

2 June 2021

Stephen O'Donoghue
Director – Resource Assessments
NSW Department of Planning, Industry and Environment
4 Parramatta Square, 12 Darcy Street
PARRAMATTA NSW 2150

Dear Stephen,

RE: Cadia Valley Operations Modification 14 – Response to Request for Additional Information

In response to your letter dated 19 May 2021, please find below Cadia Holding Pty Ltd's (CHPL's) response to residual comments provided by the NSW Resources Regulator and the Department of Planning, Industry and Environment on the Cadia Valley Operations (CVO) Modification 14 Submissions Reports.

The purpose of this letter is to provide further detail in regard to the following:

- CHPL's mine rehabilitation commitments and proposed post-mining land uses (response to residual comments provided by the NSW Resources Regulator); and
- CHPL's existing access agreements for relevant Crown Lands parcels located within the CVO Mining Leases.

Should you have any further queries regarding this matter, please do not hesitate to contact Jane Chung on 0434 077 267 or via email at jane.chung@newcrest.com.au.

Yours sincerely,



Jane Chung
Approvals Superintendent
Cadia Valley Operations

NSW RESOURCES REGULATOR

Comment 1

Provide a final landform plan that shows the final landform contours at an adequate scale and includes all surface water management works or systems at and around the TSF, including the buttresses and the disturbed area surrounding the facilities.

CHPL response:

Figure 11 of the Submissions Report shows the indicative final landform and conceptual surface water management for the CVO (refer to response to Comment 2 below for further detail).

As noted by the Resources Regulator, the post-mining final landform figure provided in the Modification Report and Submissions Report (Figure 11 of the Submissions Report) does not show detailed final landform contours.

This is because the design of the final landform and surface water management for the CVO is contingent on the final designs of the progressive extensions to the Northern Tailings Storage Facility (NTSF) and Southern Tailings Storage Facility (STSF) landforms, in consideration of the proposed changes to the embankment design methodology for Modification 14 (i.e. use of centreline or downstream lifts). In addition, the repair of the NTSF embankment would inform the development of the final landform.

As described in the Modification Report, material for the construction of the NTSF encapsulation (and STSF embankment construction) would be sourced from non-acid forming material from the site waste rock dumps. The quantities of material required to be removed from the site waste rock dumps would be determined during detailed design of the NTSF encapsulation and would inform the final landform design (i.e. depending on the design methodologies used, a large amount of rock material would be recovered from the site waste rock dumps, which would materially impact on the final landform design).

As such, the proposed final landform and development of surface water management is dependent on the completion of the NTSF encapsulation (and ultimately, recommencement of tailings into the NTSF) as well as the ongoing extensions to the STSF embankment, however, the overall concepts remain as shown on Figure 11 of the Submissions Report.

Details of the proposed final landform and surface water management (such as final landform contours) would be provided in future updates of the CVO *Mining Operations Plan* (MOP) (CHPL, 2021) or other relevant documentation.

It is noted that the NSW Government is developing new regulation under the *Mining Act 1992* to replace existing conditions relating to rehabilitation and post-mining land use outcomes. The new regulation would require preparation of a rehabilitation management plan (i.e. replacing the MOP), which would include a rehabilitation risk assessment, detailed rehabilitation objectives, completion criteria for specific areas and a final landform and rehabilitation plan which spatially depicts rehabilitation for each area.

CHPL would provide details of the proposed final landform and surface water management in accordance with the requirements of any new regulation and relevant guidelines.

Comment 2

Provide information on how surface water management will link into existing drainage lines and creeks.

CHPL response:

It is noted that progressive updates to the design of the final landform would inform the design of the final landform surface water management system (refer to response to Comment 1).

Notwithstanding, details of the conceptual final landform surface water management system is provided in the CVO MOP (CHPL, 2021). Table 1 summarises the conceptual final landform surface water management design for the North Waste Rock Dump, South Waste Rock Dump and the TSFs.

Figure 11 of the Submissions Report shows the conceptual surface water management system for the CVO.

Regarding final landform surface water management to the south of the STSF, embankment runoff would be directed to the seepage management pond (proposed to be relocated as part of Modification 14). Ultimately, as part of site closure works, it is anticipated that the seepage management pond would be removed and embankment runoff to the south of the STSF would report downstream into Rodds Creek (subject to future water quality assessment and approval by the relevant regulators to remove the seepage dam).

Table 1: Summary of Proposed Surface Water Management

Landform	Proposed Surface Water Management
South Waste Rock Dump	- Post-mining, surface water runoff (from the western portion of the South Waste Rock Dump) and leachate waters (from the existing southern and northern leachate ponds) would flow to the west via a series of constructed wetlands. - Subject to water quality (to be assessed against the <i>Water Management Plan</i> [CHPL, 2019] guideline values and verified by a future research project), water will be discharged into Cadiangullong Creek.
North Waste Rock Dump	- Surface waters runoff from the North Waste Rock Dump would flow to a constructed wetland located on the southern edge of the Cadia Extended void. - Subject to water quality (to be assessed against the <i>Water Management Plan</i> [CHPL, 2019] guideline values and verified by a future research project), water will be discharged into Cadiangullong Creek.
Tailings Storage Facilities (TSFs)	<u>Embankments:</u> - Runoff will be directed to existing seepage control collection points. <u>TSF surfaces:</u> - The surface of the TSFs would have a series of formal drainage channels constructed (across the contour) at approximately 100 metre intervals. - Drainage would be directed to the north-western corners of the TSFs, where controlled engineering structures would safely direct water to a series of constructed wetlands located between the TSF's and Cadiangullong Creek. - Subject to water quality, water would be discharged to Cadiangullong Creek (to be assessed against <i>Water Management Plan</i> [CHPL, 2019] guideline values).

Source: CVO Mining Operations Plan (CHPL, 2021).

Comment 3

Clarify the post-mining land use at the TSF and outcomes of "land capability assessments" noted in the Rehabilitation Strategy.

Comment 4

Provide supporting information for the stated land capability and how the Rehabilitation Strategy will support this and the final land use.

CHPL responses (to both Comments 3 and 4):

Following consultation undertaken as part of the development of the CVO *Rehabilitation Strategy* (CHPL, 2020) and *Land and Biodiversity Management Plan* (CHPL, 2017), the final land-use proposed for the TSFs has been modified from that approved as part of the Cadia East Project Environmental Assessment to the following (CHPL, 2020):

Woodland Conservation (subjected to occasional strategic grazing (short term periodic) for management purposes and biodiversity outcomes pending the outcomes of the land capability assessments).

Details regarding final landform rehabilitation objectives, methodology and proposed land-use for the TSFs are described in the CVO *Rehabilitation Strategy* (CHPL, 2020). The modified proposed final land use for the TSFs would be consistent with the goals of the CVO *Rehabilitation Strategy* (CHPL, 2020), which include:

- adding value to the current vegetation corridor program (ecological value);
- allowing for the future land use of grazing where appropriate and sustainable (agricultural value);
- retaining areas that may be important for future industry and infrastructure needs; and
- providing safe and stable landforms and minimise any adverse potential impacts so that there is no future liability for Newcrest or the community.

The CVO MOP describes a number of research projects that have been undertaken since operations commenced at CVO aimed at verifying and improving rehabilitation outcomes and strategies, including (CHPL, 2021):

- *Soil Capping Depth and Species Selection Trials for the Rehabilitation of Cadia Hill Gold Mine Tailings Storage Facility (2000-2001)* – the trial demonstrated that vegetation could be established using a 15 centimetre capping of topsoil;

- *An Evaluation of Substrate and Flora Treatments for Rehabilitation of Tailings Dam Storage Facilities* (2004-2005 Honours Project) – the trial tested three different capping treatments, three vegetation communities and fertility treatments and demonstrated successful establishment and persistence of grasses and the importance of increased fertility (fertilisers or biosolids);
- *Metal Uptake by Pasture Plants at the Tailings Rehabilitation Site* (2007-2008 Honours Project) – the study identified the potential risk of elevated Molybdenum levels in vegetation for grazing livestock, with the final land use of the TSF's subsequently changed to woodland/conservation;
- *An Evaluation of Substrate and Flora Treatments for Rehabilitation of Tailings Dam Storage Facilities* (2008-2009 Masters Project) – the trial applied biosolid and topsoil treatments and further verified the success of pasture and woodland ecosystem establishment on the TSF surface (with topsoil or biosolid treatments);
- *Uptake of copper and zinc by Baumea articulata, Carex appressa, Eleocharis acuta and Juncus usitatus: A preliminary study for a rehabilitative wetland* (2008-2009 Honours Project) – the study demonstrated the ability of vegetation to uptake copper and zinc, resulting in constructed wetland being included in final landform scenarios for the treatment/improvement of leachate and runoff waters;
- *Investigation into Tailings Revegetation Trial Salinity* (2008-2009) – the study investigated the potential impact of salinity on revegetation, concluding that parameters such as pH, soil structure and plant health are more important indicators for success of revegetation;
- *Independent Assessment of Tailings Revegetation Trial & Comparison Against Mine Closure Criteria* (2010-2011) – the study evaluated earlier work completed (2004-2005 Honours Project and 2008-2009 Masters Project) and concluded that it is feasible to rehabilitate the TSFs at CVO into native woodland and introduced grazing pastures as final land use options; and
- *Evaluation of Australian native wetland plants for phytoremediation of saline mine-leachate* (2009-2014 PhD Project) – the study confirmed the earlier work completed (2008-2009 Honours Project) and supported the inclusion of constructed wetlands for mine site closure planning.

Overall, the results from the trials showed that it is feasible to rehabilitate the TSFs into native woodland and introduced grazing pastures as final land use options.

CHPL would undertake further final land use capability trials to inform the modified proposed final land use. However, it is noted that development of the TSF embankments and deposition of tailings into the NTSF (subject to its encapsulation) and STSF is ongoing.

CHPL would provide details of the outcomes of further land capability assessments undertaken in future revisions of the *Rehabilitation Strategy* (CHPL, 2020).

DEPARTMENT OF PLANNING, INDUSTRY AND ENVIRONMENT

Comment 1

[Provide] evidence of access agreements in place for all Crown parcels located within CVO's Mining Leases that authorise access in accordance with Section 265 of the Mining Act 1992.

CHPL has either purchased or has Crown Lands permits in place for all parcels of Crown Lands relevant to the CVO.

Details of relevant Crown Lands licences obtained by CHPL are provided below.



Land and Property
Management Authority

**GRANT OF LICENCE
NUMBER LI 465004**

File Reference: OE94H248
Account No: LI 465004

Contact: Leonie Brown
Phone: 02 6391 4329
Email: leonie.brown@lpma.nsw.gov.au

Cadia Holdings Pty Ltd
PM BAG
SOUTH ORANGE NSW 2800

Dear Sir/Madam

Please find enclosed a copy of the above mentioned licence executed on behalf of the Minister for Lands which should be retained for your personal record.

Yours faithfully



Leonie Brown
for Crown Lands Division, Orange
15th September 2010

L I C E N C E

Lands Office Ref.

OE94H248

Crown Lands Act 1989 - Section 34

Licence Number

LI 465004

MINISTER

The Minister for Lands, being the Minister administering the Crown Lands Act 1989, (hereinafter referred to as the Minister)

grants to

**LICENSEE
name & address**

**CADIA HOLDINGS PTY LTD
PM BAG
SOUTH ORANGE NSW 2800
(hereinafter referred to as the Holder)**

a Licence pursuant to the provisions of Section 34 of the Crown Lands Act 1989 in respect of the land described hereunder in Parts 1 and 2 and subject to the terms and conditions contained in the following pages and Schedule 1, and in any additional Schedules or documents referred to in Schedule 1.

EXECUTIONDated this 15TH day of SEPTEMBER 2010**THE MINISTER**
as delegate of the MinisterEdward Cato (0056)
name and position**THE HOLDER**

In consideration of the grant of this Licence, the Company agrees to be bound by the terms, conditions and provisions of the Licence.

The Common Seal of was affixed in accordance with its articles of association in the presence of (See note below):


signature
DIRECTOR
position

8/9/2010
Date


signature
Company Secretary
position

8/9/2010
Date

(Note: To be ruled through if executing this licence without seal - Corporations Law s. 127)

DESCRIPTION OF LANDS

PART 1

Local Govt. Area	BLAYNEY		
County	BATHURST		
Parish	WALDEGRAVE		
Locality	PANUARA		
Status:	Lot	Section	DP
Crown land being	7001		1020360

PART 2

Plan/diagram: Schedule 3	Area: 2.666ha
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TEXT DESCRIPTION: Whole of Lot 7001 DP 1020360

Note - a Table of Contents appears at the end of this Licence (6.001)

***** End of Description of Land (Crown Land) *****

REFERENCES

CHPL (2017). *Land and Biodiversity Management Plan*.

CHPL (2019). *Water Management Plan*.

CHPL (2020). *Rehabilitation Strategy*.

CHPL (2021). *Mining Operations Plan*.