Cadia Continued Operations Project

NEWCREST MINING LIMITED
CADIA

PROJECT INFORMATION SHEET ISSUE #6 - TAILINGS STORAGE FACILITY

As introduced in Project Information Sheet #1, Newcrest is planning for a long-term continuation to mining operations known as the Cadia Continued Operations Project (CCOP). This information sheet provides further details regarding the proposed new Tailings Storage Facility that is one component of the CCOP.

May 2023

Introduction

The Cadia Continued Operations Project (CCOP) will generate tailings as an uneconomic by-product from gold and copper processing. Tailings consist of ground rock and ore processing reagents and are a normal output from mining operations. At all mines, tailings must be safely stored in an engineer-designed facility that is built to stringent standards.

Whilst Cadia will continue to deposit tailings into the Open Pit Tailings Storage Facility (PTSF) and will be re-commencing deposition into the South Tailings Storage Facility (STSF), a new TSF will be required to store the tailings from CCOP. Newcrest has been investigating options to construct the new TSF for CCOP. This information sheet provides an overview of the studies that have been undertaken to date to determine the best location, technology and staging of the TSF.

Background

Newcrest has been investigating different options for the storage of its tailings over a number of years. More recently the following engagement and information provision activities either commissioned and / or undertaken by Cadia have assisted us in better understanding your views with regards to Cadia's operations more broadly, and the CCOP and options for tailings storage more specifically.

Through these activities you have shared with us a range of issue themes with regards to the TSF that have assisted us in identifying preferred options including:

Visual amenity

Traffic noise and volumes

Operational noise

Land use conflicts

Changes to air and water quality

Contamination in event of a failure

Specific examples of what you have told us through engagement activities related to the proposed TSF and the management of tailings at Cadia include:

> "Current un-interrupted views of the valley will be destroyed by the presence of a large TSF wall to the east. Our house view faces the east"

> "I am concerned regarding dust from existing TSF's...what is in the tailings dust"

> "Concerned of the size and proximity to the Flyers Creek and Belubula River"

COMMUNITY ENGAGEMENT TIMELINE

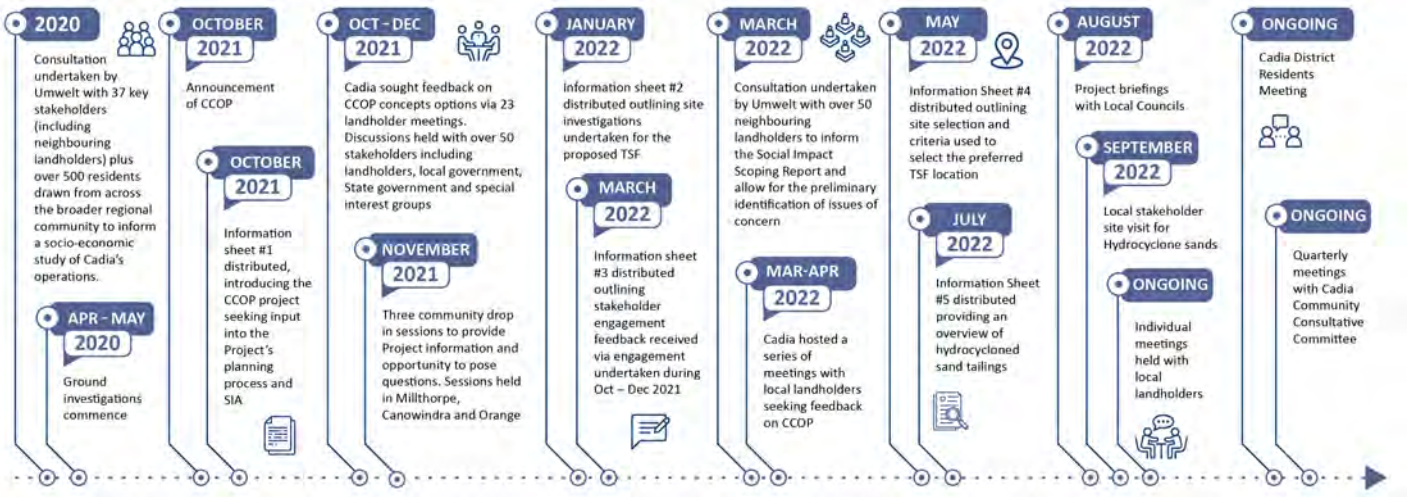


Figure 1 Engagement History

TSF Options Assessment

The selection of Cadia's preferred TSF design has included a number of components:

1. Tailings Deposition Technology Options

Multiple technology options have been considered at various phases throughout the selection process. These have included:

Conventional Paste
Conventional Slurry
Dry Stack
Co-Disposal
Cyclone Sands

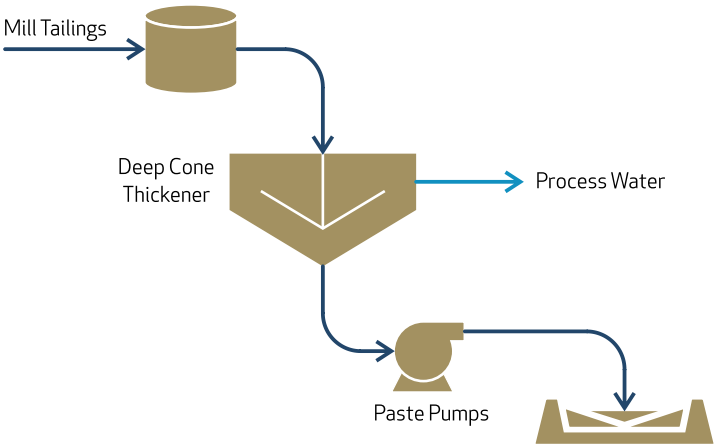
Conventional Paste
Conventional Slurry
Dry Stack
Cyclone Sands

Cyclone Sand
Based on preferred location and minimising environmental impacts during construction

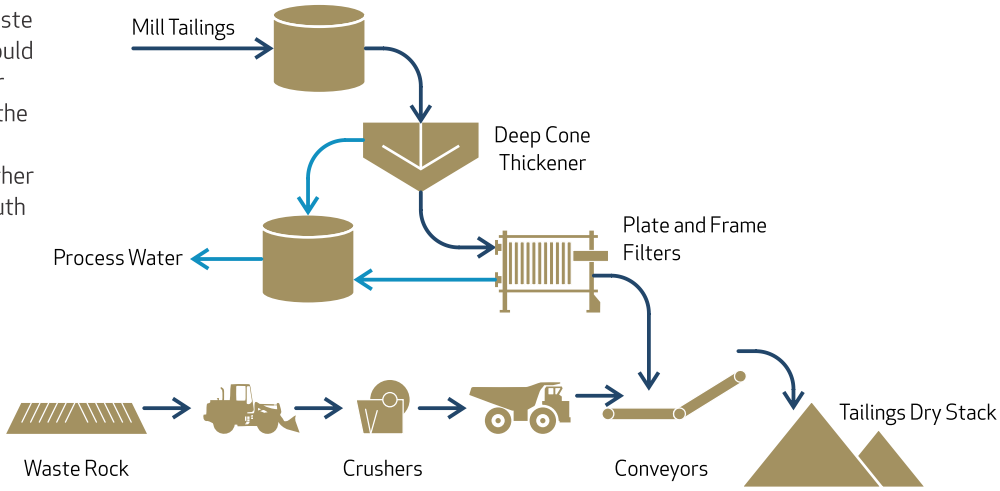
Overview of technology options

Thickened / Paste Tailings
(e.g. paste and slurry): Involves thickening of tailings in the processing plant before disposal. This technology requires large flat areas to minimise embankment construction and is better suited to low gradient ground slopes (gradient <2%) to maximise its benefits.

As a result, this technology option would involve significantly higher levels of land disturbance due to the existing topography. Also requires waste rock not available at Cadia without additional quarries increasing noise and dust impacts south of the operation.



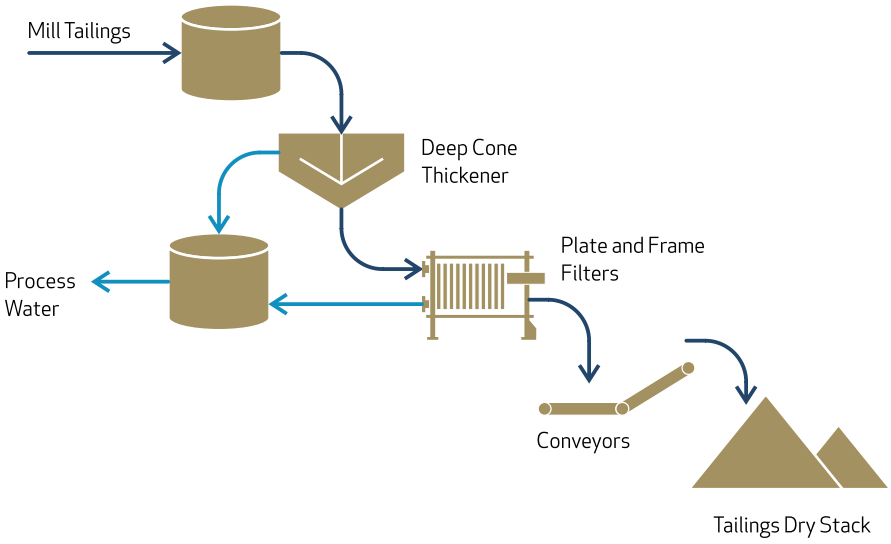
Co-Disposal of coarse wastes, e.g. waste rocks and tailings. This technology would result in increased noise due to higher mobile equipment requirements and the establishment of a new rock quarry required to co-mingle the tailings further increasing noise and dust impacts south of the operation.



Overview of technology options (continued)

Dry Stack: tailings clumps are filtered to produce a product that is transportable and stackable using 'dry' material transportation and disposal techniques.

Worldwide this is not currently being done at the scale required for Cadia, additionally, it would require 24-hour operation of conveyors and a heavy vehicle fleet which would likely result in higher noise and air quality impacts than other options, and would require high levels of management intervention to prevent dust liftoff.



Cyclone Sands: involves the installation of cyclones in central locations or along embankment wall to separate sand from the tailings to provide material for construction of new TSF embankments.

The benefits of cyclone sands include:

Embankment safety: minimising pore pressures contributes to stability. Hydrocycloned sand provides a wider zone of drained material and reduces the need for filter zones.

Beneficial reuse of material: less waste materials are produced due to using tailings to construct the dam embankments.

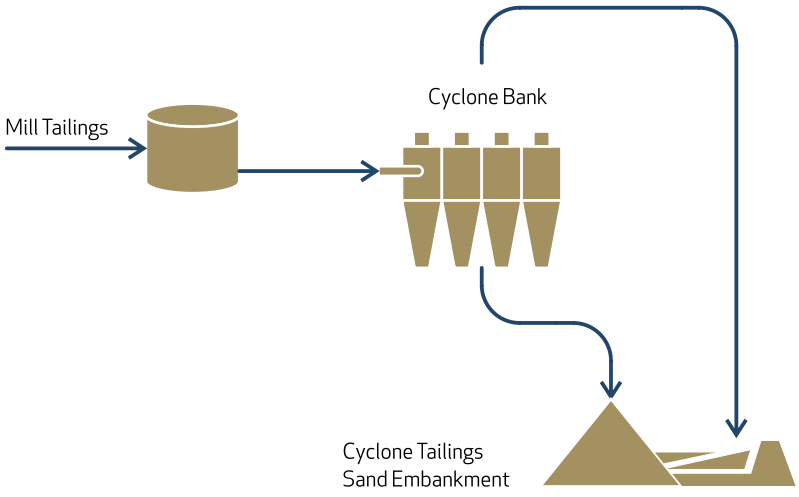
Beneficial reuse of water: Water is recirculated to the processing facility which reduces the reliance on freshwater from other sources.

Progressive reclamation: finished TSF surfaces can be progressively rehabilitated as they are completed.

Reduced land disturbance: as tailings are used to construct the facility the size of the facility and the amount of quarrying is reduced due to materials only being needed for the starter embankment. This in turn reduces land disturbance and impacts to biodiversity and cultural heritage.

Reduced energy: uses less energy than other tailings technologies while maximising the amount of water reuse

Further information on the use of cycloned sand tailings has been provided in Information Sheet #5.



The preferred technology option selected was the **use of cyclone sands** due to the following considerations:

- Lower land disturbance requirements when compared to other options
- No increase above current water requirements
- Lower noise levels for impacted residents
- Increased embankment stability
- Less energy intensive
- Similar dust levels to those on current facilities (pre-2019)
- Significantly reduced output needed from a quarry (required only for starter embankment)

Why is Cadia Choosing to Use Hydrocyclone Sand Technology

During meetings held with stakeholders in March to May 2022 Cadia indicated that it is planning to progress with using Hydrocyclone Technology for tailings deposition. During these meetings Cadia's stakeholders have requested information as to why this technology is not used in Australia.

Research conducted by Newcrest indicates the main reasons for this are as follows:

1. Most mines are in remote locations where land productivity is lower (than at Cadia) and there are few if any residential dwellings in close proximity. As such there are reduced land use conflicts and the cost of hydrocycloning is not typically considered.
2. Abundant construction materials are often available from open pit mines and can be used for embankment construction. Cadia operates block caves which minimise the volume of waste rock available for TSF construction.
3. Hydrocycloning requires modifications to the processing circuit (with associated additional costs). These are not included at mining operations unless needed.

2. TSF Location Assessment

With regards to possible locations, **eight** initial options were considered for the TSF. Criteria for assessment of these options included potential environmental and community impacts, topography which favours suitable deposition methods, and technical operability and capacity. **Six** of these options were screened out as being unsuitable due to the following reasons:

1 Ridgeway Void

- Insufficient capacity
- Planned mining
- Impact to water table

2 West

- Insufficient capacity
- New catchment impacted
- Largest disturbance area
- High risk with significant water diversions required
- Existing environmental offset area
- Land not owned by Cadia

3 Far South

- Insufficient capacity
- Significant impacts to Cadiangullong Creek
- High risk with significant water diversions required

4 Pit TSF

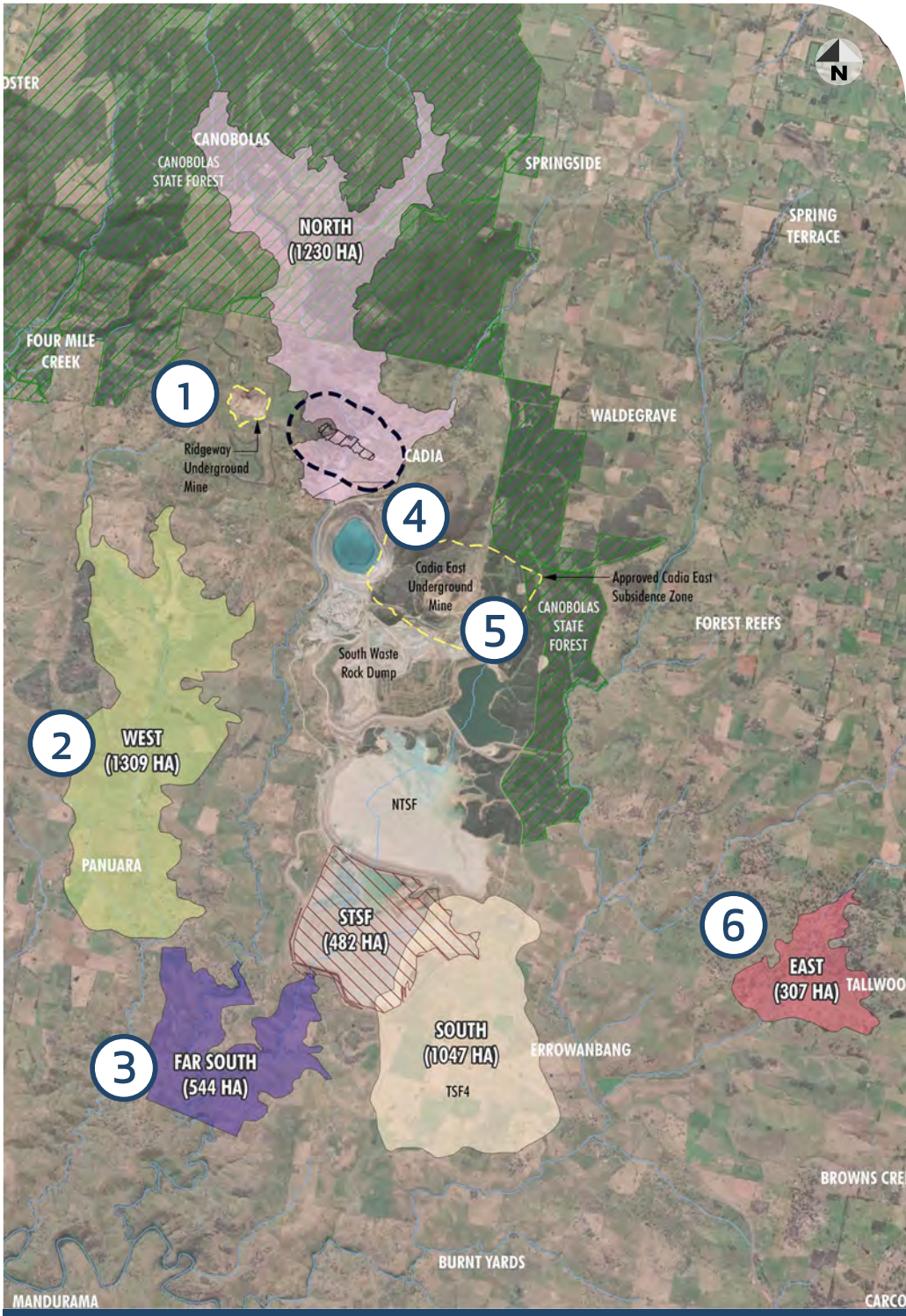
- Insufficient capacity
- Investigating options to increase capacity but small volumes

5 Cadia East Mine

- Insufficient capacity
- Active mining area and tailings deposition will present safety issues

6 East

- Insufficient capacity
- New catchment impacted
- Significant water diversions required
- Long pumping corridor impacting further landholders



With two options remaining for further investigation - north and south – a series of investigations into the anticipated disturbance area, potential noise and dust emissions, potential impacts on water catchments, changes to visual amenity of neighbouring landholders, technical risks and construction methods were undertaken with the **South (Errowanbang)** option subsequently selected as the preferred location.

A comparison of both of these locations is provided following.

TSF Options Comparison

North	VS	South
Significant creek diversions required, i.e. Cadiangullong Creek and relocation of Upper Cadiangullong Creek Dam		Avoids locating TSF on water streams (Cadiangullong Ck)
Management of significant rainfall events and floods poses substantial and unique challenges during construction		Provides further improvements to existing stability of the NTSF
Larger disturbance area (1230ha)		• Smaller disturbance area (1047ha) • Option to integrate the TSF with the STSF to increase capacity and minimise overall footprint and impacts
Constructability extremely difficult on backfilled Cadia extended pit		Option to include a staged approach to TSF construction
TSF capacity favourable for a life of mine solution (600-800mt)		TSF storage capacity is the most favourable for a life of mine solution (695 - 850Mt)
Not directly visible to surrounding community		Optimisation has mitigated some of the community impacts from visual amenity and will increase the distance from Flyers Creek and Errowanbang woolshed

Following the selection of a preferred technology and preferred location, Cadia has then worked to improve the design of the TSF to address community concerns.

Footprint modified from eastern and southern residents and Old Errowanbang woolsheds	**Minimise noise** during construction and operation by using cyclone sands	**Potential for dust lift-off minimised** with a smaller surface area	Location selected to **minimise land disturbances**	**Minimise impact on Flyers Creek and agriculture lands** by reducing footprint	**Alternate road realignment** considered

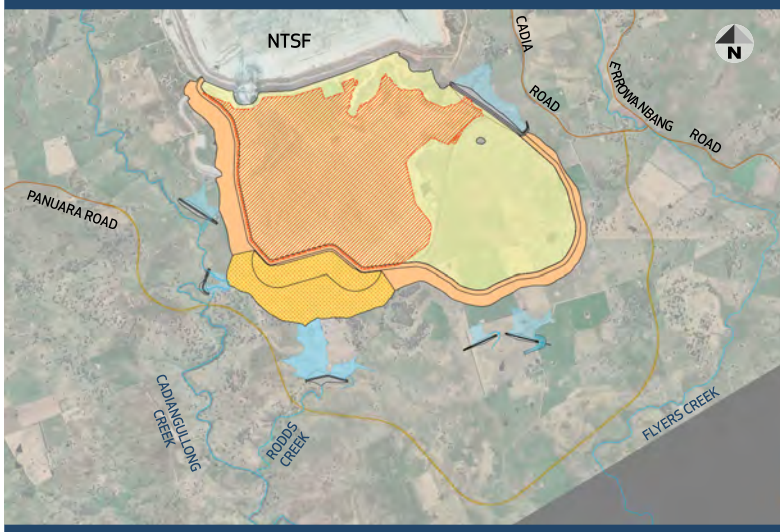
Since we last shared the TSF designs we have listened to community concerns and further reduced the footprint through consideration of a much reduced footprint and reduced capacity.

We continue to look at opportunities for future alternate tailings usage, use of existing void spaces where available at a later date, for example tailings deposition into Ridgeway after the completion of mining or tailings deposition into Cadia East mining areas towards the end of panel cave mining, and alternate technologies that may become more viable.

Previously communicated Option
(Option 5A)

Highest point: RL ~5754
Total area: ~1460 Ha
Total output: ~1084 Mt
Timeframe: 2055 - 2060

Preferred Option
(STSFX)



Highest point: RL ~5744
Total area: ~1050 Ha
Total output: ~630 Mt
Timeframe: 2048 - 2050

Legend:

- Reclaim Pond Spillway
- Panuara Road (Re-alignment)
- Watercourses
- Reclaim/Return Pond Area
- Earth Fill Embankment
- Final Tailings
- Hydrocycloned Sand Embankment
- Hydrocycloned Sand Stockpile
- STSF

Preferred Option

- Furthest distance from community/State Heritage areas
- Allows the facility to take advantage of the next 20 years of technology changes to reduce environmental and community impacts
- Reduced height compared to Option 5A
- Allows future facility siting to take advantage of locations such as Ridgeway and Cadia East that are not currently available
- Smallest final surface area
- Potential to undertake progressive closure and rehabilitation in areas where construction and placement is complete

How can I be involved?

If you would like to arrange a time to meet with the Cadia Project team or have any general feedback or questions on the contents of this information sheet or the CCOP in general, please contact the Newcrest team at **c.copeis@newcrest.com.au**

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You may also visit the CCOP website and interactive map at:

https://caportal.com.au/umwelt/cadia

If you would like to be involved in the Social Impact Assessment for the CCOP, please contact Umwelt directly at:

social-team@umwelt.com.au, or **1300 793 267**