

FWP0001414

EXCELSIOR LIMESTONE QUARRY FORWARD PROGRAM

Wednesday 27 March 2024 to Friday 26 March 2027





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Summary

DETAIL	
Mine	Excelsior Limestone Quarry
Reference	FWP0001414
Forward program commencement date	Wednesday 27 March 2024
Forward program end date	Friday 26 March 2027
Forward program revision (if applicable)	
Contact	Donald Cheong
Mining leases	SL 664 (1906), MPL 318 (1973), PLL 1219 (1924), ML 1517 (1992)
Project location	GRAYMONT (EXCELSIOR) PTY LTD
Date of submission	Friday 3 May 2024

Important

The department may make the information in your program 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 program to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.



Three-year forecast – surface disturbance activities

Project description

High-grade limestone is mined at Graymont's Excelsior Limestone Mine and transported to the nearby Charbon Lime Plant. The limestone is further processed at Charbon to deliver lime products for essential services while supporting vital industrial processes and agricultural needs. Before Graymont's acquisition in August 2019, Sibelco operated the Excelsior Quarry from 2011 and before Sibelco, Hyrock operated the quarry at Excelsior since 1980. The limestone deposit was opened following the construction of the nearby Mudgee Railway Line in the 1870s. Limestone had been used for the lime burning and cement manufacture at the Goodlett Smith Granville cement works, the metallurgical flux at Hoskin's Lithgow iron and steelworks and from 1968 by Austen and Butta Pty Limited for its coal mines.

Description of surface disturbance activities

Exploration activities

No major exploration or resource drilling activities are currently scheduled for the Excelsior mine site. All potential limestone resources on the Excelsior lease package have already been identified.

Construction activities

No construction activities planned.

Mining schedule

Mining development method and sequencing and general mine features.

Over the next three years campaign mining will continue to occur within the No. 1 pit, concentrating on the west of the pit on PLL 1219. The method of operation of Excelsior Quarry is explained as follows:

Prior to overburden removal, vegetation is felled and pushed to the extremity of the Site.

Overburden is removed by ripping and/or blasting and transported to the overburden emplacement by haul trucks. The removal of overburden is an essential part of the mining operation as most of the deposit is overlain by Permo-Carboniferous shales and conglomerates.

Limestone is mined from the quarry faces by drilling and blasting. Secondary blasting is minimised by careful blasting design which is directed to maximising in-situ crushing during the actual blasting process.

Limestone is

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removed from the face with front end loaders or excavator and transported via 30t dump trucks to the Processing plant for further crushing and screening. • Screened limestone is then stockpiled as a finished product or further processed by washing, to remove overburden material which is transported to the overburden emplacement area. • Lime kiln dust (LKD) generated at Charbon lime plant is transported to Excelsior Quarry where it is emplaced within the overburden emplacement area in the No.1 Pit.

Areas identified for emplacements, the sequencing of emplacements, construction, and management.

Overburden stripping would occur in the southwest direction of No. 1 Pit to expose limestone (Overburden stripping has been completed for the current campaign and no further Over Burden stripping is expected for 2024). Overburden from this area has formed part of the main south haul road development to link the in-pit primary and secondary crushers. Graymont is backfilling No.1 Pit with overburden to minimise the haul distance for overburden and reduce the need to disturb new land for overburden emplacement. Overburden will also be stripped in the southeast of No.1 Pit mainly to improve wall stability in the area. High-quality limestone extraction will continue from southwest area of #1 pit.

Processing infrastructure activities and the location of tailings facilities and schedule for emplacement.

The quarrying of limestone at Excelsior requires the stockpiling of stone at the start and end points of the mining process. A small short-term stockpile is utilised at the primary crusher located in the ROM area of the Quarry. There are two main product stockpile areas. One is located to the immediate north of the ROM/office/loading bin area, and the other is located off the main access road to the south of the Office area. Product stockpiles store various grades and sizes of products, following crushing to size and washing. These stockpiles are constructed by dumping from Haul trucks and by a front-end loader material handling. There are no tailing facilities on site.

Waste disposal and materials handling operations.

Waste oil, lubricants, degreasers, and general domestic waste are disposed of offsite at appropriately licensed facilities. Wastewater from showers and sewage are treated through a septic tank system. Rubbish (domestic waste) is disposed of in bins emptied by a licensed waste contractor and disposed of at the Mudgee waste facility. Disposal of limestone kiln dust material (sourced from Charbon) will continue in association with overburden emplacement within the No.1 Pit.

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Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m³)	0	0	0
Rock/overburden	(m³)	0	0	0
Ore	(Mt)	0.07	0.07	0.07
Reject material ¹	(Mt)	0.02	0.02	0.02
Product	(Mt)	0.05	0.05	0.05

 $^{^{\}rm 1}\,{\rm This}$ includes coarse rejects, tailings and any other wastes resulting from beneficiation.



Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

Rehabilitation planning activities for 2024-27 include: 1. Identify analogue sites that represent the proposed final land use of native vegetation (with specialist support as required)

2. Determine plant species mix options for rehabilitation of native ecosystem final land use areas, for areas identified for rehabilitation in the coming four years (with specialist support as required). 3. Develop a topsoil inventory to document stripped, stockpiled and respread resources and review the material balance to make plans to create or acquire additional soil material, if needed.

Stakeholder consultation

Consult with local revegetation organisations on recommended native species seed mix.

Rehabilitation studies, risk assessments and/or design work

No rehabilitation studies are planned.



Rehabilitation research and trials

RRT	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE	STATUS
NUMBE	R			OF COMPLETION	

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Rehabilitation maintenance and corrective actions

No rehabilitation performance issues or knowledge gaps were identified in the 2023-24 Annual Rehabilitation Report.

Rehabilitation schedule

Soil amelioration and seeding will be undertaken in areas IA6, R2 and OEA2.

Subsidence remediation for underground operations

No underground operations at Excelsior Mine.

Progressive mining and rehabilitation statistics

Three-yearly forecast cumulative disturbance and rehabilitation progression

	FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
Α	Total surface disturbance footprint	(ha)	37.83	37.83	37.83
В	Total active disturbance	(ha)	31.71	27.63	27.63
P	Total new area of land proposed for active rehabilitation	(ha)	2.87	6.95	6.95

Rehabilitation key performance indicators (KPIs)

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O Total new active disturbance area	(ha)			
P Total new area of land proposed for active rehabilitation during the reporting period	(ha)	2.87	4.08	

Q Annual rehabilitation to disturbance ratio



Attachment 1 – Reporting Definitions

REPO	ORTING CATEGORY	DEFINITION
A	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.
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.
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.



REPORTING CATEGORY	DEFINITION
0	The area of any new active disturbance that will be created during the next three years, as defined under definition A1 (definition A1 Table 5).
P	The sum of any new rehabilitation to be commenced in the next three years. These areas may be in the phases "Rehabilitation - Land Preparation" or the "Ecosystem & Land Use Establishment" (definitions C & D in Table 5).
Q	The rehabilitation to disturbance ratio (S / R) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the three years. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that period are the same.



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 <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> 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*.

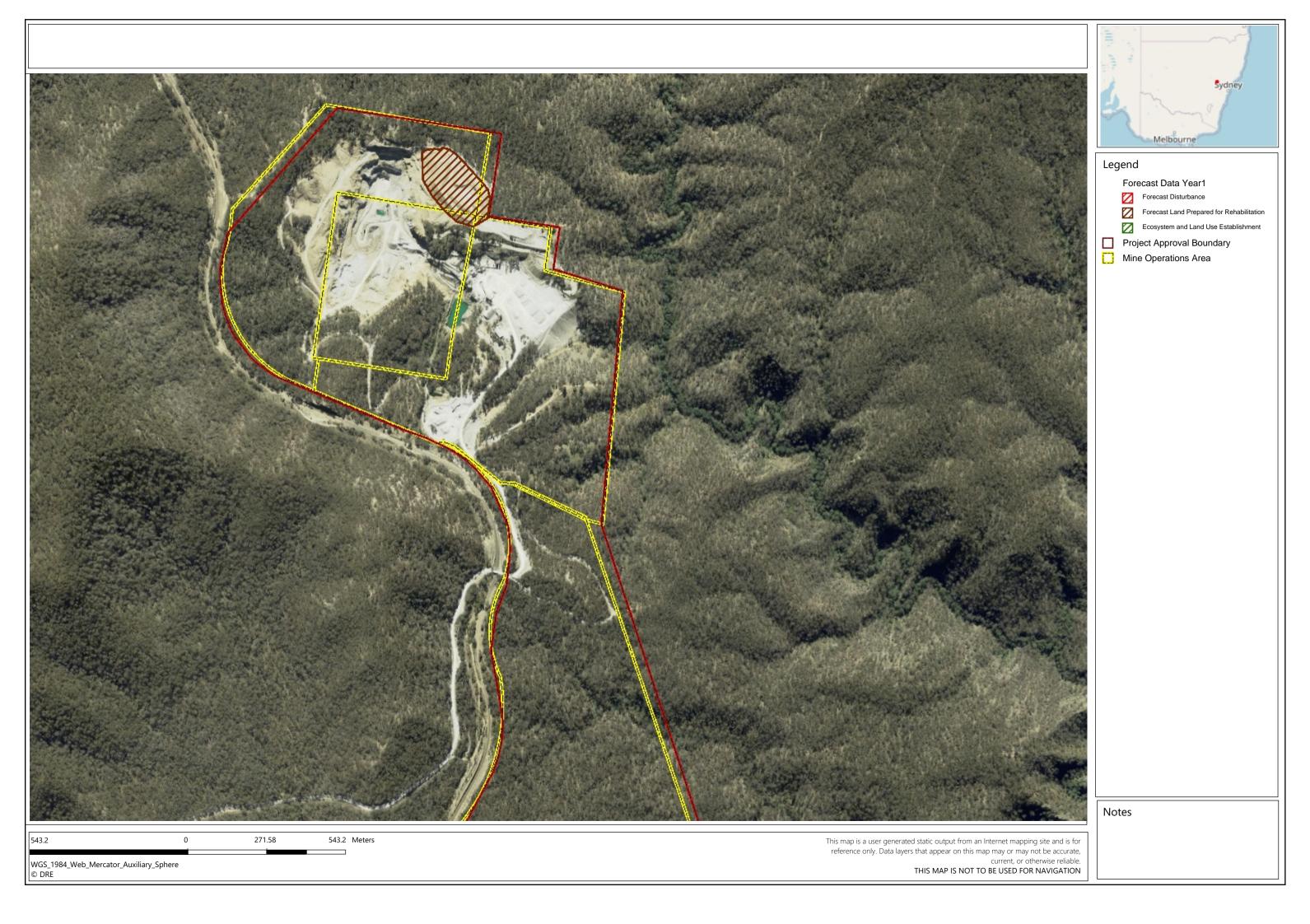
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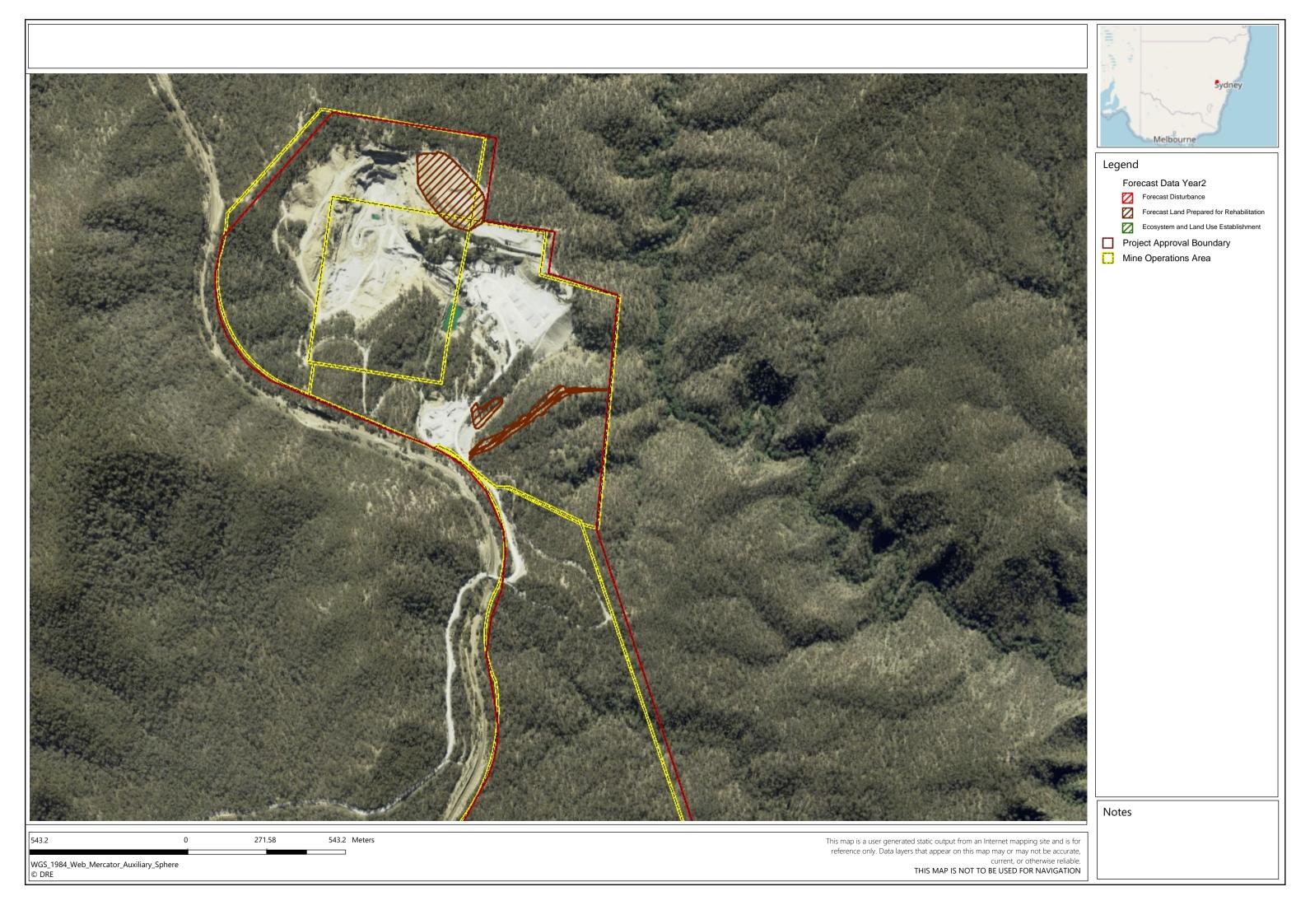


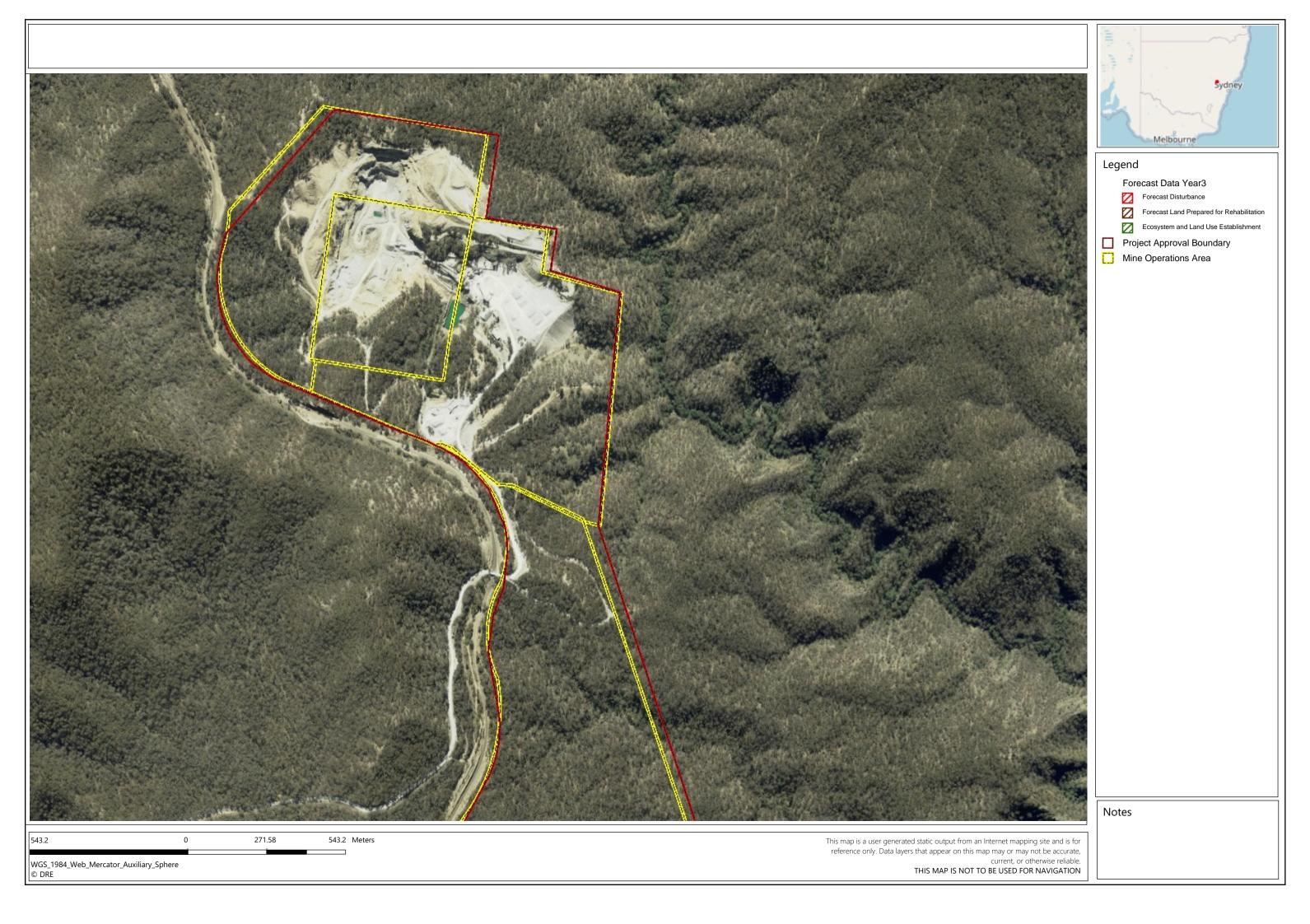
Attachment 3 – Plans

20240409 Plan 2A_2024 Mining and Rehabilitation – Year 1_ID7814.pdf 20240409 Plan 2B_2024 Mining and Rehabilitation – Year 2_ID7815.pdf 20240409 Plan 2C_2024 Mining and Rehabilitation – Year 3_ID7816.pdf

Forward Program (LARGE MINE) v2.1







	5p03it.	ids prior to calculating the Security	Complete the following field:
		Excelsior Quarry	Mine Name:
	8, ML1517	PLL 1219, SLL 664, MPL	Lease(s):
	I	Graymont (Excelsior) Pty	Title Holder:
	I	Graymont (Excelsior) Pty	Mine Operator:
		Five Years	Term of RCE:
17/11/20	Date of last Security Deposit review	\$2,214,000	Current Security:
		Wayne Wolfe	Mine Contact:
		Site Manager	Position:
		Excelsior Road Round Swamp NSW 284	Address:
	Email: wayne.wolfe@graymont.com		Address: Phone:

The following site specific information is Deposit.	requested to provide background information	ation in the context of calculating the Security
Summary of Mine Activities		Environmental Sensitivities
Total annual production (tonnes):	200,000	Surrounding land use (tick all that apply):
Mine lease area (ha):	187.62	☐ Cropping
Area of extraction (ha):		☐ Pasture
Area of disturbance (ha):	37.83	Forest
, ,		Undisturbed habitat
Rehabilitation in progress (ha):	0.83	Urban
Rehabilitation complete (ha): Achieved ecosystem sustainability		Environmental Issues affecting site (tick all that a
Forward Program/MOP Utilised: Reference no. version and date Forward Program/MOP Plan Utilised: Reference Plan no. version and date Plan(s) attached	2023 Forward Program (27/4/23) 1 2023 Forward Program (27/4/23) 2 2023 Forward Program (27/4/23)	☐ Threatened flora ☐ Threatened fauna ☐ Cultural heritage items ☐ Natural heritage features ☐ Mine subsidence ☐ Surface water pollution
	3 2023 Forward Program (27/4/23)	Ground water pollution Hydrocarbon contamination Methane drainage/venting Spontaneous combustion Acid Mine Drainage
NOT Ensure rehabilitation cost estimation refl the lease. Contingencies should be a incorporated ele estima	ects all environmental issues affecting llocated where costs have not been swhere in the	☐ Within drinking water catchment ☐ Other (describe below)
. Commo		



Open Cut Summary Rehabilitation Cost Estimation

Note: Sections of this page	are automatically filled in from the registration page		
Mine Name:	Excelsior Quarry		
Lease(s):	PLL 1219, SLL 664, MPL 318, ML1517		F
Authorisation Owner:	Graymont (Excelsior) Pty Ltd		
Mine Operator:	Graymont (Excelsior) Pty Ltd		
Term of RCE:	Five Years		
Current Security:	\$2,214,000 Date of Last \$	Security Depo	esit Review: 17/11/2021
Mine Contact:	Wayne Wolfe		
Position:	Site Manager		
Address:	Excelsior Road		
	Round Swamp NSW 2846		
Phone:	0417 498 830 Email: wayne.wol	fe@graymor	nt.com
	Domain		Security Deposit
Domain 1: Infrastructure			\$944,889
Domain 2: Tailings & Re	ects		
Domain 3: Overburden 8	Waste		\$143,834
Domain 4: Active Mine &	Voids		\$410,575
Domain 5: Management	Activities		\$125,000
Subtotal (Domains and	Sundry Items)		\$1,624,298
Contingency		10%	\$162,430
Post Closure Environme	ntal Monitoring	10%	\$162,430
Project Management and	d Surveying .	10%	\$162,430
Total Security Dep	osit for the Mining Project (excl. of GST)		\$2,111,587
		with a demonstrate	
_	In the above calculation or as part of rehabilitation secu		**************************************
	made to unit prices within this spreadsheet. (Attach a sepa		
☐ The proposed rehabili	tation design is generally consistent with the development of	onsent for the p	project.
This Registration Form, S	ummary Report and calculation pages are to be printed	and attached a	as an appendix the AEMR or MOP.
	on has been estimated using the best available information a action of the total rehabilitation liability held by this mine.	t the time.	
Darials Karta			0.15.1000.4
Derick Korte	tetivele News		3/5/2024
Company Resprese	ntative s Name		Date
			X
Director			-JX
Company Represent	tative's Role / Responsibility		Signature
)

Open Cut Operations

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain

\$944,889

Additional Assumptions: Record any relevant assumptions to this domain below:

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:
Termination of Services and Demolition Works	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	Υ	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 multiple 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		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 substations	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	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 scrap as applicable.
	Demolish and remove switchyard. Dispose of waste material on-site/locally	Y		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.
	Demolish and remove small buildings/tanks (admin buildings, single story accommodation etc) and disposal on-site/locally	Y	260	m2	\$61.00		\$15,860		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	Y	1790	m2/floor	\$90.00		\$161,100		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 demolished.
	Demolish and remove industrial buildings (workshops tyre change and servicing area etc not CHPP/process plant) and disposal on-site/locally	Υ		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.
	Demolish and remove CHPP/process plant (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 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	1299.2	m2/floor	\$225.00		\$292,320		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 equivalent.
	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.

Outless Cut and Demons 1050 Total alleged			1			Collapse structure and remove. Does
Collapse, Cut and Remove 1250 T coal silo and disposal on-site/locally	Y		allow	\$62,500	\$0	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	Y	17.67	m	\$185.00	\$3,269	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	352.68	m	\$295.00	\$104,041	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. This may include small scale fixed material stacking	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 regional disposal facility or equivalent.
infrastructure Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of	Y		m	\$150.00	\$0	Due to no canopy or infrastructure attached.
reclaim tunnel roof) 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
Demolition and removal of vent raise fans, electrical substation and winch and disposal on-site/locally	Y		allow	\$25,000	\$0	Somewhere else. 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 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 regional disposal facility or equivalent.
Removal of UG tank 5000 L - 15000 L - including pipes, bunds etc. and disposal on-site/locally	Y		allow	\$30,000.00	\$0	Assume tank is clean (contents removed), does not include transport to regional disposal facility or equivalent.
Remove small underground pipe and disposal on- site/locally	Υ		m	\$25.00	\$0	For example: 300 mm pipes - 0.5 m deep, does not include transport to regional disposal facility or equivalent.
Remove medium underground pipe and disposal on- site/locally	Y		m	\$60.00	\$0	For example: 500 mm pipes - 1 m deep, does not include transport to regional disposal facility or equivalent.
Remove large underground pipe and disposal on- site/locally	Y		m	\$165.00	\$0	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 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	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	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	2278	m2	\$75.00		\$170,850	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 available.
	Remove fence (cyclone/wire fence) and disposal on- site/locally	Y		m	\$20.00		\$0	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	Y		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	Υ		tonne	\$9.00		\$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 >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.
	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	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 type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km	Y		allow	Use alternate rate cell		\$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 - fees (general waste)	Y		tonne	\$193.00		\$0	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 disposal on site.
	Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)	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 waste disposal on site.
Rail Infrastructure		Tern	nination of Se	ervices and D	emolition Wo	rks Subtotal	\$788,290	Remove all materials to allow area to be
	Remove rail loop and spur, ballast etc. and disposal on-site/locally	Y		m	\$60.00		\$0	reshaped and rehabilitated - does not include transport to regional disposal facility or equivalent.
	Remove train loading facilities and disposal on- site/locally	Υ		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	Υ		ha	\$2,860		\$0	D10 Dozer and 16 H Grader (50% utilisation).
Contaminated Materials				Ra	ail Infrastruct	ure Subtotal	\$0	
	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	The preliminary 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 workshop, chemical storage etc.)
			1				1	

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.	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 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.g. –10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analysis.
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 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 analysis.
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		Develop remediation plan for approval including designs and detailed costs. Costs may increase if detailed designs required for construction.
Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y		L	\$0.35	\$0		Cost for recent sump clean-up from 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.	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	Υ		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	100	m3	\$220.00	\$22,000		Includes load, haul and dump fees to a licensed facility.
Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	Y		m3	Select from List		Select Volume Here	spreading or contaminates soils of 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 de
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	2	m3	\$165.00	\$330	Diesel tank is self bunded. Potential contamination at refuelling area; 10sqm at depth of 0.2m	Additional cost as the treatment process is fast tracked.
Remove and dispose of asbestos (<750 m2)	Y		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)	Y		m2	\$40	\$0		Where an assessment/estimation has 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.
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 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 natinge onnersal for disposal (Select Haul Distance from list)	Y		tonne	List		Select Haul Distance Here	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)	Y		tonne	Select from List			Select Haul Distance Here	landfill. Assumes transport in a 20,000 L tanker Add disposal costs to additional items
	Hadr Distance Hom list)			Contan	ninated Mater	rials Subtotal	\$37,330		
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 / ripping the drill pad, amelioration / seeding etc.
	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 - 20 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.) Boreholes – cap and seal open bore holes - surface-	Y		allow	\$6,960		\$0		Holes deeper than 100 m - includes cutting steel collar 6 m below surface, grouting and capping. Surface-to-in-seam gas drainage
	to-in-seam gas drainage	Y		allow	\$17,890		\$0		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)	Y		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 used 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 on site
	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 filling with concrete/grout
	Option 6 - Rehabilitation of drill hole collars Rehabilitation of drill hole collars (mineral exploration)	Υ		each	\$415		\$0 \$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		ha	\$1,040.00	oles Subtotal	\$0 \$0		Assumes ~6 m road width - 16H Grade
	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 earthworks, final trim and deep rip and seed (pasture grass)	Υ		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	7.06	ha	\$4,485		\$31,664		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)	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)	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 othe surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
Earthworks / Structural Works	Т	Ī	Ī	R I	oads and Tra	acks Subtotal	\$31,664	Select Push Length Here	I
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		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).
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y	0.1	ha	\$1,600		\$160	500m x 2m clean water diversion channel Select Haul Distance Here	Combination of dozer and excavator work plus grader for ~4 hours each per ha. 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)	Y		m3	Select from List				material requiring backfill using an excavator and scraper to fill the void an 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 an stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas	Y Y	7.98	ha ha	\$1,130.00 \$960.00		\$9,017 \$0	Stockpile Laydown Areas	Undertaken using D10 dozer and 16M grader. 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 frod idsurbed 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 \$20/m2.
Land Preparation and	T E	arthworks / S	tructural Wo	rks (Landforn	n Establishm	ent) Subtotal	\$9,177	< =1km	
Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	7980	m3	\$3.26		\$25,985	<=1km 7.98 ha of infrastructure domain will require topsoil (100mm) and reveg	Undertaken with 623 scraper and 14 M grader.
	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).

			I						Includes treating, weighing, mixing with
	Direct seeding / fertiliser (tree or native grass species)	Y	7.98	ha	\$4,135		\$32,997		fertiliser + spreading by tractor or helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		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	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 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	Υ		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)	Y		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.
	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	Υ		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.
	Supply from external sources a combination of virgin excavated natural material (VEMM) 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 material.
	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 necessary.
	Growth media supplementation with manure	Y		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 (Grov	vth Media De	velopment ar	nd Ecosystem	Establishme	ent) Subtotal	\$58,982		
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 darbatters 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 dam batters etc suitable for re-use by an alternate land-user - 06 Dozer (or similar) + pasture grass.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (haul distance <1km)	Υ	1650	m3	\$3.55		\$5,858	<=1km 0.33ha footprint; 0.5m sediment depth	Undertaken with excavator, trucks, 16 M grader and D10 Dozer
	Removal of evaporation fans and/or other water	Y		allow	\$25,000		\$0		Provisional sum for removal of water management infrastructure.
	transfer and management infrastructure			Wa	ter Managem	ent Subtotal	\$5,858		Rehabilitation maintenance might
aintenance of Rehabilitated	transfer and management infrastructure							Sum of Infrastructure	include re-seeding, watering, fertilising,
aintenance of Rehabilitated Areas	transfer and management infrastructure Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y	14.69	ha	\$925		\$13,588	domain and Water management domain	minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Maintenance of areas that have been shaped and	Y	14.69	ha ha	\$925 \$1,200		\$13,588 \$0		minor re-shaping, erosion control, inspections/audits - does not include
aintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'		14.69						minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills,
	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor	Υ	14.69	ha	\$1,200		\$0		minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, minor growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring moderate repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate Existing rehabilitation repair - major Existing rehabilitation repair - total failure of	Y	14.69	ha ha	\$1,200 \$1,700		\$0 \$0		minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, minor growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management. Areas that require extensive rehabilitation repair - re-design and re-
	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate Existing rehabilitation repair - major	Y Y		ha ha ha	\$1,200 \$1,700 \$2,500 \$40,000	egs Subtoss	\$0 \$0 \$0		minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, minor growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management. Areas that require extensive

Total Cost for Infrastructure Domain	\$944,889

Open Cut Operations

Domain 2a: Tailings & Rejects

Total Cost for Tailings & Rejects Domain

\$0

Additional Assumptions: Record any relevant assumptions to this domain below:

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	
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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		The preliminary 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., or and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle refuel, sewage treatment, secondary workshop, chemical storage 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.	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) (ivi)) 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, fieldwork, sampling and analysis.
	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		so		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 359 (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 republikation 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 analysis.
	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		Develop remediation plan for approval including designs and detailed costs. Costs may increase if detailed designs required for construction.
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y		L	\$0.35		\$0		Cost for recent sump clean-up from 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.	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	Υ		m4	\$660.00		\$0		Includes load, haul and dump fees to a licensed facility.

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	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)	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 de
	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	Y		m3	\$165.00		\$0		Additional cost as the treatment process is fast tracked.
	Remove and dispose of asbestos (<750 m2)	Y		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)	Y		m2	\$40.00		\$0		Where an assessment/estimation has 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.
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor	<u> </u>		ı	inated Mater	ials Subtotal	\$0		
Rodus and Tracks	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds — minor earthworks and deep rip and trim	Y		ha ha	\$1,040.00 \$1,500		\$0 \$0		Assumes ~6 m road width - 16H Grader. D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - no seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Υ		ha	\$3,700		\$0		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) Unsealed roads / haul roads / vehicle park-up areas	Y		ha	\$4,485		\$0		D10 Dozer @ \$400 per hour and 16 H 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 (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.
	E	arthworks / S	tructural Wor	rks (Landform	n Establishme	ent) Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		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 determined by approval / permit (Select Haul Distance from List)	у		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.
	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	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	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 \$20/m2.
Mine Waste	l E	artnworks / S	tructurai woi	rks (Landforn	Establishme	ent) Subtotal	\$0		I
	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 (MMD) / 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		This includes sourcing, carting, 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 materials 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 haulage volume in 8.05.
	Additional materials required for reshaping, capping								

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 / day, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
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 (NMD) 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 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 / hauf / 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 influence in rate, If additional material to make up landform, provide buttress or other works aside from tailings cap naterial influence and spreading in additional to any long haulage volume in 8.05.
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.).
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	This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap of 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 > 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 activites (i.e., load / hauf / 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 9.0.2 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
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 / dlay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
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	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 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 to any long haulage volume in 8.05.

1	Additional materials								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.).
	Long haulage soil / weathered rock / sediment e.g. capping/covers, removal of contamination, etc.	Y		m3	Select from List			Select Haul Distance Here	Capping/cover material available within 50 km round trip e.g. waste / overburder
Land Dranavation and					Mine Wa	aste Subtotal	\$0	Colored Hand Distance Hann	
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	у		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.
	Direct seeding / fertiliser (pasture grass species)	Υ		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0	whole of domain	fertiliser + spreading by tractor or helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0	allowance for high risk areas, drains etc	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
	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 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 cropolly, 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.)	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	Y		m	\$13.00		\$0		Standard rate for standard stock
	areas Purchase and erect warning signs	Y		allow	\$250.00		\$0		fencing. 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.
	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 material.
	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 necessary.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
Water **	Land Preparation and Revegetation (Grov	vth Media De	velopment a	nd Ecosysten	m Establishme	ent) Subtotal	\$0		
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 darbatters 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	Υ		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
Ī	Remove sediments from the floor of the dam to	Y	1	m3	Select from			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring

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 major repair works.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	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 - total failure of landform	\$0		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.					
		\$0							
	Additional Items Subtotal								
	Total Cost for Tailings & Rejects Domain							\$0	

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain

\$143,834

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	Treatment of known Acid Sulfate Soils	Υ		ha	\$2,580	O.III TALLO	\$0	Information	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. Assumes transport in a 20,000 E tanker
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y		tonne	Select from List ninated Mater	ials Subtotal	\$0	Select Haul Distance Here	Add disposal costs to additional items where warranted
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 Grade
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds — minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - no seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,700		\$0		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)	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 othe surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
Forthweeks / Oterratural Words				R	oads and Tra	cks Subtotal	\$0		L
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – 50 m-75 m push length	Y	86000	m3	\$1.19		\$102,340	> 50m - 100m < push	Assumes D11 dozer push @ 375 bcm/hr. D10 Dozer @ \$400 per hour and 16 H
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		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 an 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 an stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0	whole domain	Undertaken using D10 dozer and 16M grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y	4	ha	\$1,600		\$6,400	allowance	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 frod disturbed land and/or upon entry to water courses - prevents erosion of gull head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
Mine Waste	E:	arthworks / S	tructural Wo	rks (Landforr	n Establishm	ent) Subtotal	\$108,740		l
	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		This includes sourcing, carting, 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 rom the seepage etc. The seepage et

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.	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.).
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 (NMD) / 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 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 from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
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.).
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) of 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	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 / hauf / 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 ror levant haulage and spreading in additional to any long haulage volume in 8.05.
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.)
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	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 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 to any long haulage volume in 8.05.

	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. Long naulage soil / weathered rock / sediment e.g.	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.). Capping/cover material available within
	capping/covers, removal of contamination, etc.	Y		m3	List	aste Subtotal	\$0	Select Haul Distance Here	.50 km round trip e.g. waste / overburden
Land Preparation and	T				Willie VV	aste Subtotai	4 0	< =1km	
Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	4220	m3	\$3.26		\$13,741		Undertaken with 623 scraper and 14 M grader.
	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)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Y	4.22	ha	\$4,135		\$17,450		Includes treating, weighing, mixing with 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	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 stability. This cost includes cover crop only, additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Υ		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.
	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 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		\$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	Υ		m	\$22.00		\$0		Standard rate for no-climb stock
	areas Construct standard stock fence around rehabilitated	Υ		m	\$13.00		\$0		fencing. Standard rate for standard stock
	areas Purchase and erect warning signs	Υ		allow	\$250.00		\$0		fencing. 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.
	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 material.
1	Clearing and grubbing of trees and vegetation	Y	<u> </u>	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 necessary.
1	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		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 a	nd Ecosyster	n Establishm	ent) Subtotal	\$31,191		ny aromaioning.
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 dam batters ets 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 dam 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.

				Wa	ter Managem	nent Subtotal	\$0	
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y	4.22	ha	\$925		\$3,904	Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0	Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0	Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0	Areas requiring major repair - rills, guillies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	\$0	Areas that require extensive rehabilitation repair - re-design and re- construction of landform.					
	Maintenance of Rehabilitated Areas Subtotal							
	Additional Items Subtotal							
	Total Cost for Overburden & Waste Domain							\$143,834

Domain 4a: Active Mine & Voids

Total Cost for Active Mine & Voids Domain

\$410,575

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	Y		Lm	\$1.93		\$0		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.
			_		Open	Cut Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – 50 m-75 m push length	Y	185000	m3	\$1.19		\$220,150	> 50m - 100m < push	Assumes D11 dozer push @ 375 bcm/hr.
	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	Y	1.1	ha	\$1,600		\$1,760	allowance	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 \$20/m2.
	E	arthworks / S	tructural Wo	rks (Landforr	n Establishm	ent) Subtotal	\$221,910		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Υ	4000	m3	\$3.26		\$13,025	< =1km	Undertaken with 623 scraper and 14 M grader.
	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)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Y	4	ha	\$4,135		\$16,540	estimate for upper benches only	Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		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	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 lisal 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.
	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.

	Total Cost for A	ctivo M	ina & V					\$410.57	5
			wainte			ems Subtotal	\$3,700		
	Existing rehabilitation repair - total failure of landform	Υ	Mainto	ha enance of Rel	\$40,000	reas Subtotal	\$0 \$3,700		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	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		major repair works. 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	4	ha	\$925		\$3,700		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include maior regist works.
				Wa	ater Managen	nent 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 dar 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	opo.t u	allow	\$2,500	, curiotal	\$0		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) @ ~\$200 per hour and pasture grass.
	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosysten	n Establishm	ent) Subtotal	\$184,965		nyaromataning.
	Utilise biotic soil media - organic topsoil alternative	Y		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	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 necessary.
	Clearing and grubbing of trees and vegetation	Υ		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 - allo nominal rate of \$60/m3 for imported fill material.
	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 - allo nominal rate of \$70/m3 for imported fill material.
	Purchase and erect warning signs	Y	84	allow	\$250.00		\$21,000		Compliance with AS 1319-1994 - Safe signs for the occupational environment installed every 25 m.
	Security fence around steep section of high wall	Y	2100	m	\$64.00		\$134,400		1800mm x 3 barb chain-link mesh security fence and gate standard 2.5m mesh & 32 mm post not concreted
	growth media amelioration with biosolids	Y		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.

Domain 5a: Management Activities

Total Cost for Management Activities

\$125,000

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

		Annliachta			Defects I luit	Alternative		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:
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		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	L		l	Wa	ater Managem	nent Subtotal	\$0		Assumes material is suitable for
	Repairs and/or stabilisation of new or compromised water course diversion	Y		m	\$2,500		\$0		revegetating and has a reasonable chance of stabilising.
	Long term maintenance of water course diversion – Channel constructed through backfilled material	Y		m	\$1,500		\$0		Assumes maintenance has been kept u 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 and significant works are not required. Assumes competent material is locally
	Installation of rock armouring	Y		m2	\$6.00		\$0		available - multiply costs by 2 for sourcing and transporting from offsite location.
					Creek Diversi	ons Subtotal	\$0		I
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 control works)	Υ		ha	\$400.00		\$0		Undisturbed areas within the lease boundary that require land manageme activities.
Heritage Items		1	Mainte	enance of Re	habilitated Ar	eas Subtotal	\$0		It are for the predicted to the selection
riemage nems	The restoration and care and maintenance of items that have heritage significance	Y		allow	Use alternate rate cell		\$0		Item for the redistribution of Aborigina artefacts, preservation of European heritage items or a combination of activities.
Sundry Items					Heritage Ite	ems Subtotal	\$0		Provisional sum to be used to refine th
	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 / pit lakes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	Y		allow	\$100,000		\$0		closure plan with execution strategies for rehabilitation activities. Assumes outcomes of studies readily available including modelling, landforn design, geochemistry, demolition, etc. Costs to finalise options by domain an finalise designs for construction. Assume a simple site e.g. single oct., no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, fin land use requirements and knowledge base investigations can range from ~575k to >51 M. Sites with more than 1 pit to add \$50,000 to rate.
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with at least 22 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	1	allow	\$90,000		\$90,000		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 \$50,000 to rate.
	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 spontaneo	Y		allow	\$15,000		\$0		Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Include risk assessment, sampling and analysion <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 as studies including designs e.g. geochemistry, Contamination Remediation Action Plan, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provision sum to be used to refine the conceptue 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, fin land use requirements and knowledge base investigations can range to \$\$3\$ NSites with more than 1 pit to add \$\$50,000 to rate.

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Deciding a Principle of Entitle Control of Entitle		 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 	Y		allow	\$125,000		\$0		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 into a detailed closure plan with execution
Site security during closure Y y: \$75,000 S0 Solicit type of NAZMAT Clean-up regulard - Choose type of NAZMAT Clean-up regulard - Choose type of NAZMAT Clean-up regulard - Choose type of NAZMAT Clean-up regulard - clean-up regular - clea		to facilitate rehabilitation including contamination	Y		allow	\$27,950		\$0		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
Clean-up Required clearing and documentations plant and equipment, chemical attorage locations, oil and grasse trape, and chemical attorage locations, oil and grasse trape, tarke, vessels, and pips work are Removal and disposal of radiation devices Y allow Salty Salt		Site security during closure	Y		yr.	\$75,000		\$0		measures required during closure. This includes nightly patrols and first response in the event of an out of hours
In any person of the provisional sum for removal and disposal of radiation devices Removal and disposal of radiation devices Y each \$31,830 \$0 Caselium 1-24, Publication 2-28, Caselium 1-28, Case		cleaning and decontaminating plant and equipment,	Y		allow	\$0		\$0		cleaning and decontaminating plant and equipment, chemical storage locations,
Removal and disposal of radiation devices Removal and disposal of radiation devices Y each \$31,590 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0										
Mobilisation and Demobilisation Mobilisation & Demobilisation for small mine or quarry - small fleet Y 1 1 1 1 1 1 1 1 1		Removal and disposal of radiation devices	Y		each	\$31,630		\$0		disposal of monitoring devices on conveyors using a radiation source (i.e., Americium – 241, Plutonium – 238, Caesium - 137 etc). Source Isotope type, quantity, strength, weight, source holder type, source holder weight, pick-up location (among
Mobilisation and Demobilisation Mobilisation & Demobilisation for small mine or quarry - small fleet Mobilisation & Demobilisation for small mine or quarry - medium to large fleet Mobilisation & Demobilisation for small mine or quarry - medium to large fleet Mobilisation & Demobilisation (Distance to site <150			Y		allow			\$0		Provisional sum.
Mobilisation & Demobilisation for small mine or quarry - small fleet Mobilisation & Demobilisation for small mine or quarry - medium to large fleet Mobilisation & Demobilisation (Distance to site <150 y liter \$100,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0						Sundry Ite	ems Subtotal	\$90,000		
Mobilisation & Demobilisation for small mine or quarry - medium to large fleet Y 1 Item \$35,000 \$35,000 \$35,000 \$35,000 \$35,000 May include specialist demolition equipment and/or suitable plant to execute bulk earthworks including bunds et or all domains would be undertaken concurrently May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. Mobilisation & Demobilisation (Distance to site <150 Y Item \$150,000 \$0 May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. Mobilisation & Demobilisation (Distance to site >150 Y Item \$30,000 \$0 May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. Mobilisation & Demobilisation (Distance to site >500 Y Item \$30,000 \$0 May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. Mobilisation & Demobilisation (Distance to site >500 Y Item ### Stooloop ### Additional Items Other 1 - cinearly This item includes <	Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or	Y		Item	\$12,000		\$0		equipment and/or suitable plant to
Mobilisation & Demobilisation (Distance to site >150 White term stoods with term with term stoods with term stoods with term with term with term stoods with term with t			Y	1	Item	\$35,000		\$35,000	loader, dumptruck. Include once only as assume rehab earthworks including bunds etc for all domains would be	equipment and/or suitable plant to
Mobilisation & Demobilisation (Distance to site >500 km) Mobilisation & Demobilisation (Distance to site y item \$500,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0			Y		item	\$100,000		\$0		equipment and/or suitable plant to
whomisation & Demobilisation (Distance to site \$900 km but <1000 km) Mobilisation & Demobilisation (Distance to site \$100 km) Mobilisation & Demobilisation (Distance to site \$100 km) Mobilisation and Demobilisation subtotal \$30,000 Additional Items Other 1 cineers No item \$300,000 \$0 equipment and/or suitable plant to execute bulk earthworks as required. Mobilisation and Demobilisation Subtotal \$35,000 This is This Th			Υ		item	\$150,000		\$0		equipment and/or suitable plant to
Modification & Demolisation (Distance to site of temperature) Mobilisation and Demobilisation Subtotal Additional Items Other 1 cinsert Note: This is the mindfuldes <-to be added by the state of th			Υ		item	\$300,000		\$0		equipment and/or suitable plant to
Additional Items Other Leinsert N This is This is This item includes < <to added="" be="" by<="" td=""><td></td><td></td><td>Υ</td><td></td><td></td><td></td><td></td><td></td><td></td><td>equipment and/or suitable plant to</td></to>			Υ							equipment and/or suitable plant to
	Additional Itame	1		Mol	bilisation and		ion Subtotal	\$35,000		This item includes acts he added by
Other 2 cincerts N deliberately	Auditional items					-				the operator>> This item includes < <to added="" be="" by<="" td=""></to>
Other 3 <insert> N left blank the operator>> Other 3 <insert> N left blank the operator>></insert></insert>										This item includes < <to added="" be="" by<="" td=""></to>
Additional Items Subtotal \$0		•				Additional Ite	ems Subtotal	\$0		
Total Cost for Management Activities \$125,000		Total Cost for Management Activities								

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:	

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:
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	miorinatori	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 multiple disconnection fees.
	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	Υ		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 substations	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	Y		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	Y		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 scrap as applicable.
	Demolish and remove switchyard. Dispose of waste material on-site/locally	Y		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.
	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.
	Demolish and remove light industrial buildings and disposal on-site/locally	Y		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 demolished.
	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.
	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	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	Υ		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 equivalent.
	Remove stacker/reclaimer rails and ballast and demolish and remove concrete footings etc and disposal on-site/locally	Υ		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.

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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	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	Y		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. This may include small scale fixed material stacking	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 regional disposal facility or equivalent.
infrastructure Remove and demolish conveyor from reclaim tunnel						Due to no canopy or infrastructure
(Does not include excavation and demolition of reclaim tunnel roof)	Y		m	\$150.00	\$0	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	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 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	Υ		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	Y		allow	\$30,000.00	\$0	Assume tank is clean (contents removed), does not include transport to regional disposal facility or equivalent.
Remove small underground pipe and disposal on- site/locally	Y		m	\$25.00	\$0	For example: 300 mm pipes - 0.5 m deep, does not include transport to regional disposal facility or equivalent.
Remove medium underground pipe and disposal on- site/locally	Y		m	\$60.00	\$0	For example: 500 mm pipes - 1 m deep, does not include transport to regional disposal facility or equivalent.
Remove large underground pipe and disposal on- site/locally	Y		m	\$165.00	\$0	For example: 1 m pipes - 2 m deep.
Remove above ground pipe (supported) and disposal on-site/locally	Y		m	\$12.00	\$0	-300 mm pipes and assumes pipes are in close proximity to infrastructure 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	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	o h d F	reaking up slab and disposal or for onversion to aggregate. Generally aulage rates will be \$0.60 - \$1.20 / km, epending on truck fleet, loaders etc. or off-site disposal use alternate rate ption and add \$0.90 / km for transport.
	Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Υ		m2	\$75.00		\$0	o h d F	treaking up slab and disposal or for onversion to aggregate. Generally aulage rates will be \$0.60 - \$1.20 / km, epending on truck fleet, loaders etc. or off-site disposal use alternate rate ption and add \$0.90 / km for transport.
	Crush concrete to make road aggregate - 75 mm	Υ		tonne	\$10.00		\$0	a	oes not include haulage of materials - ssumes crushing plant is readily vailable.
	Crush concrete to make road aggregate - 50 mm	Y		tonne	\$13.00		\$0	a	loes not include haulage of materials - ssumes crushing plant is readily vailable.
	Crush concrete to make road aggregate - 30 mm	Y		tonne	\$15.00		\$0	a	loes not include haulage of materials - ssumes crushing plant is readily vailable.
	Remove fence (cyclone/wire fence) and disposal on- site/locally	Υ		m	\$20.00		\$0	R	toll up fence and remove posts.
	Removal of small plastic tanks	Y		each	\$1,000.00		\$0		temove small poly tanks used for water
	Demolish and remove galvanised/corrugated light weight tanks	Υ		each	\$500.00		\$0	D	torage, etc. Demolish and remove small lightweight netal tanks. No costs included for nanaging liquids, etc.
	Demolish and remove communication towers	Υ		each	\$5,000.00		\$0	C tc d	cost includes demolition and removal of ower only; separate costs required for isconnection of services, demolition of ootings, etc.
	Removal of UG services (power within main gate areas, etc.)	Y		allow	\$50,000.00		\$0	m	assume service disconnection at the nine boundary is at surface level. This ost covers all fees and charges
	Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km	Y		tonne	\$7.00		\$0	C Ir C ty	tate accounts for round trip haulage to council landfill but excludes landfill fees. hput quantity against Waste disposal to council landfill - fees for relevant waste /pe.
	Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km	Y		tonne	\$9.00		\$0	C Ir C	tate accounts for round trip haulage to council landfill but excludes landfill fees. hput quantity against Waste disposal to council landfill - fees for relevant waste /pe.
	Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km	Y		tonne	\$12.50		\$0	C Ir C	tate accounts for round trip haulage to bouncil landfill but excludes landfill fees. put quantity against Waste disposal to bouncil landfill - fees for relevant waste /pe.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >10 km but <15 km	Υ		tonne	\$32.00		\$0	C Ir C	tate accounts for round trip haulage to council landfill but excludes landfill fees. put 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	Y		tonne	\$36.00		\$0	R C Ir C	tate accounts for round trip haulage to council landfill but excludes landfill fees. put quantity against Waste disposal to council landfill - fees for relevant waste ppe.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km	Y		allow	Use alternate rate cell		\$0	R C Ir C	tate accounts for round trip haulage to council landfill but excludes landfill fees. put quantity against Waste disposal to council landfill - fees for relevant waste ope.
	Waste disposal to Council landfill - fees (general waste)	Υ		tonne	\$193.00		\$0	to si a fo	ee for waste disposal of general waste local Council landfill; transport rates eparate. Please note that this is not pplicable to operations with approval or building and demolition waste isposal on site.
	Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)	Y		tonne	\$174.00		\$0 \$0	d w re m tt a	ee for waste disposal of industrial emolition / concrete / scrap metal asate to local Council landfill; transport tates separate. Rate does not assume naterial is recyclable. Please note that is is not applicable to operations with pproval for building and demolition asate disposal on site.
Rail Infrastructure		Terr	mination of Se	ervices and D	emontion wo	rks Subtotal	ψŪ	I R	temove all materials to allow area to be
	Remove rail loop and spur, ballast etc. and disposal on-site/locally	Y		m	\$60.00		\$0	re in	eshaped and rehabilitated - does not aclude transport to regional disposal acility or equivalent.
	Remove train loading facilities and disposal on- site/locally	Y		m2	\$185.00		\$0	ir	temove rail load point infrastructure acluding gantries and control tructures. Does not include transport to agional disposal facility or equivalent.
	Reshape rail spur and load out areas. Does not include growth media and revegetation	Y		ha	\$2,860		\$0		110 Dozer and 16 H Grader (50% tilisation).
ntaminated Materials	J		I	R	ail Infrastruct	ure Subtotal	\$0	ļ	,
	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	ir a ir EC 1 1 (i) a A A - ss - p a - f	he preliminary investigation would clude at minimum a desktop sessesment of the area and site history, cidents, etc. as per the National mirrommental Protection (Site contamination) Measure (NEPM) Phase assessment (EP Act Section 389 (2) vy)) or similar approved and recognised ssessment method. cluster may include: Mine infrastructure (i.e., fuel / chemical tore, workshop, vehicle wash-down, ewage treatment etc.) Processing plants (i.e., ore and roduct storage, mine waste storage nd disposal, rail load-out etc.) Remote pit-top facilities (i.e., vehicle re- lel, sewage treatment, secondary orkshop, chemical storage etc.)

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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.	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) (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 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, fieldwork, sampling and analysis.
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 pier walkover and field sampling as pier the National Environmental Protection (Site Contamination) Measure (REPM) 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, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analysis.
Develop a Remediation Action Plan on sites with small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Υ	allow	\$35,000	\$0		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	Y	allow	Use alternate rate cell	\$0		Assumes complex site; detailed design drawings required for cover.
Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y	L	\$0.35	\$0		Cost for recent sump clean-up from 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.	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	Y	m3	\$220.00	\$0		Includes load, haul and dump fees to a licensed facility.
					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 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	Y	m3	\$165.00	\$0		Additional cost as the treatment process is fast tracked.
Remove and dispose of asbestos (<750 m2)	Y	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)	Y	m2	\$40	\$0		Where an assessment/estimation has 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.
Treatment of known Acid Sulfate Soils	Υ	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 depth only.

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	Removal and disposal of plastic liner (i.e. dam,	Υ		m2	\$1		\$0		Provisional sum for cutting using rippin
	leach pad, sump etc.) Long haulage brine/salt for disposal (Select Haul				Select from				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.
	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				Select from				landfill. Assumes transport in a 20,000 L tank
	Haul Distance from list)	Y		tonne	List		40	Select Haul Distance Here	Add disposal costs to additional items
Vents, Shafts and Boreholes	T	ī		Contam	ninated Mater	ials Subtotal	\$0		Cost to grout and cap an open
Tonic, chanc and Bolonoid	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 / seeding etc.
	Option 2 - Mineral drill hole requiring grouting Exploration boreholes – grout and cap open bore holes	Υ		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-	Υ		allow	\$17,890		\$0		Surface-to-in-seam gas drainage
	to-in-seam gas drainage Boreholes – cap and seal open bore holes - vertical	Y							boreholes. Vertical gas drainage boreholes.
	gas drainage Boreholes – grout (with concrete) cap and seal bore			allow	\$16,000		\$0		Includes multi skin sleaves to preven
	holes (i.e. where sealing aquifers)	Y		allow	\$35,000		\$0		aquifer mixing.
	Boreholes – cap and seal service boreholes for UG	Υ		allow	\$45,000		\$0		Includes large diameter boreholes us for supplying electricity (66kV),
	coal operations			anow	\$43,000		Ψ		compressed air, water, solsenic etc. Bog out cuttings, remove fencing,
	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		remove rubbish, push sumps in, rehabilitate pads and tracks, cut and plug collars. Includes labour and equipment, disposal of rubbish locally on site
	Option 5 - Mineral reverse circulation drill holes Rehabilitation of reverse circulation drill holes and pad including sealing drill holes for mineral exploration	Υ		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 capp collar and cover with nearby organic growth material
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor	ı	ı		s and Boreho	oles Subtotal	\$0		
Rodus and Tracks	works including deep rip and trim	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Grad
	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 l 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 l grader @ \$230 per hour (50% utilisation) - pasture grass seed
	(pasture grass)								
	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%
		Y		ha ha	\$4,485 \$4,870		\$0 \$0		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 with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and								D10 Dozer @ \$400 per hour and 16 if grader @ \$230 per hour (50% utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 16 if grader @ \$230 per hour (50% utilisation) - pasture grass seed
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Earthworks / Structural Works (Landform Establishment)	earthworks, final trim and deep rip, ameliorate and 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) 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) Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally	Y		ha ha m3	\$4,870 \$7,025 Select from List	cks Subtotal	\$0	Select Haul Distance Here Select Push Length Here	D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation) - native tree/shrub seed This item includes the scraping and removal of the volume of stabilised material from the road, laydown or o surface using an excavator, dozer an grader to enable the establishment o rehabilitation.
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Earthworks / Structural Works (Landform Establishment)	earthworks, final trim and deep rip, ameliorate and 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) 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) Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness	Y Y Y		ha ha m3 Ro	\$4,870 \$7,025 Select from List Select from List \$3,900	cks Subtotal	\$0 \$0 \$0		D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - native tree/shrub seed This item includes the scraping and removal of the volume of stabilised material from the road, laydown or ourface using an excavator, dozer an grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit or hour (50% utilisation). Combination of dozer and excavator work plus grader for ~4 hours each pha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of mable the establishment of material requiring backfill using an excavator and scraper to fill the void enable the establishment of the properties of
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(Landform Establishment) Land Preparation and Revegetation (Growth Media Development and Ecosystem	earthworks, final trim and deep rip, ameliorate and 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) 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) 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) Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y Y Y Y Y Y Y Y Y Y	Structural Wor	ha ha m3 m2 ha ha ha	\$4,870 \$7,025 Select from List Select from List \$3,900 \$1,600 Select from List \$185.00 \$4,130.00 \$27.00		\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Push Length Here	D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - native tree/shrub seed This item includes the scraping and removal of the volume of stabilised material from the road, laydown or of surface using an excavator, dozer an grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit to the proval permit of th
(Landform Establishment) Land Preparation and Revegetation (Growth Media	earthworks, final trim and deep rip, ameliorate and 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) 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) 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) Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabillising water course entry points - required for large catchments	Y Y Y Y Y Y Y Y Y Arthworks/S	tructural Wor	ha ha m3 Ro m3 ha ha ha ha m2 ha ha	\$4,870 \$7,025 Select from List Select from List \$3,900 \$1,600 Select from List \$185.00 \$27.00		\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Push Length Here Select Haul Distance Here	D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation) - native tree/shrub seed This item includes the scraping and removal of the volume of stabilised material from the road, laydown or of surface using an excavator, dozer an grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 is grader @ \$230 per hour (50% utilisation). Combination of dozer and excavator work plus grader for -4 hours each p ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void-enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back stabilised. Undertaken using D10 dozer and 16N grader. D10 deep ripping. Installation of on-site rock material (rap) where managing water run-off fridsturbed land and/or upon entry to water courses - prevents erosion of g head (assumes competent material is locally available). If required to be sourced off site, assume an additions \$20/mz.

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	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with 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).
	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
	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.
	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 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	Υ		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 - 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.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Υ		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 material.
	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 necessary.
	Growth media supplementation with manure	Y		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.
Water Management	Land Preparation and Revegetation (Grov	vth Media De	evelopment ar	nd Ecosystem	ı Establishm	ent) Subtotal	\$0		Provisional sum for earthworks and
	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Υ		allow	\$2,500		\$0		revegetation required to rehabilitate dambatters 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	Υ		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam 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) Removal of evaporation fans and/or other water	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. Provisional sum for removal of water
	transfer and management infrastructure	Y		allow Wa	\$25,000 iter Managem	ent Subtotal	\$0 \$0		management infrastructure.
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Υ		ha	\$925	Junioidi	\$0		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	Υ		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
			1						Areas requiring major repair - rills,

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.
		Mainte	nance of Rel	nabilitated Are	eas Subtotal	\$0		
				Additional Ite	ms Subtotal	\$0		
Total Cost for		\$0						

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 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		The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Ernvironmental 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 workshop, chemical storage 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.	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 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, fieldwork, sampling and analysis.
	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		so		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 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. Includes SAQP, fieldwork, sampling and analysis.
	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		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	Y		allow	Use alternate rate cell		\$0		Assumes complex site; detailed design drawings required for cover.
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	Υ		L	\$0.35		\$0		Cost for recent sump clean-up from resource activity - requires specialists to treat. This trem includes scraping and removal.
	spillage or otherwise) from footprint of the process facility (leach pads) / stockpile area (ROM product) / Load, cart and dispose of Hazardous classified	Y		m3	Select from List			Select Haul Distance Here	of the volume of carbonaceous material using dozer, grader etc. to make safe an
	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	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 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.
	Remove and dispose of asbestos (<750 m2)	Y		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)	Y		m2	\$40.00		\$0		Where an assessment/estimation has 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.
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor			1	ninated Mater	ials Subtotal	\$0		
Notational Matrice	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 \$1,500		\$0 \$0		Assumes ~6 m road width - 16H 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	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 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)	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 othe surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
Earthworks / Structural Works	E	arthworks / S	tructural Wor	rks (Landforn	n Establishme	ent) Subtotal	\$0	Soloct Buch Longth Horo	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			Select Push Length Here	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)	у		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.
	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	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 gull head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
Mine Waste	E	arthworks / S	tructural Wor	rks (Landforn	n Establishme	ent) Subtotal	\$0		
									This includes sourcing, carting, 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 mad 0.15 m - 0.2 m growth
	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		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 haulage volume in 8.05.
	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	Y		ha	\$82,000 Use alternate rate cell		\$0		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 spreading in additional to any long spreading in additional to any long

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 (NMD) / 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 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 from 9.02 for relevant haulage and spreading in additional in additional and spreading in additional to any long haulage volume in 8.05.
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.).
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	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 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 included in rate). If additional material to make up landform, provide buttress or other works aside from 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 haulage volume in 8.05.
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.).
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	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 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 to any long haulage volume in 8.05.

	Additional materials required for reshaping, capping								Include additional cost to import materials (i.e., shale / clay, competent
	/ 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		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.).
	capping/covers, removal of contamination, etc.	Υ		m3	Select from List		\$0	Select Haul Distance Here	Capping/cover material available within 50 km round trip e.g. waste / overburder
Land Preparation and					Mine Wa	aste 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.
	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with 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).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		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
	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 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/haminimum. 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)	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.)	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	Υ		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	areas Construct standard stock fence around rehabilitated	Y		m	\$13.00		\$0		Standard rate for standard stock
	areas Purchase and erect warning signs	Y		allow	\$250.00		\$0		fencing. Compliance with AS 1319-1994 - Safet signs for the occupational environment installed every 25 m.
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Υ		m3	\$80.80		\$0		D7 to spread material at \$205/hr, 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 material.
	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 necessary.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
Water Management	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosysten	n Establishme	ent) Subtotal	\$0		Provisional sum for earthworks and
	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		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	Select Haul Distance Here	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) + pasture grass. This item includes the volume of
	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		\$0	Gelect ridui Distance Here	contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.

Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Υ		ha	\$925		\$0		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	Υ		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	Υ		ha	\$2,500		\$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	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.
			Mainte	enance of Rel	nabilitated Ar	eas Subtotal	\$0		
			·		Additional Ite	ems Subtotal	\$0		
	Total Cost for 1	Failings -	& Reje	cts Dor	nain		_	\$0	

Domain 3b: Overburden & Waste

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:	

Contaminated Materials				Rate	Unit Rate		Information	
	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 depth only.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	Υ	m2	\$1		\$0		Provisional sum for cutting using rippin 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.
	Brine disposal to landfill - fees only	Y	tonne	\$288		\$0		Rate for trackable liquid levy of \$78.20 per tonne and authorised disposal to landfill.
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y	tonne Contan	Select from List ninated Mater	ials Subtotal	\$0	Select Haul Distance Here	Assumes transport in a 20,000 L tanke Add disposal costs to additional items
Roads and Tracks	Unsealed roads / vehicle park-up areas - minor	Y	ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Grade
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds — minor earthworks and deep rip and trim	Y	ha	\$1,500		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - no seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Υ	ha	\$3,700		\$0		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)	Υ	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)	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)	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 oth surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
			R	oads and Tra	cks Subtotal	\$0		i e
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y	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 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 a 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 a 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	Y	ha	\$1,600		\$0		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	Υ	m2	\$27.00		\$0		Installation of on-site rock material (rig- 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 \$20/m2.

Mine Waste

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 (NMD) 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	This includes sourcing, carting, 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 haulage volume in 8.05.
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.).
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) sailor form 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 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 haulge 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 include 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 haulage volume in 8.05.
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 / 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 (IMD) / 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	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 spreading in additional to any long haulage volume in 8.05.

	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.).
	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	٧		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 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 butterses or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
	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.). 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.).
	Long haulage soil / weathered rock / sediment e.g. capping/covers, removal of contamination, etc.	Υ		m3	Select from List			Select Haul Distance Here	Capping/cover material available within 50 km round trip e.g. waste / overburder
Land Preparation and	1		ı	I	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)	Y		m3	Select from List				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.
									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).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		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	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 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 cronly, 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	<u> </u>	ha	\$1,000		\$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	Υ		m	\$22.00		\$0		Standard rate for no-climb stock
	areas Construct standard stock fence around rehabilitated	Y		m	\$13.00		\$0		fencing. Standard rate for standard stock
	areas		 	ļ	\$10.00		Ψ		fencing. Compliance with AS 1319-1994 - Safety
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		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 - allow nominal rate of \$70/m3 for imported fill material.

	Oural of the state of the state of		·						D10 push into void at \$270/hr,
	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		Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill material.
	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 necessary.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosystem	n Establishme	ent) Subtotal	\$0		
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 dam 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 dam 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.
				Wa	ater Managem	ent Subtotal	\$0		
Maintenance of Rehabilitated Areas		1							
	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 major repair works.
,		Y		ha ha	\$925 \$1,200		\$0 \$0		include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include
	seeded and revegetation has been 'successful'								include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills,
	seeded and revegetation has been 'successful' Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, minor growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate	Y		ha ha ha	\$1,200 \$1,700 \$2,500 \$40,000		\$0 \$0 \$0 \$0		include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, minor growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring moderate repair - rills, guilties, growth media replacement, some level of additional surface water
	seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate Existing rehabilitation repair - major Existing rehabilitation repair - total failure of	Y	Mainte	ha ha ha ha	\$1,200 \$1,700 \$2,500 \$40,000 habilitated Ar		\$0 \$0 \$0 \$0		include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, minor growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills, guilles, growth media replacement, some level of additional surface water management. Areas that require extensive readesign and re-rebabilitation repair - re-design and re-
	seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate Existing rehabilitation repair - major Existing rehabilitation repair - total failure of	Y Y Y		ha ha ha ha enance of Reh	\$1,200 \$1,700 \$2,500 \$40,000 habilitated Ar		\$0 \$0 \$0 \$0	\$0	include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, minor growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills, guilles, growth media replacement, some level of additional surface water management. Areas that require extensive readesign and re-rebabilitation repair - re-design and re-

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	Y		Lm	\$1.93		\$0		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	0.40-14-44	\$0 \$0		D10 dozer, 16H Grader and revegetation with pasture grass.
Earthworks / Structural Works			ı	ı	Open	Cut Subtotal	\$0	Select Push Length Here	Т
(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	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 guly head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
	E	arthworks / S	Structural 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		4 m centres.
	Planting tube stock (<15 cm)	T		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). 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).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		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	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 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 croponly, additional seeding required.
									Assumes 250 kg / ha. These rates have fluctuated over the last few years

	Total Cost for A	ctive M	ine & Vo	oids Do	main			\$0	
					Additional Ite	ems Subtotal	\$0		
			Mainte		nabilitated Ar		\$0		
	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		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - minor	Y		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 major 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 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 countries 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 obtaters 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	velopment an	nd Ecosystem	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		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 necessary.
	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 Trucks (90c/km) from imported stockpile - al nominal rate of \$60/m3 for imported material.
	Purchase and erect warning signs	Υ		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Sa signs for the occupational environme installed every 25 m.
	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 2.5 mesh & 32 mm post not concreted
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Spoil amelioration (adding lime / gypsum etc.)	Y		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		few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standarate.

Domain 5b: Management Activities

Total Cost for Management Activities

Additional Assumptions. Record any relevant assumptions to this domain below.		
	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		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	nent Subtotal	\$0 \$0		Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion	Y		m	ster Managem \$2,500	ent Subtotal	\$0		Assumes material is suitable for revegetating and has a reasonable chance of stabilising.
	Long term maintenance of water course diversion – Channel constructed through backfilled material	Y		m	\$1,500		\$0		Assumes maintenance has been kept up and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	Υ		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.
			1		Creek Diversi	ons Subtotal	\$0		1
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 control works)	Y		ha	\$400.00		\$0		Undisturbed areas within the lease boundary that require land management activities.
			Mainte	enance of Re	habilitated Ar	eas Subtotal	\$0		
Heritage Items	The restoration and care and maintenance of items that have heritage significance	Y		allow	Use alternate rate cell		\$0		Item for the redistribution of Aboriginal artefacts, preservation of European heritage items or a combination of activities.
Sundry Items				_	Heritage Ite	ems Subtotal	\$0		Provisional 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. grounderter /subsidence / pit lakes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	Y		allow	\$100,000		\$0		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 land use requirements and knowledge base investigations can range from ~575k to >51 M. Sites with more than 1 pit to add \$50,000 to rate.
	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 \$50,000 to rate.
	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 fisk and/or spontaneous combustion propensity, known limited contamination, small approved final void	Y		allow	\$15,000		\$0		Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Includes risk assessment, sampling and analyses 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 Plan, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provisional sum to be used to refine the conceptual 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 \$\$3 M. Sites with more than 1 pit to add \$\$50,000 to rate.

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	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	Y		allow	\$125,000		\$0		Includes costs for key investigations and 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 into a detailed closure plan with execution strategies for rehabilitation activities.
	Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works.	Υ		allow	\$27,950		\$0		Based on experience for a REF after 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.
	Site security during closure	Υ		yr.	\$75,000		\$0		Provisional sum for site security measures required during closure. This includes nightly patrols and first response in the event of an out of hours incident.
	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		\$0	Select type of HAZMAT Clean-up Required	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
	Removal and disposal of radiation devices	Y		each	\$31,630		\$0		Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i.e., Americium – 241, Plutonium – 238, Caesium - 137 etc). Source Isotope type, quantity, strength, weight, source holder type, source holder meight, pick-up location (among others) will directly affect pricing.
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Y		allow	Use alternate rate cell		\$0		Provisional sum.
					Sundry Ite	ems Subtotal	\$0		
Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry - small fleet	Y		Item	\$12,000		\$0		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		Item	\$35,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site <150 km)	Υ		item	\$100,000		\$0		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)	Υ		item	\$150,000		\$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)	Υ		item	\$300,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >1000 km)	Y		item	\$500,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
			Мо	bilisation and	d Demobilisat	tion Subtotal	\$0		
Additional Items	Other 1 <insert></insert>	N			This is				This item includes < <to added="" be="" by<="" td=""></to>
	Other 2 <insert></insert>	N			deliberately				the operator>> This item includes < <to added="" be="" by="" operator="" the="">></to>
	Other 3 <insert></insert>	N			left blank				This item includes < <to added="" be="" by="" operator="" the="">></to>
					Additional Ite	ems Subtotal	\$0		
	Total Cost for	r Mana	tement	Activiti	A6			\$0	
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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 or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation 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 multiple disconnection fees.
	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	Υ		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 substations	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	Y		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 scrap as applicable.
	Demolish and remove switchyard. Dispose of waste material on-site/locally	Y		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.
	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.
	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 demolished.
	Demolish and remove industrial buildings (workshops tyre change and servicing area etc not CHPP/process plant) and disposal on-site/locally	Υ		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.
	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, remover 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	Υ		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 equivalent.
	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 structure and remove. Does
Collapse, Cut and Remove 1250 T coal silo and disposal on-site/locally	Y	allow	\$62,500	\$0	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. This may include small scale fixed material stacking	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 regional disposal facility or equivalent.
infrastructure Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of	Y	m	\$150.00	\$0	Due to no canopy or infrastructure attached.
reclaim tunnel roof) 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	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	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 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 regional disposal facility or equivalent.
Removal of UG tank 5000 L - 15000 L - including pipes, bunds etc. and disposal on-site/locally	Y	allow	\$30,000.00	\$0	Assume tank is clean (contents removed), does not include transport to regional disposal facility or equivalent.
Remove small underground pipe and disposal on- site/locally	Υ	m	\$25.00	\$0	For example: 300 mm pipes - 0.5 m deep, does not include transport to regional disposal facility or equivalent.
Remove medium underground pipe and disposal on- site/locally	Y	m	\$60.00	\$0	For example: 500 mm pipes - 1 m deep, does not include transport to regional disposal facility or equivalent.
Remove large underground pipe and disposal on- site/locally	Y	m	\$165.00	\$0	For example: 1 m pipes - 2 m deep.
Remove above ground pipe (supported) and disposal on-site/locally	Y	m	\$12.00	\$0	~300 mm pipes and assumes pipes are in close proximity to infrastructure 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	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	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	Υ		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	i	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	Υ		tonne	\$15.00		\$0		Does not include haulage of materials - assumes crushing plant is readily available.
	Remove fence (cyclone/wire fence) and disposal on- site/locally	Υ		m	\$20.00		\$0	1	Roll up fence and remove posts.
	Removal of small plastic tanks	Υ		each	\$1,000.00		\$0		Remove small poly tanks used for water storage, etc.
	Demolish and remove galvanised/corrugated light weight tanks	Υ		each	\$500.00		\$0	I	Demolish and remove small lightweight metal tanks. No costs included for managing liquids, etc. Cost includes demolition and removal of
	Demolish and remove communication towers	Y		each	\$5,000.00		\$0	1	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	Υ		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	,	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.
	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 type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km	Υ		allow	Use alternate rate cell		\$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 - fees (general waste)	Y		tonne	\$193.00		\$0		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 disposal on site.
	Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)	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 waste disposal on site.
Rail Infrastructure		Tern	nination of Se	ervices and D	emolition Wo	rks Subtotal	\$0		Remove all materials to allow area to be
	Remove rail loop and spur, ballast etc. and disposal on-site/locally	Y		m	\$60.00		\$0	I	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			I	R	ail Infrastruct	ure Subtotal	\$0	l	
	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.	Υ		Cluster	\$15,000		\$0		The preliminary 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 re-

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.	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 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.g. –10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analysis.
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 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 analysis.
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		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.
Removal and disposal of contaminated water from tanks, bunded areas and sumps	Υ	L	\$0.35	\$0		Cost for recent sump clean-up from 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.	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	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)	Y	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	Y	m3	\$165.00	\$0		Additional cost as the treatment process is fast tracked.
Remove and dispose of asbestos (<750 m2)	Y	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)	Y	m2	\$40	\$0		Where an assessment/estimation has 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.
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 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.
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		Rate for trackable liquid levy of \$78.20 per tonne and authorised disposal to landfill.
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Υ		tonne	Select from List			Select Haul Distance Here	Assumes transport in a 20,000 L tanks Add disposal costs to additional items where warranted
Vents, Shafts and Boreholes		ī	T	Contan	ninated Mater	rials Subtotal	\$0		
vents, sharts and borenoles	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 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 / seeding etc.
	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	Υ		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 preven
	Boreholes – cap and seal service boreholes for UG coal operations	Y		allow	\$45,000		\$0		aquifer mixing. 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 locall on site
	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 fil 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 capp collar and cover with nearby organic growth material
Deads and Treels	University of the Control of the Con			Vents, Shaft	s and Boreho	oles Subtotal	\$0		I
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim Unsealed roads / access tracks / vehicle park-up	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Gra D10 Dozer @ \$400 per hour and 16
	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
	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
	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 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 I 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			Select Haul Distance Here	removal of the volume of stabilised material from the road, laydown or of surface using an excavator, dozer an
				l R	oads and Tra	cks Subtotal	\$0		grader to enable the establishment of
Earthworks / Structural Works						one oubtotu	, ,	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 grader @ \$230 per hour (50% utilisation).
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation								Combination of dozer and excavator
	measures	Y		ha	\$1,600		\$0		ha.
		Y		ha m3	\$1,600 Select from List		\$0	Select Haul Distance Here	ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation.
	measures 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) Shotcrete application on cuttings and steep slopes				Select from		\$0	Select Haul Distance Here	ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back stabilised.
	measures Fill dams, volds etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		m3 m2	\$185.00 \$1,130.00		\$0	Select Haul Distance Here	ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back stabilised. Undertaken using D10 dozer and 16l grader.
	measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling /	Y		m3 m2	Select from List		\$0	Select Haul Distance Here	ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation. This rate is used to rehabilitate stee slopes of weathered rock, roadway outlings, etc that cannot be cut back stabilised. Undertaken using D10 dozer and 16 grader. D10 deep ripping.
	measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y Y Y Y		m3 m2 ha ha m2	\$185.00 \$1,130.00 \$960.00		\$0 \$0 \$0	Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back stabilised. Undertaken using D10 dozer and 16f grader.
	measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y Y Y Y	Structural Wo	m3 m2 ha ha m2	\$185.00 \$1,130.00 \$960.00	ent) Subtotal	\$0 \$0 \$0		ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back stabilised. Undertaken using D10 dozer and 16l grader. D10 deep ripping. Installation of on-site rock material (i rap) where managing water run-off fid sturbed land and/or upon entry to water courses - prevents erosion of head (assumes competent material locally available). If required to be sourced off site, assume an addition \$20/m2.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y Y Y Y	Structural Woo	m3 m2 ha ha m2	\$185.00 \$1,130.00 \$960.00	ent) Subtotal	\$0 \$0 \$0	Select Haul Distance Here Select Haul Distance Here	ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back stabilised. Undertaken using D10 dozer and 16f grader. Undertaken using D10 dozer and 16f grader. Installation of on-site rock material (rap) where managing water run-off fr disturbed land and/or upon entry to water courses - prevents erosion of ghead (assumes competent material 1 locally available). If required to be sourced off site, assume an addition; \$20/m2. If topsoil is not available on-site, ther Virgin Excavated Natural Material (VENM) may need to be externally
Revegetation (Growth Media	measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments E Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm)	Y Y Y Y Y Y Y Y Y Y Y	structural Woo	m2 ha ha m2 m3 allow	\$185.00 \$1,130.00 \$960.00 \$27.00 \$elect from List	ent) Subtotal	\$0 \$0 \$0 \$0		ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back stabilised. Undertaken using D10 dozer and 16 grader. D10 deep ripping. Installation of on-site rock material (i rap) where managing water run-off fid sturbed land and/or upon entry to water courses - prevents erosion of head (assumes competent material locally available). If required to be sourced off site, assume an addition \$20/mz. If topsoil is not available on-site, the Virgin Excavated Natural Material (VENM) may need to be externally sourced.
Revegetation (Growth Media Development and Ecosystem	measures 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) Shotcrete application on cuttings and steep stopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y Y Y Y Y Y	Structural Wo	m3 m2 ha ha m2 m3	\$185.00 \$1,130.00 \$960.00 \$27.00 Establishm Select from List	ent) Subtotal	\$0 \$0 \$0 \$0		ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back stabilised. Undertaken using D10 dozer and 16f grader. D10 deep ripping. Installation of on-site rock material (rap) where managing water run-off fr disturbed land and/or upon entry to water courses - prevents erosion of ghead (assumes competent material locally available). If required to be sourced off site, assume an addition: \$20/m2. If topsoil is not available on-site, ther Virgin Excavated Natural Material (VENM) may need to be externally sourced. 4 m centres. Includes treating, weighing, mixing w fertiliser + spreading by tractor or
Revegetation (Growth Media Development and Ecosystem	measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments E Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm) Planting tube stock (<15 cm)	Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Structural Woo	m2 ha ha m2 allow allow	\$185.00 \$1,130.00 \$960.00 \$27.00 \$21,130.00 \$27.00 \$27.00 \$27.00 \$31,130.00 \$	ent) Subtotal	\$0 \$0 \$0 \$0 \$0		ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back stabilised. Undertaken using D10 dozer and 16l grader. D10 deep ripping. Installation of on-site rock material (I rap) where managing water run-off frosturbed land and/or upon entry to water courses - prevents erosion of head (assumes competent material iocally available). If required to be sourced off site, assume an addition \$20/m2. If topsoil is not available on-site, ther Virgin Excavated Natural Material (VENM) may need to be externally sourced. In centres. In centres.

	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		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	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 stability. This cost includes cover crop only, additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Υ		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.
	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 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.
	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 - Safety signs for the occupational environment -
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		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 - allow 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 - allow nominal rate of \$60/m3 for imported fill material.
	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	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.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		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	velopment a	nd Ecosystem	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 dam 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 dam 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		\$0 \$0		Provisional sum for removal of water management infrastructure.
Maintenance of Rehabilitated				Wa	iter Managen	nent Subtotal	\$0		Rehabilitation maintenance might
Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor	Y		ha ha	\$925 \$1,200		\$0 \$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 renabilitation repair - minor			iia.	\$1,200				minor growth media replacement. Areas requiring moderate repair - rills,
	Existing rehabilitation repair - moderate Existing rehabilitation repair - major	Y		ha ha	\$1,700 \$2,500		\$0 \$0		significant growth media replacement. Areas requiring major repair - rills, gullies, growth media replacement,
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				V =,****				some level of additional surface water management.
	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.
			Mainte	enance of Rel			\$0 \$0		
	Total Cost fo	r Infrae	tructur			ems Subtotal	\$ 0	\$0	
			uotul	Doma				φυ	

Domain 2c: Tailings & Rejects

Total Cost for Tailings & Rejects Domain

Additional Assumptions: Record any relevant assumptions to this domain below:

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		The preliminary 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 workshop, chemical storage 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.	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) (ivi)) 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 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, fieldwork, sampling and analysis.
	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 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 analysis.
	Develop a Remediation Action Plan on sites with small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Υ		allow	\$35,000		\$0		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	Y		allow	Use alternate rate cell		\$0		Assumes complex site; detailed design drawings required for cover.
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y		L	\$0.35		\$0		Cost for recent sump clean-up from resource activity - requires specialists to treat.
	Remove material (carbonaceous / metalliferous spillage or otherwise) from footprint of the process facility (leach pads) / stockplie area (ROM product) / roads and dump in a void on-site (Select Haul Distance from list)	Υ		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.	Y		m3	\$800.00		\$0		Includes load, haul and dump fees to a licensed facility.

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	Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	Υ		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 or contaminated soins 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
	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	Y		m3	\$165.00		\$0		Additional cost as the treatment process is fast tracked.
	Remove and dispose of asbestos (<750 m2)	Y		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)	Y		m2	\$40.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Waste disposal to Council landfill - fees (asbestos)	Υ		tonne	\$290		\$0		Landfill fees to regional landfill.
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor	ī	1	Contan	ninated Mater	ials Subtotal	\$0		I
Nodus and Tracks	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 \$1,500		\$0 \$0		Assumes ~6 m road width - 16H 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 seed (native tree/shrub/grass)	Υ		ha	\$4,485		\$0		utilisation) - pasture grass seed 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)	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)	Y		m3	Select from List			Select Haul Distance Here	Into term 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
	E	arthworks / S	tructural Wo	rks (Landforn	n Establishme	ent) Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		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 determined by approval / permit (Select Haul Distance from List)	у		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.
	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 \$20/m2.
Mine Waste	E	arthworks / S	Structural Wo	rks (Landforn	n Establishme	ent) Subtotal	\$0		T
	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		This includes sourcing, carting, 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 haulage volume in 8.05.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from				Use alternate		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or

	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.).
	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 (NMD) / 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 materials or televant material required plant and the relevant material required planterial 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 haulage volume in 8.05.
	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.).
	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		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 / hauf / 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 omake up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading haulage volume in 8.05.
	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.).
	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.). Cappingcover material available within
	capping/covers, removal of contamination, etc.	Y	m3	List	aste Subtotal	\$0	Select Haul Distance Here	50 km round trip e.q. waste / overburden
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	у	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.
	Direct seeding / fertiliser (pasture grass species)	Y	ha	\$1,875		\$0		Includes treating, weighing, mixing with 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).

	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		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
	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	Υ		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.
	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 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.
	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 - Safety 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 - allow 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.	Υ		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 material.
	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	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.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50	ant) Subtatal	\$0 \$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
Water Management	Land Preparation and Revegetation (Ground Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y	- Stopment di	allow	\$2,500	only outstoal	\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam 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 dam batters etc suitable for re-use by an alternate land-user - 06 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)	Υ		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.
Maintenance of Rehabilitated				Wa	iter 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.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills,
	Existing rehabilitation repair - major Existing rehabilitation repair - total failure of	Y		ha	\$2,500		\$0		gullies, growth media replacement, some level of additional surface water management. Areas that require extensive
	Existing renabilitation repair - total failure of landform	Y		ha	\$40,000		\$0		rehabilitation repair - re-design and re- construction of landform.
			Mainte		habilitated Ar Additional Ite	reas Subtotal	\$0 \$0		
	Total Cost for 1	Tailings	& Raio			oma Suptotal	φ0	\$0	
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Open Cut Operations

Domain 3c: Overburden & Waste

Total Cost for Overburden & Waste Domain

\$0

Additional Assumptions: Record any relevant assumptions to this domain below:

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% b 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 ripp 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.
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		Rate for trackable liquid levy of \$78.: per tonne and authorised disposal to landfill.
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y		tonne	Select from List			Select Haul Distance Here	Assumes transport in a 20,000 L tar Add disposal costs to additional ite
	Hadi Biotanio Hom not)		l.	Contan	ninated Mater	rials Subtotal	\$0		riad diopocal ocolo to daditional ito
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 Gra
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation) - no seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,700		\$0		D10 Dozer @ \$400 per hour and 16 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 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 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 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 c surface using an excavator, dozer al grader to enable the establishment of rehabilitation.
				R	oads and Tra	cks Subtotal	\$0		
arthworks / 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 grade nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 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 voic enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate stee slopes of weathered rock, roadway cuttings, etc that cannot be cut back 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 16 grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavato work plus grader for ~4 hours each ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for	Y		m2	\$27.00		\$0		Installation of on-site rock material rap) where managing water run-off disturbed land and/or upon entry to water courses - prevents erosion of head (assumes competent material
	large catchments								locally available). If required to be sourced off site, assume an additio \$20/m2.

Division of Resources and Geoscience Rehabilitation Cost Estimation Tool - Open_Cut (3)

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Mine Waste

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	This includes sourcing, carting, 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 haulage volume in 8.05.
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.	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.).
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) saldro flow 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 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 from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
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.).
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	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 spreading in additional to any long haulage volume in 8.05.

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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 / 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.).
	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		This upon is typically diver by time constraints and/or when taillings 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
	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 addition to thic con 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.).
	Long haulage soil / weathered rock / sediment e.g. capping/covers, removal of contamination, etc.	Υ		m3	Select from List			Select Haul Distance Here	Capping/cover material available within 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	Mine Wa	aste Subtotal	\$0	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 triature trees (>13 cm) Planting tube stock (<15 cm)	Y		allow	\$6.60		\$0		4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or 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).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		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	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 stability. This cost includes cover crop only, additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Υ		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.
	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)	Y		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.)	Υ		ha	\$1,000		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Υ	<u> </u>	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 - 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.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Υ		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 material.
	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 necessary.
	Growth media supplementation with manure	Υ		ha	\$747.50		\$0		Addition of manure to improve soil quality.

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	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosysten	Establishme	ent) Subtotal	\$0		
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 dam 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 dam batters etc suitable for re-use by an alternate land-user - 06 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.
				Wa	ter Managem	nent Subtotal	\$0		
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 major repair works.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	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 - total failure of landform	Y		ha	\$40,000		\$0		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
			Mainte	enance of Rel	nabilitated Ar	reas Subtotal	\$0		
						ems Subtotal	\$0		
	Total Cost for Ov	verburd	len & W	aste Do	main			\$0	
·	·				·				

Domain 4c: Active Mine & Voids

Total Cost for Active Mine & Voids Domain

\$0

Additional Assumptions: Record any relevant assumptions to this domain below:

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		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 \$0		D10 dozer, 16H Grader and revegetation with pasture grass.
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List	Cut Subtotal	ψU	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 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	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	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 \$20/m2.
	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) 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)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with 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).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		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								Process to be used on flat well prepared 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
		Y		m2 m2	\$0.43		so so		\$0.15 - \$0.50 depending on size and
	tack with pasture seed Hydromulch - base grade or standard for flat areas								\$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 possible. Industry standard application rate of 250kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop
	tack with pasture seed Hydromulch - base grade or standard for flat areas that can be irrigated by water cart Hydromulch - bonded fibre matrix grade for steep	Υ		m2	\$0.80		\$0		\$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 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,

	Total Cost for A	otivo M	ina 9 1/4	side Do	main			\$0	
					Additional Ite	ems Subtotal	\$0		
			Mainte		habilitated Ar		\$0 *0		
	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		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - minor	Y		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 major 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 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 dibatters 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 do batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pastur grass.
	Land Preparation and Revegetation (Grov	vth Media De	velopment an	d Ecosysten	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 to 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 an 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 vegetat 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.	Υ		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - all nominal rate of \$60/m3 for imported in material.
	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 - all nominal rate of \$70/m3 for imported fi material.
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Saf- signs for the occupational environmer installed every 25 m.
	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 2.5r mesh & 32 mm post not concreted
	growth media amelioration with biosolids	Y		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		few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standar rate.

Open Cut Operations

Domain 5c: Management Activities

Total Cost for Management Activities

Additional Assumptions: Record any relevant assumptions to this domain below:

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	omaton	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			ı	Wa	ter Managem	ent Subtotal	\$0		Assume a material is suitable for
2.22 2.70.00.00	Repairs and/or stabilisation of new or compromised water course diversion	Y		m	\$2,500		\$0		Assumes material is suitable for revegetating and has a reasonable chance of stabilising.
	Long term maintenance of water course diversion – Channel constructed through backfilled material	Y		m	\$1,500		\$0		Assumes maintenance has been kept up 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. Assumes competent material is locally
	Installation of rock armouring	Y		m2	\$6.00		\$0		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 management activities.
			Mainte	enance of Rel	habilitated Ar	eas Subtotal	\$0		
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 activities.
					Heritage Ite	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 / pit lakes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	Y		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 land use requirements and knowledge base investigations can range from ~\$75k to >\$1 M. Sites with more than 1 pit to add \$50,000 to rate.
	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 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 \$50,000 to rate.
	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	Y		allow	\$15,000		\$0		Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Includes risk assessment, sampling and analyses 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. Provisional 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 ~\$3 M. Sites with more than 1 pit to add \$50,000 to rate.

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\$0

	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	Y		allow	\$125,000		\$0		Includes costs for key investigations and 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 into a detailed closure plan with execution strategies for rehabilitation activities.
	Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works.	Υ		allow	\$27,950		\$0		Based on experience for a REF after 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.
	Site security during closure	Υ		yr.	\$75,000		\$0		Provisional sum for site security measures required during closure. This includes nightly patrols and first response in the event of an out of hours incident.
	Choose type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment,	Y		allow	\$0			Select type of HAZMAT Clean-up Required	Type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations,
	chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	'		allow	ŞÜ				equipment, cnemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc
	Removal and disposal of radiation devices	Y		each	\$31,630		\$0		Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i.e., Americium – 241, Plutonium – 238, Caesium - 137 etc). Source Isotope type, quantity, strength, weight, source holder type, source holder type, lipick-up location (among others) will directly affect pricing.
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Y		allow	Use alternate rate cell		\$0		Provisional sum.
					Sundry Ite	ems Subtotal	\$0		
Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry - small fleet	Y		Item	\$12,000		\$0		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	Υ		Item	\$35,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	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.
	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	Y		item	\$150,000		\$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		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >1000 km)	Y		item	\$500,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
Additional Itama			Mo	bilisation and	d Demobilisat	tion Subtotal	\$0		This item includes a state and dad by
Additional Items	Other 1 <insert></insert>	N			This is				This item includes < <to added="" be="" by="" operator="" the="">></to>
	Other 2 <insert></insert>	N			deliberately				This item includes < <to added="" be="" by="" operator="" the="">></to>
	Other 3 <insert></insert>	N			left blank				This item includes < <to added="" be="" by="" operator="" the="">></to>
	•				Additional Ite	ems Subtotal	\$0		
Total Cost for Management Activities								\$0	

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 j	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.							
	Authrorisation Representatives	Date						

Adopted Rates

Justification