



Mr Stephen Barry  
Planning Director  
NSW Independent Planning Commission

Attention: Geoff Kwok (via email: [REDACTED])

13 February 2023

Dear Mr Barry

### **Bowdens Silver Project (SSD 5765) Request for Information**

I refer to your letter dated 8 February 2023 concerning the Independent Planning Commission's (the Commission's) consideration of the Bowdens Silver Project.

Please find below the Department's response to the 6 items referenced in your letter.

#### **Community Consultative Committee (CCC)**

1. The Department confirms that the CCC for the project has been established. However, the Chair of the CCC has recently resigned. If the project were approved by the Commission the recommended conditions require continued operation of the CCC.

#### **Relocation of 500 kV Transmission Pipeline**

2. The relocation of the 500kV transmission line is described in Bowdens Silver's (Bowdens) First Amendment Report dated July 2021. The alignment was subsequently amended in Bowdens' Second Amendment Report dated March 2022, following a realignment options study to address visual concerns raised by nearby residents.

As outlined in the amendment reports, the realigned transmission line would comprise overhead power lines, consistent with the existing transmission line.

The reference to underground transmission lines may relate to Bowdens' separate low voltage 66kV line, part of which may be located underground. This component of the project outside the project area does not form part of the development application and would be subject to separate approval under the *Environmental Planning & Assessment Act 1979*.

#### **Independent Expert Review prepared by Earth Systems**

3. Earth System's advice dated 16 December 22 notes that geosynthetic clay liners (GCL) have a limited design life, that store and release covers are not suitable for acid mine drainage (AMD) control, and that the longevity of AMD generation from potential acid forming (PAF) waste rock is unknown but may continue for hundreds of years. Earth Systems advice states that these factors would need to be considered in future test work. Similar comments were raised in earlier reviews by Earth Systems.

In its response to Earth Systems dated October 2022, Bowdens notes that the GCL and store and release cover comprise part of a suite of AMD management measures, and are not relied upon solely for AMD control.

The proposed cover system includes a GCL to provide an additional barrier to (primarily) limit oxygen ingress to the underlying PAF waste material. The GCL would be placed above the PAF waste material and then covered by between 1.8m to 3.0m of NAF/subsoil and topsoil cover material (store and release).

Bowdens notes that this is consistent with the International Network for Acid Prevention (INAP) guidelines. It also acknowledges that the effectiveness of the proposed capping strategy would be subject to ongoing field trials during the project to determine the most effective configuration.

The Department accepts that Bowdens has adequately demonstrated that the Waste Rock Emplacement (WRE) and Tailings Storage Facility (TSF) have been designed (conceptually) in accordance with best practice standards in the INAP, and that measures can be implemented to minimise long-term AMD risk. As with other mining projects, this would be subject to detailed ongoing testing, design and analysis during mine planning and closure.

To this end, the Department has recommended a range of conditions to minimise and manage AMD risk including conditions requiring Bowden's to:

- comply with a number of water management performance measures and rehabilitation objectives, including minimising the potential for AMD;
- undertake additional static and kinetic testing to further define the AMD risk;
- prepare and implement a detailed WRE Design and Verification Plan, and TSF Liner Design and Verification Plan;
- prepare and implement a comprehensive AMD Management Plan; and
- prepare and implement a comprehensive Rehabilitation Strategy;

These plans and strategies would be revised and updated throughout the project, based on ongoing testing and mining closure planning.

The Department notes Earth Systems advice from 16 December 2022, that “based on the acceptance of Earth System’s suggested conditions by Bowdens and including specific consideration of the residual concerns noted above, no further recommendations relating to AMD are provided at this stage.”

The recommended conditions also include a requirement for Bowdens to pay all reasonable costs incurred by the Department for ongoing review of any strategy, plan, programs or report prepared under the consent. This would apply to the review of the design and verification plans, and relevant management plans related to AMD.

#### **Recommended Condition B34 – Materials Classification Verification Program**

4. Kinetic testing is designed to understand the duration, lag times and longevity of acid mine drainage. The Department understands that the testing itself can take up to 12 months to complete.

While Bowdens has undertaken kinetic testing to support its AMD assessment, Earth Systems has recommended (see advice dated 23 November 2022) that additional kinetic testing is undertaken at various project stages, including:

- prior to mining, to quantify pyrite oxidation / acidity generation rates and the duration of acid generation from PAF waste rock;
- upon commencement of ore processing, to quantify the rate of pyrite oxidation / acidity generation processes, the lag time before acid conditions will develop, and the longevity of AMD generation from PAF tailings; and
- during mining, to develop an understanding of the depth of oxygen diffusion into PAF waste rock and tailings.

The Department has recommended conditions consistent with the recommendations from Earth Systems, including requirements on Bowdens to prepare and implement a detailed Materials Classification Verification Plan and AMD Management Plan prior to the commencement of mining. These plans would include provision for ongoing static and kinetic testing as the project develops.

### **Recommended Conditions B45 and B47 relating to the Tailings Dam**

5. Bowdens' analysis indicates that there would be sufficient non-acid forming (NAF) rock to satisfy the project's requirements for NAF material, including for TSF construction (see updated material balance in Section 3.5 of Bowdens' response to Earth Systems dated October 2022). The Department also notes that this would be subject to the further materials classification verification program.

As outlined above, the Department's recommended conditions include a number of requirements on Bowdens to minimise and manage AMD risks. In this regard, the recommended AMD Management Plan includes a requirement on Bowdens to prepare a program to monitor and evaluate the effectiveness of the materials classification system, including contingency measures to be implemented if there is an excess of acid forming material.

The condition also includes a requirement for a trigger action response plan to be prepared to respond to any exceedances of the performance measures or performance criteria and mitigate any adverse impacts that may result from acid mine drainage or metalliferous drainage.

In practice, such contingency measures might include not extracting some PAF material, treating PAF material on site, extracting additional NAF material, or redesign of PAF storage facilities.

6. The TSF Preliminary Design Report referred to by the Commission forms part of the EIS. The report goes on to state that once tailings deposition ceases and the decant water is removed, it is expected that the quantity of seepage would reduce, and the quality would improve. Seepage would be pumped back to a small lined pond on the TSF and then to the main open cut pit until the quality has improved.

Bowdens would be responsible for ongoing maintenance and management in accordance with its mining lease and Environment Protection Licence (EPL). These regulatory instruments include mechanisms for management of ongoing and long-term environmental liabilities, such as rehabilitation bonding arrangements, and the EPA's financial assurance policy.

Notwithstanding, as outlined in the Department's assessment report, seepage analysis indicates that seepage rates from the TSF would meet the objectives of the EPA's tailings dam liner policy. Further, since the EIS Bowdens has committed to extending the liner over the entire TSF impoundment area or to cover the decant pond area (if justified by further seepage analysis).

Modelling of the transport and fate of seepage from the TSF based on both designs indicates that the TSF seepage is unlikely to result in significant long-term impacts.

The Department trusts that this information addresses the Commission's request. Should you have any further enquiries in relation to this matter, please do not hesitate to contact me on [REDACTED] or via email at [REDACTED].

Yours sincerely



Steve O'Donoghue  
**Director**  
**Resource Assessments**