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Sutherland Shire Council's submission re. the Metropolitan Coal Mine Modification, application number MP08_0149-Mod-4

Thank you for the opportunity to comment on the proposed modification to reconfigure Longwall 317 and add Longwall 318 at Peabody's Metropolitan Coal Mine.

Council has a long history of opposing mining within the Woronora Special Area, beginning with our submission to the original 2008 application. Many concerns raised in that submission have now materialised, including subsidence impacts to swamps and waterways, and increased pressure on water quality.

The Woronora Dam and catchment provide drinking water to residents of the Sutherland Shire. A healthy, ecologically and hydrologically sound catchment is central to ensuring this drinking water source remains suitable and available. Council is not satisfied that the proposed modifications will safeguard the long-term security of resident's water supply.

Accordingly, Council objects to Modification 4 – Longwalls 317 and 318 at Peabody's Metropolitan Colliery, on the basis that the proposal presents unacceptable risks to the Woronora Special Area water catchment, the Royal National Park, and associated threatened ecological communities (BWN009-25; Minute No. 276).

Furthermore Council disagrees with Metropolitan Colliery's assertion that, even with the modification, the mine will remain "*substantially*" the same as the development originally approved under Project Approval (08_0149) (Modification Report, p. 117). The modification will contribute new impacts and expand the development's footprint.

This submission focuses on five areas of concern. A summary of these issues is provided below, and further details are attached for your consideration.

Remediation measures

Peabody's Metropolitan Coal Mine has failed to meet environmental performance standards set in its 2009 approval. Key issues include the following:

- Streambed cracking in Waratah Rivulet and Eastern Tributary.
- Groundwater impacts affecting threatened ecological communities.
- A recent overflow incident involving coal fines and sediment contaminating Camp Gully Creek and the Royal National Park.

The mine has had a reactive remediation approach, which has historically failed to prevent environmental degradation. Council's concerns are heightened by:

- Climate change pressures, as highlighted by Cairns et al. (2025).
- Doubts about the durability of polyurethane (PUR) grouting, the primary remediation method, especially in light of past expert assessments noting shrinkage and ineffectiveness.

Despite adaptive management plans with monitoring and contingency measures, these do not adequately address irreversible ecosystem damage. The Woronora Special Area, home to highly localized and vulnerable species, remains at risk due to the limited effectiveness of current remediation strategies.

Water Quality

There are significant water quality impacts from mining, including subsidence and chemical changes due to bedrock cracking in the Waratah Rivulet. The proposed modification to the Metropolitan Coal Mine will lead to:

- Valley closure and upsidence, increasing the risk of bedrock cracking.
- Indirect impacts such as:
 - Cracking and fracturing of bedrock and underlying strata.
 - Pool leakage and diversion of surface water into subsurface fractures.
 - Changes in water quality (e.g., iron flocculant, dissolved oxygen, pH, turbidity, conductivity).

These changes threaten surface water availability, macroinvertebrate communities, and local hydrology, with downstream ecological consequences. Additionally, upland coastal swamps, vital for water filtration and biodiversity, are at risk of altered hydrology and groundwater regimes, and peat oxidation and degradation of swamp-dependent vegetation and fauna.

These impacts compound existing environmental pressures and pose a threat to drinking water security, especially under climate change conditions. It is also considered that continued mining may compromise WaterNSW's ability to meet its legal obligations, with ongoing risks to Woronora Reservoir water quality.

Subsidence and offsets

Subsidence from longwall mining poses a more immediate and severe threat to upland swamp function than climate change, with impacts likely irreversible and no proven remediation methods available. Subsidence-induced fracturing beneath swamps leads to groundwater loss, reduced surface water discharge, and degradation of swamp ecosystems. It is considered that the proposed modification will cause:

- Valley closure and upsidence
- Bedrock cracking and pool leakage
- Loss of surface water flow

Six swamps (≈30 hectares) of the threatened Coastal Upland Swamps are expected to experience significant impacts, including, altered hydrology and groundwater regimes, peat oxidation and degradation of vegetation and fauna habitats. Offsetting these impacts has challenges - including:

- Like-for-like offsets are impractical due to the swamps' restricted distribution and ecological specificity
- Traditional offsets are limited, and alternative measures (e.g., hydrological monitoring) may not be sufficient
- The NSW Biodiversity Assessment Method (BAM) 2020 requires prescribed impacts like subsidence to be addressed through additional biodiversity credits or alternative measures

As a consequence, 13 entities, including Coastal Upland Swamps, Eastern Australian Underground Orchid, and Large-eared Pied Bat, are flagged as potentially subject to serious and Irreversible Impacts (SAII). Council recommends further consideration of these entities under SAII guidelines. Additional offsets or measures may be required to address residual impacts, where maximum available offsets should be considered as minimum requirements.

Ventilation Shaft 4

Council requests a comparative impact study between the original and proposed sites for Ventilation Shaft 4, if both are confirmed suitable for the new downcast ventilation system. Introducing new surface facilities in the Woronora Special Area, given past impacts in the Royal National Park, including facilities such as sediment ponds, stockpiles, and hardstands, may cause:

- Edge effects on adjacent habitats
- Noise, vibration, light spill, dust
- Vehicle strike risks and weed/pathogen introduction

Aerial imagery suggests the original site is already more impacted than the proposed site, making a comparative study essential to determine the least impactful option.

300 series Mains and implications for the future

The proposed modification includes continued development of the 300-series mains to the west, which appears to extend beyond the currently approved mining lease area. A new lease over part of Exploration Licence (EL) 9364 would be required to cover Longwall 318 and the extended mains.

This is viewed as a pre-emptive move, suggesting an expectation of future expansion beyond the current approval boundaries.

Conclusion

The Independent Review of the Biodiversity Conservation Act 2016 - Final Report states *"Environmental considerations, and especially opportunities for avoidance and minimisation of biodiversity impacts, are not considered early enough in the development assessment and approval process"* (page 3) and found that the present Biodiversity Conservation Act 2016 is not meeting its primary purpose of maintaining a healthy, productive and resilient environment, and is never likely to do so.

The Metropolitan Coal Project is having an impact on the Woronora Special Area. The full extent of these impacts may not yet be revealed. If the state's drinking catchments are not safe havens from impact, what areas are?

Sutherland Shire Council objects to the Metropolitan Coal Mine's modification application. If the consent authority was to consider the application, council would like to see all available offset credits, including all prescribed impacts, retired upon any breach of a performance measures.

Given the scale and complexity of the documentation and the short time frame for assessment, the following is considered a high-level assessment and should be considered a draft until elected councillors have had time to review and provide any additional comments.

Should you require any further information please contact Jordan Widenstrom, Senior Manager Urban Futures by email jwidenstrom@ssc.nsw.gov.au

Yours sincerely,



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Remediation measures

Peabody's Metropolitan Coal Mine has failed to demonstrate compliance with performance measures outlined in its 2009 approval, including evidence of stream bed cracking in Waratah Rivulet, and Eastern Tributary, impacts to groundwater vital for threatened ecological communities, and the recent incident involving the overflow of water contaminated with coal fines and sediment into Camp Gully Creek, and the Royal National Park. Council believes an approved modification will see the mine continue to rely on a reactive remediation approach to environmental degradation, as evident throughout the history of the development.

Cairns *et al.* (2025) highlights the need to look at subsidence impacts in conjunction with the added pressures associated with climate change. Given our resilience focused future, Council remains concerned about the long-term effectiveness of remediation efforts undertaken in the damaged pools of the Waratah Rivulet, and Eastern Tributary, and questions whether the use of polyurethane (PUR) grouting products can withstand the pressures of a changing climate. Council refers to comments made in the 2019 report of the independent expert panel for mining in the catchment part 2 regarding remediation works undertaken to Waratah Rivulet, specifically, "*The durability of the product is not proven. It had the appearance of having undergone shrinkage at some injected cracks*" (page 65).

While the efforts outlined in Metropolitan Coal Mine's adaptive management plan have various monitoring programs, trigger action response plans, and other contingency plans, the only proposed method to remediate surface tension cracks is via polyurethane (PUR) grouting. These reactive measures cannot fully compensate for the loss of ecosystem processes, or account for serious and irreversible impacts. The Woronora Special Area has key communities and species with a highly restricted geographic distribution, with many confined to the Woronora Plateau. Considering future scenarios, genuine concerns remain over the long-term viability of the reactive mediation methods undertaken to try and re-secure impacted waterways within the Woronora Special area.

Water Quality

Morrison *et al.* (2019), and Wright *et al.* (2015) highlight impacts to water quality from mining operations including subsidence, while Jankowski (2007) found water quality data along the Waratah Rivulet in the Woronora Catchment showed changes in chemical composition due to cracking of riverbeds and rockbars.

The modification will see Tributaries R, S, U, and Honeysuckle Creek experience valley closure and upsidence, particularly where they intersect proposed Longwall 317 and 318. These conditions elevate the risk of bedrock cracking and associated water loss. The projects reports outline the main indirect impacts anticipated for these watercourses include:

- *Cracking of bedrock at the base of the channels*
- *Fracturing and dilation of underlying strata above and adjacent to the longwalls*
- *Pool leakage where such cracking occurs*
- *Potential loss of surface water flow as water is diverted into subsurface fractures*
- *Changes in water quality and physiochemical parameters (increase iron flocculant, changes in dissolved oxygen levels, pH, turbidity, conductivity etc) (BDAR, page 199).*

These effects are likely to reduce surface water quality and availability, dewater pools, alter macroinvertebrate community structures, and disrupt local hydrology and habitats, causing

ecological consequences downstream and within riparian zones (Morrison *et al.* 2019; Wright *et al.* 2015).

A vast body of scientific literature highlights the significance of upland swamps, and their role in water quality (Cowley *et al.* 2020; Cowley *et al.* 2018; Mason *et al.* 2020 and Christiansen *et al.* 2019). The proposed modification is likely to impact upland coastal swamps. These impacts are predicted to cause changes to hydrology, altered groundwater regimes, peat oxidation, and subsequent degradation of swamp-dependent vegetation communities and fauna habitat over time.

Upland swamp communities and waterways are integral components in securing our resident's drinking water. The impacts expected from the modification will be additional to the cumulative impacts already associated with the development. When coupled with the pressures of climate change, these impacts raise ongoing concerns about water security.

Council believes the water quality impacts associated with the modification will add further stress and be a driver of change in the catchment. IEPMC's (2023) review of Woronora Water Quality, determined that continued mining poses risks to WaterNSW's ability to meet its legislative obligations under the Water NSW Act 2014, and the Panel advises that there is a risk that mining-induced fracturing has and will continue to have adverse consequences for the Woronora Reservoir water quality.

Subsidence and offsets

Through modelling of subsidence-induced hydrological changes to upland swamps in Sydney's drinking catchments, Cairns *et al.* (2025) found subsidence poses a more immediate and severe risk to swamp function than climate change alone and outlines the need to assess the cumulative impacts of mining with the additional environmental stress of a changing climate. Longwall mining can cause subsidence induced fracturing beneath a swamp, which can result in groundwater losses becoming the dominant output and see surface water discharges from the swamp reduced (Cairns *et al.* 2024). Cairns *et al.* (2024) states that the undermining impacts are likely irreversible with no proven mitigation or remediation methods available.

The modification will also see Tributaries R, S, U, and Honeysuckle Creek experience valley closure and upsidence, particularly where they intersect proposed Longwall 317 and 318, resulting in cracking of bedrock, pool leakage where such cracking occurs, and loss of surface water flow.

Appendix K of the BDAR states: *"Accurately predicting and quantifying the impacts of longwall mining on Coastal Upland Swamps is challenging. This is due to the unique characteristics of each swamp, the difficulty in modelling strain at specific locations, and the inherently dynamic nature of these ecosystems."* (page 2)

Six swamps, comprising nearly 30 hectares of the threatened ecological community, Coastal Upland swamps in the Sydney Basin Bioregion are considered as having a likelihood of greater than negligible predicted impacts from subsidence. These impacts are predicted to cause changes to hydrology, altered groundwater regimes, peat oxidation, and subsequent degradation of swamp-dependent vegetation communities and fauna habitat over time.

Under section 10.1.3 of the BDAR, it states securing like-for-like offsets for the endangered Coastal Upland Swamp community is highly challenging due to its restricted distribution (primarily confined to protected areas such as Water NSW Special Areas and National Parks). The community's ecological specificity, reliant on unique sandstone geology and hydrological conditions, further limits viable offset opportunities. This section also goes on to state that compensatory measures, such as hydrological monitoring and restoration, traditional offsets

remain impractical given the scarcity of unprotected habitat. This underscores the difficulty of identifying appropriate measures to mitigate impacts to upland swamps.

The NSW Biodiversity Assessment Method (BAM) 2020 (Section 6), expresses that subsidence or upsidence from underground mining is considered a prescribed impact. A consent authority may consider offsets or alternative measures to address prescribed impacts and can require the retirement of additional biodiversity credits or alternative measures to address these impacts.

Upland Swamps play a vital within the Woronora Special area (Mason *et al.* 2020). If accurately predicting impacts to upland swamps is challenging, and traditional offset aren't considered viable it raises the question of whether any genuine alternative measures exist to address the impacts to upland swamps from the proposed modification? Given the sounding uncertainly around impacts, the calculation of the maximum available offsets must be seen as the minimum for prescribed impacts. A review of all suitable alternative measures to address these impacts is encouraged, along with the possible expansion of the prescribed impact offsets outlined in table 10.3.

Part 7, Division 4, Section 7.16 of the Biodiversity and Conservation Act refers to developments or activities that have serious and irreversible impacts (SAIL). For SSD, approval needs to determine if additional and appropriate measures can be utilised to minimise the impacts identified in a BDAR.

13 entities have been flagged in the modification application potentially subject to SAIL. In addition to the proposed additional conservation measures for residual indirect and prescribed impacts provided in table 10.3 of the BDAR, council's initial assessment proposes further consideration be given to,

- Coastal Upland Swamps in the Sydney Basin Bioregion,
- Eastern Australian Underground Orchid (*Rhizanthella slateri*),
- *Gyrostemon thesioides*,
- Slaty Leek Orchid (*Prasophyllum fuscum*),
- Sublime Point Pomaderris (*Pomaderris adnata*),
- Large-eared Pied Bat (*Chalinolobus dwyeri*).

These entities qualify for SAIL under the four guiding principles for SAIL determinations and have strong links to the proposed impacts associated with subsidence.

Should the application proceed despite these concerns, Council supports the determining authority's ability to exercise the addition of offsets or other measures to address all impacts. If possible, Council recommends an update to any security bond held to cover the full cost of identified offsets or alternative rehabilitation actions in the advent that the mining company becomes insolvent. This will ensure there is sufficient money available to complete the rehabilitation actions.

Ventilation Shaft 4

If engineering studies confirm that both the original and proposed sites for Ventilation Shaft 4 are suitable for the new downcast ventilation system, Council would like to see a comparative study undertaken between the two sites for all impacts associated with the use of a downcast ventilation.

The original site was set for an upcast system requiring an 11kV powerline corridor (approximately 20 m and 4 km long) and vegetation disturbance of approximately 8.0 ha of primarily PCT 3590. If this is no longer needed, and the original site was to adopt the required 3.8 hectares footprint, it could avoid the direct impact of 3.8 ha of high condition Southern

Sydney Scribbly Gum Woodland PCT 3590, the loss of 13 hollow-bearing trees, and habitat loss for the Eastern Pygmy-Possum and Giant Dragonfly.

Given recent impacts to the Royal National Park from Metropolitan Colliery's surface facilities, Council has reservations about introducing similar facilities, even at smaller scale, within the Woronora Special Area. The facilities shown in the Modification Report (Fig. 3-2) include sediment ponds, stockpiles, parking areas and a concrete hardstand. Their introduction, coupled with construction, will produce new impacts including edge effects on adjacent habitats and vegetation, noise and vibration, light spill, dust, increased risk of vehicle strikes and introduction of weeds and pathogens.

A visual review of aerial photography (Modification Report, Fig. 3-1) suggests the original site is relatively more impacted than the proposed site. A comparison study would be beneficial to determine which site has the least impact, both during construction and ongoing. Council is concerned that the proposed location of Ventilation Shaft 4 may be strategically positioned to support future expansion.

300 series Mains and implications for the future

The modification includes continued development of the 300-series mains to the west, which appears to be outside an approved mining lease area. The documentation states that a new mining lease would be sought over part of EL 9364 to cover Longwall 318 and the extended 300-series mains. The Modification Report states: "*Metropolitan Coal accepts all commercial risk associated with the development of the 300-series Mains west of Longwall 318 under the Modification prior to the determination of any subsequent application and Extraction Plan for future longwalls associated with EL 9364.*" (p. 11).

The modification of the 300-series Mains appears to be a pre-emptive undertaking, with an expectation that future applications and Extraction Plans associated with EL 9364 will follow.

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