NSW GOVERNMENT | Transport for NSW

CD14/08013

Dr. Neil Shepherd AM
Chair, Wallarah 2 Coal Project Review
Planning Assessment Commission
Level 13 / 301 George Street
Sydney NSW 2000

Attn: Paula Poon

Dear Dr Shepherd

Wallarah 2 Coal Project

Thank you for your letter dated 22 April 2014, requesting Transport for NSW (TfNSW) provide comments on the above referenced proposal.

Transport for NSW has developed research which indicates that curved track of radius 200m will likely generate squeal noise from a percentage of both locomotives and wagons.

If it is considered necessary that the proposed Tooheys site rail loop includes curves of minimum radius 200m and rail noise levels (including squeal) are predicted to exceed the relevant noise criteria at residences then the design of the rail loop should include consideration of feasible and reasonable measures such as low height barriers or lubrication to minimise impacts from squeal noise.

The Impact of Angle of Attack on Curve Squeal (Jiang et al, 2013) provides a summary of the research.

Thank you for providing TfNSW the opportunity to review and comment on this proposed new development. Should you have any questions regarding this matter, please contact Robert Rutledge, Principal Transport Planner on (02) 8202 2203 or at Robert.rutledge@transport.nsw.gov.au.

Yours sincerely

2/5/14

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

received 8.5.2014

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Wyong Shire Council
CENTRAL COAST

F2004/07086
16 May 2014

Chairman Wallarah 2 Coal Project
Planning and Assessment Commission
GPO Box 3415,
Sydney NSW 2001

Attention: Dr Neil Shepherd AM

Dear Dr Shepherd

WALLARAH 2 COAL PROJECT (R024/14)
WYONG SHIRE COUNCIL RESPONSE TO PAC QUESTIONS

Thank you for the opportunity to discuss the proposed Wallarah 2 Coal project at our meetings of 1 and 28 April 2014. Further to those meetings, please find the following supplementary information as requested.

Central Coast Water Supply

The Councils have recently updated their population forecasts in relation to water supply planning.

- Population forecasts to 2031 have been based on updated Census figures and Forecast id figures plus allowances for the Gosford Landing and Mount Penang developments which are not included in Forecast.id figures
- For Gosford, the Population forecasts from 2032 to 2051 have been based on recent master planning strategies prepared for the Gosford Water and Sewer planning group.
- For Wyong, the Population forecasts from 2032 to 2043 have been based on recent master planning strategies prepared for the Wyong Water and Sewer planning group and then lineally extrapolated to 2051.

No provision has been made in these forecasts for any additional population associated with any boundary change that may occur between Lake Macquarie City Council and Wyong Shire Council. The population in this area is currently provided for in the demands for Hunter Water supply system.

Dry year demands are used for deriving the yield of the water supply system and are 10% higher than the average year demand estimates. Refer Table 1 for the population and demand forecasts.

Table 1 Central Coast Population and Dry Year Demand Forecasts

Year	POPULATION (as per Councils' Forecasts)				Forecast Dry Year Demand ML/a
	Wyong (a)	Gosford (b)	Total c=a+b	Serviced Population d=0.965c	
2011	153,991	166,870	320,861	309,631	35,715
2016	160,088	173,765	333,853	322,168	36,433
2021	172,191	178,862	351,053	338,766	37,587
2026	188,084	183,598	371,682	358,673	39,057
2031	203,448	188,164	391,612	377,906	40,464
2036	217,183	192,122	409,305	394,979	42,046
2041	230,918	195,081	425,999	411,089	43,581
2046	244,653	198,142	442,795	427,297	45,125
2051	258,388	201,203	459,591	443,505	46,669

Broad comments on Appendix H from the 2010 Planning Assessment Commission report

The water supply information in Appendix H of the 2010 PAC report is generally relevant, however a number of significant issues have emerged which affect the yield of the Central Coast Water Supply System. These issues should be recognised in considering the ability of the water supply to withstand mining impacts.

The key issues are:

- reassessed flood capacity of Mangrove Creek Dam

- groundwater yields lower than anticipated, and
- Tillegra Dam in the Hunter not proceeding.

As a result of the above issues, the water supply yield is less certain than described in the 2010 PAC report. Whilst the yield currently exceeds demand, additional risks to or reductions to the yield need to be carefully considered. Refer Figure 1 - Preliminary assessment of Predicted demand Vs Yield.

Flood capacity of Mangrove Creek Dam

As required by the Dam Safety Committee (DSC), a review has been undertaken of the Probable Maximum Flood (PMF) that is required to safely pass through the dam spillway. Due to extended records and revised analysis approaches, the PMF that Mangrove Creek Dam (MCD) needs to accommodate is significantly larger than that assessed at the time the dam was designed in the 1970's. Until upgrade works are implemented to enlarge the flood capacity, the DSC has placed an interim operating condition that limits the amount of water stored in MCD to 80% of capacity (ie reduced from 190,000 ML to 152,000ML). A preliminary assessment has identified a potential solution involving extending concrete lining along the spillway chute and extending the height of the parapet wall across the dam. Whilst this appears to be readily achievable, there are a number of issues associated with these works. The key issues are:

- The Independent Pricing and Regulatory Tribunal (IPaRT) considers these works are not required at this stage. As such, no provision was made in the 2013-17 price path resulting in funding issues for the works.
- Provision of spillway gates as a measure to increase the capacity of MCD are now not considered viable. Whilst increasing the storage capacity is still considered possible, it will most likely involve dam raising which is more expensive than the previous gate proposal.

Groundwater Supplies

- Groundwater supplies developed during the drought did not achieve yield expectations. Previously estimated at 9ML/d are currently estimated at 5ML/d.

Tillegra Dam

The analysis for WaterPlan 2050 assumed that the yield provided via the Hunter Central Coast pipeline would be continuing into the foreseeable future. It was considered that when the pipeline agreement expired in 2026, that a contribution towards the cost of TIllegra Dam would enable the agreement to be extended together with a secure volume of water being allocated.

However, environmental approval was not achieved for Tillegra Dam and is no longer proposed. The Metropolitan Water Directorate in conjunction with Hunter Water have recently prepared the Lower Hunter Water Plan which identifies the use of the current agreement for water transfers from the Central Coast to the Hunter in times of water shortage. As such, both the Hunter and the Central Coast will need to develop either jointly or separately enhanced supplies following the expiration of the current agreement in 2026.

Both the Hunter and the Central Coast are working on improved modelling capability to investigate possible future arrangements such as possible joint desalination, mine water reuse, raising Mangrove Creek Dam or altered water transfer arrangements such as non-drought transfers. Other solutions on the Central Coast include environmental flow substitution, indirect potable reuse or implementation of the approved 20 ML/d desalination plant at Toukley.

Discussions with the Metropolitan Water Directorate (author of the Lower Hunter Water Plan) and Hunter Water have occurred regarding aligning the timing of our next strategy reviews to facilitate investigating joint opportunities.

No definitive solution/s have been determined at this stage to replace the system yield loss associated with the expiration of the Hunter Central Coast Pipeline agreement in 2026 nor the reduced groundwater supplies. Refer Figure 1.

Preliminary Yield Assessment

Assessments as to the impact on the yield of the system related to these issues are still ongoing. Preliminary analysis indicates that the yield without a secured Hunter Connection and estimated groundwater yield reductions but the PMF restriction rectified, is in the region of 40GL/a to 42GL/a.

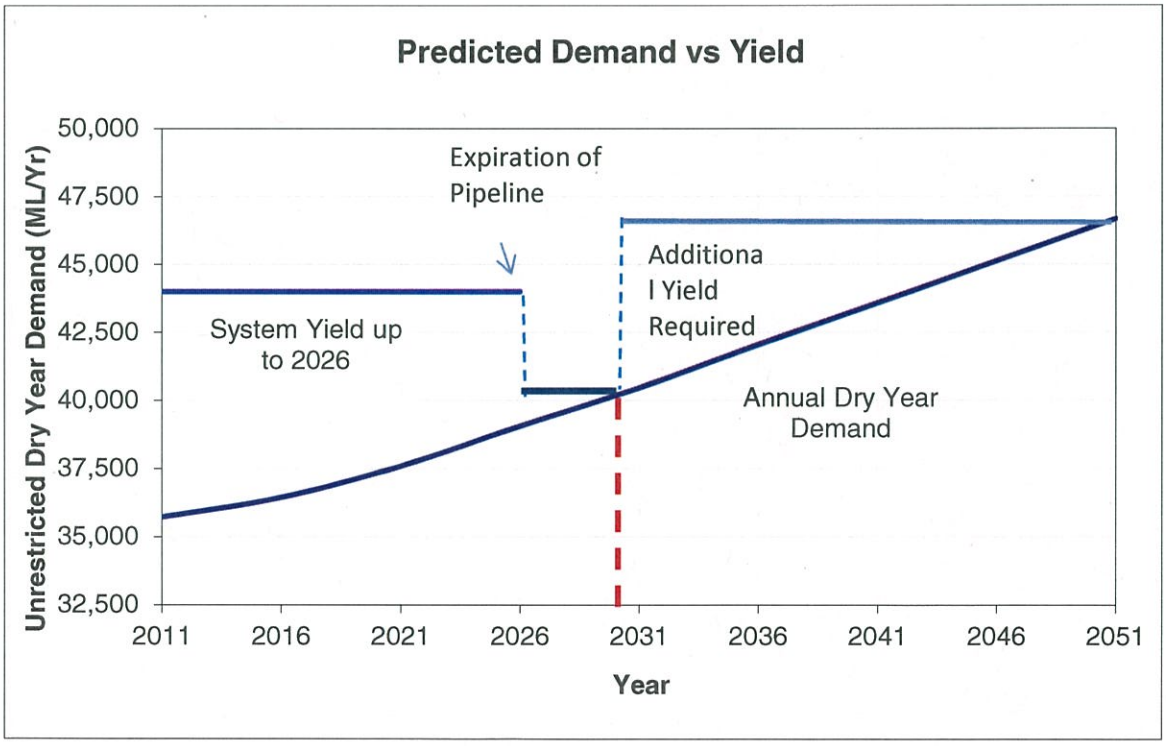
A yield of 40GL/a will service an estimated population of approximately 375,000, which is approximately 10 % higher than the current serviced population. Water resources are limited on the Central Coast and any reduction of water access for the supply will have a material impact on the ability to service the community.

In relation to the PAC's question as to the significance of a reduction in streamflows of 300 ML/a, such a reduction is equivalent to 0.8% of the system yield and represents a reduction of approximately 3,200 people in the population that can be serviced by the water supply.

Of particular concern to Council, is the potential for the impacts of the mine on the available streamflows to be greater than estimated by the proponent, as this would further impact on the yield of the water supply system.

In the event the impacts on streamflows are greater than those predicted, then the impact to the town water supply yield and cost would rise proportionately.

Figure 1 Preliminary assessment of Predicted demand Vs Yield



PAC proposal to return treated mine water to Jilliby / Wyong system in lieu of discharging to Wallarah Creek

In relation to the proposal to return mine water to the Jilliby / Wyong surface water system in lieu of discharging to Wallarah Creek, Council would like to suggest the following considerations:

1. Treatment levels would need to meet health and environmental requirements
2. NSW Health and EPA need to be in agreement with the proposal
3. The water balance would need to be sufficient to offset the mine impacts on stream flows
4. The discharge would need to be located so that there is no short circuiting of return flows back into any loss areas
5. Adequate monitoring /control would need to be in place so that in the event of a process failure there is no contamination of the water supply
6. The proponent should pay for all capital and operating expenses
7. The return flow system should operate after mine closure until streamfows return to pre-mine equilibrium levels
8. Water accounting would need to accommodate the return flows. Given water daily extractions related to the flow reference gauge the return flow would need to go through the flow reference gauge or be added to the flow reference measurement.
9. A bond sufficient to cover Council's costs in the event the proponent can't adequately offset water losses or creates water quality issues.

Hue Hue Creek and Porters Creek Wetland

Further to the above, Council is concerned that the information provided within the 2010 EA and 2013 EIS does not adequately determine nor assess the potential impacts on the Porters Creek Wetland System.

Porters Creek is a State Significant (SEPP 14) Wetland and contains a number of threatened species and vegetation communities listed under the Threatened Species Conservation Act (TSC) Act, 2001 (notably the Riverflat Eucalypt Forest or Swamp Sclerophyll Forest on Coastal Floodplains within the Sydney Bioregion). The groundwater dependent ecosystems of the wetland are reliant on specific hydrologic regimes including wetting and drying spells. The upper reaches of the wetland catchment also include other endangered populations including Eucalyptus parramattensis, which is dependent on specific groundwater table levels.

Porters Creek Wetland (located on the eastern side of the M1 Motorway) has a catchment of approximately 55km^2, which incorporates much of the Hue Hue Creek Catchment. The Hue Hue Creek catchment is located within the proposed northern extraction areas of the Wallarah 2 Coal Project. The 2010 Environmental Assessment (EA) did not undertake ecological investigations to establish baseline vegetation outside of the project area, i.e. baselines of vegetation in potential downstream areas of affectation of the proposal, including Porters Creek Wetland, were not determined.

The 2010 EA also relied on assumptions within the subsidence modelling with regard to the presence of sediment overlying predicted cracking zones, particularly in the Hue Hue Creek Catchment. This assumption is in contrast to statements within other documentation within the EA that this area has no significant occurrence of Quaternary unconsolidated sediments and that there are in fact areas of exposed bedrock in the same. Notwithstanding this shortfall, subsidence profiles for Hue Hue Creek were not provided within the supporting documentation (despite being provided for other water courses). Therefore, an assessment of the impact of the proposal on the creek, and consequently Porters Creek Wetland, could not be made.

This assumption appeared to be rectified in the 2013 EIS subsidence modelling, with a specific 'Hue Hue Case' model being prepared. Despite this, the 2013 EIS failed to provide subsidence profiles for Hue Hue Creek. It also failed to establish an appropriate ecological baseline outside project area. Therefore, an assessment of the impact of the proposal on the creek, and consequently Porters Creek Wetland, could not be made.

Furthermore, the EIS acknowledged that:

- there is no empirical subsidence data available that directly reflects the Project scenario; and
- some of the initial predictions were based on the Southern Coalfields subsidence prediction curves.

The concern with the above is that whilst the subsidence profiles (curves) are similar in shape, the magnitude will be greater given the markedly different conditions between the W2CP and the Newcastle/Southern Coalfields including (at the W2CP) greater depths of cover, the absence of massive strata, thicker coal seam and a relatively weak roof-pillar-floor system within the extraction area. This lack of certainty around the predictive method and the likely variation in prediction based on observed variations that are already known and potentially those unknown calls in to question the level of confidence that can be attributed to the projected impacts.

Any subsidence on Hue Hue Creek which could result in deprivation of water flows downstream could lead to longer and/or more frequent periods of drying downstream. As noted above, the vegetation of Porters Creek Wetland is reliant on specific hydrologic regimes including wetting and drying spells. Alterations of the regime, such as those potentially caused by subsidence impacts could have a detrimental impact on the vegetation within the wetlands.

Having regard for the above, it could be concluded that the 2013 EIS failed to adequately assess the impacts of the proposal on Porters Creek Wetland, based on the failure to determine or provide documentation which adequately identified:

a) Potential for subsidence in Hue Hue Creek; and
b) Impacts of subsidence in the Hue Hue Creek on:
   - Groundwater – shallow storage channels arising from subsidence;
   - Flooding and Surface Water – hydromorphology and surface water; and
   - Ecology – environmental flow impacts on aquatic fauna and groundwater dependent ecosystems.

Flooding Impact

The following supplements Council's previous submissions made through the assessment process to date in relation to flooding.

The impacts of mining subsidence on flooding as the mine progresses is predominantly an issue of maintaining road access during flooding events. Council's primary concern is ensuring a reliable primary access and evacuation route for rural communities to at least the same level of service as present – in terms of flood frequency, hazard and time of inundation. In particular, the rural communities of Dooralong, Durren Durren, Jilliby and Little Jilliby, rely on access along Jilliby Road and Dicksons Road.

The key issues are:-

- ensuring differential settlement both during the mining process as subsidence is actively occurring, and at completion, does not compromise the structural integrity or functionality of infrastructure assets such as road bridges
- Ensuring subsidence impacts on road levels and flood levels do not compromise access during flood events both during the mining process and following completion of mining.

The proposed mitigation activities for the mining effects on road levels are based on the works taking place after the subsidence has occurred. This approach would reduce the reliability of flood access for the period between the time subsidence commences and the rectification activities taking place, and is considered to be an unacceptable approach. Council considers that the necessary mitigation activities need to take place prior to the impacts occurring and that the extent and standard of the works is undertaken in a manner that ensures no subsequent raisings are required. It is considered important for the local community that any works be undertaken in a manner that minimises the impact and disruption on the travelling public and that at any specific location works are completed in a single stage not requiring future raisings or extension.

The modelling undertaken by the proponent for both subsidence and flooding assessment, aims to provide best estimates of the impacts. As such, they do not provide upper bound estimates of the impacts and in practice are likely to underestimate the necessary mitigation works in places. It is considered important that the extent and standard of any necessary mitigation works be undertaken on an upper bound basis so that in all locations at least the current level of service is maintained.

Voluntary Planning Agreement

Council has negotiated a draft Voluntary Planning Agreement (VPA) with the Applicant in order to ensure an appropriate level of public benefit is secured for the residents of Wyong Shire. We would like to see the VPA be given a degree of certainty by having it secured as a condition of consent. The VPA will be reported to the Council meeting of 28 May 2014 for consideration with a recommendation to approve the signing of the document. Further details can be provided after 28 May 2014.

Pollution and Infrastructure Damages Bond

It is requested that a bond to the value of $20 million, be held by Wyong Shire Council to be drawn upon for the investigation and remediation of water quality and quantity in the event of non-compliant monitoring results. The bond should also be drawn upon for repairs to damages to Council infrastructure.

Cessation of Mining Activity

We also request that the consent be structured requiring the immediate cessation of all mining activities by the Applicant in the event of non-compliant water quality and quantity monitoring results.

If you have any questions in relation to the information please contact me on (02) 4350 5400.

Yours faithfully,

Scott Cox
Director
DEVELOPMENT AND BUILDING

WALLARAH 2 COAL PROJECT
RESPONSE TO LETTER FROM THE PLANNING ASSESSMENT COMMISSION
for
Wyong Areas Coal Joint Venture

1 INTRODUCTION

The Minister for Planning and Infrastructure directed the Planning Assessment Commission (PAC) to undertake a review of the Wallarah 2 Coal Project (the Project) and to hold a public hearing. The public hearing was held at the Wyong Golf Club on 2 April 2014.

Following its review of the documentation for the Project and the public hearing, the PAC provided a letter to Kores on 14 April 2014 seeking additional information on a number of issues. The proponent provided its *Response to the Letter from the Planning Assessment Commission* on 2 May 2014 (the proponent's response).

Wyong Shire Council (WSC) submitted a letter to the PAC (dated 16 May 2014) outlining their residual concerns about the Project. The PAC provided this letter to the proponent on 21 May 2014 and provided the proponent the opportunity to respond to the statements made in WSC's letter. This correspondence responds to WSC's letter of 16 May 2014.

2 IMPACT ON WATER SUPPLY SCHEME

The impacts of the Project on the Central Coast water supply scheme are clearly presented in the proponent's response (dated 2 May 2014). The proponent advised that there are technically feasible options for returning treated water to the water supply scheme, thereby ensuring that there is no net loss of water.

The proponent has considered WSC's comments on the proposal to return treated water to the catchment.

WSC Comment: *Treatment levels would need to meet health and environmental requirements.*

Proponent's Response: The water treatment plant will be designed to ensure that the quality of treated water is similar to or better than that of the receiving watercourse.

Further to the above, any water repatriated to the Central Coast Water Supply catchment will meet the '*Australian and New Zealand Guidelines for Fresh and Marine Water Quality*' (ANZECC guidelines) (ANZECC, 2000). Following further consultation with NOW, treated

water could be repatriated during low flow or drought conditions to provide water for environmental flows, the Central Coast Water Corporation take and other users.

It must be noted that it is not necessary for treated water to be of potable quality. Water that is returned to the water supply catchment will ultimately be treated at Mardi Water Treatment Plant for treatment to potable standards.

WSC Comment: *NSW Health and EPA need to be in agreement with the proposal.*

Proponent's Response: Discharges of treated water can only be undertaken in accordance with an Environmental Protection Licence (EPL). The EPA is responsible for the granting of EPLs. NSW Health dictate drinking water standards throughout NSW. Any water that ultimately is provided for drinking will need to meet these standards. The proponent agrees to consult with the appropriate agencies to develop a plan of management for water repatriation (should it be required).

WSC Comment: *The water balance would need to be sufficient to offset the mine impacts on stream flows.*

Proponent's Response: As outlined in the EIS and other documentation, the Project will not have any significant long term impacts on stream flows. Additional water that infiltrates into the alluvium during subsidence will be returned to the stream as baseflow after the water table re-equilibrates. Following further consultation with NOW, WACJV will develop appropriate monitoring regime to determine quantifiable stream flow losses and whether these are attributable to the mining process. The results of this monitoring will be used to determine any offset requirements.

WSC Comment: *The discharge would need to be located so that there is no short circuiting of return flows back to any loss areas.*

Proponent's Response: Discharge locations will be determined in consultation with the relevant authorities to ensure that there is no "short circuiting" of return flows.

WSC Comment: *Adequate monitoring / control would need to be in place so that in the event of a process failure there is no contamination of the water supply.*

Proponent's Response: Monitoring of water quality will be outlined in the Water Management Plan. The water treatment plant will employ real time monitoring of its systems and technologies. A system failure that has the potential to affect water quality will be detected immediately. Water quality monitoring will also be conducted at the discharge point.

WSC Comment: *The proponent should pay for all capital and operating expenses.*

Proponent's Response: The proponent will bear the costs of water treatment and discharge infrastructure should it be required.

WSC Comment: *The return flow system should operate after mine closure until streamflows return to pre-mine equilibrium levels.*

Proponent's Response: Stream flows will return to pre-mining conditions once full subsidence of the alluvium has occurred. This will occur within the Project life, and as such, there will be no need to provide treated water after mine closure.

WSC Comment: *Water accounting would need to accommodate the return flows. Given water daily extractions related to the flow reference gauge the return flow would need to go through the flow reference gauge or be added to the flow reference measurement.*

Proponent's Response: Systems for the monitoring of discharge quantities and qualities will be described in the Water Management Plan.

WSC Comment: *A bond sufficient to cover Council's costs in the event the proponent can't adequately offset water losses or creates water quality issues.*

Proponent's Response: The proponent will bear the costs of water treatment and discharge. The proponent will also bear the cost of any repairs and maintenance to ensure that treated water discharges are satisfactory. Since WSC does not bear any costs associated with repatriation of treated water, a bond is not necessary.

3 HUE HUE CREEK AND PORTERS CREEK WETLAND

3.1.1 Baseline Ecological Surveys

WSC commented that the EIS did not include baseline ecological investigations of the Porters Creek wetland. The Porters Creek wetland is located east of the F3 Freeway and is more than 1 km outside of the predicted Subsidence Impact Limit. As such, the Project will not result in any subsidence or direct disturbance to vegetation in the Porters Creek wetland. Therefore, ecological surveys of Porters Creek wetland were not deemed necessary.

Porters Creek wetland is only capable of being potentially impacted by the Project through the development of the Buttonderry Site within the Buttonderry Creek catchment or through potential impacts arising from mining beneath the Hue Hue Creek catchment. Buttonderry Creek and Hue Hue Creek flow to Porters Creek wetland.

Development of the Buttonderry Site may reduce the catchment area of Buttonderry Creek by 7.4 ha (assuming that all runoff is contained by the site). This represents a very small (0.13%) reduction in the catchment area of Porters Creek wetland. However, while roof water runoff will be collected for onsite use, site stormwater runoff from "clean" areas (the majority of the site) will occur during larger storm events. Site stormwater runoff will be treated in sediment dams, as required. This will further mitigate the already minimal impact of the Buttonderry Site on the Porters Creek wetland.

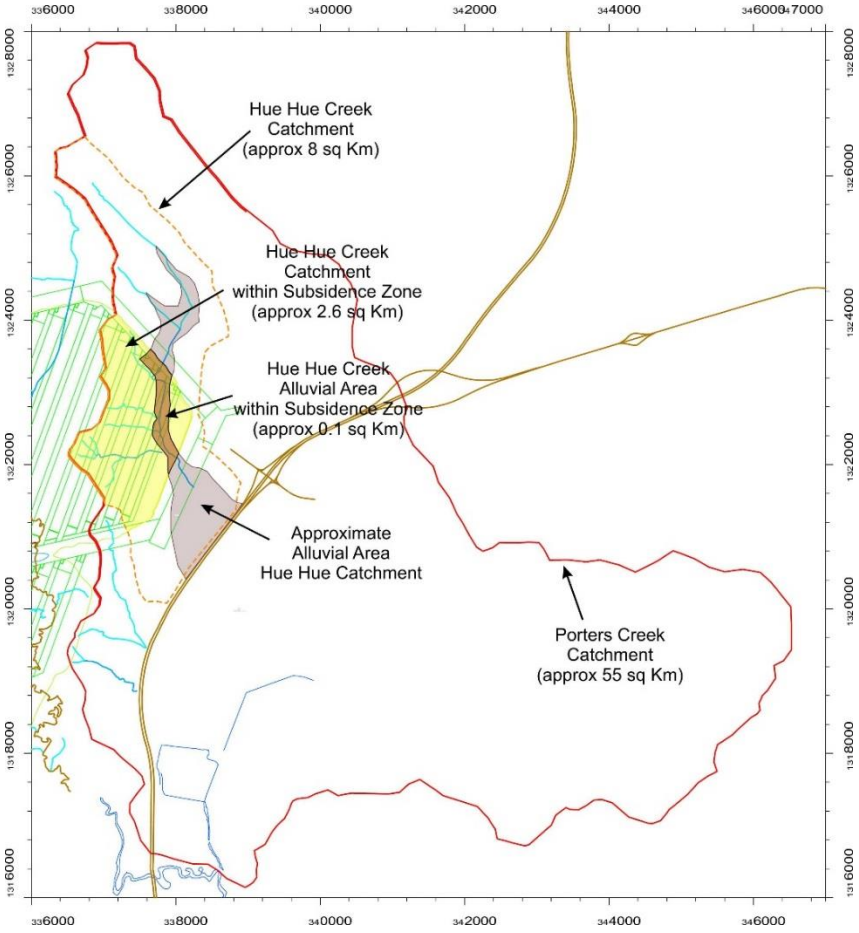
The following sections discuss the Project's predicted minimal impacts on the Hue Hue Creek catchment regime and the Porters Creek wetland.

3.1.2 Subsidence Impacts on Hue Hue Creek

WSC has raised concerns that the EIS does not adequately determine nor assess the potential impacts on the Porters Creek wetland associated with possible subsidence effects on the Hue Hue Creek catchment. This is possibly due to WSC misinterpreting the term "conservative predictions" to mean a best case prediction. In both the 2010 EA and 2013 EIS, "conservative predictions" refers to the upper bound (worst case) impact scenario. The proposed management strategies in both documents for the subsidence and flooding related impacts are therefore based on conservative, worst case predictions.

The overall catchment for Porters Creek is approximately 55 km^2, of which the Hue Hue Creek catchment contributes 8.2 km^2. Approximately 2.6 km^2 the Hue Hue Creek catchment will be affected by mining, of which approximately 0.1 km^2 is alluvium (see **Figure 1**). This small area of the Hue Hue Creek alluvial system that will be subject to subsidence does not feature surface bedrock in the channel. In fact, borehole data indicates that the alluvium in the affected area is up to 17m in depth.

Figure 1
Hue Hue Creek Catchment, Porters Creek Catchment and the Mine Plan



Hue Hue Creek drains this relatively narrow and elongated catchment. For most of its length, and for the entirety of its length within Subsidence Impact Limit, this ephemeral creek channel is relatively poorly defined and is positioned within the narrow strip of alluvial floodplain generally delineated by the 1 in 100 year flood extent. Within the Project Boundary, Hue Hue Creek is a second order stream under the Strahler stream classification system (based on 1:25,000 scale mapping).

The longwall blocks in the Hue Hue Creek catchment were specifically designed to generate low levels of subsidence consistent with the design criteria for houses and infrastructure in the Hue Hue Mine Subsidence District. Consequently the vertical subsidence in the Hue Hue catchment will be mitigated. The upper bound subsidence within the alluvial zone is predicted to be less than 500 mm with negligible upsidence and closure effects. Given the low level of associated ground strain (less than 3 mm/m) plus the substantial depth of alluvium beneath the creek line, the potential for surface cracking due to subsidence is negligible. Similarly, the low strain levels indicate that the potential for cracking in the underlying bedrock unit beneath the alluvium is also negligible. Vertical connective cracking from the surface to the mine workings is not predicted under any upper bound modelling scenarios.

These limited subsidence effects ensure that there will be negligible impacts on streamflow regime or yields from the Hue Hue catchment. Accordingly, there is predicted to be negligible impact on Porters Creek and its associated wetland.

The longwall panel imparting surface subsidence effects to a short section of Hue Hue Creek is the first extraction panel (LW1N) which will be bounded to the east by solid (unextracted) coal. The surface subsidence configuration and alignment of both LW1N and the creek illustrated in **Figure 2** indicates that the subsidence effects are very regular and of low order. The maximum impact on Hue Hue Creek stream bed gradient at the upslope limit of mining will be 500 mm of vertical subsidence over a 500 m long section of stream, equivalent to a change in bed gradient of 1 mm per metre (0.1%). This very small gradient change will have minimal implications on stream morphology and erosion potential.

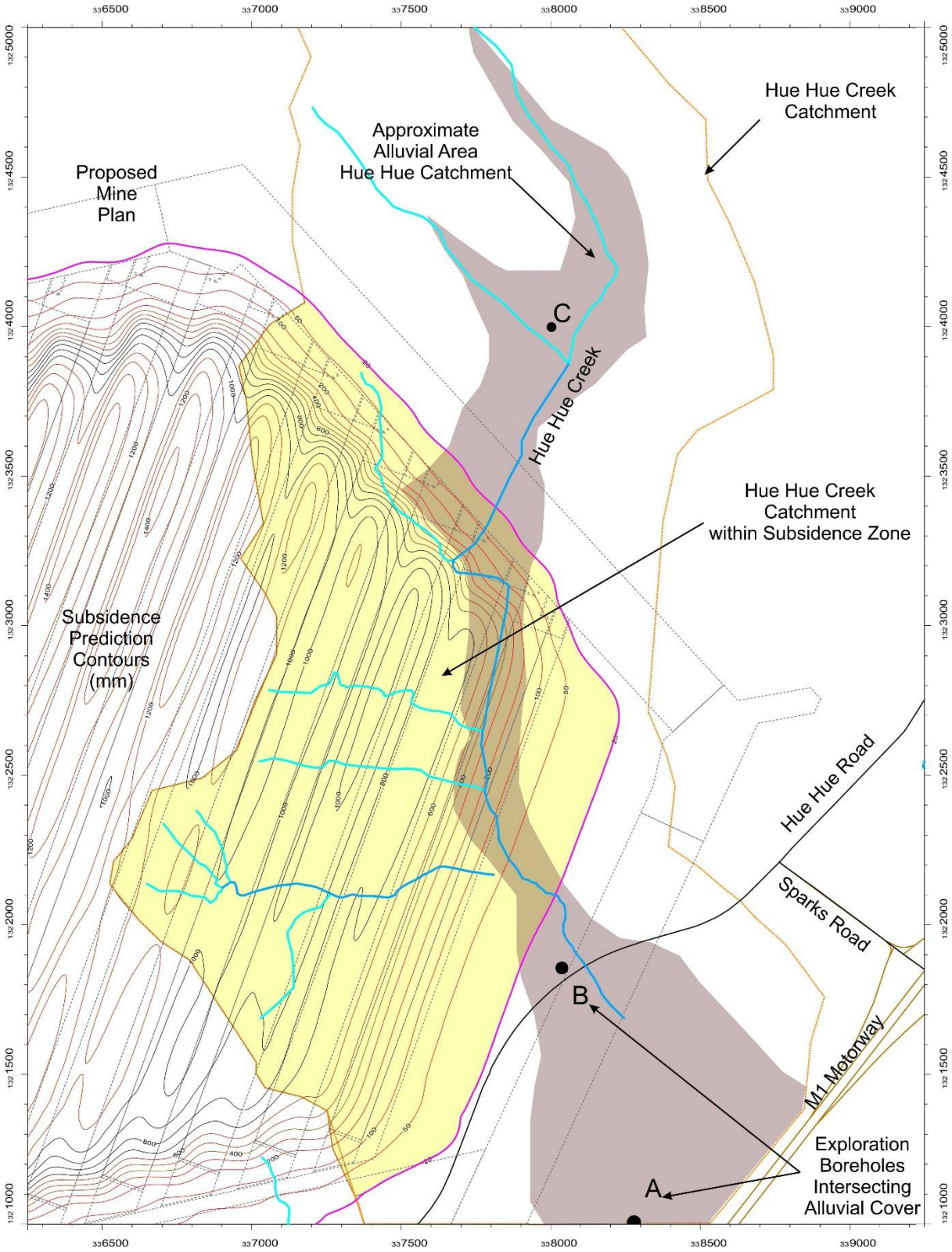
As outlined above, these impact assessments are based on conservative, upper bound predictions derived from a combined use of rigorously validated numerical models and well established empirical models.

The Subsidence Predictions and Impact Assessments (Appendix H of the EIS) prepared by MSEC provided detailed subsidence predictions and impact assessments along major and minor defined streams within the subsidence Study Area (refer to drawing MSEC515-08 in Appendix F of the Subsidence Predictions and Impact Assessments).

The predicted mine subsidence profiles, as provided Appendix E of the Subsidence Predictions and Impact Assessments (Figures E.05 to E.28) are based on the conservative hybrid subsidence modelling and included profiles of the depths of cover, subsidence, upsidence and closure along each of these streams including Drainage Line A that joins Hue Hue Creek in the middle section of the subsidence affectation zone for that ephemeral stream.

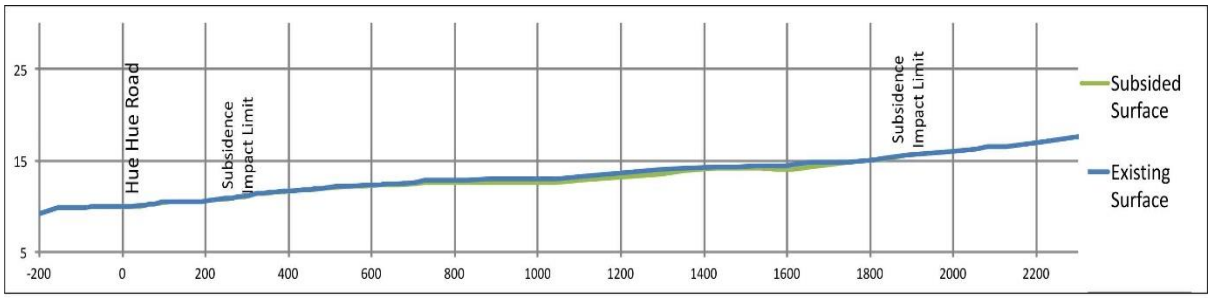
Figure 2

Predicted Subsidence Contours near Hue Hue Creek



The EIS did not present a subsidence profile for Hue Hue Creek as the effects were very minor and were not readily illustratable. However, the pre-mining and post-mining stream profiles were fundamental to the flooding assessment. A simplified depiction of the pre-mining and post-mining stream profiles is shown in **Figure 3**. A vertical exaggeration of 20:1 (20 Vertical to 1 Horizontal) has been used to depict the very small subsidence implications on the bed profile.

Figure 3
Stream Profile of Hue Hue Creek Before and After Subsidence



Hue Hue Creek Profile (approx 20:1 vertical exaggeration)

In addition to the subsidence study, the flooding, groundwater and surface water impact assessments in the EIS addressed potential impacts to Hue Hue Creek. EIS studies demonstrated that Porters Creek wetland was outside of the Subsidence Impact Limit and, importantly, that no significant changes to Hue Hue Creek catchment yields or flood regime flows to the wetland system would occur as a result of mining. In particular the flood modelling included in both the 2010 EA and, using upgraded modelling approaches, the 2013 EIS demonstrated there were no changes in peak flows, average flows, flood volumes or flood durations passing through the culverts under the M1 Motorway to the Porters Creek catchment downstream of the M1 Motorway. Accordingly, there was no evidence of risk to ecological systems in the Hue Hue Creek system nor downstream to the Porters Creek system and its wetland, obviating the need for any ecological surveys in areas not affected by the project.

It should be noted that the "Hue Hue Case" model was included in the 2010 EA. It is a subsidence model which, although separate to the hydrological/flood modelling, was used to define the post-mining topography used in flood assessment done for the Hue Hue catchment.

3.1.3 Impacts on Flows in Hue Hue Creek

Hue Hue Creek is a 2nd order stream with a catchment area of approximately 8.2 km^2. Hue Hue Creek drains to Porters Creek wetland, which has a catchment area of approximately 55 km^2. The depth of the Hue Hue Creek alluvium ranges up to 17 m deep as measured in exploration boreholes undertaken in the locality by WACJV.

Approximately 2.6 km^2 of the Hue Hue Creek catchment is located within the predicted Subsidence Impact Limit. Therefore, the alluvium of Hue Hue Creek will be subject to subsidence. The process of change in alluvial storage due to subsidence was described in

detail in the proponent's response to the PAC (dated 2 May 2014). This process will also occur within the alluvium of Hue Hue Creek. However, the magnitude of the impact is predicted to be much smaller due to the smaller areas of alluvium that are subject to subsidence and the smaller displacements in the Hue Hue area. As is the case for the Jilliby Jilliby Creek alluvium, the additional water stored in the Hue Hue Creek alluvium is expected to be returned to the creek once the water table re-equilibrates after subsidence. The process of re-equilibration commences at the same time as subsidence.

Due to the temporary nature of the change in alluvial storage, it is highly unlikely that there will be any permanent reduction of flows water from the Hue Hue Creek system into Porters Creek wetland. Locally affected zones in the alluvium that are temporarily affected will result in some groundwater merely being retained in the alluvial system as groundwater storage for a short period of time. Even in the absence of rainfall events that replenish the alluvial groundwater profile, this temporarily retained groundwater will later contribute to surface flows after water table re-equilibration occurs.

Hue Hue Creek contributes a small proportion of the flows in Porters Creek. The impact of subsidence on surface flow volumes in Hue Hue Creek (due to any temporary alluvial groundwater storage retention effects) is considered to be a small proportion of the average annual stream flow in the ephemeral creek. Therefore, the impact on stream flow in Porters Creek is negligible. In any event, the incremental water temporarily retained as storage in the alluvium will eventually report to the creek once subsidence is completed, resulting in no loss of water from the drainage system.

Subsidence of the Hue Hue Creek catchment will also result in changes to flood behaviour. These impacts have been assessed in detail and are presented in the Flood Impact Assessment (Appendix K of the EIS). The culverts under Hue Hue Road and the M1 Motorway act as hydraulic controls. As a result, there is predicted to be no change to flood peak flows, flood levels, flood volumes or hydrographs downstream of the M1 Motorway for any flood frequency or duration. Therefore, there is predicted to be no impact on the flooding regime of Porters Creek.

3.1.4 Ecological Impacts

Due to the demonstrably negligible impacts on stream flows, flood regimes and water quality of Porters Creek wetland due to the Project, there is predicted to be no material impact on aquatic organisms or groundwater dependent ecosystems associated with the wetland and therefore no requirement for extensive baseline surveys and impacts assessment of the wetland.

4 FLOODING

4.1 IMPACTS ON ROAD ACCESS

WSC's primary concern with respect to flooding appears to be the availability of access roads for evacuation purposes in the event of a flood. The impacts of the Project on access routes have been assessed and are presented in Section 6.7 of the Flood Impact Assessment (GHA, 2013). This was further discussed in the proponent's response (dated 2 May 2014).

In summary, 6 key locations are predicted to experience longer durations of inundation (1 to 13 hours) during the 1 in 100 year flood. However, the secondary access routes that provide evacuation routes for all residents will be unaffected. While there may be minor inconvenience caused by longer durations of flooding of Jilliby Road there will be no loss of access to the communities of Dooralong, Durren Durren, Jilliby and Little Jilliby.

4.2 FLOOD MITIGATION

WSC has recommended that mitigation measures for road access should be implemented prior to subsidence. It is not technically feasible to raise the level of Jilliby Road across the floodways of Jilliby Jilliby Creek and Little Jilliby Jilliby Creek without exacerbating flood impacts. Therefore, it is not appropriate to proactively undertake road raising measures.

In addition, road raising needs to be based on the actual subsidence that occurs. If road raising is undertaken prior to the development of the full subsidence profile, it is highly likely that the raised road will need to be modified again post mining. Given the conservative nature of the subsidence modelling and the fact that impacts are likely to be lower than those modelled, the most reasonable and economically sensible option is to allow for full development of the subsidence profile and then undertake any required remedial works at that time. Locations where road raising may be beneficial (such as D70 on Dickson Road) should only be raised after subsidence has occurred locally (and been measured by accurate survey).

4.3 FLOODING PREDICTIONS

WSC has stated that modelling for the subsidence and flood assessment was based on "best estimates" rather than upper bound estimates. This statement is incorrect. The Flood Impact Assessment undertaken by G Herman and Associates (GHA) was based on upper bound estimates of all parameters and potential impacts. Flood modelling was not only based on upper bound estimates of subsidence but also on upper bound and conservative hydraulic parameters. In addition, to maximise peak flow estimates, hydrological parameters were selected specifically for the sub-catchments overlying the Project rather than parameters for the catchment as a whole. The conservatism of the flood predictions is evidenced by the fact that GHA's flood level estimates for the 1 in 100 year flood are similar to WSC's flood level estimates for the Probable Maximum Flood (modelling undertaken by Cardno).

5 MISCELLANEOUS ISSUES

5.1 VOLUNTARY PLANNING AGREEMENT

WACJV has negotiated a draft Voluntary Planning Agreement (VPA) with WSC. When executed, WACJV agrees to be bound by the terms of the VPA. Given WACJV's proactive approach to the VPA, there appears to be no reason to include this as a condition of consent.

5.2 POLLUTION AND INFRASTRUCTURE DAMAGES BOND

WSC has suggested that the proponent should be required to dedicate a bond to the value of $20 million to be held by WSC. The bond is to be used for the remediation of impacts on WSC owned infrastructure and water resources.

As explained in **Section 2**, WACJV will be solely responsible for managing the discharges of treated water back to the water supply catchment. Accordingly, WACJV will bear the costs of all infrastructure maintenance and repairs required to manage the quality of discharges. Therefore, the bond proposed by WSC is not necessary.

Any damage to WSC owned infrastructure (if it occurs) will be compensated in accordance the *Mine Subsidence Compensation Act 1961*.

5.3 CESSATION OF MINING ACTIVITY

WSC has suggested that the Project must be required to cease all mining activities if there are adverse water quality or quantity monitoring results. If an unacceptable impact is identified, an adaptive management strategy will be implemented. An investigation will be undertaken to determine if the adverse monitoring result is attributable to mining. If it is determined that the Project is the cause of the unacceptable impact, WACJV will implement measures to mitigate the impact in consultation with the relevant regulatory authorities (which may include modifications to the mine plan). It should also be noted that mining operations are required to regularly report environmental monitoring results to regulatory authorities with additional requirements for immediate reporting of any exceedances of air, water and noise parameters as dictated by their Environmental Protection Licence.

* * *

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Mr Chris Wilson
Executive Director, Planning Assessment Systems and Approvals
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Dear Mr Wilson

Wallarah 2 Coal Project – request for further advice

I refer to a request received by the NSW Office of Water from the Planning Assessment Commission dated 11 April 2014 seeking further advice on the proposed Wallarah 2 Coal Project.

In accordance with an earlier direction from the previous Minister for Planning & Infrastructure, I provide the Office of Water's responses to the Department of Planning & Environment. I would be grateful if you could provide our advice to the Commission.

Broadly, the Commission's concerns about uncertainties in the predicted impacts are justifiable. However, we believe that reasonable mechanisms to mitigate the potential impacts are available, should the project be approved.

It is important that the Commission considers recent improvements to the water supply infrastructure on the Central Coast, notably the Mardi-Mangrove Pipeline, and an increase in capacity in Wyong Shire Council's pump on the Wyong River. Both of these upgrades reduce the sensitivity of the Central Coast to drought.

Nevertheless, water security on the Central Coast is a high priority and the Office of Water's responses below address the specific queries raised by the Commission.

Question 1

Can NOW comment on the duration of the direct impact of subsidence on the alluvium and the loss of baseflow to the streams contributing to the GWWSS?

It is likely that there will be a reduction in baseflow, however there is always a level of uncertainty regarding the quantity of loss.

The EA premise is that the both the alluvium and any surface fracturing of hardrocks where it occurs beneath alluvial areas, remains encapsulated and above non-fractured lower permeability hardrock. This means that when subsidence occurs, water losses from the surface water or connected alluvium ultimately report back into the surface water drainage features.

The proponent also suggests that any hardrock fractures beneath alluvial material will naturally fill with low permeability sediments. Should this hold true, the duration of the impact is indicated as being short lived, although a time frame is not stipulated in the EA.

There is a reasonable possibility, however, that where coarser sand and gravel sediments overlie bedrock, fractures will fill with these sediments. In such circumstance water losses would only cease if the fractures are terminal and don't connect with other fractures or conduits such as bedding plane separation. Otherwise the losses may report further downstream, or possibly elsewhere, for an indefinite period of time.

The Office of Water recommends that if approved, conditions of approval address this potential issue through monitoring and mitigation.

Question 2

If the duration depends in part on the effective sealing of fractures beneath the alluvium what robust evidence does NOW have that would convince the Commission that there would not be a continuing impact?

The Office of Water is unable to provide robust evidence to demonstrate that there would not be a continuing impact. Such an assurance cannot be given.

In the case of the Wallarah 2 Coal Project, the effective self-sealing of fractures beneath the alluvium is an assumption that underpins much of the environmental assessment. It is understood that self-sealing of fractures can occur, but it is unlikely to occur in all locations along all the streams in question. It is possible that self-sealing of fractures may not occur at all.

We believe that measures can be taken to address these issues, and the Office of Water recommends that if approved, conditions of approval address this potential issue through monitoring and mitigation.

Question 3

Dealing only with the above sources of loss, how will the purchase of irrigation (or similar) licences result in no loss for the GWWSS in the extended periods of drought?

As a result of the provisions of the relevant water sharing plans, purchase of other water licences will ensure that the allowable total extraction of water from the water sources will not increase in the long term.

However, as these losses will occur during all flow classes, even when pumping from the river is not permitted, purchase of irrigation (or similar) licences, on its own, will not fully offset potential losses during extended periods of drought, and must be considered along with other mitigation measures.

The Water Sharing Plans (WSPs) covering Jilliby Jilliby Creek and the Wyong River provide for the trading of Unregulated River Access Entitlement irrespective of the past use of that entitlement. The conditions of a trade are a matter for the two parties involved in the trade.

Purchase of inactive entitlement, as noted by the Commission, has the potential to increase extraction above earlier levels, however does not have the potential to increase extraction above allowable limits in the water sharing plans. This process may occur irrespective of the development of a mine, as activation of these entitlements by licence holders may occur at any time without further assessment or mitigation.

The only option to ensure that currently inactive entitlement is not activated would be for a third party to purchase all inactive licences and not use this entitlement. This option also depends on the current holders of inactive licences willingness to sell their entitlement to the third party.

However, it must be noted that the water sharing plans were developed to ensure that allowable extraction is limited to a sustainable level to protect the environment and other water users' rights; as such the Office of Water's view is that any person or company is entitled to purchase and extract water in accordance with a water sharing plan.

The Office of Water notes that the Commission has queried the use of the term “basic” when referring to landholder rights. “Basic landholder rights” is a specific and defined term under the Water Management Act that has been correctly used by the proponent in this case.

Question 4

In the context of question (3), is NOW able to prioritise access to water allocations under the WSP in times of drought? If so, how does it classify (a) the loss of baseflow from subsidence, (b) the operational requirements for the mine, in comparison to priorities for agricultural and domestic purposes and the GWWSS water supply offtake?

The priorities for the sharing and taking of water are established in the *Water Management Act 2000* (WM Act) under two sections; Section 5 “Water management principles”, and Section 58 “Priorities between different categories of licence” (attached to this letter).

Priority of extractive access as it relates to Jilliby Jilliby Creek and Wyong River and their tributaries can be summarised as follows:

- **Highest Priority:** Basic Landholder Rights (river front properties pumping for domestic and stock watering)
    - The principles of the WM Act indicate Basic Landholder Rights have priority over licensed extraction. This is evident in the unregulated WSP where flow is protected from licensed extractors so that it can be accessed by Basic Landholder Rights users. Note that the protection of the water source and its dependent ecosystems has equal status to the protection of Basic Landholder Rights under Section 5 of the WM Act.
- **Mid Priority:** Local water utility category access licences (e.g. GWWSS), domestic and stock category access licences (properties with no river frontage pumping for domestic and stock watering)
    - The priority of access between licence categories established by the WM Act is that “Local water utility”, “major utility” and “domestic and stock” category access licences have priority over other categories of access licence.
- **Lowest Priority:** other categories of licence (water market operates for this category of licence, the ‘Unregulated River Access Licence’)
    - The WM Act states that other categories of access licence have lower priority to those mentioned above. In this case for Jilliby Jilliby Creek and Wyong River “Unregulated river” category access licences. “Unregulated river” category access licences have no purpose limitation, and could be used for ‘irrigation’, ‘mine operations’, and ‘loss of base flow from subsidence’.

In relation to the loss of baseflow from subsidence, as these losses cannot be “switched off”, the NSW Aquifer Interference Policy requires that a strategy be developed to deal with access rules that apply to specific categories of licence, such as cease to pump rules. The policy specifically suggests “returning water of an acceptable quality to the affected water source during periods when flows are at levels below which water users are not permitted to pump” (p 26).

In addition to the rules and priorities established under the water sharing plans, the Minister has the power to suspend a plan during severe water shortages in order to prioritise the allocation of water as needed to best manage the severe shortage.

Question 5

The Departments PAR states that the loss attributed to the mine is 0.7% of the catchment flows of 45,600ML/year. This is presumably made up of the 270ML/yr loss from Jilliby Jilliby Creek Water Source and 30 ML/yr from the Wyong River Water Source and around 20 ML/yr offtake for operational purposes from the Wyong River Water Source. The Department states that this is not significant for the GWWSS. Does NOW accept that this is not significant given the recent history of water restriction in the Central Coast, the fact that these water restrictions were in force in a period that was well below the severity of some earlier droughts, and the projected increase in population to be supplied by the GWWSS?

The metric suggested in the PAR, which looks at annual average flows, may not be the best metric for understanding the order of magnitude of impact to a water supply scheme. The Gosford Wyong Water Authority has used 2 different models of their water supply headworks in the past to evaluate environmental flow options. Either of these models could be used to better understand the impact of a loss of low flows (e.g. a loss of 0.74ML/day).

As noted earlier, recent infrastructure improvements have reduced the sensitivity of the Central Coast to drought. As such, the real significance of these impacts is not possible to determine without additional modelling.

However, with the installation of appropriate monitoring and gauging stations, impacts attributable to the mine can be measured, and appropriate mitigation and compensation required as a condition of any approval. For example, as described later, the mine could be required to provide a financial contribution to the cost of bringing forward any augmentation or infrastructure required as a result of the mining operations.

Question 6

In the context of the possible impacts of the zone of depressurisation on groundwater, can NOW indicate whether it accepts the drawdown figures indicated on Professor Pells diagrams showing the hypothetical bores at year 0 and year 20 of mining. If not, why not?

The April 2013 Environmental Assessment (EA) Appendix 1 – Groundwater Impact Assessment presents four different figures for modelled pore pressure distribution (Figures E17, E18, E24, E25). These figures relate to year 38 and not year 20 as depicted by Professor Pell. Whilst the colour scheme is different Figure E17 of the EA appears to match Professor Pell's diagrams.

The EA acknowledges there will be substantial aquifer pressure declines for those aquifers underlying the Patonga Claystone. The Office of Water concurs with Professor Pell's interpretation that there will be significant changes to the groundwater regime for hypothetical bores, should they be constructed, in aquifers underlying the Patonga Claystone such as bores A and C depicted.

However, the EA presents the case that these significant aquifer pressure changes occur only within the deep aquifers. Professor Pell's 'Bore C' at 70m depth is likely to be within the Patonga Claystone to which depressurisation as depicted in the EA is minimal. An alternative conceptualisation of this is presented in Figure E16 of the EA, which presents Layers 1-3 as having no measurable decline at year 38. The Patonga Claystone as Layer 5 has pressure declines of approximately 2-5m in areas beneath Jilliby Jilliby Creek, which is less than depicted by Professor Pell. That is, in a broader spatial sense as opposed to a singular point, the pressure declines as presented in Figure E16 with lateral contouring lead to minimal impact to Layers 1 – 3.

Reviewing the details for each of the registered private bores within the mine footprint for depth of bore and aquifer intercepted shows one bore (GW078609) drilled to a depth of 70m. This would be Dr Pell's hypothetical bore 'Bore B'. However, the location of this bore plots outside the 2m drawdown contour for Layer 5 in Figure E16. A second bore (GW078221) was drilled to 60m and the location plots between the 5-10m contours on the same Figure E16 diagram. This would approximate Dr Pell's indicative losses for Bore B. However, the aquifer drawn upon within this bore is at 33m maximum depth. Hence the extraction from this bore would be within a shallower model layer and as modelled experience a minimal level of pressure loss.

All further private bores within the mine footprint were drilled to shallow depths and draw from aquifers well above layer 5, where predicted impacts are modelled as being minimal within the 38 years of mine life.

Although a water sharing plan for the porous hard rock aquifers is yet to commence, the Office of Water considers that the drawdown impacts as modelled by the EA would be within level 1 impacts, which are defined as acceptable by the NSW Aquifer Interference Policy (AIP).

It should be noted that the AIP does not require assessment of hypothetical bores. It appears Professor Pell has drawn the conclusion that the EA did not comply with the AIP based on a level of drawdown in these hypothetical bores and not on registered bores as considered above.

Question 7

Does NOW accept the Department's proposition that there will be no impact of the zone of depressurisation of the mine on the baseflow to the streams supplying the GWWSS, either (a) during the mining or (b) at any time in the future. If the answer to either is positive, can NOW please provide details of the likely impact and when it might occur?

The Office of Water does not believe that the Department suggests that there will be no impact of the zone of depressurisation on baseflow.

It is anticipated that there will be some loss of baseflow due to depressurisation of the aquifers below both Jilliby Jilliby Creek and Wyong River, both during and after the mining. However, the losses as modelled in the EA during mining are not large, and are readily licensable.

The losses would continue until such time as the pressure levels in the deeper aquifers re-equilibrate. Figure E26 of the EA implies that depressurisation impacts will eventually influence the shallow aquifer layers too, thereby having some degree of influence on baseflow. The proponent does not appear to have described the predicted peak longer term losses as depressurisation expands, although the volumes are unlikely to be substantially greater. The proponent should be required to provide an accurate prediction of these losses prior to the cessation of mining, and ensure that adequate licences are retired.

Upon cessation of mining, groundwater inflows that fill the mine void and depressurised areas will primarily occur from the geological units with the highest hydraulic conductivities. With the horizontal hydraulic conductivities presented as being typically much higher than the vertical, it is anticipated that the inflow will be predominantly from lateral flow and not vertically from the shallow aquifers. It is the coal seam that has the largest hydraulic conductivity so this unit would form the primary conduit for groundwater ingress. Conceptually, unless a significant fault/fold/volcanic intrusion exists and given the coal dips in a south westerly direction, a significant proportion of recharge to the coal seam would be from the east.

The Office of Water considers that the depressurisation impacts, as modelled, are level 1 impacts under the NSW Aquifer Interference Policy.

Mitigation / offset options

The Office of Water provided earlier advice to the then Department of Planning & Infrastructure that it held concerns about possible impacts to town water extraction downstream. The Office of Water went on to advise that:

> *The Office of Water notes that impacts to extraction opportunity are not a certainty, and are not expected to be major or permanent provided adequate mitigation measures are implemented.*
>
> *Given that the relevant longwall panels are not proposed to commence for several years, the Office of Water suggests that while not its first preference, the potential risks could reasonably be mitigated through initiating a detailed monitoring program to monitor subsidence and baseflow impacts, as well as a watercourse management plan to monitor and manage any geomorphological impacts on the affected watercourses.*
>
> *Prior to commencing the relevant longwall panels, the proponent should use this additional data to provide an assessment of the likely impacts under different climatic scenarios on town water extraction opportunities, with a focus on lower stream flows. Where significant impacts could be expected, then mitigation and compensation measures should be explored.*

It is the Office of Water's opinion that the loss of flow in Jilliby Jilliby Creeks and Wyong River may be best mitigated using replacement discharges of appropriately treated water, at appropriate points along the streams, in appropriate patterns. Such replacement flows not only provide for the GWWSS, but also Basic Landholder Rights extractors and riverine ecology. Logistics for operating replacement flows may include; treatment of water to adequate standards, the shandying of this water with other water, the installation of a stream-flow gauging station upstream of the impacted reaches (ideally 15, but at least several years prior to the impact), and identifying the upstream location for the discharges. The Office of Water should be consulted in implementing any replacement flow program.

If the water losses are not replaced, the eventual outcome for the urban water supply could be early augmentation of the water supply scheme headworks. Monitoring of the surface flows and groundwater after the mine is established, as well as the amount of water produced by the mine, would allow for informed estimates of the loss of flow and subsequent impacts on the water supply. It would then be possible to estimate the number of years that augmentation would need to be brought forward as a result of these water losses. At that time the cost of bringing the augmentation forward (not the whole cost of augmentation) could be transferred to the mine.

The Office of Water recommends that any approval require the early design and implementation of a surface and groundwater monitoring network in consultation with the Office of Water and other relevant agencies (such as the water supply authority). Further, the approval should include scope for modifications to mine design in response to the monitoring data to mitigate potential impacts, such as modification in seam thickness or panel width.

Should you have any further enquiries about this matter, I have arranged for Mr Mitchell Isaacs, Manager Strategic Stakeholder Liaison, to assist you. Mr Isaacs may be contacted at the NSW Office of Water's Parramatta Office on telephone number (02) 8838 7529 or by email Mitchell.Isaacs@water.nsw.gov.au.

Yours sincerely

David Harriss
Commissioner, NSW Office of Water

Encl.

Priorities for the sharing and taking of water under the *Water Management Act 2000 (WM Act)*

WM Act Section 5 Water management principles

(1) The principles set out in this section are the water management principles of this Act.

(3) In relation to water sharing:

a) sharing of water from a water source must protect the water source and its dependent ecosystems, and

b) sharing of water from a water source must protect basic landholder rights, and

c) sharing or extraction of water under any other right must not prejudice the principles set out in paragraphs (a) and (b).

WM Act Section 58 Priorities between different categories of licence

(1) For the purposes of this Act, the following priorities are to be observed in relation to access licences:

a) local water utility access licences, major utility access licences and domestic and stock access licences have priority,

b) regulated river (high security) access licences have priority over all other access licences (other than those referred to in paragraph (a)),

c) access licences (other than those referred to in paragraphs (a), (b) and (d)) have priority between themselves as prescribed by the regulations,

d) supplementary water access licences have priority below all other licences.

(2) If one access licence (the higher priority licence) has priority over another access licence (the lower priority licence), then if the water allocations under them have to be diminished, the water allocations of the higher priority licence are to be diminished at a lesser rate than the water allocations of the lower priority licence.

(3) In relation to the water management area or water source to which it applies, a management plan may provide for different rules of priority to those established by subsection (1).

(4) If a management plan so provides for different rules of priority, those different rules are taken to have been established by this section.