

Dear Sir/Madam,

I object to the Bowden's Mine Project near Lue. The potential impacts of this project are wide-ranging however I have focussed only on a few key areas. These include the project's proximity to Lue, lead dust and suppression issues, impacts to water as well as the permanent and toxic legacy this mine will leave in our area forever.

Background:

My name is Jack White. My family operate a grazing property between Mudgee and Lue on the central tablelands of NSW. I currently work full time in our family business, however I also hold a Bachelor of Design and Master of Architecture degree from the University of Sydney. I am currently President of Bingman Landcare and a committee member of the Lue Action Group.

My family and I live on a property called Havilah North, located next to the Lawson Creek which runs from Lue towards Mudgee. My wife and I, with our children Sid and Rose operate an Angus genetics business in partnership with my brother Harry his wife Bobbie and their son Ned. If they choose to, our children will represent the 7th consecutive generation of graziers/cattle breeders in our family on this very same piece of land. The White family moved to Havilah in 1881 and have been considerate land stewards and active members of the wider community ever since. Our family has a rich history and has contributed countless hours towards agricultural shows and societies, country racing, arts and cultural events as well as Landcare and grazing field days. We have been sustainably managing our land and playing a vibrant role in our community for over 140 years. We intend to continue to do so. Our business and lifestyle knits well with the environment and community around us.

As a young man with a vision of raising a family and running a sustainable agricultural enterprise, I am deeply concerned that the Bowden's mine project could have devastating consequences not only for our family, our health, our business, but also the broader community, environment and livelihoods of those living in the Lue and Mudgee districts.



Our property "Havilah North", April 2020

Proximity to Residents

A major concern regarding the Bowden's project is its proximity to the village of Lue. Key distances include:¹

- Closest Activity (southern barrier) - 1.9km
- Main Open Cut Pit - 2.1km
- Primary Crusher - 2.9km
- Grinding Mill - 3.3km
- Tailings Storage Facility (TSF) - 1.9km

Lue may not be the largest community in the Mid Western Regional Council area, but it is important. It has enormous potential for growth and prosperity through existing industries such as agriculture, hospitality, accommodation and tourism. A mining operation at the scale that Bowden's proposes, should not be approved within such short distance of this village. As described in the Bowden's EIS, there is a *"need to operate the grinding and metal recovery components within the processing plant 24 hours per day, 7 days per week, whilst satisfying relevant noise criteria"*.² I am concerned that the noise and dust impacts from constant operations will lead to a reduction in people's desire to live in and interact with Lue, and as such result in a downturn in the activity in the town, and negatively affect property values.

It is unlikely this project would have ever progressed this far had it been positioned within 2 kilometres of a more heavily populated town like Mudgee, Rylstone or Gulgong. Other nearby examples of town decay as a result of mines in close proximity include Ulan and Wollar.

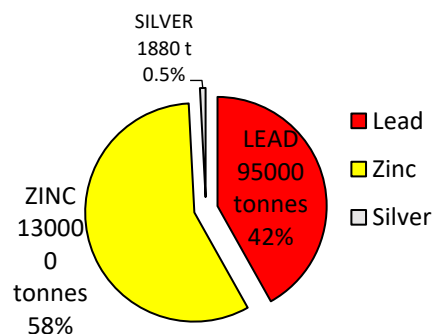
In relation to human health, the Bowden's EIS states that *"should the Project be approved, members of the community concerned about negative impacts may continue to experience stress and anxiety"*.³ Personally, the idea that this mine could go ahead in our pristine environment is a source of constant anxiety and fear for our future viability as graziers and sustainable land users.

Put simply, this mine is in the wrong place.

Lead Dust Risks

The Bowden's project intends to disturb 422 hectares of land to recover a total ore body of 226,879 tonnes⁴. The breakdown of the production is:

- 1,879 tonnes of silver,
- 130,000 tonnes of zinc,
- 95,000 tonnes of lead.⁵



Approximately 42% of the material produced at this mine will be lead. Exposing lead to the air during open cut mining operations poses a health risk to the community beyond the mine boundary. Lead is a toxin. There is no safe level of lead. Children are most at risk to lead exposure.⁶ I am concerned that this mine is within 2 kilometres of many households in which children live, as well as Lue Public School.

All drinking water in Lue is captured from private roof tops and tanks because there is no 'town water' supply. There is significant potential for drinking water in Lue and beyond to be contaminated by lead dust from the Bowden's mine.

Dust Suppression Issues

The recurring solution put forward by the proponent for ensuring air quality and managing dust generated during operations is via the application of water.⁷ The proposed volumes of water required for suppression are not clearly articulated and there appear to be limitations on the number of water trucks that can operate at once due to noise limitations.

Dust mitigation measures for the estimated 22 pieces of mobile equipment used for mining and processing operations include one 10,000L water truck.⁸ Furthermore, the proponent states *“the water truck would only operate when a maximum of three haul trucks are operational to ensure no more than four trucks are operating concurrently”*.⁹ Is this considered an adequate strategy to manage the dust from this number of machines?

Additionally, given that the project does not have enough water on site to feasibly operate to begin with¹⁰, (it requires an additional source via a new water supply pipeline) how can this project ensure that it will be able to access enough water to manage dust during operations? There is therefore no guarantee that the community around the mine will not be impacted by dust from the Bowden’s project and as such, the risk of lead contamination remains unacceptable.

The proponent is also unclear on its intention to test the concentration of lead and other metals in the dust created, stating that it will initially be done *“monthly and then at frequencies determined through ongoing review”*¹¹. This is an inadequate management strategy for dust containing a toxin as dangerous to human health as lead.

The simplest solution to this problem is to leave the lead in the ground.

Risks to Water

The Bowden’s project intends to use significant amounts of water from our valley. The following details are directly from the Bowden’s Groundwater Amendment Document (Jacobs 2022).

- *Advance dewatering commences during site establishment with an average extraction rate of approximately 1 ML/day with pit inflows peaking at approximately 2.5 ML/day.*
- *At the end of mining, propagation of drawdown, as represented by the predicted 1 m drawdown contour, is typically of the order of 1.7 km to the east and south, and 2.6 km to the west and north of the open cut pit.*
- *Therefore, the final void is predicted to remain a terminal groundwater sink under both assessed scenarios.*
- *Groundwater take would occur in perpetuity as groundwater inflow to the pit lake would continue to occur to replace evaporative losses from the main pit lake.*
- *Groundwater drawdown has the potential to reduce streamflow through either direct stream depletion or through intercepting groundwater that would otherwise discharge to surface water.*
- *The Lawsons Creek reach extended from approximately 3.5 km southeast of the Mine Site to 4 km west of the Mine Site.*
- *Being a terminal groundwater sink, the resulting saline water would remain captured within the final void.*

As a grazier relying entirely on a steady supply of clean water to keep our livestock alive, I am acutely aware of the impact that variable seasonal conditions in the Lawson Creek valley have on water availability. In the summer of 2019/2020, we were unable to utilise a single litre of our 77 megalitre Water Access License from the Lawson Creek simply because there was no water to pump. If it weren't for a reticulated water supply from a groundwater source adjacent to the creek, we would not have had access to stock and domestic water. All surface water dams were dry. Impacts to groundwater from Bowden's mine could have irreversible and devastating consequences on many users of water from the Lawson Creek and nearby groundwater aquifers.



"Havilah North", January 2020

Of significant concern is that Bowden's own EIS identifies the 'interception' of the groundwater table by open cut mining from this project as High Risk.¹²

Bowden's propose that *"groundwater inflow rates are predicted at an average of 2.4ML/day, with a peak of 3.5ML/day and peak annual inflow of 1 066ML/year predicted in Year 4 of mining"*¹³.

This is alarming. Downstream water users WILL be impacted. The Bowden's EIS acknowledges that *"the principal changes to the groundwater setting would be caused by groundwater inflows to the open cut pit"* causing a *"reduction to baseflow contributions to Hawkins Creek and Lawsons Creek."*¹⁴ Furthermore, there is potential for *"reduced frequency and depth of remnant pools during extended dry periods as a result of groundwater drawdown. Where permanent pools within the area of predicted drawdown are utilised for water supply, the availability of water in these areas may be compromised."*¹⁵

With regard to surface water the Bowden's EIS states that impacts upon downstream water quality would exist through three sources:¹⁶

- *Runoff containing sediment derived from exposed areas,*
- *Runoff from exposed NAF waste rock, potentially affecting the chemical composition of downstream water*
- *Release of contaminated water from the containment zone potentially affecting the chemical composition of downstream water with respect to pH levels and soluble metals.*

Recent prolonged periods of drought have proven how fragile the water supply in our area already is. When supply drops, so does quality. We should not risk putting additional pressure on this by allowing the Bowden's mine to proceed.

There is insufficient detail regarding water use in the Bowden's proposal. They state they will *"establish acceptable contingency measures with potentially impacted landowners, should they be required in the event that the predicted lowering of the groundwater table eventuates"*¹⁷. What are these contingency measures, when will they be put into place, and who will pay for them? The Lawson Creek flows into the Cudgegong River at Mudgee. The Cudgegong River is Mudgee's town water supply, and also feeds into Burrendong Dam.

What risk mitigation will be put in place to prevent the destruction of the Lawson Creek and further impacts to other downstream water users?



Diagram showing Lawson Creek running to Mudgee from Bowden's Mine (shown in red)

Toxic Post Mining Legacy

Waste Rock Emplacement:

Over 16 years, this project will excavate 46.4 million tonnes of waste rock. 26 million tonnes (57%) of this waste rock is classified as Potentially Acid Forming (PAF) because it contains iron sulphide minerals. This PAF waste rock will be stacked above the water table over a 77 ha area called the Waste Rock Emplacement Area (WEA).

The proximity of this WEA to the significant Lawson Creek water course is alarming. I am concerned that the measures in place to prevent future Acid Mine Drainage are inadequate.

The project proposes to prevent leakage from the WEA to the surrounding environment by a *"capture and contain"*¹⁸ strategy during the life of the mine and after mine closure. The WEA is proposed to be sealed at its base over the entire area of 77 hectares by a 1.5mm thick HDPE (high density polyethylene) liner.

I am concerned that the complexity of site conditions and unproven methodology may make meeting the design requirements difficult. Any penetration to the liner would not be detectable during construction. The waste rock will be dumped onto this liner and tracked with a bulldozer to compress the piles. If leakage is subsequently detected through water monitoring below the WEA then finding the location and fixing the leak may not be possible, resulting in almost certain contamination of the Lawson Creek and subsequent waterways such as Cudgegong River. This would be permanent.

In addition to this, “it is noted that in order to retain the integrity of the store-and-release cover over the surface of the WRE no trees and substantive shrubs would be planted on the final surface of the WRE as roots could penetrate through the cover”.¹⁹ When mining operations conclude, who will be eternally responsible for the prevention of tree regrowth on the surface of the Waste Rock pile?



Acid mine drainage (Source: Engineers Australia, 2019)

Tailings Storage Facility:

I have similar concerns for the ongoing maintenance of the 117 hectare tailings dam, which by Year 8 of the project, the will have a dam wall 56 metres high. What are the plans for future leakage prevention?

Over 16 years, this project will excavate 30 million tonnes of lead, zinc and silver ore in order to produce 310,000 tonnes of lead, zinc and silver concentrates. Over the mine life 43,700 tonnes of chemicals will be added during ore processing. This includes 2850 tonnes of Sodium Cyanide. Many of these chemicals are toxic. These chemicals will almost all end up in the tailings dam.



Tailings Dam Failure, March 2018, Cadia, NSW (Source: Riskope, 2018)

I am concerned that if design conditions are not met during any part of the construction phase, there is potential for this tailings dam to fail. Any leakage into the outside environment should be considered failure. There is insufficient detail around prevention of leakage in the long term. This tailings dam is intended to remain in situ forever.

Open Cut Pit Lake:

Based on the proposed open cut pit design, the final void within the main open cut pit would be up to 141m deep. Water inflows into the void left after mining of 133 megalitres per year would be *“expected 200 years after mining has ceased”*²⁰. Furthermore, *“in the final landform, the main open cut pit lake would act as a groundwater sink that would draw groundwater to the lake (as a result of evaporative pressure). As a result, salinisation of the water would intensify over time”*²¹.

This solution is an unacceptable and wasteful use of water in a wider context that is so reliant on a clean and regular water supply. The toxic legacy this mining operation will leave on the Lue, Mudgee and surrounding environment is frightening and grossly unfair on future generations of residents and visitors to the region.

Conclusion

Overall, the potential negative impacts that this mine could have on our community and region are substantial. *“It is also accepted that should the Project not proceed, a range of residual environmental and social impacts would be avoided”*²².

Decision makers need to consider whether the limited short-term benefits that this project create are outweighed by the significant and permanent problems it could leave behind.

It is simply not worth the risk.

Yours sincerely,

Jack White

¹ Bowden’s Environmental Impact Statement, Corkery, 2020, p. xix

² Bowden’s Environmental Impact Statement, Corkery, 2020, Appendix 5, p. 7

³ Bowden’s Environmental Impact Statement, Corkery, 2020, p. ES28

⁴ Bowden’s Environmental Impact Statement, Corkery, 2020, p. xvii

⁵ Bowden’s Environmental Impact Statement, Corkery, 2020, p. xviii

⁶ www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/conditions/chemicals+and+contaminants/lead

⁷ Bowden’s Environmental Impact Statement, Corkery, 2020, Section 5, p. 680

⁸ Bowden’s Environmental Impact Statement, Corkery, 2020, Appendix 5, p. 10

⁹ Bowden’s Environmental Impact Statement, Corkery, 2020, Appendix 5, p. 19

¹⁰ Bowden’s Environmental Impact Statement, Corkery, 2020, Section 1, p. 16

¹¹ Bowden’s Environmental Impact Statement, Corkery, 2020, Section 5, p. 681

¹² Bowden’s Environmental Impact Statement, Corkery, 2020, Appendix 7, p. 10

¹³ Bowden’s Environmental Impact Statement, Corkery, 2020, p. ES23

¹⁴ Bowden’s Environmental Impact Statement, Corkery, 2020, p. ES23

¹⁵ Bowden’s Environmental Impact Statement, Jacobs, 2020, Part 5, p. 180

¹⁶ Bowden’s Environmental Impact Statement, Corkery, 2020, ES28

¹⁷ Bowden’s Environmental Impact Statement, Corkery, 2020, Section 5, p. 682

¹⁸ Bowden’s Environmental Impact Statement Appendices, A5.4 Waste Rock Management, p. 19-25

¹⁹ Bowden’s Environmental Impact Statement, Corkery, 2020, Section 5, p. 66

²⁰ Bowden’s Environmental Impact Statement, Corkery, 2020, Section 5, p. 66

²¹ Bowden’s Environmental Impact Statement, Corkery, 2020, p. ES23

²² Bowden’s Environmental Impact Statement, Corkery, 2020, p. ES47