



New South Wales Government
Independent Planning Commission

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Cadia Valley Operations

Mining and Petroleum Gateway Panel Conditional Gateway Certificate Report

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Defined Terms

ABBREVIATION	DEFINITION
AIP	Aquifer Interference Policy
Applicant	Cadia Holdings Pty Limited, a wholly owned subsidiary of Newcrest Mining Limited
BSAL	Biophysical Strategic Agricultural Land
BSAL Protocol	Strategic Regional Land Use Policy – Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land (NSW Government, 2013)
EIS	Environmental Impact Statement
Gateway Application	Cadia Valley Operations Gateway Application (GA-58526957)
Gateway Application Report	Cadia Valley Operations – Gateway Application Technical Overview, dated 15 May 2023
Gateway Panel	Mining and Petroleum Gateway Panel
GDE	Groundwater dependent ecosystems
ha	Hectares
IESC	Commonwealth Independent Expert Scientific Committee
Material	Material listed in Section 5 of this report
MLs	Mining Leases
NTSF	Northern Tailings Storage Facility
Project	Modification 15 of Project Approval PA 06_0295 for the Cadia Valley Operations project
Resources SEPP	<i>State Environmental Planning Policy (Resources and Energy) 2021</i>
Site	The Cadia Valley Operations site, as defined in Section 2 of this report
STSF	Southern Tailings Storage Facility
TSF	Tailings Storage Facility

1. Introduction

1. On 18 April 2023, Cadia Holdings Pty Limited, a wholly owned subsidiary of Newcrest Mining Limited (**Applicant**) applied for a Gateway Certificate (GA-58526957) (**Gateway Application**) for the proposed modification (Modification 15) of Project Approval PA 06_0295 for the Cadia Valley Operations project (**Project**).
2. The Gateway Application has been submitted to the Mining and Petroleum Gateway Panel (**Gateway Panel**) pursuant to sections 2.24 and 2.29 of the *State Environmental Planning Policy (Resources and Energy) 2021 (Resources SEPP)* because a mining lease is required for the Project and the site includes land classified as Biophysical Strategic Agricultural Land (**BSAL**).
3. Professor Neal Menzies, as Chair of the Gateway Panel, nominated himself, Dr Clinton Foster PSM and Mr Hugh Middlemis to constitute the Panel determining the Gateway Application in accordance with section 2.40 of the Resources SEPP.
4. This report states the Gateway Panel's reasons for the formation of the opinions in the Conditional Gateway Certificate issued on this day for the Project (and the reasons for the making of any recommendations included in the Certificate).
5. The terms of reference for the Gateway Panel in determining this Gateway Application are those set out in sections 2.31(4) and 2.31(5) of the Resources SEPP.
6. The role of the Gateway Panel in determining this Gateway Application is to consider the impacts of the Project on strategic agricultural land and its associated water resources before any development application is lodged. The Gateway Panel's assessment is conducted against targeted scientific criteria relating to agricultural and water impacts. There are certain matters that are not relevant to the Gateway Panel's determination of the Gateway Application, such as historic applications, any past planning law breaches by the Applicant or the reputation of the Applicant. The Gateway Panel is not involved in the Department of Planning and Environment's assessment of any State significant development application for the Project.

2. The site

7. The Gateway Application relates to the Cadia Valley Operations gold and copper mine located approximately 25 kilometres south-west of Orange, in the Central Tablelands region of NSW.
8. The Gateway Application area (**Site**) is defined in the *Cadia Valley Operations – Gateway Application Technical Overview*, dated 15 May 2023 (**Gateway Application Report**). The Site is illustrated in **Figure 1** (locality plan) and **Figure 2** (Application area). Areas of BSAL within the Application area are shown at **Figure 3**.

Figure 1 – Locality Plan
(Source: Applicant’s Gateway Application Report, Figure 1)

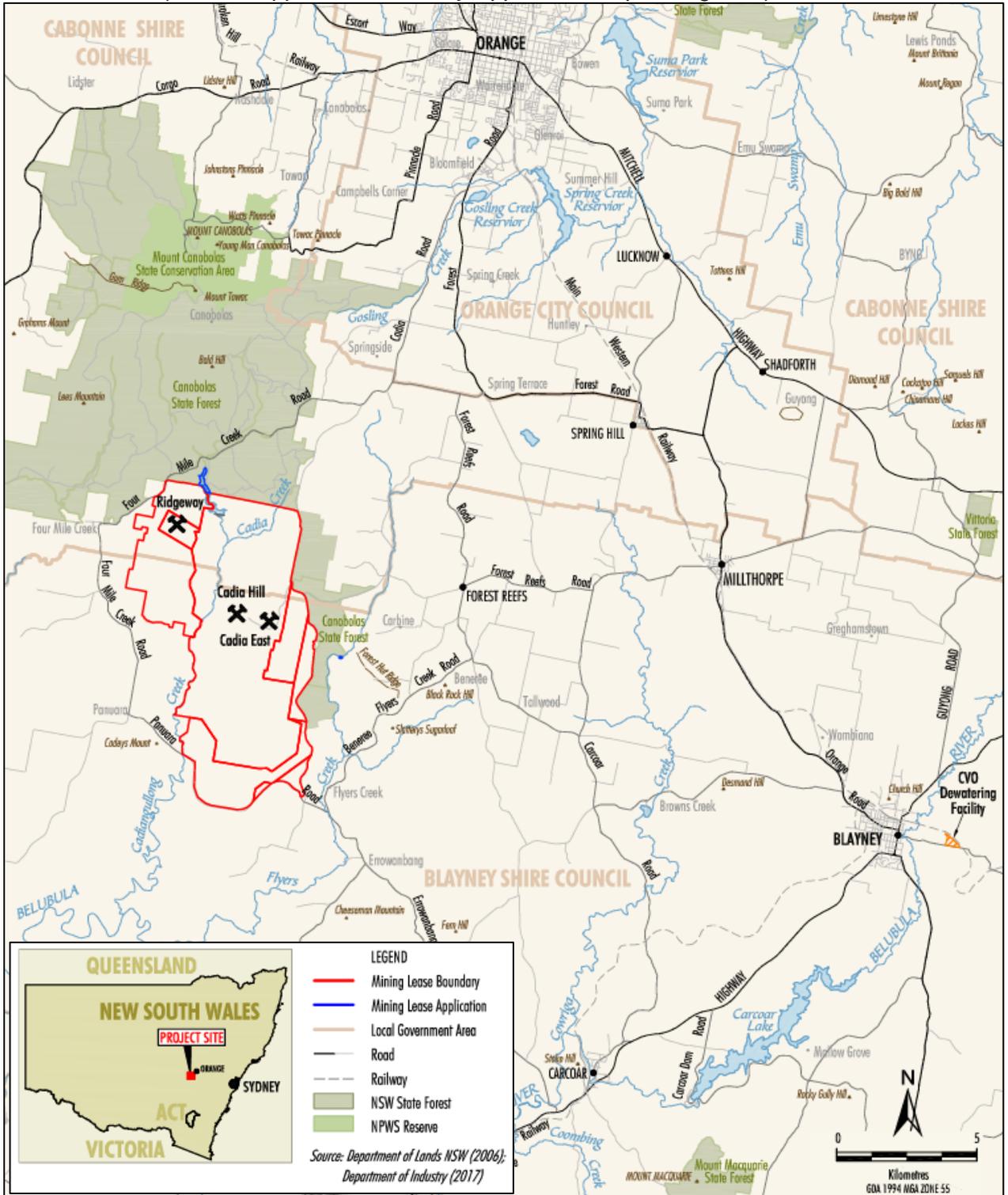


Figure 2 – Gateway Certificate Application Area
(Source: Applicant's Gateway Application Report, Figure 3)

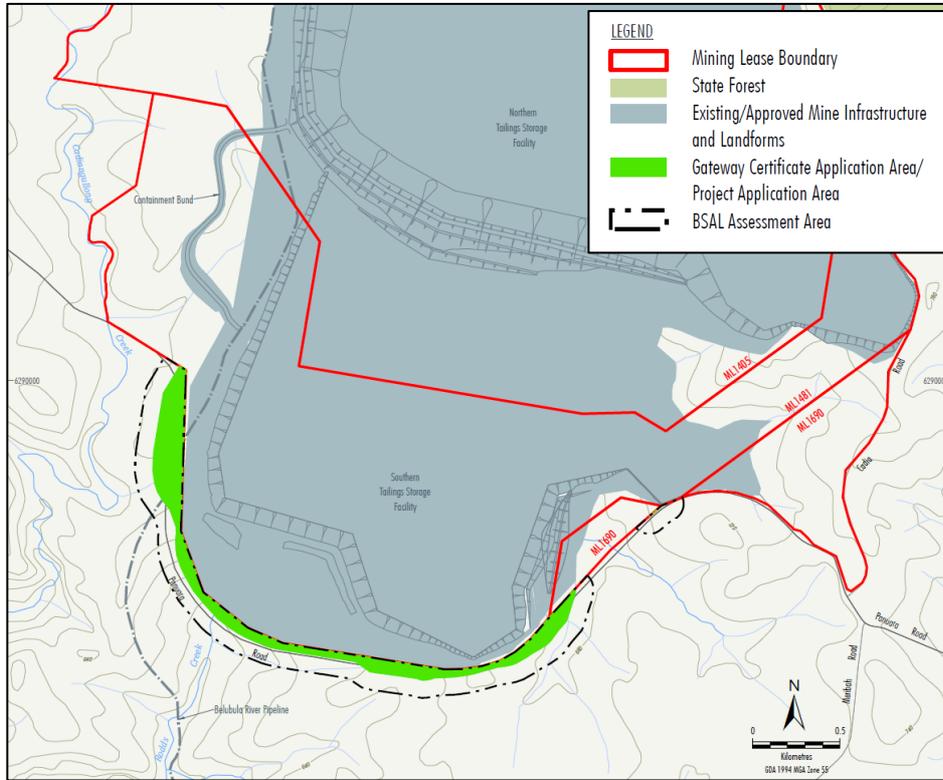
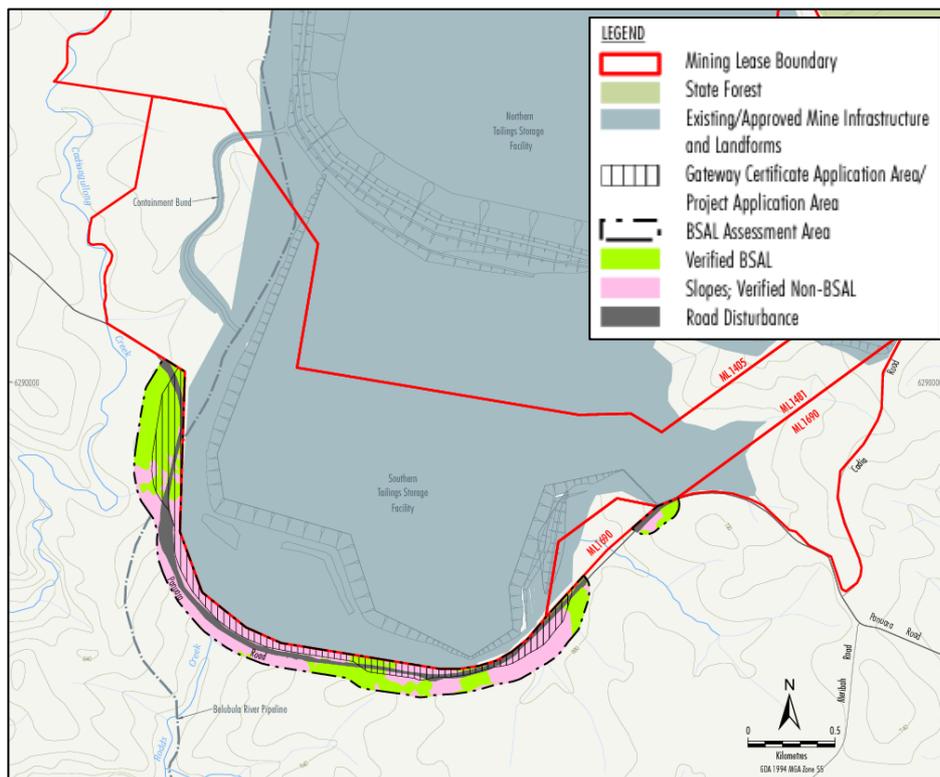


Figure 3 – BSAL within the BSAL Assessment Area
(Source: Applicant's Gateway Application Report, Figure 5)



3. The Gateway Application

9. The Applicant's Gateway Application Report states that the Project proposes "changes to the embankment footprint of the Northern Tailings Storage Facility (**NTSF**) and Southern Tailings Storage Facility (**STSF**), such that the embankment and associated disturbance area extents include areas outside of existing Mining Leases (**MLs**)" (page 3).
10. The Project would extend the STSF embankment onto land that is verified BSAL in accordance with the *Strategic Regional Land Use Policy – Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land* (NSW Government, 2013) (**BSAL Protocol**) and the Applicant is seeking a Gateway Certificate in relation to that land.
11. The Project will temporarily impact 28.2 hectares (**ha**) of land to facilitate the proposed changes to the STSF embankment and will permanently impact up to 2.0 ha of land, of which 0.8 ha is verified BSAL.
12. The Gateway Application Report states that there will be no changes to the previously approved Tailings Storage Facility (**TSF**) "heights, volume of tailings material stored or stored tailing footprint" and "all tailings deposition would remain within the existing MLs" (page 3).
13. The Gateway Panel notes that the Applicant proposes other works under Modification 15, including restarting the Ridgeway Underground Mine 1, various infrastructure upgrade works, and realignment of Panuara Road to accommodate the changes to the STSF embankment footprint. All works proposed under Modification 15 will require assessment and approval under the *Environmental Planning and Assessment Act 1979*. This Gateway Certificate Report, as well as the advice provided by the IESC and DPE Water on behalf of the Minister for Water, applies only to the proposed works to enlarge the STSF embankment footprint and associated disturbance of BSAL, and not the full range of changes proposed under Modification 15.

4. Consultation

14. Pursuant to section 2.30 of the Resources SEPP, this Gateway Application was referred to the Commonwealth Independent Expert Scientific Committee (**IESC**) and the NSW Minister for Water. The Gateway Panel received the following advice on the proposal:
 - advice from the IESC (received 1 August 2023); and
 - advice from DPE Water on behalf of the NSW Minister for Water (received 10 August 2023).
15. The Gateway process is an independent scientific assessment of the impact of new State significant mining and coal seam gas proposals on strategic agricultural land and its associated water resources. The process does not involve public consultation, which may be separately required as part of the processes for determining any development application made in respect of the Project.
16. The Gateway Panel requested that aerial drone footage be provided by the Applicant to assist the Panel's understanding of the physical characteristics of the Site and surrounding land. The Applicant provided aerial drone footage of the Application area, with flight paths travelling from west to east, generally along the southern boundary of the current mine lease area. The aerial drone footage was made publicly available on the Gateway Panel's website on 1 August 2023.

17. After viewing the aerial drone footage provided by the Applicant, the Gateway Panel determined that a physical inspection of the Site was not necessary.

5. Material

18. In considering the Gateway Application, the Gateway Panel reviewed the following documents (**Material**):
- Gateway Application form, provided to the Gateway Panel on 18 May 2023;
 - Gateway Application Report, dated 15 May 2023, prepared by Newcrest Mining Limited;
 - Agricultural Resources Assessment, dated March 2023, prepared by Minesoils Land and Rehabilitation Specialists;
 - Agricultural Impact Assessment, dated March 2023, prepared by Minesoils Land and Rehabilitation Specialists;
 - Cadia Groundwater Review to Support Gateway Application, dated 24 March 2023, prepared by Australasian Groundwater & Environmental Consultants;
 - advice from the IESC, dated and received 1 August 2023; and
 - advice from the NSW Minister for Water, dated and received 10 August 2023.

6. Strategic agricultural land verification

6.1 Biophysical Strategic Agricultural Land (BSAL) verification

19. As described at paragraph 11, the Applicant's Gateway Application Report confirms that part of the Site is land classified as BSAL in accordance with the BSAL Protocol.
20. The Applicant provided an Agricultural Resources Assessment, which includes a Land and Soil Capability Impact Assessment, and an Agricultural Impact Statement that includes an impact assessment of temporary and permanent impacts of the Project on the agricultural resource and mapping of surrounding agricultural resources.
21. The Gateway Panel finds the Applicant's methodology for the verification of BSAL to be in accordance with the BSAL Protocol and that it is acceptable for a Gateway Application.

6.2 BSAL potentially affected by the Project

22. The Applicant identifies that the Site will be subject to surface disturbance associated with the development of the STSF embankment. It states that all disturbed areas within the application area would be subsequently rehabilitated, however due to the changes in slope – a key factor in BSAL qualification – 0.8 ha of BSAL will be permanently impacted.

6.3 Critical Industry Cluster Land

23. The Gateway Application Report states there is no Critical Industry Cluster land within the Site or wider locality. The Panel accepts this finding and therefore has not considered Critical Industry Cluster land further.

7. Gateway Panel assessment of impacts on BSAL

24. The Gateway Panel has considered the Project's impact on BSAL, the duration and proposed avoidance, mitigation, offset or rehabilitation measures in respect of any such impact in accordance with section 2.31(4) and (5) of the Resources SEPP. The Gateway Panel's findings in relation to each of the relevant criteria under section 2.31(4) of the Resources SEPP and its consideration of section 2.31(5) of the Resources SEPP are set out in section 7.1 below.

7.1 Significance of the Project's potential impacts on BSAL

7.1.1 *Section 2.31(4)(a)(i) Impacts on the land through surface area disturbance and subsidence*

25. The Applicant has identified that the Project would result in permanent landform changes associated with the proposed works to the STSF embankment over an area of 2.0 ha, including 0.8 ha of BSAL land. The Gateway Application Report states that "impacts to all other areas would be minor and temporary" (page 21). The Applicant states that the "embankment would be rehabilitated post-mining and would have a final slope in the order of 1:3 vertical to horizontal" (Gateway Application Report, page 21).
26. The Gateway Panel finds that the surface area disturbance to BSAL as a result of the Application will be minimal, being limited to 0.8 ha of permanent disturbance where the final slope will be increased substantially to 1:3 vertical to horizontal.
27. The Gateway Panel finds the likelihood of subsidence impacts to BSAL as a result of the Application is low but recommends that the long-term monitoring and management of the TSFs is considered further in the EIS with respect to the potential for subsidence to influence water flows, potentially causing water to concentrate in defined flow paths and reducing the overall stability of the landform.
28. Given the permanent impacts to the 0.8 ha area of BSAL, the Gateway Panel finds the proposed development does not meet the relevant criteria for section 2.31(4)(a)(i) of the Resources SEPP.
29. The Gateway Panel has recommended that the Applicant establish a baseline to allow any subsidence over the life of the Project to be determined.

7.1.2 *Section 2.31(4)(a)(ii) Impacts on soil fertility, effective rooting depth or soil drainage*

30. The Applicant's Agricultural Impact Assessment states that there would be no significant impact to soil fertility or soil rooting depth within the Site except for the 2.0 ha area subject to landform impacts associated with the STSF embankment, which will likely have a reduction of effective rooting depth and changes to drainage due to slope (Table 10).
31. The Gateway Panel finds that there will be significant impacts to the 2.0 ha area of land proposed to be permanently disturbed by the works to the STSF embankment, which includes 0.8 ha of BSAL. However overall, given the small area of land proposed to be permanently impacted, and that it immediately adjoins the existing TSF operational area, broader long-term impacts on soil fertility, effective rooting depth or soil drainage are unlikely to be significant.

32. Given the permanent impacts to the 0.8 ha area of BSAL, the Gateway Panel finds the proposed development does not meet the relevant criteria for section 2.31(4)(a)(ii) of the Resources SEPP.

7.1.3 Section 2.31(4)(a)(iii) Increases in land surface micro-relief, soil salinity, rock outcrop, slope and surface rockiness or significant changes to soil pH

33. The Applicant's Gateway Application Report states that the 2.0 ha area associated with the STSF embankment "would be subject to localised increases in land slope in the order of 1:3 vertical to horizontal" post mining (Table 4). It states that with appropriate management and rehabilitation, "there would be negligible impacts on soil salinity, rock outcrop, surface rockiness and soil pH, both in the STSF embankment area and the remainder of the [Application area] subject to minor impacts associated with infrastructure" (Table 4).
34. The Gateway Panel is of the view that the increases to slope as a result of the proposed STSF embankment works will be locally significant to the 2.0 ha area impacted (including 0.8 ha of BSAL land) as it will have a substantially increased slope, in the order of 1:3 vertical to horizontal. The slope will be sufficiently steep that it will constrain future land uses on 0.8 ha of BSAL and represent an erosion risk that will need to be managed. The Gateway Panel notes that beyond that localised area, changes to slope will not be regionally significant.
35. The Gateway Panel finds there will be no significant impact to land surface micro-relief, soil salinity, rock outcrop, surface rockiness, or changes to soil pH as a result of the Project.
36. The Gateway Panel finds that because of the permanent impacts to the 0.8 ha area of BSAL, the proposed development does not meet the relevant criteria for section 2.31(4)(a)(iii) of the Resources SEPP.
37. The Gateway Panel recommends that the Applicant include a management plan in the EIS that addresses rehabilitation and ensures that the STSF embankment is not susceptible to erosion.

7.1.4 Section 2.31(4)(a)(iv) Impacts on highly productive groundwater

38. Advice from the IESC to the Gateway Panel states that the main groundwater sources at Cadia Valley Operations include the Orange Basalt, which is defined as a highly productive aquifer under the Aquifer Interference Policy (AIP), and the Lachlan Fold Belt Murray-Darling Basin Fractured Rock groundwater source. It states that "the extent of the Orange Basalt aquifer, and the fracture networks which are key for groundwater flow, are not well understood at [Cadia Valley Operations]" (page 3).
39. Further, the IESC advice states:
- Improvements are needed in understanding the extent and properties of the Orange Basalt highly productive groundwater resource. The potential leakage pathways from TSFs at [Cadia Valley Operations] should be identified, including how the embankment works may alter leakage. Given that groundwater flow in this aquifer is strongly influenced by the location, extent and connectivity of the fracture network on a relatively local scale... inherent uncertainties will remain (page 5).*

40. The Applicant states the Project “would not result in impacts on highly productive groundwater in the context of the Aquifer Interference Policy... Notwithstanding, groundwater level and quality monitoring would be undertaken for the Modification” (page 23). The Applicant acknowledges the “main concern is potential seepage from the TSF into the underlying bedrock and creeks”. It states that the STSF embankment would be designed with a very low permeability core to minimise seepage through the wall... (page 21).
41. The Applicant states that “the reinforcement of the STSF embankment would not have an influence on groundwater take, and therefore would not affect water access licensing” (page 21).
42. Advice received from DPE Water on behalf of the Minister for Water states:
The proponent has generally undertaken an appropriate assessment against the AIP for this preliminary application, and according to the AIP the project is unlikely to create more than minimal impacts to groundwater as defined by the AIP (page 1).
43. DPE Water also states that the primary risk to groundwater quality is due to potential seepage from the TSFs (page 2).
44. The Gateway Panel generally agrees with the comments and recommendations made in the advice received from both the IESC and DPE Water in relation to the AIP.
45. The Gateway Panel notes some discrepancies in the mapping of Orange Basalt between the Applicant’s assessment and DPE Water’s maps. It recommends that further assessment of the Orange Basalt is required to quantify its extent and explain the mapping discrepancies.
46. The Gateway Panel finds that further details of the design, construction and predicted performance of the modified embankments are essential to understanding the risks of failure and subsequent impacts on water resources, including highly productive groundwater.
47. The Gateway Panel considers that incidental water take includes the hydrological capture or interception of water that would otherwise be runoff and/or infiltration, such as due to expansion of the STSF. The Gateway Panel finds that such incidental water take could potentially affect the Orange Basalt, which is defined under the AIP as a highly productive groundwater source. There is no apparent assessment of this potential for incidental water take in the Application, despite stating that the Project would not have an influence of groundwater take (see paragraph 41). Compaction and loading arising from the modified embankment may change the volume, rate and/or flowpaths of seepage currently occurring beneath the TSFs. The Gateway Panel finds an improved understanding of the potential leakage pathways from the TSFs is required, including the quantity and quality of leakage, and the potential receptors that could be impacted by the leakage. It also finds that response strategies must be established to ensure any leakage from the TSFs is identified and managed in a timely manner to minimise impacts to significant water resources. The Gateway Panel has made recommendations as part of the Conditional Gateway Certificate accordingly.
48. With regard to impacts on groundwater dependent ecosystems (**GDEs**), the IESC advice states:
Modifying the embankment of the STSF may increase compaction and loading in the vicinity of the works and this could alter the rate and/or direction of leakage. This in turn could change the quality of water being discharged at GDEs and to surface water systems. Further information is needed to demonstrate whether the current management system (pump-back/underdrainage) is sufficient and will continue to be, to manage the impacts of leakage (page 5).

49. Advice from DPE Water states:
- DPE Water notes the potential for impacts in areas of mapped high potential [GDEs] along Cadiangullong Creek within 200m of the embankment works from compaction and loading with the result of raising groundwater levels. Whilst the application is only an incremental change in the tailings dam, a risk to GDEs is evident and it is the cumulative impact that requires a quantitative assessment against the NSW Aquifer Interference Policy category 1 'minimal impact consideration' for High Priority GDEs. DPE Water supports the IESC recommendation on this issue... (page 3).*
50. The Gateway Panel agrees with the comments and recommendations made by both the IESC and DPE Water in relation to GDEs.
51. The Gateway Panel finds the likely extent and magnitude of groundwater level increases from the Project, and their potential impacts on nearby GDEs and surface waters, need to be further quantified. The Gateway Panel has made recommendations as part the Conditional Gateway Certificate accordingly.
52. The Gateway Panel finds that the proposed development does not meet the relevant criteria for section 2.31(4)(a)(iv) of the Resources SEPP.

7.1.5 Section 2.31(4)(a)(v) Fragmentation of agricultural land uses

53. The Applicant's Gateway Report states that throughout the life of the Project, the Site would not be used for agricultural production. It states:
- The use of the [Application area] land would not result in the fragmentation or isolation of any existing agricultural land use, as it immediately adjoins the [existing Cadia Valley Operations Tailings Storage Facility] operational area. Following the Modification life, areas subject to minor impacts would be returned to a Land and Soil Capability (LSC) class that facilitates agricultural land use, while areas associated with the STSF embankment (2.0 ha) would not be suitable for agricultural land use. Therefore, there would be a minor to negligible permanent reduction in the land available of agricultural land use. No permanent fragmentation of agricultural use would result from the Modification.*
54. The Gateway Panel finds that there will be a minor temporary reduction in the land available for agriculture, and there will be no fragmentation of agricultural land because the Site directly adjoins the existing TSF operation area. Overall, the Gateway Panel finds that the impact would be negligible with regard to criteria 2.32(4)(a)(v).
55. The Gateway Panel recommends that the Applicant include a management plan in the EIS to ensure that the area of land proposed to be temporarily disturbed by the Project is rehabilitated to a Land and Soil Capability (LSC) class appropriate for agriculture at the end of the Project life.
56. The Gateway Panel finds that the proposed development will not result in the fragmentation of agricultural land and therefore meets the relevant criteria for section 2.31(4)(a)(v) of the Resources SEPP.

7.1.6 Section 2.31(4)(a)(vi) Reduction in the area of BSAL

57. As described above, the Project would result in the overall reduction in 0.8 ha of verified BSAL.
58. The Gateway Panel is of the opinion that the area of BSAL proposed to be permanently impacted by the Project is not of a sufficient size to support commercially material agricultural use. The Gateway Panel considers that the impact of the permanent disturbance of the identified BSAL land as a result of the Project will be minimal.

59. However, given that the proposed development will result in the reduction of BSAL by 0.8 ha, the Gateway Panel finds it does not meet the relevant criteria for section 2.31(4)(a)(vi) of the Resources SEPP.

7.1.7 Section 2.31 (5)(a) Duration of any impacts

60. The Project will result in temporary impact to 28.2 ha of land to enable construction of the modified embankment of the STSF, and permanent impact up to 2.0 ha of land, of which 0.8 ha is verified BSAL.
61. The Gateway Application Report states that “given the STSF location is fixed (i.e. it is a large existing tailings dam), there are no practical alternatives to the Modification and the permanent disturbance of 0.8 ha of verified BSAL” (page 6).
62. Based on the Material before it, the Gateway Panel does not consider that the proposed permanent disturbance of 2.0 ha of land, of which 0.8 ha is verified BSAL, would cause a significant ongoing impact because the disturbance relates to a small area of land that immediately adjoins the existing TSF operational area. The Gateway Panel notes that the assessment provided as part of the Gateway Application is limited with regard to the potential duration of impacts, and this will need to be considered further through the EIS. The Gateway Panel has included recommendations as part of the Conditional Gateway Certificate accordingly.

7.1.8 Section 2.31 (5)(b) Proposed mitigation measures in respect of any impacts

63. The IESC advice notes that “limited information is provided in the Gateway Application on strategies and measures to avoid, mitigate or reduce the likelihood and significance of potential impacts to significant water-related resources” (page 6). The Gateway Panel agrees with the IESC’s recommendations at paragraph 7 of its advice (page 6) and has included recommendations as part of the Conditional Gateway Certificate accordingly.

8. Conclusion

64. The Gateway Panel has assessed the Gateway Application against the relevant criteria listed in the Resources SEPP and has had regard to the duration of potential impacts and any proposed avoidance, mitigation, offset or rehabilitation measures.
65. Overall, the Gateway Panel finds that the proposed impacts on BSAL are likely to be minimal and the permanent disturbance of 0.8 ha of BSAL will not cause a significant impact given its small area and location immediately adjoining the existing STSF.
66. With regard to the relevant criteria in section 2.31 of SEPP Resources, and based on its consideration of the Material, the Gateway Panel finds that the proposed development:
- does meet the following relevant criteria:
 - section 2.31(4)(a)(v)
 - does not meet the following relevant criteria:
 - section 2.31(4)(a)(i)
 - section 2.31(4)(a)(ii)
 - section 2.31(4)(a)(iii)
 - section 2.31(4)(a)(iv)
 - section 2.31(4)(a)(vi)

- does not include any Critical Industry Cluster land in the Application area, and therefore section 2.31(4)(b) does not apply.
67. The Gateway Panel has therefore issued a Conditional Gateway Certificate dated 16 August 2023.



Professor Neal Menzies (Chair)

Member of the Mining and
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