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27 July 2020

To NSW Department of Planning, Industry and Environment

Subject: **Submission re Bowdens Silver**

Your refs: Application Number: SSD-5765  
EPBC ID Number: 2018/8372

Thank you for the opportunity to comment on this proposed development. The Astronomical Society of New South Wales (ASNSW) owns and operates Wiruna Observatory near Ilford, NSW, which is Designated Observatory DO3-50 classified by the Astronomical Society of Australia in recognition of its ongoing contributions to research, education, and community use. This submission addresses matters of concern to that observatory and other astronomical observers in the Central West region.

As you may appreciate, astronomical observatories depend crucially on dark skies in order to function. The proposed lighting associated with this mine has the potential to cause significant unwanted light spill. Such glare can illuminate the entire night sky, which could substantially degrade the ability to conduct astronomical work. Our site could lose much of its national and international tourist appeal. Light pollution can also have adverse effects on wildlife.

Specifically, I would like to draw attention to Australian Standard AS4282 on "The Control of the Obtrusive Effects of Outdoor Lighting", revised in 2019. It provides guidelines for planning authorities to ameliorate the effects of light pollution in the vicinity of observatories.

Regional councils, including Bathurst Regional Council, have been instrumental in protecting the darkness of our night skies as a major tourism resource through development of their planning instruments. The Plans have led to councils improving lighting within their regions. Indeed, Bathurst Regional Council has been progressively installing full cut-off lighting which eliminates light travelling upwards and illuminating dust in the atmosphere, thus degrading the darkness of the night sky.

Vol 3 Part 8B: "Lighting and Sky Glow Assessment" describes the proposed illumination of the site. The consultants make the claim that "Based on the analysis carried out by LAS the Project can operate on a 24-hour basis without generating excessive light obtrusion to Lue, the area surrounding the Mine Site or the surrounding observatories" (p 9). Further, the Mine Site is noted to be "approximately 168km from the Siding Spring Observatory (SSO) and falls within the Dark Sky Region".

That is a serious situation for observers who are closer to the mine site than the Australian Astronomical Observatory near Coonabarabran. Our Wiruna Observatory is approximately 35km from the mine site. We have specifically located our observatory within the Dark Sky Region, 11km away from the nearest

street light, for research reasons and to attract tourism, so that they can observe the southern night sky uninterrupted by unwanted sky glow that will be accentuated by dust raised on the mine site.

The suggested mitigation measures on p 8b- p41 will have a serious effect on the night sky of the Central West. The language of "where possible" and "should not be used when not in operation" as they apply to upward facing lighting implies that when it is "not possible" or "when towers are being used at night", the lighting will be directed up at the night sky. That will have a disastrous effect on the work of all astronomers in the region as well as for tourists who have paid to see our dark skies. It is also an extravagantly wasteful use of electricity: the light which goes up into the night sky serves no useful purpose.

Thus, despite the claims of "no problems" this could have a significant effect on the work carried out by local astronomers who now use special cameras that are extremely sensitive to infra-red radiation. Indeed, the dismissal of these local astronomers and their scientific work by misrepresentations of the lighting data and mitigating measures place serious doubt on the calculations included in the document. For example, the statement about the mine site having the "same effect as a full Moon" would be disastrous. This is based on the fact that our observers seldom ever observe when anything more than a crescent Moon is present because of its disruptive light glow. To use that as an example of the minimal effect that mine site lighting would have on the night sky would be almost laughable if the situation were not so serious. Light pollution in a dark sky site so very close to the ASNSW's dark-sky observatory, a site which is entirely missing from document Part 8b Lighting and Sky Glow Assessment, and is a serious oversight.

Recent investigations into the potential for increasing tourism, both national and international, to the Central West of NSW, concluded that the goal is to "to raise the profile of NSW and DNCO as a leading destination for Night Skies experiences which will ultimately drive increased overnight visitation to the region" (p 8). These documents are: Astrotourism Night Skies Gap Analysis Report 11 Sept 2019 and the DNOC Night Skies Concept Plan 2020 and generated by SMA Tourism, an international tourism consulting firm. (Website: [www.smatourism.com](http://www.smatourism.com))

The SMA Tourism authors of the Gap Analysis also put forward the following argument:

"UNESCO's 2014 thematic initiative 'Astronomy and World Heritage' shows the close relationship between the observation of the firmament and many existing heritage tourism sites, cultural landscapes, and monuments which were reference coordinates of past civilisations. They are places of mystery and wisdom based on the 'knowledge of the stars'. The relevance of these sites, the commemoration of key dates in ancient calendars, and other intangible and oral manifestations are a still largely untapped resource for Night Skies tourism."

Thus, these documents identify the potential to increase tourism substantially to our region. Specifically, the Gap Analysis states, "Night Skies product could generate more visitors, more spend and more jobs to regions" (p 12). In this sense, protecting our night skies has the potential to generate many more and longer-lasting opportunities for employment with concomitant contributions to our local economy than the proposed mine.

For the reasons given above, I do not support the proposed Bowdens Silver Mine as it currently stands. We need adequate provisions and controls to protect our dark night skies, to ensure that Australia's highly significant research in astronomy can continue without destroying the very resource that has made us a world leader. Coupled with the long term generation of employment and tourist dollar spend in the region, the protection of our dark skies is supremely important given that the entirely renewable resource of our dark night sky is the only one we have to generate this new form of renewable income for many more people.

Yours truly,

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