

ARR0001166

GALONG LIMESTONE MINE ANNUAL REHABILITATION REPORT

Wednesday 16 November 2022 to Wednesday 15 November 2023



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Summary table

DETAIL	
Mine	Galong Limestone Mine
Reference	ARR0001166
Annual report period commencement date	Wednesday 16 November 2022
Annual report period end date	Wednesday 15 November 2023
Forward program	FWP0001024
Mining leases	ML 1496 (1992), ML 1745 (1992)
Lease holder(s)	GRAYMONT (NSW) PTY LTD
Contact	Nicole Sullivan
Data of automicaion	Thursday 21 December 2022

Date of submission

Thursday 21 December 2023

Important

The department may make the information in your report and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your report to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

Mine details

Project description

The Galong limestone mine operates within Mining Lease (ML) 1496 and ML 1745, which covers an area of 160Ha and 43.43Ha respectively. ML 1496 extends over Lots 102 in DP1083781, Lot 139 in DP753593 and Lot 2 in DP1175189, Parish of Bobbara whilst ML 1745 extends over Lot 102 in DP1083781 and Lot 2 in DP1175189. ML 1496 and ML 1745 are located approximately 20km southwest of Boorowa and 40km northwest of Yass. ML 1496 also incorporates approximately one kilometer of Crown Road reserve. The mine produces high-grade limestone products for essential services while supporting vital industrial processes and agricultural needs.

Current development consents, leases and licences

Development consents granted under the Environmental Planning and Assessment Act 1979

DA03025 (MOD4) DA03025 (MOD4) DA03025 (MOD4)

Authorisations covering the mining area granted under the Mining Act 1992

ML 1496 (1992), ML 1745 (1992)

Any other approvals, licences, or authorities issued by government agencies that are relevant to the progress of mining operation and rehabilitation activities

Summary of the scope and/or purpose of the new applications or modifications to existing approvals (if applicable)

DA-317-7-2003-I MOD4 29 March 2023 Temporary 10,000 tonne Coal stockpile and increase truck movements

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Changes to land ownership and land use

No changes to land ownership

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Surface disturbance and rehabilitation activities during the reporting period

Surface disturbance and rehabilitation activities that were conducted and an analysis of the progress against the rehabilitation schedule

A 100m section north of the open-pit and overburden dump was cleared for mine expansion. The area was larger than the 2022 forward program estimate as additional area was required for product stockpiles. A cultural heritage survey was conducted as per the Mining Lease conditions prior to stripping topsoil. Around 17,350m3 of topsoil was placed on a dedicated stockpile within the planned overburden footprint. An overburden mining campaign commenced within the ARR reporting period. Overburden was primarily placed on the lower bench on the western side of the overburden dump. The areas was targeted for rehabilitation but further earthworks are required to achieve the approved design. Commencement of landform establishment on the Overburden Emplacement area, internally identified as OEA_F1 (western Batter 1) began in January 2023. Further landform works will take place in Q1 2024. A total area of 8.7Ha was disturbed as part of the overburden campaign.

Rehabilitation planning activities that were conducted, including any specialist studies

Monthly inspections to identify soil and land erosion were undertaken via the use of GIS Mapping Tool, Propeller. Heritage Assessment was undertaken in preparation for the Overburden Campaign A Contamination Assessment was undertaken on 22 November 2022 under and around current oils stores building in preparation for new Shed build in 2024. The oil store is situated to the east of the quarry with the workshop area. Three test pits were dug to depths ranging from 1.8 to 3.1 meters below ground surface. Soil samples were taken at different depths within the test pits. Laboratory analysis of collected samples demonstrates that the hydrocarbon impacts identified are unlikely to pose a risk to human health and/or the environment under the current commercial/industrial land use scenario. All results of the Contamination Assessment are captured within the Rehabilitation Management Plan to ensure any future rehabilitation works undertaken within this area take into consideration potential remedial works may need to be included in any forward program. Costs associated with remedial works have been included in the Rehabilitation Cost Estimate.

Overview of subsidence repair and/or remediation works undertaken

No subsidence or remediation works undertaken

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Overview of rehabilitation management and maintenance activities

General rehabilitation maintenance activities were undertaken to support future rehabilitation including weed spraying of thistles and general weeds around entire mine site

Details of any rehabilitation actions taken as required by any letters, notices or directions issued by government agencies, including the NSW Resources Regulator

No letters, notices or directions were issued within this reporting period

Details of any rehabilitation areas that have achieved the final land use

There were no areas that achieved final land use within this reporting period.

Key production milestones

MATERIAL	UNIT	FWP0001024 YEAR 1	THIS REPORT
Stripped topsoil (if applicable)	(m³)	11,000	17,350
Rock/overburden	(m³)	400,000	132,750
Ore	(Mt)	0.41	0.2
Reject material ¹	(Mt)	0.01	0.06
Product	(Mt)	0.32	0.14

¹ This includes coarse rejects, tailings and any other wastes resulting from beneficiation.



Disturbance and rehabilitation statistics

Current disturbance and rehabilitation progression

ELEMENT	UNIT	THIS REPORT
A Total surface disturbance footprint	(ha)	63.32
B Total active disturbance	(ha)	61.32
C Land prepared for rehabilitation	(ha)	0.61
D Ecosystem and land use establishment	(ha)	0
E Ecosystem and land use development	(ha)	1.39
F Rehabilitation completion	(ha)	0

Rehabilitation key performance indicators (KPIs)

	ELEMENT	UNIT	THIS REPORT
G	Total new active disturbance area	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
Н	New rehabilitation commenced during annual reporting period	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
I	Established rehabilitation	(ha)	1.39
J	Annual rehabilitation to disturbance ratio	%	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
K	Rehabilitated land to total mine footprint	%	2.19



Progressive achievement of established rehabilitation

	ELEMENT	UNIT	THIS REPORT
L	Established rehabilitation - agricultural final land uses	%	0.06
M	Established rehabilitation - native ecosystem final land uses	%	0
N	Established rehabilitation - other/non-vegetated final land uses	%	0

Variation to the rehabilitation schedule

Identify the components of the most recent forward program that were not achieved

N/A

Key factors that delayed progressive rehabilitation

N/A

Outline actions that will be included in the forward program and carried out to minimise disturbance and undertake progressive rehabilitation as far as reasonably practical

N/A

Rehabilitation monitoring and research findings

Rehabilitation monitoring

The rehabilitation monitoring carried out in the annual reporting period

No rehabilitation monitoring was undertaken as there are no rehabilitation areas at the ecosystem and land use establishment phase as per 2022 Forward Program.

Status of performance against rehabilitation objectives and rehabilitation completion criteria

The monitoring program that has been implemented

No rehabilitation areas at the ecosystem and land use establishment phase as per 2022 Forward Program.

Are all rehabilitation areas in Landform Establishment phase or higher represented in the monitoring program to assess performance against the rehabilitation objectives and approved or, if not yet approved rehabilitation completion criteria and final landform and rehabilitation plan?

0

Year rehabilitation areas will be included as part of the monitoring program

2025

An appraisal of whether rehabilitation is moving towards achieving the proposed rehabilitation objectives, approved or, if not yet approved, rehabilitation completion criteria and final landform and rehabilitation plan as soon as reasonably practicable.

Substantial works were completed in accordance with the 2022 Forward Program and Rehabilitation Management Plan), and rehabilitation is therefore considered to be moving towards achieving the rehabilitation objectives.

Appraisal description

Rehabilitation is moving towards achieving the final land use as soon as reasonably practicable.

Rehabilitation monitoring program findings

No rehabilitation monitoring was undertaken as there are no rehabilitation areas at the ecosystem and land use establishment phase as per 2022 Forward Program.

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Performance issues and their causes including identification of any knowledge gaps that must be addressed

No performance issues were identified within the rehabilitation areas.



Outcomes of rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS	ON TRACK?
RRT000100 7	Revegetation Methods	Identify the most appropriate revegetation methods for the Galong site.	Trialling different cover crop applications and various native and improved pasture species in consultation with an agronomist and incorporating native trees and shrubs at low density to improve habitat value.	31 Dec 2025	Not started	Yes

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Outcomes of completed trials and research	npleted trials and research	of com	Outcomes
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N/A



Attachment 1 – Reporting Definitions

REP	ORTING CATEGORY	DEFINITION
A1	Total disturbance footprint – surface disturbance	All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities.
		The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below).
		Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.
A2	Underground Mining Area	Underground mining operations areas/subsidence management areas.
В	Total active disturbance	Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).
С	Rehabilitation – land preparation	Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation — decommissioning, landform establishment and growth medium development. Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.
		phases of rehabilitation.



REP	ORTING CATEGORY	DEFINITION
D	Ecosystem and land use establishment	Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites.
		Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.
E	Ecosystem and Land Use Development	Rehabilitation has matured to a level where target revegetation outcomes are on a trajectory towards meeting the final rehabilitation objectives and rehabilitation completion criteria (as verified by monitoring).
		This phase includes infrastructure areas that are to be retained for an approved post mining land use, following completion of all necessary measures to render the infrastructure fit for this purpose (for example structural integrity).
F	Rehabilitation Completion	The NSW Resources Regulator has determined in writing that the mining area has achieved the approved rehabilitation objectives and approved rehabilitation completion criteria and final landform and rehabilitation plan following the submission of Form: ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate and/or notification of mine or petroleum site closure.
G	New active disturbance area	The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 5).
н	New rehabilitation commenced during annual reporting period	The sum of any new rehabilitation commenced in the annual reporting period. These areas may be in the rehabilitation land preparation phase or the ecosystem & land use establishment phase (definitions C and D in Table 5).
1	Established rehabilitation (hectares)	The total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5).



REP	ORTING CATEGORY	DEFINITION
J	Annual rehabilitation to disturbance ratio	The rehabilitation to disturbance ratio (H/G) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that year are the same.
К	% Rehabilitated land to total mine footprint	The proportion of the total mine footprint (area of land that has been disturbed by past or present surface disturbance activities) that has established rehabilitation (I/A1 \times 100). For open cut mining, the proportion of the total mine footprint verified to be "established rehabilitation" should substantially increase as an operation progresses towards mine closure.
L	Established rehabilitation for agricultural final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to an agricultural final land use.
M	Established rehabilitation for native ecosystem final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or rehabilitation completion phase (definitions E & F in Table 5) that have been returned to native ecosystem final land use.
N	Established rehabilitation for other/non-vegetated final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to other/non-vegetated final land use.



Attachment 2 – Definitions

WORD	DEFINITION
Active	In the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
Analogue site	In the context of rehabilitation, an analogue site is a 'reference site' that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
Annual rehabilitation report and forward program	As described in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.
Closure	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning Phase of Rehabilitation	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or 'fit for purpose' built infrastructure to be retained for future use(s) following lease relinquishment.



WORD	DEFINITION
Department	The Department of Regional NSW.
Disturbance	See Surface Disturbance.
Disturbance area	An area that has been disturbed and that requires rehabilitation. This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).
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.
Ecosystem and Land Use Development	This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria. For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile. This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.
Ecosystem and Land Use Establishment	This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.
Exploration	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.



WORD	DEFINITION
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department's website.
Growth Medium Development	This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species.
	This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.
Habitat	Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (as relevant).
Indicator	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
Land	As defined in the <i>Mining Act 1992</i> .
Landform Establishment	This phase of rehabilitation consists of the processes and activities required to construct the final landform. In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.



WORD	DEFINITION					
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.					
Mine rehabilitation portal	Means the NSW Resources Regulator's online portal that lease holders must use (via a registered account) to: upload rehabilitation geographical information system (GIS) spatial data develop rehabilitation GIS spatial data (using online tracing functions) generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities. Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.					
Mining area	As defined in the <i>Mining Act 1992</i> .					
Mining domain	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).					
Mining land	As defined in the <i>Mining Act 1992.</i>					
Native vegetation	Has the same meaning as that term under section 60B of the <i>Local Land Services Act</i> 2013.					
Overburden	Material overlying coal or a mineral deposit.					
Performance indicator	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.					



WORD	DEFINITION
Phases of rehabilitation	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: active mining decommissioning landform Establishment growth medium development ecosystem and land use establishment ecosystem and land use development.
Progressive rehabilitation	The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.
Rehabilitation Completion	The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate application by the lease holder.
Rehabilitation Completion criteria	As defined in the Mining Regulation 2016.
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.
Rehabilitation management plan	As defined in the Mining Regulation 2016.
Rehabilitation objectives	As defined in the Mining Regulation 2016.
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.



WORD	DEFINITION						
Relevant stakeholders	Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: the relevant development consent authority the local council the relevant landholder(s) community consultative committee (if required under the development consent) or equivalent consultative group affected land holder(s) government agencies relevant to the final land use affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) local Aboriginal communities, and any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.						
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).						
Secretary	The Secretary of the Department.						
Security deposit	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).						
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.						
Tailings	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water ² .						
Waste	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .						

² Commonwealth of Australia (DITR), 2007. *Tailings Management*.

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Attachment 3 – Rehabilitation Complaints

DATE	COMPLAINANT	COMPLAINT DETAILS	RESPONSE DETAILS	STATUS OF RESPONSE	DATE RESPONSE COMPLETED (IF APPLICABLE)
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Attachment 4 – Stakeholder consultation

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
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Attachment 5 – Plans

Plan 1A attachment not provided.

Plan 1B attachment not provided.

Annual Report (LARGE MINE) v1.6

Galong Limestone Mine, Plan 1A:Current Status of mining and rehabilitation, Nov2022-Nov2023, 19/12/2023, 6703, 6848, 6849 Melbourne Legend Rehabilitation Landform Establishment Ecosystem and Land Use Establishment Ecosystem and Land Use Development Relinquishment (Rehabilitated) Disturbance Beneficiation Facility Infrastructure Area Overburden Emplacement Area Tailings Storage Facility Underground Mining Area (SMP) Active Mining Area (Open cut void) Water Management Area Project Approval Boundary World Imagery Low Resolution 15m Imagery High Resolution 60cm Imagery High Resolution 30cm Imagery Citations Notes 271.58 543.2 Meters This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, WGS_1984_Web_Mercator_Auxiliary_Sphere © DRE current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION

Galong Limestone Mine, Plan 1B:Current landform contours, Nov2022-Nov2023, 30/11/2023, 6701, 6703



271.58

WGS_1984_Web_Mercator_Auxiliary_Sphere
© DRE

543.2 Meters

Legend

Citations

 Current Landform Contours Project Approval Boundary World Imagery Low Resolution 15m Imagery High Resolution 60cm Imagery High Resolution 30cm Imagery

Notes

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Site Registratio	Date September 2024
Complete the following field	ds prior to calculating the Security Deposit.
Mine Name:	Galong Limestone Mine
Lease(s):	ML 1496 & ML1745
Title Holder:	Graymont (NSW) Pty Ltd
Mine Operator:	Graymont (NSW) Pty Ltd
Term of RCE:	
Current Security:	\$5,910,000 Date of last Security Deposit review 18/04/2024
Mine Contact:	Wayne Trenning
Position:	Plant Manager
Address:	Lot 342 Eubindal Road Galong NSW
Phone:	02 6380 5102 Email: wayne.trenning@graymont.com

Site Description The following site specific information is requested to provide background information in the context of calculating the Security Deposit. **Summary of Mine Activities Environmental Sensitivities** 430000 Total annual production (tonnes): Surrounding land use (tick all that apply): Mine lease area (ha): 203.43 ✓ Cropping ✓ Pasture Area of extraction (ha): ✓ Forest Area of disturbance (ha): 61.71 Undisturbed habitat 1.42 Rehabilitation in progress (ha): Urban Rehabilitation complete (ha): Environmental Issues affecting site (tick all that apply) Achieved ecosystem sustainability Threatened flora 2023 ARO Forward Program/MOP Utilised: Reference no. version and date Threatened fauna Cultural heritage items 1 Forward Program 2023 Forward Program/MOP Plan Utilised: □ Natural heritage features Reference Plan no. version and date Mine subsidence ☐ Surface water pollution ☐ Plan(s) attached Ground water pollution ✓ Hydrocarbon contamination Methane drainage/venting ☐ Spontaneous combustion Acid Mine Drainage ☐ Within drinking water catchment NOTE: Ensure rehabilitation cost estimation reflects all environmental issues affecting Other (describe below) the lease. Contingencies should be allocated where costs have not been incorporated elswhere in the estimation.



Open Cut Summary Rehabilitation Cost Estimation

STATE OF THE OWNER OF THE OWNER, WHEN			
Note: Sections of this pag	e are automatically filled in from the re	gistration page	
Mine Name:	Galong Limestone Mine		
Lease(s):	ML 1496 & ML1745		
Authorisation Owner:			
Mine Operator:	Graymont (NSW) Pty Ltd		
Term of RCE:			
Current Security:	\$5,910,000	Date of Last Security Deposit	Review: 18/04/2024
line Contact:	Wayne Trenning		
Position:	Plant Manager		
Address:	Lot 342 Eubindal Road Galong NSW		
Phone:	02 6380 5102 E	mail: wayne.trenning@graymon	t.com
	Domain		Committee and
Domain 1: Infrastructure			Security Deposit
omain 2: Tailings & R			\$3,055,711
omain 3: Overburden			\$419,270 \$472,802
omain 4: Active Mine	& Voids		\$515,726
omain 5: Managemen	t Activities		\$282,500
ubtotal (Domains and	d Sundry Items)		
ontingency	a sumary nomey	409/	\$4,746,010
ost Closure Environme	ental Monitoring	10%	\$474,601
roject Management ar		10%	\$474,601 \$474,601
otal Security Der	osit for the Mining Projec	t (excl. of GST)	
			\$6,169,813
		of rehabilitation security deposits re-	
		sheet. (Attach a separate sheet provid	
		with the development consent for the pro-	
nis Registration Form, S	Summary Report and calculation page	ges are to be printed and attached as	an appendix the AEMR or MOP.
nis mine security calculati is a true and accurate ref	on has been estimated using the best ection of the total rehabilitation liability	available information at the time. held by this mine.	
erick Korte ompany Respreser	ntative's Name		30/9/24 Date
irector ompany Represent	ative's Role / Responsibility		Signature

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain

\$3,055,711

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	-

		Applicable (Y			Default Unit	Alternative		Basis for Costs Estimation	
Management Precinct	Activity / Description	or N)	Quantity	Unit	Rate	Unit Rate	Total Cost	and Additional Relevant Information	Description / Notes:
Termination of Services and Demolition Works	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	Y	1	allow	\$35,000		\$35,000		For disconnection of all services, at building boundaries, physical cut at the point of attachment or distribution location. If infrastructure is not consolidated (i.e., administration, camp and workshops are in separate places), consider multible disconnection fees.
	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	Y	1	allow	\$5,850		\$5,850	Bore pump	Used for infrastructure remote from primary connection. Can also be used for small mines / quarries that do not have dedicated supplies from supply authorities such as steel lattice power lines.
	including disconnection, rolling up the wires and removing the poles - does not include the removal of	Y	2.3	km	\$15,000		\$34,500	Estimated at 4x distance sub station to office plus solar farm power	Applies to power lines on stobie, concrete or similar poles.
	Demolish and/or remove substations (assumes they are in a closed building). Dispose of waste material on-site/locally	Y	27	m2	\$100.00		\$2,700	Area from aerial survey	Simple structure to demolish mechanically (no labour required), assumes single story building with no asbestos and segregation of contents for scrap as applicable. Includes demolition and removal of all
	Demolish and remove switchyard. Dispose of waste material on-site/locally	Y	293	m2	\$75.00		\$21,975	Area from aerial survey	switchgear and transformers etc. and segregation of contents for scrap as applicable.
	Demolish and remove demountable structures on concrete stumps. Assumes not being re-used	Y	765	m2	\$40.00		\$30,600	Area from aerial survey, Main office, switch room, maint office, pump shed	Crib huts, temporary offices and other 'non permanent' structures. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove small buildings/tanks (admin buildings, single story accommodation etc) and disposal on-site/locally	Υ	699	m2	\$61.00		\$42,639	Area from aerial survey, compressor shed, 3 water tanks	Simple structure to demolish, assumes no greater than 2 stories high. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove light industrial buildings and disposal on-site/locally	Υ	7087	m2/floor	\$90.00		\$637,830	(Truck wash and weighbridge1&3)x1+ (Bagging shd, coal mill building, coal shed, workshop, weighbridge 2)x2	(Assume 1 floor/level = 3-4 m) - does not include transport to regional disposal facility or equivalent. Assumes asbestos free and mechanically
	Demolish and remove industrial buildings (workshops tyre change and servicing area etc not CHPP/process plant) and disposal on-site/locally	Y	7229	m2/floor	\$130.00		\$939,770	Hydrator building (444m2), main silo (240m2) x 10 floors, ag lime feed bin (13m2), kiln building (568m2 minus the kiln (124)m2), ag silo (94m2) x 4 floors	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove washery, crushers, hoppers, mills, furnaces, agglomeration, electrowinning, floatation, sizing stations, rotary breakers, etc (include the area of each floor of the structure) and disposal on-site/locally	Y	2436	m2/floor	\$225.00		\$548,100	Ag mill building (536m2) x 2 floors , kiln (124m2) x 11 floors	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	Demolish and remove elevated conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally	Y	377	m	\$295.00		\$111,215	Area from aerial survey	Estimate for elevated conveyor up to ~10 m off the ground. Does not include transport to regional disposal facility or equivalent.
	Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of reclaim tunnel roof)	Υ	20	m	\$150.00		\$3,000	kiln feed tunnel	Due to no canopy or infrastructure attached.
	Demolition of reclaim tunnel concrete (Assumes complete removal and dumping in mine pit void)	Y	20	m	\$950.00		\$19,000	kiln feed tunnel	Assumes this area will be used for another land-use that requires the structure to be dug up and re-buried somewhere else.
	Remove surface pipelines (unsupported) and disposal on-site/locally	Y	2000	m	\$15		\$30,000		~300 mm pipes and assumes pipes are used for water transfer between pits (or similar) and remotely located. Does not include transport to regional disposal facility or equivalent.
	Remove pump and pontoon from small lake or dam including pipes and electrical supply or diesel tank/s	Y	1	allow	\$20,000.00		\$20,000		Includes equipment for retrieval - boats, etc. and labour. Does not include transport to regional disposal facility or equivalent.
	Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	Y	5336	m2	\$36.00		\$192,096	Added extra for new weighbridge	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
	Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y	483.425	m2	\$75.00		\$36,257		Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport
	Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km	Y	2000	tonne	\$9.00		\$18,000	Items in laydown yard	Rate accounts for round trip haulage to Council landfill but excludes landfill fees Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
		Tern	nination of Se		emolition Wo	orks Subtotal ture Subtotal	\$2,728,532 \$0		
Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple studies may be required.	Y	1	Cluster	\$15,000		\$15,000		Inte preimmrary invessingulor would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase assessment (EP Act Section 398 (2) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemica store, workshop, vehicle wash-down, sewage treatment etc.)
									Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) Remote pit-top facilities (i.e., vehicle r fuel, sewage treatment, secondary workehop, choosing laterage etc.)

valor management	Clean water dams to be retained after decommissioning – make safe and minor earthworks earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (haul distance <1km)	Y	150		\$2,500 \$3.55 ater Managem		\$7,500 \$533 \$8,033 \$0	< =1km	batters etc suitable for re-use by an atternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass. Undertaken with excavator, trucks, 16 M grader and D10 Dozer
water management	decommissioning – make safe and minor earthworks		3	allow				< =1km	alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass.
	I								revegetation required to rehabilitate dan
Water Management	Land Preparation and Revegetation (Gro	wth Media De	velopment a	nd Ecosysten	n Establishm	ent) Subtotal	\$61,261		Provisional sum for earthworks and
	Purchase and erect warning signs	Υ	8	allow	\$250.00		\$2,000	Some signs already in place	signs for the occupational environment installed every 25 m.
	growth media amelioration with biosolids	Y	16.3	ha	\$1,015		\$16,545		projects. Compliance with AS 1319-1994 - Safet
	Single application of fertiliser (pasture)	Y	16.3	ha	\$420.00		\$6,846		fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand et this is a suitable standard rate. Recent experience with agronomy
	Direct seeding / fertiliser (pasture grass species)	Y	16.3	ha	\$1,875		\$30,563		Includes treating, weighing, mixing wif fertiliser + spreading by tractor or helicopter (aerial seeding). Assumes 250 kg / ha. These rates have
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	1630	m3	\$3.26		\$5,308	< =1km	Undertaken with 623 scraper and 14 M grader.
	Deep rip hard stand / lay down areas	Y arthworks / S	4.15 Structural Wor	ha rks (Landforn	\$960.00 n Establishme	ent) Subtotal	\$3,984 \$67,554	plant area - BE1,IA4,IA13	D10 deep ripping.
Earthworks / Structural Works (Landform Establishment)	Minor reshaping and pushing	Y	16.3	ha	\$3,900		\$63,570	survey area of plant and stockpiles IA1 to IA15 +BE1	D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
				R	oads and Tra	icks Subtotal	\$16,532		2/0.2
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (haul distance < 1km)	Y	1000	m3	\$4.45		\$4,449	V-1801	M grader (50% utilisation) and 1 D10 Dozer @ \$400
	earthworks, final trim and deep rip and seed (pasture grass)	Y	3.2658	ha	\$3,700		\$12,083	IA11 and IA15 <=1km	grader @ \$230 per hour (50% utilisation) - pasture grass seed Assumes 1 excavator, 3 trucks, 2 x 16
Roads and Tracks	Unsealed roads / vehicle park-up areas – Minor	T		Vents, Shaft	s and Boreho	oles Subtotal	\$0		D10 Dozer @ \$400 per hour and 16 H
					ninated Mater		\$173,800		through aeration and/or the addition o
	Onsite remediation of hydrocarbon contaminated soils (>50 m3 but <100 m3) - manual land farming	Y	200	m3	\$89.00		\$17,800	> Juni Juli < Tuurii 3	order of \$75 - \$120 /m3 depending or volume, additives, treatment duration: and contamination levels. \$45 /m3 for spreading contaminated soils on a prepared surface and stimulation of aerobic microbial activity within the so
	Develop a Remediation Action Plan on sites with small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Y	1	allow	\$35,000		\$35,000	Remediation plan is likely to focus on hydrocarbon contamination. > 50m3 but <100m3	Develop remediation plan for approva including designs and detailed costs. Costs may increase if detailed design required for construction in the overall are for bio-remediation in the
	Undertake an intrusive site investigation on sites with large footprints to investigate e.g. >15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y	1	Cluster	\$106,000		\$106,000	Areas to investigate include plant/office and overburden dump	Environmental Protection (Site Contamination) Measure (NEPM) Pha 2 intrusive investigation (EP Act Secti 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas ar should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pix that are known to have leaked, chemistores with earthen bunds, around ineffective oil/water separators etc.) a further field work is required involving intrusive investigation. Assume site has a history of contamination and/or a large area >15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Cuality Plan.

Domain 2a: Tailings & Rejects

Total Cost for Tailings & Rejects Domain

\$419,270

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
	Onsite remediation of hydrocarbon contaminated soils (>500 m3) - manual land farming	Y	4674	m3	\$75.00		\$350,550	> 500m3 Lime kiln dust	Overall rate for bio-remediation in the order of \$75 - \$120 /m3 depending on volume, additives, treatment durations and contamination levels. \$45 /m3 for spreading contaminated soils on a prepared surface and stimulation of aerobic microbial activity within the soils through aeration and/or the addition of minerals, nutrients and molsture to
					ninated Materi		\$350,550		
	E	arthworks / S	tructural Wor	rks (Landforn	n Establishme	ent) Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Minor reshaping and pushing	Y	0.8	ha	\$3,900		\$3,120		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	E	arthworks / S	tructural Wor	rks (Landforr	n Establishme	ent) Subtotal	\$3,120		
	Ideal Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with little chemical reactivity (no to low risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required)	Y	0.8	ha	\$82,000		\$65,600		spreading, moisture conditioning and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness of appropriate volume of the moist owner of the moist of the mo
					Mine Wa	ste Subtotal	\$65,600		Paulage relume in P. DF
	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosyster	n Establishme	ent) Subtotal	\$0		
					ater Managem		\$0		
			Mainte	enance of Re	habilitated Are		\$0		
					Additional Ite	ms Subtotal	\$0		
	Total Cost for 1	lailings	& Reie	cts Doi	main			\$419.27	(0)

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain

\$472,802

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
				Contar	ninated Mater	ials Subtotal	\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Υ	0.9	ha	\$3,700		\$3,330	track to new southern dump area	D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	-			R	loads and Tra	cks Subtotal	\$3,330		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – 50 m push length	Y	301150	m3	\$0.80		\$240,355	< 50m push	Assumes D11 dozer push @ 400 bcm/hr.
	Minor reshaping and pushing	Y	22.2	ha	\$3,900		\$86,580	From survey	D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y	3	ha	\$1,600		\$4,800		Combination of dozer and excavator work plus grader for ~4 hours each pe ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y	500	m2	\$27.00		\$13,500		Installation of on-site rock material (rip rap) where managing water run-off fro disturbed land and/or upon entry to water courses - prevents erosion of gu head (assumes competent material is locally available). If required to be sourced off site, assume an additional
	E	arthworks / St	tructural Wo	rks (Landfori			\$345,235		
					Mine Wa	aste Subtotal	\$0		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	22200	m3	\$3.26		\$72,288	< =1km	Undertaken with 623 scraper and 14 Mgrader.
	Direct seeding / fertiliser (pasture grass species)	Y	22.2	ha	\$1,875		\$41,625	Includes new area to be cleared	Includes treating, weighing, mixing wi fertiliser + spreading by tractor or helicopter (aerial seeding).
	Single application of fertiliser (pasture)	Y	22.2	ha	\$420.00		\$9,324		Assumes 250 kg / ha. These rates had fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand et
									this is a suitable standard rate.
	Purchase and erect warning signs	Y	4	allow	\$250.00		\$1,000	Some signage on site already	this is a suitable standard rate. Compliance with AS 1319-1994 - Safe signs for the occupational environmer installed every 25 m.
	Purchase and erect warning signs Land Preparation and Revegetation (Grov				•	ent) Subtotal	\$124,237		Compliance with AS 1319-1994 - Safe signs for the occupational environmer
	• •		velopment a	nd Ecosyster W	n Establishme ater Managem	ent Subtotal	\$124,237 \$0		Compliance with AS 1319-1994 - Saf signs for the occupational environment
	• •		velopment a	nd Ecosyster W	n Establishm	ent Subtotal	\$124,237 \$0 \$0		Compliance with AS 1319-1994 - Safe signs for the occupational environmer
	• •		velopment a	nd Ecosyster W	n Establishme ater Managem	eas Subtotal	\$124,237 \$0		Compliance with AS 1319-1994 - Safe signs for the occupational environmer

Domain 4a: Active Mine & Voids

Total Cost for Active Mine & Voids Domain

\$515,726

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Open Cut	Active pit area – benches blasted and doze to	Υ	7988	Lm	\$1.93		\$15,417	mormation	Blasting in a 8x9 pattern of bench heigh
	acceptable grade Drill & blast faces to make safe	Y	109835	m3	\$0.95		\$104,343		25 m with D11 push of 50-75 m. Bulk Drilling say 8*9 pattern, assuming a stem height of 6 m, charge length of 19 m, explosive density of 0.9, diamete of 229 mm, explosives at 665.3 kg/hole with a powder factor of 0.37 with an approximate bench height of 25 m.
	High wall treatment – (trench and safety berm)	Υ	2000	m	\$90.00		\$180,000		D10 dozer, 16H Grader and
	, , ,				Onen	Cut Subtotal	\$299,760		revegetation with pasture grass.
Earthworks / Structural Works (Landform Establishment)	Minor reshaping and pushing	Y	5.2	ha	\$3,900		\$20,280		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y	5.2	ha	\$1,600		\$8,320		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y	1000	m2	\$27.00		\$27,000		Installation of on-site rock material (rip- rap) where managing water run-off fron disturbed land and/or upon entry to water courses - prevents erosion of gul head (assumes competent material is locally available). If required to be sourced off site, assume an additional
	E	arthworks / St	tructural Wor	rks (Landfor	m Establishme	ent) Subtotal	\$55,600		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	5200	m3	\$3.26		\$16,932	< =1km	Undertaken with 623 scraper and 14 M grader.
	Direct seeding / fertiliser (pasture grass species)	Y	5.2	ha	\$1,875		\$9,750		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Single application of fertiliser (pasture)	Y	5.2	ha	\$420.00		\$2,184		Assumes 250 kg / ha. These rates hav fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc this is a suitable standard rate.
	Security fence around steep section of high wall	Y	2000	m	\$64.00		\$128,000		1800mm x 3 barb chain-link mesh security fence and gate standard 2.5m mesh & 32 mm post not concreted
	Purchase and erect warning signs	Y	4	allow	\$250.00		\$1,000		Compliance with AS 1319-1994 - Safet signs for the occupational environment installed every 25 m.
	Land Preparation and Revegetation (Grov	vth Media Dev	velopment ar	nd Ecosyste	m Establishme	ent) Subtotal	\$157,866		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor	Y	1	allow	\$2,500		\$2,500	in pit sump	Provisional sum for earthworks and revegetation required to rehabilitate da batters etc suitable for re-use by an alternate land-user - D6 Dozer (or
	earthworks								similar) @ ~\$200 per hour and pasture grass.
					ater Managem		\$2,500		
			Mainte		habilitated Are	eas Subtotal	\$0		similar) @ ~\$200 per hour and pasture grass.
				enance of Re	ehabilitated Are Additional Ite	eas Subtotal		\$515,72	orass.

Domain 5a: Management Activities

Total Cost for Management Activities

\$282,500

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant	Description / Notes:
Water Management	On-site treatment of contaminated water due to high salt (includes removal of metals etc, brine disposal and cost of mobile water treatment unit)	N		ML	\$3,600			Information	Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
	On-site treatment of contaminated water due to low pH (incudes removal of metals etc, neutralisation treatments and cost of mobile water treatment unit	N		ML	\$1,500				Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
Creek Diversions	Descise and the stability of a sure			Wa I	ater Managem	ent Subtotal	\$0		Assumes material is suitable for
	Repairs and/or stabilisation of new or compromised water course diversion	N		m	\$2,500				revegetating and has a reasonable chance of stabilising.
	Long term maintenance of water course diversion – Channel constructed through backfilled material	N		m	\$1,500				Assumes maintenance has been kept u and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	N		m	\$750.00				Assumes maintenance has been kept u and significant works are not required.
	Installation of rock armouring	N		m2	\$6.00				Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite
					Creek Diversi	ons Subtotal	\$0		location.
Maintenance of Rehabilitated Areas	Pest management on buffer lands, non-disturbed, and rehabilitated areas	Υ	150	ha	\$150.00		\$22,500		Feral animal baiting programs if required and waste materials required to be removed.
	Land management of undisturbed areas (rehabilitation, weeds, ferals, erosion and sediment	Y	150	ha	\$400.00		\$60,000		Undisturbed areas within the lease boundary that require land managemen
	control works)		Mainte	enance of Re	habilitated Ar	eas Subtotal	\$82,500		activities.
Heritage Items	The restoration and care and maintenance of items	N		allow	Use alternate				Item for the redistribution of Aboriginal artefacts, preservation of European
	that have heritage significance				rate cell				heritage items or a combination of activities.
Sundry Items				ı	Heritage Ite	ems Subtotal	\$0		Provisional sum to be used to refine the
omery Rems	Development of an 'Unplanned' Project Closure Plan - State Significant Development with closure planning well progressed i.e. preferred cover design, closure environment modelled e.g. groundwater /subsidence /pl takes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	N		allow	\$100,000				conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assumes outcomes of studies readily available including modelling, landform design, geochemistry, demolition, etc. Costs to finalise options by domain and finalise designs for construction. Assume a simple side e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, finand use requirements and knowledge base investigations can range from ~\$75k to >\$1 M.
	Development of an 'Unplanned' Project Closure Plan Non State Significant Development with at least ±2 of the following aspects requiring closure planning, but no significant issues realised at this time: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, taillings / rejects, final void	Y	1	allow	\$90,000		\$90,000		Provisional sum to be used to refline the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Estimated cost for developing closure plan including studies - basic to satisfy risks and decisions - includes risk assessment, options analysis, Closure Plan.
	Development of an 'Unplanned' Project Closure Plan								Sites with more than 1 pit to add \$50,000 to rate.
	Non State Significant Development with no EPL and/or only one of the following relevant aspects: previous subsidence, low to medium geochemistry risk and/or spontaneous combustion propensity, known limited contamination, small approved final and the property of the	N		allow	\$15,000				Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Includer risk assessment, sampling and analyse on <5 samples, one study and Closure Plan.
	Development of an 'Unplanned' Project Closure Plan - State Significant Development with only preliminary to conceptual closure planning in place	N		allow	\$300,000				studies in the province of the control of the contr
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with at least 22 of the following aspects resulting in significant issues requiring remediation: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	N		allow	\$125,000				Includes costs for key investigations as studies including economic treatments and designs e.g. geochemistry. Contamination Remediation Action Plan, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provisional sum to be used to refine the conceptual closure plan in a detailed closure plan with execution strateries for rehabilitation activities Based on experience for a REF after
	Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works.	N		allow	\$27,950				completion of a detailed closure study (e.g. contamination investigation) costs could range from \$10,000 to \$100,000 ex GST. Note this does not apply to a Statement of Environmental Effects or Environmental Impact Statement.

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	Other 2 <insert></insert>	N			deliberately				This item includes < <to added="" be="" by="" operator="" the="">> This item includes <<to added="" be="" by<="" td=""></to></to>
Additional Items	Other 1 <insert></insert>	N			This is				This item includes < <to added="" be="" by="" operator="" the="">></to>
			Мо	bilisation an	d Demobilisat	ion Subtotal	\$35,000		
	Mobilisation & Demobilisation (Distance to site >1000 km)	N		item	\$500,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	N		item	\$300,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	N		item	\$150,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site <150 km)	N		item	\$100,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation for small mine or quarry - medium to large fleet	Y	1	Item	\$35,000		\$35,000		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry - small fleet	N		Item	\$12,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	public tando for fortabilitation fortionadation delivities					ms Subtotal	\$165,000		
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	N		allow	Use alternate rate cell				Provisional sum.
	Removal and disposal of radiation devices	N		each	\$31,630				Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i. Americium – 241, Plutonium – 238, Caesium - 137 etc). Source Isotope type, quantity, strengtl weight, source holder type, source holder weight, pick-up location (amon others) will directiv affect bricing.
	Choose type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	N		allow	\$0			Select type of HAZMAT Clean-up Required	Type of HAZMAT Clean-up required - cleaning and decontaminating plant a equipment, chemical storage location oil and grease traps, tanks, vessels, a pipe work etc
	Site security during closure	Y	1	yr.	\$75,000		\$75,000		Provisional sum for site security measures required during closure. T includes nightly patrols and first response in the event of an out of hol incident.

Domain 1b: Infrastructure

Total Cost for Infrastructure Domain

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

								Basis for Costs Estimation	
Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	and Additional Relevant Information	Description / Notes:
Termination of Services and Demolition Works	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	Y		allow	\$35,000		\$0		For disconnection of all services, at building boundaries, physical cut at the point of attachment or distribution location. If infrastructure is not consolidated (i.e., administration, camp and workshops are in separate places), consider multible disconnection fees.
	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	Y		allow	\$5,850		\$0		Used for infrastructure remote from primary connection. Can also be used for small mines / quarries that do not have dedicated supplies from supply authorities such as steel lattice power lines.
	Removal of low/medium voltage powerlines including disconnection, rolling up the wires and removing the poles - does not include the removal of	Y		km	\$15,000		\$0		Applies to power lines on stobie, concrete or similar poles.
	Removal of power lines on tower or lattice structures (this includes disconnection, rolling up the wires and removing the structures) - does not include the removal of substations	Y		km	\$100,000		\$0		Applies to power lines on steel tower and steel lattice structures assuming 3 towers / km.
	Remove small rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	Y		Item	\$350,000		\$0		Smaller structures - minimal civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
	Remove medium rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	Υ		Item	\$500,000		\$0		Medium structures - minimal civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
	Remove large / significant rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material onsite/locally	Υ		Item	\$1,300,000		\$0		Large structures - includes significant water management e.g. watercourse diversion and civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
	Demolish and/or remove substations (assumes they are in a closed building). Dispose of waste material on-site/locally	Y		m2	\$100.00		\$0		Simple structure to demolish mechanically (no labour required), assumes single story building with no asbestos and segregation of contents for scrao as applicable.
	Demolish and remove switchyard. Dispose of waste material on-site/locally	Υ		m2	\$75.00		\$0		Includes demolition and removal of all switchgear and transformers etc. and segregation of contents for scrap as applicable.
	Demolish and remove demountable structures on concrete stumps. Assumes not being re-used	Υ		m2	\$40.00		\$0		Crib huts, temporary offices and other 'non permanent' structures. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove small buildings/tanks (admin buildings, single story accommodation etc) and disposal on-site/locally	Y		m2	\$61.00		\$0		Simple structure to demolish, assumes no greater than 2 stories high. Does not include transport to regional disposal facility or equivalent. Needs to be calculated per floor/level
	Demolish and remove light industrial buildings and disposal on-site/locally	Y		m2/floor	\$90.00		\$0		(Assume 1 floor/level = 3-4 m) - does not include transport to regional disposal facility or equivalent. Assumes asbestos free and mechanically
	Demolish and remove industrial buildings (workshops tyre change and servicing area etc not CHPP/process plant) and disposal on-site/locally	Y		m2/floor	\$130.00		\$0		Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent. Needs to be calculated per floor/level
	Demolish and remove CHPP/process plant (include the area of each floor of the structure) and disposal on-site/locally Collapse, demolish and remove washery, crushers,	Υ		m2/floor	\$225.00		\$0		(Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	hoppers, mills, furnaces, agglomeration, electrowinning, floatation, sizing stations, rotary breakers, etc (include the area of each floor of the structure) and disposal on-site/locally	Y		m2/floor	\$225.00		\$0		Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove stacker OR reclaimer (radial or luffing etc. with maneuverability for stockpile control) and disposal on-site/locally	Υ		allow	\$750,000		\$0		Cost for removal of stacker or reclaim unit only. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove bucket wheel stacker/reclaimer and disposal on-site/locally	Y		allow	\$2,000,000		\$0		Cost for just removal of the bucket wheel stacker/reclaim units. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or
	Remove stacker/reclaimer rails and ballast and demolish and remove concrete footings etc and disposal on-site/locally	Y		m	\$75.00		\$0		Includes both rails, does not include the conveyor system. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove 5000T coal silo and disposal on-site/locally	Υ		allow	\$92,500		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove 3000 T coal silo and disposal on-site/locally	Y		allow	\$77,500		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove 1250 T coal silo and disposal on-site/locally	Υ		allow	\$62,500		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove rail loading bins and disposal on-site/locally	Υ		allow	\$65,000		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Demolish and Remove large concrete rail loading bin - and disposal on-site/locally	Y		allow	\$460,000		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove onground conveyors, transfer stations & gantries (scrap only – does not include dismantling for reuse at another site) and disposal on-site/locally	Υ		m	\$185.00		\$0		Estimate for on-ground conveyor including anything up to 10 m off the ground. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove elevated conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally	Y		m	\$295.00		\$0		Estimate for elevated conveyor up to ~10 m off the ground. Does not include transport to regional disposal facility or equivalent.

Demolish and remove overhead conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally.	Y		m	\$850	\$0	Estimate for overhead conveyor including conveyors that are >10 m off the ground that require a crane to remove. Does not include transport to
This may include small scale fixed material stacking infrastructure Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of	Y		m	\$150.00	\$0	regional disposal facility or equivalent. Due to no canopy or infrastructure
reclaim tunnel roof)	'			ψ130.00	40	attached. Assumes this area will be used for
Demolition of reclaim tunnel concrete (Assumes complete removal and dumping in mine pit void)	Y		m	\$950.00	\$0	another land-use that requires the structure to be dug up and re-buried somewhere else.
Demolition and removal of vent raise fans, electrical substation and winch and disposal on-site/locally	Y		allow	\$25,000	\$0	Does not include filling and capping the shaft. Does not include transport to regional disposal facility or equivalent.
Demolish and remove small tank clean (Thickener etc 3 - 9 m diameter) and disposal on-site/locally	Y		allow	\$10,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove medium tank clean (Thickener etc 10 - 15 m diameter) and disposal on- site/locally	Y		allow	\$30,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove large tank clean (Thickener etc 15 - 30 m diameter) and disposal on-site/locally	Y		allow	\$45,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove extra large tank clean (Thickener etc >30 m diameter) and disposal on- site/locally	Y		allow	\$100,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove tank clean (Thickener etc) >50 m diameter and disposal on-site/locally	Y		allow	\$100,000	\$0	Estimate only - may require a detailed assessment from demolition expert due to specialised equipment required for removal. Does not include transport to regional disposal facility or equivalent.
Removal of UG tank <5000 L - including pipes, bunds etc. and disposal on-site/locally	Y		allow	\$21,000	\$0	Assume tank is clean (contents removed), does not include transport to
Removal of UG tank 5000 L - 15000 L - including pipes, bunds etc. and disposal on-site/locally	Y		allow	\$30,000.00	\$0	regional disposal facility or equivalent. Assume tank is clean (contents removed), does not include transport to
Remove small underground pipe and disposal on- site/locally	Y		m	\$25.00	\$0	regional disposal facility or equivalent. For example: 300 mm pipes - 0.5 m deep, does not include transport to
Remove medium underground pipe and disposal on-	Y		m	\$60.00	\$0	regional disposal facility or equivalent. For example: 500 mm pipes - 1 m deep, does not include transport to regional
site/locally Remove large underground pipe and disposal on- site/locally	Y		m	\$165.00	\$0	disposal facility or equivalent. For example: 1 m pipes - 2 m deep.
Remove above ground pipe (supported) and disposal on-site/locally	Υ		m	\$12.00	\$0	~300 mm pipes and assumes pipes are in close proximity to infrastructure areas. Does not include transport to
Remove surface pipelines (unsupported) and disposal on-site/locally	Y		m	\$15	\$0	regional disposal facility or equivalent. –300 mm pipes and assumes pipes are used for water transfer between pits (or similar) and remotely located. Does not include transport to regional disposal facility or equivalent
Remove pump and pontoon from small lake or dam including pipes and electrical supply or diesel tank/s	Y		allow	\$20,000.00	\$0	Includes equipment for retrieval - boats, etc. and labour. Does not include transport to regional disposal facility or equivalent.
Remove bitumen (car park and access roads) and dispose on-site/locally	Y		m2	\$10.00	\$0	Scalp bitumen and stabilised material. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Remove bitumen (airstrip) and dispose on- site/locally	Y		m2	\$20.00	\$0	Scalp bitumen and stabilised material. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	Υ		m2	\$36.00	\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y		m2	\$75.00	\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Crush concrete to make road aggregate - 75 mm	Y		tonne	\$10.00	\$0	Does not include haulage of materials - assumes crushing plant is readily available.
Crush concrete to make road aggregate - 50 mm	Y		tonne	\$13.00	\$0	Does not include haulage of materials - assumes crushing plant is readily available.
Crush concrete to make road aggregate - 30 mm	Y		tonne	\$15.00	\$0	Does not include haulage of materials - assumes crushing plant is readily
Remove fence (cyclone/wire fence) and disposal on- site/locally	Υ		m	\$20.00	\$0	available. Roll up fence and remove posts.
Removal of small plastic tanks	Y		each	\$1,000.00	\$0	Remove small poly tanks used for water storage, etc.
Demolish and remove galvanised/corrugated light weight tanks	Y		each	\$500.00	\$0	 Demolish and remove small lightweight metal tanks. No costs included for managing liquids, etc.
Demolish and remove communication towers	Υ		each	\$5,000.00	\$0	Cost includes demolition and removal of tower only; separate costs required for disconnection of services, demolition of footings, etc.
Removal of UG services (power within main gate areas, etc.)	Y		allow	\$50,000.00	\$0	Assume service disconnection at the mine boundary is at surface level. This cost covers all fees and charges
Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km	Y		tonne	\$7.00	\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km	Y		tonne	\$9.00	\$0	type. Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km	Υ		tonne	\$12.50	\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
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Section of County of County (Section 1) Property (Section 1) P										
Section of Control and Contr		demolition / concrete / scrap metal) - haulage >10	Y		tonne	\$32.00		\$0		Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste
When desired Course and Processes The interface of the course of the co		demolition / concrete / scrap metal) - haulage >15	Y		tonne	\$36.00		\$0		Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste
Process of Section Section (1997) 1997		demolition / concrete / scrap metal) - haulage >25	Y		allow			\$0		Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to
Secretary of the control of the cont			Y		tonne	\$193.00		\$0		to local Council landfill; transport rates separate. Please note that this is not applicable to operations with approval for building and demolition waste
And information in the processing of the process			Y		tonne	\$174.00		\$0		Fee for waste disposal of industrial demolition / concrete / scrap metal waste to local Council landfill; transport rates separate. Rate does not assume material is recyclable. Please note that this is not applicable to operations with approval for building and demolition
Remote and take prediction and designation of the control of the c			Tern	nination of Se	ervices and D	emolition Wo	orks Subtotal	\$0		waste disposal on site.
Secure y to his blading functions and experience of the country of the recognition of the recognition of the recognition of the recognition of the country of the recognition of th	Rail Infrastructure	Pomovo rail loop and enur, ballact atc. and disposal								
Section of the control of the contro		on-site/locally								include transport to regional disposal facility or equivalent. Remove rail load point infrastructure
Contaminated Manifests Contaminated Particularly 2th interligation of the contaminated of the contaminate		site/locally Reshape rail spur and load out areas. Does not								structures. Does not include transport to regional disposal facility or equivalent. D10 Dozer and 16 H Grader (50%
Indicate a minimum a minimum an industry for the control of the co		include growth media and revegetation			R	ail Infrastruct	ture Subtotal	\$0		
at minimum as law selective and fellow comprising as per the National Contamination) Measure (NEPM) Place discussed in the comprising as per the National Contamination) Measure (NEPM) Place discussed in the contamination of the contaminatio	Contaminated Materials	This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple studies	Y		Cluster	\$15,000		\$0		include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) ((iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle refuel, sewage treatment, secondary ventered and chemical storage and disposal reatment, secondary ventered and sevented and sevente
at minimum as lee valsoore and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (FPA) Phase 2 intrusive investigation (FPA) Phase 2 intrusive investigation (FPA) Phase 3 intrusive investigation on sites with large footprints to investigate e.g15 ha. This accounts for current and historical footbrins where exhabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks) investigations should be included. The program of the program of the history of the program of the prog		with small footprints to investigate e.g. <15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive	Y		Cluster	\$44,000		\$0		at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around inreflective oil/water separators etc.) and further field work is required involving intrusive investigation. Assumes site is easily accessible and a small area e.g10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP.
small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances Develop a Remediation Action Plan on sites with large footprints based on outcomes of intrusive investigation including strategies to address Southamination exceedances Develop a Remediation Action Plan on sites with large footprints based on outcomes of intrusive investigation including strategies to address Southamination exceedances Removal and disposal of contaminated water from tanks, bunded areas and sumps Y L Southamination exceedances Y L Southamination exceedances Y L Southamination exceedances Select Hall Distance Mere		with large footprints to investigate e.g. >15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y		Cluster	\$106,000		\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assume site has a history of contamination and/or a large area >15 ha requires investigation and testing (test pits, borcholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and
large footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances Contamination exceedances Removal and disposal of contaminated water from tanks, bunded areas and sumps Y L So.35 So Select Hall Distance Mere		small footprints based on outcomes of intrusive investigation including strategies to address	Y		allow	\$35,000		\$0		including designs and detailed costs. Costs may increase if detailed designs
tanks, bunded areas and sumps L \$0.35 \$0 resource activity - requires specialists to treat treat Select Haul Distance Mere		large footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances			allow			\$0		drawings required for cover.
		tanks, bunded areas and sumps	Y		L	\$0.35		\$0	Select Haul Distance Here	resource activity - requires specialists to

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	Ixemove material (carbonaceous / metalliterous spillage or otherwise) from footprint of the process facility (leach pads) / stockpile area (ROM product) / roads and dump in a void on-site (Select Haul Distance from list)	Y		m3	Select from List				I his item includes scraping and removal of the volume of carbonaceous material using dozer, grader etc. to make safe an area and enable the establishment of rehabilitation.
	Load, cart and dispose of Hazardous classified contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill.	Y		m3	\$800.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	Y		m4	\$660.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m3 for cartage to regional landfill	Υ		m3	\$220.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	Υ		m3	Select from List			Select Volume Here	Spreading of contaminated soils on a prepared surface and stimulation of aerobic microbial activity within the soils through aeration and/or the addition of minerals, nutrients and moisture to promote the aerobic degradation of organic chemicals - time frame of up to 24 months.
	Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	Υ		Item	\$150,000		\$0		Required if treatment of hydrocarbon contamination is required to be fast tracked.
	On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	Υ		m3	\$165.00		\$0		Additional cost as the treatment process is fast tracked.
	Remove and dispose of asbestos (<750 m2)	Υ		m2	\$50.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos (>750 m2)	Υ		m2	\$40		\$0		Where an assessment/estimation has been made to confirm the volume of
	Waste disposal to Council landfill - fees (asbestos)	Υ		tonne	\$290		\$0		asbestos to be removed. Landfill fees to regional landfill. Assumes ASS is treatable via
	Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0		neutralisation and does not require capping and isolation. Assumes 1% by weight lime addition and treatment to 100 mm depth only.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.) Long haulage brine/salt for disposal (Select Haul	Υ		m2	\$1 Select from		\$0		Provisional sum for cutting using ripping tynes and on-site disposal of the liner. Costs for haulage to location for
	Distance from list)	Y		tonne	List			Select Haul Distance Here	authorised disposal. Rate for trackable liquid levy of \$78.20
	Brine disposal to landfill - fees only Long haulage water (clean or contaminated) (Select	Y		tonne	\$288 Select from		\$0		per tonne and authorised disposal to landfill. Assumes transport in a 20,000 L tanker.
	Haul Distance from list)	Y		tonne	List ninated Mater	ials Subtotal	\$0	Select Haul Distance Here	Add disposal costs to additional items
Vents, Shafts and Boreholes	Option 1 - Coal bore hole Exploration boreholes – rehabilitate coal boreholes and drill pads as required	Y		depth (m)	\$44.55		\$0		Cost to grout and cap an open exploration borehole. Assume a 20 m x 20 m drill pad requires rehabilitation - push cover of nearby growth media, rip and seed.
	Option 3 - Mineral RAB and aircore drill holes Exploration boreholes – backfill open Rotary Airblast (RAB) or aircore drill holes with cuttings	Υ		allow	\$43		\$0		May include cutting of casing, installation of a casing cap, and/or manually backfilling the hole with drill cuttings. Does not include reshaping / tripping the drill pad, amelioration /
	Option 2 - Mineral drill hole requiring grouting Exploration boreholes – grout and cap open bore holes	Y		allow	\$5,700		\$0		Includes grouting and capping 100 - 200 m exploration boreholes to meet the requirements of Departmental Guidelines.
	Boreholes – cap and seal open bore holes with steel casing (i.e., goaf drainage etc.)	Y		allow	\$6,960		\$0		Holes deeper than 100 m - includes cutting steel collar 6 m below surface, grouting and capping.
	Boreholes – cap and seal open bore holes - surface- to-in-seam gas drainage Boreholes – cap and seal open bore holes - vertical	Υ		allow	\$17,890		\$0		Surface-to-in-seam gas drainage boreholes.
	gas drainage Boreholes – grout (with concrete) cap and seal bore	Y		allow	\$16,000 \$35,000		\$0 \$0		Vertical gas drainage boreholes. Includes multi skin sleaves to prevent
	holes (i.e. where sealing aquifers) Boreholes – cap and seal service boreholes for UG	Υ		allow	\$45,000		\$0		aquifer mixing. Includes large diameter boreholes used for supplying electricity (66kV),
	coal operations Option 4 - Mineral diamond drill hole Rehabilitation of diamond drill holes and pad including sealing drill holes for mineral exploration	Y		Item	\$2,070		\$0		compressed air, water, solsenic etc. Bog out cuttings, remove fencing, remove rubbish, push sumps in, rehabilitate pads and tracks, cut and plug collars. Includes labour and equipment, disposal of rubbish locally
	Option 5 - Mineral reverse circulation drill holes Rehabilitation of reverse circulation drill holes and pad including sealing drill holes for mineral	Υ		Item	\$1,340		\$0		on site Sealing required, but not complete filling with concrete/grout
	exploration Option 6 - Rehabilitation of drill hole collars Rehabilitation of drill hole collars (mineral exploration)	Y		each	\$415		\$0		Cut collar, remove, cap, backfill capped collar and cover with nearby organic or growth material
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor	Y	l		s and Boreho \$1,040.00	oles Subtotal	\$0		Assumes ~6 m road width - 16H
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds –	Y		ha ha	\$1,040.00		\$0 \$0		Grader. D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed	Y		ha	\$3,700		\$0		utilisation) - no seed D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	(pasture grass) Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and	Υ		ha	\$4,485		\$0		utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pative tree/shub seed
	seed (native tree/shrub/grass) Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Υ		m3	Select from List			Select Haul Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or other surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
Earthworks / Structural Works	L			R	oads and Tra	cks Subtotal	\$0	Select Push Length Here	Major bulk pushing to achieve grades
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List				nominated in the approval/permit
	Minor reshaping and pushing	Υ		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Fill dame voide atc - Source local material cart							Select Haul Distance Here	This item includes the volume of

Ì	i ili ualiis, vulus etc suulce lucal iliateilai, cart	ī	i	i		ı	İ		material requiring backfill using an
	and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	Select from List				excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Deep rip hard stand / lay down areas	Y		ha	\$960.00		\$0		D10 deep ripping.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be
	E	arthworks / S	Structural Wo	rks (Landforr	n Establishm	ent) Subtotal	\$0		sourced off site, assume an additional
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Planting mature trees (>15 cm)	Y		allow	\$15.00		\$0		4 m centres.
	Planting tube stock (<15 cm)	Y		allow	\$6.60		\$0		4 m centres. Includes treating, weighing, mixing with
	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Process to be used on flat well prepared
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges fron \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		stability. This cost includes cover crop only. additional seeding required. Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha This cost includes cover crop only,
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/h minimum. This cost includes cover croonly, additional seeding required.
	Single application of fertiliser (pasture)	Y		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc. this is a suitable standard rate.
	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the la few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	Y		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y		m	\$13.00		\$0		Standard rate for standard stock fencing.
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safet signs for the occupational environment installed every 25 m. D7 to spread material at \$205/hr,
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allo nominal rate of \$70/m3 for imported fill material.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allo nominal rate of \$60/m3 for imported fill
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where
	Growth media supplementation with manure	Υ		ha	\$747.50		\$0		necessary. Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Υ		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to
	Land Preparation and Revegetation (Gro	wth Media De	evelopment a	nd Ecosyster	n Establishm	ent) Subtotal	\$0		hydromulching.
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate da batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0	Colors West Dist	Provisional sum for earthworks and revegetation required to rehabilitate dai batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
	Removal of evaporation fans and/or other water transfer and management infrastructure	Y		allow	\$25,000	nont Cubini	\$0 \$0		Provisional sum for removal of water management infrastructure.
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	ster Managen \$925	nent Subtotal	\$0		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		maior repair works. Areas requiring minor repair - rills, minor growth media replacement.
			_						or grower media repidcement.

Total Cost fo		\$0					
				Additional Ite	ms Subtotal	\$0	
		Mainte	enance of Rel	habilitated Ar	eas Subtotal	\$0	
Existing rehabilitation repair - total failure of landform	Υ		ha	\$40,000		\$0	Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
Existing rehabilitation repair - major	Y		ha	\$2,500		\$0	Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
Existing rehabilitation repair - moderate	Υ		ha	\$1,700		\$0	Areas requiring moderate repair - rills, significant growth media replacement.

Domain 2b: Tailings & Rejects

Total Cost for Tailings & Rejects Domain

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant	Description / Notes:
Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are dustered. If there are multiple cluster areas on site, multiple studies may be required.	Y		Cluster	\$15,000	Ont Kare	\$0	Information	Interprenementary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (w)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., or and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle refuel, sewage treatment, secondary
	Undertake an intrusive site investigation on sites with small footprints to investigate e.g. s15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y		Cluster	\$44,000		\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assumes site is easily accessible and a small area e.g10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP.
	Undertake an intrusive site investigation on sites with large footprints to investigate e.g. >15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y		Cluster	\$106,000		\$0		Analysis Quality Plan. Includes SAQIP. The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assume site has a history of contamination and/or a large area >15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and
	small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances Develop a Remediation Action Plan on sites with large footprints based on outcomes of intrusive	Y		allow	\$35,000 Use alternate		\$0 \$0		including designs and detailed costs. Costs may increase if detailed designs required for construction. Assumes complex site; detailed design
	investigation including strategies to address contamination exceedances Removal and disposal of contaminated water from				rate cell				drawings required for cover. Cost for recent sump clean-up from
	tanks, bunded areas and sumps Remove material (carbonaceous / metailiferous spillage or otherwise) from footprint of the process	Y		L m3	\$0.35 Select from		\$0	Select Haul Distance Here	resource activity - requires specialists to treat. This item includes scraping and removal of the volume of carbonaceous material
	facility (leach pads) / stockpile area (ROM product) / Load, cart and dispose of Hazardous classified contaminated material off site to a licensed landfill.	Υ		m3	List \$800.00		\$0		using dozer, grader etc. to make safe an Includes load, haul and dump fees to a licensed facility.
	Assumes cartage to a licensed landfill. Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	Y		m4	\$660.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m3 for cartage to regional landfill	Υ		m3	\$220.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	у		m3	Select from List			Select Volume Here	Spreading of contaminated soils on a prepared surface and stimulation of aerobic microbial activity within the soils through aeration and/or the addition of minerals, nutrients and moisture to promote the aerobic degradation of organic chemicals - time frame of up to 24 months.
	Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	Y		Item	\$150,000		\$0		Required if treatment of hydrocarbon contamination is required to be fast tracked.
	On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	Υ		m3	\$165.00		\$0		Additional cost as the treatment process is fast tracked.

									Where an assessment/estimation has
	Remove and dispose of asbestos (<750 m2)	Y		m2	\$50.00		\$0		been made to confirm the volume of asbestos to be removed. Where an assessment/estimation has
	Remove and dispose of asbestos (>750 m2)	Υ		m2	\$40.00		\$0		been made to confirm the volume of asbestos to be removed.
	Waste disposal to Council landfill - fees (asbestos)	Y		Contan	\$290 ninated Mater	ials Subtotal	\$0 \$0		Landfill fees to regional landfill.
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor	Y		ha	\$1,040.00	aro oubtotar	\$0		Assumes ~6 m road width - 16H
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds –	Y		ha	\$1,500		\$0		Grader. D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed	Υ		ha	\$3,700		\$0		utilisation) - no seed D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	(pasture grass) Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and	Y		ha	\$4,485		\$0		utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	seed (native tree/shrub/grass) Unsealed roads / haul roads / vehicle park-up areas			110	\$1,100				utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 16 H
	with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass) Unsealed roads / haul roads / vehicle park-up areas	Y		ha	\$4,870		\$0		grader @ \$230 per hour (50% utilisation) - pasture grass seed
	with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Υ		ha	\$7,025		\$0	Select Haul Distance Here	D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y		m3	Select from List			Select Hauf Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or oth surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
	E	arthworks / S	tructural Wo	rks (Landforn	n Establishme	ent) Subtotal	\$0		TOTAL STREET
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in				Select from			Select Push Length Here	Major bulk pushing to achieve grades nominated in the approval/permit
(Landisini Lotabiloinion)	the approval/permit – Select Push Length	Y		m3	List				
	Minor reshaping and pushing	Υ		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation). This item includes the volume of
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	у		m3	Select from List			Select Haul Distance Here	material requiring backfill using an excavator and scraper to fill the void ar enable the establishment of
	Trim, rock rake & deep rip (includes levelling /								rehabilitation. Undertaken using D10 dozer and 16M
	landscaping and rip in 1 direction) Structural works, banks, waterways - contour banks, drainage channels and other soil conservation	Y		ha ha	\$1,130.00 \$1,600		\$0 \$0		grader. Combination of dozer and excavator work plus grader for ~4 hours each per
	measures	·		110	\$1,000		40		ha. Installation of on-site rock material (rip-
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		rap) where managing water run-off fror disturbed land and/or upon entry to water courses - prevents erosion of gul head (assumes competent material is locally available). If required to be sourced off site. assume an additional
Mine Waste	E	arthworks / S	tructural Wo	rks (Landforn	n Establishme	ent) Subtotal	\$0		THIS INCHORES SOURCE LEADING.
	Ideal Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with little chemical reactivity (no to low risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD)/ Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required)	Y		ha	\$82,000		\$0		assumes suitable capping material is available on site within 10 km, and an average cap thickness of approximately 0.5 m to 1 mand 0.15 m - 0.2 m growmedia (assume at least 1 m thick cove required for carbonaceous material covers). Water quality from runoff, seepage etc. meets site-specific environment water quality values. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for this distance in 8.05 (spreading costs for this distance in 8.05 (spreading costs for other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long spreading in additional to any long spreading in additional to any long
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric composite lining etc.). This item includes sourcing, carting,
	Efficient Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (low to medium risk Potential Acid Forming (PAF) / Neutral Mine Drainage (MMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y		ha	\$146,500		\$0		Inside the control of

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	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric /
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		composite lining etc.). Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric /
	Adverse Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (medium to high risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) Saline Mine Drainage (SMD) and/or moderate to high propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y		ha	\$313,000		\$0		composite lining etc.). This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities of high geochemical risk, and / or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping material/s are available on site within 10 km, and an average cap thickness of approximately >2 m + growth media up to 0.2 m depth. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g., acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for felevant haulage and
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric /
	Difficult Tailings Capping- reshaping, capping / sealing of weak or soft surfaced tailings facility with poor physical properties (significantly hydrophilic, low shear strength limits equipment choice greatly, artificial strengthening required) OR visible adverse impacts on legacy sites from chemical reactivity over lengthy exposure prior to rehabilitation	Υ		ha	\$843,000		\$0		composite lining etc.) This option is typically inven by time constraints and/or when tailings properties significantly restrict adequate desiccation, resulting in a tailings shear strength that is very weak excluding access by conventional small plant. Small equipment used for rehabilitation. This excludes any additional material required to form the final landform profile in addition to this cap. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttess or other works aside from taillings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.). Capping/cover material available within
	capping/covers, removal of contamination, etc.	Υ		m3	Select from List		PA.	Select Haul Distance Here	Capping/cover material available within 50 km round trip e.g. waste / overburden
Land Preparation and		l	l		Mine Wa	ste Subtotal	\$0	Select Haul Distance Here	If topsoil is not available on-site, then
Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	у		m3	Select from List				Virgin Excavated Natural Material (VENM) may need to be externally sourced. Includes treating, weighing, mixing with
	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Υ		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Process to be used on flat well prepared
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00 Process to be used on flat well prepared
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and inout variables. Pasture seed +\$0.10 Assumes use on flat areas with a
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Υ		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required. Assumes use on steep areas where
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required. Assumes use on extreme slopes where
	Hydromulch - high performance flexible growth medium grade	Υ		m2	\$2.50		\$0		stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.
	Single application of fertiliser (pasture)	Υ		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc)

	Total Cost for 1	\$0	\$0						
Maintenance of Rehabilitated Areas Subtotal Additional Items Subtotal									
	Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0 \$0		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - moderate	Υ		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills,
	Existing rehabilitation repair - minor	Υ		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include maior repair works.
				Wa	ter Managem	ent Subtotal	\$0		
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dan batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dar batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass.
	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosysten	n Establishm	ent) Subtotal	\$0		
	Utilise biotic soil media - organic topsoil alternative	Υ		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Topsoil stripping	Υ		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allov nominal rate of \$60/m3 for imported fill
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		D7 to spread material at \$205/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allov nominal rate of \$70/m3 for imported fill material.
	Purchase and erect warning signs	Υ		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safet signs for the occupational environment installed every 25 m.
	Construct standard stock fence around rehabilitated areas	Υ		m	\$13.00		\$0		Standard rate for standard stock fencing.
	Construct no-climb stock fence around rehabilitated areas	Υ		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	growth media amelioration with biosolids	Υ		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Spoil amelioration (adding lime / gypsum etc.)	Υ		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the la- few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.

Total Cost for Overburden & Waste Domain

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Contaminated Materials	Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0		Assumes ASS is treatable via neutralisation and does not require capping and isolation. Assumes 1% by weight lime addition and treatment to 100 mm deoth only.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	Υ		m2	\$1		\$0		Provisional sum for cutting using ripping tynes and on-site disposal of the liner.
	Long haulage brine/salt for disposal (Select Haul Distance from list)	Υ		tonne	Select from List			Select Haul Distance Here	Costs for haulage to location for authorised disposal.
	Brine disposal to landfill - fees only	Υ		tonne	\$288		\$0		Rate for trackable liquid levy of \$78.20 per tonne and authorised disposal to
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Υ		tonne	Select from List			Select Haul Distance Here	landfill. Assumes transport in a 20,000 L tanker. Add disposal costs to additional items
				Contan	ninated Mater	ials Subtotal	\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Grader.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor	Y		ha	\$1,500		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - no seed D10 Dozer @ \$400 per hour and 16 H
	earthworks, final trim and deep rip and seed (pasture grass) Unsealed roads / vehicle park-up areas – Minor	Y		ha	\$3,700		\$0		grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 H
	earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass) Unsealed roads / haul roads / vehicle park-up areas	Y		ha	\$4,485		\$0		grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally	Y		m3	Select from			Select Haul Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or other surface using an excavator, dozer and
	(Select Haul Distance from list)								grader to enable the establishment of rehabilitation.
Earthworks / Structural Works		ı		R	oads and Tra	cks Subtotal	\$0	Select Push Length Here	
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List			Select Fush Length Here	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Υ		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional
Mine Waste	T E	arthworks / S	tructural Wo	rks (Landforr	n Establishme	ent) Subtotal	\$0		rnia includes sourcing, carting,
	Ideal Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with little chemical reactivity (no to low risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity or spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required)	Y		ha	\$82,000		\$0		spreading, moisture conditioning and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness of approximately 0.5 m to 1 mand 0.15 m - 0.2 m growth media (assume at least 1 m thick cover required for carbonaceous material covers). Water quality from runoff, seepage etc. meets site-specific environment water quality values. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).

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	Efficient Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (low to medium risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NIMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y		ha	\$146,500		\$0		This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities where the tailings or rejects base is at a strength that enables economically efficient construction methods with small plant. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness constructed in 1 m layers + growth media up to 0.2 m depth. This may require additional materials (such as capillary breaks, geofabric, etc.) - use alternate rate cells below, specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised/additional materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		soreadina in additional to any long Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Adverse Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (medium to high risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) sadror moderate to high propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y		ha	\$313,000		\$0		This tem includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities of high geochemical risk, and / or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping materials/a ser available on site within 10 km, and an average cap thickness of approximately > 2m + growth media up to 0.2 m depth. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., i.oad / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material in cruske up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and Include additional cost to import
	/ sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.). Include additional cost to import
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.). This option is typically driven by time
	Difficult Tailings Capping- reshaping, capping / sealing of weak or soft surfaced tailings facility with poor physical properties (significantly hydrophilic, low shear strength limits equipment choice greatly, artificial strengthening required) OR visible adverse impacts on legacy sites from chemical reactivity over lengthy exposure prior to rehabilitation	Y		ha	\$843,000		\$0		constraints and/or when tailings properties significantly restrict adequate desiccation, resulting in a tailings shear strength that is very weak excluding access by conventional small plant. Small equipment used for rehabilitation. This excludes any additional material required to form the final landform profile in addition to this cap. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional profiles.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values. Long haulage soil / weathered rock / sediment e.g.	Y		allow m3	Use alternate rate cell		\$0	Select Haul Distance Here	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.). Capping/cover material available within
	capping/covers, removal of contamination, etc.			III3	List Mine Wa	ste Subtotal	\$0	Gelect ridui Distance Here	50 km round trip e.g. waste / overburden
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Planting mature trees (>15 cm) Planting tube stock (<15 cm)	Y		allow allow	\$15.00 \$6.60		\$0 \$0		4 m centres. 4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Υ		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or
I	(FEEE 3 grade opened)		J		,		**		helicopter (aerial seeding).

	Direct seeding / fertiliser (tree or native grass species)	Υ		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		helicopter (aerial seeding). Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Υ		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop not additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover croponly, additional seeding required.
	Single application of fertiliser (pasture)	Υ		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Single application of fertiliser (trees)	Υ		ha	\$140.00		\$0		These rates have fluctuated over the las few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Υ		ha	\$1,000		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Υ		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	Υ		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Υ		m	\$13.00		\$0		Standard rate for standard stock fencing.
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Υ		m3	\$80.80		\$0		installed every 25 m. D7 to spread material at \$205/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allov nominal rate of \$70/m3 for imported fill material.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allov nominal rate of \$60/m3 for imported fill
	Clearing and grubbing of trees and vegetation	Υ		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation
	Topsoil stripping	Υ		m3	\$4.86		\$0		growth e.g. regrowth Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
	Growth media supplementation with manure	Υ		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Υ		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
	Land Preparation and Revegetation (Gro	wth Media De	velopment ar	nd Ecosysten	n Establishme	ent) Subtotal	\$0		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Υ		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dan batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dan batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List		50	Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
Maintenance of Rehabilitated			I	Wa	ater Managem	nent Subtotal	\$0		Rehabilitation maintenance might
Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills,
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		minor growth media replacement. Areas requiring moderate repair - rills,
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills, gullies, growth media replacement,
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		some level of additional surface water management. Areas that require extensive
	Existing rehabilitation repair - total failure of landform	Υ]	ha	\$40,000		\$0		rehabilitation repair - re-design and re- construction of landform.
			Mainte		habilitated Ar		\$0		construction of Idilulonii.
					Additional Ite	ems Subtotal	\$0		
	Total Cost for O	verburd	ien & W	aste Do	omain			\$0	

Domain 4b: Active Mine & Voids

Total Cost for Active Mine & Voids Domain

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Open Cut	Active pit area – benches blasted and doze to acceptable grade	Υ		Lm	\$1.93		\$0	mormation	Blasting in a 8x9 pattern of bench height 25 m with D11 push of 50-75 m.
	Drill & blast faces to make safe	Y		m3	\$0.95		\$0		Bulk Drilling say 8'9 pattern, assuming a stem height of 6 m, charge length of 19 m, explosive density of 0.9, diameter of 229 mm, explosives at 665.3 kg/hole with a powder factor of 0.37 with an approximate bench height of 25 m.
	High wall treatment – (trench and safety berm)	Y		m	\$90.00		\$0		D10 dozer, 16H Grader and revegetation with pasture grass.
Earthworks / Structural Works	T			ı	Open	Cut Subtotal	\$0	Select Push Length Here	
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List			Select Fusii Lengtii Nele	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Υ		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. This rate is used to rehabilitate steep
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Structural works, banks, waterways - contour banks,	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader. Combination of dozer and excavator
	drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		work plus grader for ~4 hours each per ha. Installation of on-site rock material (rip-
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be
	E	arthworks / S	tructural Wo	rks (Landforr	n Establishm	ent) Subtotal	\$0		sourced off site, assume an additional
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Planting mature trees (>15 cm)	Y		allow	\$15.00		\$0		4 m centres.
	Planting tube stock (<15 cm)	Y		allow	\$6.60		\$0		4 m centres. Includes treating, weighing, mixing with
	Direct seeding / fertiliser (pasture grass species) Direct seeding / fertiliser (tree or native grass	Y		ha	\$1,875		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with
	species)	Y		ha	\$4,135		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Υ		m2	\$1.90		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Υ		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only additional seeding required
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only. additional seeding required. Assumes 250 kg / ha. These rates have
	Single application of fertiliser (pasture)	Υ		ha	\$420.00		\$0		fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Single application of fertiliser (trees)	Υ		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Security fence around steep section of high wall	Y		m	\$64.00		\$0		1800mm x 3 barb chain-link mesh security fence and gate standard 2.5mm mesh & 32 mm post not concreted
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill
	Clearing and grubbing of trees and vegetation	Υ		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth

Total Cost for Active Mine & Voids Domain							\$0		
					Additional Ite	ms Subtotal	\$0		
	Maintenance of Rehabilitated Areas Subtotal								construction of landform.
	Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0		management. Areas that require extensive rehabilitation repair - re-design and re
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface wate
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills significant growth media replacement
	Existing rehabilitation repair - minor	Υ		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		Rehabilitation maintenance might include re-seeding, watering, fertilisin minor re-shaping, erosion control, inspections/audits - does not include maior repair works.
				Wa	ter Managem	ent Subtotal	\$0		
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Υ		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck an dozer to clean out the dam.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate d batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Υ		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate c batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasturarass.
	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosyster	n Establishme	ent) Subtotal	\$0		Invarontaiching.
	Utilise biotic soil media - organic topsoil alternative	Υ		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior t hydromulching.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load at haul to final rehabilitation location required or respreading where necessary.

Domain 5b: Management Activities

Total Cost for Management Activities

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	•

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Water Management	On-site treatment of contaminated water due to high salt (includes removal of metals etc, brine disposal and cost of mobile water treatment unit)	Υ		ML	\$3,600		\$0	cmaicn	Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
	On-site treatment of contaminated water due to low pH (incudes removal of metals etc, neutralisation treatments and cost of mobile water treatment unit	Υ		ML	\$1,500		\$0		Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
Creek Diversions				Wa	ater Managem	ent Subtotal	\$0		Assumes material is suitable for
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion Long term maintenance of water course diversion –	Y		m	\$2,500		\$0		revegetating and has a reasonable chance of stabilising. Assumes maintenance has been kept up
	Channel constructed through backfilled material	Y		m	\$1,500		\$0		and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	Y		m	\$750.00		\$0		Assumes maintenance has been kept up and significant works are not required.
	Installation of rock armouring	Υ		m2	\$6.00		\$0		Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
					Creek Diversi	ons Subtotal	\$0		
Maintenance of Rehabilitated Areas	Pest management on buffer lands, non-disturbed, and rehabilitated areas	Υ		ha	\$150.00		\$0		Feral animal baiting programs if required and waste materials required to be removed.
	Land management of undisturbed areas (rehabilitation, weeds, ferals, erosion and sediment control works)	Υ		ha	\$400.00		\$0		Undisturbed areas within the lease boundary that require land managemen activities.
	CONTROL WORKS)		Mainte	enance of Re	habilitated Ar	eas Subtotal	\$0		activities.
Heritage Items	The restoration and care and maintenance of items that have heritage significance	Υ		allow	Use alternate rate cell		\$0		Item for the redistribution of Aboriginal artefacts, preservation of European heritage items or a combination of
					Horitago Ita	ems Subtotal	\$0		activities.
Sundry Items	Development of an 'Unplanned' Project Closure Plan - State Significant Development with closure planning well progressed i.e. preferred cover design, closure environment modelled e.g. groundwater //subsidence/ plt lakes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	Υ		allow	\$100,000		\$0		Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assumes outcomes of studies readily available including modelling, landform design, geochemistry, demolition, etc. Costs to finalise options by domain and finalise designs for construction. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, finand use requirements and knowledge base investigations can range from ~\$75k to ~\$1 M.
	Development of an 'Unplanned' Project Closure Plan Non State Significant Development with at least ±2 of the following aspects requiring closure planning, but no significant issues realised at this time: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	Y		allow	\$90,000		\$0		Provisional sum to be used to refline the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Estimated cost for developing closure plan including studies - basic to satisfy risks and decisions - includes risk assessment, options analysis, Closure Plan. Sites with more than 1 pit to add
	Development of an 'Unplanned' Project Closure Plan Non State Significant Development with no EPL and/or only one of the following relevant aspects: previous subsidence, low to medium geochemistry risk and/or spontaneous combustion propensity, known limited contamination, small approved final void	Υ		allow	\$15,000		\$0		S50,000 to rate. Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Includer risk assessment, sampling and analyse on <5 samples, one study and Closure Plan.
	Development of an 'Unplanned' Project Closure Plan - State Significant Development with only preliminary to conceptual closure planning in place	Y		allow	\$300,000		\$0		Includes costs for key investigations and studies including designs e.g. geochemistry, Contamination Remediation Action Plans, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provisions sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assume at least 15 types of studies required ranging from geotechnical to ecology and social, development of a closure plan including address of obligations. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, final and use requirements and knowledge base investigations can range to >S3 M Sites with more than 1 pit to add
	Development of an 'Unplanned' Project Closure Plan Non State Significant Development with at least ≥2 of the following aspects resulting in significant issues requiring remediation: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	Y		allow	\$125,000		\$0		Includes costs for key investigations an studies including economic treatments and designs e.g. geochemistry. Contamination Remediation Action Plan, subsidence risk, cover(capping and final landform, site wide surface water, etc. Provisional sum to be used to refine the conceptual closure plan int a detailed diosure plan with execution strategies for exhabilitation activities Based on experience for a REF after completion of a detailed closure study
	Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works.	Y		allow	\$27,950		\$0		(e.g. contamination investigation) costs could range from \$10,000 to \$100,000 ex GST. Note this does not apply to a Statement of Environmental Effects or Environmental Impact Statement.

	Total Cost for	Mana	nement Activi	ties			\$0	
				Additional Ite	ems Subtotal	\$0		
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Additional Items			Mobilisation a	1	tion Subtotal	ŞU		This item includes < <to added="" be="" by<="" td=""></to>
	>1000 km)		Marketina			\$0		execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site	Υ	item	\$500,000		\$0		May include specialist demolition equipment and/or suitable plant to
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	Y	item	\$300,000		\$0		equipment and/or suitable plant to execute bulk earthworks as required.
	km but <500 km)	T	item	\$150,000		\$0		equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition
	Mobilisation & Demobilisation (Distance to site >150	Y	14	6450.000		**		May include specialist demolition
	Mobilisation & Demobilisation (Distance to site <150 km)	Y	item	\$100,000		\$0		May include specialist demolition equipment and/or suitable plant to
	Mobilisation & Demobilisation for small mine or quarry - medium to large fleet	Υ	Item	\$35,000		\$0		equipment and/or suitable plant to execute bulk earthworks as required.
	quarry - small fleet	Y	Item	\$12,000		\$0		equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition
Mobilisation and Demobilisatio	Mobilisation & Demobilisation for small mine or							May include specialist demolition
	public larius for renabilitation/renieulation activities				ems Subtotal	\$0		
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Υ	allow	Use alternate rate cell		\$0		Provisional sum.
								holder weight, pick-up location (amounthers) will directly affect pricing
								weight, source holder type, source
	Removal and disposal of radiation devices	Y	each	\$31,630		\$0		Caesium - 137 etc). Source Isotope type, quantity, streng
								conveyors using a radiation source (i Americium – 241, Plutonium – 238,
								Provisional sum for removal and disposal of monitoring devices on
	tanks, vessels, and pipe work etc						Clean-up Required	oil and grease traps, tanks, vessels,
	cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps,	Υ	allow	\$0		\$0	Select type of HAZMAT Clean-up Required	cleaning and decontaminating plant a equipment, chemical storage location
	Choose type of HAZMAT Clean-up required -							Type of HAZMAT Clean-up required -
								response in the event of an out of hou incident.
	Site security during closure	Υ	yr.	\$75,000		\$0		includes nightly patrols and first
								Provisional sum for site security measures required during closure. The

Domain 1c: Infrastructure

Total Cost for Infrastructure Domain

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y	Quantity	Unit	Default Unit	Alternative	Total Cost	Basis for Costs Estimation and Additional Relevant	Description / Notes:
Termination of Services and		or N)	·		Rate	Unit Rate		Information	For disconnection of all services, at
Demolition Works	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	Y		allow	\$35,000		\$0		building boundaries, physical cut at the point of attachment or distribution location. If infrastructure is not consolidated (i.e., administration, camp and workshops are in separate places), consider multiple disconnection fees.
	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	Y		allow	\$5,850		\$0		Used for infrastructure remote from primary connection. Can also be used for small mines / quarries that do not have dedicated supplies from supply authorities such as steel lattice power lines.
	Removal of low/medium voltage powerlines including disconnection, rolling up the wires and removing the poles - does not include the removal of	Y		km	\$15,000		\$0		Applies to power lines on stobie, concrete or similar poles.
	Removal of power lines on tower or lattice structures (this includes disconnection, rolling up the wires and removing the structures) - does not include the removal of substations	Υ		km	\$100,000		\$0		Applies to power lines on steel tower and steel lattice structures assuming 3 towers / km.
	Remove small rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	Υ		Item	\$350,000		\$0		Smaller structures - minimal civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
	Remove medium rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	Υ		Item	\$500,000		\$0		Medium structures - minimal civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
	Remove large / significant rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material onsite/locally	Υ		Item	\$1,300,000		\$0		Large structures - includes significant water management e.g. watercourse diversion and civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or
	Demolish and/or remove substations (assumes they are in a closed building). Dispose of waste material on-site/locally	Υ		m2	\$100.00		\$0		Simple structure to demolish mechanically (no labour required), assumes single story building with no asbestos and segregation of contents for scrap as applicable.
	Demolish and remove switchyard. Dispose of waste material on-site/locally	Υ		m2	\$75.00		\$0		Includes demolition and removal of all switchgear and transformers etc. and segregation of contents for scrap as applicable.
	Demolish and remove demountable structures on concrete stumps. Assumes not being re-used	Y		m2	\$40.00		\$0		Crib huts, temporary offices and other 'non permanent' structures. Does not include transport to regional disposal facility or equivalent. Simple structure to demolish, assumes
	Demolish and remove small buildings/tanks (admin buildings, single story accommodation etc) and disposal on-site/locally	Y		m2	\$61.00		\$0		no greater than 2 stories high. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove light industrial buildings and disposal on-site/locally	Υ		m2/floor	\$90.00		\$0		Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m) - does not include transport to regional disposal facility or equivalent. Assumes asbestos free and mechanically Needs to be calculated per floor/level
	Demolish and remove industrial buildings (workshops tyre change and servicing area etc not CHPP/process plant) and disposal on-site/locally	Y		m2/floor	\$130.00		\$0		(Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	Demolish and remove CHPP/process plant (include the area of each floor of the structure) and disposal on-site/locally	Y		m2/floor	\$225.00		\$0		Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove washery, crushers, hoppers, mills, furnaces, agglomeration, electrowinning, floatation, sizing stations, rotary breakers, etc (include the area of each floor of the structure) and disposal on-site/locally	Υ		m2/floor	\$225.00		\$0		Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove stacker OR reclaimer (radial or luffing etc. with maneuverability for stockpile control) and disposal on-site/locally	Y		allow	\$750,000		\$0		Cost for removal of stacker or reclaim unit only. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove bucket wheel stacker/reclaimer and disposal on-site/locally	Y		allow	\$2,000,000		\$0		Cost for just removal of the bucket wheel stacker/reclaim units. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or
	Remove stacker/reclaimer rails and ballast and demolish and remove concrete footings etc and disposal on-site/locally	Y		m	\$75.00		\$0		Includes both rails, does not include the conveyor system. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove 5000T coal silo and disposal on-site/locally	Y		allow	\$92,500		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove 3000 T coal silo and disposal on-site/locally	Υ		allow	\$77,500		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove 1250 T coal silo and disposal on-site/locally	Y		allow	\$62,500		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove rail loading bins and disposal on-site/locally	Y		allow	\$65,000		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Demolish and Remove large concrete rail loading bin - and disposal on-site/locally	Y		allow	\$460,000		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove onground conveyors, transfer stations & gantries (scrap only – does not include dismantling for reuse at another site) and disposal on-site/locally Demolish and remove elevated conveyors, transfer	Υ		m	\$185.00		\$0		Estimate for on-ground conveyor including anything up to 10 m off the ground. Does not include transport to regional disposal facility or equivalent. Estimate for elevated conveyor up to
	Demoilsh and remove elevated conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally	Y		m	\$295.00		\$0		Estimate for elevated conveyor up to ~10 m off the ground. Does not include transport to regional disposal facility or equivalent.

D-m-lish and areas						-
Demolish and remove overhead conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally.	Y		m	\$850	 \$0	Estimate for overhead conveyor including conveyors that are >10 m off the ground that require a crane to remove. Does not include transport to
This may include small scale fixed material stacking infrastructure. Remove and demolish conveyor from reclaim tunnel						regional disposal facility or equivalent.
(Does not include excavation and demolition of reclaim tunnel roof)	Y		m	\$150.00	\$0	Due to no canopy or infrastructure attached.
Demolition of reclaim tunnel concrete (Assumes complete removal and dumping in mine pit void)	Y		m	\$950.00	\$0	Assumes this area will be used for another land-use that requires the structure to be dug up and re-buried somewhere else.
Demolition and removal of vent raise fans, electrical substation and winch and disposal on-site/locally	Υ		allow	\$25,000	\$0	Does not include filling and capping the shaft. Does not include transport to regional disposal facility or equivalent.
Demolish and remove small tank clean (Thickener etc 3 - 9 m diameter) and disposal on-site/locally	Υ		allow	\$10,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to
Demolish and remove medium tank clean (Thickener etc 10 - 15 m diameter) and disposal on- site/locally	Y		allow	\$30,000	\$0	regional disposal facility or equivalent. Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove large tank clean (Thickener etc 15 - 30 m diameter) and disposal on-site/locally	Υ		allow	\$45,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove extra large tank clean (Thickener etc >30 m diameter) and disposal on- site/locally	Y		allow	\$100,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove tank clean (Thickener etc) >50 m diameter and disposal on-site/locally	Y		allow	\$100,000	\$0	Estimate only - may require a detailed assessment from demolition expert due to specialised equipment required for removal. Does not include transport to regional disposal facility or equivalent.
Removal of UG tank <5000 L - including pipes, bunds etc. and disposal on-site/locally	Y		allow	\$21,000	\$0	Assume tank is clean (contents removed), does not include transport to regional disposal facility or equivalent.
Removal of UG tank 5000 L - 15000 L - including pipes, bunds etc. and disposal on-site/locally	Υ		allow	\$30,000.00	\$0	Assume tank is clean (contents removed), does not include transport to
Remove small underground pipe and disposal on-	Y		m	\$25.00	\$0	regional disposal facility or equivalent. For example: 300 mm pipes - 0.5 m deep, does not include transport to
site/locally Remove medium underground pipe and disposal on-						regional disposal facility or equivalent. For example: 500 mm pipes - 1 m deep,
site/locally Remove large underground pipe and disposal on-	Y		m m	\$60.00 \$165.00	\$0 \$0	does not include transport to regional disposal facility or equivalent. For example: 1 m pipes - 2 m deep.
site/locally Remove above ground pipe (supported) and						~300 mm pipes and assumes pipes are in close proximity to infrastructure
disposal on-site/locally	Y		m	\$12.00	\$0	areas. Does not include transport to regional disposal facility or equivalent.
Remove surface pipelines (unsupported) and disposal on-site/locally	Y		m	\$15	\$0	~300 mm pipes and assumes pipes are used for water transfer between pits (or similar) and remotely located. Does not include transport to regional disposal facility or equivalent.
Remove pump and pontoon from small lake or dam including pipes and electrical supply or diesel tank/s	Υ		allow	\$20,000.00	\$0	Includes equipment for retrieval - boats, etc. and labour. Does not include transport to regional disposal facility or equivalent.
Remove bitumen (car park and access roads) and dispose on-site/locally	Y		m2	\$10.00	\$0	Scalp bitumen and stabilised material. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km
Remove bitumen (airstrip) and dispose on- site/locally	Y		m2	\$20.00	\$0	Scalp bitumen and stabilised material. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	Y		m2	\$36.00	\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y		m2	\$75.00	\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Crush concrete to make road aggregate - 75 mm	Υ		tonne	\$10.00	\$0	Does not include haulage of materials - assumes crushing plant is readily available.
Crush concrete to make road aggregate - 50 mm	Y		tonne	\$13.00	\$0	Does not include haulage of materials - assumes crushing plant is readily
Crush concrete to make road aggregate - 30 mm	Y		tonne	\$15.00	\$0	available. Does not include haulage of materials - assumes crushing plant is readily
Remove fence (cyclone/wire fence) and disposal on- site/locally	Υ		m	\$20.00	\$0	available. Roll up fence and remove posts.
Removal of small plastic tanks	Y		each	\$1,000.00	\$0	Remove small poly tanks used for water storage, etc. Demolish and remove small lightweight
Demolish and remove galvanised/corrugated light weight tanks	Υ		each	\$500.00	\$0	metal tanks. No costs included for managing liquids, etc.
Demolish and remove communication towers	Υ		each	\$5,000.00	\$0	Cost includes demolition and removal of tower only; separate costs required for disconnection of services, demolition of footings, etc.
Removal of UG services (power within main gate areas, etc.)	Y		allow	\$50,000.00	\$0	Assume service disconnection at the mine boundary is at surface level. This cost covers all fees and charges
Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km	Y		tonne	\$7.00	\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste
Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km	Y		tonne	\$9.00	\$0	type. Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste
Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km	Y		tonne	\$12.50	\$0	type. Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste
		ı L			ı	type.

	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >10 km but <15 km	Y		tonne	\$32.00		\$0		Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >15 km but <25 km	Υ		tonne	\$36.00		\$0		Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km	Y		allow	Use alternate rate cell		\$0		type. Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste
	Waste disposal to Council landfill - fees (general waste)	Υ		tonne	\$193.00		\$0		type. Fee for waste disposal of general waste to local Council landfill; transport rates separate. Please note that this is not applicable to operations with approval for building and demolition waste
	Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)	Y		tonne	\$174.00		\$0		disposal on site. Fee for waste disposal of industrial demolition / concrete / scrap metal waste to local Council landfill; transport rates separate. Rate does not assume material is recyclable. Please note that this is not applicable to operations with approval for building and demolition
		Tern	nination of Se	ervices and D	emolition Wo	orks Subtotal	\$0		waste disposal on site.
Rail Infrastructure	Remove rail loop and spur, ballast etc. and disposal on-site/locally	Y		m	\$60.00		\$0		Remove all materials to allow area to be reshaped and rehabilitated - does not include transport to regional disposal facility or equivalent.
	Remove train loading facilities and disposal on- site/locally	Y		m2	\$185.00		\$0		Remove rail load point infrastructure including gantries and control structures. Does not include transport to regional disposal facility or equivalent.
	Reshape rail spur and load out areas. Does not include growth media and revegetation	Y		ha	\$2,860		\$0		D10 Dozer and 16 H Grader (50% utilisation).
Contaminated Materials				R	ail Infrastruct	ture Subtotal	\$0		The preliminary investigation would
	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple studies may be required.	Y		Cluster	\$15,000		\$0		include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re- fuel, sewage treatment, secondary) weeklebon, showing treatment, secondary weeklebon, showing it texapos etc.)
	Undertake an intrusive site investigation on sites with small footprints to investigate e.g. ≤15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	٧		Cluster	\$44,000		\$0		at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase Intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oilwater separators etc.) and further field work is required involving intrusive investigation. Assumes site is easily accessible and a small area e.g. ~10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP.
	Undertake an intrusive site investigation on sites with large footprints to investigate e.g. >15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y		Cluster	\$106,000		\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around inreflective oil/water separators etc.) and further field work is required involving intrusive investigation. Assume site has a history of contamination and/or a large area >15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan.
	Develop a Remediation Action Plan on sites with small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances Develop a Remediation Action Plan on sites with	Υ		allow	\$35,000		\$0		Develop remediation plan for approval including designs and detailed costs. Costs may increase if detailed designs required for construction.
	large footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Y		allow	Use alternate rate cell		\$0		Assumes complex site; detailed design drawings required for cover. Cost for recent sump clean-up from
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y		L	\$0.35		\$0	Select Haul Distance Here	resource activity - requires specialists to treat.
	Remove material (carbonaceous / metalliferous spillage or otherwise) from footprint of the process facility (leach pads) / stockpile area (ROM product) / roads and dump in a void on-site (Select Haul Distance from list)	Y		m3	Select from List				This item includes scraping and removal of the volume of carbonaceous material using dozer, grader etc. to make safe an area and enable the establishment of rehabilitation.

	Load, cart and dispose of Hazardous classified contaminated material off site to a licensed landfill.	Υ		m3	\$800.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Assumes cartage to a licensed landfill. Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	Y		m4	\$660.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m3	Y		m3	\$220.00		\$0		Includes load, haul and dump fees to a licensed facility.
	for cartage to regional landfill							Select Volume Here	Spreading of contaminated soils on a
	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	Y		m3	Select from List				prepared surface and stimulation of aerobic microbial activity within the soi through aeration and/or the addition of minerals, nutrients and moisture to promote the aerobic degradation of organic chemicals - time frame of up to 24 months.
	Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	Υ		Item	\$150,000		\$0		Required if treatment of hydrocarbon contamination is required to be fast tracked.
	On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	Y		m3	\$165.00		\$0		Additional cost as the treatment proces is fast tracked. Where an assessment/estimation has
	Remove and dispose of asbestos (<750 m2)	Y		m2	\$50.00		\$0		been made to confirm the volume of asbestos to be removed. Where an assessment/estimation has
	Remove and dispose of asbestos (>750 m2)	Y		m2	\$40		\$0		been made to confirm the volume of asbestos to be removed.
	Waste disposal to Council landfill - fees (asbestos)	Y		tonne	\$290		\$0		Landfill fees to regional landfill. Assumes ASS is treatable via
	Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0		neutralisation and does not require capping and isolation. Assumes 1% by weight lime addition and treatment to 100 mm depth only.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	Y		m2	\$1		\$0		Provisional sum for cutting using rippi tynes and on-site disposal of the liner.
	Long haulage brine/salt for disposal (Select Haul Distance from list)	Y		tonne	Select from List			Select Haul Distance Here	Costs for haulage to location for authorised disposal. Rate for trackable liquid levy of \$78.20
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		per tonne and authorised disposal to landfill. Assumes transport in a 20,000 L tank
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Υ		tonne	Select from List			Select Haul Distance Here	Add disposal costs to additional items where warranted.
Vents, Shafts and Boreholes		<u> </u>	T	Contan	ninated Mater	ials Subtotal	\$0		Cost to grout and cap an open
vents, charts and borenoiss	Option 1 - Coal bore hole Exploration boreholes – rehabilitate coal boreholes and drill pads as required	Y		depth (m)	\$44.55		\$0		exploration borehole. Assume a 20 m 20 m drill pad requires rehabilitation - push cover of nearby growth media, ri and seed.
	Option 3 - Mineral RAB and aircore drill holes Exploration boreholes – backfill open Rotary Airblast (RAB) or aircore drill holes with cuttings	Y		allow	\$43		\$0		May include cutting of casing, installation of a casing cap, and/or manually backfilling the hole with drill cuttings. Does not include reshaping, ripping the drill pad, amelioration /
	Option 2 - Mineral drill hole requiring grouting Exploration boreholes – grout and cap open bore holes	Y		allow	\$5,700		\$0		Includes grouting and capping 100 - 2 m exploration boreholes to meet the requirements of Departmental Guidelines.
	Boreholes – cap and seal open bore holes with steel casing (i.e., goaf drainage etc.)	Y		allow	\$6,960		\$0		Holes deeper than 100 m - includes cutting steel collar 6 m below surface grouting and capping.
	Boreholes – cap and seal open bore holes - surface- to-in-seam gas drainage	Y		allow	\$17,890		\$0		Surface-to-in-seam gas drainage boreholes.
	Boreholes – cap and seal open bore holes - vertical gas drainage	Y		allow	\$16,000		\$0		Vertical gas drainage boreholes.
	Boreholes – grout (with concrete) cap and seal bore holes (i.e. where sealing aquifers)	Υ		allow	\$35,000		\$0		Includes multi skin sleaves to prevent aquifer mixing.
	Boreholes – cap and seal service boreholes for UG coal operations	Y		allow	\$45,000		\$0		Includes large diameter boreholes us for supplying electricity (66kV), compressed air, water, solsenic etc.
	Option 4 - Mineral diamond drill hole Rehabilitation of diamond drill holes and pad including sealing drill holes for mineral exploration	Y		Item	\$2,070		\$0		Bog out cuttings, remove fencing, remove rubbish, push sumps in, rehabilitate pads and tracks, cut and plug collars. Includes labour and equipment, disposal of rubbish locally
	Option 5 - Mineral reverse circulation drill holes Rehabilitation of reverse circulation drill holes and pad including sealing drill holes for mineral exploration	Y		Item	\$1,340		\$0		Sealing required, but not complete fill with concrete/grout
	Option 6 - Rehabilitation of drill hole collars Rehabilitation of drill hole collars (mineral exploration)	Y		each	\$415		\$0		Cut collar, remove, cap, backfill cappe collar and cover with nearby organic of growth material
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor		ı		s and Boreho	oles Subtotal	\$0		Assumes ~6 m road width - 16H
Noduo una Traono	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up	Y		ha	\$1,040.00		\$0		Grader. D10 Dozer @ \$400 per hour and 16 l
	areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor	Y		ha	\$1,500		\$0		grader @ \$230 per hour (50% utilisation) - no seed D10 Dozer @ \$400 per hour and 16 l
	earthworks, final trim and deep rip and seed (pasture grass) Unsealed roads / vehicle park-up areas – Minor	Y		ha	\$3,700		\$0		grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 h
	earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass) Unsealed roads / haul roads / vehicle park-up areas	Y		ha	\$4,485		\$0		grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass) Unsealed roads / haul roads / vehicle park-up areas	Y		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 h grader @ \$230 per hour (50% utilisation) - pasture grass seed
	with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Υ		ha	\$7,025		\$0	Select Haul Distance Here	D10 Dozer @ \$400 per hour and 16 h grader @ \$230 per hour (50% utilisation) - native tree/shrub seed This item includes the scraping and
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y		m3	Select from List		60	Golder Hauf Distance Here	removal of the volume of stabilised material from the road, laydown or ot surface using an excavator, dozer and grader to enable the establishment of
Earthworks / Structural Works		l	1	R	oads and Tra	cks Subtotal	\$0	Select Push Length Here	
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List				Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Υ		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 I grader @ \$230 per hour (50% utilisation).
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each properties.
	Fill dams, voids etc Source local material, cart				Select from			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void a
	and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	List				enable the establishment of rehabilitation. This rate is used to rehabilitate steep

Ī	Trim, rock rake & deep rip (includes levelling /	Υ		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M
	landscaping and rip in 1 direction) Deep rip hard stand / lay down areas	Y		ha	\$960.00		\$0		grader. D10 deep ripping.
									Installation of on-site rock material (rip- rap) where managing water run-off from
	Construction of spine drains / drop structures and/or	v		m?	627.00		¢0		disturbed land and/or upon entry to
	stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		water courses - prevents erosion of gul head (assumes competent material is
							1075		locally available). If required to be sourced off site, assume an additional
Land Preparation and	E	arthworks / S	tructural Wor	ks (Landforn	n Establishme	ent) Subtotal	\$0	Select Haul Distance Here	If topsoil is not available on-site, then
Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List			Select naui Distance nere	Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Planting mature trees (>15 cm) Planting tube stock (<15 cm)	Y		allow	\$15.00 \$6.60		\$0 \$0		4 m centres. 4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Υ		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or
				na -	V 1,010				helicopter (aerial seeding). Includes treating, weighing, mixing with
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).
									Process to be used on flat well prepare
	Hydro-seeding with straw mulching and bitumen tack with native seed	Υ		m2	\$1.90		\$0		surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from
									\$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen								Process to be used on flat well prepare surfaces under irrigation e.g. sewage
	tack with pasture seed	Y		m2	\$0.43		\$0		treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and
									input variables. Pasture seed +\$0.10 Assumes use on flat areas with a
									gradient of less than 4:1, and where irrigation from water cart may be
	Hydromulch - base grade or standard for flat areas	Υ		m2	\$0.80		\$0		possible. Industry standard application rate of 2500kg/ha. Product will last
	that can be irrigated by water cart	•			\$0.00		Ų.		short term (less than 3 months) and
									vegetation is required to grow ASAP fo stability. This cost includes cover crop
									Assumes use on steep areas where
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Υ		m2	\$1.80		\$0		stabilisation is required for up to 12 months. Application rate of ~3500kg/ha
	areas to stabilize up to 12 mentio								This cost includes cover crop only, additional seeding required.
	Lhidromulab, high performance flexible grouth								Assumes use on extreme slopes where stabilisation is required for up to 18
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		months. Application rate of ~4,000kg/h minimum. This cost includes cover cro
									only, additional seeding required. Assumes 250 kg / ha. These rates have
	Single application of fertiliser (pasture)	Y		ha	\$420.00		¢0		fluctuated over the last few years
	Single application of fertiliser (pasture)	Y		Па	\$420.00		\$0		however in light of current conditions (lower fuel prices, reduced demand etc.)
									this is a suitable standard rate. These rates have fluctuated over the la
	Single application of fertiliser (trees)	Υ		ha	\$140.00		\$0		few years however in light of current conditions (lower fuel prices, reduced
									demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Υ		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	Υ		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Υ		m	\$13.00		\$0		Standard rate for standard stock fencing.
	Purchase and erect warning signs	Υ		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safet signs for the occupational environment
					,				installed every 25 m. D7 to spread material at \$205/hr,
	Supply from external sources virgin excavated	Υ		m3	\$80.80		\$0		Excavator (\$220/hr) load Artic Trucks
	natural material (VENM) for growth media.	'		IIIS	\$00.00		\$ 0		(90c/km) from imported stockpile - allo nominal rate of \$70/m3 for imported fill
	Supply from external sources a combination of								material. D10 push into void at \$270/hr,
	virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping	Y		m3	\$72.50		\$0		Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allo
	etc. Clearing and grubbing of trees and vegetation	Υ		ha	\$4,730.00		\$0		nominal rate of \$60/m3 for imported fill Clearing and grubbing of light vegetation
	Cleaning and grubbing of trees and vegetation			IId	\$4,730.00		40		growth e.g. regrowth Stripping or topsoil at an approximate
	Topsoil stripping	Υ		m3	\$4.86		\$0		depth of 0.2 m into stockpiles; load and haul to final rehabilitation location
	3				4		**		required or respreading where necessary.
	Growth media supplementation with manure	Υ		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Υ		m2	\$2.50		¢0		Material that can be applied as an
			walar			ant) Cuba d	\$0 \$0		alternative to spreading topsoil prior to hydromulching.
Water Management	Land Preparation and Revegetation (Grov	wth Media De	velopment ar	ia Ecosysten	n Establishme	ent) Subtotal	\$ 0		Provisional sum for earthworks and
-									revegetation required to rehabilitate da
	Clean water dams to be retained after	v			£0.500		**		batters etc suitable for re-use by an
	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Υ		allow	\$2,500		\$0		batters etc suitable for re-use by an alternate land-user - D6 Dozer (or
	decommissioning – make safe and minor	Y		allow	\$2,500		\$0		batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass.
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained								batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dan
	decommissioning – make safe and minor earthworks	Y		allow	\$2,500 \$10,500		\$0 \$0		batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture crass. Provisional sum for earthworks and revegetation required to rehabilitate dat batters etc suitable for re-use by an alternate land-user - D6 Dozer (or
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks				\$10,500			Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate daters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure							Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture crass. Provisional sum for earthworks and revegetation required to rehabilitate dat batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture crass. This item includes the volume of contaminated sediment requiring
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		allow	\$10,500 Select from			Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate da batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) - pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure	Y		allow m3 allow	\$10,500 Select from List \$25,000		\$0	Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture Orass. Provisional sum for earthworks and revegetation required to rehabilitate dataters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + Dasture orass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and
Maintenance of Rehabilitated	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Removal of evaporation fans and/or other water	Y		allow m3 allow	\$10,500 Select from List	ent Subtotal	\$0	Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture drass. Provisional sum for earthworks and revegetation required to rehabilitate daters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) - pasture drass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Provisional sum for removal of water management infrastructure.
Maintenance of Rehabilitated Areas	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Removal of evaporation fans and/or other water transfer and management infrastructure Maintenance of areas that have been shaped and	Y		allow m3 allow	\$10,500 Select from List \$25,000	ent Subtotal	\$0 \$0 \$0	Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture drass. Provisional sum for earthworks and revegetation required to rehabilitate dabatters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Provisional sum for removal of water management infrastructure.
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Removal of evaporation fans and/or other water transfer and management infrastructure	Y		allow m3 allow	\$10,500 Select from List \$25,000	ent Subtotal	\$0	Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture drass. Provisional sum for earthworks and revegetation required to rehabilitate dabatters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + Dasture oracs. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Provisional sum for removal of water management infrastructure. Rehabilitation maintenance might include re-seeding, watering, fertillising, minor re-shaping, erosion control, inspections/audits - does not include
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Removal of evaporation fans and/or other water transfer and management infrastructure Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		allow m3 allow Wa	\$10,500 Select from List \$25,000 ater Managem	ent Subtotal	\$0 \$0 \$0 \$0	Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture crass. Provisional sum for earthworks and revegetation required to rehabilitate batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + Dasture orass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Provisional sum for removal of water management infrastructure. Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Removal of evaporation fans and/or other water transfer and management infrastructure Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor	Y Y Y Y		allow m3 allow Wa ha	\$10,500 Select from List \$25,000 ater Managem \$925 \$1,200	ent Subtotal	\$0 \$0 \$0 \$0	Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - 06 Dozer (or similar) @ -\$200 per hour and pasture orass. Provisional sum for earthworks and revegetation required to rehabilitate debatters etc suitable for re-use by an alternate land-user - 06 Dozer (or similar) - 90 bozer (or sim
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Removal of evaporation fans and/or other water transfer and management infrastructure Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y Y Y		allow m3 allow Wa	\$10,500 Select from List \$25,000 ater Managem	ent Subtotal	\$0 \$0 \$0 \$0	Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - 06 Dozer (or similar) @ -\$200 per hour and pasture orass. Provisional sum for earthworks and revegetation required to rehabilitate dataters etc suitable for re-use by an alternate land-user - 06 Dozer (or similar) - 90 per oraction of the or
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Removal of evaporation fans and/or other water transfer and management infrastructure Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor	Y Y Y Y		allow m3 allow Wa ha	\$10,500 Select from List \$25,000 ater Managem \$925 \$1,200	ent Subtotal	\$0 \$0 \$0 \$0	Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - 06 Dozer (or similar) @ -\$200 per hour and pasture or gass. Provisional sum for earthworks and revegetation required to rehabilitate data batters etc suitable for re-use by an alternate land-user - 06 Dozer (or similar) etc. by an alternate land-user - 06 Dozer (or similar) etc. by an alternate land-user - 06 Dozer (or similar) etc. by an alternate land-user - 06 Dozer (or similar) etc. by an alternate land-user - 07 Dozer (or similar) etc. by an alternate land-user - 08 Dozer (or similar) etc. by an alternate land-user of box ontaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Provisional sum for removal of water management infrastructure. Rehabilitation maintenance might include re-seeding, watering, fertilising innor re-shaping, erosion control, inspections/audits - does not include maior repair works. Areas requiring minor repair - rills, significant growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement, areas requiring minor repair - rills, significant growth media replacement, some level of additional surface water
	decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Removal of evaporation fans and/or other water transfer and management infrastructure Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate	Y Y Y Y Y Y		allow m3 allow Wa ha ha	\$10,500 Select from List \$25,000 ster Managem \$925 \$1,200 \$1,700	ent Subtotal	\$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture orass. Provisional sum for earthworks and revegetation required to rehabilitate da batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) - sature orass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Provisional sum for removal of water management infrastructure. Rehabilitation maintenance might include re-seeding, watering, fertillsing, minor re-shaping, erosion control, inspections/audits - does not include maior resair works. Areas requiring minor repair - rills, minor growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills, significant growth media replacement.

Maintenance of Rehabilitated Areas Subtota	\$0	
Additional Items Subtota	\$0	
Total Cost for Infrastructure Domain		\$0

Domain 2c: Tailings & Rejects

Total Cost for Tailings & Rejects Domain

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple studies may be required.	Y		Cluster	\$15,000		\$0	mornatori	Interprenentially investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle refuel, sewage treatment, secondary
	Undertake an intrusive site investigation on sites with small footprints to investigate e.g. <15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Υ		Cluster	\$44,000		\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around inreflective oil/water separators etc.) and further field work is required involving intrusive investigation. Assumes site is easily accessible and a small area e.g. ~10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAOP.
	Undertake an intrusive site investigation on sites with large tootprints to investigate e.g. >15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y		Cluster	\$106,000		\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (vi)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assume site has a history of contamination and/or a large area >15 ha requires investigation and testing (test pits, boreholes, etc.) based on
	Develop a Remediation Action Plan on sites with small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Y		allow	\$35,000		\$0		Sampling and Analysis Quality Plan. Develop remediation plan for approval including designs and detailed costs. Costs may increase if detailed designs required for construction.
	Develop a Remediation Action Plan on sites with large footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Υ		allow	Use alternate rate cell		\$0		Assumes complex site; detailed design drawings required for cover. Cost for recent sump clean-up from
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	Υ		L	\$0.35		\$0		resource activity - requires specialists to treat.
	Remove material (carbonaceous / metalliferous spillage or otherwise) from footprint of the process facility (leach pads) / stockpile area (ROM product) / roads and dump in a void on-site (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes scraping and removal of the volume of carbonaceous material using dozer, grader etc. to make safe an area and enable the establishment of rehabilitation.
	Load, cart and dispose of Hazardous classified contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill.	Υ		m3	\$800.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	Y		m4	\$660.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m3 for cartage to regional landfill	Y		m3	\$220.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	у		m3	Select from List			Select Volume Here	spreading or contammated soils on a prepared surface and stimulation of aerobic microbial activity within the soils through aeration and/or the addition of minerals, nutrients and moisture to promote the aerobic degradation of organic chemicals—time frame of up to Required if treatment of hydrocarbon
	Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	Υ		Item	\$150,000		\$0		Required if treatment of hydrocarbon contamination is required to be fast tracked.
	On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	Υ		m3	\$165.00		\$0		Additional cost as the treatment process is fast tracked.

Ī		1	ı						Where an assessment/estimation has
	Remove and dispose of asbestos (<750 m2)	Y		m2	\$50.00		\$0		been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos (>750 m2)	Y		m2	\$40.00		\$0		Where an assessment/estimation has been made to confirm the volume of
	Waste disposal to Council landfill - fees (asbestos)	Y		tonne	\$290	into Contractor	\$0 \$0		asbestos to be removed. Landfill fees to regional landfill.
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor	Y		ha	s1,040.00	iais Subtotai	\$0		Assumes ~6 m road width - 16H Grader.
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds –	Y		ha	\$1,500		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor								utilisation) - no seed D10 Dozer @ \$400 per hour and 16 H
	earthworks, final trim and deep rip and seed (pasture grass) Unsealed roads / vehicle park-up areas – Minor	Y		ha	\$3,700		\$0		grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 H
	earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$4,485		\$0		grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Υ		m3	Select from List			Select Haul Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or other surface using an excavator, dozer and grader to enable the establishment of rehabilitation
Fasthwarks / Otrockers I Washe	E	arthworks / S	tructural Wor	ks (Landforn	Establishme	ent) Subtotal	\$0		rehabilitation.
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Υ		m3	Select from List			Select Push Length Here	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness				Calast from			Select Haul Distance Here	This item includes the volume of material requiring backfill using an
	and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	у		m3	Select from List				excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation	Υ		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per
	measures								na. Installation of on-site rock material (rip- rap) where managing water run-off from
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be
Mine Waste	E	arthworks / S	tructural Wor	ks (Landforn	Establishme	ent) Subtotal	\$0		sourced off site, assume an additional
	Ideal Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with little chemical reactivity (no to low risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required)	Y		ha	\$82,000		\$0		material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness of approximately 0.5 m to 1 mand 0.15 m · 0.2 m growth media (assume at least 1 m thick cover required for carbonaceous material covers). Water quality from runoff, seepage etc. meets site-specific environment water quality roll values. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long include additional cost to import
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.). This item includes sourcing, carting,
	Efficient Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (low to medium risk Potential Acid Forming (PAF) / Neutral Mine Drainage (SMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y		ha	\$146,500		\$0		spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities where the tailings or rejects base is at a strength that enables economically efficient construction methods with small plant. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness ranging from >1 m to 2 m thickness constructed in 1 m layers + growth media up to 0.2 m depth. This may require additional materials (such as capillary breaks, geofabric, etc.) - use alternate rate cells below, specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised/additional materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate

Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric /
environment water quality values. Additional materials required for reshaping, capping				Use alternate				composite lining etc.). Include additional cost to import materials (i.e., shale / clay, competent
runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	rate cell		\$0		drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.). This item includes sourcing, carting,
Adverse Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (medium to high risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or moderate to high propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y		ha	\$313,000		\$0		spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities of high geochemical risk, and / or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping materials are available on site within 10 km, and an average cap thickness of approximately >2 m + growth media up to 0.2 m depth. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material in cluded in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and
/ sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.). Include additional cost to import
Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Υ		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.). Capping/cover material available within
capping/covers, removal of contamination, etc.	Y		m3	List	ste Subtotal	\$0	Select Haul Distance Here	50 km round trip e.g. waste / overburden
Source, cart and spread growth media (Select Haul	у		m3	Select from			Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally
	· ·		ha			\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or
Direct seeding / fertiliser (tree or native grass								helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or
species)				71,100		**		helicopter (aerial seeding). Process to be used on flat well prepared
Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00 Process to be used on flat well prepared
Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10 Assumes use on flat areas with a
Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y							gradient of less than 4:1, and where irrigation from water cart may be
mat can be imigated by water can	·		m2	\$0.80		\$0		possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop
Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2 m2	\$0.80 \$1.80		\$0 \$0		possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only. ardditional seeding required. Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
Hydromulch - bonded fibre matrix grade for steep								possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding renuired. Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.
Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months Hydromulch - high performance flexible growth	Y		m2	\$1.80		\$0		possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only. additional seeding required. Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required. Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months Hydromulch - high performance flexible growth medium grade	Y		m2 m2	\$1.80 \$2.50		\$0		possible. Industry standard application rate of 2500(kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only. ariddinal seedina required. Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required. Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months Hydromulch - high performance flexible growth medium grade Single application of fertiliser (pasture)	Y		m2 m2 ha	\$1.80 \$2.50 \$420.00		\$0 \$0		possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only. additional seeding required. Assumes use on steep areas where stabilisation is required for up to 1 stability. This cost includes cover crop only, additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required. Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. Assumes 2.5 t / ha as a suitable standard rate. Assumes 2.5 t / ha as an average application rate.
Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months Hydromulch - high performance flexible growth medium grade Single application of fertiliser (pasture) Single application of fertiliser (trees) Spoil amelioration (adding lime / gypsum etc.) growth media amelioration with biosolids	Y Y Y Y Y Y Y		m2 m2 ha ha ha	\$1.80 \$2.50 \$420.00 \$1,000.00 \$1,015		\$0 \$0 \$0 \$0 \$0 \$0 \$0		possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only. additional seeding required. Assumes use on steep areas where stabilisation is required for up to 1 stability. This cost includes cover crop only. additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~3500kg/ha. This cost includes cover crop only. additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only. additional seeding required. Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. Assumes 2.5 t / ha as a suitable standard rate. Assumes 2.5 t / ha as an average application rate.
Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months Hydromulch - high performance flexible growth medium grade Single application of fertiliser (pasture) Single application of fertiliser (trees)	Y Y Y Y Y Y Y Y Y Y		m2 ha ha ha ha m	\$1.80 \$2.50 \$420.00 \$140.00 \$1,000.00 \$1,015 \$22.00		\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0		possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only. additional seeding remuired. Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only. additional seeding required. Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only. additional seeding required. Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. Assumes 2.5 t / ha as an average application rate. Recent experience with agronomy
Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months Hydromulch - high performance flexible growth medium grade Single application of fertiliser (pasture) Single application of fertiliser (trees) Spoil amelioration (adding lime / gypsum etc.) growth media amelioration with biosolids Construct no-climb stock fence around rehabilitated areas	Y Y Y Y Y Y Y		m2 m2 ha ha ha	\$1.80 \$2.50 \$420.00 \$1,000.00 \$1,015		\$0 \$0 \$0 \$0 \$0 \$0 \$0		possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding renuired. Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required. Assumes on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required. Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. Assumes 2.5 t / ha as an average application rate. Recent experience with agronomy projects. Standard rate for no-climb stock fencing.
	/ sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values. Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values. Additional materials required for reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (medium to high risk Potential Acid Forming (PAP) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or moderate to high propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required) Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values. 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Cong naulage soil / weathered rock / seament e.g. capping/covers, removal of contamination, etc.	Additional materials required for reshaping, capping sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values. 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	Total Cost for 1	Tailings	& Reie	cts Do				\$0	
			Wallite	snance of Re	Additional Ite		\$0		
	Existing rehabilitation repair - total failure of landform	Y	Mainte	ha	\$40,000	nas Subtotal	\$0 \$0		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		gullies, growth media replacement, some level of additional surface wate management.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills significant growth media replacemen Areas requiring major repair - rills,
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		minor growth media replacement.
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		Rehabilitation maintenance might include re-seeding, watering, fertilisi minor re-shaping, erosion control, inspections/audits - does not include maior repair works. Areas requiring minor repair - rills,
				W	ater Managem	ent Subtotal	\$0		I Dala ah ilitaalaa aa alataa aa
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Υ		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck an dozer to clean out the dam.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pastu grass.
	Land Preparation and Revegetation (Grov	vth Media De	evelopment ar	nd Ecosyster	n Establishme	ent) Subtotal	\$0		
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior hydromulching.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		necessarv. Addition of manure to improve soil quality.
	Topsoil stripping	Υ		m3	\$4.86		\$0		Stripping or topsoil at an approximat depth of 0.2 m into stockpiles; load a haul to final rehabilitation location required or respreading where
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegeta growth e.g. regrowth
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Truck (90c/km) from imported stockpile - a nominal rate of \$60/m3 for imported

Total Cost for Overburden & Waste Domain

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Contaminated Materials	Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0	cmaicn	Assumes ASS is treatable via neutralisation and does not require capping and isolation. Assumes 1% by weight lime addition and treatment to 100 mm depth only.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	Y		m2	\$1		\$0		Provisional sum for cutting using ripping tynes and on-site disposal of the liner.
	Long haulage brine/salt for disposal (Select Haul Distance from list)	Y		tonne	Select from List			Select Haul Distance Here	Costs for haulage to location for authorised disposal. Rate for trackable liquid levy of \$78.20
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		per tonne and authorised disposal to landfill.
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y		tonne	Select from List		\$0	Select Haul Distance Here	Assumes transport in a 20,000 L tanker. Add disposal costs to additional items
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor	Y		ha	ninated Mater \$1,040.00	iais Subtotai	\$0 \$0		Assumes ~6 m road width - 16H
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds –	Y		ha	\$1,500		\$0		Grader. D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,700		\$0		utilisation) - no seed D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$4,485		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Υ		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or other surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
Earthworks / Structural Works	ı			R	loads and Tra	cks Subtotal	\$0	Select Push Length Here	
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List				Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Υ		m2	\$185.00		\$0		This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Υ		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Υ		m2	\$27.00		\$0		Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional
Mine Waste	<u>E</u>	arthworks / S	tructural Wor	rks (Landforr	n Establishme	ent) Subtotal	\$0		This includes sourcing, carting,
	Ideal Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with little chemical reactivity (no to low risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required)	Y		ha	\$82,000		\$0		spreading, moisture conditioning and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness of approximately 0.5 m to 1 mand 0.15 m · 0.2 m growth media (assume at least 1 m thick cover required for carbonaceous material covers). Water quality from runoff, seepage etc. meets site-specific environment water quality values. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).

sealing of trafficable								This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities where the tailings or rejects base is at a strength that enables economically
Acid Forming (PAF) / Saline Mine Drainag moderate propensity and moderate physic hydrophilic, shear str	oping - reshaping, capping / tailings facility with moderate ow to medium risk Potential / Neutral Mine Drainage (NMD) ge (SMD) and/or low to for spontaneous combustion) all properties (not significantly rength limits equipment choice ial strengthening required)	Y	ha	\$146,500		\$0		efficient construction methods with small plant. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness ranging from >1 m to 2 m thickness constructed in 1 m layers + growth media up to 0.2 m depth. This may require additional materials (such as capillary breaks, geofabric, etc.) - use alternate rate cells below, specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised/additional materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from 10.02 for relevant haulage and spreading in additional and spreading and applicant and spreading and spreading and spreading and applicant and spreading and spreading and applicant and and applicant and and applicant and and applicant and applicant and applicant and and applicant and appl
/ sealing of structure	required for reshaping, capping to facilitate water quality from meeting site-specific uality values.	Υ	allow	Use alternate rate cell		\$0		sofeainin in anditional to any inini Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
		Y	allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric /
Adverse Tailings Cap sealing of trafficable: chemical reactivity (n Acid Forming (PAF) / Saline Mine Drainag high propensity for sy moderate physical pr hydrophilic, shear str	oping - reshaping, capping / tailings facility with moderate medium to high risk Potential / Neutral Mine Drainage (MMD) ge (SMD) and/or moderate to pontaneous combustion) and roperties (not significantly rength limits equipment choice al strengthening required)	Y	ha	\$313,000		\$0		composite lining etc.). This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities of high geochemical risk, and / or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping material/s are available on site within 10 km, and an average cap thickness of approximately >2 m + growth media up to 0.2 m depth. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and
		Y	allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / day, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite linina etc.). Include additional cost to import
/ sealing of structure	required for reshaping, capping to facilitate water quality from meeting site-specific uality values.	Y	allow	Use alternate rate cell		\$0		materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric /
sealing of weak or so poor physical propert low shear strength lin artificial strengthenin impacts on legacy sit	ping- reshaping, capping / oft surfaced tailings facility with ties (significantly hydrophilic, mits equipment choice greatly, grequired) OR visible adverse tes from chemical reactivity e prior to rehabilitation	Y	ha	\$843,000		\$0		This option is typically driven by time constraints and/or when tailings properties significantly restrict adequate desiccation, resulting in a tailings shear strength that is very weak excluding access by conventional small plant. Small equipment used for rehabilitation. This excludes any additional material required to form the final landform scalls in addition, to this continuous profile in addition, to this continuous and the same state of the same stat
/ sealing of structure	required for reshaping, capping to facilitate water quality from meeting site-specific uality values.	Y	allow	Use alternate rate cell		\$0		notifie in addition to this can include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
/ sealing of structure runoff, seepage etc. r environment water qu		Υ	allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.). Capping/cover material available within
Long naulage soil / w capping/covers. remo	veathered rock / sediment e.g. oval of contamination, etc.	Υ	m3	Select from List	ste Subtotal	\$0	Select Haul Distance Here	50 km round trip e.g. waste / overburden
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Source, cart and spre Distance from List)	ead growth media (Select Haul	Y	m3	Select from List	iste Sub(Otal	•	Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
Planting mature trees		Υ	allow	\$15.00		\$0		4 m centres.
Planting tube stock (- Direct seeding / fertili	<15 cm) iser (pasture grass species)	Y	allow	\$6.60 \$1,875		\$0 \$0		4 m centres. Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
Direct seeding / fertili species)	iser (tree or native grass	Υ	ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or
	straw mulching and bitumen	Y	m2	\$1.90		\$0		helicopter (aerial seeding). Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 * \$0.50 depending on size and input variables. Native seed +\$1.00

	Total Cost for O	verburg	len & W					\$0	
			Mainte		habilitated Ar Additional Ite		\$0 \$0		
	Existing rehabilitation repair - total failure of landform	Υ		ha	\$40,000	Sultant i	\$0		rehabilitation repair - re-design and re- construction of landform.
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		gullies, growth media replacement, some level of additional surface water management. Areas that require extensive
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		significant growth media replacement. Areas requiring major repair - rills,
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement. Areas requiring moderate repair - rills,
Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Υ		ha	\$925		\$0		minor re-shaping, erosion control, inspections/audits - does not include major repair works.
Maintenance of Rehabilitated									Rehabilitation maintenance might include re-seeding, watering, fertilising
	enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3 Wa	List ater Managem	nent Subtotal	\$0		removal using an excavator, truck and dozer to clean out the dam.
	earthworks Remove sediments from the floor of the dam to				Select from			Select Haul Distance Here	alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor	Y		allow	\$10,500		\$0		orass. Provisional sum for earthworks and revegetation required to rehabilitate da batters etc suitable for re-use by an
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500	city oubtotal	\$0		Provisional sum for earthworks and revegetation required to rehabilitate distatters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pastur
	Land Preparation and Revegetation (Gro		velopment ar			ent) Subtotal	\$0		hydromulching.
	Growth media supplementation with manure Utilise biotic soil media - organic topsoil alternative	Y		ha m2	\$747.50 \$2.50		\$0 \$0		quality. Material that can be applied as an alternative to spreading topsoil prior to
	Topsoil stripping	Y		m3	\$4.86		\$0		haul to final rehabilitation location required or respreading where necessary. Addition of manure to improve soil
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		growth e.g. regrowth Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load a
	virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - al nominal rate of \$60/m3 for imported Clearing and grubbing of light vegeta
	Supply from external sources virgin excavated natural material (VENM) for growth media. Supply from external sources a combination of	Y		m3	\$80.80		\$0		Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - al nominal rate of \$70/m3 for imported material. D10 push into void at \$270/hr,
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		signs for the occupational environme installed every 25 m. D7 to spread material at \$205/hr,
	Construct standard stock fence around rehabilitated areas	Y		m	\$13.00		\$0		Standard rate for standard stock fencing. Compliance with AS 1319-1994 - Saf
	Construct no-climb stock fence around rehabilitated areas	Υ		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	growth media amelioration with biosolids	Υ		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Spoil amelioration (adding lime / gypsum etc.)	Υ		ha	\$1,000		\$0		rate. Assumes 2.5 t / ha as an average application rate.
	Single application of fertiliser (trees)	Υ		ha	\$140.00		\$0		this is a suitable standard rate. These rates have fluctuated over the few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard.
	Single application of fertiliser (pasture)	Y		ha	\$420.00		\$0		only, additional seeding required. Assumes 250 kg / ha. These rates ha fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand et
	Hydromulch - high performance flexible growth medium grade	Υ		m2	\$2.50		\$0		Assumes use on extreme slopes when stabilisation is required for up to 18 months. Application rate of ~4,000kg/ minimum. This cost includes cover c
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		only. additional seeding required. Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ This cost includes cover crop only, additional seeding required.
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Υ		m2	\$0.80		\$0		gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP stability. This cost includes cover cre
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		Process to be used on flat well prepa surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges fr \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10 Assumes use on flat areas with a

Domain 4c: Active Mine & Voids

Total Cost for Active Mine & Voids Domain

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Open Cut	Active pit area – benches blasted and doze to acceptable grade	Υ		Lm	\$1.93		\$0	Illioillation	Blasting in a 8x9 pattern of bench height 25 m with D11 push of 50-75 m.
	Drill & blast faces to make safe	Υ		m3	\$0.95		\$0		Bulk Drilling say 8'9 pattern, assuming a stem height of 6 m, charge length of 19 m, explosive density of 0.9, diameter of 229 mm, explosives at 665.3 kg/hole with a powder factor of 0.37 with an approximate bench height of 25 m.
	High wall treatment – (trench and safety berm)	Y		m	\$90.00		\$0		D10 dozer, 16H Grader and revegetation with pasture grass.
Earthworks / Structural Works			ı	ı	Open	Cut Subtotal	\$0	Select Push Length Here	
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Υ		m3	Select from List			•	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Υ		m3	Select from List			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Υ		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Υ		m2	\$27.00		\$0		Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional
Land Demonstration and	E	arthworks / S	tructural Wo	rks (Landforr	n Establishm	ent) Subtotal	\$0		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Planting mature trees (>15 cm)	Y Y		allow	\$15.00		\$0 \$0		4 m centres.
	Planting tube stock (<15 cm)			allow	\$6.60		\$0		4 m centres. Includes treating, weighing, mixing with
	Direct seeding / fertiliser (pasture grass species) Direct seeding / fertiliser (tree or native grass	Y		ha	\$1,875		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with
	species)	Y		ha	\$4,135		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Υ		m2	\$1.90		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Υ		m2	\$0.43		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10 Assumes use on flat areas with a
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	\$0.80		\$0		gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop poly. additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover croponly, additional seeding required.
	Single application of fertiliser (pasture)	Y		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the las few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Υ		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Υ		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Security fence around steep section of high wall	Y		m	\$64.00		\$0		1800mm x 3 barb chain-link mesh security fence and gate standard 2.5mm mesh & 32 mm post not concreted
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m.
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		D7 to spread material at \$205/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$70/m3 for imported fill material.

	Total Cost for Active Mine & Voids Domain							\$0		
					Additional Ite	ems Subtotal	\$0			
	<u> </u>		Mainte	enance of Re	habilitated Ar		\$0		Toological of Ignulotti.	
	Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0		Areas that require extensive rehabilitation repair - re-design and re-construction of landform.	
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		gullies, growth media replacement, some level of additional surface wate management.	
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		significant growth media replacemen Areas requiring major repair - rills,	
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		minor growth media replacement. Areas requiring moderate repair - rill	
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		Rehabilitation maintenance might include re-seeding, watering, fertilisi minor re-shaping, erosion control, inspections/audits - does not include maior repair works. Areas requiring minor repair - rills,	
				W	ater Managem	ent Subtotal	\$0			
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck ar dozer to clean out the dam.	
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate to batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.	
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pastu grass.	
	Land Preparation and Revegetation (Grov	vth Media De	evelopment ar	nd Ecosyster	n Establishme	ent) Subtotal	\$0			
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior t hydromulching.	
	Growth media supplementation with manure	Υ		ha	\$747.50		\$0		necessary. Addition of manure to improve soil quality.	
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximat depth of 0.2 m into stockpiles; load a haul to final rehabilitation location required or respreading where	
	Clearing and grubbing of trees and vegetation	Υ		ha	\$4,730.00		\$0		Clearing and grubbing of light vegeta growth e.g. regrowth	
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Truck: (90c/km) from imported stockpile - a nominal rate of \$60/m3 for imported	

Domain 5c: Management Activities

Total Cost for Management Activities

\$0

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Water Management	On-site treatment of contaminated water due to high salt (includes removal of metals etc, brine disposal and cost of mobile water treatment unit)	Y		ML	\$3,600		\$0	- mornation	Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
	On-site treatment of contaminated water due to low pH (incudes removal of metals etc, neutralisation treatments and cost of mobile water treatment unit	Y		ML	\$1,500		\$0		Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
Creek Diversions				Wa	ater Managem	ent Subtotal	\$0		Assumes material is suitable for
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion Long term maintenance of water course diversion –	Y		m	\$2,500		\$0		revegetating and has a reasonable chance of stabilising. Assumes maintenance has been kept up
	Channel constructed through backfilled material	Y		m	\$1,500		\$0		and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	Y		m	\$750.00		\$0		Assumes maintenance has been kept up and significant works are not required.
	Installation of rock armouring	Υ		m2	\$6.00		\$0		Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
					Creek Diversi	ons Subtotal	\$0		
Maintenance of Rehabilitated Areas	Pest management on buffer lands, non-disturbed, and rehabilitated areas	Y		ha	\$150.00		\$0		Feral animal baiting programs if required and waste materials required to be removed.
	Land management of undisturbed areas (rehabilitation, weeds, ferals, erosion and sediment	Y		ha	\$400.00		\$0		Undisturbed areas within the lease boundary that require land managemen
	control works)		Mainte	enance of Re	habilitated Ar	eas Subtotal	\$0		activities.
Heritage Items	The restoration and care and maintenance of items	Y		allow	Use alternate		\$0		Item for the redistribution of Aboriginal artefacts, preservation of European
	that have heritage significance				rate cell				heritage items or a combination of activities.
Sundry Items				1	Heritage Ite	ems Subtotal	\$0		TProvisional sum to be used to refine the
	Development of an 'Unplanned' Project Closure Plan - State Significant Development with closure planning well progressed i.e. preferred cover design, closure environment modelled e.g. groundwater /subsidence /plt lakes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	Υ		allow	\$100,000		\$0		conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assumes outcomes of studies readily available including modelling, landform design, geochemistry, demolition, etc. Costs to finalise options by domain and finalise designs for construction. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, final and use requirements and knowledge base investigations can range from ~575k to >51 M. Sites with more than 1 pit to add
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with at least ±2 of the following aspects requiring closure planning, but no significant issues realised at this time: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known likely contamination, tailings / rejects, final void	Y		allow	\$90,000		\$0		Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Estimated cost for developing closure plan including studies - basic to satisfy risks and decisions - includes risk assessment, options analysis, Closure Plan. Sites with more than 1 pit to add
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with no EPL and/or only one of the following relevant aspects: previous subsidence, low to medium geochemistry risk and/or spontaneous combustion propensity, known limited contamination, small approved final void	Υ		allow	\$15,000		\$0		Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Includes risk assessment, sampling and analyse on c5 samples, one study and Closure Plan.
	Development of an 'Unplanned' Project Closure Plan - State Significant Development with only preliminary to conceptual closure planning in place	Y		allow	\$300,000		\$0		studies in the presentations and studies including designs e.g., geochemistry, Contamination Remediation Action Plan, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provisiona sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assume at least 15 types of studies required ranging from geotechnical to ecology and social, development of a closure plan including address of obligations. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, final land use requirements and knowledge base investigations can range to >33 M. Sites with more than 1 pit to add
	Development of an 'Unplanned' Project Closure Plan Non State Significant Development with at least ±2 of the following aspects resulting in significant issues requiring remediation; previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	Y		allow	\$125,000		\$0		Individual consist for key investigations an studies including economic treatments and designs e.g. geochemistry, Contamination Remediation Action Plan, subsidence risk, cover(capping and final landform, site wide surface water, etc. Provisional sum to be used to refine the conceptual closure plan int a detailed closure plan with execution strategies for repabilitation activities. Based on experience for a REF after completion of a detailed closure study
	Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works.	Y		allow	\$27,950		\$0		(e.g. contamination investigation) costs could range from \$10,000 to \$100,000 cx GST. Note this does not apply to a Statement of Environmental Effects or Environmental Impact Statement.

	Total Cost for	r Manad	gement	Activiti	es			\$0	
					Additional Ite	ems Subtotal	ψU		
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A 1 8 2 1 1 1			Мо	bilisation and	d Demobilisat	ion Subtotal	\$0		Imperior and a second
	Mobilisation & Demobilisation (Distance to site >1000 km)	Υ		item	\$500,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	Y		item	\$300,000		\$0		equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	Υ		item	\$150,000		\$0		equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition
	Mobilisation & Demobilisation (Distance to site <150 km)	Y		item	\$100,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition
	Mobilisation & Demobilisation for small mine or quarry - medium to large fleet	Y		Item	\$35,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
obilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry - small fleet	Υ		Item	\$12,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
					Sundry Ite	ems Subtotal	\$0		
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Υ		allow	Use alternate rate cell		\$0		Provisional sum.
	Removal and disposal of radiation devices	Υ		each	\$31,630		\$0		Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i. Americium – 241, Plutonium – 230, Caesium - 137 etc). Source Isotope type, quantity, strengt weight, source holder type, source holder weight, pick-up location (amon, others) will directly affect forcing.
	Choose type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	Y		allow	\$0			Select type of HAZMAT Clean-up Required	Type of HAZMAT Clean-up required cleaning and decontaminating plant a equipment, chemical storage location oil and grease traps, tanks, vessels, a pipe work etc
	Site security during closure	Y		yr.	\$75,000		\$0		Provisional sum for site security measures required during closure. T includes nightly patrols and first response in the event of an out of hol incident.

Assumptions and rehabilitation requirements							
List or record any assumptions made when completing this tool:							



Activity

Domain

Justification for Change of Rates in the Rehabilitation Cost Estimation Tool

DRG unit/rate

Tool. A ju	In completing the Rehabilitation Cost Estimation, we are seeking an adjustment to the rates currently utilised in the Rehabilitation Cost Estimation Tool. A justification for the rate change by a third party has been included and I confirm that only the rates identified in the above table have been altered in the Rehabilitation Cost Estimation Tool.									
	Date									
	Authorisation Representatives F									

Adopted Rates

Justification