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**Re Submission of Objection to Larvotto Resources Hillgrove Mine Extension to Mine Life; SSD Modifications Application No. DA98/35-Mod-5, EPBC ID No. 2025/10262,**

**Dear Sir/Madam,** *Project Officer, Assessors and Determining Authority.*

Thank you for the opportunity to respond and submit to the above DA Modification 5 on exhibition for review and comment. The Hillgrove Mine DA and proposed Modification 5, proposes a major transformative shift in its operational scale, technological deployment and environmental management framework, with potentially several severe adverse impacts.

The intent of my submission is to ensure that the Mod 5 to DA98/35 does not adversely impact the catchment, environment or its society/community or economy, downstream. This submission is not intended to prevent the mine from mining and processing, but **it needs to be a zero additional impact or even a reduction of existing impact** on an already stressed Macleay River catchment and community.

As relevant background disclosure to myself as an individual submitter: I have lived in the Macleay since 1983 and part of the community since then and operating a Landscape Architecture practice (now mostly retired). I was on the Macleay Catchment Management Committee from 1993 to 1996; Chair of Yarrahapinni Wetlands Reserve Trust, (*which found a way to get it restored by 2025*); and am currently secretary for Save Our Macleay River Inc. And, I have always had a role in maintaining a good healthy environment in which people and businesses can live healthily and enjoy in a sustained way.

## **Baseline Contamination and Context**

The risks associated with Mod 5 are intrinsically linked to the 150-year mining history at Hillgrove, dating back to 1877. Legacy sediment contamination is estimated to be 7 million tonnes of 'Waste Rock' and tailings, historically deposited into and adjacent to Bakers Creek. This material constitutes a persistent "plume" of heavy metal contaminants that moves downstream with each flood event, now with elevated levels already present in the top 60 cm of the Macleay floodplain. The impacts of which are well studied and documented, principally by UNE over 20 years in general content quantity and broader mobility, and SCU over 6 years of more detailed water and sediment base-line quantity and mobility. - Links to the many papers and reports, are available on request.

This much-studied legacy creates a challenging baseline for any expansion, as **new operations must avoid exacerbating existing contamination while addressing historical liabilities.** - The primary challenge is to ensure the Mod 5 proposals do not increase, and hopefully reduce, the contaminant load of an already contaminated and stressed river system. The "care and maintenance" history of the site has resulted in legacy issues often remaining unresolved - while expansion is prioritised.



The existing high arsenic and antimony levels, mostly from historical mining, already necessitate the village of Bellbrook to truck in water from Kempsey and install dedicated town water treatment plants there and recently at Willawarrin. As well as As & Sb 'hot spots' developing in the estuary lowlands from sedimentary deposits after floods. The health issues of As & Sb are also well documented.

While it is realised, this Mod 5 and any DA is normally assessed and determined by Planning in 'isolation', **the cumulative impacts of other Hillgrove Mine DAs and separate approvals, along with other stresses on the Macleay catchment must be considered in the assessment of this Mod 5 application.** For example:

- § Historic legacy mining contamination inputs at Hillgrove and elsewhere in the catchment.
- § Multiple separate approved DAs for Hillgrove Mine operations, including e.g. Clarkes Gully and Metz mines (also with Bakers Creek inflows) and Mine Processing plant 'upgrades' etc.
- § Impacts of agricultural, intensive horticulture, land use & drainage modifications, upstream.
- § The proposed Oven Mountain Pumped Hydro CSSI proposal. - Yet to be determined.
- § Reduced river flows from upper catchment ARC water storage plans, and less related
- § Downstream stresses of clearing, gravel extraction and estuarine ASS and Blackwater etc. issues.

## Flaws in the Assessment needing address

### 1. Selective assessment for 'compliance'.

The Modification Application essentially only examines and addresses the site of the proposed works, its exceedances and outputs at specific reference points for compliance and licencing of pollution. - It does **not** consider or address Bakers Creek or the Macleay impacts more holistically as living systems with thresholds, cumulative limits, or existing vulnerabilities.

Additionally, The Mod 5 does not address matters regarding tungsten mining or processing, except that it is included in historic context and existing DA minerals to be mined. - This needs address.

The Mod 5 proposal must demonstrate no net harm to the river-system, not merely compliance with 'prescribed exceedances' at specific discharge points.

### 2. Surface and Ground water Assessments

The Application and accompanying documents separate Surface and Ground water in their assessments. Surface and Groundwater need to be assessed together as in this system and scenario; they are hydrologically and ecologically integrated. Adit discharges, seepage from storages, fractured rock flow paths, baseflow contributions, and surface-water overflows form part of a single inter-connected system.

Contaminants mobilised into groundwater do not remain underground; over time and during events they emerge into surface waters and are conveyed downstream. Treating groundwater and surface water as separable compartments understates a holistic cumulative risk

#### i. Groundwater assessment

The groundwater assessment is explicitly qualitative, not quantitative. It relies on limited data and conceptual models. Despite this, concludes minimal localised impacts, migration risk, and licencing adequacy, within and without 'standard' exceedances. The exceedances are related as background variability and not indicative of mining impact, this reflects the 'normalising' of contamination rather than addressing downstream consequences.

Qualitative data in real life actual (not modelled) critical discharge routes is required to accurately assess impacts of adit discharges in various rainfall scenarios on the creeks and river. Without this the Mod 5 assessment is not credible for assessment, approval or licencing of conditions of control measures.

**This is inadequate and inappropriate** for approval where mineral mobilisation is already a known and documented risk.



## ii. Surface water assessment

The surface water storage overflows in the Mod 5 are relayed as being uncontrolled discharges to Bakers Creek or Swamp Creek, within the water balance and flow paths framework. Under high-rainfall or storage exceedance conditions, water is proposed to be released from mine water storages to receiving creeks without active flow regulation or treatment, with contingencies that include increasing discharge limits during wet periods. This proposal seems to rely on 'dilution' ratios to minimise, not prevent increased contaminant intake to the river system.

This is incompatible with Bakers Creek and Macleay river protection and increases existing levels of contamination, particularly because they coincide with flood-driven As & Sb etc sediment and in-solution mobilisation. It also coincides with other river contaminant discharge sources such as ASS and Low DO events up- and downstream.

Additionally for ground and surface water proposals, reliance on exceedance and licenced limits in guidelines, and treatment technology conflates regulatory compliance with ecological protection. In an already stressed catchment, compliance alone does not ensure sustainable river health.

**This is not acceptable and a 'fail-safe' containment of ground and surface water needs to be adopted to prevent additional contamination.**

## 3. Continuous real-time measurement and monitoring

Given that the mining and processing are proposed to be 24/7/365 and regulators do not work those days and hours, and the risk of failures for contamination release into the creek/river system is so high, under the current proposal, **there needs to be:**

- i) **More extensive assessment of potential surface and groundwater risks**, as above, and
- ii) **Greater continuous and real-time measurement and monitoring of several components** to ensure regulatory compliance and river system protections.

**Continuous measuring and monitoring for suspended and in-solution As & Sb etc. contaminants need to be installed** to include:

- I. Broader upstream and downstream holistic entry and exit of contaminants to the proposed Mod 5 site and
- II. More specific sites including at key adits; shallow and deep monitoring bores; along fracture and fault pathways, particularly between mine infrastructure and surface waterways; all unlined storages that present seepage risks; and Mine Processing facility risk areas, especially at the Reverse Osmosis area where significant quantities of water are used.
- III. Additionally, rainfall and weather should be monitored to determine risk potential and initiate any actions needed to prevent contaminated water entering the creek/river systems, especially during high rainfall events.

A thorough assessment and gathering (existing) baseline data is needed prior to commencement of operations, to ensure the efficacy of the measuring devices and determine any changes because of the Modification works.

With installation of the above (and perhaps monitored telemetric triggers?) proposed broad and specific continuous/real-time measuring and monitoring; it would enable early warning and 'triggers' of contamination problems and the ability to determine what the problem is, for immediate preventative and rectification action, by the mine and regulators, should contamination occur.

## 4. Mine activities & materials management

### I. Waste Rock stockpiling:

**Waste Rock is defined as: Rock that contains 'insufficient economic mineral content for processing'**. - it still contains ore to weather and mineral discharge. And it should be noted that the existing As & Sb "plume" coming down the Macleay River is primarily from historic 'Waste Rock'. Thus, it requires highly responsible location and management in stockpiles (dumps) due to potential exacerbation of the existing river system's contamination.



Waste rock stockpiling near Bakers Creek, especially at Brackins Spur immediately adjacent Bakers Creek, and the proposed backfilling of historic and proposed waste rock present additional short & long-term pathways for arsenic and antimony mobilisation and must be designed, monitored, and regulated to stringent site-specific high standards.

**The proposed Waste Rock stockpiling, so close (<10m) from Brackins Creek is not tolerable and an alternative manageable site more distant from the creek needs to be found.**

**ii. Dry-stacked and existing tailings storage.**

Tailings here are enriched in arsenic and antimony-bearing minerals. Dry-stacked tailings, as proposed can reduce the risk of sudden failure compared to slurry tailings. However, it does not eliminate long-term contamination risk, it merely changes the risk pathways toward dust, seepage and often nitrate contamination through liner deterioration.

Dry-stacked tailings remain exposed to oxygen, rainfall infiltration, and changing redox conditions for decades and long after the proposed mine closure date. In this terrain with fractured bedrock and water connectivity to Bakers Creek, this creates possible routes for dissolved arsenic and antimony to enter groundwater and surface waters, particularly during prolonged wet periods.

The environmental acceptability of dry-stacked tailings at Hillgrove therefore depends on thorough site-specific tailings geochemical characterisation, conservative siting outside flood-prone and creek-connected areas. For assessment, approval and conditioning of the Mod 5, this requires thorough assessment, monitoring for seepage interception, and closure designs that ensure long-term chemical stability without the need for ongoing water treatment before or after mine closure. **Further detail is needed to address this, in in the Mod 5 Application.**

**Existing TSF 1** is very close to the escarpment and has been subject to almost catastrophic spillage over the escarpment in 2013. The Mod 5 proposal, merely relays *“the containment bank will be buttressed as needed”*. It is understood that TSF 1 contents were previously proposed to be reprocessed to remove the risk of repeated spillage. **It is strongly recommended TSF1 be required/conditioned to be reprocessed to establish a larger buffer above the escarpment .**

## **5. Governance and Regulatory Concerns**

**Governance and Regulation is critical** for the mine and the regulators as well as the potentially impacted community/electorate. This to prevent a scenario such as the current Cadia gold mine litigation. (Link to ABC news report <https://www.abc.net.au/news/2026-02-03/rural-community-launches-class-action-against-major-goldmine/106295724> )

Perhaps it should be reminded to the assessors and determining authority that: the proponent, Larvotto Resources, is responsible to its shareholders and the business to maximise profits and dividends, like all ASX listed companies and businesses. – That is indeed their role.

Whereas, it is the role of the Assessors, Determinants and Regulators of the proposals, to balance the impacts on the community's (electorate's) health and safety. The river is an economic resource for Town water supplies; viable water quality for the community & in the water sharing plans; fishing/oyster tourist and farming industries, as well as a sustainable & viable natural resource for society and environment downstream.

**Approval should not proceed without:**

- § A clearly defined single lead responsibility regulator for whole-of-river protection,
- § Explicit zero net cumulative-impact thresholds,
- § Enforceable mechanisms linking monitoring results to mandatory management action.
- § The new Rehabilitation Cost Estimation Tool, mandatory on 2 March 2026 be used.
- § A formal review of the \$4.9m rehabilitation security deposit/bond which must be sufficient to effectively and permanently remediate all the waste rock, adits and the dry-stack facility etc.

Without these safeguards, approval would further entrench a system in which harm is repeatedly identified and institutionally tolerated, which is not acceptable here.



## 6. Conclusion

The Hillgrove Mine Modification 5 assessments are not scientifically or ecologically sufficient for approval in, or for, the Macleay catchment and downstream community.

Cumulative impacts are under-accounted for, rely on unassessed pathways, assumes that meeting contaminant licence conditions alone ensures river and community protection. This is not appropriate in a catchment already experiencing contaminant and ecological stress.

Approval should not proceed until the identified flaws are resolved and the necessary data, modelling, design safeguards and effective monitoring are in place.

The urgency / haste of the proposed Mod 5, where several components, subject to separate DAs are underway, is obviously driven by record high mineral prices and the Government's Critical Minerals strategy and funding (\$2.1b overall). Any assessments, approvals and/or conditions need to be thoroughly considered and conditioned to ensure no additional contamination of the river and catchment.

The river's and downstream users' health must be treated as a binding constraint, not a residual consideration. In the current form, the Hillgrove Mine's Modification 5 assessments are fundamentally flawed and pose an unacceptable risk to the Macleay River catchment and the community downstream.

Thank you for the opportunity to provide this submission of objection to Hillgrove Mine's Modification 5 to their DA 85/35 – as proposed. I trust that this submission is taken constructively.

Should you have any queries regarding the above, please contact me at any time.

Yours Faithfully,



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**Registered Landscape Architect. 305**

