muswellbrook shire council

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16 Sept 2019

Laura Evans
Resource Assessments
NSW Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Ms Evans,

Mangoola Coal Continuation Project – SSD 8642 – Muswellbrook Shire Council Comment

I refer to the Environmental Impact Statement, prepared by Umwelt for Mangoola Coal Operations P/L ("the Proponent"), for the Mangoola Coal Continued Operations Project SSD - 8642. Council appreciates the opportunity for comment.

The proposal seeks approval for:

- Continued operations within the existing mine and new mining operations to the north of the existing mine until the year 2030.
- Open cut mining peaking at the same rate as the current approval, which is 13.5Mtpa of run of Mine coal using truck and excavator mining methods. A total of 52 Mt of coal is expected to be extracted from the new mine area, adding to the 150 Mt of ROM approved on the existing site.
- An increase in disturbed area of 623ha with the new mining area proposed.
- Construction of a haul road overpass over Big Flat Creek and Wybong Road to connect the new and existing operations.
- Establishment of out-of-pit overburden emplacement areas
- Realignment of Wybong Post Office Road.
- Construction of a water management system to manage mine water, runoff, floodwater and provide for reticulation of mine water.
- Ongoing rehabilitation to a final landform in line with current standards, including use of natural landform design principles.
- Final voids of 48ha in the south (existing mine area) and 82ha in the north (new mine area) of the site.

Council's submission has two parts. The first Part contains comments directed to the planning authority that will assess and determine this application, and DPIE, to consider cumulative impacts. The second part provides comments specific to this project.

Part 1 - Cumulative Impact Assessment

1.0 The compounding impacts of multiple mining operations stretch environmental, social, human and economic capital. Multiple mining operations may demonstrate additive effects (e.g. mine impact + mine impact) and compounding effects (e.g. mine impact x mine impact). The conventional mine-by-mine approach to assessment, management and mitigation does not provide confidence for the local communities impacted.

2.0 Impact assessments for individual mine projects flag that it is difficult to consider cumulative impacts due to factors beyond the control of the proponent. A cumulative assessment typically consists of an aggregation of the contribution of the project to the impacts of existing activities and whether the increased impacts meet regulatory standards. Such analysis is almost exclusively conducted on sink impacts such as noise, air quality and traffic. Assessments rarely assess the effect of planned and foreseeable future projects (e.g. the West Muswellbrook mine proposal) and do not employ explicit methodologies to model plausible future scenarios, understand the pathways of interaction of cumulative effects, or determine or describe thresholds and limits.

3.0 A better approach would involve investment in regional datasets, scientific modelling, scenarios and preferred futures, research into impact interactions, trends, effects pathways and areas of maximum mitigation impact, better regional planning, the establishment of thresholds and limits, joint monitoring, the collection of information on planned developments and more consistent data standards and methodologies. The *Upper Hunter Cumulative Impact Study and Action Strategy 1997*[1] needs to be updated by an independent party.

4.0 Solastalgia –Albrecht et al. in 2005[2] published a paper on the impact of large-scale open-cut coal mining on individuals in the Upper Hunter Valley of NSW. It found that people exposed to environmental change had negative reactions brought about by a sense of powerlessness over the unfolding environmental changes and uncertainty in a once predictable environment. Added to environmental change is the loss of place and communities (through properties being purchased by mines), loss of social contacts (as people move away) and feelings of differential treatment, as some are purchased and families get to move away from the stress of being a neighbour to a mine, while others have to remain. The effects of solastalgia are not overcome by Community Enhancement Contributions.

5.0 Impacts on rural landscapes. Cumulatively, the various mines have impacts on the sense of place felt by the community, and attractiveness of the Upper Hunter experienced by the travelling public. Drive along the New England Highway, Golden Highway, Denman Road and Wybong Road today and the visual landscape is definitely industrial, with open pits, overburden stockpiles, road and rail infrastructure and CHPP clearly visible. The MCCO project will try to limit views of mining area using screen planting and a visual landscaped bund. This in turn has an impact changing the outlook from open rural country to a walled off and clearly “manufactured” vista. Some of these changes are temporary (maybe 50 years), others, if there aren’t appropriate rehabilitation actions, will be permanent. Is this an acceptable outcome?

6.0 The Upper Hunter regularly experiences shortages in affordable accommodation and housing close to mines, particularly in phases of infrastructure construction, and mine and power station shut down periods where intense maintenance efforts require a short-term increase in workforce. There are often skills shortages in trades, and pressure on community services such as child care, employment and skills training, health and emergency services (e.g. driver fatigue related accidents). Essentially, Muswellbrook suffers amenity impacts from the mines, and these are not offset by economic benefits

[1] New South Wales. Department of Urban Affairs and Planning. 1997, *Upper Hunter : Summary - Upper Hunter cumulative impact study and action strategy* Department of Urban Affairs and Planning [Sydney]

[2] Albrecht, Glenn (February 1, 2007). "Solastalgia: The Distress Caused by Environmental Change". Australasian Psychiatry. 15: S95–S98. doi:10.1080/10398560701701288. PMID 18027145.

due to Drive In, Drive Out work and travel arrangements, and major support industries/companies building the headquarters closer to Newcastle for connectivity, workforce and lifestyle reasons.

7.0 Council has identified that loss of population, and issues of housing availability and affordability, are linked to the acquisition and demolition of homes as part of the expansion of mine operations and development throughout the Shire. DPIE, through access to ABS data, has been identifying that overall dwelling numbers in the Shire have declined despite a number of new subdivisions and housing approvals. Council is preparing new LEP clauses to facilitate the retention of, or to mitigate the loss of housing, and to create comparable accommodation to satisfy the demand. It is difficult for each mine project to make a cumulative assessment of the impact of mining on housing loss, and loss of rural properties. DPIE is better placed than Council to introduce policies that facilitate the retention of or mitigate the loss of housing due to mining.

8.0 While Mangoola's cumulative air pollution analysis assesses total concentration of air pollutants, being background pollutants plus project-specific contribution, the area of analysis is limited to the air quality contours of the mine and not the surroundings. The surrounding region has a total of eight coal mines and two coal power stations. And there are proposals for additional mines in relative close proximity e.g. West Muswellbrook Mine, Maxwell underground mine.

9.0 Council's view is that the 24 hour averaging period for air pollution monitoring has the unintended consequence of obscuring issues of elevated dust levels at night as a result of surface temperature inversions, and that a 12 hour average would be better. Council acknowledges there may be insufficient empirical evidence as to the effect on human health of exposure to elevated levels of dust at night. In light of this, Council requests that the State Government commission a study into the effects to human health of exposure to night-time dust levels in the Upper Hunter. This research is essential to improving the understanding of the consequences to human health, particularly respiratory and cardiovascular health, of exposure to night-time dust levels generated by mining.

10.0 The Upper Hunter region's equine industry is a significant contributor to the regional economy with 85 per cent of all operating expenses spent within the Hunter Valley region[3]. The equine industry suffers from reputational risks due to local coal mines and this conflict has been documented in prior coal mines applications (e.g. Bickham, Drayton South, Dartbrook). Reputational risk is also posed to the local viticulture industry. The expansion of the mining industry has claimed a number of wineries in the past, which has reduced the critical mass of the viticulture cluster in the Upper Hunter, in turn affecting the tourism market.

11.0 Water sharing now and in the future. Each of the mines has a permanent impact on water availability in the local catchment they are located in, and the Hunter River and Goulburn River more generally. Each mine operation dismisses this by saying they hold sufficient water licences to cover this "loss of water". But the loss is permanent, and if the water sharing regime needs to change in the broader catchment for societal, ecological, or climate change reasons, or to satisfy the requirements for emerging industries, the water loss due to mines will place limitations on the ability to change the water sharing regime.

[3] Department of Primary Industries, Upper Hunter Region Equine Profile, Fact sheet No.6, June 2013

12.0 The project will add to or prolong current levels of traffic movements on the New England Highway, Golden Highway and train movements Main Northern Railway Line. Movements should be included in models held by Transport NSW and Roads and Maritime Services to understand the cumulative impacts on:

- The level of service on State Roads and significant intersections from Muswellbrook through to the Newcastle Link Road and Pacific Highway.
- Passenger rail service movements, including future ability to increase frequencies of service between Muswellbrook and Newcastle.
- Rail noise and dust along the railway corridor from Muswellbrook to the Newcastle Port.

13.0 Transitioning to a Post-Coal future. Communities in the Hunter, from near the mine sites to the coast, have experienced rapid transitions associated with expansion of the coal mining industry. In the next few decades they face the prospect of the coal mine industry contracting as a result of declining global resource demand. While communities have benefited from the expansion of the coal industry through the creation of jobs and the investment in economies, an abrupt and/or unplanned transition would have resounding social and economic impacts on the Region and the State.

Part 2 – the MCCO Project impacts

Council's response to specific impacts of this proposals follows the order that issues are addressed in the EIS document:

Social Impact and Community Issues

14.0 Table 3.3: Stakeholder Participation in SIA Program (page 15). A total of 146 stakeholders were consulted in the preparation of the Social Impact Assessment. It is considered that a larger and broader mix of stakeholders would provide a more accurate and inclusive range of information informing the Social Impact Assessment.

15.0 Section 4.2.1 Glencore Community Perception Survey. The survey does not relate specifically to the MCCO Project proposal, but to the wider Hunter Valley region. Glencore operations within the Hunter Valley include the Mangoola Coal Mine, Bulga, HVO Joint Venture, United, Ravensworth, Liddell, Mt Owen Complex and Integra. As the broad, non-specific survey results do not provide any detail with regards to the specific Mangoola Coal Mine or the MCCO Project, the survey results cannot be considered to provide a reliable view of the local community's perception of Glencore Mangoola.

16.0 Section 4.2.2.1 Perceptions of existing Mangoola Coal Mine. The sample size of the consultation process appears to be 25 correspondents. The report does not state whether or not this is the total sum of proximal landholders to Mangoola Mine.

17.0 Reduction in population in proximate areas reduces the ability of these areas to attract members to emergency service organisations, such as the Rural Fire Service.

18.0 With regards to the employment profile of Mangoola Mine. There is a vast male/female imbalance in employee numbers.

19.0 The SIA addresses mental health concerns associate with the MCCO Project, but needs to provide a range of individualised solutions. 'In addition to physical health

concerns, 11 landholders commonly reported psychological health concerns, predominantly related to stress and anxiety, as a result of the MCCO Project. Specific comments centre on the increased pressure on interpersonal relationships and apprehension/anxiety regarding future lifestyle and financial stability – if unable to sell their property. Noise concerns impacting sleep patterns were also noted, particularly in relation to increased irritability and a lack of ability to focus on work or study' (p. 165).This has not been adequately addressed.

20.0 Mangoola Coal must provide information to stakeholders in a form that is readily understood, and must be proactive in managing reasonable community concerns. It is unsatisfactory to merely respond to complaints. 'Residents noted heightened stress when navigating industry reports, stating that technical jargon, data analysis and lack of industry knowledge creates confusion. Some stakeholders commented that they have been encouraged by Mangoola to utilise the grievance system to allow appropriate redress of issues associated with their operations, however some landholders perceived that the continual need to complain to Mangoola was limiting their ability to cope with the MCCO Project coming closer, and they did not want to be labelled a 'whinger' (p.166). The evidence that improvement in this area is required is that 'landholder satisfaction with company engagement totalled 4.9 out of 10 on average; with landholders noting the need for engagement to be proactive, transparent, timely and consistent as a means to improve stakeholder relationships' (p. 175).

21.0 A deeper, more authentic level of understanding and engagement with the indigenous community is required. For example, there are contributions from the mining community, but broader issues like rent rises are not addressed. For example, there was a downturn a few years ago, so people in social housing went to private rentals because the rent became cheap, then the boom came, rent went up, and people had to ask for social housing back' (p. 181). Will Mangoola Coal consider the introduction of a specific indigenous employment programme?

22.0 The SIA identified that one of the most significant social risks, based on stakeholder perceptions and unmitigated technical risk analysis, included 'concerns about potential loss of community members and population decline in the locality and the subsequent impact on community cohesion.

23.0 The project will remove the social community context of the area, particularly the Wybong Post Office Road area and its intersection with Yarraman Road. Wybong Community Hall is a strong indicator of the social prominence of this locality in Muswellbrook Shire, and that it is still regularly used by the community provides evidence of the area's continuing important social perspective. This context is supported by section 5.5.3.2: Other Project Developments in the Region. In this section of the EIS, parallels are drawn to similar social degradation issues caused by Wilpinjong Coal Mine, where the residents of Wollar have experienced considerable social stress, where 'community members consulted reported a significant strain on those left within the community to keep the village alive, due to the loss of population, community relationships and services." Similarly, section 5.5.4 Summary of Mining and Community Response to Change, highlights the social risk created by coal mining: 'While mining projects can result in significant positive economic benefits, they also have the potential to impact the social amenity of proximal landholders and communities as a result of environmental impacts such as dust, noise and blasting impacts. Additional impacts that may be experienced include a reduction in sense of community, community participation,

social cohesion and service delivery due to property acquisition and population change over time. This may result in people feeling displaced and detached from their networks and community structures/associations'.

24.0 The Social Impact Assessment does not provide any consideration of the social perspective of the community post mining, and how impoverishment of the local community's social fabric may be avoided. The project will contribute to social isolation and possible perceptions of exclusion from the remaining rural community, and the impoverishment of the community's social fabric. This may create a local and wider perception of an area in social decline, with residents moving from the area and thereby perpetuating the perception of the area as one experiencing prolonged decline. This reduces optimism relating to the future sustainability of the directly or indirectly impacted rural community.

25.0 The closure planning process has to commence now, not at the cessation of mining (p. 247). What will the community look like post mining?

26.0 Impacts will be ongoing for a long time, for example base flow to Big Flat Creek is predicted to remain impacted for a 500-year recovery period. What mechanisms will Mangoola put in place to take responsibility for ongoing issues after Mine closure?

27.0 The current approval includes a requirement for Community Enhancement contributions and payments to road maintenance costs to assist with mitigating cumulative impacts of the mine. This condition should be updated to reflect the more contemporary contributions being made by other mines operating in the Shire. The Proponent has approached Council with an initial offer on the terms of a VPA, however further negotiations are required before a VPA can be finalised. This is anticipated to be:

Item	**Development Contribution Proposed**
Mangoola Community Contribution	$500,000 per annum (indexed annually according to CPI). A community representative committee will be established, including Applicant representatives, to make recommendations to Council regarding these community contributions.
Council Road Maintenance and Infrastructure Costs	Costs associated with the maintenance of roads, and provision of infrastructure, calculated as an annual payment based on tonnage of product coal produced, and indexed annually (according to CPI).
Environmental Officer	The Applicant to make contributions to an Environmental Officer, up to a maximum of $20,000 per annum (indexed annually according to CPI).
Apprenticeships	The Applicant to use its best endeavours to engage 4 apprentices per year for the

	life of the mine sourced from residents within the Muswellbrook Shire.

Economic

28.0 Council seeks greater fidelity to predictions of labour requirements for the MCCO Project so that it can adequately assess and plan for social impacts. Due to inconsistency in the Environmental Impact Statement, it is unclear if the new Full-Time Employees are entirely new positions or if they are continuing positions for the existing miners at the current mining site.

29.0 The Economic Impact study projects benefits to the local economy based on the percentage of Mangoola's current workforce that is based in the Upper Hunter. However, it is not clear how many of the current Mangoola employees migrated to and settled in the area, and how many were based in the Upper Hunter and previously worked in other regional industries before being employed at the coal mine. Council notes that one of the underpinning assumptions for the Local Effects Analysis (Appendix 7, p.45) is the expectation that 73% of the workforce for the MCCO Project will be "supplied from the SA3 region." The assumption lacks clarity on whether the potential future employees will be based in the region after migrating from elsewhere in NSW or Australia, or they will be hired from the current local residents. It is therefore difficult to make any credible impact assessment on the local economy, especially in relation to effects on industries with lower wages (e.g. local hospitality businesses) or pressure on support services (e.g. childcare and health services).

30.0 The Environmental Assessment for the MCCO Project notes that "Scope 3 emissions simply acknowledge that products will continue to generate greenhouse gas emissions as the move through the value chain." That acknowledgement is not accounted for in the cost of greenhouse gas (GHG) emissions in the Economic Assessment. In Appendix 7, the assessment measures Scope 1 and Scope 2 only. Consequently, while GHG emissions for purchased goods and services and employees commuting to and from work are not considered (Scope 3), the benefits of the project to workers and suppliers are included in the calculations as net economic benefits.

31.0 The Economic impact assessment (Appendix 7) does not account for the cumulative air pollution in the entire Muswellbrook LGA. While Mangoola's cumulative air pollution assesses total concentration of air pollutants, being background pollutants plus project-specific contribution, the area of analysis is limited to the air quality contours of the mine and not the surroundings. The surrounding region has a total of eight coal mines and two coal power stations. Greater consideration should be given to the pollution in the surroundings and the resulting cost.

32.0 Just or equitable distribution of environmental benefits and burdens of the mine is not considered, as the cost and benefits are only calculated for the current population and not future generations. The project's environmental impacts will affect people beyond the operational timeline of the project. The Rocky Hill Coal Mine case[4] pointed out the importance of avoiding distributive inequity in making the impact assessments.

[4] NSW Planning Assessment Commission, Determination Report Rocky Hill Coal Project, 14 December 2017

33.0 Health impacts are not quantified and, due to lack of evidence, pollution impact is disregarded as detrimental to human health. Council is aware of NSW Health[5] concerns that "any increase in fine particulate pollution is statistically likely to lead to an increase in health impacts". Failure to quantify this impact and include the cost when estimating the net benefits of the MCCO Project renders the assessment incomplete.

34.0 To investigate the full impact of the air quality impact, Council recommends that a non-market valuation study be conducted. This study will investigate the "recreational amenity of an area, sense of local community, and regional reputation associated with characteristics such as fresh produce and livestock" Muswellbrook Shire is home to the two largest horse studs in the southern hemisphere - Coolmore and Darley Woodlands. Overall, the Upper Hunter region's equine industry is a significant contributor to the regional economy with 85 per cent of all operating expenses spent within the Hunter Valley region.

35.0 The Social Impact Assessment (SIA) does not consider whether the Mangoola Coal Continued Operations (MCCO) Project will impact upon the community's ability to access and enjoy the Manobalai Nature Reserve and large Crown Land holding to the south of that Reserve.

36.0 Table 4.3: Location of Suppliers' Main Offices (p. 27). Only 8.7% of supplier expenditure is paid to companies with offices in Muswellbrook Shire. This appears to be an extremely low percentage and does not provide the level of social benefit that would be obtained from a higher percentage of local spend.

37.0 Contribution required for social diversification of the economy post mining. This is due to mining locking up employment in the LGA, and inhibiting the opportunity for economic diversification, which could supply more varied employment to residents now and into the future. The LGA has high economic dependence on the mining industry. Open cut mining operations are disrupting highly productive industries and reducing the potential to further develop these industries to create diversity of employment. In addition, land use uncertainty is impacting on investment in diversified industries. As a result, uneven economic growth and distribution of economic resources (including wages) is experienced due to the mining industry (p. 130).

38.0 Loss of surplus to other industries. This section attempts to quantify the "surplus" rather than the value of the agricultural industry as a whole. In the case of productivity loss, it doesn't consider the loss of veterinary and farm services to the local economy due to reductions in critical mass, and of course, the flow on effects.

39.0 Table 16 (P28) estimates agricultural productivity loss over 38 years at $930,000, this is considerably lower than the calculated $3.42 million with no explanation for the $2.49 million discrepancy. However, this is only the surplus, the full loss to the local economy over this period would in fact total $11,100,000

Noise

40.0 The key issues of noise, blast vibration, dust, lighting, traffic, fume and odour, as identified on page 36 of the SIA document, are consistent with other mining operations within Muswellbrook Shire. This result demonstrates a cumulative impact that is not readily addressed in the SIA.

[5] Planning Commission Technical Note 5 Air Quality

41.0 The SIA responses to these issues reflect similar mitigation measures by other mining companies. Council recognises that many of these matters will be addresses by individual consent conditions. However, the lack of cumulative data related to this particular location is not available and therefore it is difficult to assess the social impact of 'mining in general' that elevates the frequency and consequences of each of these key issues.

42.0 Management of noise must be made a high priority, and should be proactively monitored in a manner that is satisfactory to the proximate community. This is not a single solution problem, but should be tailored to individual stakeholders' needs. 'The perception of noise impacts appears consistent with the complaints received by Mangoola across a 4-year period from January 2013 to November 2018, with noise complaints, accounting for over 90% of all complaints received during this period. Noise was the most prominent issue raised during 2017-18. Noise complaints included general noise from site machinery, typically during night-time activities. In particular noise from excavation and loading, eg, shovel activities. Stakeholders consider that the MCCO Project will likely contribute further noise impacts that will affect their social amenity and/or their ability to sell their properties, should they wish to leave the area' (p. 160).

Blasting

43.0 Table 6.18 identifies Infrastructure and Historical Heritage Item Blasting Impact Assessment Criteria. It is not clear, but it seems the intention is that these criteria will be used to manage blasts so that they do not exceed the ground vibration and overpressure levels identified for receivers that are not residences on privately owned land. Council staff have experienced 5mm/s ground vibration and 115 dBL overpressure, as our Administration building is exposed to these levels on an irregular basis. Table 6.18 indicates higher levels would be acceptable criteria for heritage items and rock formations and rock shelter sites. Council requests that these criteria be amended to match the criteria for residences on privately owned land to avoid damage.

Water Resources

44.0 The MCCO project will disrupt surface water flows to Big Flat Creek, resulting in reduction in flow for that creek on a permanent basis. This will impact on the biology of the creek and the plant and animal species dependent on current flow rates and water levels in the alluvium.

45.0 Big Flat Creek. Hydro Engineering and Consulting notes streamflow gauging station SF01 *that the location of the stream depth sensor was for many years above the stream cease-to-flow level. Therefore, estimated streamflow for the period of record has limited accuracy* (P19) and have attempted to build a model based on data from Dartbrook near Aberdeen. That a partially operable sensor *"was for many years above the stream cease-to-flow level"* raises concerns over the thoroughness of monitoring data used for other Mangoola activities.

46.0 Water Quality. Table 8, (P21) indicates high Total Dissolved Solids in surface water with only 2 of 6 monitoring sites with full data not exceeding safe limits for cattle at least some of the time and exceeding Protection of Aquatic Ecosystems limits 89 to 98% of the time. Table 9 (P26), records water samples with Aluminium, Copper, Chromium,

Lead, Manganese, Iron, Silver and Zinc exceeding ANZECC guidelines at a number of sites along Big Flat Creek. While these cannot be attributed to current mining operations they do have implications for the water quality in the final void.

47.0 Detectable levels of Arsenic, Barium, Beryllium, Boron and Cadmium have been recorded in water storages the current mining operations (Table 11).

> *The data given in Table 11 indicates higher metals concentrations in site storages for some metals compared with the monitored values in stream samples (e.g. arsenic, boron, lead, zinc) while others remain at very low or non-detectable concentrations (e.g. mercury, silver, cobalt, cadmium, chromium). Given the nature of open cut mining operations, it is expected that some metals would be mobilised more readily than in the background environment. (P39)*

48.0 After final closure, final void salinity levels are likely to keep rising with:

> *Possible uses of the final pit lakes may include recreational activities and freshwater aquaculture (for the periods where salinity remains below 4,700 µS/cm or 3,000 mg/L TDS* (P104)

which is achieved around the 50 year mark (figure 46 below), though there appears to be little demand for freshwater fish production in any of the numerous current or expected mine voids, however as noted

> *The most likely longer term climate change prediction (Section 3.3.6) would result in lower equilibrium water levels, these being reached sooner and with an increased rate of salinity rise.*

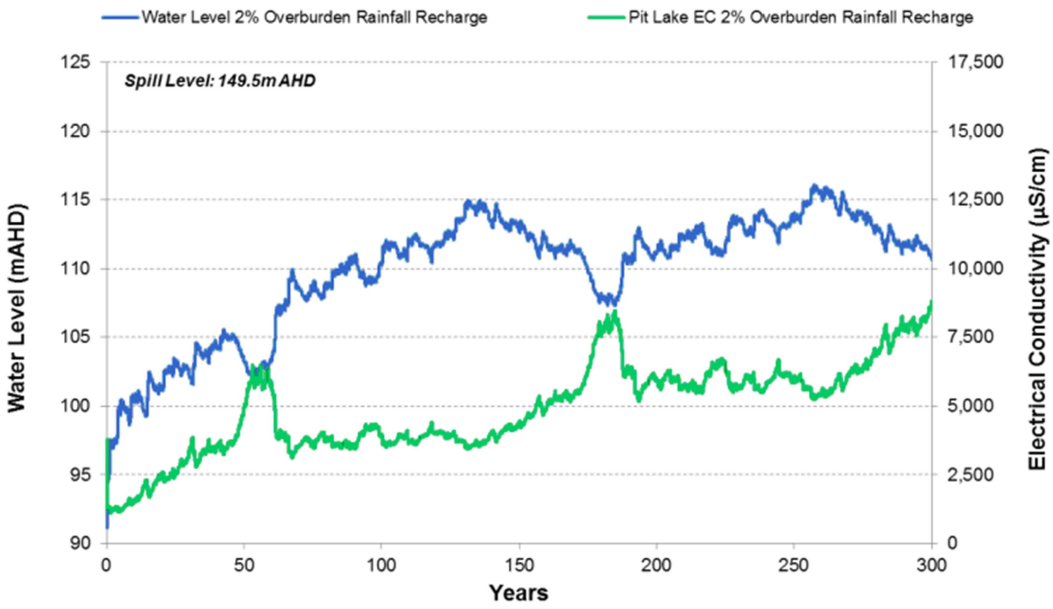


Figure 46 Predicted Final Pit Lake Water Levels - MCCO Additional Mining Area

49.0 (P103) *Based on a geochemical assessment by EGi (2019), runoff and seepage from overburden is not expected to be acidic and should not contain significant metals concentrations.* However, this relates to runoff and leaching from overburden provided the overburden is capped with "*a minimum 3m cover of clean overburden*" (Appendix 21: Geochemical Assessment. P37). This report appears to only refer to leachate and runoff from overburden and water quality in the tailings dams and doesn't take into account inputs of groundwater.

50.0 Appendix 12 Groundwater Impact Assessment (P84) states:

> *The tables show salinity is the main constraint to beneficial use of groundwater in the mining area and surrounds with all bedrock geological units having a water quality that is often unsuitable for aquatic ecosystems, irrigation, or potable consumption. The results also indicate that several metals are present in concentrations above guideline thresholds. The exceptions are bores GW10-A2 and GW10-P2 which have a suitable salinity for potable consumption but which exceed guideline values for a number of metals including aluminium, iron, and lead. Natural variability in the concentrations of dissolved solutes and the beneficial use is common in groundwater systems with relatively low permeability.*

51.0 App 12 P119 Also notes:

> *As predicted in the Mangoola Coal Mine EIS groundwater assessment (MER, 2006) several monitoring bores in close proximity to the Mangoola Coal Mine have recorded mining related drawdown in recent years. As water levels have fallen the bores have often become more saline. This likely represents the mixing of water from different depths within the groundwater regime. Although the salinity in the bores has increased there are no nearby groundwater users that are affected by the changes, and any water moving away from the bore will be migrating towards the pit, where it will be captured.*

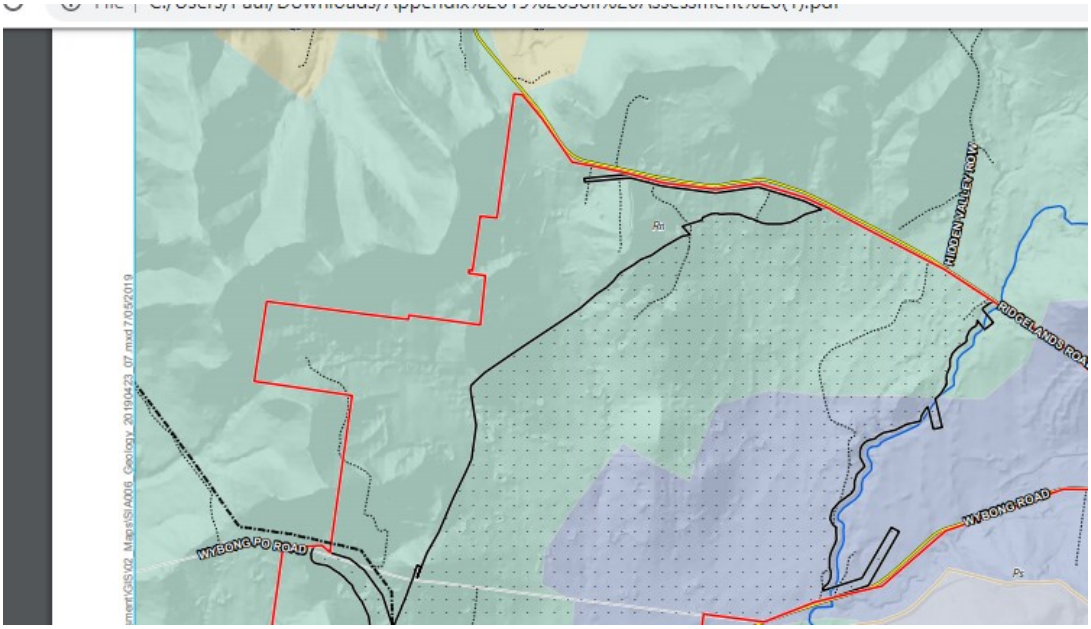
No modelling of concentrations of metals in the void pit water appears to be evident.

Biodiversity Assessment

52.0 Review of the Biodiversity Assessment (Appendix 13 and Main Report) brought to light a number of issues requiring clarification or further work. Of most concern were the threatened vegetation communities assessment and the metrics listed for determination of successful rehabilitation.

53.0 Appendix 13 (P30), 3.1.1 Soils, states:

> *The detailed soil survey undertaken within the Development Footprint (EMM 2018) found that the soils have mostly been derived from the Triassic Narrabeen group"* and further in the report it states (p51*) "according to the soil studies by EMM (2018) there are no clearly Permian derived soils"* and (P55) *"The soil assessment concluded that there are no clearly Permian derived soils on site.*



From: Appendix 19 Soils, Figure 3.4 clearly showing Permian soils in the South East of the site, Appendix 12 Groundwater Impact Assessment Figure 4.1 also shows Permian geology in the south east corner of the proposed project site.

This in conflict with Appendix 19 Soils, Figure 3.4 (shown above) which shows roughly a third of the site being Permian soils. This has major implications regarding the determination of EPBC listed communities particularly the Critically Endangered Ecological Community (CEEC) "Central Hunter Valley eucalypt forest and woodland", which Umwelt has discounted on the grounds:

> *This vegetation zone is not consistent with any TEC listed under the EPBC Act. It does not meet the key diagnostic features for the Central Hunter Valley Eucalypt Forest and Woodland Critically Endangered Ecological Community (CEEC) as it does not occur on Permian derived soils* (App 13, p39)

54.0 This claim is repeated throughout section 3.2 (3.2.1.3, 3.2.1.4, 3.2.1.5, 3.2.1.8 3.2.1.9). Reconsideration on the status of the presence of Central Hunter Valley Eucalypt Forest and Woodland should be undertaken in light of this apparent conflict.

55.0 Category 2 Regulated Rural Land. Page 50 notes the presence of planted vegetation. In the mid to late 1990's much revegetation work was undertaken in the Wybong area by the Blackjack's Mountain Landcare group as well as government agencies. Vegetation planted with the assistance of government funding formerly came under the classification of "Protected Regrowth" (Native Vegetation Conservation Act) and is now defined as Category 2 Regulated Land under the Local Land Services Act,

2013 (Part 5A, Division 2, Section 60I, 2 (a)). There appears to have been no attempt to determine if these plantings are Category 2 Regulated Land.[6]

56.0 Threatened Species. Appendix D Page 11 records the presence of *Cymbidium canaliculatum*, which is an endangered population in the Hunter Catchment [7], however there is no mention of this species in Section 3.3 or discussion of efforts to determine the size of the population or of management strategies.

57.0 Specific threats for this species include:

> *Majority of known sites (>90%) within the Hunter population occur on private or non-conservation land and are potentially vulnerable to clearing (with or without approval). Habitat clearing associated with major mining developments in the Upper Hunter is a significant concern to its long-term survival.*

58.0 Avoidance and Minimisation Measures (Page 65)

> *Due to selecting the preferred option and not proceeding with the alternative mining options and infrastructure locations, the MCCO Project was able to avoid key impacts through the reduced surface disturbance footprint and extent of proposed operations.*

Each alternative was considerably smaller than the preferred option and with considerably smaller impact, adding together the total areas of the alternatives then claiming it as a large avoidance of impacts is spurious at best. Considered separately, as they should be, the impacts of even the largest of the alternatives are far smaller than the preferred option.

59.0 Access Corridor. Page 69 :

> *The location where this access corridor is required includes approximately 12 ha of the originally proposed biodiversity and cultural heritage offset areas. This portion of the former offset area has been excised from the Conservation Agreements that are currently being formalised with the NSW Government*

Has this “offset” been offset? Has it been accounted for in the area to be cleared?

60.0 Page 69 :

> *Importantly, the main function of the corridor, which is to maintain gene flow across the landscape (not just species movement) is unlikely to be affected in the short or medium term while the overpass exists or in the long-term after the mining has ceased and the vegetated connection along Big Flat Creek is re-established.*

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[6] LLS Act.
https://www.legislation.nsw.gov.au/#/view/act/2013/51/part5a/div3/sec60n?dq=Within%20Title%3D%22Local%20Land%20Services%20Act%202013%20No%2051%22,%20Exact%20Phrase%3D%22protected%20regrowth%22&fullquery=(Content%3D((%22protected%20regrowth%22))) : Protected Regrowth, P2
http://141.243.8.146/resources/vegetation/150581-clearing-approval.pdf

[7] https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20049),

Gene flow across the landscape requires movement of species across the landscape, given that a portion of this corridor is to be cleared for vehicle movement then it stands to reason that gene flow, and species movement, across this section will be affected.

61.0 Fugitive Light Emissions. (P70) *"There will be no substantial change to fugitive light emission impacts on the surrounding fauna habitat given that the proposed mine operation is already is part of, and adjacent to, existing mining operations with existing lighting impacts"* Given mining operations, and hence light sources, will be moving a couple of kilometres closer to fauna currently on the northern side of the mine this claim appears misleading.

62.0 Noise Impacts. (P70) "*There will be no substantial change to noise impacts on fauna given that the proposed mine operation is part of, and adjacent to, an already existing operation with existing impacts. The same applies to vibration with the vibration impacts broadly consistent with the blasting impacts from the existing mining operations."* Again, mining operations are to move by a couple of kilometres, sources of noise and vibration will also move by a couple of kilometres, again, this claim appears misleading.

63.0 Air quality. (P70) "*In regard to potential impacts on biodiversity, there will be no substantial change to air quality impacts given that the proposed mine is part of, and adjacent to, an already existing operation with existing impacts*." Again, move the source and you will increase the effects on species already affected and affect others currently not affected.

64.0 Groundwater dependent ecosystems. While a number of forested wetland vegetation communities have been identified on site and would extend outside the boundaries of the project area, (these are: Forest Red Gum Grassy Open Forest on Floodplains of the Lower Hunter, Forest Red Gum Grassy Open Forest on Floodplains of the Lower Hunter – Derived Native Grassland, Swamp Oak - Weeping Grass Grassy Riparian Forest of the Hunter Valley, Swamp Oak - Weeping Grass Grassy Riparian Forest of the Hunter Valley - Rough-barked Apple Variant) only Swamp Oak – Weeping Grass Grassy Riparian Forest and *Eucalyptus crebra/ Eucalyptus moluccana* grassy woodland of the central and upper Hunter are in areas considered likely to be affected by groundwater drawdown.

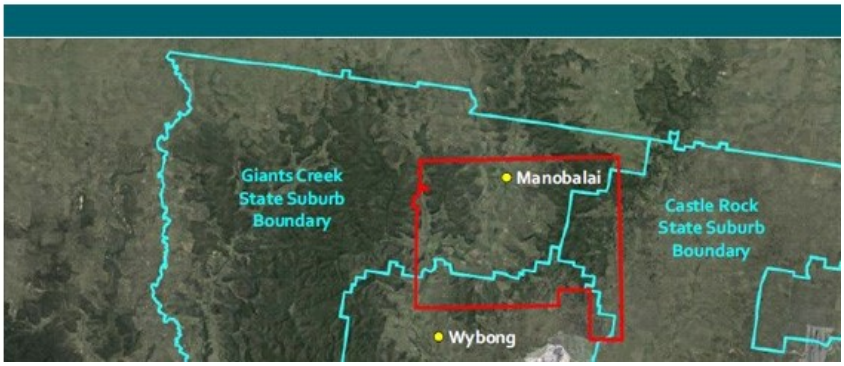
65.0 While the *Eucalyptus crebra/ Eucalyptus moluccana* grassy woodland of the central and upper Hunter is considered to have a low dependence on groundwater, the Swamp Oak – Weeping Grass Grassy Riparian Forest is regarded as moderately dependent:

> *It is expected that Swamp Oak - Weeping Grass Grassy Riparian Forest has a moderate potential to be dependent on shallow groundwater resources during periods of reduced surface water flow. The dependence of the vegetation community on groundwater will depend on the depth of root systems and their efficiency at utilising rainfall and surface moisture.*

While during average to wet years surface moisture may be adequate to maintain these communities, during dry years, such as we are experiencing, presence of groundwater would be vital for the survival of this community.

66.0 Biodiversity Offset Strategy. While in perpetuity conservation agreements are generally regarded as good outcomes often times "in perpetuity" is only until the granting of a mining licence over the site. Proposed offset areas to the north of the project site are subject to exploration licence EL8064 (Ridgelands Resources). This raises questions over the long term security of some of the offset sites.

Ridgelands Road (north of the intersection with Wybong Road) to the south. There are about
including residential, mining, viticulture, equine, conservation, small scale agriculture and Cro



From: https://www.ridgelandsresources.com.au/

67.0 Prasophyllum petilum. Umwelt commissioned an expert report by Dr Steven Bell of Eastcoast Flora Survey to estimate numbers of Diuris and Prasophyllum in offset areas. The methodology does not appear to have been used on either the proposed project area nor to existing Mangoola site to estimate total numbers lost:

> *Vizer (2013) investigated a range of aspects of the ecology and biology of Diuris tricolor and Prasophyllum petilum at Mangoola Coal. He found peak flowering to occur from mid- to late September, but that less than 20 % of plants would be flowering on any particular day at this time. This implies that a 'one-off' survey, even if conducted on the day of peak flowering, would likely overlook more than 80 % of individuals in that population.* (Appendix C: Page 10)

68.0 While the surveys on the proposed project site were carried out in more optimum conditions, it is likely the true population of *Diuris tricolor* (1326) and *Prasophyllum petilum* (691) on the proposed project site is higher than claimed (1326 and 691 respectively). In addition this adds to the orchids lost, both known and unknown, from the development of the current Mangoola operations.

69.0 It is noted that 3,000 orchids had been translocated during the development of the current operation however while a number of translocated orchids have been recorded flowering the ongoing drought makes it difficult to ascertain the long term success of this activity. The proposed MCCO project does not appear to be planning any further translocations from the affected area.

Historic Heritage

70.0 While there may be few built items of heritage significance in the area, the village and surrounding properties that constitute Wybong have existed for more than a 150 years. The Shire of Wybong was constituted in 1906. There are memories associated with this location and the decline in population living in this locality, due to mining, disrupts the ongoing cultural links for this community and place.

71.0 Council requests that a condition of consent be included that requires the proponent to pursue a planning proposal for lifestyle housing blocks in the vicinity of the

existing Wybong Hall as a part of the Rehabilitation Plan for the project, in order to restore the 'Village of Wybong', and to provide replacement of a housing type that has diminished in the Shire overall due to mining.

72.0 The EIS states that based on the findings of the Heritage Assessment, there are no recommendations for assessment, investigation or recording with regards to Historic Heritage. Yet the description of the Millville homestead indicates it is very representative of the evolution of homesteads in these early pioneer locations: The naïve, or vernacular architectural style, the ongoing additions that reflect the improvement in economic circumstances, and the change in status from pioneers to respected long-standing members of the community.

73.0 There is a lot of focus on the grand homes of the landed gentry, such as the Whites, but they are only a small part of the history of the Region. At minimum there should be a demolition plan prepared, and followed, for the Millville residence, that allows detailed photographic evidence to be taken to document the phases of construction, and a report prepared that captures the important values and themes this residence represents for Wybong and the early settlers of the Valley.

Traffic and Transport

74.0 The SEARs for the MCCO Project require the EIS to address the following:

- An assessment of the likely transport impacts of the development on the capacity, condition, safety and efficiency of the road and rail network; and
- A description of the measures that would be implemented to mitigate any impacts, including concept plans of the proposed overpasses and road alignment, developed in consultation with the relevant authorities.

75.0 The assessment contained in the GHD Report for Umwelt – Mangoola Coal Mine Continued Operations 2219171 is an inadequate assessment because it fails to satisfy the requirements of the SEARs.

76.0 There isn't an assessment of the operational traffic associated with the development. No proper assessment of the likely transport impacts, such as volume of operational traffic, capacity, road condition, safety and efficiency on the road network from the operating phase of the development has been undertaken. The reason given in the assessment is that operational traffic volumes are not expected to increase following construction of the project. However this seems contradictory to the facts contained in the Economic Impact Assessment, page 24 section 2.5.1, which states that an additional 199 FTE workers will be employed.

77.0 Council asks for clarification on the traffic volumes predicted and specifically if these include both operational and construction traffic during the construction phase. E.g. the report states that 'the construction vehicle traffic estimated to be generated by the MCCO Project has been determined based on information provided by the client in relation to the project'. The data indicates that during construction the project will generate up to 169 trips per hour. Does the predicted traffic volume include operational

traffic? As this data has been provided by the client, has it been independently verified to be a correct estimation?

78.0 Section 2 of the Traffic and Transport Impact Assessment (TTIA) - Existing Conditions - provides commentary on the existing road network characteristics including how the roads are classified and the function that they perform according to the Roads and Maritime classification system. This information omits any consideration or reference to Muswellbrook Shire Council's 'Road Asset Management Plan' which identifies mine affected roads such as Wybong Road as having specifically identified functions and hierarchy. Therefore, the information given in the report is not specific to Council's roads and does not align which the class descriptions and required functions of the roads according to Council's Road Asset management plan.

79.0 The report concludes in the Executive Summary that the TTIA finds no road upgrades or changes are required to the regional road network as a result of the MCCO project. Council is not satisfied that the impacts of the proposed development have been adequately assessed to reach this conclusion.

80.0 The TTIA indicates that the proposal will have impacts to Wybong Road, Wybong PO Road and Yarraman Road, with changes to the road network proposed. Any changes to the road network, including road closures, will be subject to the approval of Muswellbrook Shire Council. Council's current policy is that it will not approve any closures to public roads and or changes to the Shire's road network until the 'Mine Affected Roads Network Plan (2015)' has been reviewed and updated.

81.0 Section 3.2.2 of the TTIA -The proposal includes the construction of an overpass over Wybong Road. This structure has the potential to restrict vehicular movement at this location specifically for Over Size Over Mass vehicles (OSOM). Council at the meeting 30 July 2019, noted the preliminary design of the overpass on Wybong road, that is proposed to have a clearance of 5.4m vertical and 7m seal width (10m width clearance) across Wybong road. The proposed clearance is of concern to Council as this route is used on a regular basis as an alternative route to the Golden Highway by OSOM vehicles which cannot cross the Hunter River Bridge on the Denman Road, or when emergency detours and road works are in place (see map below). Council records indicate that of the 95 + OSOM approvals for the use of Wybong Road from January 2019 to June 2019, 62 truck movements were in excess of 5.4m height, with the average being 5.8m high. The largest vehicle that has recently travelled on this part of Wybong Road measured 9.5m wide and 5.8m high. Therefore based on the historic use of the road for OSOM vehicles Council would reject this design of the Wybong Road Overpass due to the height and width restriction that it would impose, if submitted as part of the S138 application to construct.

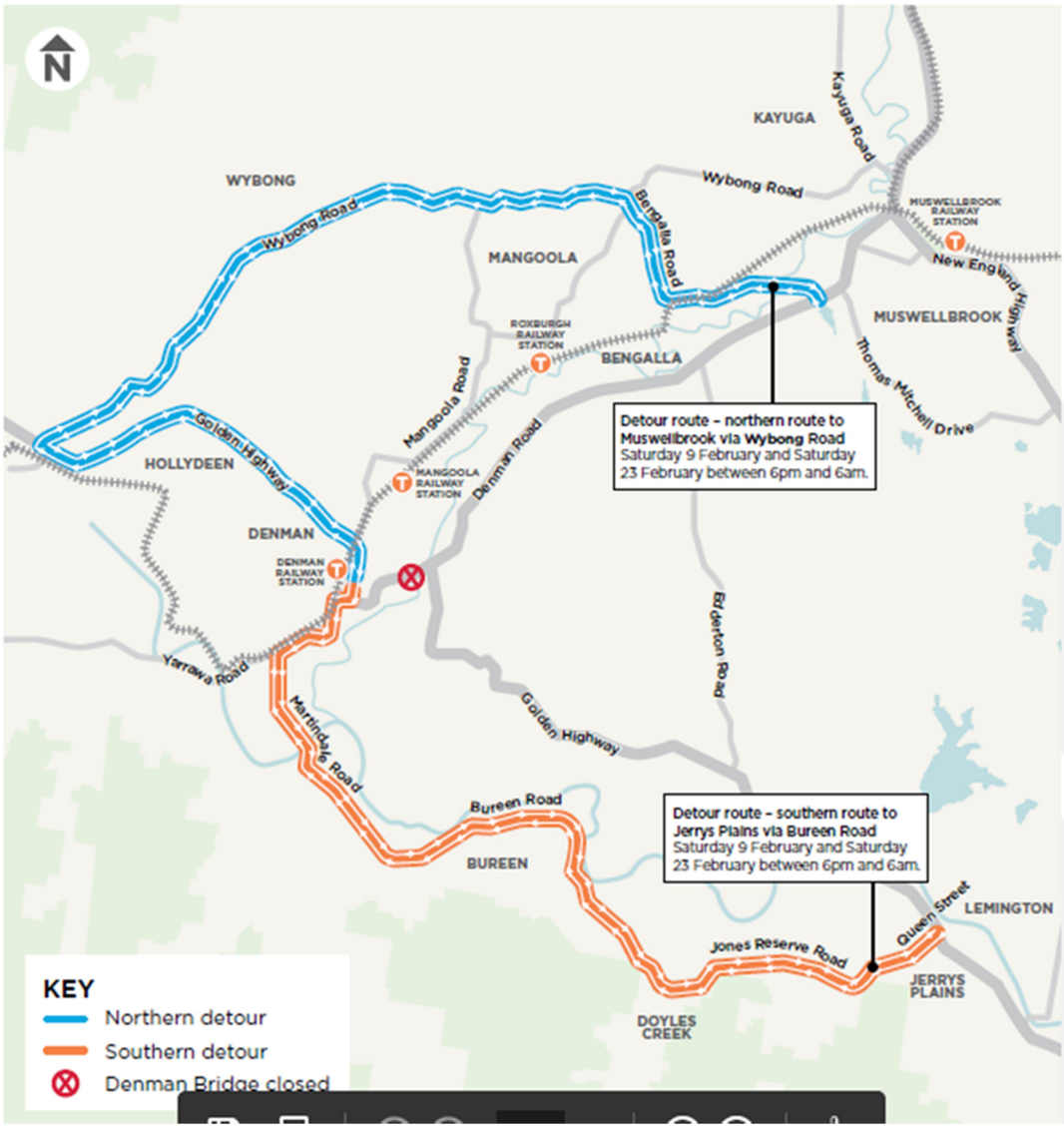
82.0 Section 2.1.8 Freight Routes, makes no comment of the importance of Wybong Road to the freight industry in terms of a transportation route for OSOM vehicles used for transportation of equipment and goods within the state. With reference to the Roads and Maritime Services 'Bridge Detour Map' below, Wybong Road is used as an alternate transport route due to the restriction imposed by the bridge over the Hunter River on the Golden Highway at Denman. Council records indicate that of the 95 + OSOM approvals

for the use of Wybong Road from January 2019 to June 2019. Therefore based on the historic use of the road for OSOM vehicles the assessment is inadequate in determining the impact from the development on this transport route and for the transportation industry.

NSW GOVERNMENT

Denman bridge detour map

Restricted access heavy vehicles are not permitted to use this detour route



83.0 During the construction phase for the proposed Wybong overpass it is proposed to construct a bypass of Wybong Road. Construction of a side track would be subject to Council approval and would need to be guided by the requirements of RMS Traffic Control at Worksites manual which requires a full design to be submitted to Council for approval. Any proposed sidetrack would need to be suitable for use by OSOM vehicles and would be subject to conditions for the maintenance during the construction period or period that it is in use.

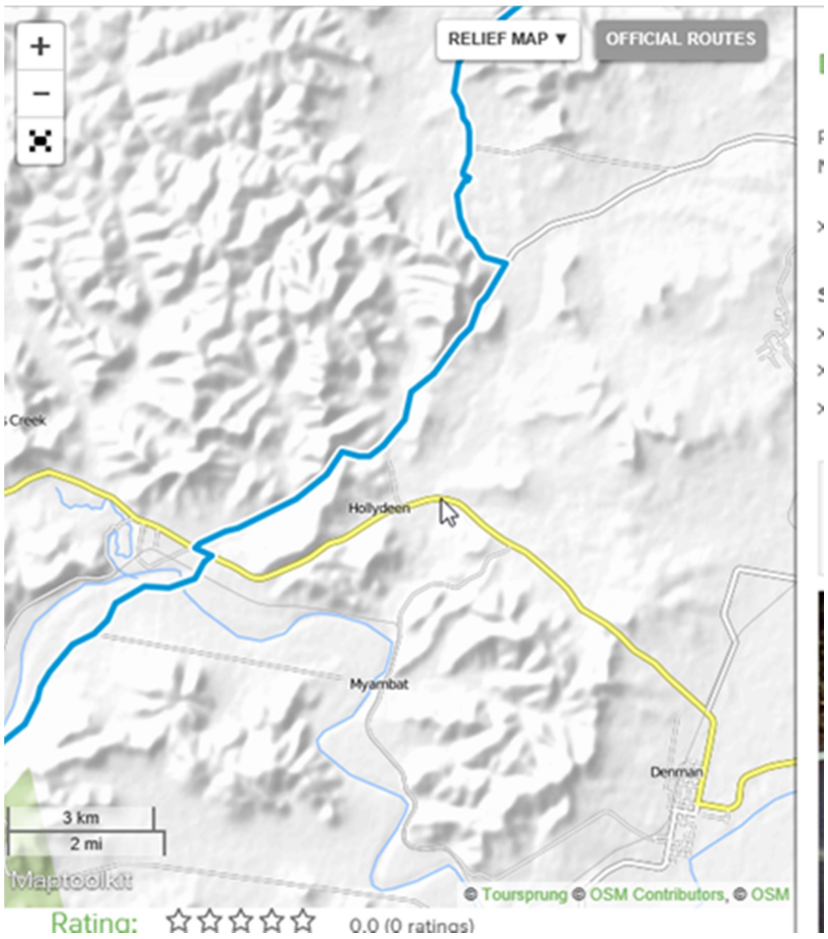
84.0 Section 3.2.3 – Although the existing conditions of consent (see condition 48 reproduced below) allow employees to use Wybong Road east and Kayuga Road, Council would not permit traffic to use these roads, to maintain consistency with the conditions of consent for other mines. Therefore the assumptions used in section 3.2.3 are not correct. Council also requests that this existing condition be amended.

48. No project related traffic shall use Reedy Creek Road, Mangoola Road (apart from that section forming part of Construction Route 1 during construction of the project pipeline), Roxburgh Road or Castlerock Road to get to or from the site, except in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

No project-related heavy vehicle traffic shall use Wybong Road west of the mine access road (to the intersection with the Golden Highway) to access the site, except in any emergency to avoid the loss of lives, property and/or prevent environmental harm.

Note: This condition does not apply to any employees that may reside on Reedy Creek Road, Mangoola Road, Roxburgh Road or Castlerock Road, or the infrequent use of the roads for consultation, environmental monitoring, and inspection and maintenance of nearby infrastructure.

85.0 Section 2.1.9 Active Transport and Public Transport makes no mention of the impacts, if any, to the 'National Trail' which includes part of Wybong Road (see map below).



86.0 Section 2.3 - Crash Data - acknowledges that there is crash data and history on the immediate sections of the road network adjacent to the mine site and on roads which are used to access the mine. Although the crash history is acknowledged, the report suggests that there is no significant safety deficiencies in the road network near the intersections of interest. What is this assumption based on and is it based on safety audits conducted on the roads? The report fails to mention the existing conditions imposed by the State Coroner following a fatality which occurred on the road. Therefore Council considers that an inadequate assessment of the impacts to road safety from the development has been undertaken.

Visual Impacts

87.0 Appendix 18 – Visual Amenity Assessment Materials is very brief – has there been an error in production of the EIS that has meant a lot of the material has been inadvertently deleted?

88.0 The EIS analyses potential visibility of mining operations from a number of locations, most notably from Wybong Road. The installation of landscaped bund for the full frontage of the project area to Wybong Road is proposed to lessen visibility. The EIS does not provide detail on heights of the bund, the proposed density/type of plantings or

assess the impact this amelioration measure will have. Council requests that conditions be included that require:

- That screen plantings be installed at sufficient density to assist with screening mine components from sensitive viewpoints, including Ridgelands Road and Wybong Road.

- A minimum screen planting canopy density, measured from ground level to a height of 8m above ground level, of 60% (alternatively expressed as a leaf to air gap ratio of 2:1) is to be achieved adjacent to Ridgelands Road;

- A minimum screen planting canopy density, measured from ground level to a height of 6m above ground level, of 60% (alternatively expressed as a leaf to air gap ratio of 2:1) is to be achieved adjacent to Wybong Road; and

- The visual bunding adjacent to Wybong Road is to be removed as part of the closure plan for the site.

‘

Land use and Agriculture

89.0 Reference is made in the Social Impact Assessment for the MCCO, to the impacts that may be experienced regarding the sense of community, community participation, social cohesion and service delivery due to property acquisition and population change over time (Umwelt, 2019 Social Profile – p 56). Reference to the sustainable livelihoods approach (DfID, 1999) as a methodology used by Umwelt, on behalf of Mangoola, to provide a “comprehensive understanding of the relevant communities proximal to Mangoola’s operations and the MCCO Project”. This approach has only briefly noted the decline in population and the impact that this will have on the remaining residents in the proximity to the mine for services and community support/cohesion.

90.0 Over the last two decades there has been a gradual decline in population in the Wybong area as a direct result of mining activity and land acquisitions in the Wybong Valley. In the 2001 ABS Census (Source: ABS CCD number 1 1,130,502 Wybong NSW) the Wybong area was described as a small rural settlement with an estimated population of 537 people, comprising 158 families. The current population (2016) sits at approximately 127 people.

91.0 The 2001 census data indicated that there were approximately 161 homes in the Wybong area, comprising 71 (38.4%) as private dwellings, whilst 45 (24.3%) were being purchased and 45 (24.3%) described as rented (Coakes Consulting Pty Ltd, 2006, Anvil Hill Project Socio-Economic Assessment Report, p. 26). Today entire portions of the Wybong Village area are owned by mining corporations, primarily Mangoola Coal Operations Pty Ltd. This is particularly relevant and obvious in the area proximate to the Wybong Hall, in fact, all but one property along Post Office Road is owned by Glencore Mangoola as demonstrated page 40 of the Social impact assessment. This same map describes approximately 70 properties in the area of ‘Wybong ‘and assuming that this area is also approximate to the ABS area identified as Wybong, there has been a decrease of over 60 homes in this location over twenty years, explaining a decline in both population specific service delivery in this area.

92.0 No commentary is provided on the final social outcomes post mining and what needs to be done to ensure the resilience and heritage of the community post mining. This is of significant importance to the community. 'Impacts relating to way of life, including how people live, work, play, and interact with one another on a daily basis was the most prominent social impact category identified, followed by impacts relating to surroundings, including access to and use of the natural and built environment, and its aesthetic value and/or social amenity, associated with noise and dust, and subsequently impacts relating to personal and property rights, community, health, and wellbeing' (p.146).

93.0 Muswellbrook Shire Council has identified that loss of population, and issues of housing availability and affordability, are linked to the acquisition and demolition of homes as part of the expansion of mine operations and development throughout the Shire. In response a draft section of the LEP has been developed to facilitate the retention of and mitigate the loss of housing and to create comparable accommodation to satisfy the demand for such accommodation.

94.0 To mitigate the loss of housing, a condition of approval is requested that either:

> a) requires a financial contribution to a social housing provider towards the provision of affordable housing in Muswellbrook, to replace the equivalent amount of housing stock permanently or temporarily lost due to the project; or
>
> b) the construction of affordable housing in Muswellbrook, to replace the equivalent amount of housing stock permanently or temporarily lost due to the project.

95.0 Post mining, Mangoola Coal should consider the development of a village around Wybong Hall and intersection of Wybong PO Rd and Yarraman Rd. 'There was a strong 'nostalgic' feel from current residents that their community had been changing, since the development of Mangoola Coal Mine, from what had once been a close and connected community, where people had strong ties and supported each other, to one that was more separate and detached. With the onset of development in the area, it was noted that many established families have moved away, and that the once vibrant social events and celebrations, e.g. Christmas and New Year, dances and group meetings, that used to occur in the Wybong Hall were now less frequent as a result of a dwindling population base' (p. 157). It is important that the sense of community is regenerated post mining. This needs to be considered as an important component of the closure plan.

Rehabilitation and final landform

96.0 Each alternative mine and final landform scenario is considerably smaller than the preferred option for impacts on vegetation and final water catchment capture from Big Flat Creek. Considered separately, as they should be, the impacts of even the largest of the alternatives are far smaller than the preferred option. Council prefers Final Void option 4 (One void in the North) to option 3 – MCCO project case (as included in the EIS).

97.0 The mine rehabilitation aims to *"Establish similar native vegetation communities to those that will be impacted by the MCCO Project."* Rehabilitation after seven years is

expected to be *"trending towards benchmark",* without an actual expected and measurable value this term is meaningless.

98.0 Expected credit points (excluding individual species credits) generated at the time of "Preliminary Completion" are expected to be 2,187, this is in contrast to the 17,718 credit points the site is currently assessed at. There is no expected timeline for this and given that rehabilitation aims to *"Reduce the need for long term monitoring and maintenance by achieving effective rehabilitation*" it would appear there is an expectation to write rehabilitation of the site off well before it has become "similar". Given that the criteria for preliminary completion is >50% benchmark richness and canopy class coverages ranging from 25 to 200 percent of benchmark values the completed rehabilitation could look nothing like that upon which it is based.

99.0 Local communities are typically highly dependent on nearby mines for socio-economic benefit which is then abruptly withdrawn following mine closure. The impact of closure on local and even regional socio-economics can therefore be significant and should be a key consideration in closure planning processes and documents. At the close of mining operations every effort should be made to maintain the quantum of employment opportunities, in turn avoiding economic and social disruption to the local community through loss of job opportunities. Post-mining land use opportunities for rehabilitated mine land could include:

- Recreational uses
- Hydropower and other renewable energy generation activities
- Tourism and Theme parks
- Wildlife habitat and conservation
- Water storage and irrigation
- Intensive Agriculture / Aquaculture
- Industrial Development
- Replacement lifestyle lots and creation of a new Wybong village community focused on land in the vicinity of the Wybong Community Hall.

100.0 Transition to post-mining activities should commence before mining ceases. This may require adjustments to Mining Lease conditions and the LEP to facilitate.

101.0 A working party with participants from Muswellbrook Shire Council, DPIE, Premiers and Cabinet, Mangoola Coal Operations P/L, Muswellbrook Chamber of Commerce, traditional owners and local land council members and the Hunter JO Economic Transitions Committee should be established by the year 2025 to commence planning for the transition to a post-mining suite of uses for the site.

102.0 There needs to be a high level of indigenous engagement with rehabilitation, final landforms and land uses, how the land will be cultivated. For example, is there a need for consideration of bush tucker? The indigenous community needs genuine participation in end use planning (p. 184).

103.0 Open Cut Voids - What are the rehabilitation “treatments” and revegetation plans for voids? How have these been determined? And what is their purpose (to what objectives and criteria)?

104.0 Final land use is described as a combination of native woodland, grazing and water management areas.

Water management is an oblique activity and not an end use. What is the end use of the proposed pit lakes?

105.0 Landforms are to be independently assessed as safe and stable compatible with surrounding natural landscape.

- By whom?
- What discipline and qualifications?
- How compatible?
- What if they are not? what redress is expected?

107.0 Voids are to be designed as long term groundwater sinks:

- Has water balance modelling been undertaken for all final voids?
- What were the findings and assumptions
- How have groundwater flows been maximised?

108.0 Final voids will be assessed by a qualified geotechnical engineer for stability to ensure they do not represent a safety risk:

- How is “safety risk” defined?
- What detail as to safety will be incorporated e.g., safety factors?
- What management will be undertaken to manage all void safety risks
- falls; and
- drowning

Greenhouse gases

110.0 P 30: “*The impact of GHG emissions are global in nature, as a result, apportioning the whole costs of CO2e associated with the MCCO Project overstates the cost to NSW. To estimate the impacts on NSW, it is appropriate to apportion a component of the total global costs to NSW. The approach adopted is to apportion the global GHG costs estimated to NSW using the ratio of NSW population to global population. On a global basis, the total estimated GHG cost is $29.1 million in NPV terms, see Table 18. Attributing the GHG costs based on the NSW population, consistent with the Guidelines, results in an attributed GHG cost of $0.03 million to NSW in NPV terms.”*

111.0 Using this reasoning Greenhouse gasses released when coal from Mangoola is burnt should be similarly apportioned, CO2e of coal produced by the MCCO project would total around 100 million tonnes, or roughly 25 times that released during production, using Cadence Economics methodology this would equate to around $0.75 million, however on the polluter pays principle it should be paid at the source which would be a cost of $29 million dollars to the residents of NSW.

112.0 The applicant should be required to prepare an Export Management Plan that ensures that any coal extracted from the development that is exported from Australia; is only exported to countries that are:

a) parties to the Paris Agreement within the UN Framework Convention on Climate Change; or
b) countries that have established policies to reduce greenhouse gas emissions to a level similar to the Paris Agreement.

Council appreciates the opportunity to comment and would be pleased to provide additional information if requested.

Yours faithfully

Fiona Plesman
GENERAL MANAGER