



Environmental Assessment Response to Submissions

Angus Place Colliery, NSW

Modification of Project Approval 06_0021

Under Section 75W, Part 3A

April 2011



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EXECUTIVE SUMMARY

Centennial Angus Place Pty Ltd (Angus Place Colliery) submitted an Environmental Assessment to the New South Wales Department of Planning on 2 December 2010, seeking approval for proposed modification of the current Angus Place Colliery Project Approval (PA06_0021). Angus Place Colliery proposes to extend its operations through the development and extraction of two additional longwall panels, as well as development of the nominated supporting surface infrastructure and to increase the production limit. The Environmental Assessment (dated November 2010) was prepared in accordance with the provisions of Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and specifically with reference to the Director General's Requirements (DGRs) issued by the Department of Planning on 1 June 2010. The Environmental Assessment was publically exhibited for comment from Friday 3 December 2010 to Wednesday 19 January 2011.

Submissions have been received by the Department of Planning and this report provides responses to those submissions and should be read in conjunction with the Environmental Assessment.

Key issues raised within the submissions include matters relating to the clearance of vegetation, water discharge and impacts on ecology, greenhouse gas emissions, changes to groundwater and impacts on ecology, cumulative effects and recommendations associated with mitigation, monitoring and management.

In addition, the proposed modifications have been revised. A review of the current mine scheduling and seam floor contour information has determined that the proposed dewatering bore at Longwall 910 will not be required. Therefore, the revisions to the proposed modifications comprise the withdrawal of the proposed new dewatering bore, new track, widening of existing track, new pipeline and powerline.

Both responses to the submissions on the Environmental Assessment and a description of the revisions to the proposed modifications are provided in this report.

1. INTRODUCTION

Centennial Angus Place Pty. Ltd. operates the Angus Place Colliery, located approximately 15 kilometres northwest from the city of Lithgow in the western coalfield of NSW. Specifically the site is situated approximately 5 kilometres north of the village of Lidsdale off the Wolgan Road. Angus Place Colliery exists as a joint venture company owned in equal share between Centennial Coal Pty. Ltd. and SK Kores Pty. Ltd. Operations commenced in 1979, following Development Consent granted by the former Blaxland Shire Council. Operations have been continuous since this time. In 2006, Angus Place Colliery applied under Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act) to increase its production limit and continue mining operations. Project Approval 06_0021 was granted by the NSW Department of Planning in September 2006.

Subsequently, Angus Place Colliery is seeking approval from the Minister of Planning to modify existing approval 06_0021 under the provisions of Section 75W under Part 3A of the EP&A Act. The Environmental Assessment was submitted to the Department of Planning on 2nd December 2010 for the following proposed modifications:

- Development and extraction of two additional longwall panels – Longwalls 910 (options 1 and 2) and 900 west (900W);
- New borehole at Longwall 910 with associated new access track, widening of existing track, powerline and pipeline;
- Increase the production limit from 3.5Mtpa to 4Mtpa to make provision for 12 consecutive months of production in the event that Angus Place Colliery does not have an eight week shutdown due to a longwall changeover;
- Modifications to improve the dirty water management system at the pit top resulting from an assessment of the current Angus Place Colliery water management infrastructure together with continued use of the existing surface facilities at the pit top (consistent with the 2006 Project Approval); and
- An increase in full time staff from 215 to 225. There is also provision for up to 75 temporary contractors to assist with development activities over an approximate 15 month period.

The Environmental Assessment was on exhibition from 3rd December 2010 to 19th January 2011. Nine submissions to the Environmental Assessment were received by the Department of Planning during the exhibition phase. This report provides responses to those submissions. In addition, the proponent intends to amend the proposed modifications by withdrawing the proposed dewatering bore at Longwall 910 and its associated infrastructure and therefore this report also describes this revision and the changes to the impacts reported.

This report should be read in conjunction with the Environmental Assessment, November 2010 and sets out the following information:

- Section 2 Public Submissions
- Section 3 Key Issues
- Section 4 Detailed Responses to Submissions
- Section 5 Description of the Revision to the Proposed Modification
- Section 6 Revised Statement of Commitments

2. PUBLIC SUBMISSIONS

Nine submissions were received by the Department of Planning following public exhibition of the Environmental Assessment. Table 2.1 illustrates the number of submissions received by category of submitter.

Table 2.1 Category of Submitters

Category of Submitter	Number of Submissions Received
Individual	0
Non-governmental organisation	2
Union	1
State Government Department	6
Local Council	0
Member of Parliament	0
<i>Total</i>	9

An outline of the submissions is provided below and responses to key issues are addressed in Section 3.

Blue Mountains Conservation Society Inc (BMCS)

The BMCS raises a number of concerns including impacts on flora and fauna; impacts on habitats; greenhouse gas emissions; discharge through Licensed Discharge Point (LDP) 006; subsidence impacts; approach to surface water assessment; groundwater regime; and cumulative effects with other activities.

The Colong Foundation for Wilderness Ltd (CFW)

Whilst not objecting in principle to the additional two longwall panels, the CFW objects to the additional water make that would be discharged through LDP006 and considers that there are inadequacies in mine water management. The CFW also raises a number of concerns including those related to groundwater impacts; the rejection of the alternative Bord and Pillar approach; and the quantity of water make and discharge from Area 300.

Department of Environment, Climate Change and Water (DECCW)

DECCW supports the proposal. Recommendations are made in relation to updating Environment Protection Licence (EPL) 467 to address the proposed increase in production and to include the recommended mitigation measures in the Environmental Assessment. Support is given to specific recommendations within the Statement of Commitments. DECCW does not consider that an offset will be required for the vegetation clearance.

Hawkesbury-Nepean Catchment Management Authority (HNCMA)

The HNCMA makes recommendations in relation to the clearing of vegetation including that an offset strategy be determined.

Industry and Investment NSW (I&I NSW)

I&I NSW notes that the Environmental Assessment is comprehensive and appears to adequately address the environmental issues and potential impacts of the proposal. Cumulative subsidence issues on natural features are

raised. It is recommended that a condition to require a Rehabilitation Management Plan be included in any project approval.

Forests NSW (within the I&I NSW submission)

Forests NSW provides recommendations for the works that would be required for the dewatering bore and associated infrastructure in relation to the areas required for construction. It is recommended that the powerline is to exist underground as above ground powerlines are a potential bushfire hazard.

NSW Office of Water (NOW)

NOW recommends that the Water Management Plan be updated based upon recommendations in the surface water assessment for additional monitoring sites and to increase sampling frequency.

Sydney Catchment Authority (SCA)

The SCA considers that the Environmental Assessment has addressed the significant issues of potential concern to the SCA and states that the proposed water management measures are endorsed by the SCA. The SCA recommends that measures proposed in the Environmental Assessment and a number of conditions must be included in the approval including updating the Soil and Water Management Plan and the Environmental Monitoring Plan; undertaking investigations for the toxicity and ecological impacts of discharge of saline water; and expanding the water quality monitoring program.

Construction, Forestry, Mining and Energy Union (CFMEU) (The United Mine Workers South Western District – division of the CFMEU)

The CFMEU advises of its strong support for continued operations at Angus Place Colliery. It is noted in particular that there are significant social and economic advantages for the local community of Lithgow as well as economic benefits to NSW and the Commonwealth. Mining is the largest employment sector within the local area and if the project does not proceed and operations cease there would be a significant reduction to local mining jobs.

3. KEY ISSUES

Table 3.1 outlines the key relevant issues raised in relation to the Environmental Assessment in the submissions and the response. Some of these responses are referred to the detailed responses in Section 4, the description of the revisions to the proposed modifications in Section 5 and/or the Revised Statement of Commitments in Section 6.

This report focuses upon the issues of relevance to planning matters associated with the proposed modifications and the Environmental Assessment.

Table 3.1 Key Issues

Issue No.	Concern Raised by	Key Issue	Response
1	Blue Mountains Conservation Society Inc (BMCS)	Clearance of vegetation with regard to destruction of listed flora.	Impacts associated with the vegetation clearance are addressed in Section 7.6.5 of the Environmental Assessment. As part of the environmental assessment process the areas to be cleared were determined based on an approach to ensure that potential impacts to flora were minimised. However, the clearance of vegetation for the dewatering bore and associated infrastructure has been withdrawn from the proposal – see Section 5. No vegetation clearance will be required for the proposed modifications.
2	BMCS	Destruction or modification of habitat linked to changes in the quality and quantity of 'natural' surface water and subsidence.	With regard to the revisions to the proposed modifications as described in Section 5 there is anticipated to be an increase in discharges through LDP001. However no increase is anticipated for LDP006 due to the removal of the 910 dewatering bore. The ecological consequences of the proposed modifications are considered to be that the already minimal overall ecological impacts of the project will be reduced. See the responses in Sections 4.3 and the revised proposed modifications in Section 5. See also the response to Issue 6 below.
3	BMCS	Destruction or modification of habitat linked to emergency mine water discharges.	Discharge through LDP006 only occurs under emergency circumstances in accordance with Environment Protection License (EPL) 467 (see also response to Issue 7 below). There will be no change as a result of the proposed modifications as the 910 dewatering bore has been withdrawn from the proposals – see Section 5.

Issue No.	Concern Raised by	Key Issue	Response
4	BMCS	Impacts to Newnes Plateau Shrub Swamps and other habitat (including groundwater dependant ecosystems (GDE)) affected by the two longwalls from possible groundwater changes.	No GDEs of any significance are undermined in the two proposed longwall panels however there are pockets of Newnes Plateau Hanging Swamp within the predicted subsidence area. Ongoing monitoring shows that other GDEs in this area, such as West Wolgan Swamp, have been unaffected by previous longwall mining. Groundwater level movements in this swamp show weather-related changes identical to pre-mining patterns. There is no evidence of any mining-related groundwater impacts. The subsidence assessment adopted a conservative approach, the findings are described in Section 3.5.3 and detailed in Appendix 3.1 of the Environmental Assessment. The potential impacts on GDEs are addressed in Section 7.6.5 of the Environmental Assessment. The subsidence is not expected to result in any substantial alteration of fauna and its habitat.
5	BMCS	The approach to greenhouse gas emissions.	See response in Section 4.1.
6	BMCS	Clarification on subsidence with regard to the type of damage, the environmental consequences and the impact management strategies, rather than prevention.	The Environmental Assessment identifies the subsidence impacts that are predicted in Section 3.5.3 and the detailed report is provided in Appendix 3.1. Table 3.2 of the Environmental Assessment identified the links between these predictions and the specialist assessment reports where the environmental consequences of the subsidence predictions are identified. Whilst impact management strategies are identified, Angus Place Colliery has also sought to avoid environmental impacts during mine design by shortening the length of both Longwall 910 and Longwall 900W to avoid rock formations (see Section 3.4.1 of the Environmental Assessment).
7	BMCS	Discharge through LDP006 flows through to Narrow Swamp North, Narrow Creek and to the Wolgan River is unacceptable	Discharges via LDP006 are limited to emergency discharges only. In accordance with EPL 467 a volumetric limit of 10,000 kl/day is applied however no concentration limits have been identified in the EPL. However, with the withdrawal of the 910 dewatering bore there will be no change to LDP006 associated with the

Issue No.	Concern Raised by	Key Issue	Response
		and must be severely constrained. Discharges to be treated to 'drinking water' standards.	proposed modifications – see Section 5.
8	BMCS	Clarification about the approach to the baseline for surface water assessment and the criteria selected.	The Springvale Delta Water Transfer Scheme and the in seam management of water significantly constrains the discharge of water to Narrow Swamp and the Wolgan River. Angus Place operates within the limits of EPL 467 and must comply with the Protection of the Environment Operations Act 1997. The ANZECC/ARMCANZ criteria serve as guidelines only. See also response in 4.2.
9	BMCS	Clarification of impact of discharges to Kangaroo Creek and Cocks River.	See response in 4.3.
10	BMCS	Further information about the ability of cracks within water courses to self heal. Potential surface cracking within Kangaroo Creek.	The Subsidence Report in Appendix 3.1 states that there is a likelihood that cracks will self heal. This is based on observation of cracks at the northern end of East Wolgan Swamp and Narrow Swamp that have self healed over the past four years. In accordance with Angus Place's precautionary approach, Kangaroo Creek would not be undermined by the proposed longwalls. Section 3.4.1 of the Environmental Assessment describes the way in which the size and location of the two longwalls were determined taking into account environmental considerations and effectively reducing the potential coal yield. Only first workings are proposed to enable access to longwall 910.
11	BMCS	Clarification of the groundwater regime and need for protection zones due to uncertainty regarding vertical connectivity between aquifers and the potential impact of	There is good evidence that the upper aquifers feeding the NPSS are unaffected by the longwall mining to date. The spring in Kangaroo Creek is still flowing at a pre-mining flow rate, even though there has been some cracking in the creek bed due to mining. This spring is the discharge from an aquifer where it outcrops in the creek, and the unchanged flow rate indicates no impact on the aquifer from mining. The aquifer feeding the Sunnyside Swamp has shown no

Issue No.	Concern Raised by	Key Issue	Response
		longwall mining on Newnes Plateau Shrub Swamp (NPSS).	measurable decrease in flow to the swamp, despite being undermined by three longwall panels. It is noted that Sunnyside Swamp itself has not yet been undermined by Centennial Springvale.
12	BMCS	Clarification of additional hydrogeological impacts compared to existing.	Additional hydrogeological impacts will amount to a minor depressurisation of the strata over the proposed longwall panels. Since these strata are already largely depressurised, any increase in water make will be minimal compared to current extraction rates.
13	BMCS	Clarification of the eventual restoration of the regional hydrogeological regime.	It is the lower coal measure strata that are depressurised. The extraction of the two proposed longwall panels will not lead to an increase in the area that is currently depressurised, since the two longwalls are surrounded by previously extracted panels. The groundwater that eventually fills the workings is derived from the coal measure strata after infiltration – it is not “polluted groundwater” as claimed. It cannot possibly contaminate other parts of the aquifer, as the water quality in the coal measure strata is the same as that flowing into the mine. In any event, there are no aquifers of significance in the coal measure strata – yield is low and quality variable.
14	BMCS	Further information about potential cumulative effects with other activities: • Greenhouse gas emissions • Topographic subsidence • Surface water impacts and losses • Groundwater regime	Cumulative effects are addressed in Section 7.9 of the Environmental Assessment and further information is provided in the response in Section 4.4.
15	Colong Foundation for	No objection in principle to the extra	There is an existing licensed discharge point (LDP006) within EPL 467 to enable emergency discharges into the

Issue No.	Concern Raised by	Key Issue	Response
	Wilderness (CFW)	two longwalls although objection to the proposed additional emergency discharge point on a tributary of the Wolgan River and associated serious inadequacies in mine water management.	Wolgan River. This discharge has a volumetric limit of 10,000 kl/day. No additional LDP was proposed as part of the modifications and also the 910 dewatering bore has been withdrawn and therefore will not impact on LDP006 operations – see Section 5.
16	CFW	Any development consent should not extend to the possible future development of coal resources to the north east of the existing consent area and should be subject to a separate development application.	There are two options for Longwall 910 dependant on whether there is a viable potential resource to the north east (as described in Section 3.5.1 of the Environmental Assessment). Should there be a viable potential resource and option 2 is progressed, a separate development application will be made.
17	CFW	Clarification of impacts on groundwater levels from longwall mining.	Figure 4 of Appendix 7.4 to the Environmental Assessment shows pore pressures as measured by piezometers grouted in a borehole (SPR39) (this is at Springvale rather than Angus Place). Although the measured pore pressures declined significantly at the commencement of mining, this does not indicate a decline in any groundwater levels as stated. The pore pressures are showing the effects on the piezometers of them being in the tensile zone over the goaf edge (which may include the formation of small discontinuous cracks). Since the piezometers are grouted into rock that is probably of low permeability, even small strains will lead to high changes in pore pressure. It is important that there is no total loss of pressure, which would occur if there was continuous cracking into the goaf.
18	CFW	Objection to the development of LDP006.	This is not part of the proposed modifications – see Section 5.
19	CFW	Clarification of potential for Bord and Pillar in	The potential for using Bord and Pillar as an alternative extraction method has been considered as described in

Issue No.	Concern Raised by	Key Issue	Response
		relation to circumstances at Airly Mine.	Section 3.4.2 of the Environmental Assessment. However, taking into account the specific geological conditions at Angus Place Colliery this method was not considered viable.
20	CFW	Suggested water treatment plant prior to discharge to the Coxs River Catchment.	Angus Place aims to ensure that discharges through LDP001, LDP002 and LDP003 are in accordance with the requirements of EPL 467 for the nominated concentration and volumetric limits. Angus Place Colliery is currently investigating options in relation to a Pollution Reduction Program relating to LDP001 salinity in consultation with the DECCW. These options will consider discharges into Kangaroo Creek via LDP001 and will be presented to the DECCW for approval.
21	CFW	Clarification of the quantity of water make.	The existing water make at Angus Place Colliery is approximately 7.5 ML/day however the proposed water make was estimated in Appendix 7.3 of the Environmental Assessment as 11 ML/day. With the amendments to the water balance model (inclusion of water make from longwalls 960, 970 and 980) the proposed water make for Angus Place has been revised to 15.9 ML/day. With the removal of the 910 bore, it is likely that the increased water make will be directed to LDP001 – see Section 5.
22	CFW	Clarification of discharge from underground water storage in Area 300.	Water from the working face area is pumped to the 300 area where it is allowed to settle (see Appendix 7.3 Surface Water Assessment of the Environmental Assessment). From here it is pumped to the pit top where it passes through several control devices prior to discharge to Kangaroo Creek via LDP001. It is not considered possible for water stored within the 300 area to discharge to Lamb's Creek as the level of the workings is below the surface level and it is not under pressure. The level of the seam beneath Lamb's Creek ranges from approximately 80 – 200m below the surface level as shown on Figures 1 and 2.
23	DECCW	Centennial to make an application to DECCW to vary EPL 467 to align with the proposed modification.	Angus Place Colliery will apply to update EPL 467 to align with the proposed modifications.

Issue No.	Concern Raised by	Key Issue	Response
24	DECCW	The commitments identified in Section 8.2 and 8.3 of the EA with respect to mitigating the potential impacts on air quality, noise, soil and water be adopted as conditions of project approval.	Noted
25	DECCW	The recommendations in sections 8.2 and 8.3 with regard to monitoring and management of flora and fauna are supported.	Noted however these recommendations were associated with the construction of the dewatering bore and its infrastructure that have been withdrawn from the proposed modifications – see Section 5.
26	DECCW	Compensatory offsets are not required as a result of the removal of vegetation associated with the proposed dewatering bore.	Noted however the dewatering bore and its infrastructure has been withdrawn from the proposed modifications – see Section 5.
27	DECCW	The recommendations in section 8.2 and 8.3 with respect to the protection of Aboriginal and cultural heritage are supported.	Noted
28	DECCW	It is recommended that the mitigation measures identified in Section 7 are captured by the Department of Planning within conditions to any approval.	Noted. Many of these measures are already captured within existing management plans and where they are not, the relevant management plans will be updated and/or a specific commitment made - see section 6 Revised Statement of Commitments.
29	Hawkesbury Nepean	It is stated that if this clearing proposal was	Noted however the clearance of vegetation for the dewatering bore and associated infrastructure has been

Issue No.	Concern Raised by	Key Issue	Response
	Catchment Management Authority Page 2	assessed under the NV Act it would be refused if the vegetation was in moderate to good condition.	withdrawn from the proposed modifications – see Section 5.
30	Hawkesbury Nepean Catchment Management Authority	As the clearing would be 200m from two threatened flora species it is recommended that the areas containing these species be fenced off and exclusion area signs erected.	Noted however the clearance of vegetation for the dewatering bore and associated infrastructure has been withdrawn from the proposed modifications – see Section 5.
31	Hawkesbury Nepean Catchment Management Authority	Suitable potential habitat exists within the area of the proposed clearing that could be utilised by a number of threatened species.	Noted however the clearance of vegetation for the dewatering bore and associated infrastructure has been withdrawn from the proposed modifications– see Section 5.
32	Hawkesbury Nepean Catchment Management Authority	The EA does not have an offset strategy for the environmental losses associated with the clearing of native vegetation. To quantify the losses it is recommended that the assessment methodology for Biobanking be adopted to appropriately offset any environmental losses.	Noted. However, the clearance of vegetation for the dewatering bore and associated infrastructure has been withdrawn from the proposed modifications– see Section 5.
33	Forests NSW	Any approval should reflect the likelihood of an area greater than 0.28ha being disturbed	Noted however the clearance of vegetation for the dewatering bore (and associated infrastructure) has been withdrawn from the proposed modifications – see Section 5.

Issue No.	Concern Raised by	Key Issue	Response
		for the proposed dewatering bore.	
34	Forests NSW	Overhead powerlines are regular sources of bushfires therefore the proposed powerline should be underground and any above ground transformers should be located within existing/new compounds where possible.	Noted however the dewatering bore and its associated infrastructure, including the powerline has been withdrawn from the proposed modifications – see Section 5.
35	Forests NSW	The width of clearing for the track should be that required for a suitable access track and associated trenching which may be contained within the width of the existing track.	Noted however the dewatering bore and its associated infrastructure, including the new track and widening of the existing track has been withdrawn from the proposed modifications– see Section 5.
36	Forests NSW	Should approval be granted NSW Forests will review the existing Occupation Permit.	Noted.
37	Industry and Investment NSW	Matters regarding potential cumulative subsidence impacts on natural features, importantly the Newnes Plateau Hanging Swamps may require advice from relevant experts.	Noted. Cumulative subsidence effects associated with the approved longwalls at Angus Place together with the proposed new longwalls are addressed within the Environmental Assessment in Section 3.5.3, the Subsidence Report in Appendix 3.1 and in Section 7.9.1. Further information is provided in Section 4.4 below.
38	Industry and Investment NSW	A condition be incorporated in any	See Section 6 Revised Statement of Commitments, Table 6.2

Issue No.	Concern Raised by	Key Issue	Response
		project approval to require the preparation of a Rehabilitation Management Plan for approval by the Director General I&I NSW.	
39	Industry and Investment NSW	Support for the proposed project – environmental impacts are relatively minor whilst the economic and social impacts are significant.	Noted
40	Office of Water	The Water Management Plan is to be updated to include the additional monitoring sites and increased sampling frequency in accordance with the recommendations in the Surface Water Assessment. To be submitted to NOW for review within 6 months of approval.	See Section 6 Revised Statement of Commitments, Table 6.1.
41	Sydney Catchment Authority	The Soil and Water Management Plan is to be updated to include the upgrades identified in the Surface Water Assessment.	See Section 6 Revised Statement of Commitments, Table 6.1.
42	Sydney Catchment Authority	The Environmental Monitoring Plan is to incorporate the recommendations in the Surface Water	See Section 6 Revised Statement of Commitments, Table 6.1 and 6.2 with regard to updates to the Environmental Monitoring Program and Site Water Management Plan.

Issue No.	Concern Raised by	Key Issue	Response
		Assessment in relation to improved subsidence and water quality monitoring.	
43	Sydney Catchment Authority	Investigations into the toxicity and ecological impacts of discharge of saline mine water to be undertaken to enable the implementation of any remedial measures.	Angus Place Colliery can confirm that aquatic monitoring has been commenced.
44	Sydney Catchment Authority	The existing water quality monitoring program to be expanded to include additional analytes, an increased monitoring frequency and the inclusion of an additional monitoring site.	This relates to the recommendation within the Surface Water Assessment in Appendix 7.3 of the Environmental Assessment in relation to the recommendation to undertake a toxicity assessment and ANZECC assessment. The additional sampling site proposed is downstream from LDP003 and Angus Place Colliery can confirm that this is now being monitored.
45	Sydney Catchment Authority	The SCA would appreciate being involved in any further environmental assessment and consultation process and the opportunity to comment on draft conditions.	Noted.
46	United Mine Workers South Western District	Strong support for the continued operations. In particular the significant social and economic advantages for the community of Lithgow. The alternative of ceasing	Noted.

Issue No.	Concern Raised by	Key Issue	Response
		operations in 2014 would result in a significant reduction in local mining jobs – the largest employment sector in the locality.	

4. DETAILED RESPONSES TO SUBMISSIONS

Detailed responses to specific key issues as identified in Table 3.1 above are provided below.

4.1 The Approach to Greenhouse Gas Emissions (Response to Issue 5)

The greenhouse gas assessment within Appendix 7.11 of the Environmental Assessment provides estimates for greenhouse gas emissions (CO₂-e) per annum for scope 1 emissions (direct), scope 2 emissions (indirect) and scope 3 emissions (upstream/downstream). The mitigation measures proposed to minimise greenhouse gas emissions are focused upon Scopes 1 and 2 as these are within the control of Angus Place Colliery. Scope 1 emissions would increase by approximately 343 tonnes per annum compared to existing operations. Scope 2 emissions would increase by approximately 14,291 tonnes per annum compared to existing operations. The total emissions of CO₂-e for Scopes 1 and 2 for the existing colliery with the addition of the proposed modifications is estimated as 73,211 tonnes per annum.

4.2 Baseline for Surface Water Assessment (Response to Issue 8)

The assessment of water quality was based on the ANZECC/ARMCANZ guidelines. These guidelines outline the use of ANZECC concentration limits and background concentration limits. Where available, it is recommended to use background concentration limits.

Within EPL 467, Angus Place Colliery has concentration limits applied to the licensed discharge points contributing to the Coxs River. The water quality assessment considered these limits and it was determined that Angus Place Colliery is operating generally in accordance with the licence.

EPL 467 does not include concentration limits for the emergency licensed discharge point LDP006 which contributes to the Wolgan River and subsequently to the Colo River. Despite no concentration limits, it was found that water quality at LDP006 was within the concentration limits nominated for other discharge points within EPL 467 which generally correlate to the ANZECC/ARMCANZ guidelines for nominated parameters. However, the proposed modification will not affect LDP006.

It should also be noted that water quality assessments, for the purposes of an Environmental Assessment, assess against the current conditions of the environment, not the historical conditions.

4.3 Impact of Discharges to Kangaroo Creek and Coxs River (Response to Issue 9)

As indicated in Appendix 7.3 of the Environmental Assessment, discharges through LDP002 and LDP003 will not be amended as part of the proposed project. As there is no predicted increase in discharge from these locations, there will be no impact on the receiving environment immediately downstream of these discharge points.

With consideration given to discharges through LDP001, Appendix 7.3 of the Environmental Assessment indicated that there would be no increase in this discharge however, subsequent to the submission of the Environmental Assessment, the proposed 910 bore has been withdrawn resulting in the increase in mine water make being directed to LDP001 (see Section 5). In addition to this, it has been identified that additional water make from longwalls 960, 970

and 980 will also be directed to LDP001 (these longwalls have already received approval under a previous submission).

It is proposed that the additional water make resulting from the proposed longwalls will be collected within the in-seam water management system and directed towards the existing 300 district underground water storage area prior to being discharged via LDP001. While there will be an increase in the volume of discharges through LDP001, there may not be a corresponding increase in the pollutant load being directed to the downstream environment. Angus Place Colliery is currently investigating options for the treatment of discharges through LDP001 in consultation with the DECCW as part of a Pollution Reduction Program (PRP).

A comparison between the discharge through LDP001 of 3.85 ML/day (determined for the proposed modification) to the potential discharge (considering the withdrawal of the 910 bore as part of the revised modification) of approximately 12.25 ML/day indicates that there could be an increase of 8.4 ML/day. This would be in accordance with the limits of EPL 467. Appendix 7.3 of the Environmental Assessment indicated that as there would be no increase in discharge through LDP001, there would be no impact on Kangaroo Creek as a result of the proposed modification however, while the predicted increase as a result of the revised modification is within the existing limits nominated within EPL 467 there is the potential that there would be impact on the flora and fauna within Kangaroo Creek.

Consideration has been provided by RPS, the project ecologists, to the potential impacts of the increase in discharge from LDP001 as a result of the revised project modification. Anecdotal observations from Angus Place Colliery representatives and GHD indicate that the vegetation has become adjusted to the 'artificial' hydrology resulting from the licensed operation of LDP001 for approximately 30 years. This adjustment has included the growth of plant species more adjusted to regularly wet areas than would otherwise be the case prior to the mine operation.

In relation to the current system for release of water from LDP001, detention and filtering structures below the release point have been designed to ensure that runoff from LDP001 is released in a controlled manner through a series of ponds divided by gabion walls and wetlands. Such an approach ensures that sediment and erosion is controlled, nutrients are managed and water quality and quantity is maintained. The area in which LDP001 and the ponds occur is located within a previously cleared and disturbed environment. It could be surmised that the increased water flowing into the tributary of Kangaroo Creek (and subsequently into the Coxs River) is likely to be benefitting downstream aquatic vegetation, habitats and fauna as a more stable and permanent aquatic habitat is provided.

While the water discharge quantity will increase, it is considered unlikely that such a change in water levels would be of concern from an ecological perspective, provided that quality of the water does not reduce. The water quality is not expected to be reduced as a result of the mine expansion; in fact it is considered far more likely that the water quality will increase following discussions with DECCW and implementation of additional quality control measures. Angus Place Colliery has already committed to DECCW:

- To extend the current aquatic monitoring suite to enhance understanding of the potential ecological impacts downstream of LDP001 and undertake a toxicity assessment of the downstream ecosystem to determine the biological effects of higher than background salinity levels.
- To cost and investigate the implementation of the preferred salinity management option.

At the confluence of the tributary on which LDP001 is located and Kangaroo Creek, regional vegetation mapping of the Western Blue Mountains by DEC (2006) has identified that an edge of the vegetation community known as Mountain Hollow Grassy Fen (Map Unit 53) occurs. Mountain Hollow Grassy Fen forms a component of the Endangered Ecological Community Montane Peatlands and Swamps as listed under the Threatened Species Conservation Act 1995. The mapping was undertaken at a regional scale and may or may not be accurate in this location. In any case, it

is expected that this particular area, which is a very small part of the wider adjoining area mapped as Mountain Hollow Grassy Fen, is likely to have become adjusted to receiving the mine discharge waters from LDP001 over the past at least 30 years. It is considered highly unlikely that increased discharge into this edge of the Mountain Hollow Grassy Fen would substantially alter its structure or floristic diversity, particularly when considering that the water would continue straight down Kangaroo Creek from this location. RPS has consulted with DECCW in relation to the classification of this community from a broader perspective.

The low likelihood of negative ecological impacts combined with the proposed monitoring and potential water quality improvements leads to the conclusion that from an ecological perspective the proposed project modification is unlikely to warrant concern. Given the revised project modification has removed the need to clear native vegetation for the dewatering infrastructure and removed the need to discharge into the Wollangambe catchment and shrub swamp / hanging swamp environments, the overall ecological impact as a result of the project is considered to have been reduced.

It should also be noted that the increase will be progressive over an extended period of time (potentially allowing the environment to adapt to the increased discharge) and is subject to the upgrading of existing underground infrastructure. In the event that the existing infrastructure is not upgraded, the additional mine water make (contributing to the 300 district) will result in an increase in the underground storage level rather than an increase in discharge through LDP001.

4.4 Cumulative Effects from Other Activities (Response to Issue 14)

Cumulative effects of Angus Place Colliery together with other activities are addressed in Section 7.9.2 of the Environmental Assessment. Due to uncertainty associated with impacts from other activities a broad indication as to the likely cumulative effects is provided and some further clarification is provided below.

Other activities with potential for cumulative effects on the environment with Angus Place Colliery include:

- Wallerawang power station;
- Mount Piper power station;
- Activities such as those related to forestry operations and recreational activities (such as motorised vehicles on the Newnes State Forest);
- Part 3A application for new ash placement areas at the existing Mount Piper Power Station; and
- Part 3A application for an open cut mining extension to the Pine Dale Coal Mine (located near Blackmans Flat 17km northwest of Lithgow).

Greenhouse Gas Emissions

As stated above in Section 4.1, Scope 1 and 2 type emissions of greenhouse gases are within the control of Angus Place Colliery and mitigation measures are proposed to minimise these emissions. The Environmental Assessment identifies the emissions reported of green house gas emissions for NSW and Australia in 2007 as 163 Mt and 597 Mt and compares the estimated emissions against these figures. The total proportion of greenhouse gas emissions for Scopes 1 and 2 for the existing mine plus the proposed modifications compared against the NSW and Australia totals for 2007 are identified in Table 4.1 below.

Table 4.1 Comparison of Modified Project GHG Emissions for Scopes 1 and 2 with State and National Totals 2007

Emission Scope	Estimated Emissions (tCO₂-e/annum)	Percentage of NSW 2007 GHG Emission Total	Percentage of Australian 2007 GHG Emission Total
Scope 1	26,324	0.0016	0.0044
Scope 2	46,888	0.029	0.0079

Subsidence

Within the subsidence report in Appendix 3.1 of the Environmental Assessment, Figure 17a shows the worst case subsidence areas that would result for both the approved longwalls and the proposed Longwalls 910 and 900w for Angus Place Colliery. This shows Newnes Plateau Hanging Swamps and Shrub Swamps within the overall area of subsidence for Angus Place. Section 7.6.5 of the Environmental Assessment discusses the effects on swamps anticipated from the proposed Longwalls 910 and 900w in relation to the subsidence that has already occurred from the approved longwalls. The Environmental Assessment states in Section 7.9 that the incremental impacts on the swamps would be negligible and that since there have been no apparent impacts on the swamps from the extraction of longwall 920, and there are no predicted impacts from longwall 910, there would be no cumulative effect on the swamps. No further impacts to these swamps would be expected to occur post-mining as currently proposed.

Angus Place Colliery has a number of environmental management plans and programs in place, many of which are to be updated as identified in the Revised Statement of Commitments in Section 6.

Surface Water

Appendix 7.3 of the Environmental Assessment indicates that discharges from Angus Place Colliery are directed to a tributary of the Wolgan River (under emergency conditions), Kangaroo Creek and the Coxs River. With respect to the tributary of the Wolgan River, no other industrial users currently discharge at this location nor will the projects nominated above contribute to this tributary. This also applies to Kangaroo Creek however there are several other industrial users that contribute to the Coxs River.

The potential cumulative issues for the Coxs River are anticipated to be varied and dependent upon the individual impacts of the above projects. With a predicted increase in discharge (identified at 4.3 above) from Angus Place Colliery, there is a potential for higher flows through the Coxs River however it is noted that the Part 3A applications for the Mount Piper Power Station and Pine Dale Coal Mine may both result in some reduction in surface flow contributing to the Coxs River. Also, the increased discharge from Angus Place Colliery is within the existing limits of EPL 467.

It should be noted that Angus Place Colliery is currently investigating options for the treatment of discharges through LDP001 in consultation with the DECCW as part of a PRP.

Groundwater

The BMCS states that there are “arguably impacts on the upper aquifers and dependent ecosystems”. While this may be arguable, there is no evidence to support the argument. As stated in Table 3.1 (Issue 11) above, where known important aquifers have been undermined, monitoring has shown that there is no evidence of any mining-related impacts. In addition, there is no evidence from swamp vegetation monitoring of any impacts related to the aquifers. It is further stated that “contaminated, closed and abandoned coal mines are an unresolved regional impact”, however, there is no evidence provided which suggests that Angus Place Colliery will become contaminated, or will contain

groundwater with salinity any higher than the natural coal measure groundwater. Some abandoned mines in this region produce groundwater that is suitable for human consumption. One of these is located very close to Angus Place. Therefore, there will be no cumulative impact on the regional groundwater regime from the extraction of the two additional longwall panels.

Flora and Fauna

As previously mentioned it is considered that overall ecological impacts as a result of the project modification will be reduced. Vegetation and habitat clearing has been completely avoided as a result of the project modification when compared to the proposed modifications previously submitted to DoP for consideration and further discharges into the more natural LDP006 area have been avoided. In contrast, the overall ecological impacts have been reduced to an increase in water discharge into a tributary of Kangaroo Creek. Given this release is undertaken in a controlled manner and the likely probability that as a result of commitments to DECCW the water quality is actually likely to increase, this is considered to be an ecologically acceptable outcome. Ongoing monitoring will occur to ensure this is the case. The overall ecological cumulative impacts have therefore been reduced to an increase in water discharge from an existing LDP. It is considered that such a change in the current ecological situation is unlikely to result in negative consequences and that if quality is increased as predicted the cumulative impact in the locality could actually be a net positive when compared to the existing situation in relation to LDP001.

5. THE REVISION TO THE PROPOSED MODIFICATIONS

This section provides a description of the revision to the proposed modifications and an outline of the differences in environmental impacts reported in the Environmental Assessment compared to those that are anticipated for the revised proposed modifications.

5.1 Description of the Revised Proposed Modifications

A review of groundwater modelling combined with seam floor contour information has determined that the proposed 910 dewatering bore, which formed part of the proposed modifications addressed within the Environmental Assessment, will not be required. All water generated during the development of Longwall 910 will be managed using the pre-existing in-seam pumping system. Therefore, the 910 dewatering bore and its associated infrastructure (new track, widening of existing track, powerline and pipeline) is withdrawn from the proposed modifications.

It has been determined that all underground water generated by the mining of Longwalls 960, 970, 980 and 900W is able to be managed by the existing 940 dewatering bore, as well as existing in-seam pumping arrangements. The varying utilisation of these two systems is essentially dependent on the longwall face position. It is considered that the proposed 910 dewatering bore will be unable to assist with the dewatering of Longwalls 960, 970, 980 and 900W due to its effective relative level in the seam caused by a flow path around the inbye end of the 930 panel.

Currently, water gravitates in a north-easterly direction matching the coal seam dip. Bore 940 is strategically situated in a low part of the mine at the eastern end and collects water following the seam direction. The in-seam system essentially allows for the removal of underground water which collects in low points that would not report to the 940 bore. The in-seam system additionally allows for a fully redundant system during the initial extraction of each new longwall panel when there is no significant in-seam storage capacity.

By omitting the borehole and its associated infrastructure from the proposed modifications a significant proportion of the concerns raised in submissions regarding vegetation clearance and water discharge at the existing emergency licensed discharge point 006 will be alleviated. No construction is now proposed beyond the existing footprint approved under the existing 2006 Project Approval 06_0021. The only minor construction proposed relates to improvements to be made regarding the pit top dirty water management system.

The revision to the proposed modification is summarised in Table 5.1 below.

Table 5.1 Revision to the Proposed Modifications

Aspects of the Proposed Modifications Identified in the Environmental Assessment – Now to be Withdrawn	Revised Proposed Modifications
An additional dewatering borehole located at the eastern end of Longwall 910.	No new dewatering bores are proposed.
Associated infrastructure comprising: • widening of an existing track (track leading to Black Fellows Hands Road ¹); • new section of track from the existing track to be widened to the proposed new dewatering bore; • powerline extension (either under or overground) along the access track to supply electricity to the dewatering bore; • extension of the Springvale Delta Water Transfer Scheme (SDWTS) comprising an underground pipeline along the access track. This would enable the continued transfer of extracted groundwater to Wallerawang Power Station.	No infrastructure that would have been associated with the dewatering bore is required. The existing track will not be widened, the new track pipeline and powerline will not be constructed.
The areas that would require clearing of vegetation are: • Compound for dewatering bore – 2,796m² • New track - 445m length x 25m width = 11,125m² • Widening of existing track: existing southern track 177m length x 20m (25m less 5m existing track) = 3,540m² existing northern track 1,232m length x 20m = 24,640m² Total area of widening of existing track = 28,180m²	Vegetation clearance is not required for the previously proposed dewatering bore, the widening of the existing track and the new track.

Also, an updated March 2011 listing of the land property description is attached in Appendix 1.

¹ Black Fellows Hands Road is currently in the process of a change of name to Mayiny-gu Marra-gu.

5.2 Changes to Impacts Resulting from the Revision to the Proposed Modifications

This section provides information about the changes to impacts resulting from the revisions to the proposed modifications and also responses to Issue 1, 26, 29, 30, 31 and 35 in Table 3.1. Potential impacts arising from the previously proposed 910 dewatering bore and associated infrastructure reported in the Environmental Assessment comprised:

- Ecological impacts due to vegetation clearance and water quality;
- Bushfire risk due to the powerline associated with the 910 dewatering bore;
- Cultural heritage impacts due to the works;
- Erosion of soil;
- Rehabilitation;
- Economic costs;
- Surface water impacts; and
- Subsidence impacts to previously proposed pipeline and powerline.

The changes in impacts reported in the Environmental Assessment are outlined below.

Ecology

The dewatering bore and associated infrastructure was anticipated to comprise 4.2ha of clearing within an area of vegetation that is commonly found across the Newnes State Forest and the direct impact was anticipated to be minimal. Mitigation measures included keeping the amount of clearing to a minimum and procedures during clearance works.

The dewatering bore and associated infrastructure are no longer proposed and therefore this impact would not occur and the associated mitigation measures will not be required for these works.

The impact on water quality that will now be redirected to LDP001 is reported as being negligible as discussed in response to the various submissions and under the section addressing Surface Water below.

As previously mentioned it is considered that overall ecological impacts as a result of the project modification will be reduced. Vegetation and habitat clearing has been completely avoided as a result of the project modification when compared to the project previously submitted to DoP for consideration and further discharges into the more natural LDP006 area have been avoided. In contrast, the overall ecological impacts have been reduced to an increase in water discharge into a tributary of Kangaroo Creek. Given this release is undertaken in a controlled manner and the likely probability that as a result of commitments to DECCW regarding the PRP the water quality is actually likely to increase, this is considered to be an ecologically acceptable outcome. Ongoing monitoring will occur to ensure this is the case. The overall ecological impacts have therefore been reduced to an increase in water discharge from an existing LDP which will be in accordance with the current condition of EPL 467. It is considered that such a change in the current ecological situation is unlikely to result in negative consequences and that if quality is increased as predicted the cumulative impact in the locality could actually be a net positive when compared to the existing situation in relation to LDP001.

Bushfire

Part of the infrastructure for the dewatering bore included an overhead powerline and specific measures were proposed for inclusion in an update of the Angus Place Bushfire Management Procedure.

The powerline is no longer proposed and therefore the specific measures intended to avoid the bush fire risk from the powerline are no longer required to be included in the Angus Place Bushfire Management Procedure.

Cultural Heritage

Mitigation measures are identified in the Environmental Assessment to establish the procedure in the event that Aboriginal or European archaeology is discovered during the works. In relation to the dewatering bore and its associated infrastructure, these measures would not be required.

A rock shelter and PAD was identified as described in Section 7.6.6 of the Environmental Assessment and this will be monitored during the extraction of the first workings.

Soil

The Environmental Assessment referred to the risk during construction of the dewatering bore and associated infrastructure of accelerating natural erosion processes, in particular, vegetation clearance may disturb the land surface. Measures to mitigate this risk included localised sediment control measures, natural topsoil to be stripped and stockpiled for use in rehabilitation and specific erosion and sediment control measures.

As the dewatering bore and its associated infrastructure are no longer proposed, the erosion risk above is avoided and the mitigation measures specific to this risk are no longer required.

Rehabilitation

The Rehabilitation Strategy presented in Appendix 7.6 of the Environmental Assessment includes the detailed approach to the revegetation of the construction areas of the dewatering bore and its associated infrastructure.

These works and therefore the rehabilitation measures identified for these works are no longer required. The Rehabilitation Strategy will be updated (see Section 6 Revised Statement of Commitments in Table 6.2).

Economic

The Environmental Assessment reported that one of the main environmental impacts of the proposed modifications are those associated with the clearing of 4.2ha of native vegetation. Vegetation clearing impacts were valued by Gillespie (the authors of the Economic Assessment) at \$4.1M.

The vegetation clearance due to the dewatering bore and its associated infrastructure is no longer required and therefore there would be a reduced value to the potential environmental impact.

Surface Water

The Surface Water Assessment reported that there would be no increase in discharge through LDP001 and consequently there would be no impact on Kangaroo Creek as a result of the proposed modification. Subsequent to the removal of the 910 bore, there is now predicted to be an increase in discharge through LDP001. While the predicted increase as a result of the revised modification is within the existing limits nominated within EPL 467 there is

the potential that there would be impact on the flora and fauna within Kangaroo Creek and the Cocks River. Ongoing monitoring of such issues will aim to ensure that no adverse effects occur.

Subsidence

The Environmental Assessment identified mitigation measures for potential subsidence impacts to the proposed pipeline and powerline. These measures are no longer required.

6. REVISED STATEMENT OF COMMITMENTS

This section provides a revised Statement of Commitments in response to the relevant submissions and replaces the Statement of Commitments presented in the Environmental Assessment at Section 8.

As stated in the Environmental Assessment, the mitigation measures identified during the environmental assessment process were reviewed and analysed to identify whether they were:

1. already addressed under an existing management plan, procedure or protocol; and/or
2. already adequately covered in the existing Statement of Commitments identified in the 2006 Environmental Assessment.

Table 6.1 below outlines the range of management plans, procedures and protocols currently utilised in daily operations at the Angus Place Colliery and the review required. This is a revised version of Table 8.1 from the Environmental Assessment with additions underlined and deletions struck through. As noted in the table, many of the mitigation measures identified for the proposed modification are adequately addressed in the existing plans and procedures. The Environmental Management Plan is proposed to be amended to include further provisions in relation to cultural heritage, however the remaining plans and documents do not need revising.

Table 6.1 Management Plans, Procedures and Protocols to be Revised

Title	Objective/Purpose	Review Required Following Approval
Public Safety Management Plan	This describes the processes developed to ensure Public Safety in any surface areas that may be affected by subsidence arising from the longwall mining in the SMP area at Angus Place Colliery. The Management Plan fulfils the requirements of Condition 16 of the Angus Place Subsidence Management Plan Approval dated 19 th January 2007.	No specific measures to be added.
Infrastructure Management Plan	The Infrastructure Management Plan has been developed to manage the risks to infrastructure as a result of surface subsidence and mining operations.	Yes to include design measures recommended in the subsidence report (DGS, 2010) for the proposed pipeline and powerline. <u>No specific measures to be added.</u>
Kangaroo Creek Management Plan	The purpose is to measure and manage potential subsidence impacts from longwall mining (within the SMP area) on Kangaroo Creek. Angus Place Colliery has as an approved Subsidence Management for Longwalls 930 – 980. The Kangaroo Creek Management Plan fulfils the requirements of Condition 2a of the Angus Place Subsidence Management Plan Approval dated 19 th January 2007. The document	No specific measures to be added.

Title	Objective/Purpose	Review Required Following Approval
	describes the environmental monitoring, reporting program and management to detail how the effects of subsidence on Kangaroo Creek are to be monitored and managed. This includes baseline data collection, investigation, assessment and regular reviews. The program aims to identify appropriate management measures to remediate/mitigate any subsidence impacts.	
Land Management Plan	The purpose is to ensure adequate management of any impacts associated with surface cracking, erosion, soil slumping and land degradation caused by subsidence due to longwall mining and/or activities associated with subsidence monitoring or other management actions by Angus Place in the Subsidence Management Plan area. The Land Management Plan has been developed and implemented to comply with the requirements of Condition 20 within PA06_0021.	No specific measures to be added.
Environmental Management Strategy	This describes the overall management strategy at Angus Place Colliery.	Yes - revise to include the maintenance of liaison with the Aboriginal Community as per the DECCW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 during the proposed works, should any matters relating to Aboriginal heritage occur.
Environmental Monitoring Program	The Environmental Monitoring Program provides the details of monitoring work and reporting functions in response to the various management plans. The purpose of environmental monitoring is to gather data on the performance of the operation and determine the need for improvements or additional mitigation measures in order to achieve the assessment criteria for the operation.	No specific measures to be added <u>Yes – revise to include the recommendations in Sections 6.1 and 6.2 of the Surface Water Assessment at Appendix 7.3 of the Environmental Assessment.</u>
Subsidence Management Plan	Variations of the SMP were approved by the Department of Industry and Investment in October 2005, October 2006 and March 2008.	Yes – a new application would be made. It is likely that that will be in the form of an Extraction Plan.

Title	Objective/Purpose	Review Required Following Approval
Subsidence Community Consultation Process (SCCP)	Angus Place Colliery has as an approved Subsidence Management for Longwalls 930 – 980. The SCCP fulfils the requirements of Condition 2c (SMP approval dated 19/01/2007) of the Angus Place SMP Approval. The objectives of this SCCP include: • Developing an effective process to communicate with relevant stakeholders regarding; the subsidence from Angus Place activities on the Newnes Plateau; • Defining the responsibilities in respect of the communication paths and forums; • Implementing a system to monitor and manage issues from relevant Stakeholders; and • Providing the Angus Place complaints protocols.	Yes - revise to include the maintenance of liaison with the Aboriginal Community as per the DECCW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 during the proposed works, should any matters relating to Aboriginal heritage occur.
Subsidence Monitoring and Reporting Program	The purpose is to provide a subsidence monitoring and reporting program to measure how the effects of subsidence are proposed to be monitored. The program includes monitoring both pre and post mining in Longwalls LW930 – LW980 (the SMP area). This Management Plan fulfils the requirements of Condition 11 and partially fulfils the requirements of Condition 17 (with respect to the development of a program to ensure on-going baseline data collection, investigation, assessment and regular reviews with the relevant stakeholders).	Yes – revise to include <u>subsidence monitoring in accordance with the subsidence management plan and to include</u> monitoring of the Rock Shelter with PAD site to identify any effects of cracking or movement and assess and quantify any impacts prior to commencement of works and during the course of the mining operations.
Flora & Fauna Management Plan	The purpose of the Flora and Fauna Management Plan is to protect threatened species and communities, minimise impact on native flora and fauna, manage clearing on the site, control weeds, control access to environmentally sensitive areas and manage any potential conflicts between flora and fauna and Aboriginal heritage.	Yes – revise to include inspection during clearance work by a suitably qualified ecologist and follow protocols set out within the Flora and Fauna Assessment report by RPS (2010a) at Appendix 7.7. <u>Yes – continued flora and fauna monitoring within the Extraction Plan boundary.</u>

Title	Objective/Purpose	Review Required Following Approval
Air Quality Management Plan	The Air Quality Monitoring Program sets out methods of monitoring dust generated from Angus Place Colliery.	No specific measures to be added.
Noise Monitoring Program	This sets out procedures for monitoring and assessing noise impacts from Angus Place Colliery to acceptable levels for residential neighbours and regulatory stakeholders. A key outcome is that the Noise Monitoring Program needs to demonstrate compliance with the noise level criteria set out in the existing Project Approval. Quarterly monitoring is undertaken at residential properties, colliery surface plant and the haul road and additional noise monitoring is undertaken in response to noise complaints.	No specific measures to be added.
Contractor Environmental Management Plan (CEMP)	The CEMP aims to ensure that all activities carried out on behalf of Angus Place comply with internal and external practices and guidelines for the impacts generated by the proposed activity.	Yes – for the construction of the proposed bore and associated infrastructure the outcomes of this EA to be taken into account including sediment control measures, monitoring of Rock Shelter and PAD and protocols for vegetation clearance set out in the Flora and Fauna Assessment report by RPS (2010a) at Appendix 7.7. <u>No specific measures to be added.</u>
Bushfire Management Procedure and Management of Bushfire Assets Procedure.	These set out the procedures for reporting fire and for the inspection and maintenance of firebreaks and APZs at Angus Place Colliery and on Newnes Plateau.	Yes – add measures for the proposed powerline in accordance with the EA. <u>No specific measures to be added.</u>
Mechanical Engineering Management System	Clause 13 (f) of the Coal Mines Health & Safety Regulations 2006 require a Mechanical Engineering Management Plan to be implemented. The objective of this Management System is to ensure as far as is reasonably practicable the safety of all persons present at the coal operation, this will be achieved as a	No specific measures to be added.

Title	Objective/Purpose	Review Required Following Approval
	minimum by complying with the requirements of OH&S legislation, including Coal Mines Health & Safety Act and Regulations. Aspects of the Mechanical Engineering Management Plan include: • Life Cycle Management of Mechanical Plant (SEP). • Noise management of plant • Life Cycle Management of structures (buildings, bins, etc.) • Management of Diesel Pollutants. • Management of Hazardous substances. • Inspections and maintenance.	
Wallerawang Haul Road Inspection Protocol	Directs haul road inspections to assess the surface conditions and identify areas requiring maintenance/additional work to repair surface deformations, which may increase noise levels when vehicles pass over them.	No specific measures to be added.
Energy Savings Action Plan	Energy Savings Action Plan (ESAP) under the Energy Administration Amendment (Water and Energy Savings) Act 2005.	No specific measures to be added.
Erosion and Sediment Control Plan (ESCP)	In compliance with Schedule 3, Condition 10 of PA 06_0021, the ESCP has been prepared in accordance with the Department of Housing's Managing Urban Stormwater: Soils and Construction Manual, 2004 (the 'Blue Book'). The ESCP includes the following: • Identification of potential sources of sediment; • Description of management principles to be implemented; • Description of the erosion sediment control structures in place; and • Description of measures to be implemented to decommission structures over time.	Yes—localised sediment control measures for the construction of the proposed bore and associated infrastructure. <u>Yes – the Soil and Water Management Plan is to be updated to include upgrades to pit top settlement ponds, diversion banks and other infrastructure included in the Surface Water Assessment in Appendix 7.3 of the Environmental Assessment.</u>
<u>Site Water Management Plan</u>	<u>The SWMP forms part of the Environmental Management Strategy and defines the environmental objectives for the colliery in relation to water</u>	<u>Yes – to update based on the recommendations within the Surface Water Assessment in</u>

Title	Objective/Purpose	Review Required Following Approval
(SWMP)	<u>management and monitoring. The purpose of the SWMP is to manage water within the entire colliery lease area in an efficient and sustainable manner whilst protecting surrounding waterbodies and their dependant ecosystems for both the short and long term.</u>	<u>Appendix 7.3 of the Environmental Assessment.</u>

Proposed Measures for the Statement of Commitments

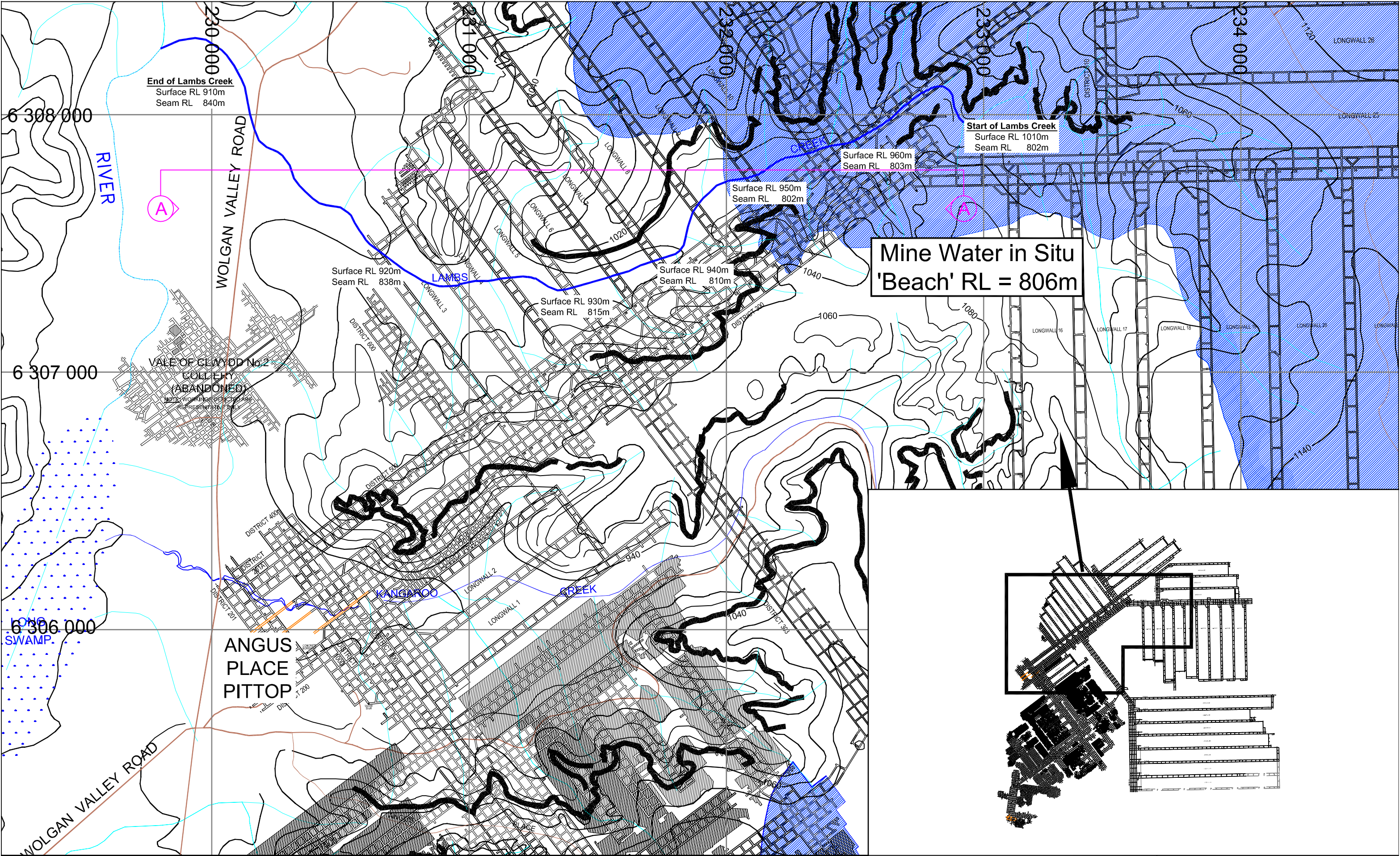
As stated in the Environmental Assessment, the matters listed in the Statement of Commitments for the 2006 Project Approval have been implemented as part of the current operations. Many of the mitigation measures identified in the Environmental Assessment for the proposed modifications are already adequately covered in the existing Statement of Commitments and therefore no further action is required.

Those mitigation measures identified in the Environmental Assessment for the proposed modification which are not able to be addressed within an existing management plan, procedure or protocol or those that are already covered under a measure within the 2006 Statement of Commitments, are identified in Table 6.2 below. This table is a revised version of Table 8.2 of the Environmental Assessment with the revisions underlined and deletions struck through. It outlines additional commitments required to address these residual mitigation measures thereby forming the measures to be included in the Revised Statement of Commitments for the proposed modifications.

Table 6.2 Proposed Measures for Statement of Commitments

Desired Outcome	Action
1. Rehabilitation	
To ensure that any land disturbed due to exploration or mining activities is rehabilitated to an appropriate standard.	A Rehabilitation Strategy as set out in Appendix 7.6 <u>and revised in relation to the measures identified for the rehabilitation of areas of construction for the dewatering bore at Longwall 910 and its associated infrastructure that have been withdrawn from the proposals</u> of the EA will be developed <u>for approval by the Director-General I&I NSW prior to commencement of Longwalls 910 and 900 west and within 12 months of the date of approval.</u> and adopted within 6 months of obtaining approval
1. Soil and Land	
Establishment of localised sediment control measures for the areas of disturbance associated with the construction of the bore and associated infrastructure.	The Contractor Environmental Management Plan will be updated with mitigation measures within 6 months of approval.
2. Flora and Fauna	
Vegetation clearance to minimise impacts on flora and fauna.	Within 6 months of obtaining approval and prior to the commencement of any construction, measure to be communicated to construction contractor via the Contractor Environmental Management Plan and adopted.

Desired Outcome	Action
2.Cultural Heritage	
Vegetation clearance and construction works to be undertaken. To minimise impacts on aboriginal heritage.	Within 6 months of obtaining approval, the Environmental Management Plan will be revised to require ongoing liaison with Aboriginal Community as per the DECCW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 during the proposed works, should any matters relating to Aboriginal heritage occur.
3.Surface Water	
To improve understanding of water quality impacts from approved license discharge points <u>to Cows River on the receiving environment.</u>	- Within 6 months of obtaining approval develop a <u>review the Site Water Management Plan for the pit top area</u> that takes into account mitigation measures identified in Appendix 7.3 Surface Water Assessment. <u>Continue to assess the wider catchment areas and specific downstream influences of approved licensed discharge points. Angus Place has extended its current aquatic monitoring suite aiming to achieve ANZECC trigger levels for high risk parameters.</u>
4. General	
To ensure the existing management plans, procedures and protocols are reviewed to include the measures identified in the EA (Table 8.1) <u>Table 6.1.</u>	Within 6 months of obtaining approval relevant management plans (Table 86.1) will be reviewed and updated as required.
To ensure the proper and orderly management of car parking during operations.	- Within 6 months of approval the formalisation of the western car park in accordance with AS2890.1:2004 will be investigated and constructed to provide a minimum of 40 car parking spaces. - In consultation with Lithgow City Council, additional signage will be installed to direct contractors to the contractor car park within 6 months of obtaining approval.
<u>To confirm that the 910 dewatering bore and its associated infrastructure (new track, widening of track, powerline and pipeline) are withdrawn from the proposed modifications.</u>	<u>Approval for the dewatering bore at Longwall 910 and its associated infrastructure (new track, widening of track, powerline and pipeline) is no longer sought by Centennial.</u>



LEGEND	
	Creeks
	Tributary
	Roads
	Cliffline
	Colliery Water in Situ

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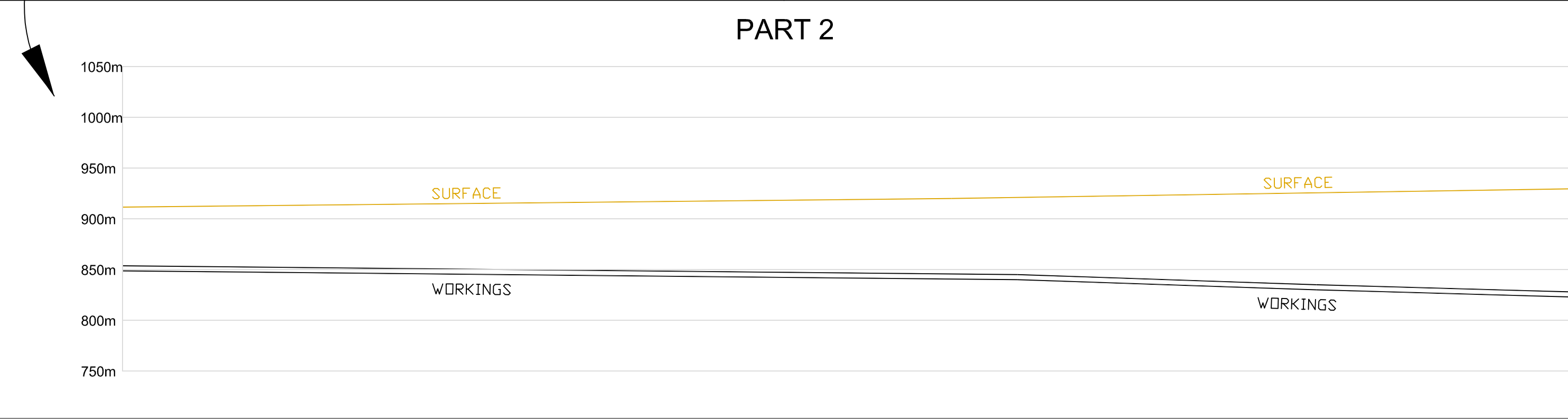
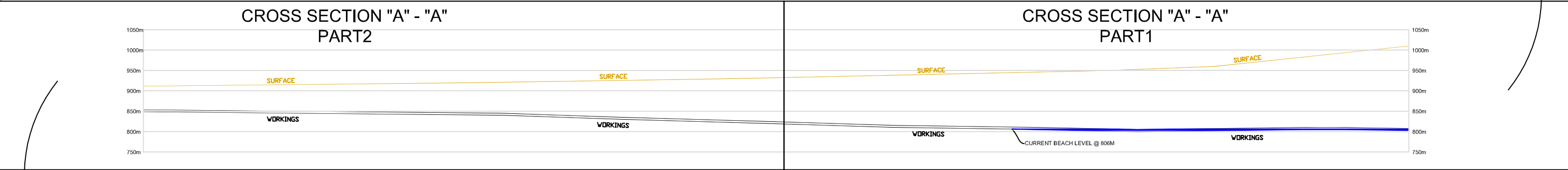
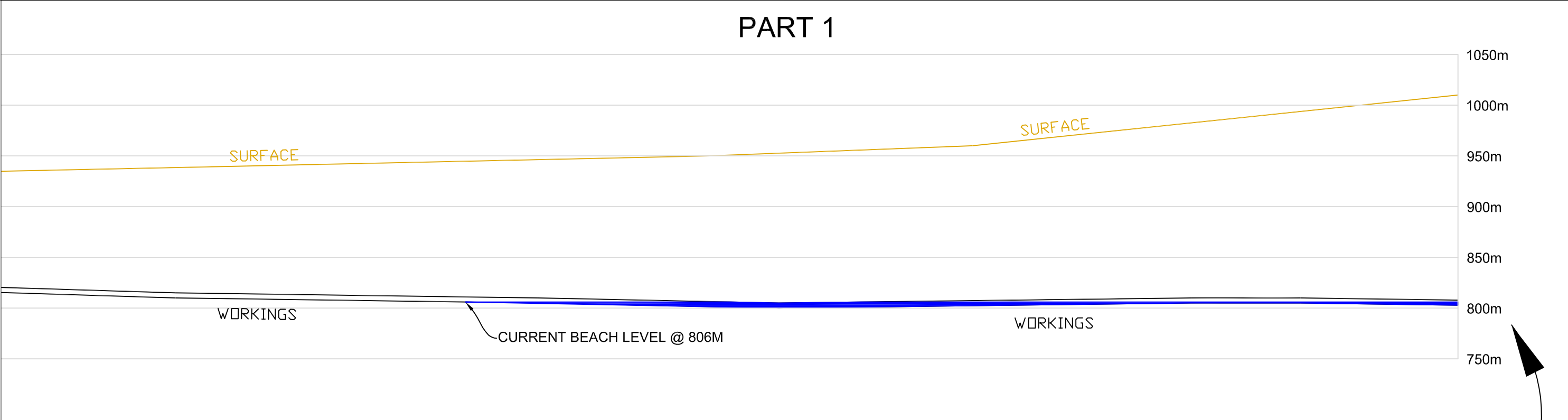
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DATE	19/01/2011
SEAM	LITHGOW
DRAWN	CBW
REFERENCE	N:\SHARED\PLAN\ANG..\ Envio.\Water300_I\AIN.dwg
SCALE	1:15000

Figure 1
Area 300 & Surface & Seam Levels
along Lambs Creek

PLOTFILE No.	
DRG. No.	6624 (A)
	A3



LEGEND

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WITHOUT PRIOR WRITTEN PERMISSION

DATE	19/01/2011
SEAM	LITHGOW
DRAWN	CBW
REFERENCE	N:\SHARED\PLAN\ANG..\\ Envio.\Water300_IAIN.dwg
SCALE	NTS

Figure 2 Area 300 Cross Sections
Showing Surface & Seam Levels
along Lambs Creek

PLOTFILE No.	
 Centennial Angus Place	
DRG. No.	6624 (B) A3

Appendix 1 Updated Land Property Listing

LOTS WITHIN ANGUS PLACE HOLDING BOUNDARY

Counter	Data Date	Lot//DP	Source
11	1-Jun-10	359//44086	LPI-DCDB
15	1-Jun-10	2//732119	LPI-DCDB
24	1-Jun-10	1//732119	LPI-DCDB
26	1-Jun-10	2//860363	LPI-DCDB
29	1-Jun-10	3//545089	LPI-DCDB
40	1-Jun-10	29//827626	LPI-DCDB
43	1-Jun-10	1//651723	LPI-DCDB
52	1-Jun-10	1//597541	LPI-DCDB
57	1-Jun-10	700//1067040	LPI-DCDB
62	1-Jun-10	1//825124	LPI-DCDB
66	1-Jun-10	1//568265	LPI-DCDB
69	1-Jun-10	2//1139982	LPI-DCDB
70	1-Jun-10	1//1139982	LPI-DCDB
71	1-Jun-10	4//1139982	LPI-DCDB
72	1-Jun-10	3//1139982	LPI-DCDB
78	1-Jun-10	2//722335	LPI-DCDB
95	1-Jun-10	7006//1055080	LPI-DCDB
98	1-Jun-10	5//115922	LPI-DCDB
100	1-Jun-10	101//1033592	LPI-DCDB
101	1-Jun-10	40//751636	LPI-DCDB
102	1-Jun-10	7003//1026540	LPI-DCDB
103	1-Jun-10	11//751636	LPI-DCDB
104	1-Jun-10	100//1033592	LPI-DCDB
105	1-Jun-10	52//751636	LPI-DCDB
106	1-Jun-10	7001//1055079	LPI-DCDB
111	1-Jun-10	7318//1149348	LPI-DCDB
117	1-Jun-10	7300//1139065	LPI-DCDB
118	Parts of BenBullen State Forest		
119	Parts of Newnes State Forest		

KEROVALE STOCKPILE AREA

Counter	Data Date	Lot//DP	Source
1	1-Jun-10	4//113998	LPI-DCDB
2	1-Jun-10	1//386554	LPI-DCDB
3	1-Jun-10	1//113998	LPI-DCDB
4	1-Jun-10	2//113998	LPI-DCDB

MINING AUTHORITIES

Consolidated Coal Lease 704

Mining Lease 1424

Sublease Area of Consolidated Coal Lease 702

Exploration Licence 6856

Exploration Licence 6856

