

Department of Infrastructure, Planning and Natural Resources

ASSESSMENT REPORT

PROPOSED EXTENSION OF THE RIDGEWAY GOLD MINE

File No: S04/01474

1. SUMMARY

Cadia Holdings Pty Ltd (CHPL) (the Applicant) owns and operates the Cadia Valley Operations (CVO) which comprises the Cadia Hill open cut and Ridgeway underground gold/copper mines, located approximately 25 kilometres south-west of Orange in the Central West region of NSW. CHPL also controls the Blayney Dewatering and Loading Facility (Blayney Facility) where concentrated ore from the CVO is dewatered and loaded into rail containers for transport to the eastern seaboard (refer to Figure 1).

The Ridgeway mine is an underground mine with an approved extraction rate of up to 5 million tonnes per annum (Mtpa), with allowance for short term exceedances of this production limit subject to notification of the Director-General. The mine is currently operating at 6 Mtpa in accordance with such a notification.

The Applicant is proposing to extend the Ridgeway mine, involving:

- Deepening the mine workings by 300 metres and extracting up to 53 million tonnes of gold/copper ore;
- Introducing some minor alterations to the existing sub-level caving mining method;
- Extending the existing access decline and drives;
- Installing a new primary crusher some 360 metres lower in the mine workings;
- Drilling two new ventilation shafts and installing associated centrifugal fans;
- Increasing the maximum production rate to 6 million tonnes per annum;
- Depositing up to 53 million tonnes of tailings in the approved tailings storage facilities; and
- Extending the life of the mine by 6 years.

The proposal has a capital investment value of \$114 million, and would generate continued employment for approximately 200 people.

On 21 October 2004 the Applicant lodged a development application (DA) with the Department, which was accompanied by a Statement of Environmental Effects (SEE) for the proposal.

Under the *Environmental Planning and Assessment Act 1979* (EP&A Act) the proposal is classified as State significant, integrated, and non-designated development. Consequently, the Minister is the consent authority for the DA.

The Department has exhibited the DA and SEE in accordance with the requirements for public participation in the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation). During the exhibition period the Department received 9 submissions on the DA: 4 from public authorities and 5 private submissions. Three (3) of the private submissions made a formal objection to the proposal.

Key issues raised in the submissions and/or identified during the Department's assessment included:

- Groundwater drawdown and related surface water flow reductions in adjacent creeks, and effect on downstream agricultural landusers;
- Traffic and transport effects associated with heavy vehicles;
- Noise, particularly associated with truck movements; and
- Effects on identified heritage buildings/items.

The integrated approval bodies – the Department of Environment & Conservation, Heritage Office and the Department of Infrastructure, Planning and Natural Resources – have either provided their General Terms of Approval (GTA), or confirmed that existing licences would be adequate for the mine extension.

The Department has assessed the DA, SEE and submissions on the proposal, and believes that the impacts of the proposal are manageable and would be similar to the existing Ridgeway mine, which operates in general compliance with relevant environmental criteria. Consequently, the Department recommends the Minister approve the DA subject to conditions.

2. PROPOSED SITE AND SURROUNDING LAND USE

2.1 Location and Landuse

The CVO is located approximately 25km southwest of Orange in the Central Western Tablelands, in the Cabonne and Blayney local government areas (Figure 1). Land use in the area is dominated by agriculture and mining.

The proposed extension to the Ridgeway mine would be located within the existing approved Ridgeway mine operation areas, including Mining Leases (ML) 1449, 1472, 1405 and 1481.

The closest off-site residential receiver to the Ridgeway mine is approximately 2.6km to the west. Agricultural landuse is situated to the east, west, and south of the mine lease area. Canobolas State Forest is located to the north of the mine lease area (Figure 1).

2.2 Consent History

The CVO and associated Blayney Facility operate under three separate consents:

- Cadia Hill consent granted by the then Minister for Urban Affairs and Planning on 6 September 1996;
- Ridgeway consent granted by the then Minister for Urban Affairs and Planning on 3 October 2000; and
- Blayney Facility consent granted by the then Minister for Urban Affairs and Planning on 3 October 2000.

Both the Cadia Hill and Ridgeway consents were granted following individual Commissions of Inquiry.



Figure 1:
Location Plan

3. THE PROPOSED DEVELOPMENT

The Applicant is proposing to expand the existing Ridgeway underground gold/copper mine (the extension is referred to as 'Ridgeway Deep'). The proposal is shown on Figure 2 and involves:

- Deepening the mine workings by 300 metres and extracting up to 53 million tonnes of gold/copper ore;
- Introducing some minor alterations to the existing sub-level caving mining method;
- Extending the existing access decline and drives;
- Installing a new primary crusher some 360 metres lower in the mine workings;
- Drilling two new ventilation shafts and installing associated centrifugal fans;
- Permanently increasing the maximum production rate to 6 million tonnes per annum¹; and
- Depositing up to 53 million tonnes of tailings in the approved tailings storage facilities.

The proposal would extend the life of the mine by 6 years and generate continued employment for about 200 people.

The extension would increase the lateral extent of the subsidence area overlying the mine by approximately 18ha (from 52ha to 70ha) as shown on Figure 3, and increase the depth of subsidence by 250m (from 100m to 350m).

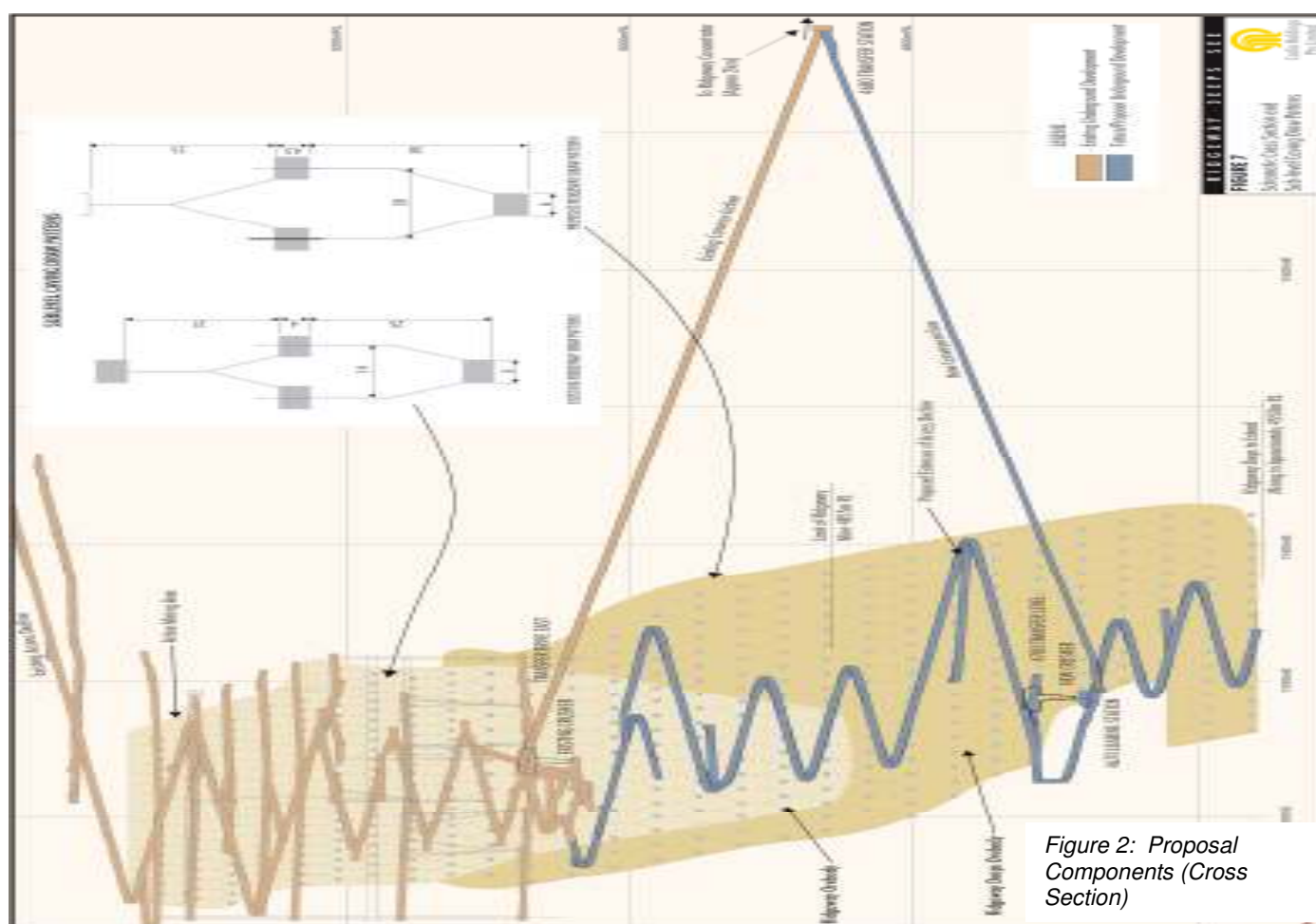
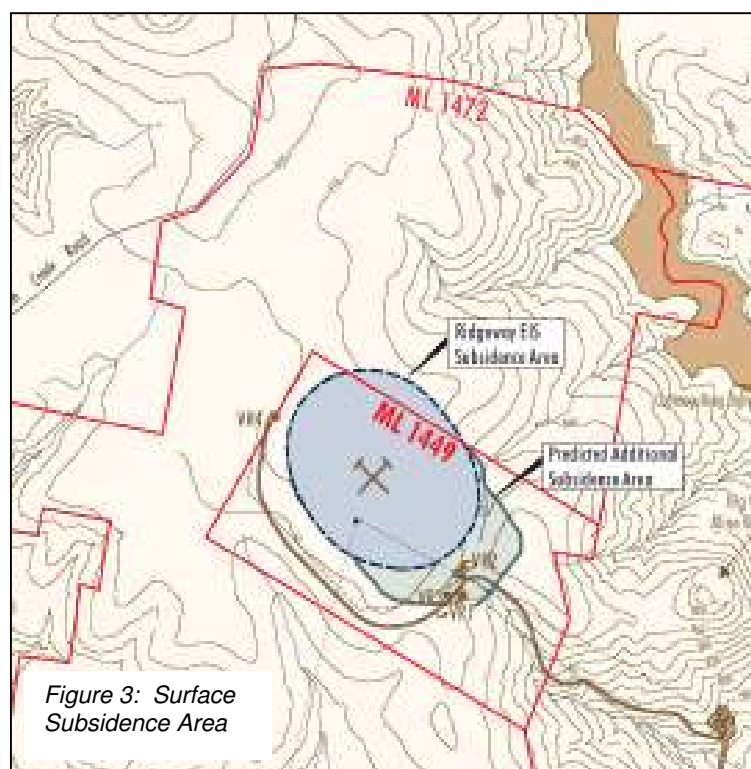


Figure 2: Proposal Components (Cross Section)

It is noted that the proposal would not increase the height or surface disturbance area of the approved tailings facilities, but would require minor amendment to the tailings dam lift schedule (in other words, the approved tailings dam was designed with excess capacity).

¹ The Applicant is currently operating at 6Mtpa. Condition 2.2(a) of the Ridgeway consent provides that 'Ore processed at the mine shall generally not exceed 5Mtpa. The Director-General must be notified prior to any short term increase in output above this level'. On 2 March 2004, the Applicant provided notification of a temporary rate increase up to 6Mtpa for the period up to 30 June 2005.



4. STATUTORY CONTEXT

Under the EP&A Act, the proposal is classified as State significant, integrated and non-designated development.

4.1 State Significant Development

The proposal is classified as State significant development under Section 76A(7) of the EP&A Act, as the proposal meets the criteria in Schedule 1 of *State Environmental Planning Policy No.34 – Major Employment-Generating Industrial Development* (see Appendix A).

As such, the Minister is the consent authority for the proposal.

4.2 Integrated Development

The proposal is classified as integrated development under Section 91 of the EP&A Act because it requires additional approvals from the:

- Department of Environment and Conservation, under the *Protection of the Environment Operations Act 1997*;
- Department of Infrastructure, Planning and Natural Resources, under the *Water Act 1912*; and
- NSW Heritage Office, under the *Heritage Act 1977*.

4.3 Non-Designated Development

Part 2, Schedule 3 of the EP&A Regulation provides that development involving alterations and additions is not designated development where, in the opinion of the consent authority, the alterations or additions do not significantly increase the environmental impacts of the total development. The Department conducted a preliminary assessment of the proposal, and considered that the only significant potential for increase in environmental impact was the potential for impact on groundwater hydrology (which could in turn affect surface water flows). Following an independent assessment of the potential groundwater impacts, the Department is satisfied that the proposal is not designated development (refer to Section 6.1 for detail).

4.4 Permissibility

The Ridgeway mine is situated in both the Blayney and Cabonne local government areas.

Under the *Blayney Local Environmental Plan (LEP) 1998* the land subject to this DA is zoned 1(a) General Rural zone. The proposed development (ie. mining) is permissible with development consent in this zone.

Under the *Cabonne LEP 1991*, the land subject to this DA is also in the 1(a) General Rural zone. The proposed development is permissible with development consent in this zone.

4.5 Environmental Planning Instruments

The following planning instruments and policies are relevant to the proposal:

- *State Environmental Planning Policy (SEPP) No. 11 - Traffic Generating Developments;*
- *SEPP No.33 – Hazardous and Offensive Development;*
- *SEPP No.34 – Major Employment-Generating Industrial Development;*
- *SEPP No.44 – Koala Habitat Protection;*
- *Blayney Local Environmental Plan (LEP) 1998; and*
- *Cabonne LEP 1991.*

An assessment of the proposal in relation to each of these environmental planning instruments is provided in Appendix A.

The Department is satisfied that the proposal meets the relevant requirements of the applicable environmental planning instruments.

5. CONSULTATION

On 21 October 2004, the Applicant lodged a DA and SEE for the proposal with the Department.

The Department subsequently:

- Notified all residents in the vicinity of the site who could be affected by the proposal;
- Notified Orange City Council, Blayney Shire Council, Cabonne Shire Council and relevant State government agencies;
- Advertised the exhibition of the DA and SEE in the Blayney Lyndhurst Chronicle and Orange Central West Daily; and
- Exhibited the DA and SEE from 28 October 2004 until 29 November 2004.

This satisfies the requirements for public participation in the EP&A Regulation.

During the exhibition period, the Department received 9 submissions on the DA: 4 from public authorities, and 5 private submissions. Three (3) of the private submissions made a formal objection to the proposal.

Issues raised in the private submissions, and the number of submissions in which each issue was raised, is presented in the following table.

Issues raised in private submissions	Frequency
Surface water (creek flow reduction)	3
Groundwater (supply reduction)	2
Traffic and Transport	2
Noise	2
Socio-economic (related to water and transport impacts)	2
Visual amenity	2

Table 1: Issues Raised in Private Submissions

The Department has assessed these concerns in detail in Section 6 of this report.

6. CONSIDERATION OF ISSUES

The Department has assessed the proposal, the SEE, and the submissions on the proposal, and believes that the following are the key issues.

6.1 GROUNDWATER AND SURFACE WATER FLOWS

6.1.1 Impact Assessments

The proposal has the potential to reduce water availability to downstream water uses through lowering of the groundwater table around the mine, which could in turn reduce stream baseflows (ie. groundwater seepage into creeks) in the local area.

In assessing these impacts, the SEE included a groundwater assessment undertaken by Kalf and Associates Pty Ltd (Appendix D of the SEE), and a surface water assessment undertaken by Gilbert and Associates Pty Ltd (Appendix E of the SEE).

Modelling undertaken for the groundwater assessment indicates that the Ridgeway Deeps proposal would increase the drawdown (ie. lowering of the groundwater table) beyond the original zone of influence of the approved mine (see Figure 4). However, the report notes that the additional area and magnitude of drawdown is very small compared to the approved zone of influence and does not extend into an area of groundwater usage.

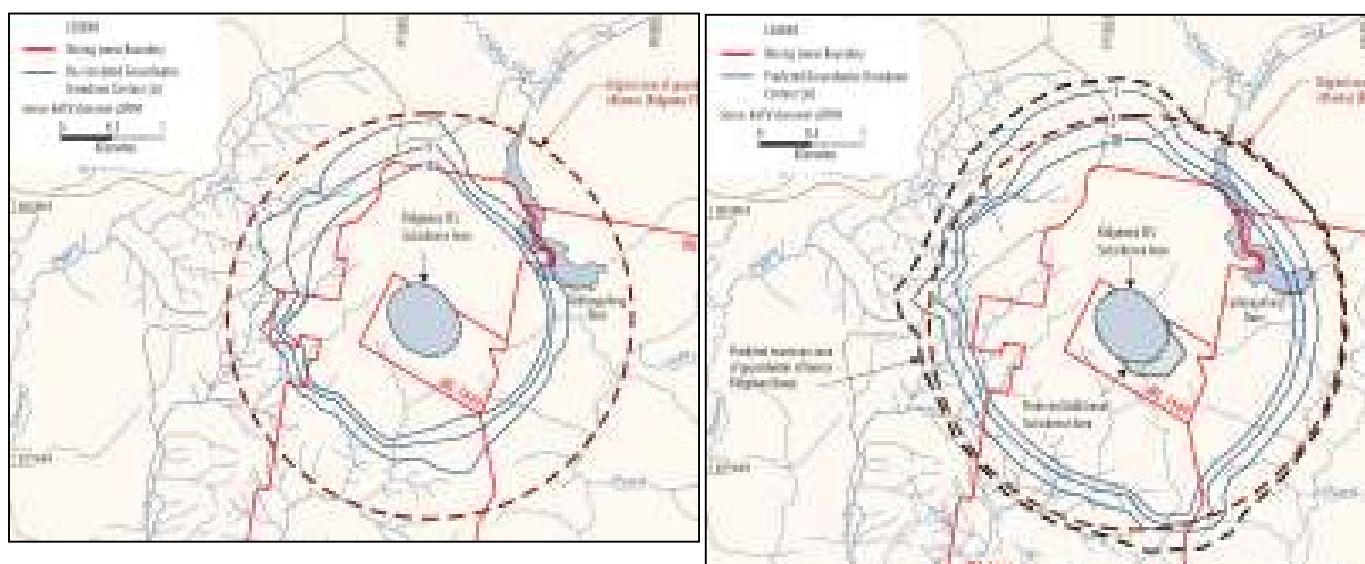


Figure 4: Predicted Maximum Groundwater Effects (Approved Ridgeway mine on Left, Ridgeway plus Ridgeway Deeps on Right)

Based on this additional drawdown area, and assuming a 100% loss of stream baseflows within the additional area, the surface water assessment estimates that there would be the following reductions in flow (mean annual) in affected waterbodies at nominated locations downstream of the mine:

- 7.4% in Diggers Creek; and
- 0.9% in Swallow Creek.

The surface water assessment concludes that the additional baseflow reduction in the local creek system would have an insignificant impact on regional stream flow, or 'so small as to be immeasurable'. Diggers Creek accounts for about 4% of the total catchment of Panuara Rivulet.

6.1.2 Independent Review

The Department commissioned Peter Dundon and Associates Pty Ltd to undertake an independent review of the Kalf report, and in particular, to advise the Department whether the proposal is likely to significantly increase the impact of the total development (including the adjoining Cadia Hill mining operations) compared with the approved development.

The independent review concurred with the findings of the Kalf assessment, and considered that the proposal does not represent a significant increase on the impacts of the approved mine plan.

6.1.3 Issues Raised in Submissions

The Department received 5 submissions on the potential groundwater and surface water flow impacts of the proposal: 3 from the general public, 1 from the NSW Dams Safety Committee (DSC) and 1 from DPI-Minerals.

The private submissions, predominately from the owners of the 'Narambon' property, were concerned with the reduction of groundwater supplies associated with the drawdown effects of the proposal, with one submission claiming that existing wells had stopped flowing as a result of the CVO. The submissions also raised concerns about the effect on reduced water supplies in local creeks, including Swallow, Cadiangullong, Cadia, Rodds and Flyers Creeks. The submissions raised the following related concerns:

- Significant flow reductions associated with existing operations;
- Deficiencies/errors in the creek study conducted for the original development;
- Lack of monitoring conducted in the lower reaches of Swallow Creek; and
- Lack of flows in Swallow Creek significantly affecting downstream agricultural landuse.

DSC identified the potential for groundwater drawdown to affect the integrity of Cadiangullong Dam, but noted that this was unlikely to result in significant movement at the dam wall. This issue is discussed in Section 6.2 below.

DPI-Minerals recommended that appropriate conditions be placed on any consent to compensate for the proposed creek flow reductions.

6.1.4 Additional Information Requested

The Applicant provided additional information regarding the issues raised in private submissions. Regarding flow reductions associated with existing operations (particularly in Swallow Creek), the Applicant reported that monitoring data on the Swallow Creek monitoring station indicates that the creek has not run dry at this location (ie. downstream of the area of maximum groundwater influence) since the commencement of monitoring in 1997.

6.1.5 General Terms of Approval

DIPNR concurred with the findings of the independent groundwater review, and stated that the existing water licence conditions for the Ridgeway mine would be sufficient to mitigate any impacts on groundwater and surface water resources from Ridgeway Deeps, with the exception that monitoring bore RO11 should be tied to the existing water management protocols.

DEC has determined that the existing General Terms of Approval for the Ridgeway mine consent are adequate for managing water impacts of the proposal.

6.1.6 Consideration of Key Issues

The Department is satisfied with the groundwater and surface water assessments in the SEE, and the findings of the independent groundwater review undertaken on behalf of the Department. From these studies the Department concludes that the proposed extension to the Ridgeway mine is unlikely to have a significant impact on water resources in the area, subject to the implementation of conditions established under the existing Ridgeway consent.

However, the assessment and exhibition of the proposal has raised two issues which require further consideration, namely:

- The implementation of existing water management conditions, in particular the Ridgeway Water Contingency Protocol; and
- The claims by the owners of 'Narambon' that existing water supplies have been significantly affected by the mine.

Consideration of these issues is presented below.

Ridgeway Water Contingency Protocol

The existing Ridgeway consent establishes a comprehensive water management regime, including detailed groundwater and surface water monitoring and water contingency protocols. The Ridgeway Water Contingency Protocol (condition 4.4 of the existing consent) is intended to establish an effective mechanism for ensuring that losses to groundwater and/or stream baseflow are appropriately compensated through water releases from the Applicant's water storages/entitlements. The protocol was required to be approved by the former DLWC.

The Water Contingency Protocol establishes trigger levels for groundwater and stream baseflow reduction, which are based on the maximum impacts predicted in the Ridgeway EIS. In the event that the trigger levels are exceeded, the protocol provides for investigation and compensatory water releases to affected waterbodies.

To date, groundwater levels and stream baseflows have remained within the trigger levels, and as such no water releases have been required or made since the start of mining at Ridgeway. However, CVO's most recent Annual Environmental Management Report (2003-04) notes that *'a review of data since the end of the reporting period has suggested that trigger values for baseflows may have been reached. A review is currently underway, results of which will be discussed in the 2005 AEMR'*.

As part of its assessment of the proposal, the Department obtained the findings of the review identified in the 2004 AEMR. Following detailed analysis, the review concludes that the baseflow trigger levels have not been exceeded to date, but that the Ridgeway mine has resulted in a reduction of baseflow in the headwaters of both Swallow and Diggers Creek of between 66 and 85%. (Nb. The Ridgeway EIS predicted a loss of 100% – the trigger level is based on a loss of 85% to allow adequate time to undertake detailed investigations).

The Department's review of the implementation of the Water Contingency Protocol identified two issues, namely:

- The potential for significant lag-times between identifying a preliminary trigger level exceedance and undertaking detailed investigations, and if necessary, releasing compensatory water flows;
- An inconsistency between conditions 4.4(a) and 4.4(b) of the existing Ridgeway consent regarding the quantum of the trigger levels.

With regard to lag-times, the intent provided in the consent is that infrastructure should be in place to provide compensatory water releases as soon as significant reductions in baseflow are identified. Presently, there is potential for a significant lag time before compensatory water releases are provided whilst detailed investigations are undertaken and the Department's approvals are sought. This issue was highlighted recently – the detailed review discussed above was finalised some 6 months following the identification of the preliminary exceedance. It is also noted that the stream baseflow trigger components are only monitored on a six monthly basis, further adding to the potential lag time between significant baseflow reductions occurring and the implementation of compensatory water releases.

The Department acknowledges that the protocol is based on a trigger level to 85% to allow for advanced warning of impacts nearing the levels predicted in the EIS. However, to ensure that downstream users are not adversely affected by baseflow reductions the Department has recommended that the Water Contingency Protocol be updated to require:

- Completion of any detailed investigation into a preliminary trigger level exceedance within one month; and
- Quarterly monitoring and public reporting of groundwater and stream baseflows.

The inconsistency between conditions 4.4(a) and 4.4(b) of the existing Ridgeway consent relates to the quantum of the trigger levels. Condition 4.4(a) provides that the Applicant shall *'provide water as necessary to Swallow creek and Diggers Creek/Panua Rivulet such that modelled dry weather baseflows in the headwaters are maintained in those streams, as if unaffected by mining'*, whilst condition 4.4(b) provides that modelled baseline flows shall be provided where the impacts on groundwater levels and surface water flows are **'greater than that predicted in the EIS'**. The Water Contingency Protocol was prepared and approved based on the intent of condition 4.4(b).

Condition 4.4(a) was adapted from one of the Commissioner's recommendations following the Commission of Inquiry for the Ridgeway development. Although the EIS for the Ridgeway development demonstrated that the impact of the development on flows in Swallow Creek and Diggers Creek/Panua Rivulet would be relatively small, the Commissioner concluded that the *'predicted impacts are the result of modelling and the results are not guaranteed'* and *'any doubt raises the level of uncertainty, a significant factor in the owners managing their properties...'*. Hence, the Commissioner recommended a condition which became condition 4.4(a).

Since the commencement of mining at Ridgeway, a significant body of monitoring data has been accumulated which validates the predictions of the Ridgeway EIS. Given the level of certainty now demonstrated through this ongoing monitoring program, the Department is satisfied that the Water Contingency Protocol complies with the intent of the existing Ridgeway consent, notwithstanding the inconsistency between conditions 4.4(a) and 4.4(b). The Department's Natural Resources Branch concurs with this conclusion.

Nevertheless, the Department believes the Applicant should be required to:

- Review and update the Water Contingency Protocol, in consultation with relevant government authorities and to the satisfaction of the Director-General; and
- Maintain the groundwater and stream baseflow trigger levels at the criteria established under the Ridgeway EIS (ie. no further allowance is to be provided for the additional impact of Ridgeway Deeps).

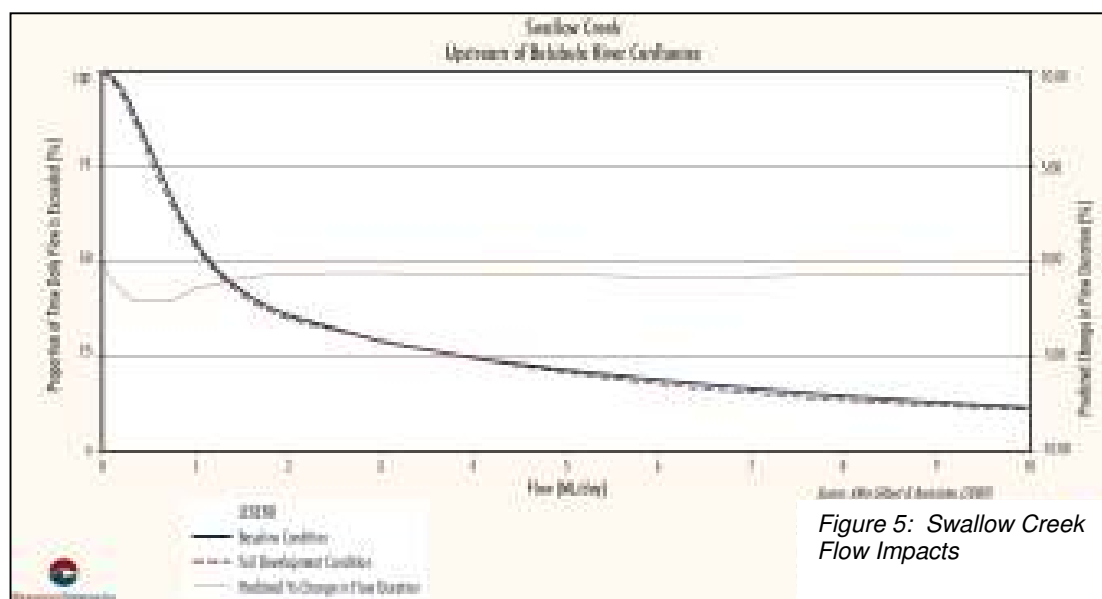
Loss of Water Flows to 'Narambon'

Detailed submissions were received by the owners of 'Narambon', who contend that the mine has significantly reduced groundwater levels on the property and flows in Swallow Creek, which has affected the agricultural viability of the property. Whilst the issues raised in the submissions are acknowledged, there is no evidence to

support claims that the Ridgeway mine is impacting upon groundwater or surface water supplies to this downstream landuser.

With regard to groundwater, the Department notes that Narambon is located some 10 km south of the underground mine, well outside the area of maximum groundwater influence associated with the development (which extends to about 1.5km from the mine).

With regard to surface water, the Narambon property is located in the lower Swallow creek catchment area. Notwithstanding the baseflow trigger level issue discussed above, the potential for the mine to affect this property via loss of baseflow to Swallow Creek is relatively minor, as detailed in the Ridgeway EIS and illustrated in Figure 5 below. It is noted that the potential for the mine to affect water supplies on Narambon and other downstream properties was comprehensively assessed during the assessment of the original Ridgeway DA, including the Commission of Inquiry held into the proposal.



Hydrologists with the Department investigated the objector's concerns, and are satisfied that the Ridgeway mine is unlikely to be significantly impacting this landuser. The officers noted that Narambon has a relatively small current Swallow Creek water entitlement of 4ML/yr, which is significantly less than the available flows in Swallow Creek (ie. mean of >915ML/yr at this property). The officers reported that the Department would further investigate water demand from this property, directly with the landowner, as a licencing issue under the *Water Act 1912*.

Notwithstanding this, the review of the Water Contingency Protocol as recommended above should ensure that water supply to this and other downstream properties remains fair and equitable.

6.1.7 Conclusion

The Department is satisfied that the proposal is able to be conducted such that adequate groundwater and surface water flows can be maintained to downstream landusers. However, the Department believes the Applicant should be required to:

- Review and update the existing Ridgeway Water Contingency Protocol;
- Review and update the Site Water Management Plan for the Ridgeway mine (including monitoring positions); and
- Continue to apply the water management conditions of the existing Ridgeway mine consent.

6.2 GEOLOGY / STABILITY

6.2.1 Geological Impact Assessment

As detailed above, the proposal would result in a lateral extension of the subsidence area overlying the mine by approximately 18ha (from 52ha to 70ha), and increase the depth of subsidence by 250m (from 100m to 350m). The expanded subsidence area is shown on Figure 3.

6.2.2 Issues Raised in Submissions

The Department received 2 submissions which raised geological/stability issues associated with the proposal: 1 from DPI-Minerals and 1 from the NSW Dams Safety Committee (DSC).

DPI-Minerals commented that the proposed variation to the sub-level caving method is expected to improve the overall ground stability, however it noted that stress levels could vary as the company develops the lower levels.

DSC identified the potential for subsidence to impact on the integrity of Cadiagullong Dam, but noted that this was unlikely to result in significant movement at the dam wall. Given the High B consequence rating of the dam, DSC recommended that a management plan focused on dam wall integrity monitoring be required for the development.

6.2.3 Additional Information Requested

The Applicant provided further information on the geology and geochemistry of the resource, essentially indicating that the Ridgeway Deeps resource is very similar and contiguous with the Ridgeway resource.

Regarding the DSC's recommendation for a management plan for Cadiagullong Dam, the Applicant confirmed that a DSC approved monitoring and management plan for the dam is already in place and is reviewed annually as part of the DSC's inspection report.

6.2.4 Consideration of Key Issues and Conclusion

The Department believes the Applicant has demonstrated that the extension of the Ridgeway mine is unlikely to have any significant impact on geological stability in the locality. With regard to the stability of Cadiagullong Dam, the Department considers that the dam is adequately managed via conditions of the existing Cadia mine consent, and applicable statutory instruments including the *Dams Safety Act 1978*.

6.3 GEOCHEMISTRY / TAILINGS WATER QUALITY

6.3.1 Issues Raised in Submissions

The SEE contains little information on the geochemistry of the Ridgeway Deeps orebody. DPI-Minerals commented that a comparison between the Ridgeway and Ridgeway Deeps geochemical characteristics is necessary to allow an assessment of impact of tailings.

6.3.2 Additional Information Requested

The Applicant provided additional information on the mineralisation and geochemistry of the Ridgeway Deeps resource, essentially indicating that the mineralisation is a contiguous extension of the Ridgeway orebody. Ridgeway tailings samples have all been classified as non acid forming (NAF) and have low sulphur content. Testwork on the Ridgeway Deeps samples indicate that the ore will continue to be classified as NAF.

DPI-Minerals subsequently reported that it was satisfied with the additional information, but recommended that the mixing of Cadia and Ridgeway tailings should be reported annually in the AEMR.

6.3.3 Consideration of Key Issues and Conclusion

The Department is satisfied that the Ridgeway Deeps proposal is unlikely to present any additional impacts associated with the geochemistry of the resource, as the mineralisation is essentially contiguous with the Ridgeway orebody.

The Department believes that the relevant Ridgeway consent conditions should continue to be applied for the Ridgeway Deeps proposal, including requirements to:

- Maintain a comprehensive Site Water Management Plan for the development; and
- Monitor groundwater and surface water quality.

In addition, the Department believes the Applicant should be required to establish and maintain an Acid Rock Drainage Monitoring and Management Plan, and report performance annually in the AEMR, including details of mixing of Cadia and Ridgeway tailings.

6.4 TRANSPORT

6.4.1 Traffic Impact Assessment

A traffic impact assessment for the proposal was undertaken by Traffix Pty Ltd (see Appendix F of the SEE).

The assessment included revised traffic counts at the current (temporary) approved production rate of 6Mtpa. The assessment report estimates that the increase in ore production from (originally approved) 4.5Mtpa to 6Mtpa has added about 10-15 extra truck deliveries per month. At 6Mtpa, the roads and intersections affected by the development operate at a Level of Service 'A' (ie. Good operation).

Construction traffic volumes are expected to be similar to the volumes experienced during the development of the Ridgeway mine. At these volumes, the traffic assessment has demonstrated that both daily traffic flow and peak hourly traffic flows would operate at a LOS of A.

6.4.2 Issues Raised in Submissions

The Department received 3 submissions on the potential traffic and transport impacts of the proposal: 2 from the general public and 1 from the RTA.

The private submissions raised the following issues:

- Conditions under the existing consents requiring road upgrades (Four Mile Creek Road, Panuara Road, Orchard Road) have not been undertaken to date;
- Panuara Road deviation (as required under existing consent) was constructed to very poor standard (although some recent patching has been undertaken);
- Potential impact on existing road access to regional centres and Sydney from tailings expansion [Nb. This is not relevant to this proposal as no tailings expansion is proposed];
- Cumulative traffic effects from CVO – construction phase plus existing concentrate trucks;
- Existing high speed limits (100kmh) outside Forest Road school and through Spring Terrace locality;
- Traffic should be shared with Forest Reefs route (to share impacts), and/or the capacity of the concentrate pipeline should be increased;

and recommended the following consent conditions:

- Consent should be delayed until roadwork conditions from Ridgeway/CV consents are completed;
- The speed limit through Spring Terrace and near Forest/Orchard Rd intersection should be reduced;
- The Forest/Orchard Rd intersection should be upgraded with a central median to improve safety;
- The Forest Reefs route should be utilised for traffic sharing (if load weights a problem, consider empty trucks utilise this route).

The RTA did not object to the proposal, but stressed that existing consent conditions should be continued over the full length of the CVO project, and raised the following issues for consideration:

- OH&S procedures, including travel speeds on local roads;
- Transport conditions for concentrates and heavy loads accessing the development;
- Continuation of maintenance agreements with Councils;
- Assurance that Councils carry out maintenance works in a timely and professional manner.

6.4.3 Additional Information Requested

In response to submissions regarding the roadworks required under the existing consent, the Applicant confirmed that it had fulfilled all of its requirements under the existing consent, including:

- Panuara Road deviation (Condition 7.2) – the roadworks have been completed. Council is currently planning the upgrading/rehabilitation of the degraded section between the deviation and its intersection with Four Mile Creek Road. The Applicant will agree with Council a program for implementation of these upgrade works upon completion of Council's planning report;
- Other Roadworks (Condition 7.3) – The Applicant has funded the relevant roadworks, including Orchard Road, Cadia Road, Old Cadia Road, Woodville Road and Four Mile Creek Road; and
- Orchard Road (Condition 7.5) – The Applicant has funded the upgrading of Orchard Road.

With regard to lowering the speed limit through Spring Terrace and near the Forest/Orchard Road intersection, the Applicant noted that its Traffic Management Plan (required under the existing Ridgeway consent) voluntarily restricts its trucks to 80km/hr in this area, and that it has written to the RTA requesting that they review speed limits in the area. This commitment was made following concerns raised by residents during the assessment of the concentrate trucking modification application in 2004.

With regard to utilising the Forest Reefs route as an alternative for heavy vehicles, the Applicant noted that this option had been considered during the original development applications for the Cadia and Ridgeway mines, but was discounted as the route does not have a suitable alignment or road surface for heavy vehicles.

6.4.4 Consideration of Key Issues and Conclusion

The Department is satisfied that traffic volumes associated with the development, including cumulative impacts associated with the construction phase and existing concentrate trucks, are unlikely to have a significant impact on the capacity of the local and regional road system (Nb. Potential amenity impacts associated with additional traffic noise is addressed in Section 6.5).

With regard to the completion of outstanding road works required under the existing Ridgeway consent, the Department is satisfied that the Applicant has duly fulfilled its obligations under the existing consent. It is considered that it would be unfair to delay any consent for the proposal until such time as the Councils complete the roadworks, as the Applicant has held its end of the relevant agreements with Council. The Department considers that this issue can be dealt with through existing mechanisms in the Ridgeway consent (and outside the consent), including through the Community Consultative Committee, which includes representation from the Councils, the Applicant and the community.

Regarding speed limits for trucks associated with the development, the Department is satisfied that the Applicant's existing Traffic Management Plan provides an effective mechanism for voluntarily limiting truck speeds on local roads to 80km/h, and acknowledges the Applicant's request to the RTA for an official reduction to the speed limit.

With regard to the central median strip on the Forest/Orchard Rd intersection, as requested in a private submission, the Department is satisfied that the proposal would not significantly increase truck movements at the intersection. The need for traffic control structures along the concentrate transport route has been comprehensively assessed in previous applications.

Notwithstanding the above, the Department believes the Applicant should be required to review and update its Traffic Management Plan and Road Noise Management Plan for the Ridgeway mine, including provision for the regular and ongoing education of drivers as to the plan's contents.

6.5 NOISE AND BLASTING

6.5.1 Noise Impact Assessment

A noise impact assessment for the proposal, including predictive modelling, was undertaken by Richard Heggie and Associates Pty Ltd (see Appendix G of the SEE).

The assessment report indicates that the Ridgeway Deeps proposal would have no additional impact on the cumulative operational noise emissions from the CVO, as illustrated in the following table.

Mine Operation	Cadia Hill	Ridgeway	Ridgeway Deeps	Cumulative Mine Operations
Approved Existing Operations	137 dBA	127 dBA	-	138 dBA
Ridgeway Deeps Construction Years 1 to 3	137 dBA	127 dBA	120 dBA	138 dBA
Ridgeway Deeps Years 3 to 10	137 dBA	124 dBA	124 dBA	138 dBA
Ridgeway Deeps Years 11 to 13	-	-	127 dBA	127 dBA

Table 2: Mine Site Total Sound Power Levels

The noise report notes that the primary driver for noise emissions associated with the CVO is the Cadia Hill open pit operations. Existing cumulative noise emissions associated with the CVO are generally within the criteria listed in the Ridgeway and Cadia consents – with some exceedances occurring during adverse meteorological conditions.

The assessment report notes that the proposal would utilise the same blasting methods as currently employed at Ridgeway, and that all blasting is currently compliant with blasting criteria. As such, and given that Ridgeway Deeps would be at a greater depth, the report surmises that blast emission levels for the proposal would also comply with existing blast criteria.

With regard to operational traffic noise, the assessment report concludes that the proposed increase in production to the current temporary-approved rate of 6Mtpa 'would not measurably alter traffic noise levels', above the noise levels associated with the original production limit of 4.5Mtpa.

With regard to traffic noise during the construction phase, the assessment report indicates that the increased traffic would result in a marginal noise increase in the order of 1-2 dBA (for a period of 30 months). It is noted that existing night-time traffic noise levels are 'up to 2dBA' above the existing criterion (ie. 50dBA) on Cadia Road (Mayfield property), while daytime traffic noise levels are within the existing 55dBA criterion.

Mitigation Measures

The noise assessment report considers that the existing Ridgeway consent provides an effective mechanism for the ongoing noise regulation of the Cadia Valley Operations.

6.5.2 Issues Raised in Submissions

The Department received 2 private submissions on the noise impacts associated with the proposal, which raised the following issues:

- Excessive noise emissions associated with existing mine (until recently when emissions have reduced), particularly at night;
- Excessive truck braking noise at the Forest/Orchard Rd intersection; and
- Traffic noise should be shared by utilising the Forest Reefs route [Nb. This route is not practicable, as discussed in Section 6.4].

6.5.3 General Terms of Approval

DEC has notified that the existing environment protection licence conditions for the Ridgeway mine would adequately cover the proposed development, and that a variation to the licence is not required for the proposal.

6.5.4 Consideration of Key Issues and Conclusion

The Department is satisfied that the Ridgeway Deeps proposal would have no additional impact on the cumulative operational noise emissions from the CVO.

Excessive noise emissions associated with existing operations (as raised in a private submission) do not appear to be reflected in noise monitoring results for the mine. Notwithstanding, the existing Ridgeway consent includes conditions requiring the Applicant to investigate and mitigate excessive noise emissions where requested by a landowner.

With regard to excessive truck braking noise at the Forest and Orchard Rd intersection, the Department is satisfied that the proposal would not result in a significant increase in heavy vehicle movements (see Section 6.4 above), and hence would not significantly increase operational traffic noise. The Applicant has informed that its Traffic Management Plan includes a requirement for truck drivers not to use compression brakes within town limits. The Applicant has stated that it will undertake regular unannounced auditing to ensure compliance with this requirement.

The Department notes the predicted night time traffic noise exceedences during the construction phase. To minimise this impact the Department has recommended a condition limiting construction-related heavy vehicle traffic movements to between 7am to 10pm.

In summary, the Department believes the Applicant should be required to:

- Comply with the noise and blasting criteria and conditions under the existing Ridgeway consent;
- Restrict construction-related heavy vehicle traffic movements to between 7am to 10pm; and
- Review and update its Road Noise Management Plan, and Traffic Management Plan, including provision for the regular and ongoing education of drivers.

6.6 FLORA AND FAUNA

6.6.1 Flora and Fauna Assessment

The proposal would result in an additional subsidence area of approximately 18 hectares. This area consists of grazing land with only scattered trees and fenceline/windbreak vegetation.

The SEE states that the Ridgeway Hill area contains one threatened flora species (*Eucalyptus canobolensis*), listed as vulnerable under the *Threatened Species Conservation Act 1995*, and four vulnerable-listed threatened fauna species including the Turquoise Parrot, Superb Parrot, Yellow-bellied Sheathtail Bat and the Common Bentwing Bat.

The SEE concludes that the flora and fauna impacts of the proposal are not considered significant.

6.6.2 Additional Information Requested

The Department requested additional information to clarify that the previous assessments, relied upon for the current application, included adequate survey coverage of the additional subsidence area, in accordance with relevant guidelines. The Applicant subsequently confirmed that the previous surveys did include the whole Ridgeway Hill area, including the additional subsidence area.

6.6.3 Consideration of Key Issues and Conclusion

The Department is satisfied that the Applicant has demonstrated that the proposal can be conducted without significant impact on the flora and fauna of the area, including impact on threatened species.

However, the Department believes the Applicant should be required to:

- Continue to apply the flora and fauna management conditions of the existing Ridgeway mine consent; and
- Review and update its Flora and Fauna Management Plan and Land Management Plan.

6.7 ABORIGINAL HERITAGE

6.7.1 Aboriginal Heritage Assessment

The SEE states that the proposal would not require the disturbance to any known aboriginal heritage sites. The SEE relies on the previous archaeological surveys undertaken for the Ridgeway EIS for this conclusion, and does not include any additional survey.

6.7.2 Additional Information Requested

The Department requested additional information to clarify that the previous assessments, relied upon for the current application, included adequate survey coverage of the additional subsidence area, in accordance with relevant guidelines. The Applicant subsequently confirmed that the previous surveys did include the whole Ridgeway Hill area, including the additional subsidence area.

6.7.3 Consideration of Key Issues and Conclusion

The Department is satisfied that the proposal is unlikely to have any significant Aboriginal heritage impacts. Nevertheless, the Department believes the Applicant should be required to continue to apply the conditions of the existing Ridgeway consent, including requirement to cease work and obtain relevant approvals in the event of discovery of any archaeological sites.

6.8 NON-ABORIGINAL HERITAGE

6.8.1 Heritage Assessment

The SEE notes that three heritage sites lie within or close to the subsidence area associated with the existing Ridgeway mine, and that these items would likely be impacted over time.

The SEE states that the proposed extension would have not have any additional impact on heritage sites associated with the Ridgeway mine. The SEE notes that an area of planted windbreak vegetation would potentially be affected by the increased area of subsidence, but that these windbreaks do not have any particular heritage value.

6.8.2 Issues Raised in Submissions

The NSW Heritage Office raised concerns about the potential for impact to the 'Cadia Engine House and Surrounds', a listed item on the State Heritage Register (SHR No. 779). The heritage item is situated approximately 1 kilometre from the predicted additional subsidence area. The Heritage Office noted that the development application boundary appeared to fall within the Engine House and Surrounds heritage listing boundary, and if it did, Heritage Council consent may be required within the parameters of integrated development.

The Heritage Office noted the proposal's impact on the three heritage sites, and reiterated the Applicant's duty to obtain relevant permits under the *Heritage Act 1977*.

6.8.3 Additional Information Requested

The Applicant confirmed that the development application boundary falls within the Engine House and Surrounds heritage listing boundary. Accordingly, the Department subsequently notified the Heritage Office that it was an integrated approval body and sought its General Terms of Approval for the proposal.

6.8.4 Consideration of Key Issues and Conclusion

The Department is satisfied that the Ridgeway Deeps proposal is unlikely to have any additional impact on identified items of heritage significance over and above the existing Ridgeway mine, and that the proposal is able to be conducted such that key heritage items and their setting (namely, Cadia Engine House and Surrounds) can be conserved and maintained, and that other items of heritage significance can be appropriately managed to preserve and/or record their heritage values. The Heritage Office has forwarded its General Terms of Approval for the development, which are similar to the Office's comments on the original Ridgeway mine.

6.9 VISUAL AMENITY

6.9.1 Issues Raised in Submissions

The Department received 2 private submissions on the visual impacts associated with the proposal, in particular the impacts associated with additional storage in tailings dams and waste rock dumps. One submission claimed that the southern waste dump is already above the original finished height and width of the approved dump site.

6.9.2 Consideration of Key Issues and Conclusion

The proposal does not require any extension to the approved limits of the existing mine tailings dams or southern waste dump, and as such the proposal would not result in any additional visual impact associated with these facilities.

Regarding the existing height of the southern waste dump, the Applicant has confirmed that no part of the dump is above the limits of the approved facility. The current maximum height of the dump is at an RL of 860m, whereas the approved maximum height is RL 880m.

6.10 OTHER ISSUES

Other issues raised in the SEE, by government agencies or by way of public submission are considered to be minor issues, components of key issues or of minor environmental impact.

7. SECTION 79C CONSIDERATIONS

Section 79C of the EP&A Act sets out the matters that a consent authority must take into consideration when it determines a DA.

The Department has assessed the proposal against these matters, and is satisfied that:

- The proposal is generally consistent with the provisions of the relevant planning instruments;
- The potential impacts of the proposal can either be mitigated or managed;
- The site is suitable for the development; and
- The proposal is generally in the public interest.

8. RECOMMENDED CONDITIONS OF CONSENT

The Department has prepared recommended Conditions of Consent for the proposal which supplement the conditions of the existing Ridgeway consent. These conditions are required to:

- Prevent, minimise and/or offset adverse environmental impacts;
- Set standards and performance measures for acceptable environmental performance;
- Require regular monitoring and reporting; and
- Provide for the ongoing environmental management of the development.

The Applicant does not object to these recommended conditions.

9. CONCLUSION

The proposal would provide significant social and economic benefits to the people of the Central West region of NSW, including the continuation of 200 jobs and a capital investment of \$114 million.

The environmental impacts associated with the proposal would be similar to, and essentially a continuation of, the existing Ridgeway mine. The Department believes these impacts can be mitigated, managed, or at least minimised to comply with relevant environmental criteria and standards.

The Department has assessed the SEE, the various submissions on the proposal, and the additional information provided, and recommends that the Minister approve the DA subject to conditions.

10. RECOMMENDATION

It is RECOMMENDED that the Minister:

- Consider the findings and recommendations of this report;
- Approve the DA under Section 80 of the EP&A Act, subject to the conditions set out in the attached instrument of consent; and
- Sign the attached instrument of consent.

David Kitto
Manager
Mining and Extractive Industries

Sam Haddad
Executive Director

APPENDIX A

ENVIRONMENTAL PLANNING INSTRUMENTS CONSIDERATION

A.1 State Environmental Planning Policy (SEPP) No.11 – Traffic Generating Development

The proposal is affected by the provisions of SEPP 11, as an 'extractive industry or mining' (Schedule 1(m)). As such, the application was referred to the RTA, who subsequently confirmed that it had no objection in principle to the proposal, and offered a number of comments for the Minister's consideration (see Section 6.4).

A.2 SEPP No.33 – Hazardous and Offensive Development

A Preliminary Hazard Analysis was conducted for the original Ridgeway development which concluded that the cumulative risks to the environment, members of the public and public property were minimal. The existing Ridgeway consent requires the Applicant to maintain a Safety Management System for the mine (Condition 5.1(b)). The SEE for the proposed Ridgeway Deeps extension states that the proposal would not significantly alter the potential risks associated with the Ridgeway mine as the mining method and ore processing operations would remain unchanged. As such, the Department is satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 33.

A.3 SEPP No.34 – Major Employment-Generating Industrial Development

The proposal meets the criteria under Schedule 1 of SEPP 34, as development for the purpose of mining that would employ more than 100 people on a full-time basis, with capital investment value of more than \$20 million. As such, the proposal is deemed to be State significant and the Minister for Planning is the consent authority for the DA (cl.8).

A.4 SEPP No.44 – Koala Habitat Protection

The SEE for the proposal states that the development area does not provide core Koala habitat and does not have a resident population of Koalas. As such, the Department is satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 44.

A.5 Blayney Local Environmental Plan (LEP) 1998

The land subject to the development application is (in part) zoned 1(a) General Rural Zone under the Blayney LEP 1998.

Under the 1(a) zoning, development for the purpose of mining is permissible with consent. One of the objectives for the 1(a) zone is to *'protect, enhance and conserve valuable deposits of minerals, coal, petroleum and extractive materials by controlling the location of development in order to ensure the efficient extraction of those deposits'*. The proposal is considered to be consistent with this zone objective.

Clause 10 of the LEP requires a consent authority to consider the impact of carrying out proposed development in the 1(a) zone on the following matters:

Clause	Matter for consideration	Consideration / Reference
10(1)(a)	The present use of the land, the potential use of the land for the purpose of agriculture and the potential of any land which is prime crop and pasture land for sustained agricultural production	The land is currently used for mining purposes
10(1)(b)	Vegetation, timber production, land capability (including soil resources and soil stability) and water resources (including the quality and stability of water courses and ground water storage and riparian rights);	Refer to section 6 of assessment report
10(1)(c)	The future recovery from known or prospective areas of valuable deposits of minerals, coal, petroleum, sand, gravel or other extractive materials;	N/A
10(1)(d)	The protection of areas of significance for nature conservation or of high scenic or recreational value, and of places and buildings of archaeological or heritage significance, including Aboriginal relics and places;	Refer to section 6 of assessment report
10(1)(e)	The cost of providing, extending and maintaining public amenities and services to the site of the proposed development;	The proposal would not require significant augmentation to existing site services

Clause	Matter for consideration	Consideration / Reference
10(1)(f)	Future expansion of settlements in the locality;	The proposal is not is proximity to existing settlements
10(2)	The effect of the proposed development on adjoining land and other land in the locality.	Refer to section 6 of assessment report

The Department is satisfied that the proposal would not have a significant impact on these heads of consideration.

Clause 26 of the LEP requires a consent authority to consider a heritage impact statement, and notify local Aboriginal communities, where development is likely to have an impact on a place of Aboriginal heritage significance or a potential place of Aboriginal heritage significance. As discussed in Section 6.7 of the assessment report, the proposal is not expected to have an impact on Aboriginal heritage.

Clause 26A requires a consent authority to consider a heritage impact statement, and notify the Heritage Council, where development is likely to have an impact on a place of non-Aboriginal heritage. As discussed in Section 6.8 of the assessment report, the proposal is not expected to have an impact on non-Aboriginal heritage.

Clause 27 relates to development in the vicinity of a heritage item, and requires a consent authority to consider the impact of the proposed development on the heritage significance of the heritage item and of any heritage conservation area within which it is situated. Consideration of the impact of the proposed development on heritage items is provided in Section 6.8 of the assessment report.

A.6 Cabonne LEP 1991

The land subject to the development application is (in part) zoned 1(a) General Rural under the Cabonne LEP 1991.

Under the 1(a) zoning, development for the purpose of mining is permissible with consent. As with the Blayney LEP, one of the objectives for the 1(a) zone is to *'protect, enhance and conserve valuable deposits of minerals, coal, petroleum and extractive materials by controlling the location of development in order to ensure the efficient extraction of those deposits'*. The proposal is considered to be consistent with this zone objective.

Clause 10 of the LEP is similar to the respective clause in the Blayney LEP. Consideration of this clause is presented in Section A.5 above.

Clause 28 relates to development in the vicinity of a heritage item, and requires a consent authority to consider the impact of the proposed development on the heritage significance of the item and its setting. The old Cadia copper mine, including the Engine House and Surrounds, is listed as a heritage item in the LEP. As discussed in Section 6.8 of the assessment report, the Department is satisfied that the proposal would not have a significant impact on this heritage item, or its setting.