Harvestable Right has been defined in terms of an equivalent dam capacity called the Maximum Harvestable Right Dam Capacity (MHRDC). The MHRDC is determined by the area of the property (in hectares) and a site-specific run-off factor. The MHRDC includes the capacity of all existing dams on the property that do not have a current water licence. Storages capturing up to the harvestable right capacity are not required to be licensed but any capacity of the total of all storages/dams on the property greater than the MHRDC may require a licence.

Groundwater Assessment

To ensure the sustainable and integrated management of groundwater sources, the EIS needs to include adequate details to assess the impact of the project on all groundwater sources including:

- The predicted highest groundwater table at the site.
- Works likely to intercept, connect with or infiltrate the groundwater sources.
- Any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- A description of the flow directions and rates and physical and chemical characteristics of the groundwater source (including connectivity with other groundwater and surface water sources).
- Baseline monitoring (min 2 years) for groundwater quantity and quality for all aquifers and GDEs.
- The predicted impacts of any final landform on the groundwater regime.
- The existing groundwater users within the area (including the environment), any potential impacts on these users and safeguard measures to mitigate impacts.
- An assessment of the quality of the groundwater for the local groundwater catchment.
- An assessment of the potential for groundwater contamination (considering both the impacts of the proposal on groundwater contamination and the impacts of contamination on the proposal).
- Measures proposed to protect groundwater quality, both in the short and long term.

- Measures for preventing groundwater pollution so that remediation is not required.
- Protective measures for any groundwater dependent ecosystems (GDEs).
- Proposed methods of the disposal of waste water and approval from the relevant authority.
- The results of any models or predictive tools used.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Any proposed monitoring programs, including water levels and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised from future use as a water supply as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.

Groundwater Dependent Ecosystems

It is suggested the EIS considers the potential impacts on any Groundwater Dependent Ecosystems (GDEs) at the site and in the vicinity of the site and:

- Identify any potential impacts on GDEs as a result of the proposal including:
 - the effect of the proposal on the recharge to groundwater systems;
 - the potential to adversely affect the water quality of the underlying groundwater system and adjoining groundwater systems in hydraulic connections; and
 - the effect on the function of GDEs (habitat, groundwater levels, connectivity).
- Provide safeguard measures for any GDEs.

Watercourse and Riparian Land

The EIS should consider the Guidelines for Controlled Activities on Waterfront Land (2012).

The EIS should address the potential impacts of the project on all watercourses likely to be affected by the project, existing riparian vegetation and the rehabilitation of riparian land. It is recommended the EIS provides details on all watercourses potentially affected by the proposal, including:

- Scaled plans showing the location of:
 - watercourses and top of bank;
 - riparian corridor widths to be established along the creeks;
 - existing riparian vegetation surrounding the watercourses (identify any areas to be protected and any riparian vegetation proposed to be removed);
 - the site boundary, the footprint of the proposal in relation to the watercourses and riparian areas; and
 - proposed location of any asset protection zones.
- Photographs of the watercourses.
- A detailed description of all potential impacts on the watercourses/riparian land.
- A description of the design features and measures to be incorporated to mitigate potential impacts.

- Geomorphic assessment of water courses including details of stream order (Strahler System), river style and energy regimes both in channel and on adjacent floodplains.

Landform rehabilitation or final void management

The Environmental Impact Statement report should include:

- Justification of the proposed final landform with regard to its impact on local and regional groundwater systems;
- A detailed description of how the site would be progressively rehabilitated and integrated into the surrounding landscape;
- Detailed modelling of potential groundwater volume, flow and quality impacts of the presence of an inundated final void on identified receptors specifically considering those environmental systems that are likely to be groundwater dependent;
- A detailed description of the measures to be put in place to ensure that sufficient resources are available to implement the proposed rehabilitation; and
- The measures that would be established for the long-term protection of local and regional aquifer systems and for the ongoing management of the site following the cessation of the project.

End Attachment B



Department of Primary Industries

OUT14/4242

18 FEB 2014

Clay Preshaw
Planning Officer
NSW Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Preshaw

Thank you for your letter of 4 February 2014 concerning the request for Director General Requirements (DGRs) and notification of the Planning Focus Meeting (PFM) for Bylong Coal Project.

The Office of Agricultural Sustainability & Food Security (O AS&FS) has reviewed the background document for the Bylong Coal Project (Hansen Bailey 2014) and attended the PFM on 13 February. As a result, the O AS&FS requests that an Agricultural Impact Statement (AIS) is included in the Environmental Impact Statement (EIS). Specific guidance on satisfying the requirements for the AIS should be taken from the Department of Primary Industries, Agricultural Impact Statement Technical Notes which are available at:
<http://www.dpi.nsw.gov.au/agriculture/resources/lup/development-assessment>

The DGRs should specifically include:

- The requirement of a comprehensive Agricultural Impact Statement using the guidelines described above, and
- detailed advice regarding rehabilitation, in particular the proposed rehabilitation of Biophysical Strategic Agricultural Land (BSAL), including the location of the activities, methodologies and time-frames for implementation.

This advice from the Office of Agricultural Sustainability & Food Security is forwarded direct to the Department of Planning & Infrastructure in accordance with agreed arrangements for mining applications that affect agricultural land. Additional advice from the other divisions within the Department of Primary Industries may be forwarded by separate letter.

If you wish to discuss the issue further please call Rob Williamson on telephone 02 6391 3166 or by email robert.williamson@dpi.nsw.gov.au

Yours sincerely

A handwritten signature in cursive script, appearing to read 'Regina Fogarty'.

Dr Regina Fogarty
Director Office of Agricultural Sustainability & Food Security



Office of
Environment
& Heritage

Your reference: SSD 14_6367
Our reference: DOC14/10656
Contact: Terry Mazzer 6883 5302
Date: 18/2/2014

Clay Preshaw
Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2001

Dear Clay,

Re: Bylong Coal Project SSD 14-6367

I refer to your email dated 4th February 2014 requesting environmental assessment requirements on the above proposal from the Office of Environment and Heritage (OEH). OEH's general requirements are provided in Attachments 1 and 2.

OEH would like to highlight the following aspects of the Project which will need particular attention in the Environmental Assessment.

Offsets

The EIS will need to include full flora and fauna studies, both at the impact site and for offset proposals. Study areas should include all vegetation communities that are likely to be directly and indirectly impacted. Both these vegetation communities, and those in proposed offset areas, will need to be clearly identified, mapped and quantified.

OEH requests that spatial data (in the form of shapefiles) be provided with the EIS. A meeting to discuss the appropriateness of potential offset areas should occur at the earliest point possible. This is particularly the case if an offset mechanism is the proposed addition to the National Park estate.

Threatened Species and Endangered Ecological Communities

In addition to full flora and fauna studies on and adjacent to the area of impact, the EIS should demonstrate particular consideration of impacts on the threatened species and Endangered Ecological Communities (EECs) identified in the Background Document (January 2014), and present the steps undertaken by the Proponent to avoid, mitigate and offset such impacts. Specific listed entities include but are not limited to the Endangered Population of River Red Gum and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland EEC/CEEC. Particular note should be taken of the results of the nearby Mt Penny assessments.

Aboriginal cultural heritage

While OEH has no specific Aboriginal cultural heritage issues concerning the proposed Bylong project at this stage, the EIS will need to consider the detailed results of the Mt Penny assessments which established areas of high Aboriginal cultural heritage value.

Water

OEH has concerns regarding both the quantity and quality of water being produced and/or consumed through mining processes, and the impacts of that modified quality and flows on biodiversity. The EIS should clearly detail the quantity and source of water to be used, and the expected quality, temperature and quantity of water being released. The impacts of changes to water regimes on aquatic and riparian biodiversity should be assessed in the EIS.

OEH also has concerns regarding effects on water quality and sedimentation on Goulburn River National Park, downstream of the Bylong Coal Project. The EIS will need to demonstrate how the movement of sediment and wastewater (including discharges from mining operations, the accommodation facility and associated infrastructure) will be controlled so as to avoid impacts on the aquatic and riparian habitats of the park

In addition, the EIS will need to consider changes to groundwater levels, as changes in groundwater can lead to impacts such as drying of vegetation communities. In particular, the EIS should provide an analysis of the likely impacts of subsidence and fracturing on groundwater.

Significant natural features

The EIS will need to clearly identify all natural features, and detail how impacts to these will be avoided or mitigated. Where it can clearly be demonstrated that impacts cannot be avoided or mitigated, offsets must be presented. The proponent should also demonstrate consideration of the contribution of these proposals to the cumulative impacts of mining in the region. Natural features of particular concern that will need to be specifically addressed include, but are not restricted to, overhangs, art sites and talus slopes.

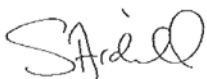
OEH has major concerns about the potential for subsidence impacts which can lead to detrimental consequences for natural features. In addition to surface features directly within the subsidence zone, the EIS will need to consider potential impacts on Goulburn River National Park as the underground extraction area approaches the Park boundary.

OEH considers that sensitive surface features should be avoided wherever possible, and that longwall mines should not extend beneath sensitive areas.

The EIS should also identify the *least* sensitive features and how sensitivity was defined and delineated. Ideally, mining would begin in these areas with monitoring of impacts and an adaptive management program that would identify and address any damage before the project extends into more sensitive areas. Management can then be refined before the projects reach more sensitive natural features that cannot be avoided. The EIS will therefore need to provide specific details of intended monitoring programs and methods, including any low impact and remote techniques to be used.

Should you require further information please contact Terry Mazzer, Conservation Planning Officer on (02) 6883 5302.

Yours sincerely,



SONYA ARDILL
Senior Team Leader Planning, North West Region
Regional Operations

Attachment 1

The OEH's Recommended Environmental Assessment Requirements for Bylong Coal Project SSD 14-6367

1. Environmental impacts of the project

Impacts related to the following environmental issues need to be assessed, quantified and reported on:

- a. Cumulative impact
- b. Aboriginal cultural heritage
- c. Biodiversity
- d. OEH Estate (Land reserved or acquired under the NPW Act)
- e. Subsidence
- f. Greenhouse gas

Environmental assessments (EAs) should address the specific requirements outlined under each heading below and assess impacts in accordance with the relevant guidelines mentioned. A full list of guidelines is at **Attachment 2**.

2. Cumulative impact

The cumulative impacts from all clearing activities and operations, associated edge effects and other indirect impacts on cultural heritage, biodiversity and OEH Estate need to be comprehensively assessed in accordance with the *Environmental Planning and Assessment Act 1979*.

This should include the cumulative impact of the proponent's existing and proposed development and associated infrastructure (such as access tracks etc) as well as the cumulative impact of other developments located in the vicinity. This assessment should include consideration of both construction and operational impacts.

3. Aboriginal cultural heritage

The EA report should contain:

1. A description of the Aboriginal objects and declared Aboriginal places located within the area of the proposed development.
2. A description of the sensitivity (in relation to cultural heritage) of different landforms present in the landscape affected by the project.
3. A description of the cultural heritage values, including the significance of the Aboriginal objects and declared Aboriginal places, that exist across the whole area that will be affected by the proposed development, and the significance of these values for the Aboriginal people who have a cultural association with the land.
4. A description of how the requirements for consultation with Aboriginal people as specified in clause 80C of the *National Parks and Wildlife Regulation 2009* have been met.

5. The views of those Aboriginal people regarding the likely impact of the proposed development on their cultural heritage. If any submissions have been received as a part of the consultation requirements, then the report must include a copy of each submission and your response.
6. A description of the actual or likely harm posed to the Aboriginal objects or declared Aboriginal places from the proposed activity, with reference to the cultural heritage values identified.
7. A description of any practical measures that may be taken to protect and conserve those Aboriginal objects or declared Aboriginal places.
8. A description of any practical measures that may be taken to avoid or mitigate any actual or likely harm, alternatives to harm or, if this is not possible, to manage (minimise) harm.
9. Documentation of discussions with the Aboriginal stakeholders regarding commitments from the proponent related to social, economic and/or conservation gains to offset any loss of cultural heritage.
10. A specific Statement of Commitment that the proponent will complete an Aboriginal Site Impact Recording Form and submit it to the Aboriginal Heritage Information Management System (AHIMS) Registrar, for each AHIMS site that is harmed through the proposed development.

In addressing these requirements, the proponent must refer to the following documents:

- a. ***Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*** (Department of Planning, 2005). These guidelines identify the factors to be considered in Aboriginal cultural heritage assessments for development proposals under Part 3A of the EP&A Act.
- b. ***Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*** (DECCW, 2010) - This document further explains the consultation requirements that are set out in clause 80C of the National Parks and Wildlife Regulation 2009. The process set out in this document must be followed and documented in the Environmental Assessment Report. This document can be found at:
<http://www.environment.nsw.gov.au/licences/consultation.htm>.
- c. ***Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales*** (DECCW, 2010) - The process described in this Code should be followed and documented where the assessment of Aboriginal cultural heritage requires an archaeological investigation to be undertaken. This document can be found at:
<http://www.environment.nsw.gov.au/licences/archinvestigations.htm>.

Notes:

1. An **Aboriginal Site Impact Recording Form** must be completed and submitted to the Aboriginal Heritage Information Management System (AHIMS) Registrar, for each AHIMS site that is harmed through archaeological investigations required or permitted through these environmental assessment requirements. This form can be found at
<http://www.environment.nsw.gov.au/licences/DECCAHISSiteRecordingForm.htm>

2. Under section 89A of the *National Parks and Wildlife Act 1974*, it is an offence for a person not to notify DECCW of the location of any Aboriginal object the person becomes aware of, not already recorded on the **Aboriginal Heritage Information Management System (AHIMS)**. An AHIMS Site Recording Form should be completed and submitted to the AHIMS Registrar (<http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm>), for each Aboriginal site found during investigations.

4. Biodiversity

Biodiversity impacts can be assessed using **either** the BioBanking Assessment Methodology (**scenario 1**) or a detailed biodiversity assessment (**scenario 2**). The requirements for each of these approaches are detailed below.

The BioBanking Assessment Methodology can be used **either** to obtain a BioBanking statement, or to assess impacts of a proposal and to determine required offsets without obtaining a statement. In the latter instances, if the required credits are not available for offsetting, appropriate alternative options may be developed in consultation with OEH officers and in accordance with the 'NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects.'

Scenario 1 - Where a proposal is assessed using the BioBanking Assessment Methodology (BBAM)

1. Where a BioBanking Statement is being sought under Part 7A of the *Threatened Species Conservation Act 1995* (TSC Act), the assessment must be undertaken by an accredited BioBanking assessor (as specified under Section 142B (1)(c) of the TSC Act 1995) and done in accordance with the *BioBanking Assessment Methodology and Credit Calculator Operational Manual* (DECCW, 2009). To qualify for a BioBanking Statement a proposal must meet the 'improve or maintain' standard.
 - 1a. The Environmental Impact Statement (EIS) should include a specific Statement of Commitments that reflects all requirements of the BioBanking Statement including the number of credits required and any DG approved variations to impact on Red Flags.
 2. Where the BioBanking Assessment Methodology is being used to assess impacts of a proposal and to determine required offsets, and a BioBanking Statement is not being obtained, the EIS should contain a detailed biodiversity assessment and all components of the assessment must be undertaken in accordance with the *BioBanking Assessment Methodology and Credit Calculator Operational Manual* (DECCW, 2009).
 - 2a. The EIS should include a specific Statement of Commitments which:
 - a. is informed by the outcomes of the proposed BioBanking assessment offset package;
 - b. sets out the ecosystem and species credits required by the BioBanking Assessment Methodology and how these ecosystem and/or species credits will be secured and obtained;
 - c. if the ecosystem or species credits cannot be obtained, provides appropriate alternative options to offset expected impacts, noting that an appropriate alternative option may be developed in consultation with OEH officers and in accordance with OEH policy;
 - d. demonstrates how all options have been explored to avoid red flag areas; and

- e. includes all relevant BioBanking files (e.g. *.xml output files), data sheets, underlying assumptions (particularly in the selection of vegetation types from the vegetation types database), and documentation (including maps, aerial photographs, GIS shape files, other remote sensing imagery etc.) to ensure that the OEH can conduct an appropriate review of the assessment.
3. Where the 'NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects' is being used then the proponent must stipulate which level(s) of offset is being offered in relation to each of the vegetation communities and threatened species that require species credits. In accordance with the interim policy, justification must be provided as to why it is appropriate to apply the Tier 2 ('no net loss') or Tier 3 ('mitigated net loss') outcomes. In considering whether the mitigated net loss standard is appropriate, justification must be provided on: (i) whether the credits required by the calculator are available on the market; (ii) whether alternative offset sites (other than credits) are available on the market; and (iii) the overall cost of the offsets and whether these costs are reasonable given the circumstances'. This must be to satisfaction of, and in consultation with, OEH.
 4. Where appropriate, likely impacts (both direct and indirect) on any adjoining and/or nearby OEH estate reserved under the *National Parks and Wildlife Act 1974* or any marine and estuarine protected areas under the *Fisheries Management Act 1994* or the *Marine Parks Act 1997* should be considered. Please refer to the *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water* (DECCW, 2010).
 5. With regard to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, the assessment should identify and assess any relevant Matters of National Environmental Significance and whether the proposal has been referred to the Commonwealth or already determined to be a controlled action.

Scenario 2 - Where a proposal is assessed outside the BioBanking Assessment Methodology:

1. The EIS should include a **detailed biodiversity assessment**, including assessment of impacts on threatened biodiversity, native vegetation and habitat. This assessment should address the matters included in the following sections.
2. A **field survey** of the site should be conducted and documented in accordance with relevant guidelines, including:
 - a. the *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians* (DECCW, 2009);
 - b. *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC, 2004); and
 - c. Threatened species survey and assessment guideline information on www.environment.nsw.gov.au/threatenedspecies/surveyassessmentgdlns.htm.
 - d. Commonwealth assessment requirements (birds, bats, reptiles, frogs, fish and mammals):<http://www.environment.gov.au/topics/environment-protection/environment-assessments>. These are relevant when species or communities listed under the *Environment Protection and Biodiversity Conservation Act* are present.

It is preferable for proponents to use the **Interim Vegetation Mapping Standard** data form to collect the vegetation plot data for the project site, and any offset site associated

with the project. This will provide data that is useful for vegetation mapping as well as in the BioBanking Assessment Methodology. This is available at <http://www.environment.nsw.gov.au/research/VISplot.htm>.

If a proposed survey methodology is likely to vary significantly from the above methods, the proponent should discuss the proposed methodology with the OEH prior to undertaking the EIS, to determine whether the OEH considers that it is appropriate.

Recent (less than five years old) surveys and assessments may be used. However, previous surveys should not be used if they have:

- a. been undertaken in seasons, weather conditions or following extensive disturbance events when the subject species are unlikely to be detected or present, or
- b. utilised methodologies, survey sampling intensities, timeframes or baits that are not the most appropriate for detecting the target subject species,

unless these differences can be clearly demonstrated to have had an insignificant impact upon the outcomes of the surveys. If a previous survey is used, any additional species listed under the TSC Act since the previous survey took place, must be surveyed for.

Determining the list of potential threatened species for the site must be done in accordance with the *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC, 2004) and the *Guidelines for Threatened Species Assessment* (Department of Planning, July 2005).

The OEH website (<http://www.environment.nsw.gov.au/threatenedspecies/>) and the *Atlas of NSW Wildlife* database must be the primary information sources for the list of threatened species present.

The BioBanking Threatened Species Database (<http://www.environment.nsw.gov.au/threatenedSpeciesApp/>), the Vegetation Types databases (<http://www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm>) and other data sources (e.g. PlantNET, Online Zoological Collections of Australian Museums (<http://ozcam.org.au/>), previous or nearby surveys etc.) may also be used to compile the list.

3. The EIS should contain the following information as a minimum:
 - a. The requirements set out in the *Guidelines for Threatened Species Assessment* (Department of Planning, July 2005);
 - b. Description and geo-referenced mapping of study area (and associated spatial data files), e.g. overlays on topographic maps, satellite images and /or aerial photos, including details of map datum, projection and zone, all survey locations, vegetation communities (using the plant community types from OEH's vegetation type database – see above), key habitat features and reported locations of threatened species, populations and ecological communities present in the subject site and study area. Separate spatial files (.shp format) to be provided to the OEH should include, at a minimum, shapefiles of the project site, impact footprint, vegetation mapping and classification for both the impact and any offset site(s);
 - c. Description of survey methodologies used, including timing, location and weather conditions;
 - d. Detailed description of vegetation communities (including classification and methodology used to classify) and including all plot data. The vegetation classification used needs to be matched with Biometric and Endangered Ecological Community classifications. The condition of vegetation needs to be documented including areas

- of derived grassland. Plot data should be supplied to the OEH in electronic format (eg MS-Excel) and organised by vegetation community;
- e. Details, including qualifications and experience of all staff undertaking the surveys, mapping and assessment of impacts as part of the EIS;
 - f. Identification of national and state listed threatened biota known or likely to occur in the study area and their conservation status;
 - g. Description of the likely impacts of the proposal on biodiversity and wildlife corridors, including direct and indirect and construction and operation impacts. Wherever possible, quantify these impacts such as the amount of each vegetation community or species habitat to be cleared or impacted, or any fragmentation of a wildlife corridor;
 - h. Identification of the avoidance, mitigation and management measures that will be put in place as part of the proposal to avoid or minimise impacts, including details about alternative options considered and how long term management arrangements will be guaranteed;
 - i. Description of the residual impacts of the proposal. If the proposal cannot adequately avoid or mitigate impacts on biodiversity, then a biodiversity offset package is expected (see the requirements for this at point 6 below); and
 - j. Provision of specific Statement of Commitments relating to biodiversity.
4. An assessment of the significance of **direct and indirect impacts** of the proposal must be undertaken for threatened biodiversity known or considered likely to occur in the study area based on the presence of suitable habitat. This assessment must take into account:
- a. the factors identified in s.5A of the EP&A Act; and
 - b. the guidance provided by *The Threatened Species Assessment Guideline – The Assessment of Significance (DECCW, 2007)* which is available at: <http://www.environment.nsw.gov.au/resources/threatenedspecies/tsaguide07393.pdf>
5. Where an offsets package is proposed by a proponent for impacts to biodiversity (and a BioBanking Statement has not been sought) this package should:
- a. Meet either the OEH's *Principles for the use of biodiversity offsets in NSW*¹, (www.environment.nsw.gov.au/biocertification/offsets.htm) or the 'NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects';
 - b. Take account of landscape design principles such patch size and building onto and connecting existing remnants;

¹ Please note that the OEH's *Principles for the use of biodiversity offsets in NSW* ('the Principles') and the *NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects* ('the Interim policy') require offsets to be based on a quantitative assessment of the loss in biodiversity from the proposal and the gain in biodiversity from the offset. The methodology must be based on the best available science, be reliable, and used for calculating both the impact and offset sites. Even where a proponent does not intend to use the BioBanking Assessment Methodology and Credit Calculator (Scenario 1), use of a suitable alternative metric, justified in the EA, is necessary to demonstrate that the proposal is consistent with the Principles or the Interim policy. Ultimately the proponent is expected to demonstrate quantitatively that the biodiversity losses associated with the project will be adequately compensated for by the improvement in vegetation condition and security expected from the offset site. This cannot be properly determined by a hectare comparison alone.

- c. Identify the conservation mechanisms to be used to ensure the long term protection and management of the offset sites; and
 - d. Include an appropriate Management Plan (such as vegetation or habitat) that has been developed as a key amelioration measure to ensure any proposed compensatory offsets, retained habitat enhancement features within the development footprint and/or impact mitigation measures (including proposed rehabilitation and/or monitoring programs) are appropriately managed and funded.
6. Where appropriate, likely impacts (both direct and indirect) on any adjoining and/or nearby OEH estate reserved under the *National Parks and Wildlife Act 1974* or any marine and estuarine protected areas under the *Fisheries Management Act 1994* or the *Marine Parks Act 1997* should be considered. Refer to the *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water* (DECC, 2010).
7. With regard to the **Commonwealth Environment Protection and Biodiversity Conservation Act 1999**, the assessment should identify any relevant Matters of National Environmental Significance and whether the proposal has been referred to the Commonwealth or already determined to be a controlled action.

5. OEH estate

Land reserved or acquired under the National Parks and Wildlife Act 1974 (NPW Act)

The EA should include:

1. Consideration of the matters identified in the *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water* (DECCW 2010).
2. A description of the mitigation and management options that will be used to prevent, control, abate or minimise identified impacts associated with the project. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

6. Subsidence

The EA should include a comprehensive assessment of, and report on, the project's predicted subsidence and its impacts. Factors which should be investigated include:

- identification of all natural features and how impacts to these will be avoided, mitigated and offset. Natural features of particular concern that will need to be specifically addressed include (but are not restricted to); swamps such as shrub swamps and hanging swamps, pagodas, overhangs, art sites and talus slopes,
- potential risks to swamps by longwall mining as a consequence of tensile or compressive strains cracking bedrock and water draining into the fracture zone,
- whether the water loss impact will be temporary until the storage is filled or, if the fracture zone is connected to a source of escape (e.g. a deeper aquifer or bedding shear pathway to an open hillside), then whether it is possible for sufficient water to drain to alter the hydrologic balance of the swamp.
- potential effects on stream flow of alterations,

- the potential for geological structures such as faults, lineaments and joint sets to interact with longwall mining to increase subsidence and lead to unexpected outcomes.

Monitoring of flow:

Water lost from a swamp or stream as a result of subsidence induced fracturing will clearly impact on the downstream hydrology of the creeks/streams of the area. There is no certainty that all this water comes back into the creek, unless this can be backed up by an appropriate monitoring design that clearly demonstrates the return of any lost water to the stream system. The EIS should outline a flow monitoring program in sufficient detail to provide unambiguous assessment of either impact or lack of impact on stream flows.

Monitoring of vegetation:

If water is lost from a swamp as a result of subsidence induced fracturing, vegetation impacts are highly likely to occur but unlikely to become evident for a significant time period after fracturing and draining. The EIS should outline a swamp vegetation monitoring program in sufficient detail to provide unambiguous assessment of either impact or lack of impact.

7. Greenhouse gas

1. The EA should include a comprehensive assessment of, and report on, the project's predicted greenhouse gas emissions (tCO₂e). Emissions should be reported broken down by:
 - a. direct emissions (scope 1 as defined by the Greenhouse Gas Protocol – see reference below),
 - b. indirect emissions from electricity (scope 2), and
 - c. upstream and downstream emissions (scope 3),

before and after implementation of the project, including annual emissions for each year of the project (construction, operation and decommissioning).

2. The EA should include an estimate of the greenhouse emissions intensity (per unit of production). Emissions intensity should be compared with best practice if possible.
3. The emissions should be estimated using an appropriate methodology, in accordance with NSW, Australian and international guidelines (see below).
4. The proponent should also evaluate and report on the feasibility of measures to reduce greenhouse gas emissions associated with the project. This could include a consideration of energy efficiency opportunities or undertaking an energy use audit for the site.

8. GIS layers

The proponent must include with their Environmental Assessment to OEH spatial layer(s) that detail the:

- Mining Lease (ML) / Application boundary;
- Proposed Extraction Approval Area;
- All ancillary Infrastructure;
- Boundary of any offset sites;

- Vegetation mapping for both the impact and any offset site(s); and
- Vegetation sample plot location for both the impact and offset site(s).

This information must be provided in an Esri geodatabase (9.3) or shapefile format, or any esri compatible dataset in GDA or MGA 94.

Distribution records for plants and animal species in a format suitable to upload to the NSW Wildlife Atlas. See <http://www.environment.nsw.gov.au/wildlifeatlas/about.htm#contribute>

Attachment 2 – Guidance Material

Title	Web address
Relevant Legislation	
<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
<i>Environmental Planning and Assessment Act 1979</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
<i>Fisheries Management Act 1994</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
<i>National Parks and Wildlife Act 1974</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
<i>Threatened Species Conservation Act 1995</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N
<i>Water Management Act 2000</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Aboriginal Cultural Heritage	
Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (2005)	Available from DoP&I.
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	http://www.environment.nsw.gov.au/licences/consultation.htm
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	http://www.environment.nsw.gov.au/licences/archinvestigations.htm
Aboriginal Site Impact Recording Form	http://www.environment.nsw.gov.au/licences/DECCAHIHMSSiteRecordingForm.htm
Aboriginal Heritage Information Management System (AHIMS) Registrar	http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm
Greenhouse Gas	
The Greenhouse Gas Protocol: Corporate Standard, World Council for Sustainable Business Development & World Resources Institute	http://www.ghgprotocol.org/standards/corporate-standard
National Greenhouse Accounts (NGA) Factors, Australian Department of Climate Change (Latest release),	http://www.climatechange.gov.au/publications/greenhouse-acctg/national-greenhouse-factors.aspx
National Greenhouse and Energy Reporting System, Technical Guidelines (latest release)	http://www.climatechange.gov.au/climate-change/greenhouse-gas-measurement/national-greenhouse-and-energy-reporting
National Carbon Accounting Toolbox	http://www.climatechange.gov.au/government/initiatives/ncat.aspx
Australian Greenhouse Emissions Information System (AGEIS)	http://ageis.climatechange.gov.au/

Title	Web address
<u>Biodiversity</u>	
BioBanking Assessment Methodology (DECC, 2008)	http://www.environment.nsw.gov.au/resources/biobanking/08385bbassessmethod.pdf
BioBanking Assessment Methodology and Credit Calculator Operational Manual (DECCW, 2009)	http://www.environment.nsw.gov.au/resources/biobanking/09181bioopsman.pdf
Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians (DECCW, 2009)	http://www.environment.nsw.gov.au/resources/threatenedspecies/09213amphibians.pdf
Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft (DEC, 2004)	http://www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf
Guidelines for Threatened Species Assessment (Department of Planning, July 2005)	Draft available from DoP&I
The OEH Threatened Species website	http://www.environment.nsw.gov.au/threatenedspecies/
Atlas of NSW Wildlife	http://www.bionet.nsw.gov.au/
BioBanking Threatened Species Database	http://www.environment.nsw.gov.au/threatenedSpeciesApp/
Vegetation Types databases	http://www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm
PlantNET	http://plantnet.rbgsyd.nsw.gov.au/
Online Zoological Collections of Australian Museums	http://ozcam.org.au/
Threatened Species Assessment Guideline - The Assessment of Significance (DECCW, 2007)	http://www.environment.nsw.gov.au/resources/threatenedspecies/tsaguide07393.pdf
Principles for the use of biodiversity offsets in NSW	http://www.environment.nsw.gov.au/biocertification/offsets.htm
OEH Interim policy on assessing and offsetting biodiversity impacts of State Significant developments	URL not currently available
<u>OEH Estate</u>	
Land reserved or acquired under the NPW Act	
List of national parks	http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx
OEH Revocation of Land Policy	http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/protectedareas/10509devadjdeccw.pdf



Your reference :
Our reference : EF13/4934 & DOC14/17518
Contact : Ms Sheridan Ledger (02) 6334 7608

The General Manager
Moolarben Coal Mine
Locked Bag 2003
MUDGEES NSW 2850

19 February 2014

Dear Mr Preshaw

I refer to your request for Director-General's Requirements (DGRs) for the proposed Bylong Coal Project (the Project) from the Environment Protection Authority (EPA) following the Planning Focus Meeting (PFM) held on 13 February 2014.

Environmental Assessment

Based on the PFM and the Preliminary Environmental Assessment (PEA), the EPA requires that impacts related to the following environmental issues need to be assessed, quantified and reported on:

- Air Quality;
- Noise and vibration;
- Water quantity and quality (surface and groundwater), including the requirement for offsite discharges of excess water;
- Waste management (waste rock, sewage, chemical waste, general solid and putrescibles waste);
- Soils and contamination; and
- Offsite impacts from the relocation, replacement and/or addition of power lines and roads.

The EPA requires the Environmental Impact Statement (EIS) prepared for the Project to address the specific requirements outlined in Attachment 1 under each heading provided and assess impacts in accordance with the relevant guidelines mentioned.

A full list of relevant guidelines is at Attachment 2.

It is the EPA's expectation that a copy of these DRGs will be provided to the proponent for the Project.

Licensing requirements

On the basis of the information submitted, the proposal is a scheduled activity Mining for Coal under the *Protection of the Environment Operations Act 1997* (POEO Act) and if approval is granted, will require an environment protection licence (licence).

As such, the EIS should also address the requirements of Section 45 of the POEO Act determining the extent of each impact and providing sufficient information to enable the EPA to determine appropriate limits for the licence.

Should project approval be granted, the proponent will need to make a separate application to the EPA for a licence for the activity prior to undertaking any on site works. Additional information is available through the *DECCW Guide to Licensing* document (www.environment.nsw.gov.au/licensing/licenceguide.htm).

Should you have any enquiries regarding this matter, please contact me at the Bathurst office of the EPA on (02) 6332 7608.

Yours sincerely



SHERIDAN LEDGER
A/ Head Central West Unit
Environment Protection Authority

Attachment 1 - Bylong Coal Project – EPA Director-General's Requirements

Site Layout

1. Provide maps, at an appropriate scale, which clearly identifies the proposed site layout relevant to environmental features such as drainage lines, terrain etc, over the life of the Project.
2. Provide maps which show land ownership information, the proposed site layout and impact assessment information at an appropriate scale.

Air issues

The goal should be to maintain existing rural air quality and protect sensitive receptors, both on and off site from adverse impacts of dust and odour and other relevant air pollutants. Background ambient air levels should be identified to inform the assessment.

Dust is of primary concern with potential emissions from general mining activities, onsite roads, conveyors, transfer points, loading facilities, coal stockpiles, overburden emplacements etc.

The EA should include a detailed air quality impact assessment (AQIA). The AQIA should:

1. Assess the risk associated with potential discharges of fugitive and point source emissions for all stages of the proposal. Assessment of risk relates to environmental harm, risk to human health and amenity.
2. Justify the level of assessment undertaken on the basis of risk factors, including but not limited to:
 - a. proposal location;
 - b. characteristics of the receiving environment; and
 - c. type and quantity of pollutants emitted.
3. Describe the receiving environment in detail. The proposal must be contextualised within the receiving environment (local, regional and inter-regional as appropriate). The description must include but need not be limited to:
 - a. meteorology and climate;
 - b. topography;
 - c. surrounding land-use; receptors; and
 - d. ambient air quality.
4. Include a detailed description of the proposal. All processes that could result in air emissions must be identified and described. Sufficient detail to accurately communicate the characteristics and quantity of all emissions must be provided.
5. Include a consideration of 'worst case' emission scenarios and impacts at proposed emission limits.
6. Account for cumulative impacts associated with existing emission sources as well as any currently approved developments linked to the receiving environment.
7. Include air dispersion modelling where there is a risk of adverse air quality impacts, or where there is sufficient uncertainty to warrant a rigorous numerical impact assessment. Air dispersion modelling must be conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (2005). <http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf>.

8. Demonstrate the projects ability to comply with the relevant regulatory framework, specifically the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations (Clean Air) Regulation 2002*.
9. Provide an assessment of the project in terms of the priorities and targets adopted under the NSW State Plan 2010 and its implementation plan Action for Air.
10. Detail air emission control techniques/practices that will be employed by the proposal and demonstrate that these are best management practice, by applying the procedure outlined in *Coal Mine Particulate Matter Control Best Practice - Site-specific determination guideline* (November 2011). <http://www.environment.nsw.gov.au/resources/air/20110813coalmineparticulate.pdf>
11. Detail emission control techniques/practices that will be employed by the proposal, including the development of real-time monitoring/management procedures, response (adverse weather) trigger levels and predictive meteorological monitoring/modelling for dust management.
12. Assess the potential for spontaneous combustion of coal stockpiles, and any other stockpiles, and provide the management measures that will be implemented should it be determined that there is a propensity for combustion of stockpiled materials.

Impacts of Noise and Vibration

Potential impacts on the noise amenity of the surrounding area should be assessed in accordance with the NSW Government's Industrial Noise Policy (INP) and other relevant guidelines mentioned below, accounting for all noise sources associated with the project. In particular, seasonal assessments are to be undertaken to assess the impact of temperature inversions and wind conditions.

The noise assessment must include (but not be limited to) an assessment of the C-weighted noise (low frequency) as well as A-weighted noise.

1. In relation to noise, the following matters should be addressed (where relevant) as part of the Environmental Assessment.

General

2. Construction noise associated with the proposed development should be assessed using the *Interim Construction Noise Guideline* (DECC, 2009). <http://www.environment.nsw.gov.au/noise/constructnoise.htm>
3. Operational noise from all industrial activities (including private haul roads and private railway lines) to be undertaken on the premises must be assessed in accordance with the guidelines contained in the *NSW Industrial Noise Policy* (EPA, 2000) and *Industrial Noise Policy Application Notes*. <http://www.environment.nsw.gov.au/noise/industrial.htm>
4. Vibration from all activities (including construction and operation) to be undertaken on the premises should be assessed using the guidelines contained in the *Assessing Vibration: a technical guideline* (DEC, 2006). <http://www.environment.nsw.gov.au/noise/vibrationguide.htm>
5. If blasting is required for any reasons during the construction or operational stage of the proposed development, blast impacts should be demonstrated to be capable of complying with the guidelines contained in *Australian and New Zealand Environment Council – Technical basis for guidelines to*

minimise annoyance due to blasting overpressure and ground vibration (ANZEC, 1990).
<http://www.environment.nsw.gov.au/noise/blasting.htm>

6. Clearly identify the noise management strategies to be implemented including, but not necessarily limited to, the:
- use of real time noise monitoring/management procedures and response trigger levels and predictive noise/meteorological monitoring/modelling for noise management; and
 - noise management procedures/options for affected residences.

Road

7. Undertake a road traffic noise assessment in accordance with the requirements of the *NSW Road Noise Policy* <http://www.environment.nsw.gov.au/noise/traffic.htm> and should include an assessment of noise on existing, new or upgraded public roads, from increased road traffic generated by the Project.

Note: The NSW Road Noise Policy replaced the Environmental Criteria for Road Traffic Noise from 1 July 2011. Guidance has been developed to assist practitioners and authorities understand which policy is to be applied to projects during the transition period from the Environmental Criteria for Road Traffic Noise (ECRTN) to the Road Noise Policy (RNP). The guidance material is at <http://www.environment.nsw.gov.au/noise/traffic.htm>

Waste, chemicals and hazardous materials

The EIS should identify all wastes to be generated by all aspects of the project and identify procedures for the handling and management of all wastes produced. The handling of rejects, tailings and overburden material are important aspects for consideration.

Assessment of the potential for acid mine drainage from acid forming materials should be assessed and management /mitigation measures identified.

Management actions for recovered fines from the CHPP should be identified, including actions to prevent potential impacts to groundwater, surface water or any other environmental aspect.

Provide details of the quantity and type of both liquid and non-liquid waste generated, handled, processed or disposed of at the premises. Wastes must be classified according to the Waste Classification Guidelines (DECC 2008).

Provide details of how waste will be handled and managed onsite to minimise pollution, including:

a) Stockpile location and management

- Labelling of stockpiles for identification, ensuring that all waste is clearly identified and stockpiled separately from other types of material (especially the separation of any contaminated and non-contaminated waste).
- Proposed height limits for all waste to reduce the potential for dust and odour.
- Procedures for minimising the movement of waste around the site and double handling.

- Measures to minimise leaching from stockpiles into the surrounding environment, such as sediment fencing, geofabric liners etc.

b) Provide details of waste rock emplacement areas with particular attention to:

- The quantity of waste rock likely to be generated;
- Proposed strategies for the handling, reuse/recycling and disposal of waste rock;
- Identification of the history of the waste rock and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material; and
- Designation of transport routes for the transport of waste rock.

Details of procedures for the assessment, handling, storage, transport and disposal of all **hazardous waste** used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.

Details of the type and quantity of any chemical substances (including hydrocarbon (oils and fuels), explosives etc.) to be used or stored and describe arrangements for their safe use and storage.

Soils

The EIS should include:

1. An assessment of potential impacts on soil and land resources should be undertaken, being guided by *Soil and Landscape Issues in Environmental Impact Assessment* (DLWC 2000). The nature and extent of any significant impacts should be identified. Particular attention should be given to:
 - Soil erosion and sediment transport - in accordance with *Managing urban stormwater: soils and construction*, vol. 1 (Landcom 2004) and vol. 2 (A. Installation of services; B Waste landfills; C. Unsealed roads; D. Main Roads; E. Mines and quarries) (DECC 2008).
2. A description of the mitigation and management options that will be used to prevent, control, abate or minimise identified soil and land resource impacts associated with the project. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
3. Where required, add any specific assessment requirements relevant to the Project.

Water

The environmental outcomes of the project in relation to water should be that:

- There is no pollution of waters (including surface and groundwater); and
- Polluted water (including process/tailings waters, wash down waters, polluted stormwater or sewerage) is captured onsite and collected, treated and beneficially reused, where safe and practical to do so.

The EIS should document the measures that will achieve the above outcomes in the construction, operation and post operations phases of the project. Construction activities will need to demonstrate best

practice sediment and erosion control and management in accordance with the reference document *Managing Urban Stormwater: Soils and Construction (NSW Landcom)*

The EIS should:

1. Describe the Project including position of any intakes and discharges, volumes, water quality and frequency of all water discharges.
2. Demonstrate that all practical options to avoid discharge have been implemented and environmental impact minimised where discharge is necessary.
3. Include a water balance for the including water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.
4. Describe existing surface and groundwater quality. An assessment needs to be undertaken for any water resource likely to be affected by the proposal.
5. Describe any drainage lines, creeks lines etc that will be impacted by the project.
6. State the Water Quality Objectives for the receiving waters relevant to the proposal. These refer to the community's agreed environmental values and human uses endorsed by the NSW Government as goals for ambient waters (<http://www.environment.nsw.gov.au/ieo/index.htm>). Where groundwater may be impacted the assessment should identify appropriate groundwater environmental values.
7. State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC (2000) Guidelines for Fresh and Marine Water Quality (http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality).
8. State any locally specific objectives, criteria or targets which have been endorsed by the NSW Government.
9. Describe the nature and degree of impact that any proposed discharges will have on the receiving environment.
10. Whether the project will significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
11. Identify potential impacts on watercourses and the management/mitigation measures that will be implemented where mining activities occur in proximity to or within a watercourse.
12. Assess impacts against the relevant ambient water quality outcomes. Demonstrate how the proposal will be designed and operated to:
 - o protect the Water Quality Objectives for receiving waters where they are currently being achieved;
 - o contribute towards achievement of the Water Quality Objectives over time where they are not currently being achieved.
13. Assess impacts on groundwater and groundwater dependent ecosystems.
14. Describe in detail how stormwater will be managed both during and after construction.

15. Provide detailed water management strategies for all disturbance areas, paying particular attention to the waste rock emplacement areas and potential impacts on groundwater and offsite surface water resources including particular reference to the management of channel and overland flows into and within the disturbance area.
16. Provide plans for any proposed relocation/realignment of all creeks and/or drainage lines including design, timelines and completion criteria and sufficient evidence to demonstrate that the proposed plans are achievable, reasonable and feasible in the short and the long term.
17. Describe how predicted impacts will be monitored and assessed over time.
18. The proponent should develop a water quality and aquatic ecosystem monitoring program to monitor the responses for each component or process that affects the Water Quality Objectives that includes, for example:
 - o adequate data for evaluating compliance with water quality standards and/or Water Quality Objectives
 - o measurement of pollutants identified or expected to be present in any discharge
19. Water quality monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutant in NSW* (2004) (<http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf>).

Attachment 2 – Guidance Material**Title****Web address****Relevant Legislation**

<i>Environmental Planning and Assessment Act 1979</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
<i>Fisheries Management Act 1994</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
<i>National Parks and Wildlife Act 1974</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
<i>Protection of the Environment Operations Act 1997</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
<i>Threatened Species Conservation Act 1995</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N
<i>Water Management Act 2000</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N

Licensing

DECCW Guide to Licensing	www.environment.nsw.gov.au/licensing/licenceguide.htm
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Air Issues**Air Quality**

Approved methods for modelling and assessment of air pollutants in NSW (2005)	http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf
POEO (Clean Air) Regulation 2010	http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+428+2010+cd+0+N

Noise and Vibration

Interim Construction Noise Guideline (DECC, 2009)	http://www.environment.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.environment.nsw.gov.au/noise/vibrationguide.htm
Australian and New Zealand Environment Council – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC, 1990)	http://www.environment.nsw.gov.au/noise/blasting.htm
Industrial Noise Policy Application Notes	http://www.environment.nsw.gov.au/noise/traffic.htm
Environmental Criteria for Road Traffic Noise (EPA, 1999)	http://www.environment.nsw.gov.au/noise/traffic.htm
Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DECC, 2007)	http://www.environment.nsw.gov.au/noise/railinfranoise.htm
Environmental assessment requirements	http://www.environment.nsw.gov.au/noise/railnoise.htm

Title	Web address
for rail traffic-generating developments	

Waste, Chemicals and Hazardous Materials and Radiation

Waste

Environmental Guidelines: Solid Waste Landfills (EPA, 1996)	http://www.environment.nsw.gov.au/resources/waste/envguidlns/solidlandfill.pdf
Draft Environmental Guidelines - Industrial Waste Landfilling (April 1998)	http://www.environment.nsw.gov.au/resources/waste/envguidlns/industrialfill.pdf
Waste Classification Guidelines (DECC, 2008)	http://www.environment.nsw.gov.au/waste/envguidlns/index.htm
DECCW Resource recovery exemption	http://www.environment.nsw.gov.au/waste/RRRecoveryExemptions.htm

Water and Soils

Acid sulphate soils

Acid Sulfate Soils Planning Maps	http://canri.nsw.gov.au/download/ Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DoP's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf
Acid Sulfate Soils Manual (Stone et al. 1998)	http://www.derm.qld.gov.au/land/ass/pdfs/lmg.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.

Contaminated Sites Assessment and Remediation

Managing land contamination: Planning Guidelines – SEPP 55 Remediation of Land	http://www.planning.nsw.gov.au/DevelopmentAssessments/RegisterofDevelopmentAssessmentGuidelines/tabid/207/language/en-US/Default.aspx
Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)	http://www.environment.nsw.gov.au/resources/clm/97104consultantsguidelines.pdf
Guidelines for the NSW Site Auditor Scheme - 2nd edition (DEC, 2006)	http://www.environment.nsw.gov.au/resources/clm/auditorguidelines06121.pdf
Sampling Design Guidelines (EPA, 1995)	Available by request from DECCW's Environment Line
National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)	http://www.ephc.gov.au/taxonomy/term/44

Title	Web address
Soils – general	
Soil and Landscape Issues in Environmental Impact Assessment (DLWC 2000)	http://www.dnr.nsw.gov.au/care/soil/soil_pubs/pdfs/tech_rep_34_new.pdf
Managing urban stormwater: soils and construction, vol. 1 (Landcom 2004) and vol. 2 (A. Installation of services; B Waste landfills; C. Unsealed roads; D. Main Roads; E. Mines and quarries) (DECC 2008)	Vol 1 - Available for purchase at http://www.landcom.com.au/whats-new/publications-reports/the-blue-book.aspx Vol 2 - http://www.environment.nsw.gov.au/stormwater/publications.htm
Landslide risk management guidelines	http://www.australiangeomechanics.org/resources/downloads/
Site Investigations for Urban Salinity (DLWC, 2002)	http://www.environment.nsw.gov.au/resources/salinity/booklet3siteinvestigationsforurbansalinity.pdf
Local Government Salinity Initiative Booklets	http://www.environment.nsw.gov.au/salinity/solutions/urban.htm
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf



Heritage Council

of New South Wales

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File: 14/04060
Job ID No: A/1906985
Your Ref: SSD 14_6367

Clay Preshaw
Team Leader
NSW Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Preshaw

RE: Request for Director General's Requirements from NSW Heritage Council for the preparation of an Environmental Impact Statement for Bylong Valley Coal Project – SSD14_6367.

I refer to your email of the 27th of February requesting information regarding the NSW Heritage Council's requirements for the preparation of the above mentioned Environmental Impact Statement for the proposed Bylong Valley Coal Project.

After a review of the Preliminary Environmental Impact Statement by Hansen Bailey it is noted that the project is for the construction of a long wall underground and above ground open cut mine (and associated infrastructure) with a life of approximately 29 years in the Bylong Valley region of NSW.

Section 7.3 of the preliminary Environmental Impact Statement shows that initial research indicates that this mine could impact directly or indirectly on a number of significant and early heritage items (including archaeology), in particular Lee Homestead, the Former Bylong Catholic Church and associated Cemetery and the Bylong St Stephen's Anglican Church and Cemetery. It should be noted that the preliminary environmental impact statement states that these last two items are listed on the State Heritage Register, this is incorrect.

Accordingly, it is advised that the EIS should include the following issues:

- The heritage significance of the project area and any impacts the development may have upon this significance should be assessed. This assessment should include natural areas and places of Aboriginal, historic or archaeological significance. It should also include a consideration of wider heritage impacts in the area surrounding the site.
- The Heritage Council maintains the State Heritage Inventory which lists some items protected under the Heritage Act, 1977 and other statutory instruments. This register can be accessed through the Heritage Branch home page on the internet

(<http://www.heritage.nsw.gov.au>).

- In addition, you should consult lists maintained by the National Trust, any heritage listed under the Australian Government's Environment Protection and Biodiversity Conservation Act 1999 and the local council in order to identify any identified items of heritage significance in the area affected by the proposal. Please be aware, however, that these lists are constantly evolving and that items with potential heritage significance may not yet be listed.
- Non-Aboriginal heritage items within the area affected by the proposal should be identified by field survey. This should include any buildings, works, relics (including relics underwater), gardens, landscapes, views, trees or places of non-Aboriginal heritage significance. A statement of significance and an assessment of the impact of the proposal on the heritage significance of these items should be undertaken. Any policies/measures to conserve their heritage significance should be identified. This assessment should be undertaken in accordance with the guidelines in the NSW Heritage Manual. The field survey and assessment should be undertaken by a qualified practitioner/consultant with historic sites experience.
- The impact on the fabric and significance of any identified heritage items from potential subsidence or blasting from any mining activities should also be assessed as part of the EIS.
- The proposal should have regard to any impacts on places, items or relics of significance to Aboriginal people. Where it is likely that the project will impact on Aboriginal heritage, adequate community consultation should take place regarding the assessment of significance, likely impacts and management/mitigation measures.

The Heritage Division would be happy to review any further documentation that may address any likely heritage impacts. If you have any further enquiries regarding this matter, please contact Katrina Stankowski on (02) 9873 8569.

Yours sincerely



28/02/2014

Ed Beebe
A/Manager, Conservation
Heritage Division
Office of Environment & Heritage
| As delegate??

Clay Preshaw - RE: Bylong Coal Project - PFM and DGRs

From: Stephen Campbell <Stephen.Campbell@fcnsw.com.au>
To: Clay Preshaw <Clay.Preshaw@planning.nsw.gov.au>
Date: 5/02/2014 12:16 PM
Subject: RE: Bylong Coal Project - PFM and DGRs

Clay,

I have another, unavoidable commitment on the 13th so I will not be able to attend the PFM.

I note that the Preliminary Environmental Assessment acknowledges that mine-related ancillary activities will require a permit from Forestry Corporation under section 60 of the Forestry Act.

It should also be noted that sale, removal or destruction of timber or forest products from Crown-timber Land falls under the jurisdiction of the Forestry Corporation. Certain areas of Crown Land and Leasehold within the Project Boundary are Crown-timber Lands, although the PEA suggests they are unlikely to be significantly disturbed under the current proposal.

If the development does extend to include areas of Crown-timber Land, Forestry Corporation should be consulted for approval prior to any dealings with timber or forest products.

Regards,

Steve Campbell | District Manager
Forestry Corporation of NSW | South-Western Cypress District

1-5 Camp St | Forbes NSW 2871
PO Box 369 | Forbes NSW 2871
T: 02 6850 1909 | F: 02 6852 3998 | M: 0428 696 678 | E: stephen.campbell@fcnsw.com.au | W: www.forestrycorporation.com.au

From: Clay Preshaw [mailto:Clay.Preshaw@planning.nsw.gov.au]
Sent: Tuesday, 4 February 2014 3:45 PM
To: Hemantha Desilva; Mitchell Isaacs; Pat.Woodbury@endeavourenergy.com.au;
Steve.cliperton@trade.nsw.gov.au; andrew.helms@epa.nsw.gov.au; council@midwestern.nsw.gov.au;
council@muswellbrook.nsw.gov.au; darryl.clift@epa.nsw.gov.au; david.ward@industry.nsw.gov.au;
erica.baigent@environment.nsw.gov.au; landuse.enquiries@dpi.nsw.gov.au;
liz.mazzer@environment.nsw.gov.au; liz.rogers@dpi.nsw.gov.au; mahani.taylor@environment.gov.au;
mark.lyndon@midwestern.nsw.gov.au; michael.mcfadyen@industry.nsw.gov.au;
michael.young@trade.nsw.gov.au; planning.matters@environment.nsw.gov.au;
regina.fogarty@dpi.nsw.gov.au; Stephen Campbell; vince.fallico@trade.nsw.gov.au
Subject: Bylong Coal Project - PFM and DGRs

Dear all,

Proposal

KEPCO Bylong Australia Pty Ltd has requested the Director General's requirements (DGRs) for its proposed Bylong Coal Project. The proposal involves the extraction of approximately 121 Million tonnes of coal via open cut and underground mining methods for a period of approximately 29 years (including construction), as well as the construction of relevant surface facilities.

You can download a copy of the Preliminary Environmental Assessment/Background Document from the Department's website at http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6367

Planning Focus Meeting

I invite you to attend a Planning Focus Meeting (PFM) to be held at the mine's site office on Upper Bylong Road on **Thursday, 13 February 2014** from 10 am until 1 pm (see attached map). Please let me know if you are attending by Friday, 7 February 2014.

DGRs

I would also appreciate it if you could send me your DGRs by COB Wednesday, 19 February 2014.

If you require any further information, please contact me on 9228 6305.

Regards

Clay Preshaw

Team Leader

NSW Department of Planning and Infrastructure

GPO Box 39 | Sydney NSW 2001 | T 02 9228 6305 | E clay.preshaw@planning.nsw.gov.au



Planning &
Infrastructure

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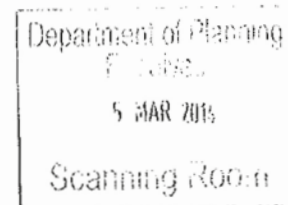
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Transport
for NSW



Clay Preshaw
Team Leader
Mining Projects
Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001



Attention: David Schwebel

Dear Mr Preshaw,

Notice of Request for DGRs for proposed Bylong Coal Project, Bylong.

Thank you for your email dated 10 February 2014 inviting Transport for NSW (TfNSW), comments on the subject proposal. Please accept this letter as a joint Transport for NSW, Roads & Maritime Services (RMS), and RailCorp response to the subject proposal.

Transport for NSW (TfNSW), has reviewed the proposed development and recommends that the following requirements be incorporated in the Director General Requirements (DGRs) for proposal under the relevant Transport and Accessibility section as follows:

Transport and Accessibility

Traffic Generation and Roads

1. A traffic impact study prepared in accordance with the methodology set out in Section 2 of the RTA's Guide to Traffic Generating Developments and include the following details:
 - Hours of operation including days of construction and operation for each stage of the project and how the proposed operations will interact with other road users.
 - Accurate traffic forecasts (road and rail) generated by the project including; Road transport volumes and types broken down into origin and destination, travel routes and peak hours for the construction, operation and decommissioning of the project.
 - Any oversize and over-mass vehicles and loads expected for the construction, operation or decommissioning of the project should be identified, including the shortest and least trafficked route having been given priority for the movement

of construction materials and machinery to minimise the risk and impact to other motorists.

- Provide details of projected transport operations including volumes of traffic and tonnage to be transported. Volumes should also include mine input related traffic generation (e.g. fuel deliveries, potable water deliveries, maintenance, services; etc) and impacts of mine related traffic generation on public roads.
- The traffic study should address internal traffic movements and parking facilities and any mitigating measures required to address expected traffic generation.
- Indicate temporary and permanent staff numbers (including employees and contractors).
- Temporary and permanent staff numbers (including employees and contractors) and staff parking arrangements during construction, operation and decommissioning of the project. Mode, volumes, origin-destination of mining staff transportation to and from the site, details of measures proposed to minimise staff commuter traffic on the local and classified road network and measures to improve commuter safety should also be included.
- The impact of generated traffic and measures employed to ensure efficiency and safety on the public road network during construction, operation and decommissioning of the project.
- The assessment of traffic impacts should include the contribution of mining inputs, having regard to the transportation of dangerous goods (explosives, fuel and chemicals) to be utilised during the construction and operational phases of the project. A risk assessment should be undertaken to identify management measures that will be implemented to ensure that dangerous goods are transported safely.
- Local climate conditions that may affect road safety for vehicles used during construction and operation of the project (e.g. dust, fog, wet weather, etc).
- Proposed access treatments should be identified and be in accordance with Austroads Guide to Road Design 2010 and Roads and Maritime Supplements including safe intersection sight distance.
- Details of required infrastructure works to support any increased demand on the road network as a result of this project.

Regional Rail Network

- Detailed assessment of the proposed project on the capacity, efficiency and safety of the rail networks. The assessment should consider the cumulative impacts on current network users and the strategic objectives of the rail networks.

- A description of the measures that would be implemented to maintain and/or improve the capacity, efficiency and safety of rail networks over the life of the project.
- Further details required in regard expected train frequency, including information on the number of coal trains per day that proposal is likely to generate.
- Demonstrate the impact of these additional coal train operations on rail infrastructure capacity ensuring that the coal trains will not adversely impact on the regional passenger train operations in the Hunter Valley and to the New England Region of NSW.

Transport for NSW, further recommends consultation with Roads and Maritime Services (Western Region) and the Australian Rail Track Corporation (ARTC), in preparation of documentation for the Environmental Impact Statement.

Should you have any questions or require more information, please contact Dorna Darab on 8202 2196 or email dorna.darab@transport.nsw.gov.au.

Yours Sincerely



28/2/14

Mark Ozinga
Manager, Land Use Planning & Development
Planning and Programs

Cc: Mr Andrew McIntyre, Roads & Maritime Services, Western Region

CD14/02596



PO BOX 156
MUDGEE NSW 2850

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77 Louee Street RYLSTONE

Ph: 1300 765 002 or (02) 6378 2850
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email: council@midwestern.nsw.gov.au

CVL:A0420219

20 February 2014

Department of Planning and Infrastructure
PO Box 39
SYDNEY 2001

Attention: Clay Preshaw

Dear Sir

RE: BYLONG COAL PROJECT

Thank you for allowing Council the opportunity for input into the Director-General's Requirements for the proposed Bylong Coal Project. Council considered a report on the 19 February and resolved to recommend the following items be included in the DGR's in addition to the issues that would normally be included in the standard DGR's for coal projects:

Transport Infrastructure

Council requests that details be provided on the proposed road upgrades that the applicant intends on undertaking. This will include intersection treatments, railway crossings, lanes widths and surfacing details in accordance with the relevant AustRoads Guidelines. The applicant will need to address the impact on local roads during the construction phase as well as during full production and shall include a Road Dilapidation Report and a complete audit of the road formation and/or pavement condition. Roads that are anticipated to be affected by the proposal are:

- Bylong Valley Way;
- Upper Bylong Road;
- Wollar Road;
- Lue Road.

However, as the background documentation does not stipulate the likely domicile of the workforce (apart from the TWA) any analysis of road networks should have due regard to traffic generated by both the workforce and goods suppliers as determined by the Social Impact Assessment.

Council request that a detailed analysis be undertaken of the potential short and long term impacts on Bylong Valley Way that will be caused by mine subsidence. In addition, the proponent should in conjunction with Council developed an appropriate method for the long term management and maintenance of Bylong Valley Way to address both safety of users and the condition of the road.

Local Access

It is understood that the project will require the closure or relocation of a number of local roads. The DGR's should undertake a detailed analysis on the impact of roads closures on local road users including the assessment of the capacity of the new proposed road

MID-WESTERN REGIONAL COUNCIL

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to ensure equal or improved levels of service to local residents. Proposed alternate access route should be flood free. Of particular concern is the proposed use of Buddin Gap Road which is an unmaintained Council Road and subject to flooding which would sever access. The DGR's should include a requirement that the assessment of alternate access involve community and Council consultation.

Water Resources

Concern has been expressed by the community regarding the over allocation of water licences within the Bylong Valley water source. Council urges a thorough investigation be made on the actual impact on the water resource rather than reliance placed on the purchase of water licences.

Council requests that DGR's include a requirement to undertake a full assessment on the impact on local bores. Reliance on a condition of approval to "make good" any adverse impact is considered insufficient. The community should be able to gain a complete understanding of potential impacts through the Environmental Assessment process.

Whilst the proponent indicated at the Planning Focus Meeting that there would be no net loss to agriculture it is evident that mining operations will have first priority in relation to water use and that agricultural activities would be adjusted to meet water availability. The water balance investigation should include a guaranteed reasonable minimum water allocation available to agriculture and the temporary workers accommodation at all times.

Temporary Workers Accommodation

The proponent shall address Part 6.2 of Council's Development Control Plan 2013 - Amendment 1 (DCP 2013) in relation to the proposed TWA which includes the following issues:

- Detailed Social Impact Assessment (SIA) which should include but is not limited to:
 - Identification and an in-depth analysis of social impacts of the proposal;
 - Outline the process of community consultation and address issues raised by the community;
 - Consideration of cumulative impacts, intergenerational equality, impacts on the provision of services and identify ways to address these impacts;
 - The results of consultation with relevant service providers including police and health providers;
 - Identification of a strategy to mitigate impacts, encourage integration with the community, and permanent relocation to the area, timeframe for the implementation of the strategy and a monitoring program;
 - Identify and implement provisions that will address the needs identified by the SIA and the demands generated by the development in a way that will not adversely impact upon the existing community.
- Details of transportable buildings to be used including evidence demonstrating that the transportable buildings to be used can be permanently fixed to the site by footing that comply with the requirements in accordance with the National Construction Code and associated Engineer's Certification.
- Details demonstrating that the buildings comply with the Access to Premises standard.
- The density of the development (Council limits such facilities to 100 beds per hectare).

MID-WESTERN REGIONAL COUNCIL

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- Details of the facilities and services provided to residents in the TWA.
- Details of traffic and parking arrangements.
- A Landscaping Plan complying with the requirements of Council's DCP 2013.
- A Plan of Management for the facility covering all relevant provisions in Part 6.2 of Council's DCP 2013.
- A Decommissioning Plan which addresses:
 - When the facility shall be decommissioned;
 - Any works or facilities that will remain in place after decommissioning;
 - Details of the clean-up and rehabilitation of the site;
 - The proposed use after decommissioning;
 - The transfer to public ownership of any legacy infrastructure.

There may be potential for the life of the project to extend beyond the currently proposed 29 year life estimate. Having regard to this potential it is considered opportune that further investigation be undertaken regarding the permanent expansion of the town of Bylong rather than total reliance on the TWA.

Local Services Assessment

The proponent shall confer with MWRC in determining the likely domicile of the workforce having due regard to the Mid-Western Comprehensive Land Use Strategy and Council's Development Servicing Plans and strategies for the provision of water and sewer services.

In addition to this, the DGR's should also request that the applicant address the impact the development may have on local services and infrastructure in the LGA. This should include, but is not limited to, impact on water and sewer, local housing supply, health care services, child care facilities, education and local businesses and include measures to mitigate any identified impacts.

Noise Impact

The DGR's should include a requirement for a detailed Noise Assessment Report covering the whole of the Bylong Valley and the potential impact on Bylong Upper Public School.

Should you have any queries in relation to this matter please contact (insert name of person to contact) on (02) 6378 2850.

Yours faithfully



CATHERINE VAN LAEREN
DIRECTOR – DEVELOPMENT AND COMMUNITY SERVICES

**ATTACHMENT 3
MINING AND PETROLEUM GATEWAY PANEL'S CONDITIONAL GATEWAY
CERTIFICATE AND REPORT**



Conditional Gateway Certificate Bylong Coal Project

Part 4AA, Division 4 of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

Pursuant to clause 17H of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007, we determine the application made by KEPCO Bylong Australia Pty Limited by issuing this certificate.

We certify that in the opinion of the Mining and Petroleum Gateway Panel, with regards to the relevant criteria in clause 17H(4) of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007, the proposed development described in Schedule 1:

- meets the following relevant criteria:
 - 17H(4)(a)(iii)
- does not meet the following relevant criteria:
 - 17H(4)(a) (i),
 - 17H(4)(a) (ii),
 - 17H(4)(a) (iv),
 - 17H(4)(a) (v),
 - 17H(4)(a) (vi),
 - 17H(4)(b) (i),
 - 17H(4)(b) (ii),
 - 17H(4)(b) (iii),
 - 17H(4)(b) (iv),
 - 17H(4)(b) (v), and,
 - 17H(4)(b) (vi).

The reasons for forming the opinion on each of the relevant criteria, together with recommendations of the Gateway Panel, are contained in Schedule 2.

Terry Short
Chairperson

George Gates
Member of the Gateway Panel

Ian Lavering
Member of the Gateway Panel

Date certificate issued: 15 April 2014

This certificate will remain current for 5 years from the date of issue.

SCHEDULE 1

The site is located about 55 kilometres (km) northeast of Mudgee within the Midwestern Regional Council Local Government Area. The Project is located on land subject to the Upper Hunter Strategic Regional Land Use Plan (as per information in the accompanying Gateway Panel Report).

Development description:

The Bylong Coal Project proposes to develop an open-cut and underground coal mining complex that plans to recover about 121 million tonnes of Run-of-Mine (ROM) coal over a period of up to 29 years.

Applicant:

KEPCO Bylong Australia Pty Limited (KEPCO).

SCHEDULE 2

Relevant criteria	Consideration	Recommendations
17H4(a)(i), (ii), (v), (vi)	The proposal to remove 194.4 ha of verified BSAL soils from within the planned open-cut mining area and the 're-creation' of this BSAL elsewhere lacks precedence and necessary detail.	With regard to the removal and recreation of verified BSAL soils: <ol style="list-style-type: none"> 1. Undertake a risk assessment that identifies the hazards and proposes controls with respect to the movement of BSAL soils; 2. Identify a final location for the verified BSAL soils <u>within</u> the Project Boundary area; 3. Detail the methods proposed for the handling, storage and treatment of the verified BSAL soils; 4. Propose alternate mitigation measures to be implemented in the event that the methodology selected results in the loss of verified BSAL soils post-implementation.
17H4(a)(iv)	Significant impacts are anticipated on highly productive groundwater and the consequent connection between surface and groundwater in modeling requires more detailed evaluation.	<ol style="list-style-type: none"> 1. Develop a more complex transient 3D numerical model for the EIS stage of the Development Application which includes improved time variant input data, more details on recharge, geological imperfections (dykes, sills & faults), fractures from subsidence, and a sensitivity/uncertainty analysis. 2. Complete baseline studies for the project area to improve knowledge on water levels, and groundwater dependent ecosystems. 3. Provide an assessment of the hydrochemistry of spoil and tailings materials, and potential impact on nearby water sources. 4. Provide a strategy for complying with the rules of the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources. In particular the implication of reduced available water determinations (AWDs) and the cease to pump rule. 5. Supply a plan for monitoring actual water take and how any changes from the predictions will be accounted for with water licences and remediation.
17H4(a)(i)	Mine waste emplacements have been designed with steep slopes to minimize footprint disturbance areas.	<ol style="list-style-type: none"> 1. Conduct an analysis of short and long term geotechnical stability risk of waste emplacement slope gradients. 2. Demonstrate that all final landform slope gradients are geotechnically stable in the long-term and have factors of safety of 1.5 or better. 3. Demonstrate that all final landform slope gradients are erosionally stable.
17H4(b)(i), (ii), (iii), (iv), (v)	NSW Government has verified 1,933 ha of land within the Project Boundary area as Equine CIC land. The potential impacts of the Project on the Equine CIC have not been properly assessed.	Using the Guideline for Gateway Applicants (September 2013) by Department of Planning & Infrastructure, provide a compliant and comprehensive assessment of the Project's potential impacts on the Equine CIC.

Note: Further information on the Gateway Panel's reasoning in relation to the relevant criteria is contained in the Gateway Panel Report available at: www.mppg.nsw.gov.au



Mining & Petroleum
Gateway Panel

**Report by the Mining & Petroleum Gateway Panel
to accompany a Conditional Gateway Certificate
for the Bylong Coal Project**

15 April 2014

Report by the Mining & Petroleum Gateway Panel to accompany a Conditional Gateway Certificate for the Bylong Coal Project © State of New South Wales through the NSW Mining & Petroleum Gateway Panel, 2014.

Disclaimer

While every reasonable effort has been made to ensure that this document is correct at the time of publication, the State of New South Wales, its agents and employees, disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance upon the whole or any part of this document.

Contact

Mining and Petroleum Gateway Panel Secretariat

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Executive Summary

The Mining & Petroleum Gateway Panel (the Gateway Panel) has determined an Application for a Gateway Certificate by KEPCO Bylong Australia Pty Limited (the Applicant) for its proposed Bylong Coal Project in the Upper Hunter region of New South Wales (NSW). The Gateway Panel finds that the Application does not meet the Relevant Criteria and has decided to issue the Applicant with a Conditional Gateway Certificate. This report states the reasons for the formation of the opinions in the certificate.

The Bylong Coal Project proposes open-cut and underground coal mining within a Project Boundary area that incorporates 2,366 ha of Applicant-verified Biophysical Strategic Agricultural Land (BSAL) and 1,933 ha of Government-verified Equine Critical Industry Cluster (CIC) land.

With regard to BSAL, it is the opinion of the Gateway Panel that:

- The Project would have direct and significant impacts on the agricultural productivity of verified BSAL within the Project Boundary area;
- Indirect impacts on verified BSAL within the Project Boundary area have not been assessed and are potentially significant; and,
- Indirect impacts on potential BSAL adjacent to the Project Boundary area have not been assessed and are potentially significant.

The Applicant asserts that Gateway requirements concerning the Equine CIC should not apply. The Gateway Panel rejects this assertion because:

- The NSW Government has verified 1,933 ha of land within the Project Boundary as Equine CIC, this mapping was available to the Applicant in October 2013 and the Applicant acknowledges the area of verified CIC in its Application;
- The Interim Verification Protocol relied upon by the Applicant was associated with draft CIC mapping and cannot be used with the current mapping and, as it has been superseded by a Government verification process, is obsolete; and,
- Verification of CIC land has never been a component of the Gateway Panel processes.

The Application is non-compliant with respect to its assessment of the Equine CIC and lacks proper assessment of potential impacts. It is the opinion of the Gateway Panel that the Project would have a significant impact on the Equine CIC because:

- There is 1,933 ha of verified Equine CIC land within the Project Boundary area;
- The Applicant has already directly impacted the Equine CIC through its acquisition of land, e.g. Bylong Park Thoroughbreds, and implemented land use change;
- The Project proposes a disturbance footprint of 2,667 ha for open-cut and underground coal mining;
- The Project proposes open-cut and underground coal mining that directly impacts lands within this CIC; and,
- The Applicant has misconstrued the Gateway process and failed to put forward a compliant or considered assessment of its potential impacts on the Equine CIC.

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1 Purpose and Methodology

In accordance with the *Section 17H(2)(b), Part 4AA Mining and Petroleum Development on Strategic Agricultural Land, State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (the Mining SEPP), this report states the Mining & Petroleum Gateway Panel's (the Gateway Panel's) reasons for the formation of the opinion in the Gateway Certificate issued on this day to the Bylong Coal Project.

1.1 Terms of Reference

The Mining SEPP provides the Gateway Panel's Terms of Reference.

The Gateway Panel must determine an Application and issue a Gateway Certificate in accordance with *Section 17H* of the Mining SEPP.

Section 17H(4) provides the following *relevant criteria* for the Gateway Panel's determination and recommendations.

(a) in relation to biophysical strategic agricultural land- that the proposed development will not significantly reduce the agricultural productivity of any biophysical strategic agricultural land, based on a consideration of the following:

- (i) any impacts on the land through surface area disturbance and subsidence,*
- (ii) any impacts on soil fertility, effective rooting depth or soil drainage,*
- (iii) increases in land surface micro-relief, soil salinity, rock outcrop, slope and surface rockiness or significant changes to soil pH,*
- (iv) any impacts on highly productive groundwater (within the meaning of the Aquifer Interference Policy),*
- (v) any fragmentation of agricultural land uses,*
- (vi) any reduction in the area of biophysical strategic agricultural land,*

(b) in relation to critical industry cluster land-that the proposed development will not have a significant impact on the relevant critical industry based on a consideration of the following:

- (i) any impacts on the land through surface area disturbance and subsidence,*
- (ii) reduced access to, or impacts on, water resources and agricultural resources,*
- (iii) reduced access to support services and infrastructure,*
- (iv) reduced access to transport routes,*
- (v) the loss of scenic and landscape values.*

Section 17H(5) states that in forming an opinion as to whether a proposed development meets the relevant criteria, the Gateway Panel is to have regard to:

(a) the duration of any impact referred to in subclause (4), and

(b) any proposed avoidance, mitigation, offset or rehabilitation measures in respect of any such impact.

1.2 Methodology

1.2.1 The Gateway Panel

The Gateway Panel that evaluated this Gateway Application is as follows.

Mr Terry Short, Chairperson – agricultural discipline;
Dr Ian Lavering – mining discipline; and,
Mr George Gates – hydrogeology discipline.

1.2.2 Panel Meetings

The Panel has held the following meetings in relation to this Application.

- On 11 February 2014 in Sydney; and,
- On 4 April 2014 in Sydney, following receipt of Referral Agency advice.

1.2.3 Meetings with the Applicant or third parties

The Panel did not hold any formal or information discussions in relation to this Gateway Application with either the Applicant or any stakeholder who may have an interest in this Project.

1.2.4 Referrals

In accordance with Section 17G of the Mining SEPP, this Gateway Application was referred to the Commonwealth Independent Expert Scientific Committee (IESC) and the NSW Minister for Primary Industries. The Gateway Panel received advice from the IESC on 14 March 2014. The Gateway Panel received advice from the Minister for Primary Industries on 26 March 2014.

1.2.5 Submissions

On 20 January 2014, the Gateway Panel received the following advice through the Panel Secretariat, originating from NSW Primary Industries (Office of Agriculture and Food Security, OA&FS):

<Paraphrased> that the Applicant had likely misunderstood the verification requirements relating to Critical Industry Clusters and this would require correction for the Panel to make its assessment.

The Gateway Panel did not respond to this submission.

1.2.6 Document review

The Gateway Panel has reviewed the following documentation submitted by the Applicant.

Hansen Bailey, 2014. *Bylong Coal Project, Gateway Certificate Application, Supporting Document.*
Prepared by Hansen Bailey, for Cockatoo Coal Limited, on behalf of KEPCO Bylong Australia

Pty Limited, 10 January 2014. As provided in Parts 1, 2 and 3, and with the following reports presented as Appendices.

AGE, 2013. *Bylong Coal Project, Gateway Groundwater Study.* Report No G1606/A. Prepared by Australasian Groundwater and Environmental Consultants Pty Limited for Hansen Bailey, December 2013 (presented as [Appendix E](#)).

Alan, A. 2013. *Bylong Coal Project, Visual Impact Assessment.* Report prepared by JVP Visual Planning & Design for Hansen Bailey Environmental Consultants on behalf of Cockatoo Coal Limited, December 2013 (presented as [Appendix H](#)).

Barnett, S. 2013. *Bylong Coal Project, Agricultural Impact Statement.* Report prepared for Hansen Bailey Environmental Consultants on behalf of Cockatoo Coal, December 2013 (presented as [Appendix G](#)).

MSEC, 2014. *Bylong Coal Project – Gateway Application. Subsidence Predictions and Impact Assessments for Natural and Built Features in Support of the Gateway Application.* Prepared by Mine Subsidence Engineering Consultants (MSEC) for Cockatoo Coal Limited, December 2014 (presented as [Appendix I](#)).

Runge Pincock Minarco, 2014. *Bylong Mine Plan Justification, Version 2.* Prepared for Cockatoo Coal Limited, January 2014 (presented as [Appendix C](#) with preface by Cockatoo Coal Limited dated December 2013).

SLR, 2013a. *Bylong Coal Project, Soil Assessment and Site Verification.* Report No Han01.005. Prepared by SLR Consulting Australia Pty Limited for Hansen Bailey, December 2013 (presented as [Appendix D](#)).

SLR, 2013b. *Bylong Coal Project, Preliminary BSAL Rehabilitation Strategy.* Report No Han01.005. Prepared by SLR Consulting Australia Pty Limited for Hansen Bailey, December 2013 (presented as [Appendix J](#)).

WRM, 2013. *Bylong Coal Project EIS – Preliminary Water Balance.* Prepared by WRM Water and Environment Pty Limited for Hansen Bailey, December 2013 (presented as [Appendix F](#)).

The Gateway Panel has also reviewed the following Referral Agency advice relevant to this Application.

IESC, 2014. *Advice to decision maker on coal mining project IESC 2013-040: Bylong Coal Project – New Development.* Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development, Department of Environment, Canberra, 14 March 2014.

Minister for Primary Industries, 2014. *Advice prepared by the NSW Office of Water for the Minister for Primary Industries, Bylong Coal Project Application for a Gateway Certificate,* under covering letter of The Hon. Katrina Hodgkinson MP, Minister for Primary Industries, 26 March 2014.

With specific regard to its assessment of potential groundwater impacts, the Gateway Panel has, through its own enquiry, also considered the following publications.

Barnett B, Townley LR, Post V, Evans RE, Hunt RJ, Peeters L, Richardson S, Werner AD, Knapton A and Boronkay A. 2012. *Australian groundwater modeling guidelines*, National Water Commission report, June 2012.

DTIRIS, 2012. *NSW Aquifer Interference Policy, NSW Government policy for the licensing and assessment of aquifer interference activities*. Department of Primary Industries, NSW Office of Water (NOW), State of New South Wales through Department of Trade and Investment, Regional Infrastructure and Services, 2012.

McNally G. and Evans R. 2007. *Impacts of Longwall Mining on Surface Water and Groundwater, Southern Coalfields, NSW*. Report by eWater CRC for NSW Department of Environment and Climate Change.

NSW Government, 2009. *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*. NSW Legislation, State of New South Wales, 2009.

With specific regard to matters relating to geology and mining, the Gateway Panel notes the site of the proposed Project has been the subject of previous documented studies of coal and other mineral resources. These studies include those associated with intrusive Mesozoic Phonolite and Teschenite bodies known to occur east of the subject project area. The Panel has, through its own enquiry, also considered the following additional and relevant publications.

Bayly, K. W. 2012. *Not What It "Seams"*. Proceedings of 38th Symposium on Advances in the Study of the Sydney Basin, Hunter Valley, NSW, May 10-11, 2012, http://www.smedg.org.au/Kim_Bayly_Coal_Seams_Aug2012.pdf (accessed 1 March 2014).

DRE, 2014. Department of Trade and Investment, Division of Resources and Energy, New South Wales Geological Survey, Digital Imaging Geological Systems (DIGS), GS2013/0657 (RE0004030), accessed 1 March 2014.

Hodkinson, I. 2013a. *Annual Exploration Report Exploration Licence No. 7765 (Murrumbo), near Mudgee, New South Wales, For the period 1 June 2011 to 31 May 2012*. Cornubian Resources Pty Ltd, Geological Consultants Report on behalf of Laccolith Pty Ltd, April 2013, Report to NSW Trade & Investment, Division of Resources and Energy, DIGS, GS2013/0657 (RE0004030), accessed 1 March 2014.

Hodkinson, I. 2013b. *Annual Exploration Report Exploration Licence No. 7765 (Murrumbo), near Mudgee, New South Wales, For the period 1 June 2012 to 31 May 2013*. Cornubian Resources Pty Ltd, Geological Consultant's Report on behalf of Laccolith Pty Ltd, October 2013, Report to NSW Trade & Investment, Division of Resources and Energy, DIGS, GS2013/0657 (RE0004030), accessed 1 March 2014.

Koo, E. K., Norman, A. and McDonald, I. 1995. *Sydney Basin, Western Coalfield*, pages 231-245, In, Ward, C.R., Harrington, H. J., Mallet, C.W. and Beeston, J.W., (Editors) *Geology of Australian Coal Basins*, Geological Society of Australia Inc., Coal Geology Group, Special Publication No.1.

The Gateway Panel has reviewed the following publications relevant to Gateway Applications.

DP&I, 2012a. *Upper Hunter Strategic Regional Land Use Plan.* State of New South Wales through the Department of Planning & Infrastructure, September 2012.

DP&I, 2012b. *Draft guideline for site verification of critical industry clusters.* State of New South Wales through the Department of Planning & Infrastructure, November 2012.

DP&I, 2013. *Strategic Regional Land Use Policy, Guideline for Gateway Applicants, Fact Sheet, (the Guideline).* State of New South Wales through the Department of Planning & Infrastructure, September 2013.

DPI, 2013. *Agricultural Impact Statement technical notes: A companion to the Agricultural Impact Statement guideline.* State of New South Wales through the Department of Primary Industries, April 2013.

NSW Government, 2007. *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007, Part 4AA Mining and Petroleum Development on Strategic Agricultural Land (the Mining SEPP).* NSW Legislation, State of New South Wales, 2007.

OEH and OAS&FS, 2013. *Interim protocol for site verification and mapping of biophysical strategic agricultural land (BSAL).* State of New South Wales through the Office of Environment & Heritage and the Office of Agricultural Sustainability & Food Security, 2013.

1.2.7 Field inspection

The Gateway Panel did not conduct a field inspection for the assessment of this Gateway Application.

2 The Proposed Project

2.1 The Applicant

KEPCO Bylong Australia Pty Limited (KEPCO) is the Applicant for a Gateway Certificate for the Bylong Coal Project (the Project).

The Project is required to make a Gateway Application because:

- The Project is a proposed development specified in Clause 5 (Mining) of Schedule 1 to *State Environmental Planning Policy (State and Regional Development) 2011* that a mining lease under the *Mining Act 1992* is required to be issued to enable the development to be carried out because there is no current mining lease in relation to the proposed development; and,
- The proposed development is on land shown on the Strategic Agricultural Land (SAL) Map in the Mining SEPP to be Strategic Agricultural Land (SAL).

2.2 The Proposed Project

According to the *Bylong Coal Project, Gateway Certificate Application, Supporting Document* by Hansen Bailey (2014), the proposed Project is located about 55 kilometres (km) northeast of Mudgee within the Midwestern Regional Council Local Government Area (Figure 1). The Project is a proposed open-cut and underground coal mining complex that plans to recover about 121 million tonnes of Run-of-Mine (ROM) coal over a period of up to 29 years. The Project is located on land subject to the Upper Hunter Strategic Regional Land Use Plan (DP&I, 2012a).

The following Project Overview is reproduced from Hansen Bailey (2014).

The Project mine life is anticipated to be approximately 29 years, comprising up to a two year construction period and a 27 year operational period, with underground mining operations commencing in Year 7. Various rehabilitation and decommissioning activities will be undertaken during both the course of, and following the 29 years of the Project.

The Project main features are provided (Figure 2). Hansen Bailey (2014) continue that the Project generally comprises:

- *The initial development of two open cut mining areas with associated haul roads and Overburden Emplacement Areas (OEs), utilising a mining fleet of excavators and trucks and supporting ancillary equipment;*
- *The two open cut mining areas will be developed and operated 24 hours a day, 7 days a week over an approximate 8 year period and will ultimately provide for the storage of coal processing waste products from the longer term underground mining activities;*
- *Construction and operation of an underground coal mine operating 24 hours a day, 7 days a week for a 23 year period, commencing in around year 7 of the Project;*
- *A combined extraction rate of approximately 6 Million tonnes per annum (Mtpa) ROM coal;*



Figure 1. Project location (after Hansen Bailey, 2014)

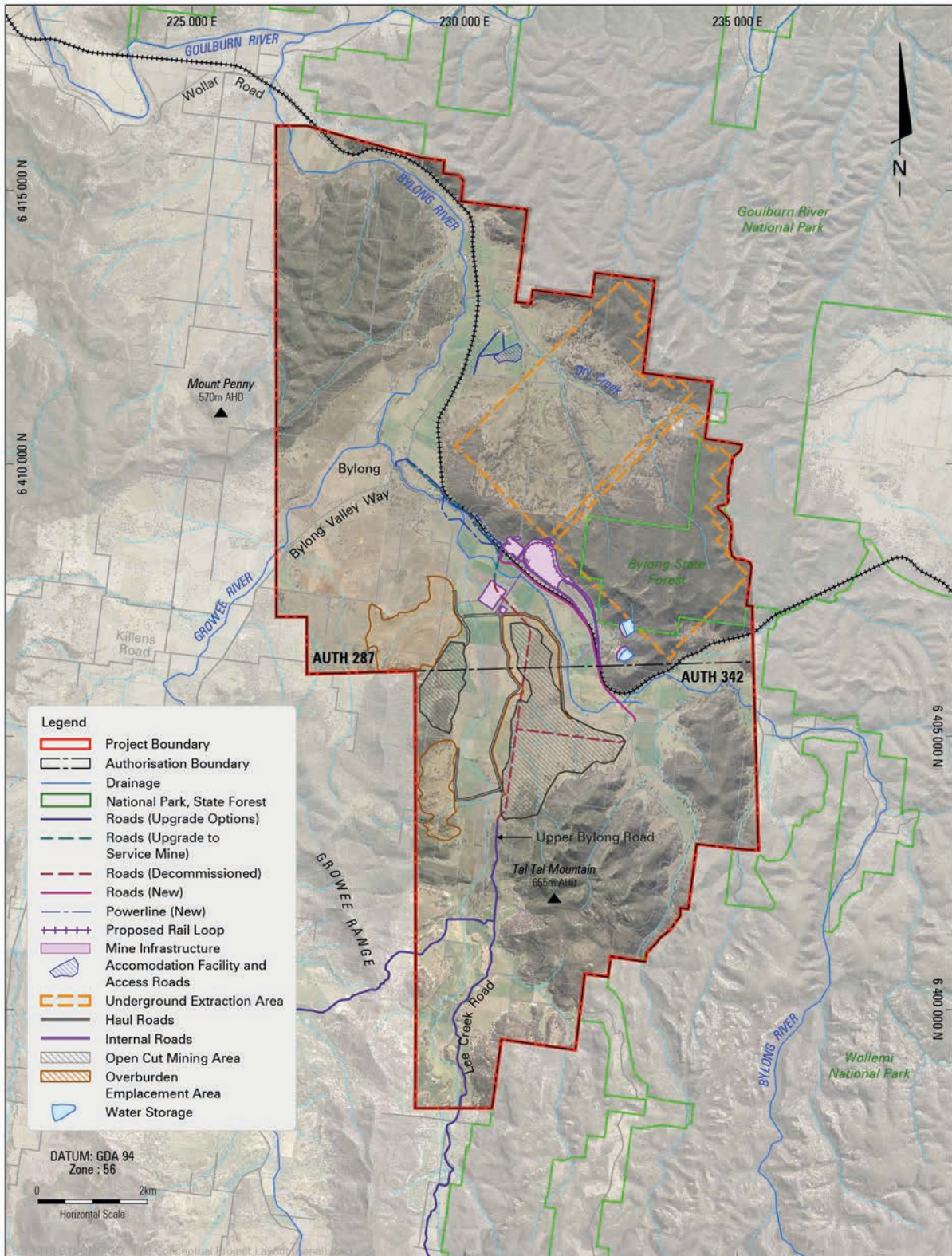


Figure 2. Project general features (after Hansen Bailey, 2014)

- *A workforce of up to approximately 1,000 during construction and 550 full-time equivalent employees during the operation of the Project at full production;*
- *The dewatering of fine reject materials through belt press filters within the CHPP and the co-disposal of dewatered fine and coarse reject materials within OEAs and final open cut voids (avoiding the need for a fine reject materials dam);*
- *The construction and operation of a rail loop and associated rail load out facility and connection to the Sandy Hollow-Gulgong Railway Line to facilitate the transport of product coal;*
- *The upgrade of Upper Bylong Road and the construction and operation of a Mine Access Road to provide access to the site facilities;*
- *Relocation of sections of some existing public roads to enable alternate access routes for private landholders surrounding the Project;*
- *The construction and operation of administration, workshop and other mining related facilities;*
- *The construction and operation of surface and groundwater management and water reticulation infrastructure including diversion drains, dams (clean, dirty and raw water), pipelines, pumping stations and associated infrastructure for access to water from the neighbouring groundwater aquifers;*
- *The installation of communications and electricity reticulation infrastructure;*
- *Construction and operation of an Accommodation Facility and associated access road from the Bylong Valley Way; and*
- *Infilling of mining voids, progressive rehabilitation of disturbed areas, decommissioning of Project infrastructure and rehabilitation of the land at the completion of mining operations.*

2.3 Potential and verified Strategic Agricultural Land (SAL)

The Project Boundary (refer to Figure 2) has a total area of 10,317 hectares (ha) and contains mapped SAL, both Biophysical SAL (BSAL) (Figure 3) and Critical Industry Cluster (CIC) for the equine industry (Figure 4). This mapping indicates 1,610 ha of potential BSAL soils and 1,933 ha of land within the Equine CIC land.

According to Hansen Bailey (2014) however, there is 2,366 ha of verified BSAL soils within the Project Boundary (Figure 5) and 367 ha of these will be impacted by the Project (Table 1). Inconsistently, SLR (2013a and 2013b) and Barnett (2013) discuss potential impacts to 401 ha of verified BSAL soils.

With regard to Equine CIC land, Hansen Bailey (2014) proposes that there are errors in both the DP&I (2012a) and Mining SEPP Critical Industry Cluster Land Map Sheet CIC_001 mapping. Hansen Bailey (2014) concludes that there is no Equine CIC land relevant to Project and therefore, no requirement for assessment of potential impacts.

The Project will disturb a total land area of 2,667 ha (Hansen Bailey, 2014).

Table 1. Nature and extent of proposed impacts to verified BSAL soils (after Hansen Bailey, 2014)

Type of impact	Mining disturbance type	Area (ha)
Direct and permanent	Open cut mining activities	194
Direct and temporary	Mine infrastructure	21
Indirect and temporary	Longwall mining subsidence	152
Total		367

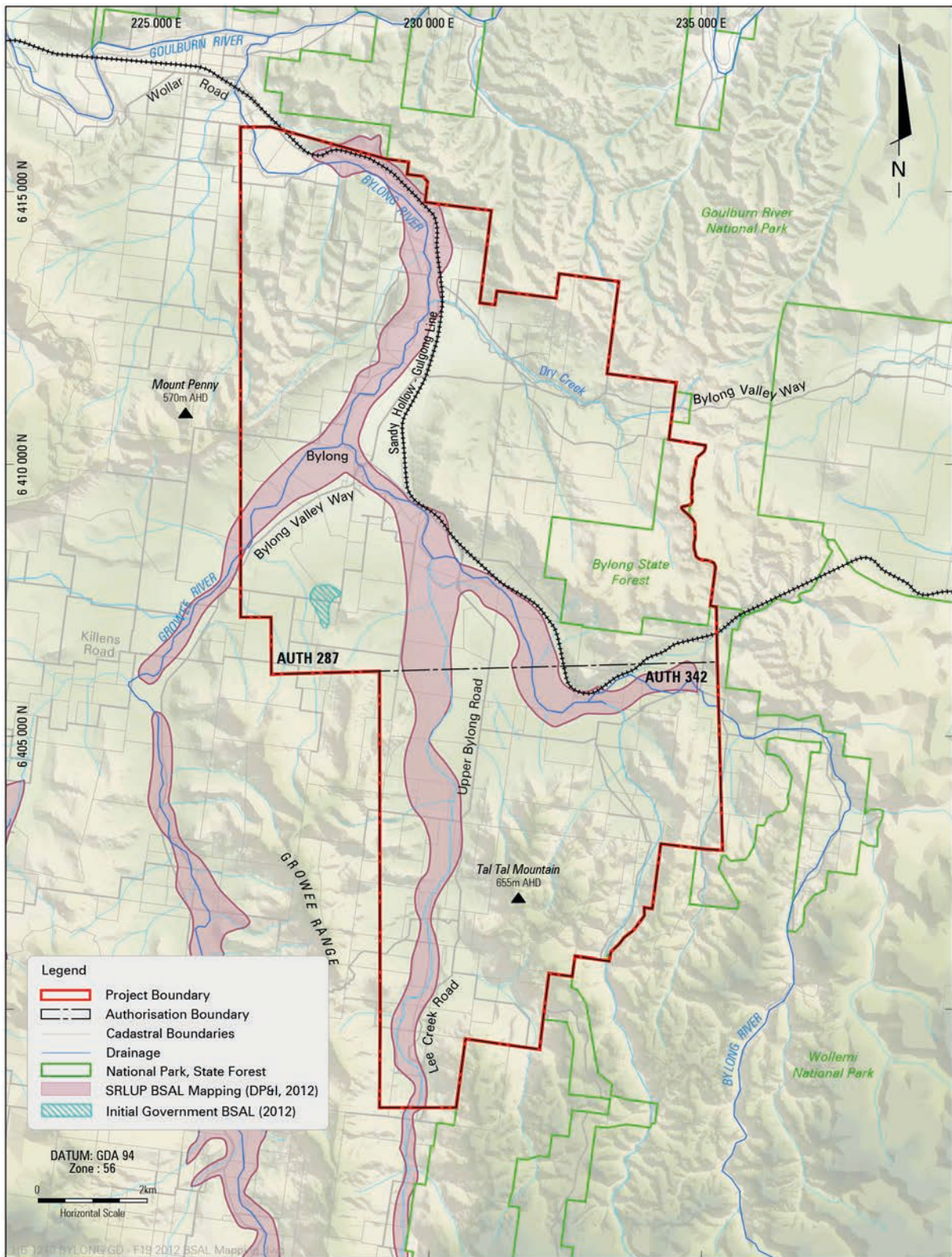


Figure 3. Potential BSAL within the Project Boundary area (after Hansen Bailey, 2014)

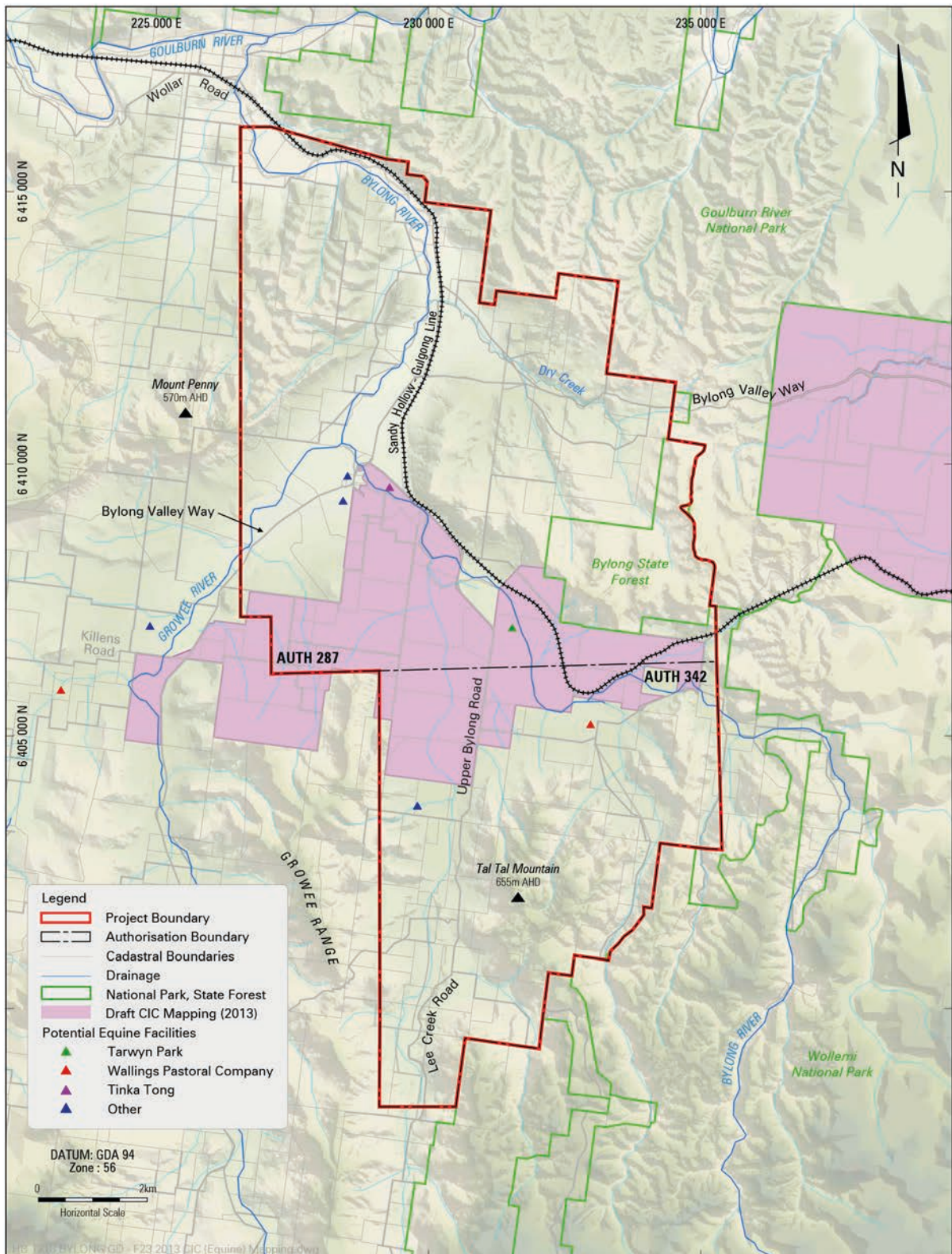


Figure 4. Equine CIC within the Project Boundary area (after Hansen Bailey, 2014)

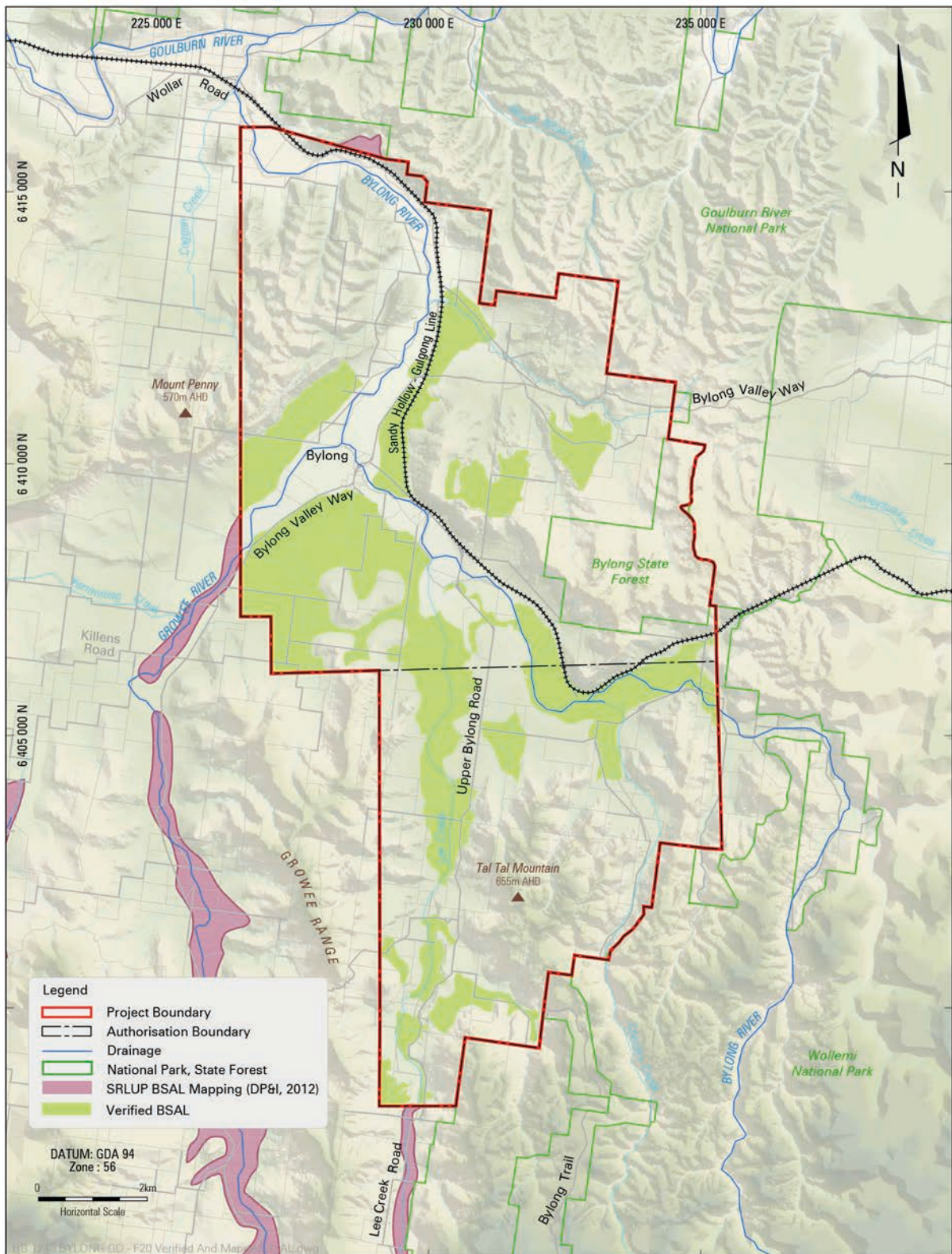


Figure 5. Verified BSAL (2,366 ha) within the Project Boundary area (after Hansen Bailey, 2014)

3 Strategic Agricultural Land Verification

3.1 Biophysical Strategic Agricultural Land (BSAL) verification

The Gateway Panel finds the Applicant's methodology for verification of BSAL within the Project Boundary area is generally acceptable for a Gateway Application with the following exceptions to method and reporting.

1. The Gateway Panel does not accept the Applicant's view that subsidence impacts on verified BSAL soils are by general rule, "*indirect and temporary*";
2. The risk rankings used to determine the soil survey sampling density are (i) incorrect and (ii) ranked too low for the accurate verification of BSAL on land potentially affected by longwall mining subsidence. The potential impacts of subsidence on BSAL should have been assigned a higher risk ranking and the land surveyed at a larger scale, e.g. 1:50,000 or larger, rather than the 1:100,000 scale used (SLR, 2013a);
3. Access to reliable water supply is not a criterion for BSAL verification (e.g. p.43 of SLR, 2013a); and,
4. Suggested amendments to the verification protocol by OEH and OAS&FS (2013) should not be put forward in a Gateway Application (e.g. pp. 53, 63 and 74 of SLR, 2013a), nor should alternate verification outcomes based on these suggested amendments.

3.1.1 Verification of BSAL potentially affected by the Project

SLR (2013a) found 2,366 ha of verified BSAL within the Project Boundary area of 10,317 ha. Within areas that failed the verification procedure, about half was due to slope gradients exceeding the criterion threshold limit of 10%. Various other chemical and physical limitations were also present.

SLR (2013a and 2013b) concludes that 401.3 ha of verified BSAL would be impacted by the Project. In contrast, Hansen Bailey (2014) state the area impacted is 367 ha. The Panel surmises this inconsistency is likely associated with the area of verified BSAL affected by subsidence, i.e. 187 ha in SLR (2013a and 2013b) and 152 ha in Hansen Bailey (2014). Notwithstanding that the error amounts to a relatively small area of about 34 ha, this inconsistency frustrates assessment.

The Gateway Panel does not agree that the effects of subsidence on BSAL are necessarily or by general rule, "*indirect and temporary*", as stated by Hansen Bailey (2014) and SLR (2013a). In some cases this may be correct, but it cannot be applied by default and without justification. To the extent that surface subsidence is an inevitable consequence of longwall coal mining, it is also a direct impact on soils and other surface features. As to whether the potential impacts are temporary or otherwise, this must be assessed on a case-by-case basis.

OEH and OAS&FS (2013) provide clear guidance for the verification of BSAL on-ground, including the appropriate level of sampling density in soil survey based on an assessment of risk to agricultural resource and enterprises. As the minimum area criterion for BSAL verification is 20 ha, much care is needed when choosing appropriate soil survey scales. For example, a scale of 1:50,000 is equivalent to a single observation per 40 ha on ground. Reconnaissance-scales of 1:100,000 and 1:250,000 are far broader. Conducting soil survey for BSAL verification at these scales increases the likelihood of error in BSAL verification and mapping. Depending on the assessed risk to agriculture, appropriate

soil sampling densities can range from one site per 5 ha for high risks to one site per 400 ha for low risks (OEH and OAS&FS, 2013).

SLR (2013a) undertook a risk assessment to evaluate the risk of the Project's various mining disturbance types to soil resources and, it is stated, consequently to agricultural activities, and to assign appropriate soil sampling scales to affected lands. The results of this risk assessment are reproduced (Figure 6). The Panel is of the view that derived scales are generally appropriate, except where there is potential BSAL affected by subsidence. In this instance, SLR (2013a) has assigned a risk ranking of C (possible, probability) and 4 (minor and/or short-term, consequence), to derive a "low" risk outcome and a survey scale of 1:100,000. OEH and OAS&FS (2013) in providing examples of implications for consequence descriptors say that 4: *"Theoretically could affect the agricultural resource or industry in short term, but no impacts demonstrated."* It is the Panel's view that the potential impacts of subsidence on BSAL should have been assigned a higher risk and the land surveyed at a larger scale, e.g. 1:50,000 or larger.

Project Component	Risk Rating	Survey Scale
Unit	Rating	-
Open Cut Mining Areas	A1-A3 – High	1:25,000
OEAs	A1-A3 – High	
Raw Water Storage	A3 – High ¹	
Rail Loop	A3 – High ¹	
Dirty Water Dam	A3 – High ²	1:25,000
Roads & Mine Infrastructure	A4 – Medium	1:50,000
Underground Extraction Areas on non-SRLUP mapped BSAL	B5 - Low	1:100,000
Underground Extraction Areas on SRLUP mapped BSAL – non alluvial influenced BSAL	C4 - Low ³	
Nil Disturbance	Nil ⁴	1:100,000 – 1:250,000
1	Project components will be left in place for future use	
2	Area of land is small and impact on agricultural industries is minimal; however, as topsoil and subsoil will be significantly disturbed it has been assigned a high rating.	
3	BSAL on elevated land is not predicted to be impacted by subsidence	
4	No survey required for BSAL verification. Survey scale nominated to satisfy typical project DGRs	

Figure 6. Soil survey scales derived from risk assessment (reproduced from SLR, 2012a)

SLR (2013b) presents a preliminary BSAL rehabilitation strategy. Amongst other things, this document details the salvage of verified BSAL soils that would otherwise be significantly affected by open-cut mining operations and the replacement of these soils elsewhere to recreate an equivalent area of BSAL. The Panel considers this a worthy rehabilitation goal but is concerned that the location for soil replacement has not been identified in any documentation provided. SLR (2013b) say the location maybe within or surrounding the Project Disturbance Boundary while Hansen Bailey (2014) say it is off-site. This should be clarified and an appropriate location identified, preferably within the land area subject to this Gateway Application.

With regard to rehabilitation more generally, the Panel notes the approach of minimising OEA footprints would result in increased slope gradients in rehabilitation and final landforms to elevations well above that of adjoining low-lying topography. The Panel identifies this strategy increases the risk of erosional and geotechnical instability of the final landforms. The Applicant does

not present any assessment of short- or long-term stability of final landforms. This would be necessary and perhaps lead to design modifications to ensure final landform stability and the avoidance of impacts on adjacent areas of BSAL.

3.2 Equine Critical Industry Cluster (CIC) Verification

The Gateway Panel concludes the following with regard to the Applicant's verification of Equine CIC land.

1. The Applicant has misunderstood Gateway Application process requirements;
2. The Applicant's verification of the Equine CIC land is not relevant to this Gateway Application; and,
3. The Applicant has failed to address requirements for Gateway Applicants with respect to Equine CIC land (see DP&I, 2013).

3.2.1 Verification of the Equine CIC lands potentially affected by the Project

When the NSW Government released the strategic regional land use plan (DP&I, 2012), it made a commitment to verify with industry and the community that land mapped in the CICs was actually used for either equine or viticulture activity. As a result of this verification process, Planning & Infrastructure revised the maps and publically exhibited them for feedback between 4 October and 8 November 2013. In January 2014, the CIC Land Maps, which include Critical Industry Cluster Land Map – Sheet CIC_001, CIC_002 and CIC_003, were finalised and given legal effect through amendment to the Mining SEPP.

Preceding the NSW Government's verification of Equine CIC land, i.e. up until January 2014, an Interim Protocol (DP&I, 2013) provided a process for verifying whether or not land mapped as CIC met relevant criteria. The interim verification protocol stated the following.

"Applicants for State significant mining and coal seam gas proposals that are wholly or partially within a mapped CIC have two options:

- *Accept that their project site is located within the CIC and proceed directly to the Gateway process, or*
- *Lodge a site verification application that the project site does not meet the CIC site verification criteria and therefore should not be subject to the Gateway process."*

If Applicants wished to contend the draft mapping of Equine CIC land, then they must have lodged a Site Verification Application to Planning & Infrastructure, prior to January 2014. The assessment of Site Verification Applications is not a function or responsibility of the Gateway Panel. Verification of Equine CIC land has never been part of the Gateway process.

Within the Project Boundary, the strategic regional land use plan (DP&I, 2012) indicated about 6,617 ha of Equine CIC land. In January 2014, the NSW Government verified Equine CIC lands in the Upper Hunter region and this revised mapping indicates 1,933 ha of Equine CIC land within the Project Boundary, as confirmed by Hansen Bailey (2014).

The Applicant has relied upon the interim verification protocol as reason to dispute draft- and Government-verified mapping of the Equine CIC land within the Project Boundary (Barnett, 2013; Hansen Bailey, 2014). It is the view of the Panel, that this is incorrect application of process because:

- The Applicant did not lodge a Verification Application to Planning & Infrastructure;
- The Interim Verification Protocol is now obsolete and can no longer be used; and,
- Verification of Equine CIC land was never a component of the Gateway process.

The role of the Gateway process with respect to CICs remains solely to assess the potential impacts of State Significant coal seam gas and coal mining proposals on those CICs.

The agricultural impact statement by Barnett (2013) states *“the overwhelming majority of the equine facilities within or in the locality of the Project Boundary do not meet the site verification criteria to be classed as an enterprise of the equine CIC”* and concludes the Project will not impact on Equine CIC land because there is none. The Gateway Panel rejects this view because its premise is incorrect.

4 Assessment of Mining Disturbances

The Gateway process requires that the potential impact on BSAL and/or a CIC is evaluated as either:

- a) A **direct** mining effect whereby part or all of BSAL or a CIC is either removed, worked upon or subsided, OR
- b) An **indirect** mining effect whereby the state of either surface water or sub-surface ground water is significantly altered by mining which then has a direct impact on BSAL and/or a CIC.

Therefore, the assessment of mining disturbances must consider both direct and indirect impacts as defined above, noting that the Applicant has commissioned independent studies on surface subsidence (MSEC, 2014) and hydrogeological impacts (AGE, 2013) due to the proposed mine.

It is the Panel's view that if a concise 3D geological model of the underground mining area were presented in the Application it would assist establishing some geological basis for the mining justification aspects of the Application. It would also assist in developing an understanding of any risks to escarpment stability, valley related subsidence and closure movements, and the effects of faults [as noted in AGE (2013), Figure 5.14] and other geological structures within and proximal to the underground mining area. A significant lack of this data in the exiting Application limits consideration of the geological features, presumably upon which the underground component of the Mine Justification Report by Runge Pincock Minarco (2014) is based.

4.1 Direct mining disturbances

4.1.1 Removal or working upon verified BSAL or mapped CIC land

The Project will cause direct impacts to verified BSAL and mapped Equine CIC land within the Project Boundary as follows.

1. For verified BSAL, 215.7 ha will be directly impacted via proposed open-cut mining and associated activities; and,
2. For Equine CIC land, 1,933 ha will be directly impacted by proposed mining activities.

Of the 215.7 ha of affected verified BSAL, the Panel notes that 194.3 ha is proposed to be 're-created' to offset this impact (SLR, 2013b) and impacts on the remaining 21.4 ha may be temporary, if soils are carefully managed.

Barnett (2013) indicates the following direct impacts of the Project on Government-verified Equine CIC lands.

- *"The Project will directly impact 604 ha of the Wallings Pastoral Company property. Direct disturbance comprises 388 ha of open cut mining area, 11 ha infrastructure and 205 ha of OEA."*
- *"The Project will directly impact 109 ha of the Tarwyn Park property and indirectly through 24 ha of subsidence. Direct disturbance comprises 60 ha of open cut mining area and 25 ha infrastructure."*

The Applicant has not proposed to mitigate its potential impacts on Equine CIC land because it asserts those provisions of the Mining SEPP should not apply to the Project (Hansen Bailey, 2014).

The Gateway Panel does not accept this assertion and is of the opinion that the Applicant should have identified and assessed the potential impacts of the Project on the Equine CIC and proposed appropriate mitigation measures.

4.1.2 Disturbance due to longwall mining subsidence

The Project will cause direct impacts to 185.6 ha of verified BSAL due to subsidence from longwall mining. The Gateway Panel concludes that the subsidence study (MSEC, 2014) is generally adequate with respect to potential impacts on verified BSAL, but could be significantly improved by consideration of the following.

- Differences in the engineering properties of the Permian and Triassic stratigraphic sequences, which comprise the strata that longwall mining will impact;
- The propagation of fracture and faulting patterns in the sequences overlying the coal-bearing strata will vary notably from the general pattern modeled in the Application, and these variations will produce deviation from the general results which the modeling in the Application outlines; and,
- Clarification of the vertical versus horizontal occurrence (or not) of Mesozoic Teschenite or Phonolite in the underground mining area, i.e. depicted in Figure 7.19 of AGE (2013). MSEC (2014) (refer to Figure 1.2) show the Mesozoic Teschenite (“Mt” on map) underlies some 30 to 40% of the subsurface area proposed for longwall mining. An alternative is that the symbol “Mt” is an incorrect label, and the rock is actually Tertiary Basalt (“Tb”).

MSEC (2014) predicts maximum vertical subsidence movement of 3,400 mm and surface cracks of 20 to 50 mm with some cracks exceeding 100 mm.

4.2 Indirect mining disturbances

4.2.1 Subsurface fracturing due to longwall mining

MSEC (2014) state the following:

“The extraction of supercritical longwalls is expected to result in fracturing from the seam up to the surface. At the magnitudes of the predicted subsidence, the overburden is expected to have undergone large blocky movements, resulting in a network of fractures which is likely to increase the hydraulic conductivity between the surface and the seam at the areas of shallowest cover, with reducing potential for connectivity as depth of cover increases. It is likely, therefore, that some of the surface water flows in the ephemeral streams would be lost into the mine workings during high rainfall events.”

The report also notes the higher potential for ponding to develop along the lower reaches of Dry Creek.

The Panel is concerned that the preliminary groundwater modelling completed to date does not include fractures that extend to the ground surface from the underground mine workings. The Panel requires that the updated groundwater model include the predictions of fractures back to the surface. This should improve the accuracy of the water budget for the underground mine.

The IESC suggestion that future iterations of the subsidence assessment should include a survey of the existing drainage lines and other surface water features and an assessment of their current

condition, including associated vegetation, to provide a baseline against which the predicted changes to the landform can be assessed, is endorsed.

4.2.2 Effects on adjoining BSAL

The Applicant verifies 2,366 ha of BSAL within the Project Boundary but provides insubstantial information of how verified BSAL within the Project Boundary but outside of planned disturbance areas is impacted or how potential BSAL outside of the Project Boundary is potentially, indirectly impacted by the Project.

5 Panel Assessment of Impacts on Strategic Agricultural Land

The Gateway Panel has assessed and determined the potential impacts of the Project on BSAL and the Equine CIC as follows (findings are summarised as Tables 2 and 3).

Table 2. Summary of Gateway Panel determination of impacts on BSAL

17H(4)(a) BSAL	Determined Impact
(i) any impacts on the land through surface area disturbance and subsidence,	Significant impact
(ii) any impacts on soil fertility, effective rooting depth or soil drainage,	Significant impact
(iii) increases in land surface micro-relief, soil salinity, rock outcrop, slope and surface rockiness or significant changes to soil pH,	No significant impact
(iv) any impacts on highly productive groundwater (within the meaning of the Aquifer Interference Policy),	Significant impact
(v) any fragmentation of agricultural land uses,	Significant impact
(vi) any reduction in the area of biophysical strategic agricultural land.	Significant impact

Table 3. Summary of Gateway Panel determination of impacts on the Equine CIC

17H(4)(b) Equine CIC	Determined Impact
(i) any impacts on the land through surface area disturbance and subsidence,	Significant impact
(ii) reduced access to, or impacts on, water resources and agricultural resources,	Significant impact
(iii) reduced access to support services and infrastructure,	Significant impact
(iv) reduced access to transport routes,	Significant impact
(v) the loss of scenic and landscape values.	Significant impact

5.1 Significance of the project's potential impacts on BSAL

5.1.1 Any impacts on the land through surface area disturbance and subsidence

There are 2,366 ha of verified BSAL within the Project Boundary area of 10,317 ha (SLR, 2013a). The Project proposes to disturb 2,667 ha of land in total, including direct impacts on about 401 ha of verified BSAL. These direct impacts include 21.3 ha for infrastructure, 185.6 ha via subsidence and 194.4 ha by open-cut coal mining.

If managed carefully, the Gateway Panel agrees with the Applicant that impacts due to mine infrastructure and subsidence could be mitigated to the extent that soils retain BSAL characteristics post-mining. However, subsidence has the potential to create ponding and significant periods of inundation will affect the chemical and physical fertility of affected soils, thereby impacting the agricultural productivity of verified BSAL.

The Applicant proposes to minimise the surface area occupied by mine waste emplacements. This approach results in increased slope gradients of final landforms. The Gateway Panel identifies a potential geotechnical stability risk in final landforms that could lead to landform failure, with impacts on surrounding verified BSAL. The Applicant does not provide any geotechnical stability assessment of proposed final landforms.

Considerable uncertainty remains in the Application with regard to the removal of 194.4 ha of BSAL soils from within the planned open-cut mining area and re-creation of BSAL elsewhere because:

- To the knowledge of the Gateway Panel, such an exercise has not been successfully completed at any other Australian coal mine;
- The Application does not identify a final location for the BSAL soils;
- SLR (2013b) does not provide enough detail in relation to how this 're-creation' can be achieved, e.g. soil handling techniques.

It is the Gateway Panel's opinion that impacts on the land through surface area disturbance and subsidence will significantly reduce the agricultural productivity of verified BSAL.

5.1.2 Any impacts on soil fertility, effective rooting depth or soil drainage

The Gateway Panel finds the impacts on fertility, rooting depth and soil drainage should be minimal where BSAL is potentially impacted by mine infrastructure and subsidence, providing any changes to surface water dynamics are managed properly. This should include the prevention of water ponding in subsidence depressions and the long-term inundation of BSAL soils.

However, it is the Gateway Panel's view that relocation of 194.4 ha of verified BSAL soils from within the open-cut mining footprint to another location has the potential to significantly reduce the agricultural productivity of that soil through impacts on soil fertility, effective rooting depth and soil drainage. These impacts will potentially manifest through soil handling techniques that lead to profile mixing and compaction.

It is the Gateway Panel's opinion that impacts on the soil fertility, effective rooting depth or soil drainage will significantly reduce the agricultural productivity of verified BSAL.

5.1.3 Any increases in land surface micro-relief, soil salinity, rock outcrop, slope and surface rockiness or significant changes to soil pH

It is the Gateway Panel's opinion that the proposed Project should not significantly reduce the agricultural productivity of BSAL due to increases in micro-relief, soil salinity, rock outcrop, slope, rockiness or significant changes to soil pH.

5.1.4 Any impacts on highly productive groundwater (within the meaning of the Aquifer Interference Policy)

The Gateway Panel concludes that the proposed Project has potential water level impacts that exceed the Level 1 Minimal Impact Considerations in the NSW Aquifer Interference (AI) policy for the 'highly productive' alluvial groundwater source associated with the Bylong River.

The simple groundwater flow model (a requirement of the AI policy) shows that 23 alluvial bores will experience a water level decline of greater than 2 m for an extended time, i.e. decades. The Gateway Panel notes that the Applicant has already purchased many of the affected properties and is in negotiations with other affected landholders to either purchase their land or mitigate the impacts.

The Gateway Panel finds that there is considerable uncertainty in the water budget results and water level impacts using the preliminary groundwater flow model. The proponent has however provided a pathway forward to develop a more complex and robust transient groundwater flow model that will be used in the EIS assessment. This will incorporate temporal data and include the results from ongoing work that will better define the hydrogeological complexities of the lease areas. This more detailed model should provide results that have a higher degree of certainty.

The output from the preliminary model is adequate for this Gateway assessment but should be considered as indicative only until the more detailed work that is proposed is carried out.

Insufficient work has been completed to predict long-term changes in water quality in the alluvium or in surface waters. A work program has been outlined but until this work is done the Panel is not in a position to comment on whether the proposed mine will change the beneficial use of the aquifer at some locations or meet the 1% minimal impact criteria for connected surface waters.

Desktop studies indicate that there are no known groundwater dependant ecosystems (GDE) in government data bases within or close to the lease boundaries. Detailed site work to look for GDEs is proposed but is not yet complete. The Panel cannot comment further at this time.

Appendix A provides some discussion and insights into the Panel's thoughts and highlights some areas that require further work and clarification. The Applicant has suggested many of the areas that need further work and these are generally supported by IESC and NOW comments. Table 1 in Appendix A shows the Panel's assessment in tabulated form against each of the information areas required by the AI Policy.

It is the Gateway Panel's opinion that mining impacts on highly productive alluvial groundwater will be significant for decades and unless mitigated will reduce the agricultural productivity of verified BSAL. Affected properties purchased by the proponent will have reduced agricultural output if water licences are diverted away from irrigation and used for mining purposes. Water level impacts caused by mining are temporary (decades) and will recover fully with time.

5.1.5 Any fragmentation of agricultural land uses

The Gateway Panel finds the Project will cause short- to medium-term fragmentation of agricultural land uses on verified BSAL due to proposed mining activities. This fragmentation is associated with verified BSAL directly impacted by subsidence (185.6 ha) and also that required for mine infrastructure (21.3 ha).

The Gateway Panel is of a view that the planned preservation, relocation and re-creation of 194.4 ha of verified BSAL from within the footprint of the proposed open-cut mine is a commendable objective. However, such an objective is not without risk to the verified BSAL, e.g. profile mixing, and reduced physical, chemical and biological fertility. In any event, it will cause short- to medium-term fragmentation of land uses associated with that 194.4 ha of verified BSAL, and if ultimately unsuccessful, the fragmentation will be permanent.

Of further concern to the Panel is land use on the balance of verified BSAL within the Project Boundary that will not be directly impacted by the proposed Project (1,965 ha) but may be indirectly impacted. The Gateway Panel concludes the Applicant has not provided an adequate assessment of these potential impacts.

It is the Gateway Panel's opinion that impacts causing fragmentation of agricultural land use will significantly reduce the agricultural productivity of verified BSAL.

5.1.6 Any reduction in the area of BSAL

The Panel finds the Project will directly impact about 401 ha of verified BSAL and has the potential to indirectly impact some of the remaining 1,965 ha of verified BSAL within the Project Boundary and BSAL external to this boundary. SLR (2013b) discusses mitigating the potential loss of 194.4 ha of verified BSAL due to open-cut mining operations, by its relocation to another area unaffected by open-cut mining. Barnett (2014) says this will "*compensate for direct and permanent impacts associated with open cut mining areas.*" But neither SLR (2013b) nor Barnett (2014) put forward a suitable location for this verified BSAL to be permanently relocated, and neither provide any real insight to meeting the technically and scientific (and economic) challenges of moving that much BSAL (up to 1.5 million cubic metres of soil).

It is the Gateway Panel's opinion that impacts causing a reduction in the area of BSAL will significantly reduce the agricultural productivity of verified BSAL.

5.2 Significance of the project's potential impacts on the Equine CIC

The Project Boundary contains 1,933 ha of Government-verified Equine CIC land (Barnett, 2013). NSW Government has verified this land as being a part of the Upper Hunter Equine CIC.

5.2.1 Any impacts on the land through surface area disturbance and subsidence

Barnett (2013) states "*land and any associated equine enterprise within the Project disturbance has been verified as not meeting the definition or criteria of the equine CIC as outlined in Section 3.2. In this regard, the Project will not impact the equine CIC through surface area disturbance or subsidence.*"

The Gateway Panel rejects this conclusion because:

- The NSW Government has verified 1,933 ha of land within the Project Boundary as Equine CIC, this mapping was available to the Applicant in October 2013 **and** the Applicant acknowledges the area of verified CIC (e.g. see Barnett 2013, p.14);
- The Interim Verification Protocol relied upon by Barnett (2013) was associated with draft CIC mapping (DP&I, 2012), can not be used with the current mapping and, as it has been superseded by a Government verification process, is obsolete; and,
- Verification of CIC land has never been a component of the Gateway process.

It is the Gateway Panel's opinion that impacts on the land through surface disturbance and subsidence will have a significant impact on the Equine CIC because:

- There is 1,933 ha of verified Equine CIC land within the Project Boundary area;
- The Project proposes a disturbance footprint of 2,667 ha for open-cut and underground coal mining;
- The Project proposes open-cut and underground coal mining that directly impacts lands within this CIC; and,
- The Applicant has misconstrued the Gateway process and failed to put forward a compliant or considered assessment of its potential impacts on the Equine CIC.

5.2.2 Reduced access to, or impacts on, water resources and agricultural resources

Barnett (2013) states: *"The Project disturbance footprint is not directly situated on land utilised for the operations of verified equine CIC enterprises. In this regard, the Project will not impact the equine CIC through reduced access to land resources."* The Gateway Panel rejects this conclusion.

It is the Gateway Panel's opinion that reduced access to, or impacts on, water resources and agricultural resources will have a significant impact on the Equine CIC for the reasons stated previously (refer to Section 5.2.1).

The Gateway Panel notes the Applicant has already directly impacted the Equine CIC through its acquisition of land, e.g. Bylong Park Thoroughbreds, and implemented land use change, i.e. in this instance, from thoroughbred horse breeding to cattle grazing. The nature and extent of these impacts have not been assessed in the Application.

5.2.3 Reduced access to support services and infrastructure

Barnett (2013) concludes with regard to support services and infrastructure that: *"The land and any associated equine enterprise within the Project disturbance footprint, Project Boundary and the broader locality have been verified as not meeting the definition or criteria of the equine CIC as outlined in **Section 3.2**. In this regard, the Project will not impact the equine CIC through reduced access to support services and infrastructure."* The Gateway Panel rejects this conclusion.

It is the Gateway Panel's opinion that reduced access to support services and infrastructure will have a significant impact on the Equine CIC for the reasons stated previously (refer to Section 5.2.1).

5.2.4 Reduced access to transport routes

Again, the Applicant's agricultural impact statement argues that *"the land and any associated equine enterprise within the Project disturbance footprint, Project Boundary and the broader locality have*

been verified as not meeting the definition or criteria of the equine CIC as outlined in Section 3.2. In this regard, the Project will not impact the equine CIC through reduced access to road transport routes, services and infrastructure” (Barnett, 2013). The Gateway Panel rejects this conclusion.

It is the Gateway Panel’s opinion that reduced access to transport routes will have a significant impact on the Equine CIC for the reasons stated previously (refer to Section 5.2.1).

5.2.5 The loss of scenic and landscape values

Lastly, Barnett (2013) again states that *“the land and any associated equine enterprise within the Project disturbance footprint, Project Boundary and the broader locality have been verified as not meeting the definition or criteria of the equine CIC as outlined in Section 3.2. In this regard, it is considered that the Project does not significantly compromise the scenic and landscape settings of the equine CIC to the south of the Project Boundary.”* The Gateway Panel rejects this conclusion.

It is the Gateway Panel’s opinion that the loss of scenic and landscape values will have a significant impact on the Equine CIC for the reasons stated previously (refer to Section 5.2.1).

6 Conditional Gateway Certificate

The Gateway Application for the Bylong Coal Project proposes open-cut and underground coal mining within a Project Boundary area that incorporates 2,366 ha of Applicant-verified BSAL and 1,933 ha of Government-verified Equine CIC land.

The Application states that up to 401 ha of verified BSAL will be impacted and that various management measures will ensure that the agricultural productivity of that BSAL is not significantly affected (Hansen Bailey, 2014). With regard to

- (a) the nature, extent and duration of potential impacts; and,
- (b) the avoidance, mitigation, offset and rehabilitation measures put forward in the Application in respect of potential impacts,

it is the opinion of the Gateway Panel that

- (a) the Project would have direct and significant impacts on the agricultural productivity of verified BSAL within the Project Boundary area;
- (b) indirect impacts on verified BSAL within the Project Boundary area have not been assessed and are potentially significant; and,
- (c) indirect impacts on potential BSAL adjacent to the Project Boundary area have not been assessed and are potentially significant.

The Application states the Project land *“does not meet the criteria to be classified as Equine Critical Industry Cluster”* and all Gateway requirements concerning the Equine CIC *“should not apply to the Bylong Coal Project”* (Hansen Bailey, 2014). The Gateway Panel rejects the premise, method and conclusion of the Applicant in relation to its assessment of potential impacts on the Equine CIC.

The Application is non-compliant with respect to its assessment of impacts on the Equine CIC.

With regard to

- (a) 1,933 ha of Government-verified Equine CIC land;
- (b) the nature, extent and duration of potential impacts on that land and the Equine CIC; and,
- (c) the overt lack of any proper avoidance, mitigation, offset and rehabilitation measures put forward in the Application in respect of potential impacts,

it is the opinion of the Gateway Panel that the Project would have a significant impact on the Equine CIC.

Although not assessed by the Applicant, the Project has already directly impacted the Equine CIC through its acquisition of land, e.g. Bylong Park Thoroughbreds, and implemented land use change, i.e. in this instance, from thoroughbred horse breeding to cattle grazing.

The Application does not meet the Relevant Criteria (refer to Tables 2 and 3) and will be issued a Conditional Gateway Certificate.

Appendix A – Groundwater Assessment

Hydrogeology

The project correctly identifies the groundwater resources of the Bylong River alluvium as “highly productive” groundwater resources as they generally have total dissolved salts that are less than 1,500 mg/L and can yield water at a rate greater than 5 L/sec to a bore or well. The “less productive” groundwater resources are the Permian coal measures, Triassic sediments and Tertiary basalts that occur within the lease boundaries.

The complexity of the groundwater flow system is not yet sufficiently determined. For instance little is known about the location of geological faults or the impact of intrusive/extrusive volcanic rocks in the vicinity of the underground mine. There is also some doubt about the depth to the water table under the more elevated parts of the leases. Perched aquifers have been mooted as a possibility to explain water encountered at high elevations under hilly country. This is important information to get right as it will affect the mine inflow calculations.

The IESC believes that sediment compaction within the alluvium, at locations that have significant reduction in water levels, is a possibility. Whilst this is not considered to be a large risk the Panel agrees that it should be examined.

Groundwater Modelling

The MODFLOW-SURFACT software that was used to estimate pit inflows and local water level impacts is considered appropriate. The Panel agrees that the model is a Class 1 model (Barnet et al, 2012) and that it meets the AI Policy requirement for a simple model. The model has been developed in steady state mode and the calibration statistics are adequate for it to be used as a guide for assessing environmental impacts and mine inflows.

The model predicts that mining will cause a drawdown in water level up to a maximum of 18.5 m in one bore in the alluvium. In total 23 alluvial bores are impacted by drawdowns of 2 m or more. The predicted impacts are clearly greater than the Level 1 minimal impact considerations in the AI Policy thus further studies are required to fully assess the impacts. The drawdown contours provided should be considered as a guide until such time that a more robust and detailed model is available. The impacts will last the length of the mining operation, i.e. about three decades.

The drawdown impacts in the alluvium are likely to be sensitive to how surface water – groundwater interactions are handled in the model. For instance, in the sensitivity analysis applying a constant head of water in the Bylong River, buffered groundwater drawdown such that most bores in the alluvium north of the Eastern Open Cut Mining Area were unaffected by mining. The sensitivity analysis found that the river leakage rate was the most sensitive parameter to groundwater drawdown in the alluvium.

The Bylong River is an ephemeral river, so flow is not always present to recharge the alluvium. During drought times the impact of mining on alluvial water levels may be laterally more extensive and affect more bores than the current predictions. Any future modelling needs to more realistically handle surface water-groundwater connectivity. The Panel endorses the IESC recommendation to consider a variety of boundary conditions for streams across the model domain, including constant head or general head boundaries, river cells and drains to establish which is the most appropriate.

The proponent has stated that a more complex transient 3D numerical model will be developed for the EIS stage of the Development Application and that this will provide more certainty in the water budget and impact calculations.

The Panel believes that the development of a more complex model should include:

- Using time variant input data eg, stream flow, rainfall, ET, pumping data etc.;
- Distributed input parameters (T,Sy,Ss, River leakance);
- Better estimates of recharge, including consideration of the surface cracking that is likely to be experienced above the Underground Extraction Area in the vicinity of Dry Creek, as a result of subsidence;
- Improved hydrogeological knowledge on faulting, and the location of basalt flows, sills and dykes and their impact on groundwater flow.
- A sensitivity analysis that varies stream boundary conditions and justification of the conditions applied in the final groundwater model.
- An uncertainty analyses so the reader can gauge the probability of a particular outcome.

These modifications would more accurately represent the conceptual hydrogeology of the area and therefore improve confidence in the predictions of the impacts and mine inflows.

Water quality

A total of 295 water quality samples have been collected from 11 alluvial monitoring bores, six Permian monitoring bores and eight surface water sites. The analysis of samples includes EC, pH and a full major ion sample suites. The dataset represents a reasonable spatial and temporal set of baseline water quality within the lease boundaries.

Electrical conductivity (EC) for the alluvium ranges from 277 $\mu\text{S}/\text{cm}$ to 2,547 $\mu\text{S}/\text{cm}$. The EC for the Permian Coal Measures ranges from 1,042 $\mu\text{S}/\text{cm}$ to 2,774 $\mu\text{S}/\text{cm}$. Surface water sites average EC ranges from 224 $\mu\text{S}/\text{cm}$ to 1,790 $\mu\text{S}/\text{cm}$.

The EC values for the groundwater in Permian sediments is low compared to some other sites in the Upper Hunter Valley.

The modelling shows that the proposed mining will induce drawdown in the alluvium in the first 10 years of the project when the open cut is active. This in turn will result in low salinity river water being drawn into the alluvium and eventually into the underlying bedrock. However post mining when water level recovery has occurred in the open cut areas (about 150 years after mining ceases) and equilibrium groundwater levels are approached the model predicts a 0.2 ML/day increase in surface flows post mining.

Whilst some detailed hydro-chemical work has been done to establish the groundwater quality of the alluvium and coal measures more work is required so that the post mining long term risk to surface waters can be established. The Panel endorses the IESC recommendations that more hydro-chemical characterisation of the coal measures and overburden, including the potential for saline and acid forming material be carried out.

KEPCO have identified that the effects of leachate from the disposal of fine and coarse reject material in the Eastern open cut may impact on the surrounding groundwater quality. They have

outlined a work proposal to better understand this issue and have undertaken to do the work for the preparation of the EIS. Until this work is done the Panel is not in a position to comment on whether the proposed mine will change the beneficial use of the aquifer at some locations or meet the 1% minimal impact criteria for connected surface waters, a requirement of the AI policy.

Subsidence and Groundwater Flow

The subsidence technical report (Appendix I) states that:

“The extraction of supercritical longwalls is expected to result in fracturing from the seam up to the surface. At the magnitudes of the predicted subsidence, the overburden is expected to have undergone large blocky movements, resulting in a network of fractures which is likely to increase the hydraulic conductivity between the surface and the seam at the areas of shallowest cover, with reducing potential for connectivity as depth of cover increases. It is likely, therefore, that some of the surface water flows in the ephemeral streams would be lost into the mine workings during high rainfall events.”

The report also notes the higher potential for ponding to develop along the lower reaches of Dry Creek.

Of concern to the Panel is that the preliminary groundwater modelling completed to date does not include fractures that extend to the ground surface from the underground mine workings. The Panel requires that the updated groundwater model include the predictions of fractures back to the surface. This should improve the accuracy of the water budget for the underground mine.

The IESC suggestion that future iterations of the subsidence assessment should include a survey of the existing drainage lines and other surface water features and an assessment of their current condition, including associated vegetation, to provide a baseline against which the predicted changes to the landform can be assessed, is endorsed.

Water sharing Plan Rules

The Gateway application shows an understanding of the relevant water sharing plan (WSP) rules with respect to holding appropriate water access licences before mining is commenced. Predictions have been made, based on a preliminary groundwater model, on the number of unit shares needed to account for water taken from surface water sources, alluvial sources and porous rock aquifers on an annual basis. KEPCO already hold a significant quantity of groundwater access shares in the Bylong alluvium. They are prepared to acquire more shares, if needed, through the trading market.

The Panel understands that the daily flow rules within a WSP can be more restrictive during times of drought than the annual limitations and that any restrictions apply to both Unregulated River Access Licences and Groundwater Access Licences in highly connected systems such as the Bylong River. Known commonly as the cease to pump rule, it is generally invoked when the river flow falls below a specified flow or groundwater levels fall below a trigger level. NOW highlights water security for KEPCO as an issue for the proposed development. KEPCO have not indicated what they will do in the event of a cease to pump order being made.

There are 65 ML/y of unregulated surface water shares issued on the Bylong River. KEPCO require 215 ML/y of entitlement to cover their predicted surface water take. Because of the highly connected nature of surface water and alluvial groundwater the WSP allows for licence conversions

from surface to groundwater licences and visa versa in some situations. The Applicant has not demonstrated that it can obtain the necessary surface water licences. NOW approval will be required for any licence conversion to occur.

There is no water sharing plan, as yet, for the groundwater resources of the Porous rocks or basalts that occur within the leases areas. Both still have unassigned water so the proponent has the opportunity to acquire the necessary water licences (536 ML/y) via a controlled allocation order.

Surface Water

The Project is located within the catchment of the Bylong River, a tributary of the Goulburn River, which in turn is a tributary of the Hunter River. The Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources (2009) describes the connection between Bylong River flow and alluvial groundwater as highly connected. The Bylong River is ephemeral and drains generally northwards, from the south-east, through the Project Boundary. A number of tributaries feed into the Bylong River throughout the Project Boundary,

As a result of the proposed project, there is predicted to be an average reduction in baseflow to these streams of 0.58 ML/day (215 ML/y) during the 29-year mining period. Post mining, after groundwater levels have recovered to a new equilibrium there will be an increase in surface flows of 0.2 ML/day (73 ML/y) greater than pre-mining flows.

Hydro-chemical work is not sufficiently advanced in the Gateway documentation to assess if there will be any long-term impacts on surface water quality.

Table 1 below provides the Panel's assessment against individual AI policy requirements

TABLE 1
ASSESSMENT AGAINST AI POLICY REQUIREMENTS

Requirement	Assessment	Recommendation
1. Estimates of all quantities of water that are likely to be taken from any water source on an annual basis during and following cessation of the activity	The water budget work was undertaken using a simple calibrated steady state model. The results whilst adequate at this early stage of planning are broad in nature. For an EIS the proponent needs to develop a more robust and detailed groundwater flow model using up to date data that will more accurately depict groundwater flow conditions.	Using a transient 3D groundwater flow model re-calculate the volumes of water to be taken from each water source. Provide this information in the EIS together with all assumptions made and data used. Include information on: <ul style="list-style-type: none"> • A strategy for accounting for any water taken beyond the life of the operation; • Quantification of any uncertainties in the groundwater or surface

Requirement	Assessment	Recommendation
		<p>water modelling;</p> <ul style="list-style-type: none"> • A plan for monitoring actual water take and how any changes from the predictions will be accounted for with water licences and remediation.
<p>2. A strategy for obtaining appropriate water licenses for the maximum predicted annual take</p>	<p>The proponent holds 1950 ML/y in groundwater entitlements in the Bylong alluvium. KEPCO have indicated that more alluvial water entitlements will be acquired through property purchases.</p> <p>Current estimates are that they need 469 ML/y of alluvial water.</p> <p>Approximately 536 ML/y in groundwater entitlements are required in the Permian sediments. This water source is not under a water sharing plan and is not embargoed for the issue of further entitlement.</p> <p>It is unclear how KEPCO will obtain the 215 ML/y of surface water that is required to account for water take from the Bylong River and Lee Creek.</p>	<p>The proponent should demonstrate more clearly how they will obtain the necessary Unregulated Surface licences to account for their estimated 215 ML/yr water take.</p>
<p>3. Establishment of baseline groundwater conditions including groundwater depth, quality, and flow based on sampling of all existing bores in the area, any existing monitoring bores and any new monitoring bores that may be required under an authorization issues under the Mining Act 1992 or Petroleum (onshore) Act 1991</p>	<p>More work is required to establish baseline groundwater conditions. In particular the following is inadequately defined:</p> <ul style="list-style-type: none"> • Water table depth under elevated country; • Potential effects of geological faulting on groundwater flows; • An understanding of how the basalts (including sills 	<p>Undertake more studies to establish baseline groundwater conditions. Including:</p> <ul style="list-style-type: none"> • Determining the depth to water table under elevated country; • Determining the likely effects of geological faulting on groundwater flow; • Determining how the basalts (including sills and dykes) may affect groundwater flow;

Requirement	Assessment	Recommendation
	<p>and dykes) may affect groundwater flow;</p> <ul style="list-style-type: none"> • The interaction between surface and groundwater • The hydrochemistry of the spoil and reject material. • Groundwater recharge 	<ul style="list-style-type: none"> • Determining the interaction between surface water and groundwater • Establishing the hydrochemistry of the spoil and reject material. • An assessment of Groundwater recharge
<p>4. A strategy for complying with any water access rules applying to relevant categories of water access licences, as specified in relevant water sharing plans</p>	<p>Other than holding the appropriate licences the proponent has not demonstrated how they would operate the mine under the water sharing plan rules.</p> <p>In particular the implication of reduced available water determinations (AWDs), the cease to pump rule, and the one way trading rules between surface water and alluvial groundwater sources have not been discussed.</p>	<p>The proponent should provide a strategy for complying with the rules of the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources</p>
<p>5. Estimates of potential water level, quality or pressure drawdown impacts on nearby water users who are exercising their right to take water under a basic landholder right.</p>	<p>Basic landholder rights include extracting water for stock and domestic uses. A water licence is not required for this type of extraction in water sharing plan areas but is required in non water sharing plan areas, such as for the Permian porous rocks.</p> <p>Impacts are similar to 6 below.</p>	<p>Same as 6 below.</p>

Requirement	Assessment	Recommendation
<p>6. Estimates of potential water level, quality or pressure drawdown impacts on nearby licenced water users in connected groundwater and surface water sources</p>	<p>Current estimates are based on a simple model. The model gives broad results only.</p> <p>The results are satisfactory for the Gateway assessment but need to be upgraded for an EIS and Development application</p> <p>The proponent recognises the limitations of the work to date and has outlined a pathway to a more detailed groundwater model.</p>	<p>Using a calibrated transient 3D model re-calculate the impacts on nearby licenced water users.</p> <p>This updated modelling and reporting should:</p> <ul style="list-style-type: none"> • Capture the complexity of the site • Use temporal input data • Have distributed input parameters • Quantify any uncertainties in the groundwater/surface water impact modelling
<p>7. Estimates of potential water level, quality or pressure drawdown impacts on groundwater dependent ecosystems</p>	<p>Limited work has been completed to date (desk study only). Field studies are being undertaken to determine if GDEs are present. Detailed results are not available for the Panel to assess.</p>	<p>Undertake a detailed assessment on the potential impacts of mining on GDEs and report on mitigating options as necessary.</p>
<p>8. Estimates of potential for increased saline or contaminated water inflows to aquifers and highly connected river systems</p>	<p>The Panel is not in a position to comment on the potential for water quality changes until more work is completed.</p> <p>Some hydro-chemical work has been done to determine baseline groundwater quality of the alluvium and coal measures.</p> <p>Leachate tests of the spoil and the tailings materials have not been undertaken but are proposed for inclusion in an EIS.</p>	<p>Undertake studies to better characterize the hydrochemistry of spoil and tailings materials, including the potential for saline and acid forming drainage.</p> <p>The proponent should use these results together with the upgraded groundwater flow model to predict changes in water quality in both the alluvial aquifers and surface streams.</p>
<p>9. Estimates of potential to cause or enhance hydraulic connection between aquifers</p>	<p>The subsidence report (Appendix I) outlines the possible extent of fracturing above the underground mining site. This work will be refined</p>	<p>Include the fracturing results of the subsidence studies in the updated modelling for the EIS.</p>

Requirement	Assessment	Recommendation
	<p>for the EIS.</p> <p>The current model does not handle fracturing from the coal seams back to the surface. This is a concern to the Panel as inflows to the underground mine may be larger than predicted.</p>	
10. Estimates of the potential for river bank stability, or high wall instability or failure to occur.	Not considered to be a risk to water resources.	NA
11. Outline of the method for disposing of extracted water (in the case of coal seam gas activities).	NA	NA