

Rehabilitation Cost Estimation Tool User Manual

Mining Act 1992 and Petroleum (Onshore) Act 1991

October 2025

Published by the Department of Primary Industries and Regional Development

Title: Rehabilitation Cost Estimation Tool User Manual

First published: 31 October 2025

Department reference number: D25/132536

Amendment schedule		
Date	Version	Amendment
31 October 2025	1	First published

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1. Introduction

1.1. Context

The Rehabilitation Cost Estimate (RCE) Tool (hereafter RCE Tool) and associated rates and costs have been updated to improve the process of calculating estimated rehabilitation costs for explorers, mine and petroleum production operators in the New South Wales. The RCE Tool is administered by the Resources Regulator within the Department of Primary Industries and Regional Development (the department). The current RCE Tool is a revision of the previous RCE Tool and was developed in accordance with the following principles:

- decommissioning and rehabilitation scopes are informed by specialists
- unit rates are constructed using engineering cost estimation methods
- underlying unit cost rates are contemporary and obtained from several sources as practical
- earthmoving equipment productivity is informed by industry accepted sources
- rates and quantities are transparent and traceable, with sufficient detail to allow for review and audit
- all items required by the department to estimate rehabilitation costs are included.

1.2. Purpose of user manual

This document is a user manual for the RCE Tool developed to guide operators in the preparation of a RCE. The document includes:

- description of key changes from the previous RCE Tool
- explanation of how to install and calculate a cost with the RCE Tool
- description of the architecture of the RCE Tool
- description of the functionality of the worksheets
- explanation of multipliers and cost rates, and how they are constructed.

1.3. Purpose of rehabilitation cost estimate tool

The purpose of the RCE Tool is to provide exploration and mine operators with guidance on calculating an appropriate RCE for their operations by assisting in the assessment and quantification of rehabilitation risks and liabilities pursuant to the *Mining Act 1992* and *Petroleum (Onshore) Act 1991*. The RCE Tool provides a consistent approach to estimating the cost to the NSW Government to decommission and rehabilitate a mining/petroleum operation in the event of default by the mine operator.

The RCE is used by the department to assist in determining the amount of the security deposit that is required to be held by the mine. Further details are provided in *Guideline: Rehabilitation Cost Estimate* available on the department's website.

The RCE Tool does not apply to the sealing of petroleum wells associated with exploration and production activities under the *Petroleum (Onshore) Act 1991*. Petroleum title holders can use the RCE Tool for guidance on calculating an appropriate RCE for disturbance associated with their activities. However, it is the expectation that a separate estimate is submitted for the sealing of

petroleum wells, with the RCE prepared by a suitably qualified expert in consideration of the scale, nature, risks and age associated with petroleum wells specific to the petroleum title.

1.4. Key differences to previous calculator

Key changes made to the previous RCE Tool include:

- creation of a bottom-up, first principles calculation method
- removal of the option to select mine type (open cut/ underground/ exploration) from the Introduction sheet
- a single point of truth for underlying unit rates (e.g. \$/h for an excavator) and assumptions (e.g. density of soil)
- individual Input Sheets for each Mining Domain (e.g. tailing storage facilities, active mine area, etc)
- removal of macros to improve functionality and stability
- an expanded range of rates for bulk push and load and haul
- inclusion of the following additional reference sheets to provide greater transparency for rates, productivity values, defaults and calculator assumptions:
 - cost schedule
 - rates
 - productivity
 - assumptions sheets (general and capping).

1.5. Approved final land use and rehabilitation outcomes

Prior to calculating an RCE, Users should have regard to:

- the approved final land use and rehabilitation commitments established as part of the development consent issued under the *Environment Planning and Assessment Act 1979*
- the relevant rehabilitation objectives statement, rehabilitation completion criteria statement and, for large mines, the final landform and rehabilitation plan approved under the standard conditions of mining leases pursuant to Schedule 8A of Mining Regulation 2016
- the specific rehabilitation approach and outcomes nominated in any rehabilitation management plan / petroleum operations plan
- the rehabilitation commitments outlined in any forward program
- the rehabilitation outcomes approved in any exploration activity approval, including the mandatory requirements of the Exploration code of practice: Rehabilitation
- site variations and complexities appropriate to the individual site.

1.6. More information

For more information on a RCE or the RCE Tool, contact the Resources Regulator via the contact details on the website www.resources.nsw.gov.au/about-us/contact.

This user manual and the RCE Tool is accompanied by training videos and Guideline: Rehabilitation Cost Estimate hosted on the Resources Regulator website www.resources.nsw.gov.au

The training videos demonstrating the content of this user manual and walking through worked examples.

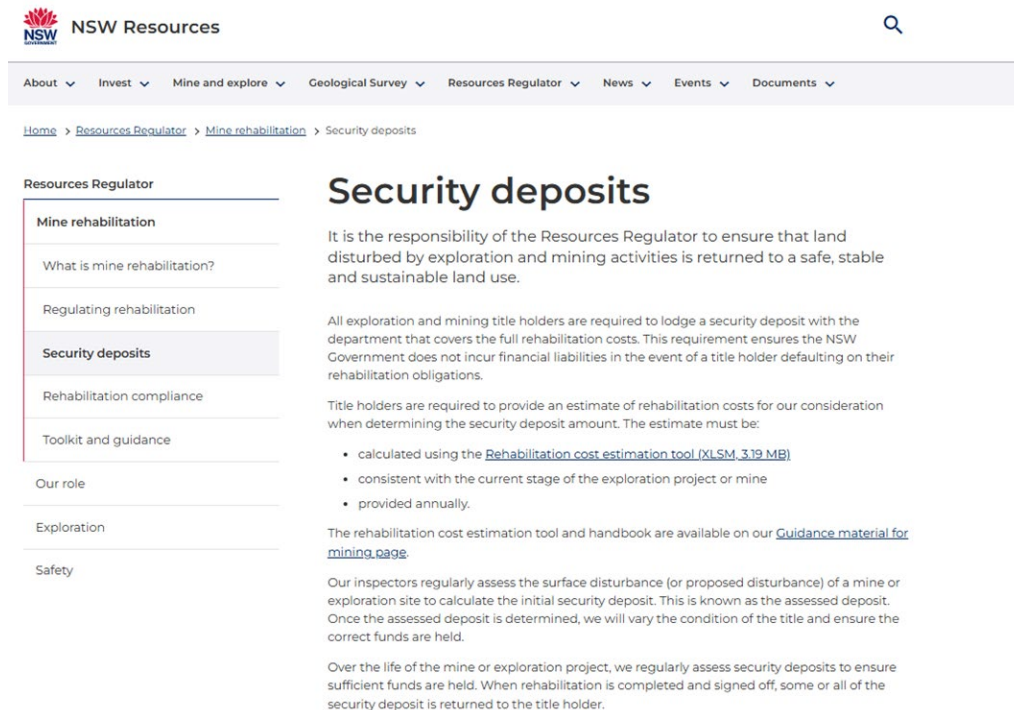
2. General process for RCE calculation

2.1. Installation

The following steps describe how to install and save the RCE Tool:

1. Click on the Rehabilitation cost estimation tool link via the Resources Regulator website as shown in Figure 1.

Figure 1: Downloading the RCE Tool



2. The file will likely go to your Downloads folder.
3. Save the file with a new name, preferably including company name and current date (e.g. *Company, Site, RCE, 7Feb25*). By downloading the RCE Tool, the User agrees to the Terms and Conditions. The Terms and Conditions can be found in the “Introduction” sheet.

2.2. Site registration

1. Navigate to ‘RCE Summary’ sheet and enter registration details (see Figure 2).

Figure 2: Registration details

Rehabilitation Cost Estimate Tool - Mining New South Wales
 - Enter Mine Name in RCE Summary

RCE Summary	
Complete the following fields prior to calculating the Security Deposit.	
Date of Estimate	01-Jun-25
Lease(s):	
Lease Holder(s):	
Term of RCE:	This is period of time over which the RCE amount will apply.
Date of last Security Deposit Review:	01-Jun-25
Amount of the last Security Deposit Review:	This is the date of the most recent correspondence from the Department advising of the assessed deposit amount.
Current Security Deposit held by the Department:	This is the most recent assessed deposit amount as per the most recent correspondence from the Department (see above).
List key changes since previous submission:	This is the current security deposit amount held by the Department.
e.g. significant landform rehabilitation undertaken in domain xyz e.g. change in mine waste (tailings) capping rate	

2.3. Calculation overview

- From the RCE Summary sheet, select the link to the Input Sheet you want to populate (links under 'Mining Domain Type' as shown in Figure 3. This will take you to the sheet you selected. You can return to the RCE Summary page from any Input Sheet by selecting the *RCE Summary* hyperlink at the top of every sheet.

Figure 3: Hyperlinks to User Input sheets for each Domain type

Mining Domain Type
Infrastructure Area
Infrastructure - Mine Entries
Beneficiation Facility
Tailings Storage Facilities
Water Management Area
Overburden Emplacement Area
Active Mining Area (Open Cut Void)
Underground Mining Areas
Exploration
Sub-total
Additional Items
Other and Sundry

- In each Input Sheet, enter quantities to Input cells, add Alternate Rates as required and provide justification, select options from drop-down menus as required.
- Populate all Input Sheets applicable to your site.
- Review the 'Cost Summary' table on the RCE Summary sheet for rolled-up totals including the sub-total for Mining Domain Types and a sub-total for Additional Items (Figure 4).

Figure 4: Cost Summary Table in RCE Summary Sheet

COST SUMMARY				
Mining Domain Type		Cost	Comments	
Infrastructure Area		\$ -		
Infrastructure - Mine Entries		\$ -		
Beneficiation Facility		\$ -		
Tailings Storage Facilities		\$ -		
Water Management Area		\$ -		
Overburden Emplacement Area		\$ -		
Active Mining Area (Open Cut Void)		\$ -		
Underground Mining Areas		\$ -		
Exploration		\$ -		
Sub-total		\$ -		
Additional Items		Cost		
Other and Sundry		\$ -		
Sub-total		\$ -		
Totals				
Subtotal - all except Exploration		\$ -		
Subtotal - Exploration		\$ -		
Subtotal - all		\$ -		
Contingency (Mining)		\$ -		
Contingency (Exploration only)		\$ -		
Contingency Total		\$ -		
Grand Total (excluding GST)		\$ -		

5. Review the Contingency costs and Grand Total at the bottom of the RCE Summary Sheet (Figure 5). If the site-specific contingency is greater than the default, enter an explanation in the 'Comments' space provided.

Figure 5: Contingency costs and Grand Total on RCE Summary page

Totals					
Subtotal - all except Exploration			\$ -		
Subtotal - Exploration			\$ -		
Subtotal - all			\$ -		
Contingency (Mining)		30%	\$ -		Enter reason here if contingency greater than default is entered
Contingency (Exploration only)		15%	\$ -		Enter reason here if contingency greater than default is entered
Contingency Total			\$ -		
Grand Total (excluding GST)			\$ -		

2.4. Selecting activities

To determine and select the appropriate activities in the RCE Tool required to rehabilitate all disturbance generated for the purposes of mining / petroleum and/or exploration, the following aspects should be considered:

2.4.1. General

- the approved final land use (e.g. grazing, cropping, bushland, industrial, etc)
- revegetation strategies (e.g. direct seeding, hydro-seeding, tube stock, addition of fertiliser/biosolids, amelioration, fencing to protect vegetation)
- availability and application of topsoil/growth media
- availability of other suitable rehabilitation materials (e.g. competent rock, low permeability materials, organic ameliorants, Virgin Excavated Natural Materials (VENM))
- post mining landform profiles
- steep slope stabilisation
- void design and management
- major earthworks – large volumes of material to be moved
- minor reshaping – small volumes of material to be moved to achieve landform design
- water management to maximise soil conservation and minimise the potential for erosion (i.e. contour banks, drainage channels, sediment dams, rock drains)

- repatriation/protection of heritage items and management requirements
- cost/requirement to access public/State/Crown land to complete rehabilitation
- mobilisation/demobilisation distance to closest regional centre for demolition and earthworks equipment
- exploration operations.

2.4.2. Infrastructure

- points of attachment of site services (e.g. water, power, communications, sewage)
- power lines and type for which the site has liability (poles or tower/lattice structures)
- types of buildings – substations, demountables (on stumps), small (single storey/level), light industrial (single storey/level with raised roof to height of another level), industrial (multi-storey/level with gantry crane, or other heavy infrastructure requiring removal), comminution, processing/preparation plant, hoppers, etc
- positioning of conveyors (on ground, elevated' and overhead)
- concrete thickness and disposal pathway (crushing or disposal)
- fences to be removed and disposed
- stacker/reclaimer type (radial, luffing, bucket wheel) and presence of rails and ballast – in the case of a small mine or quarry, the stacker may be better classified as conveyor due to the scale and absence of hydraulics for raising/lowering or rotating
- presence of silos, rail loading bins, reclaim tunnels, tanks (above ground and underground), pipes, pumps and pontoons, bitumen, evaporation fans and/or other water transfer and management infrastructure, radiation devices
- rail loop and loading facilities
- number and size of portals, adits and ventilation fan shafts requiring sealing and whether bat gates are required
- presence and type of un-rehabilitated boreholes
- dams to be retained (landowner agreements/approvals)
- dam sediments requiring removal, decommissioning of turkey's nest structures unless a landowner agreement is in place
- requirements to backfill sumps and voids.

2.4.3. Contamination and remedial works

- contamination requirements – assessment (Phase 1), water disposal, high and low level contaminated material requiring removal / treatment off-site, material requiring remediation on site, asbestos requiring removal, acid sulfate soils requiring management
- requirement to remove blue metal/aggregate from stabilised areas and the depth of removal (typically 0.5 m)
- presence and types of roads, access tracks, haul roads, vehicle park-up areas
- requirements for deep ripping and trimming minor disturbance areas

- existing rehabilitation areas requiring repair and to what extent (minor or significant topsoil replacement, repair of erosion rills and gullies or re-design and re-construction of landform)
- any ongoing management requirements for successfully rehabilitated areas
- buffer lands and successfully rehabilitated areas requiring pest management
- undisturbed areas and land management requirements.

2.4.4. Landforms

- final pit/void characteristics and long-term physical and chemical stability
- tailings and waste rock characteristics and environmental risk capacity
- equipment requirements for undertaking rehabilitation work (e.g. small plant for tailings dam works due to low shear strength)
- requirement for rock drains to manage surface water
- highwall treatment strategy (considering public safety, coal seams and acid rock drainage potential areas, geotechnical stability, public infrastructure)
- warning signs, safety barriers and/or trenching requirements (e.g. near voids)
- creek diversion stabilisation, armouring and maintenance requirements.

3. General use principles

3.1. General concepts

The following general concepts apply to the RCE Tool:

- the RCE Tool includes rates for activities reasonably anticipated to be required for rehabilitation, including; decommissioning, demolition, removal, disposal / storage, and rehabilitation of land (topsoil, ameliorants, seeding)
- input cells allow the entry of site-specific quantities. In most cases a quantity must be entered for the calculation to occur
- the RCE Tool has Default rates for all required quantities. Users can over-ride Default rates by entering an Alternate rate; however, the Alternate rate must be justified by entering notes in the appropriate notes cell or attaching documentation to the RCE submission. The intent is that Default rates will cover most scenarios, and Alternate rates should only be necessary if there is a clear requirement.
- Users can over-ride default values to enter site-specific values for certain items that have default values (e.g. low permeability layer thickness, growth media thickness). The User must provide justification for site-specific values.

3.2. Colour coding and notation

Table 1 describes the colour coding and notation used in the RCE Tool. The colour code key is shown as Figure 6 and is found in the RCE Summary Sheet.

Table 1: Colour coding

Sheet Name	Attributes, Purpose and Use
Green	Input cells for Users to enter values or text, select options from drop down menus, and click on hyperlinks to access other Sheets or areas within a Sheet.
Purple cells	Default Rates.
Yellow	Reserved for User-entered Alternate Rates. If an Alternate Rate is entered, the User must provide an explanation in the corresponding “User Notes” cells (coloured green).
Salmon with Red Text	Cells will turn salmon with red text when a User enters an Alternate rate. Cells may also turn pink if zero is entered.
Pale Yellow	Department notes, not for Users.
White cells	Reserved for calculations and/or fixed text that the User cannot change.

Figure 6: Colour code key

Colour Code and example entry		
100		User entry. The user enters quantities (e.g. hectares, tonnes).
Small		User selection. The user selects from a dropdown menu such as push length or fleet size.
\$	17,746.95	Default rate.
		Alternate rate user input cell. If a User has evidence to justify the use of a site specific rate, it is entered here.
\$	120,000.00	Alternate rate with user entered rate. Will also turn this colour if zero is entered.
Based on study X (see attached)		User notes including justification for use of alternate rates.
Note to user		Department notes - information for Users.
	10,220	Calculations or text (locked to user)

3.3. Quantity entry

The User enters quantities into the green Input cells. The units for each quantity are shown to the left of the User input column as in Figure 7. The order of entry for Input Sheets is top to bottom as shown in the green cells, as some cells must be entered before the cost can be properly calculated.

Figure 7: Example of Units column in User Input Sheet

Construct Safety Bund and Install Fencing	Safety bund	Length	km	
		Specific volume	m3/m	9.13
		Volume	m3	-
Prepare surface		Area	m2	-
Construct bund		Construction Method	Select	Haul and place
Excavate and place		Default rate	\$/km	\$ 70,398.30
		Alternate rate	\$/km	
		Cost	\$	\$ -
Install fencing	Highwall	Length	km	
	Open pit - cattle fence	Length	km	
Install signs	Whole pit	Length	km	
Install fencing	Highwall	Default rate	\$/km	\$ 224,970.00
		Alternate rate	\$/km	
	Open pit - cattle fence	Default rate	\$/km	\$ 16,995.00
		Alternate rate	\$/km	
Install signs	Whole pit	Default rate	\$/km	\$ 275.00
		Alternate rate	\$/km	
Fence and signage	Highwall	Cost	\$	\$ -
	Open pit - cattle fence	Cost	\$	\$ -
	Whole pit	Cost	\$	\$ -
		Construct Safety Bund and Install Fencing	\$	\$ -

3.4. Comment entries

The RCE Tool includes the following spaces for User to enter comments in the following Sheets:

All Input Sheets – There is a column for “User Notes” at the top of each sheet and at the end of each row for Users to input any information that will support assumptions about quantities entered and assist review by the department (Figure 8). The row heights automatically expand as text exceeds the width. Users are encouraged to add blanks in the first and last rows of the text box to ensure the words are clear. Blank rows can be added by pressing Alt Enter.

Figure 8: Notes column in example Input Sheet (Tailings Storage Facility)

[illegible]

Key Changes – In the Input Sheet *Key Changes since last RCE* there is space for Users to note the key changes for each Domain or item that have occurred since the previous years' estimated cost (Figure 9).

Figure 9: Key changes since last RCE Sheet

Rehabilitation Cost Estimate Tool - Mining New South Wales

- Enter Mine Name in RCE Summary

RCE Summary

Key Changes since Last Rehabilitation Cost Estimate

Details should be provided on changes in disturbance areas, new areas of disturbances, and rehabilitated areas. Please use Alt Enter to include a space at the beginning of the text and at the end.

Mining Domain Type	Current Year Cost	Previous Year Cost (*)	Difference	Key changes since previous submission (for each domain or item).
Infrastructure Area	\$ -		\$ -	
Infrastructure - Mine Entries	\$ -		\$ -	
Tailings Storage Facilities	\$ -		\$ -	
Water Management Area	\$ -		\$ -	
Overburden Emplacement Area	\$ -		\$ -	
Active Mining Area (Open Cut Void)	\$ -		\$ -	
Underground Mining Areas	\$ -		\$ -	
Beneficiation Facility	\$ -		\$ -	
Exploration	\$ -		\$ -	
Sub-total	\$ -	\$ -	\$ -	
Other Items	Cost	Cost		
Other and Sundry	\$ -		\$ -	
Sub-total	\$ -	\$ -	\$ -	
Totals				
Subtotal	\$ -	\$ -	\$ -	
Contingency (Mining)	\$ -		\$ -	
Contingency (Exploration only)	\$ -		\$ -	
Sub-total	\$ -	\$ -	\$ -	
Grand Total (excluding GST)	\$ -	\$ -	\$ -	Contingency includes contingency, plus post closure environmental monitoring, project management and surveying.

RCE Summary – There is space for users to enter comments to the right of the “Totals” table in the RCE Summary Sheet (Figure 10). Users must provide a reason in the comment space if using a contingency value that is greater than the default.

Figure 10: Comment Entry space for users

Subtotal - all except Exploration		\$ -		
Subtotal - Exploration		\$ -		
Subtotal - all	User	\$ -		
Contingency (Mining)	30%	\$ -		Enter reason here if contingency greater than default is entered
Contingency (Exploration only)	15%	\$ -		Enter reason here if contingency greater than default is entered
Contingency Total		\$ -		
Grand Total (excluding GST)		\$ -		

User Notes – The Input Sheet *User Notes* is provided for Users to keep a record of general notes, along with details for who made the note, a description, the date, and which sheet/item is relevant.

Figure 11: User Notes Sheet

RCE Summary

User Notes - Enter Mine Name in RCE Summary

Who / Entity	Date	Sheet or reference	Note

Users are encouraged to provide succinct information to assist the department to understand the intent and assumptions underpinning the User's entries.

3.5. Alternate rate

Default Rates are a fundamental element of the RCE Tool. However, Users can enter Alternate Rates into the yellow cells anywhere there is a Default Rate, subject to review and acceptance by the department. Alternative Rates should reflect independent third-party contract rates to undertake the rehabilitation activities in accordance with the approved final land use. The rates

should be an accurate reflection of current market pricing, and adequately account for the works required to achieve the final landform, land-use and rehabilitation objectives.

Alternate Rates must use the same unit as the Default Rates. Users must provide justification for all Alternate Rates entered including:

- how the costs have been derived, including supporting documentation such as independent third party quotes, design / technical reports, etc
- justification for any regional variances
- the methodology used for the calculation.

The department may request further justification for alternative rates, including endorsement from a suitably qualified person such as a mining engineer or quantity surveyor.

3.6. User over-ride for quantities

For many items, Users can override the default (e.g. capping thickness) or calculated/suggested quantity (e.g. area) with site-specific quantities (Figure 12). If a site-specific quantity is entered in the green over-ride cell, that value will be used in the calculation instead of the default.

Figure 12: c

Source and apply growth media / fill	Growth media	Construct drains and Water management		\$	-		
		Area (suggested)	ha	0.00			
		Area (user over-ride)	ha				
		Area (used in calculations)	ha	0.00			
		Thickness - default	m	0.15			
		Thickness - used over-ride	m				
		Thickness - used in calculations	m	0.15			
		Volume	m3	-			
		Volume from local (on-site) supply	m3				
		Volume from local (off-site) supply	m3	-			
Source and apply	Off-site source	Distance for off-site source	Select	25 to 30 km			
		Default rate for cart off-site source	\$/m3-km	\$ 0.19			
		Alternate rate for cart off-site source	\$/m3-km				
		Cost to cart off-site source	\$	\$ -			
		Type	Select	Growth media			
		Default rate for purchase off-site source	\$/m3	\$ 128.80			
		Alternate rate for purchase off-site source	\$/m3				
		Cost to cart on-site source	\$	\$ -			
		Source and apply	On-site spreading	Fleet and distance for load and haul	Select	Small - soil - >2500 m to <=3000 m	
				Default rate	\$/m3	\$ 5.57	
Alternate rate	\$/m3						
Cost	\$			\$ -			
Source and apply growth media / fill				\$	-		

3.7. Navigation

Hyperlinks in the *RCE Summary* sheet can be used to navigate to the Input Sheets for each Mining Domain type (Figure 13). The *RCE Summary* hyperlink included at the top of all sheets can be used to return to the *RCE Summary* sheet at any time (Figure 14).

Figure 13: Links to Input Sheets from RCE Summary Sheet

COST SUMMARY	
Mining Domain Type	
Infrastructure Area	
Infrastructure - Mine Entries	
Beneficiation Facility	
Tailings Storage Facilities	
Water Management Area	
Overburden Emplacement Area	
Active Mining Area (Open Cut Void)	
Underground Mining Areas	
Exploration	
	Sub-total
Additional Items	
Other and Sundry	
	Sub-total
Total	

Figure 14: RCE Summary link returns User to the RCE Summary Sheet

- Enter Mine Name in RCE Summary			
Total RCE	\$	-	
Infrastructure - Mine Entries	\$	-	RCE Summary To
Activity	Element	Quantity Name	Unit

3.8. Dropdown menus

Dropdown menus allow the User to select from a range of values. If a cell provides a dropdown menu, a dropdown icon will appear in the right corner of the cell when selected (Figure 15). Dropdowns allow for the expanded selection of various items as summarised in Table 2.

Figure 15: Dropdown menu for Selection of Fleet and Distance

Source and apply growth media		Tunnels and other shafts	\$	\$	-	\$	-	\$
Source and apply growth media	Areas	Area 1	ha					
		Area 2	ha					
		Area 3	ha					
		Area 4	ha					
		Area total	ha					
	Growth media	Thickness - default	m	0.15		0.15		
		Thickness - used over-ride	m					
		Thickness - used in calculations	m	0.15		0.15		
		Volume	m3					
		Fleet and haulage distance	Select	Small - soil - >1500 m to <=2000 m	Small - soil - >1500 m to <=2000 m	Small - soil - >1500 m to <=2000 m		
Source and apply ameliorants	Areas	Area 1	ha					
		Area 2	ha					
		Area 3	ha					
		Area 4	ha					
		Area total	ha					
	Ameliorants	Type	Select	Small - soil - <=200 m				
		Application rate	t/ha	Small - soil - >200 m to <=500 m				
		Mass	t	Small - soil - >500 m to <=1000 m				
	Buy ameliorants	Default rate	\$/t	Small - soil - >1000 m to <=1500 m				
		Alternate rate	\$/t	Small - soil - >1500 m to <=2000 m				

Table 2: Dropdown Menus and Input Sheets

Item	User Input Sheet
Ameliorant type	Infrastructure – Mine Entries, Infrastructure Area, Beneficiation Facility, Tailings Storage Facilities, Water Management Area, Overburden Emplacement Area, Active Mining Area, Underground Mining Area, Exploration
Bund construction method	Active Mining Area
Contaminated soil type (for onsite treatment)	Infrastructure Area, Beneficiation Facility, Tailings Storage Facility, Overburden Emplacement Area, Active Mining Area, Underground Mining Area, Exploration
Dam type	Water Management Areas
Distance to haul	All sheets
Distance to source (one-way)	Infrastructure – Mine Entries, Infrastructure Area, Beneficiation Facility, Tailings Storage Facilities, Water Management Area, Overburden Emplacement Area, Active Mining Area, Underground Mining Area, Exploration
Dozer and angle	Beneficiation Facility, Tailings Storage Facilities, Water Management Area, Overburden Emplacement Area, Active Mining Area
Dozer for levelling/shaping rock cover	Beneficiation Facility, Tailings Storage Facilities, Overburden Emplacement Area, Active Mining Area
Dozer push length	Beneficiation Facility, Tailings Storage Facilities, Water Management Area, Overburden Emplacement Area, Active Mining Area
Dozer type for ripping	Infrastructure Area, Beneficiation Facility, Tailings Storage Facilities, Overburden Emplacement Area
Drain width	Infrastructure Area, Tailings Storage Facilities, Overburden Emplacement Area, Active Mining Area
Fleet and fleet size	All sheets
Grader type	Infrastructure Area, Beneficiation Facility, Tailings Storage Facilities, Overburden Emplacement Area, Exploration
Growth Media type	Infrastructure – Mine Entries, Infrastructure Area, Beneficiation Facility, Tailings Storage Facilities, Water Management Area, Overburden Emplacement Area, Active Mining Area, Underground Mining Area, Exploration
Laydown, haul road, track surface cover type	Infrastructure Area
Levy type (waste disposal)	Infrastructure Area, Beneficiation Facility, Tailings Storage Facility, Overburden Emplacement Area, Active Mining Area, Underground Mining Area, Exploration

Item	User Input Sheet
Maintenance of rehabilitated areas (type)	Infrastructure Area, Beneficiation Facility, Tailings Storage Facility, Water Management Area, Overburden Emplacement Area, Active Mining Area, Underground Mining Area
Seed/plant application method	Infrastructure – Mine Entries, Infrastructure Area, Beneficiation Facility, Tailings Storage Facilities, Water Management Area, Overburden Emplacement Area, Active Mining Area, Underground Mining Area, Exploration
Source of clay	Tailings Storage Facilities
Waste type (for disposal)	Infrastructure Area, Beneficiation Facility, Tailings Storage Facility, Overburden Emplacement Area, Active Mining Area, Underground Mining Area, Exploration
Water treatment method	Water Management Areas

3.9. Additional cost items

Rows are included at the bottom of all Input Sheets except *Infrastructure – Mine Entries* to allow Users to enter additional items and rates. These rows are for items not already included in the RCE Tool. The User must specify the activity name, describe the element, quantity name, unit of the quantity (e.g. kilometres), and rate (e.g. cost per km). There is space in a “Notes” column for Users to enter further detail and justification of the alternate rate. Figure 16 shows an example of the additional rows.

Figure 16: Spaces for user entry of additional items

User enter	User enter	User enter	\$	\$	-	\$	-	\$	-	\$
User enter	User enter	User enter	\$	\$	-	\$	-	\$	-	\$
User enter	User enter	User enter	\$	\$	-	\$	-	\$	-	\$
User enter	User enter	User enter	\$	\$	-	\$	-	\$	-	\$
User enter	User enter	User enter	\$	\$	-	\$	-	\$	-	\$
User enter	User enter	User enter	\$	\$	-	\$	-	\$	-	\$
			Additional items	\$	-	\$	-	\$	-	\$

3.10. User Build Table

The *Infrastructure Area*, *Beneficiation Facility*, *Tailings Storage Facilities*, *Water Management Area*, *Overburden Emplacement Area*, and *Exploration* Input Sheets include a “User Build Table” below the defaults table. This allows the User to customise a cost rate based on site-specific inputs. If quantities are entered to a User Build Table, quantities for the same element should generally (see below) not be entered to the Default Tables (i.e. it is “either/or”). The RCE tool produces an alert message if quantities are added to the same column in both tables.

Figure 17: Message informing that quantities are entered to the default and user build tables

Activity	Element	Quantity Name	Unit	Enter Name	Enter Name	Enter Name	Enter Name
Notes							
GIS	All items in column	GIS reference / Object ID					
Tailings Storage Facilities (default rates)	Risk category	Risk Level	Select	Tailings Default - Difficult (e.g. inpt)	Tailings Default - High-risk	Tailings Default - Medium risk	Tailings Default - Low risk
	Footprint	Area	ha	11.00	1.00		
	Embankment	Default Rate	\$/ha	\$ 1,078,814	\$ 415,239	\$ 225,587	\$ -
	Ramps	Alternate Rate	\$/ha				
		Cost	\$	\$ 11,866,952	\$ 415,239	\$ -	\$ -
Growth Media - source from off-site (adjustment)	Growth media	Calculated volume at defaults	m3	18,150	1,650		
		Calculated volume from off-site at defaults	m3	3,630	330		
		Cost of off-site growth media at defaults	\$	\$ 467,544	\$ 42,504	\$ -	\$ -
		User over-ride volume from off-site	m3				
		Difference between default and user	m3	-	-	-	-
	Type		Select	Growth media	Growth media	Growth media	Growth media
		Default rate for purchase off-site source	\$/m3	\$ 128.80	\$ 128.80	\$ 128.80	\$ -
		Alternate rate for purchase off-site source	\$/m3				
		User over-ride cost from off-site	\$	\$ -	\$ -	\$ -	\$ -
		Cost adjustment for off-site source	\$	\$ -	\$ -	\$ -	\$ -
Clay Cap - source from off-site (adjustment)	Clay for low permeability layer	User volume from off-site	m3	\$ 56.28	\$ 56.28	\$ 56.28	\$ -
		Default rate for purchase off-site source	\$/m3				
		Alternate rate for purchase off-site source	\$/m3				
		Cost adjustment for off-site source	\$	\$ -	\$ -	\$ -	\$ -
		Tailings Storage Facilities (default rates)	\$	\$ 11,866,952	\$ 415,239	\$ -	\$ -

< Select "Show" if you wish to use the User Build Table. If quantities were entered to the defaults table column above, quantities should not be entered to the user build.
 Quantities added to both tables is shown if user has entered quantities to Default and User Build table.
 The table directly below is for user build rates.

Activity	Element	Quantity Name	Unit	Enter Name	Enter Name	Enter Name	Enter Name
Notes							
Tailings Storage Facilities (user-build)	Risk category	Risk Level	Select	Difficult (e.g. inpt)	High	Medium	Low
	Reference	GIS reference / Object ID					
	Footprint	Area	ha	11.00		2.00	
	Embankment	Area	ha				

Quantities added to both tables ok ok ok

The User Build Table can also be used to add activities where the Default rate does not cover all the elements required to rehabilitate an item. As the Default rates generally include all items reasonably expected to be required to rehabilitate an item, such occurrences should be rare.

The User Build tables are below the Default rate tables and can be seen by selecting "Show" in the filter drop-down menu (Figure 18) on the left hand side of each sheet. The table will appear below the "Show" drop-down and can be hidden again by unselecting "Show".

Figure 18: User build table sits below the default table

Sort A to Z

Sort Z to A

Sort by Color

Sheet View

Clear Filter From "(Column B)"

Filter by Color

Text Filters

Search

(Select All)

☒ Select

☒ Show

OK

Cancel

Illustrations

Controls

Charts

Formulas

Sparklines

Filters

Links

Comments

Decommission and rehabilitate ponds (user build)

	D	E	F	G	H	I
Mining New South Wales						
Total RCE \$						
\$		RCE Summary				
Quantities to either this table or the user build table below. Quantities should not be entered to both. The table directly below is default rates.						
	Element	Quantity Name	Unit	Defaults	Enter Name	Enter Name
		Alternate rate	\$/ML			
		Volume to treat	ML			
		Cost	\$		\$ -	\$ -
					\$ -	\$ -
		Treat water				
					\$ -	\$ -
	Water treatment plant (desalination)	Quantity	ML/day		\$ 16,251.02	\$ 16,251.02
		Default rate	\$/ML			
		Alternate rate	\$/ML			
		Cost	\$		\$ -	\$ -
					\$ -	\$ -
		Decommission water treatment plants				
					\$ -	\$ -
	Water	Quantity	ML		\$ 876.49	\$ 876.49
		Default rate	\$/ML			
		Alternate rate	\$/ML			
		Cost	\$		\$ -	\$ -
					\$ -	\$ -
		Pump / transfer water				
					\$ -	\$ -

Select "Show" if you wish to use the User Build Table. If quantities were entered to the defaults table column above, quantities should not be entered to the user build.
Quantities added to both tables is shown if user has entered quantities to Default and User Build table.
The table directly below is for user build rates. If quantities were entered to the defaults table column above, quantities should not be entered to the user build. Use the "*" button to show the user build table.

Activity	Element	Quantity Name	Unit	Defaults	Enter Name	Enter Name
Notes						
Decommission and rehabilitate ponds (user build)	Dams	Type of Dam	Select	Select	Dam raw	Dam raw
		Liner or no liner	Select	Select	Lined	Lined
		Average capacity	ML			
			m3			

3.11. Freeze panes

The standard Freeze Panes function works in the RCE Tool to provide improved functionality. The User can freeze or unfreeze columns and rows to assist viewing and use. The Freeze Panes are default set to retain the sheet header rows and can be changed by the User to suit user requirements. Freeze Panes are indicated by a grey line that extends past the sheet (see Figure 19).

Figure 19: Freeze panes indicated by grey lines

Rehabilitation Cost Estimate Tool - Mining New South Wales

- Enter Mine Name in RCE Summary

Total RCE \$ -

Water Management Area \$ - RCE Summary

Total cost \$ -

For each column, the user enters quantities to either this table or the user build table below. Quantities should not be entered to both. The table directly below is default rates.

Activity	Element	Quantity Name	Unit	Defaults	Enter Name
Notes					
GIS	Dams in column	GIS reference / Object ID			
Decommission and rehabilitate ponds (defaults)	Dams selected	Select dam	Select		Dam raw Pasture
		Default rate	\$/ha		>50 to <=100 ML
		Alternate rate	\$/ha		\$ 490,051.52
		Number of dams in category (defaults only)	#		
		Cost	\$		\$ -

3.12. Security

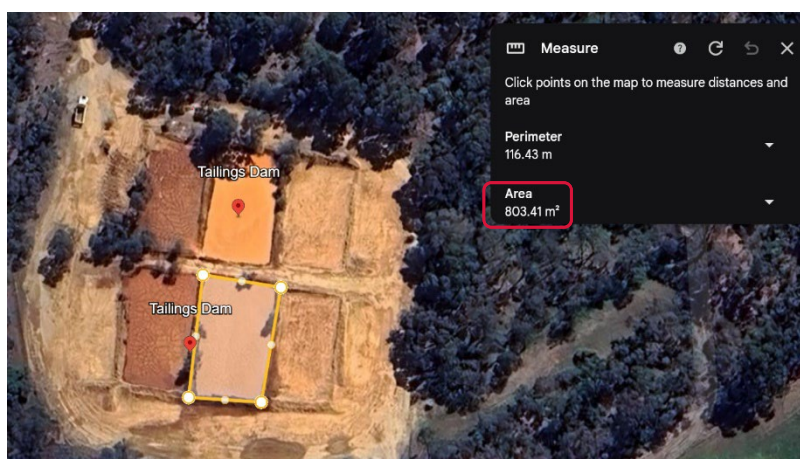
To prevent inadvertent changing of formulas, text and processes, the RCE Tool is locked with only green and yellow cells available for User entry.

3.13. Measurement for quantity entry

3.13.1. Measurements/estimations

Area – Areas for input to the input cells can be generated in several ways. One way is to measure around the item with your cursor. This can be done in a mapping software such as Google Earth™, for example finding the area of a dam (Figure 20).

Figure 20: Estimating the area of a dam using aerial imagery software



Length/width - To estimate the length or width of items like pipelines and roadways, measure between the start and end points of the item.

Height/depth - To determine the height and depth of items such as buildings, sumps, bunds, dam walls, use contour data, reported measurements (from drawings and reports) or estimates by operations personnel.

Haul distance - To calculate haul distance first measure the path between the mid-points of two locations, considering accessibility.

Length of push - To calculate push length for a dozer, measure the length between the material to be pushed and the approximate centre of the landform where the material will be spread.

Volume of push - To calculate push volume, multiply the total length, width and height/depth. Volume is required in addition to push length within the RCE Tool. To calculate push volumes, multiply the area of the low wall, toe or other area to be pushed by the push depth (estimate based on current operations). To calculate push volume for a bund, multiply half the width by the height and length of bund (i.e. $\frac{1}{2}$ width x height x bund length = m³).

3.13.2. Quantities

Calculations to determine quantities for the RCE Tool will consider the following:

- Areas are measured in square metres (m²) or hectares (ha) (in 'Unit' column). Where conversion is required, note that 10,000 m² = 1 ha
- Volumes are measured in m³, L or megalitres (ML) (in the 'Unit' column). Where conversion is required, note that 1 m³ = 1 kilolitre = 1,000 L and 1,000,000 L = 1 ML. Earthmoving volumes are in loose cubic metres
- Mass is measured in tonnes. Note that 1,000 kg = 1 tonne
- m² / floor is a measure of the area of the building multiplied by the number of floors in the building.

3.13.3. Unknown/undetermined values and contingencies

Some values may be unknown due to an absence of predictable rates or inability to predict how soils, geology, geotechnics, rock mechanics, nutrients, ecology and populations, legacy contamination, process changes, etc. will influence rehabilitation methodologies. Examples of quantities required in the RCE Tool where the values may be unknown or undetermined include:

- existing rehabilitation repair – minor/moderate/major/total failure of landform – unknown extent, magnitude required in recently rehabilitated areas
- minor earthworks and maintenance of subsidence areas or create cut throughs to re-establish natural water courses/drainage channels following subsidence – applicability unknown due to changing geology, uncertainty regarding extent of workings currently being mined (interaction with historic workings), or mining methods
- pest management on buffer lands, non-disturbed and rehabilitated areas or land management of undisturbed areas (rehabilitation, weeds, ferals, erosion and sediment control works) – unknown due to ongoing changing ecology and populations, programs usually only conducted as required (infrequent and not scheduled)
- long-term maintenance of water course diversion – channel constructed through backfilled/competent material – unknown due to absence of soils dispersion characterisation in older diversions, newly constructed channel not yet experiencing a wet season.

For these aspects, extrapolation should be practically applied based on current experience considering the site conditions, any predictions in technical reports, monitoring results to date, etc.

4. Sheets and associated details

4.1. General

Table 3 lists the sheets in the RCE Tool with a description of the intended use. Where required, further detail on the Input Sheets is provided in the subsequent sub-sections.

Table 3: Sheets

Sheet name	Type of sheet	Attributes, purpose and use
Introduction	Information	Provides context for the Tool, the intent of the Tool, and how it works. Includes information guiding fleet size selection and the inclusions in the contingency costs. Includes a link to the department's website.
Checklist	User Input	Users must use Yes/No boxes and include notes to inform the department that the required steps are complete.
Key Changes Since Last RCE	User Input	Users must enter Previous Year Costs for each Mining Domain type and contingency with comment on key changes since the previous submission.
RCE Summary	User Input/ Review	Includes Site Registration table for User entry of registration details and Cost Summary table for review of total cost for each Domain, contingency, and Grand Total.
Infrastructure – Mine Entries	User Input	For input of quantities associated with ventilation shafts, hoisting shafts, adits, drifts, and tunnels.
Infrastructure Area	User Input	For input of quantities associated with Infrastructure (e.g. tracks, roads, laydown) items.
Overburden Emplacement Area	User Input	For input of quantities associated with overburden emplacement areas.
Beneficiation Facility	User Input	For input of quantities associated with equipment / infrastructure designed to add value to the ore / raw product including heap leach pads; process tanks and piping; conveyors; stackers, reclaimers, and bucket wheels; coal handling and preparation plants, washeries, and crushers.
Tailings Storage Facilities	User Input	For input of quantities associated with tailings facilities.
Water Management Area	User Input	For input of quantities associated with water storage structures (dams, ponds, basins) and water treatment including acid water and saline water.
Active Mining Area	User Input	For input of quantities associated with pits including safety bunds; blasting and reshaping high walls; making safe low walls; and backfill.
Underground Mining Area	User Input	For input of quantities associated with rehabilitating the surface elements of underground mines.

Sheet name	Type of sheet	Attributes, purpose and use
Exploration	User Input	For input of quantities associated with exploration activities including drillholes, tracks, laydown, and ponds.
Other and Sundry	User Input	For input of quantities associated with miscellaneous items including reports and studies; contaminated land investigations and remediation plans; closure plans; care and maintenance; and mobilisation. Note: mobilisation for exploration activities is included in the Exploration sheet.
Cost Schedule	Information	Lists all Default rates used in the Tool, with assumptions and use notes.
Rates	Information	Lists all the underlying unit rates for labour, equipment, consumables, and materials used throughout the RCE tool.
Productivity	Reference	Shows the key parameters defining productivity of key equipment and activities (e.g. how many cubic metres of concrete an excavator can break in an hour, the speed a truck travels at loaded and unloaded, how many hectares of land can a dozer rip in an hour).
Assumptions - General	Information	Shows the general assumptions used throughout the RCE tool including densities for soil and materials; application rates for ameliorants; and default travel distances (e.g. to gypsum supplier).
Assumptions - Capping	Information	Shows the default thickness assumptions for waste structure requiring capping (tailings storage facilities, overburden piles, heap leach pads).
Rate Mapping	Reference	Compares default cost rates in the RCE Tool to those in the previous version.
User Notes	User Input	Allows Users to enter general notes; this could include further explanation for Alternate rates, quantities, and calculations supporting entered quantities.
Lists	Function	Lists all the descriptions used in the Input Sheets. This sheet support the operation of the RCE tool and is not intended for Users.
Reference Sheets	Reference	Hyperlink takes User back to the RCE Summary page.
Activities	Reference	Details the build-up for each default rate.
Version History	Reference	Documentation of the changes made to the tool with each revision. This sheet is for administration by the department and is not visible to Users.

4.2. Introduction sheet

The 'Introduction' sheet provides context for the RCE Tool, the intent of the RCE Tool, and how it works. It includes information guiding fleet size selection and the inclusions in the contingency costs. It also includes a link to the department's website and explanation of the Colour Code Key.

4.3. Checklist sheet

The 'Checklist' Sheet displays a list of actions for the User to complete and check off. Users can select Yes/No/NA from a drop down box for each action (Figure 21). Space is available to make notes adjacent to the checkboxes.

Figure 21: Checklist sheet

Rehabilitation Cost Estimate Tool - Mining New South Wales
 - Enter Mine Name in RCE Summary RCE Summary

Checklist for Lease Holders

Please confirm you have completed the following

	Select	Notes
Registration Details Complete	Select	Add any note to explain.
Previous RCE amounts added to RCE Summary	Select Yes No N/A	Add any note to explain.
Have you attached information for any variation to Departmental rates (e.g. 3rd party quotes justification)	Select	Add any note to explain.
Nominated GIS locations for all items - this is an optional field that can be used by large mines to identify the location of the relevant feature at the domain level (e.g. area of tailings dam). Large mines should populate the GIS Reference field with the Object ID number of the relevant feature from the spatial data submitted to the Mine Rehabilitation Portal. Note: this is not required for small mines.	Select	Add any note to explain.

4.4. Key changes since last RCE

The *Key Changes since last RCE* Sheet displays a summary of the rolled-up totals for current year costs (including Domain type, Other Items, Contingency) and allows Users to enter the previous year costs in the adjacent column. The difference between current year and previous year costs is automatically calculated in the 'Difference' column. Space is provided for Users to describe the key changes since the previous submission, this could be changes to a Domain or item (Figure 22).

Figure 22: Key changes and previous year cost

Rehabilitation Cost Estimate Tool - Mining New South Wales
 - Enter Mine Name in RCE Summary RCE Summary

Key Changes since Last Rehabilitation Cost Estimate

Details should be provided on changes in disturbance areas, new areas of disturbances, and rehabilitated areas.
 Please use Alt Enter to include a space at the beginning of the text and at the end.

Mining Domain Type	Current Year Cost	Previous Year Cost (*)	Difference	Key changes since previous submission (for each domain or item).
Infrastructure Area	\$ -		\$ -	
Infrastructure - Mine Entries	\$ -		\$ -	
Tailings Storage Facilities	\$ -		\$ -	
Water Management Area	\$ -		\$ -	
Overburden Emplacement Area	\$ -		\$ -	
Active Mining Area (Open Cut Void)	\$ -		\$ -	
Underground Mining Areas	\$ -		\$ -	
Beneficiation Facility	\$ -		\$ -	
Exploration	\$ -		\$ -	
Sub-total	\$ -	\$ -	\$ -	
Other Items	Cost	Cost		
Other and Sundry	\$ -		\$ -	
Sub-total	\$ -	\$ -	\$ -	
Totals				
Subtotal	\$ -	\$ -	\$ -	
Contingency (Mining)	\$ -		\$ -	
Contingency (Exploration only)	\$ -		\$ -	
Sub-total	\$ -	\$ -	\$ -	
Grand Total (excluding GST)	\$ -	\$ -	\$ -	Contingency includes contingency, plus post closure environmental monitoring, project management and surveying.

4.5. RCE summary sheet

4.5.1. Sheet description

The *RCE Summary* Sheet includes a Site Registration section and a Cost Summary section.

Site Registration – provides space for Users to enter required details related to the mine and security deposit, including: date of estimate, mine name, lease(s), title holder, term of RCE, current security, date of last security deposit review, and a list of key changes since the previous submission (Figure 23).

Figure 23: Site registration

Rehabilitation Cost Estimate Tool - Mining New South Wales
- Enter Mine Name in RCE Summary

RCE Summary	
SITE REGISTRATION	
Complete the following fields prior to calculating the Security Deposit.	
Date of Estimate	01-Jun-25
Mine Name	Enter Mine Name in RCE Summary
Lease(s):	
Lease Holder(s):	
Term of RCE:	This is period of time over which the RCE amount will apply.
Date of last Security Deposit Review:	01-Jun-25
Amount of the last Security Deposit Review:	This is the most recent assessed deposit amount as per the most recent correspondence from the Department (see above).
Current Security Deposit held by the Department:	This is the current security deposit amount held by the Department.
List key changes since previous submission:	e.g. significant landform rehabilitation undertaken in domain xyz e.g. change in mine waste (tailings) capping rate

Cost Summary - reports the total cost for Domains, additional items, and multipliers (Figure 24). The total costs are automatically rolled up from the User Input Sheets. Users can input comments next to the costs.

Figure 24: Cost summary

COST SUMMARY			
Mining Domain Type	Cost	Comments	
Infrastructure Area	\$ -		
Infrastructure - Mine Entries	\$ -		
Beneficiation Facility	\$ -		
Tailings Storage Facilities	\$ -		
Water Management Area	\$ -		
Overburden Emplacement Area	\$ -		
Active Mining Area (Open Cut Void)	\$ -		
Underground Mining Areas	\$ -		
Exploration	\$ -		
Sub-total	\$ -		
Additional Items	Cost		
Other and Sundry	\$ -		
Sub-total	\$ -		
Totals			
Subtotal - all except Exploration	\$ -		
Subtotal - Exploration	\$ -		
Subtotal - all	\$ -		
Contingency (Mining)	30%	User	Enter reason here if contingency greater than default is entered
Contingency (Exploration only)	15%		Enter reason here if contingency greater than default is entered
Contingency Total	\$ -		
Grand Total (excluding GST)	\$ -		

4.5.2. Contingencies/Multipliers

The 'Totals' section of the Cost Summary shows the default percentage multiplier (30%) for contingency (excluding Exploration) which comprises Project Management and Maintenance and Monitoring (20%), and general contingency (10%). The contingency for Exploration only is 15%

comprising Project Management, Maintenance and Monitoring and general contingency. The default multipliers are applied to the total cost from the Domains and Additional items.

Users can only enter contingency values (as a percentage), greater than the default values, in the yellow cells (Figure 25). If the User enters site-specific values for contingency, they must enter a reason in the space provided in Section 5.7.

Figure 25: Contingency costs in RCE Summary Sheet

Additional Items		Cost	
Other and Sundry		\$	-
Sub-total		\$	-
Totals		\$	-
Subtotal - all except Exploration		\$	-
Subtotal - Exploration		\$	-
Subtotal - all		User \$	-
Contingency (Mining)	30%	\$	-
Contingency (Exploration only)	15%	\$	-
Contingency Total		\$	-

Multipliers reflect the potential costs to government to execute rehabilitation, post-closure maintenance and monitoring activities for a mine. The components of the other multipliers are discussed below.

Project Management multiplier - reflects the cost to government to execute a rehabilitation program for a mine and includes:

- health and safety and overall work plans
- identifying and obtaining permits.
- procurement of contractors and consultants and ongoing contract management
- ongoing management of the project including scheduling, expenditure tracking and forecasting, internal communication, on-site supervision
- stakeholder (including landowner, community, municipal government and regulators, media) management
- consulting and legal costs associated with the above items.

Management and Maintenance multiplier - reflects the costs to government to undertake post-closure maintenance and monitoring activities and includes:

- Post-closure maintenance:
 - minor repair of rehabilitated features eroded by surface water run-off and high intensity rain-fall events
 - revegetation campaigns to rehabilitate areas where vegetation is damaged from drought, fire, animals and/or infertile seed
 - weed management
 - repair of minor subsidence due to poor backfill operations
 - fence and signage repairs.
- Post-closure monitoring:
 - environmental, revegetation and erosion monitoring and assessment
 - ground and surface water monitoring and drainage assessment
 - erosion and surface drainage assessments and inspections across all closure areas

- subsidence and ground movement assessments associated with underground mining
- engineering, geotechnical and compliance inspections and assessment, surveys and reporting on the performance of the open pits, underground openings and tailings storage facilities
- weed mapping and assessment surveys
- feral animal assessment and control
- independent contamination auditing and assessment
- satellite imagery for rehabilitation analysis and reporting purposes
- preparation of annual environmental reporting and monitoring reporting and data management and control
- mobilisation and demobilisation of the monitoring and inspection teams.

Contingency – reflects a pure contingency which covers unplanned, unexpected events or "known-unknowns" that may arise during project execution. The inclusion and magnitude of the contingency in the RCE tool is a reasonable allowance considering the nature of such estimates and protects the State against potential budget overruns and delays.

4.6. Input sheets

There are ten specific sheets for Input sheets and each one is a separate Domain. Users enter quantities or make selections from drop-down menus working from top to bottom. Quantities are then used in the calculation with the Default rate (or Alternate rate if entered) to calculate total cost for each Activity.

The general structure of the Input Sheet for each Domain is similar. The header rows show the Domain name, the cost for the Domain, the total RCE for the project, and a hyperlink back to the RCE Summary page (Figure 26). The columns list the Activity, Element, Quantity Name, Unit, and calculations for each Activity. An example is shown in Figure 27.

Figure 26: Example of Headers in User Input Sheets

Rehabilitation Cost Estimate Tool - Mining New South Wales				Cost for each column		
- Enter Mine Name in RCE Summary				per hectare (user)	per hectare (default)	default rates.
Total RCE \$		15,427,037				
Domain						
Total RCE \$		11,866,952				
Domain cost						
RCE Summary						
per hectare (user)		\$	\$	\$	\$	\$
per hectare (default)		\$	1,078,214	\$	-	\$
Total cost		\$	11,866,952	\$	-	\$

For each column, the user enters quantities to either this table or the user build table below. Quantities should not be entered to both. The table directly below is default rates.

Activity	Element	Quantity Name	Unit	Enter Name	Enter Name	Ent
Notes						
GIS	All items in column	GIS reference / Object ID				

Figure 27: User Input Sheet columns

Rehabilitation Cost Estimate Tool - Mining New South Wales

- Enter Mine Name in RCE Summary

Total RCE \$		15,427,037	per hectare (user)	\$	-	\$	-	\$	-
Tailings Storage Facilities \$		11,866,952	per hectare (default)	\$	1,078,814	\$	-	\$	-
Total cost		\$	11,866,952	\$	-	\$	-	\$	-

For each column, the user enters quantities to either this table or the user build table below. Quantities should not be entered to both. The table directly below is default rates.

Activity	Element	Quantity Name	Unit	Enter Name	Enter Name	Enter Name	Enter Name
Notes							
GIS	All items in column	GIS reference / Object ID					
Tailings Storage Facilities (default rates)	Risk category	Risk Level	Select	Tailings Default - Difficult (e.g. input risk)	Tailings Default - High risk	Tailings Default - Medium risk	Tailings Default - Low risk
	Footprint	Area	ha	11.00			
		Default Rate	\$/ha	\$ 1,078,814	\$ 415,239	\$ 225,587	\$ 140,866
	Embankment	Alternate Rate	\$/ha				
	Ramps	Cost	\$	\$ 11,866,952	\$ -	\$ -	\$ -
Growth Media - source from off-site (adjustment)	Growth media	Calculated volume at defaults	m3	18,150			
		Calculated volume from off-site at defaults	m3	3,630			
		Cost of off-site growth media at defaults	\$	\$ 467,544	\$ -	\$ -	\$ -
		User over-ride volume from off-site	m3				
		Difference between default and user	m3				
		Type	Select				
		Default rate for purchase off-site source	\$/m3	\$ 128.80	\$ 128.80	\$ 128.80	\$ 128.80
		Alternate rate for purchase off-site source	\$/m3				
		User over-ride cost from off-site	\$	\$ -	\$ -	\$ -	\$ -
		Cost adjustment for off-site source	\$	\$ -	\$ -	\$ -	\$ -
Clay Cap - source from off-site (adjustment)	Clay for low permeability layer	User volume from off-site	m3				
		Default rate for purchase off-site source	\$/m3	\$ 56.28	\$ 56.28	\$ 56.28	\$ 56.28
		Alternate rate for purchase off-site source	\$/m3				
		Cost adjustment for off-site source	\$	\$ -	\$ -	\$ -	\$ -
Tailings Storage Facilities (default rates)				\$	11,866,952	\$ -	\$ -

Subtotal for each column

ok ok ok ok

< Select "Show" if you wish to use the User Build Table. If quantities were entered to the defaults table column above, quantities should not be entered to the user build. "Quantities added to both tables" is shown if user has entered quantities to Default and User Build table. The table directly below is for user build rates.

User Input Sheets for each Domain include space at the far right for User Notes (green) including justification of alternate rates, and for department notes (pale yellow). Most sheets include rows (green) at the bottom of the table for the User to enter additional items.

General drop-down menus in User Input Sheets allow Users to select from a range of options for some units, as discussed in Section 3.8. Users should select the option that fits most closely with their specific site.

4.6.1. Infrastructure – Mine Entries sheet

The *Infrastructure - Mine Entries* Input sheet calculates costs for decommissioning and rehabilitation of ventilation and hoisting shafts, adits and tunnels.

For ventilation and hoisting shafts the following treatments are available:

- removal of vent fans, substations, and winches
- backfilling the shaft with flexibility for the User to dictate the amount of fill that will come from on-site and how much will come from off-site
- plugging the shaft with concrete
- covering the shaft with a steel plate.

For adits, the following treatments are available:

- installation of a gate or grill
- sealing, including of the entry only and against a bulkhead.

For tunnels, the following treatments are available:

- grouting using mine works
- grouting by drilling.

The sheet includes tables for the rehabilitation of the land around the entries including the application of growth media and ameliorants and revegetation and installing fencing.

4.6.2. Infrastructure Area sheet

The *Infrastructure Area* Input sheet calculates costs for decommissioning and rehabilitation of equipment and infrastructure. Tables are available for:

- disconnection of utility services
- fencing
- haul roads, tracks, laydown, airstrip, concrete pads and footings
- buildings
- tanks and vessels
- pipes/ cable tray
- power poles, substations, communication towers
- overpasses
- rail facilities
- crushing concrete - cost for the management of concrete associated with activities in this sheet (e.g. a slab associated with a building) are included in the default rates for those activities. Consequently, this crushing concrete item is only used for areas associated with another activity, for example an orphan slab.
- drains for water management
- bores
- flares associated with gas plants
- maintenance of rehabilitated areas/ repairs
- source and apply growth media and ameliorants
- revegetate
- removal and disposal of waste
- contaminated soil treatment

User Build Tables are available for haul roads, tracks, and laydown areas.

4.6.3. Beneficiation Facility sheet

The *Beneficiation Facility* Input sheet calculates costs for decommissioning and rehabilitation of equipment and infrastructure focussed on adding value to the raw product / ore. Tables are available for:

- heap leach pads
- tanks and vessels and pipes
- transfer and loading equipment including stackers, reclaimers, conveyors and ventilation fans
- buildings
- reshape and trim land

- maintenance of rehabilitated areas/ repairs
- source and apply growth media and ameliorants
- revegetate
- removal and disposal of waste
- contaminated soil treatment

4.6.4. Tailings Storage Facilities sheet

The *Tailings Storage Facilities* Input sheet calculates costs for decommissioning and rehabilitation of tailings storage structures. In both the Default and User Build Tables the User must select a risk level so that the appropriate default capping thickness, growth media thickness, and engineering costs are populated. The Default capping and growth media thicknesses come from the *Assumptions – Capping* Sheet. Additional rows are included at the bottom for Users to enter Activities and rates that are not in the Default Table or User Build Table.

The Default Table is simple to use and requires only the selection of a risk level and entry of a footprint area. The Default Table has two additional elements – growth media and clay cap – that are used if the User wishes to over-ride the Default assumptions for sourcing materials from off-site. For growth media (Figure 28):

- Row 1 (in the example in Figure 28) shows the calculated volume of growth media for the default rate based on the footprint entered (1,650 cubic metres in the example).
- Row 2 shows the calculated volume sourced from off-site for the default rate (330 cubic metres in the example).
- Row 3 is where the User can over-ride the default assumptions. If the site has no growth media on-site and it all must be sourced from off-site, the User makes this cell equal to the calculated volume in the first row. If all growth media will be sourced on-site, the User enters zero into this cell. If the User leaves the cell blank or makes the volume equal to the volume in row 1, the default rate is accepted. If the default assumptions are changed, the User must add notes to explain why.
- Row 4 shows the cost adjustment made to the cost allocation for growth media. The first two columns show the default assumptions being accepted by leaving row 3 blank or making the volume equal to the default volume from off-site (row 2). No adjustment is made to the growth media cost allocation. In the third column (“All-onsite” in the ‘Quantity Name’ row), the User has entered zero communicating that all growth media will be sourced from on-site. Consequently, there is a downward adjustment to the cost. In the fifth column (“All-offsite” in the ‘Quantity Name’ row), the User has made the volume in row 3 equal to the full amount of growth media required indicating all growth media will be sourced from off-site. Consequently, there is an upward adjustment to the cost. The sixth column shows a case where more growth media must come from off-site than the default but not all of it.

The User also selects whether the material will growth media or virgin excavated natural material (VENM).

Figure 28: Tailings Storage Facilities Sheet

	Element	Quantity Name	Unit		Enter Name	Enter Name	Enter Name	Enter Name	Enter Name	Enter Name
Notes										
GIS	All items in column	GIS reference / Object ID								
Tailings Storage Facilities (default rates)	Risk category	Risk Level	Select		Tailings Default - High risk	Tailings Default - High risk	Tailings Default - High risk	Tailings Default - High risk	Tailings Default - High risk	Tailings Default - High risk
	Footprint	Area	ha		1.00	1.00	1.00	1.00	1.00	1.00
	Embankment	Default Rate	\$/ha	Row 1	\$ 415,239	\$ 415,239	\$ 415,239	\$ 415,239	\$ 415,239	\$ 415,239
	Ramps	Alternate Rate	\$/ha							
Growth Media - source from off-site (adjustment)	Growth media	Cost	\$		\$ 415,239	\$ 415,239	\$ 415,239	\$ 415,239	\$ 415,239	\$ 415,239
		Calculated volume at defaults	m3		1,650	1,650	1,650	1,650	1,650	1,650
		Calculated volume from off-site at defaults	m3		330	330	330	330	330	330
		Cost of off-site growth media at defaults	\$	Row 2	\$ 42,504	\$ 42,504	\$ 42,504	\$ 42,504	\$ 42,504	\$ 42,504
	User over-ride volume from off-site	m3	Row 3		330		1,650		1,000	
	Difference between default and user	m3		-	(330)	-	1,320		670	-
	Type	Select		Growth media	Growth media	Growth media	Growth media	Growth media	Growth media	Growth media
	Default rate for purchase off-site source	\$/m3		\$ 128.60	\$ 128.60	\$ 128.60	\$ 128.60	\$ 128.60	\$ 128.60	\$ 128.60
	Alternate rate for purchase off-site source	\$/m3								
	User over-ride cost from off-site	\$		\$ -	\$ (0)	\$ (42,504)	\$ 170,016	\$ 86,296	\$ -	\$ -
Clay Cap - source from off-site (adjustment)	Clay for low permeability layer	Cost adjustment for off-site source	\$		\$ -	\$ -	\$ 42,604	\$ 170,016	\$ 86,296	\$ -
		User volume from off-site	m3							
		Default rate for purchase off-site source	\$/m3		\$ 56.28	\$ 56.28	\$ 56.28	\$ 56.28	\$ 56.28	\$ 56.28
		Alternate rate for purchase off-site source	\$/m3	Row 4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cost adjustment for off-site source		\$		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
		Tailings Storage Facilities (default rates)	\$	\$ 415,239	\$ 415,239	\$ 372,735	\$ 685,256	\$ 601,536	\$ 415,239	

For the low permeability cap, the Default rate assumes all material is available on-site. If clay must be sourced from off-site the User must enter the quantity and an upward adjustment is made to the cost.

The User Build Table for the Tailings Storage Facilities affords the User more flexibility on the inputs and allows site-specific area entries, site-specific capping and growth media thicknesses, and wide range of fleet selections. This table is more complex and requires the User to enter all the appropriate quantities to allow a proper cost to be calculated. The User must enter quantities (even if zero with a justification) to the following tables:

- cover embankments and ramps with rock
- construct working layer, capillary break, and low permeability layers
- place top rock cover
- source/ apply additional capping (often not applicable)
- permeability testing and engineering
- construct drains / water management
- source and apply growth media and ameliorants
- revegetate
- contaminated soil treatment.

Both the Default Table and the User Build Table include rows at the top for Users to enter the area of the Facilities' footprint, and these must be entered to generate a correct calculation (Figure 29).

Figure 29: Tailings Storage Facilities Sheet

Rehabilitation Cost Estimate Tool - Mining New South Wales

- Enter Mine Name in RCE Summary

Total RCE \$ -

Tailings Storage Facilities \$ - RCE Summary

per hectare (user) \$ - \$ - \$ - \$ -

per hectare (default) \$ - \$ - \$ - \$ -

Total cost \$ - \$ - \$ - \$ -

For each column, the user enters quantities to either this table or the user build table below. Quantities should not be entered to both. The table directly below is default rates.

Activity	Element	Quantity Name	Unit	Enter Name	Enter Name	Enter Name	Enter Name
Notes							
GIS	All items in column	GIS reference / Object ID					
Tailings Storage Facilities (default rates)	Risk category	Risk Level	Select	Tailings Default - Difficult (e.g. inpit) risk	Tailings Default - High risk	Tailings Default - Medium risk	Tailings Default - Low risk
	Footprint	Area	ha				
	Embankment	Default Rate	\$/ha	\$ 1,078,814	\$ 415,239	\$ 225,587	\$
	Ramps	Alternate Rate	\$/ha				
		Cost	\$	\$ -	\$ -	\$ -	\$ -
Growth Media - source from off-site (adjustment)	Growth media	Calculated volume at defaults	m3	-	-	-	-
		Calculated volume from off-site at defaults	m3	-	-	-	-
		Cost of off-site growth media at defaults	\$	\$ -	\$ -	\$ -	\$ -
		User over-ride volume from off-site	m3				
			m3				
		Difference between default and user	m3	-	-	-	-
		Type	Select	Growth media	Growth media	Growth media	Growth media
		Default rate for purchase off-site source	\$/m3	\$ 128.80	\$ 128.80	\$ 128.80	\$
		Alternate rate for purchase off-site source	\$/m3				
		User over-ride cost from off-site	\$	\$ -	\$ -	\$ -	\$ -
		Cost adjustment for off-site source	\$	\$ -	\$ -	\$ -	\$ -
Clay Cap - source from off-site (adjustment)	Clay for low permeability layer	User volume from off-site	m3				
		Default rate for purchase off-site source	\$/m3	\$ 56.28	\$ 56.28	\$ 56.28	\$
		Alternate rate for purchase off-site source	\$/m3				
		Cost adjustment for off-site source	\$	\$ -	\$ -	\$ -	\$ -
		Tailings Storage Facilities (default rates)	\$	\$ -	\$ -	\$ -	\$ -

< Select "Show" if you wish to use the User Build Table. If quantities were entered to the defaults table column above, quantities should not be entered to the user build.

"Quantities added to both tables" is shown if user has entered quantities to Default and User Build table.

The table directly below is for user build rates.

User Build Table

Activity	Element	Quantity Name	Unit	Enter Name	Enter Name	Enter Name	Enter Name
Notes							
Tailings Storage Facilities (user-build)	Risk category	Risk Level	Select	Difficult (e.g. inpit)	High	Medium	
	Reference	GIS reference / Object ID					
	Footprint	Area	ha				
	Embankment	Area	ha				

4.6.5. Water Management Area sheet

The *Water Management Area* sheet calculates costs for decommissioning and rehabilitation of water storage structures (dams, ponds, basins) and for treatment of water treatment including acid water and saline water.

The pond default costs are divided into type – process, raw, and evaporation; size (in megalitres); and by land type (pasture, native, arid). The costs for type vary primarily by the amount of sediment assumed to require removal. These assumptions are shown in the *Assumptions – General* sheet and in Table 4.

Table 4: Sediment Thickness by Pond Type

Type	Sediment Thickness
Process	0.5 metres
Raw	0.3 metres
Evaporation	0 metres

The Default section of the sheet has several ways to enter quantities for ponds. Figure 30 shows the section of the table where all the process, raw water, and evaporation ponds are available for selection from the dropdown menu. The User can use this table only for process, raw, and evaporation ponds or they can select from process only, raw only, and evaporation only in tables further down (red box in Figure 30).

Figure 30: Ponds – Dropdown with all Process, Raw, and Evaporation Selections Available and Individual Type only Tables (red box)

GIS	Dams in column	GIS reference / Object ID
Decommission and rehabilitate ponds (defaults)	Dams selected	Select dam
		Default rate
		Alternate rate
		Number of dams in category (defaults only)
		Cost
	Process water	Select dam
		Default rate
		Alternate rate
		Number of dams in category (defaults only)
		Cost
	Raw water dam	Select dam
		Default rate
		Alternate rate
		Number of dams in category (defaults only)
		Cost
	Evaporation dam	Select dam
		Default rate
		Alternate rate
		Number of dams in category (defaults only)
		Cost
Refurbishment for retention	Clean water dam	Select dam

Dam raw Pasture	Dam raw Pasture	Dam raw Pasture	D
>50 to <=100 ML	>30 to <=100 ML	>50 to <=100 ML	>
Dam raw Pasture >7.5 to <= 10 ML			\$2
Dam raw Pasture >10 to <=20 ML			
Dam raw Pasture >20 to <=50 ML			\$
Dam raw Pasture >50 to <=100 ML			rid
Dam raw Pasture >100 to <=500 ML			Di
Dam raw Pasture >500 to <=1000 ML			10
Dam raw Native 0 to <=1 ML			
Dam raw Native >1 to <=3.5 ML			\$
Dam raw Native >3.5 to <=7.5 ML			re
Dam raw Native >7.5 to <= 10 ML			1L
Dam raw Native >10 to <=20 ML			29
Dam raw Native >20 to <=50 ML			\$
Dam evaporation Native >50 to <=100 ML	Dam evaporation Native >50 to <=100 ML	Dam evaporation Native >50 to <=100 ML	D
\$ 399,554.71	\$ 399,554.71	\$ 399,554.71	\$
Clean Water Retained - Small	Clean Water Retained - Large	Clean Water Retained - Small	F

The default sections includes tables for:

- refurbishment of water storage areas if they will be retained
- removal of sediments. This table should only be rarely used as the costs for sediment removal are included in the default pond costs
- pontoon removal
- load and haul of water and brine. The User should explain how water and brine volumes are calculated / forecast and how they would be managed. It may be acceptable to show water would evaporate or be beneficially used
- treatment of low pH water and saline water
- decommissioning and removal of water treatment plants
- pumping and transferring water.

The User Build Table for the Water Management affords the User more flexibility on the inputs and allows site-specific area entries including pond geometry (e.g. length and width of walls, slope of walls), sediment thickness, area and thickness of growth media placement, and wide range of fleet selections. This table is more complex and requires the User to enter all the appropriate quantities to allow a proper cost to be calculated. The User must enter all the quantities shown in the first table Figure 31 and to the following tables:

- remove sediment
- push in bund
- liner remove and dispose
- maintenance of rehabilitated areas and repairs
- source and apply growth media and ameliorants
- revegetate.

Figure 31: Ponds – User Build – Mandatory Entry Table

Use the table directly below is for user build rates. If quantities were entered to the defaults table column above, quantities should not be entered to the user build. Use the "+" button to show the user build table.

Activity	Element	Quantity Name	Unit	Defaults	Enter Name	Enter Na
Notes				Select		
Decommission and rehabilitate ponds (user build)	Dams	Type of Dam	Select	Select	Dam raw	Dam ra
		Liner or no liner	Select	Select	Lined	Lined
		Average capacity	m3			
Demolish bund	Bund wall	Slope 1 in X	m			
		Bund wall height above ground	m			
		Bund width on top	m			
		Triangle base length	m		0.00	0.00
		Bund width at base	m		0.00	0.00
Description	Dams	Bund wall cross sectional area	m2		0.00	0.00
		Height from base to crest surface water level	m			
		Base length	m			
		Surface area at base	m2		-	
		Triangle length	m		0.00	0.00
		Crest length	m		0	0
		Perimeter at crest	m		-	
		Surface area at crest	m2		-	
		Surface area at crest	ha		0.00	0.00
		Calculated volume	m3		-	
Warning	Pond calculated volume versus stated volume	Volume check			No volume entered.	No volume entered.

The User Build Table has a check on the quantities entered. The sheet calculates the water storage volume based on the user inputs and posts a warning if the calculated volume is different to the user-entered capacity by more than a threshold (Figure 32). The threshold is shown in the *Assumptions – General* sheet and at 1 October 2025 was set at 20%.

Figure 32: Ponds – Volume Check and Warning of Mismatch (second column)

Activity	Element	Quantity Name	Unit	Defaults	Enter Name	Enter Name	Enter Name
Notes				Select			
Decommission and rehabilitate ponds (user build)	Dams	Type of Dam	Select	Select	Dam raw	Dam raw	Dam raw
		Liner or no liner	Select	Select	Lined	Lined	Lined
		Average capacity	m3		100	100	100
Demolish bund	Bund wall	Slope 1 in X	m		100,000	100,000	
		Bund wall height above ground	m		4.0	3.0	
		Bund width on top	m		3.0	2.0	
		Triangle base length	m		1.0	1.0	
		Bund width at base	m		12.00	6.00	0.00
Description	Dams	Bund width at base	m		25.00	13.00	0.00
		Bund wall cross sectional area	m2		39.00	14.00	0.00
		Height from base to crest surface water level	m		3.0	3.0	
		Base length	m		180.0	100.0	
		Surface area at base	m2		32,400	10,000	
		Triangle length	m		12.00	9.00	0.00
		Crest length	m		204	118	0
		Perimeter at crest	m		818	472	
		Surface area at crest	m2		41,616	13,924	
		Surface area at crest	ha		4.16	1.39	0.00
Warning	Pond calculated volume versus stated volume	Volume check			110,736	35,724	
					ok	Out by more than threshold	No volume entered.

4.6.6. Overburden Emplacement Area sheet

The *Overburden Emplacement Area* Input sheet calculates costs for decommissioning and rehabilitation of waste rock dumps and stockpiles. In both the Default and User Build tables the User must select a risk level so that the appropriate default capping thickness, growth media thickness, and engineering costs are populated. The Default capping and growth media thicknesses come from the *Assumptions – Capping* Sheet. Additional rows are included at the bottom for Users to enter Activities and rates that are not in the Default Table or User Build Table.

The Default Table is simple to use and requires only the selection of a risk level and entry of a footprint area.

The User Build Table for the Overburden Emplacement Area affords the User more flexibility on the inputs and allows site-specific area entries, site-specific capping and growth media thicknesses, and wide range of fleet selections. This table is more complex and requires the User to enter all the appropriate quantities to allow a proper cost to be calculated. The User must enter quantities (even if zero with a justification) to the following tables:

- reshape overburden and growth media piles cover ramps with rock (not required for waste rock dumps)

- construct working layer, capillary break, and low permeability layers
- place top rock cover
- source/ apply additional capping (often not applicable)
- construct drains / water management
- source and apply growth media and ameliorants
- revegetate
- permeability testing and engineering
- contaminated soil treatment.

Both the Default Table and the User Build Table include rows at the top for Users to enter the area of the Facilities' footprint, and these must be entered to generate a correct calculation.

4.6.7. Active Mining Area sheet

The *Active Mining Area* Input sheet calculates costs for rehabilitation of mining areas, primarily pits. Tables are available for:

- safety bund, fencing, and signs
- drill and blasting of benches and highwall and dozing to make safe
- shaping of low wall and load and haul to make safe
- backfilling of open pits and ramps
- removal of contamination from ramps
- construction of drains and water management
- maintenance of rehabilitated areas and repair
- source and apply growth media and ameliorants
- revegetate
- contaminated soil treatment

4.6.8. Underground Mining Area sheet

The *Underground Mining Area* Input sheet calculates costs for decommissioning and rehabilitation of surface infrastructure and land associated with underground mining operations. The sheet includes tables for:

- disconnecting utilities
- removal of conveyors
- maintenance of rehabilitated areas and repair
- source and apply growth media and ameliorants
- revegetate
- contaminated soil treatment.

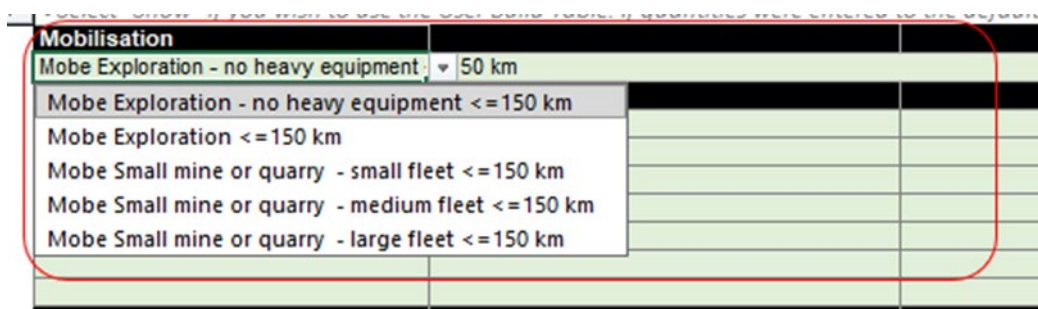
4.6.9. Exploration sheet

The *Exploration* Input sheet calculates costs for decommissioning and rehabilitation of activities associated with Exploration. Tables are available for decommissioning and/or rehabilitation of:

- haul roads, tracks, and laydown
- water storage structures (ponds, dams, basins)
- boreholes and sumps
- land including pest management; management of undisturbed areas; maintenance of areas that are shaped and seeded and revegetation has been successful; minor, moderate, and major rehabilitation repairs; repair of total landform failure; and repair of subsidence
- waste disposal
- contaminated soil.

Mobilisation associated with the rehabilitation of activities associated with exploration is entered to this sheet and the options are shown in Figure 33.

Figure 33: Ponds – Exploration – Mobilisation Options



Mobilisation	
Mobe Exploration - no heavy equipment	50 km
Mobe Exploration - no heavy equipment	<= 150 km
Mobe Exploration	<= 150 km
Mobe Small mine or quarry - small fleet	<= 150 km
Mobe Small mine or quarry - medium fleet	<= 150 km
Mobe Small mine or quarry - large fleet	<= 150 km

User Build tables are available for tracks, laydown areas, and restoration of boreholes.

4.6.10. Other and Sundry sheet

The *Other and Sundry Sheet* calculates costs for:

- contaminated land studies
- closure plans
- hazardous materials (HAZMAT) removal
- security services during closure
- heritage - the scope of items associated with heritage preservation / restoration is site-specific and a default cost cannot be estimated with any certainty. Consequently, if heritage management is required, the User must enter their own rate and provide detail for the department to review
- care and maintenance
- maintenance of rehabilitated areas and repair
- land preparation and revegetation (Growth Media Development and Ecosystem Establishment). Outside of other Domains

- creek diversions
- mobilisations (excluding mobilisation for Exploration) with the options for small, medium, large, and truck /shovel fleets.

4.7. Reference Sheets

4.7.1. Cost Schedule sheet

The *Cost Schedule* sheet lists all the Default rates available in the RCE tool. The sheet includes key assumptions and usage notes for each rate. Users cannot change rates in this sheet but Alternate rates can be entered (with justification) where a Default rate appears in the Input sheets. The sheet includes quick links on the left hand side which allow the User to skip past blocks of rates when searching for a rate.

4.7.2. Rates sheet

The *Rates Sheet* (Figure 34) lists the underlying unit cost rates for equipment, labour, consumables, and materials that form the basis for the cost estimate. Key assumptions and source information are included in this sheet. Rates were informed by the market including suppliers (e.g. for gypsum) and demolition / rehabilitation contractors (e.g. for earthmoving equipment). The rates are current as of 2025. Where possible, rates are informed by two or more sources. This sheet is locked to the User and values can only be edited by the department.

Figure 34: Rates Sheet examples

Rehabilitation Cost Estimation Tool - Mining New South Wales
RCE Summary

Item	Value	Unit	Notes	Reference
Backhoe and Attachments				
Backhoe_420F 4WD	\$ 255.00	hour	Includes fuel and operator	Contractor rate
Backhoe_428F 4WD	\$ 270.00	hour	With fuel and operator	Contractor rate
Backhoe attachments	\$ 90.00	hour	With fuel and operator	Contractor rate
Capping				
Capping clay purchase only	\$ 56.28	m3		
Capping geotextile Bidim A24	\$ 1,200.00	roll	Geotextile (Bidim A24 - 4 m wide, 175 m rolls)	Supplier rate
Capping geosynthetic	\$ 1,200.00	roll		
Capping HDPE 2mm	\$ 5,916.00	roll	(2mm thick HDPE, 5.8m wide, 100m long)	Supplier rate
Liner HDPE 1mm	\$ 6.92	m2	5.8m wide 50 m long	Supplier rate
Cover HDPE 0.5 mm	\$ 3.41	m2	4.2m wide 50 m long	Supplier rate
Tarpaulin - industrial	\$ 270.50	roll		Supplier rate
Anchors	\$ 25.69	anchor		Supplier rate
Cone penetrometer	\$ 100.00	day		Supplier rate
Compactors				
Compactor CS633E Vibratory	\$ 294.00	hour	Includes fuel and operator	Contractor rate
Compactor CP533E Sheepfoot	\$ 306.00	hour	With fuel and operator	Contractor rate
Compactor CP633E Sheepfoot	\$ 318.00	hour	With fuel and operator	Contractor rate
Compactor plate	\$ 30.00	hour	With fuel and operator	Contractor rate
Concrete Crushing				
Concrete crushing plant	\$ 208.33	hour		
Consultant Labour				

4.7.3. Productivity sheet

The *Productivity* sheet refers to a range of parameters that determine how long an item (e.g. a truck) will be needed or how long an activity will take. Examples of productivity include: the cubic metres of soil a dozer can push per hour over a specified length on a specified slope; the volume of concrete a truck can hold; and the area of liner that can be laid in a specific time.

Productivity allows the calculation of cost rates specific to a quantity; for example, the combination of the base rate in dollars per hour (\$/h) for a dozer and the productivity in cubic metres per hour (m³/h) over a specific push length allows calculation of cost per cubic metre (\$/m³). The Productivity sheet displays this information. An example of the sheet is shown in Figure 35.

Figure 35: Productivity Sheet example

Dozer Grade (LCM/h) vs. Grading Distance		Number of dozers in series required to achieve the push length									
Fleet list	Dozing distance (m)	Number of dozers		1	1	1	1	1	1	1	2
		Dozing distance (m)		20	50	75	100	125	150	200	250
Dozer D6R				430	196	150	105	Too small	Too small	Too small	Too small
Dozer D7R				583	350	262	175	Too small	Too small	Too small	Too small
Dozer D8R				816	443	318	192	131	97	70	Too small
Dozer D9R				1165	653	484	315	224	194	140	299
Dozer D10T				1631	886	661	437	373	318	245	415
Dozer D11T				2796	1398	1049	699	559	466	350	664

Note: "Too small" in the means the dozer is not rated to push over the distance.

4.7.4. Assumptions – General sheet

The *Assumptions – General* sheet lists general assumptions used in the RCE Tool. Assumptions include the hours of working time per day; densities of materials; ameliorant application rates; surface cover and sediment thicknesses; and default one-way travel distances. An example of the sheet is in Figure 36.

Figure 36: Assumptions – General Sheet - examples

Rehabilitation Cost Estimate Tool - Mining New South Wales		Back to RCE Summary	
Description	Value	Unit	Source
Ameliorants and Plant / Seed Application Rates			
Gypsum	2.5	t/ha	
Lime	2.0	t/ha	
Biosolids, MSW, Manure	50.0	t/ha	
Gypsum + Biosolids	10.0	t/ha	
Hay Mulch / Sugar Cane	5.0	t/ha	
Fertiliser - pasture	0.3	t/ha	
Fertiliser - native	0.1	t/ha	
Ammonium Nitrate	0.1	t/ha	
Native seed	7.0	kg/ha	
Pasture seed	5.0	kg/ha	
Arid	0.0	kg/ha	
Tube stock	150	plants / ha	
Trees - mature	75	trees / ha	
Hydroseeding - pasture seed	43	kg/ha	Hydromulching contractor
Hydroseeding - native seed	13	kg/ha	Hydromulching contractor
Hydromulch - BFM - pasture seed	43	kg/ha	Hydromulching contractor
Hydromulch - BFM - native seed	13	kg/ha	Hydromulching contractor
Hydromulch - FRM - pasture seed	43	kg/ha	Hydromulching contractor
Hydromulch - FRM - native seed	13	kg/ha	Hydromulching contractor
Hydromulch - BGM - pasture seed	43	kg/ha	Hydromulching contractor
Hydromulch - BGM - native seed	13	kg/ha	Hydromulching contractor

4.7.5. Assumptions – Capping sheet

The *Assumptions – Capping* sheet shows the capping thickness assumptions for Tailings Storage Facilities, Overburden Emplacements, and Heap Leach Pads (Figure 37). The values vary with the risk level of facility. The User cannot change the values in this sheet but can input site-specific values in the User-build tables of the Input sheets.

Figure 37: Capping Assumptions Sheet

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Risk Level

Description	Unit	Difficult (e.g. input)	High	Medium	Low	Very Low
Tailings Storage Facilities - Capping Thickness Default Assumptions			"Adverse"	"Efficient"	"Ideal"	New rate in 2025
Embankment Rock Cover	m	1.00	1.00	1.00	1.00	1.00
Ramps Rock Cover	m	0.50	0.50	0.50	0.50	0.50
Working Layer	m	4.00	0.50	0.30	0.00	0.00
Capillary Break Layer	m	0.00	0.60	0.30	0.00	0.00
Low Permeability Layer	m	1.50	0.50	0.00	0.00	0.00
Top Rock Cover	m	4.00	1.50	1.00	1.00	0.00
Growth media	m	0.15	0.15	0.15	0.15	0.15
Growth media	% of mass					

4.8. Common Tables

4.8.1. Re-vegetation

All the Input sheets have tables for re-vegetation and the options are shown in Figure 39. In the User-build tables, the re-vegetation scope has separate tables for the elements that make-up revegetation – purchase seed / plants; apply / plant the seed or plant or hydro-product; buy the fertiliser, apply the fertiliser, allowance for acquiring water; and applying the water. For each column, the selections by the User must be consistent – for example, if hydroseeding with pasture seed is selected, the selections for fertiliser and water must also be hydroseeding with pasture seed.

Figure 38: Revegetation options

Revegetate land	Safety bund	Area (suggested)	ha
		Area (user over-ride)	ha
	Benches + highwall	Area (used in calculations)	ha
		Area (suggested)	ha
		Area (user over-ride)	ha
		Area (used in calculations)	ha
	Low wall	Area (suggested)	ha
		Area (user over-ride)	ha
		Area (used in calculations)	ha
		Area (suggested)	ha
Purchase seed / plant	Pit and ramps	Area (user over-ride)	ha
		Area (used in calculations)	ha
	Other	Area (suggested)	ha
		Area (user over-ride)	ha
	All	Area (used in calculations)	ha
		Area (user over-ride)	ha
	Vegetation	Area total	ha
		Seed mix (buy)	Select
		Default rate	\$/unit
		Unit	
Apply / plant		Alternate rate	\$/unit
		Application rate	unit/ha
		Quantity	
		Cost	\$
		Method	Select
		Default rate	ha
		Alternate rate	\$/ha
		Cost	\$
		Method	Select
		Default rate	ha
Fertilise - buy		Method	Select
		Default rate	ha
		Method	Select
		Default rate	ha
		Method	Select
		Default rate	ha
		Method	Select
		Default rate	ha
		Method	Select
		Default rate	ha

4.8.2. Waste and Contamination

Several Input sheets have tables for waste disposal and management of contaminated soil. The options available for waste disposal are shown in Figure 40.

Figure 39: Waste Remove and Dispose options

Waste Disposal	Type	Select	Concrete rubble debris disposal	Steel disposal
	Quantity	of unit below	Concrete rubble debris disposal	
	Unit		Steel disposal	
	Calculated disposal quantity	t or kL	Oil disposal	
	User override disposal quantity	t or kL	Oily/water disposal	
Load and Haul	Disposal quantity used in calculations	t or kL	Asbestos in soil	
	Distance to source (one-way)	km	Asbestos from buildings	
	Distance (average)	km	Asbestos from pipe	
	Product - unit / distance	Qty-km	Hazardous waste	
	Default rate	\$/qty-km	Restricted solid waste	
Gate fee	Alternate rate	\$/qty-km	Low level solid waste	
	Cost	\$	Plastic liner disposal	
	Default rate	\$/unit	Standard levy - regional	Standard levy - regional
Levy	Alternate rate	\$/unit	0.00	0.00
	Cost	\$	\$ 97.90	\$ 97.90
	Type	Select		
	Mass	t		
	Default rate	\$/t		
Waste Disposal	Alternate rate	\$/t		
	Cost	\$		
			\$ -	\$ -

The unit measure for each waste quantity was selected to reflect the measurement method most likely applied by the User - mass units for concrete, volume units for liquids, area units for liner, and length units for pipe. The calculated quantity unit reflects the measure that would be applied at the waste management facility (mass (tonnes) or volume (kilolitres)).

These quantities are then used with the User selected one-way distance to the facility to calculate the load and haul costs and multiplied by the gate fee and waste levy to get the cost for disposal. The User selects the appropriate levy depending on the location of their site. The selections are shown in Figure 41.

Figure 40: Waste Levy options

Levy	Type	Select	Standard levy - regional	Standard levy - regional
	Mass	t	Standard levy - metropolitan	7.90
	Default rate	\$/t	Standard levy - regional	
	Alternate rate	\$/t	No levy	
	Cost	\$		
Waste Disposal			\$ -	\$ -

The contaminated soil / material options are shown in Figure 42. The biopile option has a lower cost limit to account for set-up costs that would be applicable regardless of the volume to treat. The threshold value is shown in the *Assumptions - General* sheet and is 50 cubic metres as at 1 October 2025. As can be seen in Figure 42, if a User enters 50 cubic metres or less, the baseline cost is applied and above 50 cubic metres, the cost per volume (\$/m³) rate is applied.

Figure 41: Contaminated Soil/Material options

Contaminated soil treat on-site	Biopile	Volume of impacted soil	m3			
		Default Rate	\$/unit			
		Unit	Unit			
		Alternate rate	\$/Unit			
		Cost	\$			
	Others	Type	Select	PAHs and other persistent organic pollutants	PAHs and other persistent organic pollutants	Acid Sulphate Soil
		Quantity				
		Unit				
		Default rate	\$/unit			
		Alternate rate	\$/unit			
Contaminated soil treat on-site	Cost	\$				
			\$ -	\$ -	\$ -	

5. Glossary

Term	Definition
Activity	A general term applied to simple and singular items such as excavating soil, and more involved, multi-faceted items such as capping a Tailings Storage Facility.
Adit	Entrance to an underground mine which is horizontal or nearly horizontal, by which the mine can be entered, drained of water and ventilated.
Alternate Rate	A site-specific rate entered by the User which over-rides the Default Rate.
Backfill	The act of placing material to refill an excavation or void (such as an open cut or dam).
Ballast (rail)	A free draining coarse aggregate or metallurgical slag used to support railway tracks and allow for drainage.
Borehole	A hole made by drilling or boring, but excludes sampling and coring using hand-held equipment; and petroleum wells.
Bottom-up, first principles cost method	The process of building rolled-up costs for relatively complex, multi-faceted activities using basic singular values for plant, equipment and labour and productivity (e.g. cubic metres of soil excavated per hour) to estimate the time to complete an activity.
Capillary break	A layer of coarse material placed between finer-textured materials to prevent the vertical movement of water (and associated salts) by surface tension from the lower, finer-textured material into the upper finer-textured material (such as topsoil or growth media). It can also function to limit root penetration into the underlying seal and more than one capillary break can be present within a cover design.
Capping / sealing	The act of applying material (such as clay) in a usually engineered design to seal off underlying material (such as waste, contaminated soil or spoil) in order to prevent exposure of this material to the environment and outside conditions.
Contaminated	Condition or state where there is/are potentially hazardous substance(s) at concentrations above background or recommended land use levels and where assessment shows it poses, or is likely to pose, an

Term	Definition
	immediate or long-term hazard to human health or the environment.
Department	Department of Primary Industries and Regional Development.
Default Rate	A standard (default) cost rate for an activity in the RCE Tool
Domain	An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.
Earthworks	Equipment activity involving the placement and working of large amounts of earth to engineering or other design specification (such as cut and fill operations for roads, dams and landforms).
Exploration	Has the same meaning as it has in the <i>State Environmental Planning Policy (Resources and Energy) 2021</i> .
Final landform and rehabilitation plan	Has the same definition as in the Mining Regulation 2016.
Final land use	The intended final landform and land use following completion of exploration activities/mining/petroleum production, as defined in an approval under the <i>Environmental Planning and Assessment Act 1979</i> (or as formally agreed with the department where the final land use is not defined in such an approval).
Forward program	Has the same definition as in the Mining Regulation 2016.
Haul road	Roads used to transport mine materials (product and waste).
Large mine	Has the same definition as in the Mining Regulation 2016.
Leach	Dissolution and removal of a soluble substance from a substrate.
Overburden	Material overlying coal or a mineral deposit.
Petroleum title	An exploration licence, assessment lease, production lease or special prospecting authority in force under the <i>Petroleum (Onshore) Act 1991</i> .

Term	Definition
Portal	The surface entry to an adit including the structure surrounding the immediate entrance.
Productivity	The performance capability of a machine or equipment. For example, the volume of soil an excavator can move per unit time.
Rehabilitation	Has the same meaning as it has in the <i>Mining Act 1992</i> or the Petroleum (Onshore) Regulation 2016, as relevant.
Rehabilitation completion criteria statement	Has the same definition as in the Mining Regulation 2016.
Rehabilitation cost estimate	Has the same definition as in the Mining Regulation 2016 or the Petroleum (Onshore) Regulation 2016, as relevant. The title holder's cost estimate to rehabilitate all liabilities and obligations associated with the title (including in relation to any land or water), and other relevant legislative requirements, at a nominated point in time.
Rehabilitation cost estimation tool (RCE Tool)	The department's Excel™ workbook that calculates the RCE for the site. (Note: For prospecting titles (e.g. exploration licences and assessment leases) the RCE Tool is an online tool within the Resources Portal.
Rehabilitation management plan	Has the same definition as in the Mining Regulation 2016.
Rehabilitation objectives statement	Has the same definition as in the Mining Regulation 2016.
Rehabilitation repair	After damage or failure, to restore to a good or sound condition disturbed land already returned to a safe, stable, productive and self-sustaining condition, such as eroded areas.
Reshaping	The process of raising and/or lowering the levels of land to achieve a final land-form design.
Rolled-up	With respect to unit cost rates Rolled-up means a single value generated from smaller activities and cost rates. Bottom-up, first principles are used to generate Rolled-up rates.
Shaft	A vertical or inclined excavation in rock for the purpose of providing access to an ore body. Usually equipped with a hoist at the top, which lowers and raises a conveyance for handling workers and materials, and/or used to move air through a mine for ventilation purposes.

Term	Definition
Sheet	The individual worksheet in the RCE Tool.
Subsidence	Movement of strata resulting from the underground extraction of reserves and incorporates vertical ground movement (strain) and differential vertical movement (tilt).
Tailings	Material comprising of dirty water with chemicals and other minerals rejected from a mill after most of the recoverable valuable minerals have been extracted.
Turkey nest	A small earth dam adjacent to, and higher than, a larger earth dam, to feed water by gravity.
User	The person who prepares the RCE.
Void	A final void is demarcated by the extent of an area that does not free drain to the surrounding surface environment. In other words the void's planar extent is defined by the lowest point of the voids crest, often referred to as the spill point level (or spill level). The spill level is the elevation in the void, which if filled with water, water would spill into the surrounding landscape. A final void typically comprises the following: • an area whereby material was extracted as a result of mining and a void remains after mining is complete; and or • highwalls; and or • low walls; and or • ramps.
Waste	Has the same meaning as in the <i>Protection of the Environment Operations Act 1997</i> .