

FWP0001494

# SULCOR LIMESTONE MINE FORWARD PROGRAM

Thursday 29 August 2024 to Saturday 28 August 2027





# Summary

DETAIL		
Mine	Sulcor Limestone Mine	
Reference	FWP0001494	
Forward program commencement date	Thursday 29 August 2024	
Forward program end date	Saturday 28 August 2027	
Forward program revision (if applicable)		
Contact	Lizz Norvill	
Mining leases	ML 1470 (1992)	
Project location	GRAYMONT (NSW) PTY LTD	
Date of submission	Wednesday 16 October 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 Sulcor Limestone Mine and transported to the nearby Attunga Limestone Mine. The limestone is further processed at Attunga to deliver products for essential services while supporting vital industrial processes and agricultural needs. Uses for lime and limestone products include the purification of air and water, stabilisation of soils for road construction, and the production of items such as steel, paper and metals. Mine-related infrastructure at Sulcor includes haul roads, product stockpiles and waste emplacement, with a small amenities structure comprised of relocatable buildings. Active overburden and low-grade material emplacements are located to the southwest of the open-cut mine.

# Description of surface disturbance activities

### **Exploration activities**

Nil

#### **Construction activities**

Possibility of weighbridge, office and workshop facilities and redirection of overhead powerlines. (Permit not yet applied for)

#### Mining schedule

Mining development method and sequencing and general mine features.

During this Forward Program period it is proposed to continue mining the extension of Pit A as an eventual replacement for the diminishing reserves at Graymont's nearby Attunga site. Extension of Pit A involves development to the northwest of the existing highwall. Within the extension area, soils are to be pre-stripped and stockpiled for use in site rehabilitation. Soil recovered from the footprint of mining areas, waste emplacements, product stockpiles, or other infrastructure which cannot be immediately used for rehabilitation, are stockpiled in designated topsoil and subsoil storage areas.

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

Mining methods utilise conventional drill & blast and load & haul methods. Nearly all highgrade limestone mined is transported to Attunga, but highly weathered limestone and clays

### **SULCOR LIMESTONE MINE FORWARD PROGRAM**



(overburden and interburden) are placed on the waste emplacements at the southwest of the open-cut mine.

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

After blasting, product will be crushed and screened to be hauled away to Attunga for processing. There are no tailings or residues produced at the Sulcor site.

Waste disposal and materials handling operations.

General wastes generated are stored in designated areas on site prior to disposal. Where possible, the material is recycled. This includes cardboard generated on-site. Site sewage is treated in a septic system.

### **Key production milestones**

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m³)	5,560	100	210
Rock/overburden	(m³)	70,000	70,000	70,000
Ore	(Mt)	0.18	0.18	0.18
Reject material <sup>1</sup>	(Mt)	0.04	0.04	0.04
Product	(Mt)	0.15	0.15	0.15

4

<sup>&</sup>lt;sup>1</sup> This includes coarse rejects, tailings and any other wastes resulting from beneficiation.



# Three-year rehabilitation forecast

# Rehabilitation planning schedule

# Rehabilitation planning schedule

Design of landform and water drainage structures.
 Inspections to record the progression towards achievement of the intended landform.

#### Stakeholder consultation

No stakeholder consultation is planned to be carried out at this stage.

### Rehabilitation studies, risk assessments and/or design work

Not applicable for the next three years.



# Rehabilitation research and trials

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

FWP0001

494

# Rehabilitation maintenance and corrective actions

Not applicable due to no rehabilitation undertaken

# Rehabilitation schedule

Year 1 - Strip topsoil in front of the advancing quarry face to the NW to allow the pit to expand
 Strip topsoil from the overburden dump footprint and place on designated topsoil storage areas

- Planting additional native vegetation on the screen mound R5 to create a native ecosystem. — didn't do in year one but doing in this upcoming year -Year 2 - Strip topsoil in front of the advancing quarry face to the NW to allow the pit to expand Year 3 Strip topsoil in front of the advancing quarry face to the NW to allow the pit to expand - Landform establishment of OEA5 (overburden emplacement area)

# Completion of rehabilitation

Nil

# Subsidence remediation for underground operations

Not relevant to Graymont operations

# 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)	17.16	17.25	17.46
В	Total active disturbance	(ha)	16.45	16.54	16.51
Р	Total new area of land proposed for active rehabilitation	(ha)	0	0	0.24

# Rehabilitation key performance indicators (KPIs)

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O Total new active disturbance area	(ha)	2.56	0.09	0.21
P Total new area of land proposed for active rehabilitation during the reporting period	(ha)			0.24
Q Annual rehabilitation to disturbance ratio				1.13



# Attachment 1 – Reporting Definitions

REPO	ORTING CATEGORY	DEFINITION
Α	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.

# **SULCOR LIMESTONE MINE FORWARD PROGRAM**



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 Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate application by the lease holder.	
Rehabilitation Completion criteria	As defined in the Mining Regulation 2016.	
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.	
Rehabilitation management plan	As defined in the Mining Regulation 2016.	
Rehabilitation objectives	As defined in the Mining Regulation 2016.	
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.	
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.	



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

<sup>&</sup>lt;sup>2</sup> Commonwealth of Australia (DITR), 2007. *Tailings Management*.

# **SULCOR LIMESTONE MINE FORWARD PROGRAM**

FWP0001494 | Thursday 29 August 2024 to Saturday 28 August 2027



# Attachment 3 - Plans

Plan2A\_v3.pdf

Plan2B\_v2.pdf

Plan2C\_v2.pdf

Forward Program (LARGE MINE) v2.1

Sulcor Limestone Mine-Plan 1A, Current status of mining and rehabilitation from Aug 23 to Aug 24, 11/10/2024, Sub Id. 6324, 8598, 8631 Legend Rehabilitation Landform Establishment Ecosystem and Land Use Establishment Ecosystem and Land Use Development Relinquishment (Rehabilitated) Disturbance Beneficiation Facility Infrastructure Area Overburden Emplacement Area Tailings Storage Facility Underground Mining Area (SMP) Active Mining Area (Open cut void) Water Management Area Project Approval Boundary World Imagery Low Resolution 15m Imagery High Resolution 60cm Imagery High Resolution 30cm Imagery Citations Notes 135.79 271.6 Meters This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere
© DRE

# Sulcor Limestone Mine-Plan1B-Current landform contours-From Aug23 to Aug24- 23/09/24- Sub ID 6324, 8579 Legend Current Landform Contours Project Approval Boundary World Imagery Low Resolution 15m Imagery High Resolution 60cm Imagery High Resolution 30cm Imagery Citations Notes 271.6 Meters 135.79 This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere © DRE

# Sulcor Limestone Mine-Plan 2A, Mining and rehabilitation - Year 1, 11/10/2024, Sub Id. 6324, 8631 Legend Forecast Disturbance High Resolution 30cm Imagery Citations



Forecast Data Year1

Forecast Land Prepared for Rehabilitation

Ecosystem and Land Use Establishment

Project Approval Boundary World Imagery Low Resolution 15m Imagery High Resolution 60cm Imagery

Notes

135.79 271.6 Meters WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere © DRE

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

THIS MAP IS NOT TO BE USED FOR NAVIGATION

# Sulcor Limestone Mine-Plan 2B Mining and Rehabilitation - Year2, 1/10/2024, Sub Id 6324, 8577 Legend Forecast Data Year2 Forecast Disturbance Forecast Land Prepared for Rehabilitation Ecosystem and Land Use Establishment Project Approval Boundary World Imagery Low Resolution 15m Imagery High Resolution 60cm Imagery High Resolution 30cm Imagery Citations Notes 135.79 271.6 Meters This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere © DRE

# Sulcor Limestone Mine-Plan 2C Mining and Rehabilitation - Year3, 1/10/2024, Sub Id. 6324, 8600



# Legend

Forecast Data Year3

Forecast Disturbance

Forecast Land Prepared for Rehabilitation

Ecosystem and Land Use Establishment

Project Approval Boundary World Imagery Low Resolution 15m Imagery

High Resolution 60cm Imagery High Resolution 30cm Imagery Citations

Notes

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

THIS MAP IS NOT TO BE USED FOR NAVIGATION

135.79

271.6 Meters

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere © DRE

Complete the following fiel	lds prior to calculating the Security Deposit.
Mine Name:	Graymont - Sulcor Limestone Mine
Lease(s):	ML 1470
Title Holder:	GRAYMONT (NSW) Pty Ltd
Term of RCE:	Snapshot of disturbance method (Aug 2024)
Current Security:	\$863,000 Date of last Security Deposit review 28/02/202
Mine Contact:	Damian Power
List key changes since previous submission:	e.g. significant landform rehabilitation undertaken in domain xyz e.g. change in mine waste (tailings) capping rate



# **Open Cut Summary Rehabilitation Cost Estimation**

The second secon	STATE OF STREET STATE OF STREET	Mark County of the County of t								
Note: Sections of this page	are automatically filled in from the reg	gistration page								
Mine Name:	Graymont - Sulcor Limestone M	ine								
Lease(s):	ML 1470									
Authorisation Owner:	GRAYMONT (NSW) Pty Ltd									
Term of RCE:	Snapshot of disturbance method (Aug 2024)									
Current Security:	\$863,000	Date of Last Security De	posit Review	28/02/2023						
Mine Contact:	Damian Power		posititorio III.	20/02/2023						
	Domain		Security I	Deposit						
Domain 1: Infrastructure				\$145,090						
Domain 2: Tailings & Re	ejects									
Domain 3: Overburden	4.10.0			\$102,109						
Domain 4: Active Mine				\$319,787						
Domain 5: Management	t Activities			\$125,000						
Subtotal (Domains and	i Sundry Items)			\$691,986						
Contingency		10%		\$69,199						
Post Closure Environme	ental Monitoring	10%		\$69,199						
Project Management an	d Surveying	10%		\$69,199						
Total Security Dep	osit for the Mining Project	(excl. of GST)		\$899,582						
Note: GST is not included	I in the above calculation or as part	of rehabilitation security depo	sits required by the Depa	irtment.						
	made to unit prices within this spread									
	tation design is generally consistent w									
This mine security calculati	on has been estimated using the best a ection of the total rehabilitation liability	available information at the time held by this mine.								
Derick Korte Company Resprese	ntative's Name		14/10/24 Date	524						
Director  Company Represent	tative's Role / Responsibility		Signatu	ire						

# Domain 1a: Infrastructure

# **Total Cost for Infrastructure Domain**

\$145,090

Power to Shariona Homestead to be retained	Key Rehabilitation Area Data for Domain	Enter data below manually
Bitumen access road to be retained for new landowner	Total Landform Establishment:	
Sulcor is a satelite quarry for the Attunga Plant. The Attunga mine will be complete in 2023 and mining will progressively increase at Sulcor.	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	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.
	Demolish and remove demountable structures on concrete stumps. Assumes not being re-used	Y	75	m2	\$40.00		\$3,000	2 small demounables	Crib huts, temporary offices and other 'non permanent' structures. Does not include transport to regional disposal facility or equivalent.
	Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	Y	75	m2	\$36.00		\$2,700		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.
	Removal of small plastic tanks	Y	1	each	\$1,000.00		\$1,000	water tank	Remove small poly tanks used for water storage, etc.
		Tern	nination of Se		emolition Wo		\$41,700 \$0		
Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple studies may be required.	Y	1	Cluster	\$15,000	300001	\$15,000	Lease has only a small disturbance area with only a few possible contamination areas	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.  A cluster may include.  - Mine infrastructure (i.e., tuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.)  - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rall load-out etc.)  - Remote pit-top facilities (i.e., vehicle refue, sewage treatment, secondary workshop, chemical storage etc.)
	Onsite remediation of hydrocarbon contaminated soils (>100 m3 but <500 m3) - manual land farming	Y	200	m3	\$78.00		\$15,600	>100m3 but < 500m3	overain rate to the translation in the order of \$75 - \$120 /m3 depending on volume, additives, treatment durations and contamination levels. \$45 /m3 for spreading contaminated soils on a prepared surface and stimulation of aerobic microbial activity within the soils through agration and/or the addition of
Vents, Shafts and Boreholes	T			Contan	ninated Mater	ials Subtotal	\$30,600		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	1	Item	\$2,070		\$2,070		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	10	Item	\$1,340	les Cubtetal	\$13,400 \$15,470		Sealing required, but not complete filling with concrete/grout
Roads and Tracks				vents, Snan	s and Boreho	oles Subtotal	\$15,470		
	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	2.83	ha	\$7,025		\$19,881		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 (haul distance < 1km)	Y	3762	m3	\$4.45		\$16,737	<=1km all tracks except the bitumen road and road to homestead (area x0.5m)	Assumes 1 excavator, 3 trucks, 2 x 16 M grader (50% utilisation) and 1 D10 Dozer @ \$400
Earthworks / Structural Works	Deep rip hard stand / lay down areas	Y	1	ha R	oads and Tra \$960.00	cks Subtotal	\$36,618 \$960		D10 deep ripping.
		arthworks / S	tructural Wor			ent) Subtotal	\$960		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	2257.2	m3	\$3.26		\$7,350	< =1km	Undertaken with 623 scraper and 14 M grader.
	Purchase and erect warning signs	Y	4	allow	\$250.00		\$1,000		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.
	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosyster	n Establishm	ent) Subtotal	\$8,350		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor	Y	2	allow	\$2,500		\$5,000		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or
	earthworks							< =1km	similar) @ ~\$200 per hour and pasture grass.

		\$6,420							
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y	3.3	ha	\$925		\$3,053	Maintaining tree screens- not considered mining disturbance (R5, R7, R8)	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	1.6	ha	\$1,200		\$1,920		Areas requiring minor repair - rills, minor growth media replacement.
			Mainte	enance of Re	habilitated Ar	eas Subtotal	\$4,973		
		<u> </u>	<u> </u>		Additional Ite	ems Subtotal	\$0		
	Total Cost fo	r Infras	tructur	e Doma	in			\$145,09	90

### Domain 2a: 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:	

	Total Cost for Tailings & Rejects Domain								
					Additional Ite	ms Subtotal	\$0		
			Mainter	ance of R	ehabilitated Are	eas Subtotal	\$0		
				W	Vater Managem	ent Subtotal	\$0		
	Land Preparation and Revegetation (G	rowth Media Dev	velopment and	l Ecosyste	m Establishme	nt) Subtotal	\$0		
					Mine Wa	ste Subtotal	\$0		
		Earthworks / St	tructural Work	s (Landfor	rm Establishme	nt) Subtotal	\$0		
		Earthworks / St	tructural Work	s (Landfor	rm Establishme	nt) Subtotal	\$0		
				Conta	minated Materi	als Subtotal	\$0		
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:

### Domain 3a: Overburden & Waste

### Total Cost for Overburden & Waste Domain

\$102,109

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:
				Contai	minated Materi	als Subtotal	\$0		
				F	Roads and Trad	ks Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – 50 m push length	Y	68041	m3	\$0.80		\$54,305	< 50m push volume of overburden dump	Assumes D11 dozer push @ 400 bcm/hr.
	Minor reshaping and pushing	Y	2.92	ha	\$3,900		\$11,388	Area with forecast disturbance to yr3	D10 Dozer @ \$400 per hour and 16 h grader @ \$230 per hour (50% utilisation).
	E	arthworks / S	tructural Wor	ks (Landfor	m Establishme	nt) Subtotal	\$65,693		
					Mine Wa	ste Subtotal	\$0		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	8760	m3	\$3.26		\$28,524	< =1km	Undertaken with 623 scraper and 14 grader.
	Direct seeding / fertiliser (pasture grass species)	Y	2.92	ha	\$1,875		\$5,475		Includes treating, weighing, mixing w fertiliser + spreading by tractor or helicopter (aerial seeding).
	Single application of fertiliser (pasture)	Υ	2.92	ha	\$420.00		\$1,226		Assumes 250 kg / ha. These rates ha fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand e this is a suitable standard rate.
	Land Preparation and Revegetation (Grov	wth Media De	velopment ar	nd Ecosyste	m Establishme	nt) Subtotal	\$35,226		
				W	ater Managem	ent Subtotal	\$0		
Maintenance of Rehabilitated Areas	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y	0.7	ha	\$1,700		\$1,190	R5 screen	Areas requiring moderate repair - rills significant growth media replacemen
	Existing rehabilitation repair - major	Υ		ha	\$2,500		\$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface wate 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 Re	ehabilitated Are		\$1,190		
					Additional Ite	ms Subtotal	\$0		
	Total Cost for O	verburd	len & W	aste D	omain			\$102,10	9

### Domain 4a: Active Mine & Voids

### **Total Cost for Active Mine & Voids Domain**

\$319,787

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	1349.25	Lm	\$1.93		\$2,604	Limited blasted material in pit	Blasting in a 8x9 pattern of bench heigh 25 m with D11 push of 50-75 m.
	Drill & blast faces to make safe	Y	149256	m3	\$0.95		\$141,793	blast enough material for 18 deg faces except for 40m high wall	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)	Υ	544	m	\$90.00		\$48,960		D10 dozer, 16H Grader and revegetation with pasture grass.
	•				Open	Cut Subtotal	\$193,357		revegetation was pastare grass.
	E	arthworks / S	tructural Woi	rks (Landforn	n Establishme	nt) Subtotal	\$0		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	7420	m3	\$3.26		\$24,161	< =1km	Undertaken with 623 scraper and 14 M grader.
Establishmenty	Direct seeding / fertiliser (pasture grass species)	Y	7.42	ha	\$1,875		\$13,913	Area disturbed at the end of Yr3	Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Single application of fertiliser (pasture)	Y	7.42	ha	\$420.00		\$3,116		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.
	Security fence around steep section of high wall	Y	1209	m	\$64.00		\$77,376		1800mm x 3 barb chain-link mesh security fence and gate standard 2.5mn mesh & 32 mm post not concreted
	Purchase and erect warning signs	Y	4	allow	\$250.00		\$1,000		Compliance with AS 1319-1994 - Safety signs for the occupational environment installed every 25 m.
	Land Preparation and Revegetation (Gro	wth Media De	velopment ar				\$119,566		
				Wa	ater Managem	ent Subtotal	\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y	7.42	ha	\$925		\$6,864		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
			Mainte		habilitated Are		\$6,864		
					Additional Ite	ms Subtotal	\$0		
	Total Cost for A	ctive M	ine & V	oids Do	main			\$319,78	7

# 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:	

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)	N		ML	\$3,600				Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
	On-site treatment of contaminated water due to low pH (incudes removal of metals etc, neutralisation treatments and cost of mobile water treatment unit	N		ML	\$1,500				Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
Creek Diversions	I			Wa	ater Managem	ent Subtotal	\$0		Assumes material is suitable for
Grook Stronglich	Repairs and/or stabilisation of new or compromised water course diversion	N		m	\$2,500				revegetating and has a reasonable chance of stabilising.  Assumes maintenance has been kept
	Long term maintenance of water course diversion – Channel constructed through backfilled material	N		m	\$1,500				up and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	N		m	\$750.00				Assumes maintenance has been kept up and significant works are not required.
	Installation of rock armouring	N		m2	\$6.00				Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
					Creek Diversi	ons Subtotal	\$0		
Maintenance of Rehabilitated Areas	Pest management on buffer lands, non-disturbed, and rehabilitated areas	N		ha	\$150.00				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)	N		ha	\$400.00				Undisturbed areas within the lease boundary that require land managemen activities.
	·		Mainte	enance of Re	habilitated Ar	eas Subtotal	\$0		
Heritage Items	The restoration and care and maintenance of items that have heritage significance	N		allow	Use alternate rate cell				Item for the redistribution of Aboriginal artefacts, preservation of European heritage items or a combination of
				ļ	Horitago Ita	ems Subtotal	\$0		activities.
Sundry Items	I			Ī	Tiernage ne	ins oubtotal	<b>4</b> 0		Provisional sum to be used to refine th conceptual closure plan into a detailed
	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	N		allow	\$100,000				closure plan with execution strategies for rehabilitation activities. Assumes outcomes of studies readily available including modelling, landform design, geochemistry, demolition, etc. Costs to finalise options by domain and finalise designs for construction. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, finand use requirements and knowledge base investigations can range from ~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	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. Strate 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	N		allow	\$15,000				Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Include: 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	N		allow	\$300,000				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. Provisiona sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assume at least 15 types of studies required ranging from geotechnical to ecology and social, development of a closure plan including address of obligations. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, fina land use requirements and knowledge base investigations can range to >\$3 M Sites with more than 1 pit to add \$50,000 to rate.

Choose type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps,  N allow S0 Select type of HAZMAT Clean-up Required  Type of HAZMAT Clean-up Required Cleaning and deconts equipment, chemical	ng economic igns e.g. amination Plan, subsidence and final landform, ater, etc. Provisional effine the conceptual detailed closure plan egies for ies.  pe for a REF after ailed closure study investigation) costs 10,000 to \$100,000 does not apply to a nomental Effects or act Statement. site security during closure. This rols and first nt of an out of hours
Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works.  In allow \$27,950	ailed closure study investigation) costs 10,000 to \$100,000 does not apply to a nomental Effects or act Statement.  site security during closure. This rols and first nt of an out of hours
Site security during closure  Not required as the site is in a isolated rural area  Not required as the site is in a isolated rural area  Not required as the site is in a isolated rural area  Choose type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, equipment, chemical	during closure. This rols and first nt of an out of hours
Choose type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, and the contaminating plant and equipment, chemical storage locations, oil and grease traps, and the contaminating plant and equipment, chemical storage locations, oil and grease traps, and the contaminating plant and equipment, chemical storage locations, oil and grease traps.	ean-un required -
tanks, vessels, and pipe work etc	taminating plant and
Provisional sum for disposal of radiation devices  N  each  \$31,630  Frowisional sum for disposal of radiation devices  N  each  \$31,630  Source Stope type, weight, solcute others will dispersely a source holded holder weight, pick-up others) will directly as	ing devices on adiation source (i.e., Plutonium – 238,
Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities N allow Use alternate rate cell Provisional sum.	
Sundry Items Subtotal \$90,000	
Mobilisation and Demobilisation  Mobilisation & Demobilisation for small mine or quarry - small fleet  N   Item   \$12,000	uitable plant to
Mobilisation & Demobilisation for small mine or quarry - medium to large fleet  Y 1 Item \$35,000 \$35,000 Small fleet form Tamworth equipment and/or su execute bulk earthwo	uitable plant to
Mobilisation & Demobilisation (Distance to site <150 N item \$100,000 May include specialite equipment and/or su execute bulk earthwo	uitable plant to
Mobilisation & Demobilisation (Distance to site >150 N item \$150,000 May include specialite equipment and/or su execute bulk earthwo	uitable plant to
Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)  N item \$300,000  May include specialite equipment and/or su execute bulk earthwo	uitable plant to
Mobilisation & Demobilisation (Distance to site >1000 km)  N item \$500,000  May include specialite equipment and/or su execute bulk earthwo	uitable plant to
Mobilisation and Demobilisation Subtotal \$35,000  Additional Items This item includes <	cato he added by
Uther 1 < Insert> N Insert> the operator>>	*
	<to added="" be="" by<="" td=""></to>
Other 2 <insert> N deliberately This item includes &lt; the operator&gt;&gt;</insert>	
Other 3 kinserts         N         deliberatery         the operator>           Other 3 kinserts         N         left blank         This item includes of the operator>	<to added="" be="" by<="" td=""></to>
Other 3 circents  N deliberately the operators>  Other 3 circents  N left blank	<to added="" be="" by<="" td=""></to>

# Domain 1b: Infrastructure

# **Total Cost for Infrastructure Domain**

\$0

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

								Basis for Costs Estimation	
Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	and Additional Relevant Information	Description / Notes:
Termination of Services and Demolition Works	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	Y		allow	\$35,000		\$0		For disconnection of all services, at building boundaries, physical cut at the point of attachment or distribution location. If infrastructure is not consolidated (i.e., administration, camp and workshops are in separate places), consider multiple disconnection fees.
	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	Y		allow	\$5,850		\$0		Used for infrastructure remote from primary connection. Can also be used for small mines / quarries that do not have dedicated supplies from supply authorities such as steel lattice power lines.
	Removal of low/medium voltage powerlines including disconnection, rolling up the wires and removing the poles - does not include the removal of 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	Υ		m2	\$40.00		\$0		Crib huts, temporary offices and other 'non permanent' structures. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove small buildings/tanks (admin buildings, single story accommodation etc) and disposal on-site/locally	Y		m2	\$61.00		\$0		Simple structure to demolish, assumes no greater than 2 stories high. Does no 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. Assume 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	Y		allow	\$2,000,000		\$0		Cost for just removal of the bucket wheel stacker/reclaim units. Does not include terminate services, remove rail: 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	Y		allow	\$92,500		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove 3000 T coal silo and disposal on-site/locally	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	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	Υ	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 a see fixed extension to the line of the control of the cont	Υ	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.
This may include small scale fixed material stacking 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	Y	allow	\$10,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove medium tank clean (Thickener etc 10 - 15 m diameter) and disposal on- site/locally	Y	allow	\$30,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove large tank clean (Thickener etc 15 - 30 m diameter) and disposal on-site/locally	Υ	allow	\$45,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove extra large tank clean (Thickener etc >30 m diameter) and disposal on- site/locally	Y	allow	\$100,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove tank clean (Thickener etc) >50 m diameter and disposal on-site/locally	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	Е	\$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	Υ	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	Υ	m2	\$20.00	\$0	Scalp bitumen and stabilised material. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	Y	m2	\$36.00	\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.

								-
Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y		m2	\$75.00		\$0		Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Crush concrete to make road aggregate - 75 mm	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	Υ		each	\$5,000.00		\$0		Cost includes demolition and removal of tower only; separate costs required for disconnection of services, demolition of footings, etc.
Removal of UG services (power within main gate areas, etc.)	Υ		allow	\$50,000.00		\$0		Assume service disconnection at the mine boundary is at surface level. This cost covers all fees and charges
Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km	Y		tonne	\$7.00		\$0		Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km	Y		tonne	\$9.00		\$0		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	Y		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)	Υ		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.
T	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		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).
			R	ail Infrastruct	ure Subtotal	\$0		
Undertake a preliminary site investigation (Phase 1).	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:  A cluster may include:  - Wine infrastructure (i.e., fuel / chemical
	thickness) and disposal on-site/locally  Crush concrete to make road aggregate - 75 mm  Crush concrete to make road aggregate - 50 mm  Crush concrete to make road aggregate - 30 mm  Remove fence (cyclone/wire fence) and disposal on-site/locally  Removal of small plastic tanks  Demolish and remove galvanised/corrugated light weight tanks  Demolish and remove communication towers  Removal of UG services (power within main gate areas, etc.)  Waste disposal to Council landfill (general waste) - haulage > 10 km but < 15 km  Waste disposal to Council landfill (general waste) - haulage > 15 km but < 25 km  Waste disposal to Council landfill (general waste) - haulage > 25 km but < 50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 10 km but < 15 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 15 km but < 25 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 50 km  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 50 km  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 50 km  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 50 km	Crush concrete to make road aggregate - 75 mm  Crush concrete to make road aggregate - 50 mm  Y  Crush concrete to make road aggregate - 50 mm  Y  Crush concrete to make road aggregate - 30 mm  Remove fence (cyclone/wire fence) and disposal onsite/locally  Removal of small plastic tanks  Y  Demolish and remove galvanised/corrugated light weight tanks  Demolish and remove communication towers  Y  Removal of UG services (power within main gate areas, etc.)  Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km  Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km  Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >10 km but <15 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >15 km but <25 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage >25 km but <30 km	thickness) and disposal on-site/fiocally  Crush concrete to make road aggregate - 75 mm  Y  Crush concrete to make road aggregate - 50 mm  Y  Crush concrete to make road aggregate - 50 mm  Y  Remove fence (cyclone/wire fence) and disposal on-site/focally  Removal of small plastic tanks  P  Demolish and remove galvanised/corrugated light weight tanks  Demolish and remove galvanised/corrugated light weight tanks  P  Removal of UG services (power within main gate areas, etc.)  Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km  Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km  Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >10 km but <15 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >15 km but <25 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (general waste)  Remove rail loop and spur, ballast etc. and disposal on-site/locally  Remove train loading facilities and disposal on-site/locally  Reshape rail spur and load out areas. Does not	Crush concrete to make road aggregate - 75 mm Y tonne  Crush concrete to make road aggregate - 50 mm Y tonne  Crush concrete to make road aggregate - 50 mm Y tonne  Crush concrete to make road aggregate - 30 mm Y tonne  Remove fence (cyclone/wire fence) and disposal on- site/locally  Removal of small plastic tanks Y each  Demolish and remove galvanised/corrugated light Y each  Demolish and remove galvanised/corrugated light Y each  Memoval of UG services (power within main gate areas, etc.)  Waste disposal to Council landfill (general waste) -  haulage > 10 km but < 15 km  Waste disposal to Council landfill (general waste) -  haulage > 15 km but < 25 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 10 km but < 50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 15 km but < 50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 15 km but < 50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 15 km but < 50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 15 km but < 50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 25 km  Waste disposal to Council landfill - fees (general waste) -   Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 25 km  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 25 km  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 25 km  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage > 25 km but < 25 km  Waste disposal to Council la	thickness) and disposal on-siteriocally  Crush concrete to make road aggregate - 75 mm  Y  tonne \$13.00  Crush concrete to make road aggregate - 50 mm  Y  tonne \$13.00  Crush concrete to make road aggregate - 50 mm  Y  tonne \$15.00  Crush concrete to make road aggregate - 30 mm  Y  tonne \$15.00  Crush concrete to make road aggregate - 30 mm  Y  tonne \$15.00  Crush concrete to make road aggregate - 30 mm  Y  m  \$20.00  Removal force (cyclone-wire fence) and disposal on-siteriocally  Removal of small plastic tarks  Y  each \$5.00.00  The state of small plastic tarks  Y  each \$5.00.00  The state of small plastic tarks  Y  each \$5.00.00  Removal of US services (power within main gate areas, etc.)  Pemolish and remove communication towers  Y  allow \$50,000.00  Waste disposal to Cruncil landfill (general waste) - haudage > 10 km but < 15 km  Waste disposal to Cruncil landfill (general waste) - haudage > 15 km but < 25 km  Waste disposal to Cruncil landfill (general waste) - haudage > 15 km but < 25 km  Waste disposal to Cruncil landfill (industrial demolibion / concrete / scrap metal) - haudage > 15 km but < 25 km  Waste disposal to Cruncil landfill (industrial demolibion / concrete / scrap metal) - haudage > 15 km but < 25 km  Waste disposal to Cruncil landfill (industrial demolibion / concrete / scrap metal) - haudage > 15 km but < 25 km  Waste disposal to Cruncil landfill (industrial demolibion / concrete / scrap metal) - haudage > 15 km but < 25 km  Waste disposal to Cruncil landfill - fees (general waste)  Waste disposal to Cruncil landfill - fees (general waste)  Waste disposal to Cruncil landfill - fees (general waste)  Waste disposal to Cruncil landfill - fees (general waste)  Remove trail loop and spur, ballast etc. and disposal on-steriocally  Termination of Services and Demolition Wonsteroorder / scrap metal)  Remove trail loop and spur, ballast etc. and disposal on-steriocally  Remove trail loop and spur, ballast etc. and disposal on-steriocally  Remove trail loop and and revegedetion  Y  haudage and ball	thickness) and disposal consiteriocally  Crush concrete to make road aggregate - 75 mm  Y tonne \$10.00  Crush concrete to make road aggregate - 50 mm  Y tonne \$13.00  Crush concrete to make road aggregate - 50 mm  Y tonne \$15.00  Remove fence (cyctone/wire fence) and disposal original fence of the control	thickness) and disposal on-site focally  The control of the control to make mod aggregate - 75 mm  Y tonne \$10,000 \$0  Crush concrete to make mod aggregate - 50 mm  Y tonne \$15,000 \$0  Crush concrete to make mod aggregate - 50 mm  Y tonne \$15,000 \$0  Famour lend of site famour lender gargegate - 30 mm  Hamour lender (explore where fence) and disposal on-site famour lender (explore where) and disposa	thickness and disposal or relief locally  Chair bonces to make root aggregate. 75 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate. 50 mm  Y  Local bonces to make root aggregate to the root aggregate to the root aggregate to the root aggregate. 50 mm but of the root aggregate to the

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 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.	Υ	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	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)	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.
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)	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	\$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.)	Υ		m2	\$1		\$0		Provisional sum for cutting using rippi tynes and on-site disposal of the liner.
	Long haulage brine/salt for disposal (Select Haul	Y		tonne	Select from			Colore Hord Pistones Hors	Costs for haulage to location for
	Distance from list)	Ť		tonne	List			Select Haul Distance Here	authorised disposal. Rate for trackable liquid levy of \$78.2
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		per tonne and authorised disposal to
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y		tonne	Select from			Select Haul Distance Here	Assumes transport in a 20,000 L tan
	Haul Distance from listi		L	Contan	List ninated Mater	ials Subtotal	\$0		Add disposal costs to additional item
Vents, Shafts and Boreholes	Option 1 - Coal bore hole								Cost to grout and cap an open exploration borehole. Assume a 20 r
	Exploration boreholes – rehabilitate coal boreholes and drill pads as required	Y		depth (m)	\$44.55		\$0		20 m drill pad requires rehabilitation push cover of nearby growth media, 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 dril 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 - m exploration boreholes to meet the requirements of Departmental Guidelines.
	Boreholes – cap and seal open bore holes with steel casing (i.e., goaf drainage etc.)	Y		allow	\$6,960		\$0		Holes deeper than 100 m - includes cutting steel collar 6 m below surface grouting and capping.
	Boreholes – cap and seal open bore holes - surface- to-in-seam gas drainage	Y		allow	\$17,890		\$0		Surface-to-in-seam gas drainage boreholes.
	Boreholes – cap and seal open bore holes - vertical gas drainage	Y		allow	\$16,000		\$0		Vertical gas drainage boreholes.
	Boreholes - grout (with concrete) cap and seal bore	Υ		allow	\$35,000		\$0		Includes multi skin sleaves to preven
	holes (i.e. where sealing aquifers)				****		**		aquifer mixing. Includes large diameter boreholes us
	Boreholes – cap and seal service boreholes for UG coal operations	Y		allow	\$45,000		\$0		for supplying electricity (66kV), 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 local! 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
				Vents, Shaft	s and Boreho	oles Subtotal	\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Grader.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	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	Y		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 l grader @ \$230 per hour (50%
	seed (pasture grass)								utilisation) - pasture grass seed
	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)	Y		ha	\$7,025		\$0		
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and	Y			\$7,025  Select from List		\$0	Select Haul Distance Here	D10 Dozer @ \$400 per hour and 16 i 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
	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			ha m3	Select from	cks Subtotal	\$0		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 ar grader to enable the establishment o rehabilitation.
Earthworks / Structural Works (Landform Establishment)	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			ha m3	Select from List	cks Subtotal		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 This item includes the scraping and removal of the volume of stabilised material from the road, laydown or o surface using an excavator, dozer ar grader to enable the establishment or rehabilitation.
	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	Y		ha m3	Select from List pads and Tra	cks Subtotal			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 osurface using an excavator, dozer ar grader to enable the establishment or rehabilitation.  Major bulk pushing to achieve grade nominated in the approval/permit
	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	Y		ha m3 R	Select from List	cks Subtotal	\$0	Select Push Length Here	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 surface using an excavator, dozer ar grader to enable the establishment or rehabilitation.  Major bulk pushing to achieve grade nominated in the approval/permit  D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation).  Combination of dozer and excavator work plus grader for ~4 hours each pha.
	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	Y		ha m3 m3 ha	Select from List Dads and Tra Select from List \$3,900	cks Subtotal	\$0		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 surface using an excavator, dozer ar grader to enable the establishment or rehabilitation.  Major bulk pushing to achieve grade nominated in the approval/permit  D10 Dozer @ \$400 per hour and 16 grader @ \$230 per 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 and enable the establishment of rehabilitation.
	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		na m3 R m3 ha	Select from List  Select from List  \$3,900  \$1,600  Select from	cks Subtotal	\$0	Select Push Length Here	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 osurface using an excavator, dozer ar grader to enable the establishment or rehabilitation.  Major bulk pushing to achieve gradenominated in the approval/permit  D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation).  Combination of dozer and excavator work plus grader for ~4 hours each pla.  This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.  This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilises.
	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 /	Y Y Y Y		m3 m3 ha ha	Select from List  Select from List  \$3,900  \$1,600  Select from List	cks Subtotal	\$0 \$0 \$0	Select Push Length Here	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 ar grader to enable the establishment or rehabilitation.  Major bulk pushing to achieve grade nominated in the approval/permit  D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation).  Combination of dozer and excavator work plus grader for ~4 hours each pla.  This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.  This rate is used to rehabilitate stee slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.  Undertaken using D10 dozer and 16
	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	Y Y Y Y		m3 m3 ha ha m3 m2	Select from List  Select from List  \$3,900  \$1,600  Select from List  \$185.00	cks Subtotal	\$0 \$0 \$0	Select Push Length Here	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 osurface using an excavator, dozer ar grader to enable the establishment or rehabilitation.  Major bulk pushing to achieve grade nominated in the approval/permit  D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation).  Combination of dozer and excavator work plus grader for ~4 hours each pla.  This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.  This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilises.
	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)	Y Y Y Y Y		m3 m3 ha ha m3 m2 ha	Select from List  Select from List  Select from List  \$3,900  \$1,600  Select from List  \$185.00	cks Subtotal	\$0 \$0 \$0 \$0	Select Push Length Here	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 surface using an excavator, dozer ar grader to enable the establishment or rehabilitation.  Major bulk pushing to achieve grade nominated in the approval/permit  D10 Dozer @ \$400 per hour and 16 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 filt the void and enable the establishment of rehabilitation.  This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stablised.  Undertaken using D10 dozer and 16 grader.  D10 deep ripping.  Installation of on-site rock material (1 rap) where managing water run-off fridsturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent)
	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	Structural Wo	m3 m3 ha ha m3 m2 ha ha ha	Select from List  Select from List  \$3,900 \$1,600  Select from List  \$185.00  \$1,130.00 \$960.00		\$0 \$0 \$0 \$0 \$0 \$0	Select Push Length Here	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 surface using an excavator, dozer an grader to enable the establishment or rehabilitation.  Major bulk pushing to achieve grader nominated in the approval/permit  D10 Dozer @ \$400 per hour and 16 grader @ \$230 per 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 and enable the establishment of rehabilitation.  This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, et chat cannot be cut back and 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 gully head (assumes competent material is locally available). If require to be sourced off site, assume as ompetent
Land Preparation and Revegetation (Growth Media Development and Ecosystem	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	Structural Wo	m3 m3 ha ha m3 m2 ha ha ha	Select from List  Select from List  \$3,900 \$1,600  Select from List  \$185.00  \$1,130.00 \$960.00		\$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Push Length Here	D10 Dozer @ \$400 per hour and 16 if 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 if 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 and enable the establishment of rehabilitation.  This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, et that cannot be cut back and stabilised.  Undertaken using D10 dozer and 16M grader.  D10 deep ripping.  Installation of on-site rock material (r rap) where managing water run-off find disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If requir to be sourced off site, assume an additional \$20/m2.  If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally
(Landform Establishment)  Land Preparation and Revegetation (Growth Media	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 arthworks/S	Structural Wor	ha m3 ha ha m2 ha ha ha	Select from List		\$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Push Length Here  Select Haul Distance Here	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 surface using an excavator, dozer ar grader to enable the establishment or rehabilitation.  Major bulk pushing to achieve grade nominated in the approval/permit  D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation).  Combination of dozer and excavator work plus grader for ~4 hours each pla.  This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.  This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stablised.  Undertaken using D10 dozer and 16 grader.  D10 deep ripping.  Installation of on-site rock material ( rap) where managing water run-off frosturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If requit to be sourced off site, assume an additional \$20/m2.

seeding / fertiliser (pasture grass species) seeding / fertiliser (tree or native grass seeding / fertiliser (tree or native grass s) seeding with straw mulching and bitumen the native seed seeding with straw mulching and bitumen the pasture seed mulch - base grade or standard for flat areas in be irrigated by water cart mulch - bonded fibre matrix grade for steep or stabilise up to 12 months mulch - high performance flexible growth in grade application of fertiliser (pasture) application of fertiliser (trees) imedia amelioration with biosolids uct no-climb stock fence around rehabilitated in the pasture grass species of the pasture grass species	Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y		m2 m2 m2 ha ha	\$1,875 \$4,135 \$1.90 \$0.43 \$0.80 \$1.80 \$2.50 \$140.00		\$0 \$0 \$0 \$0 \$0 \$0 \$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).  Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00  Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10  Assumes use on flat areas with a 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 for 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 -4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.  Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of -4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.  Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
seeding with straw mulching and bitumen th native seed  seeding with straw mulching and bitumen the native seed  seeding with straw mulching and bitumen the pasture seed  mulch - base grade or standard for flat areas in be irrigated by water cart  mulch - bonded fibre matrix grade for steep ostabilise up to 12 months  mulch - high performance flexible growth in grade  application of fertiliser (pasture)  application of fertiliser (trees)  media amelioration with biosolids  uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y		m2 m2 m2 ha ha	\$1.90 \$0.43 \$0.80 \$1.80 \$2.50 \$420.00		\$0 \$0 \$0 \$0 \$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (Jaerial Seeding).  Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00  Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10  Assumes use on flat areas with a 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, additional seeding required.  Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.  Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.  These rates have fluctuated over the last few years however in light of current
seeding with straw mulching and bitumen th native seed  seeding with straw mulching and bitumen the native seed  seeding with straw mulching and bitumen the pasture seed  mulch - base grade or standard for flat areas in be irrigated by water cart  mulch - bonded fibre matrix grade for steep ostabilise up to 12 months  mulch - high performance flexible growth in grade  application of fertiliser (pasture)  application of fertiliser (trees)  media amelioration with biosolids  uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y		m2 m2 m2 ha ha	\$1.90 \$0.43 \$0.80 \$1.80 \$2.50 \$420.00		\$0 \$0 \$0 \$0 \$0		helicopter (aerial seeding).  Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00  Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10  Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 250 kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.  Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of -\$000kg/ha. Product -\$3500kg/ha. This cost includes cover crop only, additional seeding required.  Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of -\$000kg/ha. This cost includes cover crop only, additional seeding required.  Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.  These rates have fluctuated over the last few years however in light of current
seeding with straw mulching and bitumen the pasture seed  mulch - base grade or standard for flat areas in be irrigated by water cart  mulch - bonded fibre matrix grade for steep to stabilise up to 12 months  mulch - high performance flexible growth in grade  application of fertiliser (pasture)  application of fertiliser (trees)  media amelioration with biosolids uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y Y Y Y Y Y Y Y Y		m2 m2 m2 ha ha	\$0.43 \$0.80 \$1.80 \$2.50 \$420.00		\$0 \$0 \$0 \$0		surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00  Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10  Assumes use on flat areas with a 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 croponly, additional seeding required.  Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of -\$500kg/ha. This cost includes cover crop only, additional seeding required.  Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of -\$0,000kg/ha. This cost includes cover crop only, additional seeding required.  Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of -\$0,000kg/ha minimum. This cost includes cover crop only additional seeding required.  Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current tonditions (lower fuel princes, reduced demand etc) this is a suitable standard rate.
mulch - base grade or standard for flat areas in be irrigated by water cart  mulch - bonded fibre matrix grade for steep to stabilise up to 12 months  mulch - high performance flexible growth in grade  application of fertiliser (pasture)  application of fertiliser (trees)  media amelioration (adding lime / gypsum etc.)  media amelioration with biosolids  uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y Y Y Y Y Y Y Y Y		m2 m2 ha	\$0.80 \$1.80 \$2.50 \$420.00		\$0 \$0 \$0		surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10  Assumes use on flat areas with a gradient of less than 4.1, and when trigation 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, additional seeding required.  Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of -4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.  Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.  These rates have fluctuated over the last few years however in light of current last few years however i
mulch - bonded fibre matrix grade for steep ostabilise up to 12 months  mulch - high performance flexible growth m grade  application of fertiliser (pasture)  application of fertiliser (trees)  melioration (adding lime / gypsum etc.)  media amelioration with biosolids  uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y Y Y Y Y Y Y Y		m2 m2 ha	\$1.80 \$2.50 \$420.00		\$0 \$0 \$0		gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.  Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.  Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.  Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.  These rates have fluctuated over the last few years however in light of current
o stabilise up to 12 months  mulch - high performance flexible growth in grade  application of fertiliser (pasture)  application of fertiliser (trees)  melioration (adding lime / gypsum etc.) media amelioration with biosolids uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y Y Y Y Y Y Y		m2 ha ha	\$2.50 \$420.00 \$140.00		\$0		stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.  Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.  Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.  These rates have fluctuated over the last few years however in light of current
application of fertiliser (pasture)  application of fertiliser (trees)  application (adding lime / gypsum etc.)  media amelioration with biosolids  uct no-climb stock fence around rehabilitated  uct standard stock fence around rehabilitated	Y Y Y Y Y		ha ha ha	\$420.00 \$140.00		\$0		stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.  Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.  These rates have fluctuated over the last few years however in light of current last few years however in light of current
application of fertiliser (trees) smelioration (adding lime / gypsum etc.) media amelioration with biosolids uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y Y Y		ha ha	\$140.00				fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.  These rates have fluctuated over the last few years however in light of current
melioration (adding lime / gypsum etc.) media amelioration with biosolids uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y Y Y		ha					last few years however in light of current
media amelioration with biosolids uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y Y			\$1,000,00		\$0		conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
uct no-climb stock fence around rehabilitated uct standard stock fence around rehabilitated	Y			<b>\$1,000.00</b>		\$0		Assumes 2.5 t / ha as an average application rate.
uct standard stock fence around rehabilitated			ha	\$1,015		\$0		Recent experience with agronomy projects.
			m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	Y		m	\$13.00		\$0		Standard rate for standard stock fencing.
ase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m.
from external sources virgin excavated 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.
r from external sources a combination of excavated natural material (VENM) and spoil arge excavation for filing voids and/or capping	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.
ng and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
l 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.
n media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
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.
and Preparation and Revegetation (Gro	wth Media De	velopment an	nd Ecosystem	Establishme	ent) Subtotal	\$0		Dravisional gum for conthusatio and
water dams to be retained after missioning – make safe and minor orks	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.
clean water dams (i.e. ≥ 2 ha) to be retained ine closure – make safe and minor orks	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.
ve sediments from the floor of the dam to it to be converted into clean water structure t Haul Distance from list)	Y		m3	Select from List				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
er and management infrastructure	Y		allow Wa	\$25,000 ter Managem	ent Subtotal	\$0 \$0		management infrastructure.
			vva	manayem	J. I. Jubibidi			Rehabilitation maintenance might
nance of areas that have been shaped and d 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.
	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
g rehabilitation repair - minor		1	ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.  Areas requiring major repair - rills,
g rehabilitation repair - minor g rehabilitation repair - moderate	Y						1	gullies, growth media replacement,
bion wat miss clea nine orks it to	edia supplementation with manure tic soil media - organic topsoil alternative  Preparation and Revegetation (Gro er dams to be retained after sisoning – make safe and minor s  In water dams (i.e. ≥ 2 ha) to be retained closure – make safe and minor s  ediments from the floor of the dam to be converted into clean water structure ull Distance from list) of evaporation fans and/or other water d management infrastructure  uce of areas that have been shaped and d revegetation has been 'successful'	edia supplementation with manure  Y  Preparation and Revegetation (Growth Media De er dams to be retained after sisoning – make safe and minor  y  In water dams (i.e. ≥ 2 ha) to be retained closure – make safe and minor  y  ediments from the floor of the dam to be converted into clean water structure In Distance from list)  of evaporation fans and/or other water d management infrastructure  y  coe of areas that have been shaped and d revegetation has been 'successful'  y  chabilitation repair - minor	edia supplementation with manure  Itic soil media - organic topsoil alternative  Preparation and Revegetation (Growth Media Development and er dams to be retained after sistoning — make safe and minor  In water dams (i.e. ≥ 2 ha) to be retained closure — make safe and minor  Y  Sediments from the floor of the dam to be converted into clean water structure  It is become the floor of the dam to be converted into clean water structure  If evaporation fans and/or other water domanagement infrastructure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y  In the floor of the dam to be converted into clean water structure  Y	edia supplementation with manure  Y  ha  itic soil media - organic topsoil alternative  Y  m2  Preparation and Revegetation (Growth Media Development and Ecosystem er dams to be retained after sioning — make safe and minor  Y  allow  In water dams (i.e. ≥ 2 ha) to be retained closure — make safe and minor  Y  allow  S  ediments from the floor of the dam to be converted into clean water structure V  m3  with provided into clean water structure V  allow  Wa  we define the floor of the dam to be converted into clean water structure V  m3  which allow  wa  wa  the provided into the dam to be converted into clean water structure V  m3  which allow  wa  wa  the provided into the dam to be converted into clean water structure V  wa  wa  the provided into the dam to be converted into clean water structure V  wa  wa  the provided into the dam to be converted into clean water structure V  wa  wa  the provided into the dam to be converted into clean water structure V  wa  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into clean water structure V  wa  the provided into the dam to be converted into the dam to clean water structure V  wa  the provided into the dam to be converted into the dam to clean water structure V  wa  the provided into the dam to be converted into the dam	edia supplementation with manure  Y  ha \$747.50  itic soil media - organic topsoil alternative Y  m2 \$2.50  Preparation and Revegetation (Growth Media Development and Ecosystem Establishme er dams to be retained after sicining — make safe and minor Y  allow \$2,500  sin water dams (i.e. ≥ 2 ha) to be retained closure — make safe and minor Y  allow \$10,500  Select from List  of evaporation fans and/or other water did management infrastructure  Water Managem  uce of areas that have been shaped and did revegetation has been 'successful'  shabilitation repair - minor  Y  ha \$1,200	edia supplementation with manure  Y  ha  \$747.50  m2  \$2.50  Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal  er dams to be retained after sioning − make safe and minor  Y  allow  \$2,500  shallow  \$10,500  Select from List  Water Management Subtotal  Water Management Subtotal  Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal  ### Subtotal  ### Subtotal  ### Subtotal  ### Subtotal  ### Water Management Subtotal  ### Subtotal  ### Subtotal  ### Subtotal	edia supplementation with manure  Y  ha  \$747.50  \$0  tic soil media - organic topsoil alternative  Y  m2  \$2.50  \$0  Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal  \$0  er dams to be retained after sioning — make safe and minor  Y  allow  \$10,500  \$0  so  water dams (i.e. ≥ 2 ha) to be retained closure — make safe and minor  Y  allow  \$10,500  \$0  \$0  so  water form the floor of the dam to be converted into clean water structure  to be converted into clean water structure  to be converted into clean water structure  to devaporation fans and/or other water and management infrastructure  Water Management Subtotal  \$0  water Management Subtotal	edia supplementation with manure  Y  ha  \$747.50  \$0    So   So   So   So   So   So   So   S

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	abilitated Are	eas Subtotal	\$0		
				Additional Ite	ms Subtotal	\$0		
Total Cost fo		\$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 dustered. 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 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) (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 repabilitation 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 per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method.  Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation.  Assume site has a history of contamination and/or a large area >15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and 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 Remove material (carbonaceous / metallilerous	Y		L	\$0.35		\$0		Cost for recent sump clean-up from resource activity - requires specialists to treat. This item includes scraping and
	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	removal of the volume of carbonaceous material using dozer, grader etc. to
	contaminated material off site to a licensed landfill.  Assumes cartage to a licensed landfill.	Y		m3	\$800.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	Y		m4	\$660.00		\$0		Includes load, haul and dump fees to a licensed facility.

	Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m3 for cartage to regional landfill	Υ		m3	\$220.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	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 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.
Deads and Torolo				Contan	ninated Materi	als Subtotal	\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Grader.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	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)	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)	Υ		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or other surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
Earthworks / Structural Works	E	arthworks / S	tructural Wor	ks (Landforn	n Establishme	ent) Subtotal	\$0	Select Push Length Here	Major bulk pushing to achieve grades
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List			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 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	tructural Wor	ks (Landforn	n Establishme	ent) Subtotal	\$0		
Frest									This includes sourcing, carting, spreading, moisture conditioning and
	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		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. mets 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 \$0		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 tatilings 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 long diditional to long spreading in daditional to you go spreading in additional to you go 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 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/a rea 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 include in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap net 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.).
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 descration, 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 nausage soir / wearnereo rock / seaiment 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	ste Subtotal	\$0	Select Haul Distance Here	50 km round trip e.g. waste /
Land Preparation and	Π					ste Subtotai	Ų0	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). 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 prepares surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges fron \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4.1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last whort 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)	Υ		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of curren 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 - Safe 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 - allo nominal rate of \$70/m3 for imported fil 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	Υ		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.
W	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	d Ecosysten	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	Υ		allow	\$10,500		\$0	Soloat Haul Dieter	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.  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)	Y		m3	Select from List			Select Haul Distance Here	contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
Maintenance of Data 1999				Wa	ater Managem	ent 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.

Total Cost for	<b>Failings</b>	& Reje	cts Don	nain			\$0	
				Additional Ite	ms Subtotal	\$0		
		Mainte	enance of Rel	nabilitated Ar	eas Subtotal	\$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	Υ		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.

#### 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:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	<b>Total Cost</b>	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Contaminated Materials	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.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	Y		m2	\$1		\$0		Provisional sum for cutting using rippir tynes and on-site disposal of the liner.
	Long haulage brine/salt for disposal (Select Haul Distance from list)	Y		tonne	Select from List			Select Haul Distance Here	Costs for haulage to location for authorised disposal.  Rate for trackable liquid levy of \$78.20
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		per tonne and authorised disposal to landfill.
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y		tonne 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
	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		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)	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		
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 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	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 (riprap) where managing water run-off fro disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If require to be sourced off site, assume an additional \$20/m2.

Mine Waste

					<u></u>
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) a/f 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 (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, gedabric, 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.

_									_
	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.).
	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 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.).  Capping/cover material available within
	Long haulage soil / weathered rock / sediment e.g. capping/covers, removal of contamination, etc.	Y		m3	List			Select Haul Distance Here	50 km round trip e.g. waste /
Land Preparation and	1	l e	Ī	1	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			Solder Hading Stock Hotel	Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Planting mature trees (>15 cm) Planting tube stock (<15 cm)	Y		allow allow	\$15.00 \$6.60		\$0 \$0		4 m centres. 4 m centres.
	Direct seeding / fertiliser (pasture grass species)	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	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 area 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)	Υ		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000		\$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	Y		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				\$13.00		φU		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.

								l	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
	Topsoll 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 hydromulching.
	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosysten	n Establishme	ent) Subtotal	\$0		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	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.
						ont Subtotal	\$0		
Maintenance of Rehabilitated	-			VVa	ater Managem	ent Subtotal	ΨU		
Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Υ		ha	ster Managem	ent Subtotal	\$0		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
		Y				ent Subiotal			include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include
	seeded and revegetation has been 'successful'			ha	\$925	eni Subiotal	\$0		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 ha	\$925 \$1,200	ent Subtotal	\$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 ha	\$925 \$1,200 \$1,700 \$2,500 \$40,000		\$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, gullies, 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 ha	\$925 \$1,200 \$1,700 \$2,500 \$40,000	eas Subtotal	\$0 \$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, gullies, growth media replacement, some level of additional surface water management.  Areas that require extensive rehabilitation 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 ha enance of Re	\$925 \$1,200 \$1,700 \$2,500 \$40,000 habilitated Ar-Additional Ite	eas Subtotal	\$0 \$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, gullies, growth media replacement, some level of additional surface water management.  Areas that require extensive rehabilitation 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		D10 dozer, 16H Grader and revegetation with pasture grass.
Earthworks / Structural Works	ı		ı	ı	Open	Cut Subtotal	\$0	Select Push Length Here	
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List			Ociect i asii Lengui nore	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	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.
	E	arthworks / S	tructural Wo	rks (Landforr	n Establishme	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		allow	\$15.00		\$0 \$0		4 m centres.
	Planting tube stock (<15 cm)	Ť		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	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.

	Total Cost for A	ctive M	ine & V	oids Do	main			\$0	
					Additional Ite		\$0		
	landform	Y	Mainte	ha enance of Rel	\$40,000 nabilitated Ar	eas Subtotal	\$0 <b>\$0</b>		rehabilitation repair - re-design and re- construction of landform.
	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 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 - 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'	Υ		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 dam 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 dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pastu grass.
	Land Preparation and Revegetation (Grov	wth Media De	velopment ar	nd 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 t hydromulching.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load 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 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.	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 f material.
	Purchase and erect warning signs	Υ		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Saf 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 2.5r 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.)	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		These rates have fluctuated over the last few years however in light of curr conditions (lower fuel prices, reduced demand etc) this is a suitable standar rate.

#### **Domain 5b: Management Activities**

# **Total Cost for Management Activities**

Total Cost for Management Activities \$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:
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		\$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	s2,500	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	Y		m	\$750.00		\$0		Assumes maintenance has been kept up and significant works are not required.
	Installation of rock armouring	Y		m2	\$6.00		\$0		Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
				(	Creek Diversi	ons Subtotal	\$0		
Maintenance of Rehabilitated Areas	Pest management on buffer lands, non-disturbed, and rehabilitated areas	Y		ha	\$150.00		\$0		Feral animal baiting programs if required and waste materials required to be removed.
	Land management of undisturbed areas (rehabilitation, weeds, ferals, erosion and sediment 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.
					Heritage Ite	ems Subtotal	\$0		
	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 vold	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 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 Plan, subsidence risk, cover/capping and final landform, sits 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.

									Includes costs for key investigations
	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		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.	Y		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 type, loider weight, 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.
	public lands for rehabilitation/remediation activities	Υ		allow	rate cell	ems Subtotal	\$0 <b>\$0</b>		Provisional sum.
Mobilisation and Demobilisation	public lands for rehabilitation/remediation activities	Y		allow	rate cell	ems Subtotal			Provisional sum.  May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
Mobilisation and Demobilisation	public lands for rehabilitation/remediation activities  Mobilisation & Demobilisation for small mine or				Sundry Ite	ems Subtotal	\$0		May include specialist demolition equipment and/or suitable plant to
Mobilisation and Demobilisation	public lands for rehabilitation/remediation activities  Mobilisation & Demobilisation for small mine or quarry - small fleet  Mobilisation & Demobilisation for small mine or	Y		Item	Sundry Ite	ems Subtotal	\$0 \$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
Mobilisation and Demobilisation	public lands for rehabilitation/remediation activities  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		Item	\$12,000 \$35,000	ems Subtotal	\$0 \$0 \$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
Mobilisation and Demobilisation	public lands for rehabilitation/remediation activities  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 km)  Mobilisation & Demobilisation (Distance to site >150	Y		Item Item	\$12,000 \$100,000	ems Subtotal	\$0 \$0 \$0 \$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.  May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
Mobilisation and Demobilisation	public lands for rehabilitation/remediation activities  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 km)  Mobilisation & Demobilisation (Distance to site >150 km but <500 km)  Mobilisation & Demobilisation (Distance to site >500	Y Y Y		Item  Item  item  item	rate cell Sundry Its \$12,000 \$35,000 \$100,000 \$150,000 \$3500,000		\$0 \$0 \$0 \$0 \$0 \$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.  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
	Mobilisation & Demobilisation for small mine or quarry - small fleet  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 km)  Mobilisation & Demobilisation (Distance to site >150 km but <500 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	Y Y Y Y Y	Mo	Item  Item  item  item	rate cell Sundry Its \$12,000 \$35,000 \$100,000 \$150,000		\$0 \$0 \$0 \$0 \$0 \$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.  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 and Demobilisation	Mobilisation & Demobilisation for small mine or quarry - small fleet  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 km)  Mobilisation & Demobilisation (Distance to site >150 km but <500 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	Y Y Y Y Y	Мо	Item  Item  item  item	rate cell Sundry Its \$12,000 \$35,000 \$100,000 \$150,000 \$3500,000		\$0 \$0 \$0 \$0 \$0 \$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.  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.  May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	public lands for rehabilitation/remediation activities  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 km)  Mobilisation & Demobilisation (Distance to site >150 km but <500 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	Y Y Y Y Y	Мо	Item  Item  item  item	rate cell Sundry Ite \$12,000 \$35,000 \$100,000 \$150,000 \$300,000 \$500,000		\$0 \$0 \$0 \$0 \$0 \$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.  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.  May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.  This item includes < <to added="" be="" by="" operator="" the="">&gt;  This item includes &lt;<to added="" be="" by="" operator="" the="">&gt;  This tem includes &lt;<to added="" be="" by="" operator="" the="">&gt;</to></to></to>
	public lands for rehabilitation/remediation activities  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 km)  Mobilisation & Demobilisation (Distance to site >150 km but <500 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)  Mobilisation & Demobilisation (Distance to site >1000 km)  Other 1 <insert></insert>	Y Y Y Y Y N	Мо	Item  Item  item  item  item	rate cell  Sundry Its  \$12,000  \$35,000  \$100,000  \$150,000  \$300,000  \$500,000  This is deliberately left blank	tion Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$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.  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.  May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.  This item includes < <to added="" be="" by="" operator="" the=""> This item includes &lt;<to added="" be="" by="" operator="" the=""> This item includes &lt;<to added="" be="" by<="" td=""></to></to></to>
	public lands for rehabilitation/remediation activities  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 km)  Mobilisation & Demobilisation (Distance to site >150 km but <500 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)  Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)  Mobilisation & Demobilisation (Distance to site >1000 km)  Other 1 <insert></insert>	Y Y Y Y Y N N N		Item  Item  item  item  item  item	rate cell Sundry Ite \$12,000 \$35,000 \$100,000 \$150,000 \$300,000 \$500,000 This is deliberately left blank	tion Subtotal	\$0 \$0 \$0 \$0 \$0 \$0	\$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.  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.  May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.  This item includes < <to added="" be="" by="" operator="" the="">&gt;  This item includes &lt;<to added="" be="" by="" operator="" the="">&gt;  This item includes &lt;<to added="" be="" by="" operator="" the="">&gt;</to></to></to>

# 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.)	Y		allow	\$5,850		\$0		Used for infrastructure remote from primary connection. Can also be used for small mines / quarries that do not have dedicated supplies from supply authorities such as steel lattice power lines.
	Removal of low/medium voltage powerlines including disconnection, rolling up the wires and removing the poles - does not include the removal of 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/py/ons/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	Υ		m2	\$75.00		\$0		Includes demolition and removal of all switchgear and transformers etc. and segregation of contents for scrap as applicable.
	Demolish and remove demountable structures on concrete stumps. Assumes not being re-used	Y		m2	\$40.00		\$0		Crib huts, temporary offices and other 'non permanent' structures. Does not include transport to regional disposal facility or equivalent.
	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	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	Υ		allow	\$750,000		\$0		Cost for removal of stacker or reclaim unit only. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove bucket wheel stacker/reclaimer and disposal on-site/locally	Y		allow	\$2,000,000		\$0		Cost for just removal of the bucket wheel stacker/reclaim units. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or 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	Υ		allow	\$92,500		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.

Collance Cut and Pomovo 2000 T and alle as d		I				Collapse structure and remove. Does
Collapse, Cut and Remove 3000 T coal silo and disposal on-site/locally	Y		allow	\$77,500	\$0	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 structure and remove. Does
Collapse, Cut and Remove rail loading bins and disposal on-site/locally	Y		allow	\$65,000	\$0	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	Υ		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
reclaim tunnel roof)				\$130.00	<b>\$</b> 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	Υ		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	<b>\$15</b>	\$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	co ha de Fo	reaking up slab and disposal or for onversion to aggregate. Generally sulage rates will be \$0.60 - \$1.20 / km, spending on truck fleet, loaders etc. or off-site disposal use alternate rate otion and add \$0.90 / km for transport.
	Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y		m2	\$75.00		\$0	co ha de Fo	reaking up slab and disposal or for onversion to aggregate. Generally sulage rates will be \$0.60 - \$1.20 / km, spending on truck fleet, loaders etc. or off-site disposal use alternate rate otion and add \$0.90 / km for transport.
	Crush concrete to make road aggregate - 75 mm	Y		tonne	\$10.00		\$0	as	pes not include haulage of materials - sumes crushing plant is readily vailable.
	Crush concrete to make road aggregate - 50 mm	Y		tonne	\$13.00		\$0	Do as	pes not include haulage of materials - ssumes crushing plant is readily railable.
	Crush concrete to make road aggregate - 30 mm	Y		tonne	\$15.00		\$0	as	pes not include haulage of materials - ssumes crushing plant is readily railable.
	Remove fence (cyclone/wire fence) and disposal on-	Y		m	\$20.00		\$0	İ	oll up fence and remove posts.
	site/locally  Removal of small plastic tanks	Y		each	\$1,000.00		\$0		emove small poly tanks used for water
	Demolish and remove galvanised/corrugated light weight tanks	Y		each	\$500.00		\$0	De m	orage, etc. emolish and remove small lightweight etal tanks. No costs included for
	Demolish and remove communication towers	Y		each	\$5,000.00		\$0	Co to di:	anaging liquids, etc.  sst includes demolition and removal of wer only; separate costs required for sconnection of services, demolition of otings, etc.
	Removal of UG services (power within main gate areas, etc.)	Y		allow	\$50,000.00		\$0	As m	ssume service disconnection at the ine boundary is at surface level. This st covers all fees and charges
	Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km	Y		tonne	\$7.00		\$0	Co fe di: re	ate accounts for round trip haulage to buncil landfill but excludes landfill es. Input quantity against Waste sposal to Council landfill - fees for levant waste type.
	Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km	Y		tonne	\$9.00		\$0	Co fer di: re	ate accounts for round trip haulage to buncil landfill but excludes landfill es. Input quantity against Waste sposal to Council landfill - fees for levant waste type.
	Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km	Y		tonne	\$12.50		\$0	Co fer di: re	ate accounts for round trip haulage to buncil landfill but excludes landfill es. Input quantity against Waste sposal to Council landfill - fees for levant waste type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >10 km but <15 km	Y		tonne	\$32.00		\$0	Co fe di: re	ate accounts for round trip haulage to buncil landfill but excludes landfill es. Input quantity against Waste sposal to Council landfill - fees for levant waste type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >15 km but <25 km	Y		tonne	\$36.00		\$0	Co fe di: re	ate accounts for round trip haulage to buncil landfill but excludes landfill es. Input quantity against Waste sposal to Council landfill - fees for levant 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	Co fer dis	ate accounts for round trip haulage to buncil landfill but excludes landfill es. Input quantity against Waste sposal to Council landfill - fees for levant waste type.
	Waste disposal to Council landfill - fees (general waste)	Y		tonne	\$193.00		\$0	to se ap fo	ee for waste disposal of general waste local Council landfill; transport rates sparate. Please note that this is not plicable to operations with approval r building and demolition waste sposal on site.
	Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)	Y		tonne	\$174.00		\$0	de wa ra m th ap	per for waste disposal of industrial emolition / concrete / scrap metal aste to local Council landfill; transport tes separate. Rate does not assume aterial is recyclable. Please note that is is not applicable to operations with proval for building and demolition aste disposal on site.
Rail Infrastructure		Tern	nination of Se	ervices and D	emolition Wo	rks Subtotal	\$0	lo.	emove all materials to allow area to be
nail mirastructure	Remove rail loop and spur, ballast etc. and disposal on-site/locally	Y		m	\$60.00		\$0	re	emove all materials to allow area to be shaped and rehabilitated - does not clude transport to regional disposal cility or equivalent.
	Remove train loading facilities and disposal on- site/locally	Y		m2	\$185.00		\$0	ine str	emove rail load point infrastructure cluding gantries and control ructures. Does not include transport to gional disposal facility or equivalent.
	Reshape rail spur and load out areas. Does not include growth media and revegetation	Y		ha	\$2,860		\$0		10 Dozer and 16 H Grader (50% ilisation).
ntaminated Materials				R	ail Infrastruct	ure Subtotal	\$0	ut	
muulidis	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	in as in Error CC. 1. (in as A A - P st se F p r ar ar - F f t	ne preliminary investigation would clude at minimum a desktop sessement of the area and site history, cidents, etc. as per the National virrommental Protection (Site notamination) Measure (NEPM) Phase assessment (EP Act Section 389 (2) (7) or similar approved and recognised sessement method. cluster may include: (fine infrastructure (i.e., fuel / chemical ore, workshop, vehicle wash-down, wage treatment etc.) "Processing plants (i.e., ore and oduct storage, mine waste storage di disposal, rall load-out etc.) Remote pit-top facilities (i.e., vehicle re- el, sewage treatment, secondary orkshop, 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 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 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	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.	Υ	m3	\$800.00	\$0		Includes load, haul and dump fees to a licensed facility.
Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	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	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	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.
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			1	Select from		1		Costs for haulage to location for
	Distance from list)	Y		tonne	List			Select Haul Distance Here	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	Add disposal costs to additional items where warranted.
				Contan	ninated Mater	ials Subtotal	\$0		
Vents, Shafts and Boreholes	Option 1 - Coal bore hole Exploration boreholes – rehabilitate coal boreholes and drill pads as required	Υ		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, rip 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 - 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.)	Y		allow	\$6,960		\$0		Holes deeper than 100 m - includes cutting steel collar 6 m below surface, grouting and capping.
	Boreholes – cap and seal open bore holes - surface- to-in-seam gas drainage	Y		allow	\$17,890		\$0		Surface-to-in-seam gas drainage boreholes.
	Boreholes – cap and seal open bore holes - vertical gas drainage	Y		allow	\$16,000		\$0		Vertical gas drainage boreholes.
	Boreholes - grout (with concrete) cap and seal bore	Y		allow	\$35,000		\$0		Includes multi skin sleaves to prevent
	holes (i.e. where sealing aquifers)  Boreholes – cap and seal service boreholes for UG coal operations	Y		allow	\$45,000		\$0		aquifer mixing.  Includes large diameter boreholes used for supplying electricity (66kV),
	Option 4 - Mineral diamond drill hole Rehabilitation of diamond drill holes and pad including sealing drill holes for mineral exploration	Y		Item	\$2,070		\$0		compressed air, water, solsenic etc.  Bog out cuttings, remove fencing, remove rubbish, push sumps in, rehabilitate pads and tracks, cut and plug collars. Includes labour and equipment, disposal of rubbish locally 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 fillin with concrete/grout
	Option 6 - Rehabilitation of drill hole collars Rehabilitation of drill hole collars (mineral exploration)	Υ		each	\$415		\$0		Cut collar, remove, cap, backfill capped collar and cover with nearby organic or growth material
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor		ı	1	s and Boreho	les Subtotal	\$0		Assumes ~6 m road width - 16H
rodus diu Hacks	works including deep rip and trim  Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds –	Y		ha	\$1,040.00 \$1,500		\$0 \$0		Grader.  D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor			ha					utilisation) - no seed D10 Dozer @ \$400 per hour and 16 H
	earthworks, final trim and deep rip and seed (pasture grass) Unsealed roads / vehicle park-up areas – Minor	Y		ha	\$3,700		\$0		grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 H
	earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass) Unsealed roads / haul roads / vehicle park-up areas	Y		ha	\$4,485		\$0		grader @ \$230 per hour (50% utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 16 H
	with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		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
				R	oads and Tra	cks Subtotal	\$0		grador to chable the establishment of
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).
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Fill 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.
	Deep rip hard stand / lay down areas	Y		ha	\$960.00		\$0		D10 deep ripping.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		Installation of on-site rock material (rip- rap) where managing water run-off fro 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.
Land Dr	E	arthworks / S	tructural Wor	ks (Landforn	n Establishme	ent) Subtotal	\$0		If toppoll is not assemble to the
Land Preparation and Revegetation (Growth Media Development and Ecosystem	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
Establishment)	Planting mature trees (>15 cm)	Y		allow	\$15.00		\$0		sourced. 4 m centres.
	Planting tube stock (<15 cm)  Direct seeding / fertiliser (pasture grass species)	Y		allow ha	\$6.60 \$1,875		\$0 \$0		4 m centres. Includes treating, weighing, mixing with fertiliser + spreading by tractor or
	Direct seeding / fertiliser (tree or native grass	' Y		ha	\$4,135		\$0		helicopter (aerial seeding).  Includes treating, weighing, mixing with fertiliser + spreading by tractor or
	species)	'	]	па	φ4, 135		ÞU		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	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 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	Υ		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Υ		m	\$13.00		\$0		Standard rate for standard stock fencing.
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment -
	Purchase and erect warning signs	'		allow	\$250.00		\$0		installed every 25 m.
	Supply from external sources virgin excavated natural material (VENIM) 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	Υ		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	Υ		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to
	Land Preparation and Revegetation (Grov		evelonment a			ent) Subtotal	\$0		hydromulching.
Water Management	(GIO)		pmem di		Locabilatiille		**		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 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)  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	\$25,000	ont Cultina	\$0 \$0		management infrastructure.
Maintenance of Rehabilitated				Wa	ater Managem	ent Suptotal	φυ		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, gullies, growth media replacement,
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	Y	Mainte	ha enance of Re	\$40,000 habilitated Ar	eas Subtotal	\$0 \$0		Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
					Additional Ite		\$0		
	Total Cost fo	r Infras	tructur	e Doma	in			\$0	
	<del></del>								

# Domain 2c: Tailings & Rejects

# **Total Cost for Tailings & Rejects Domain**

Total Cost for Tailings & Rejects Domain 50

Additional Assumptions. Necord 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) (w)) or similar approved and recognised assessment method. A cluster may include:  - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.)  - Processing plants (i.e., or eand 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) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assumes site is easily accessible and a small area e.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 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 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	Y		L	\$0.35		\$0	Calant Hard Dist.	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 (feach 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)	у		m3	Select from List			Select Volume Here	Spreading or commitmated sons 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		organic chemicals - time frame of up to 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	I	I		ninated Mater	ials Subtotal	\$0		Assumes ~6 m road width - 16H
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha ha	\$1,040.00 \$1,500		\$0 \$0		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)	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)	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 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 Wor	ks (Landforn	n Establishme	ent) Subtotal	\$0		The facility and the
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	W	m2	\$27.00	and Subsected	\$0 \$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	<u>=</u>	artiiworks / 3	dructural wor	KS (Lanuloin	ESTADIISTITIE	ent) Subtotal	Ψΰ		ı
	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)	Υ		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 ratues. 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.
I	Additional materials required for reshaping, capping	I	I		Use alternate		1		Include additional cost to import materials (i.e., shale / clay, competent

	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 trafticable 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 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.).
	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.
	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.).
	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 / day, 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 naurage soir / weathered rock / sediment e.g.	Υ	allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).  Capping/cover material available within
	capping/covers, removal of contamination, etc.	Y	m3	List	ste Subtotal	\$0	Select Haul Distance Here	50 km round trip e.q. waste /
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)	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	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 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.)	Υ		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	Y		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
	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
							\$0		hydromulching.
Water Management	Land Preparation and Revegetation (Grov Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y	veropment ar	allow	\$2,500	ent) Subtotal	\$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)	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	ter 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.
	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	Mainta	ha	\$40,000	as Subtatal	\$0 <b>\$0</b>		Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
					Additional Ite		\$0 \$0		
	Total Cost for 1	<b>Failings</b>	& Reje	cts Dor	nain			\$0	

#### Domain 3c: 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:	

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	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.
	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 tanker Add disposal costs to additional items
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor		ı		ninated Mater	ials Subtotal	\$0		Assumes ~6 m road width - 16H
Rodus and Tracks	works including deep rip and trim	Y		ha	\$1,040.00		\$0		Grader.
	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
								Select Haul Distance Here	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				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.
				R	oads and Tra	cks Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Υ		m3	Select from List			Select Push Length Here	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness 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	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 gully 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) / Sealine Mine Drainage (SMD) and/or low to moderate propensity for spontianeous 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.	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.).
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 / 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 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 / 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 (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 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, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.

/ sealing of structure to runoff, seepage etc. me environment water qual Additional materials rec / sealing of structure to runoff, seepage etc. me environment water qual Difficult Tailings Cappir sealing of weak or soft poor physical properties low shear strength limit artificial strengthening recovered in the structure to runoff, seepage etc. me environment water qual Additional materials rec / sealing of structure to runoff, seepage etc. me environment water qual Long haulage soil rivet capping of structure to runoff, seepage etc. me environment water qual Long haulage soil rivet capping of structure to runoff, seepage etc. me environment water qual Long haulage soil rivet capping of structure to runoff, seepage etc. me environment and Ecosystem Establishment)  Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)  Planting mature trees (Planting tube stock (<1) Direct seeding / fertilise species)  Hydro-seeding with stretack with native seed  Hydro-seeding with stretack with pasture seed  Hydromulch - bonded fi areas to stabilise up to the seeding with stretack with pasture seed  Single application of fertilise species)  Hydromulch - bonded fi areas to stabilise up to the seeding with stretack with pasture seed  Single application of fertilise species)  Hydromulch - bonded fi areas to stabilise up to the seeding with stretack with pasture seed  Single application of fertilise species)  Purchase and erect was a construct standard stock areas and seed was a construct and seed areas and seed was a construct standard stock areas and seed was a construct and seed areas and seed areas and seed areas and seed									_
/ sealing of structure to runoff, seepage etc. me environment water qual Difficult Tailings Cappir sealing of weak or soft poor physical properties low shear strength limit artificial strengthening i impacts on legacy sites over lengthy exposure for Junoff, seepage etc. me environment water qual Additional materials rec / sealing of structure to runoff, seepage etc. me environment water qual Long haulage soil rwee capoling/covers. removal Company and Stance from List)  Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)  Source, cart and spread Distance from List)  Planting mature trees (Planting tube stock (<11 Direct seeding / fertilise species)  Hydro-seeding with stretack with native seed  Hydro-seeding with stretack with pasture seed  Hydromulch - bonded fi areas to stabilise up to the formation of fertilise species of the properties of the	al materials required for reshaping, capping of structure to facilitate water quality from sepage etc. meeting site-specific nent water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
sealing of weak or soft poor physical properties ow shear strength limit artificial strengthening in impacts on legacy sites over lengthy exposure provided in the strength of the sealing of structure to runoff, seepage etc. me environment water qual.  Additional materials rec / sealing of structure to runoff, seepage etc. me environment water qual. Long naturage sort / wes capabino/covers. removir application (Growth Media Development and Ecosystem Establishment)  Planting mature trees (Planting tube stock (<1)  Direct seeding / fertilise species)  Hydro-seeding with stratack with native seed  Hydromulch - base grathat can be irrigated by the formation of fertilise species.  Hydromulch - base grathat can be irrigated by the formation of fertilise species.  Single application of fertilise species of the formation of fertilise species.  Single application of fertilise species.  Purchase and erect was a construct no-climb stock areas.  Construct no-climb stock areas.  Construct no-climb stock areas.  Purchase and erect was supply from external scaraes.  Purchase and erect was supply from external scaraera.	al materials required for reshaping, capping of structure to facilitate water quality from sepage etc. meeting site-specific nent water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
/ sealing of structure to runoff, seepage etc. me environment water qual Additional materials rec / sealing of structure to runoff, seepage etc. me environment water qual Long haulage soil? wee capping/covers. removal capping soil. Planting mature trees (capping for fertilises species)  Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)  Planting mature trees (capping for fertilises species)  Hydro-seeding with stratack with native seed.  Hydro-seeding with stratack with pasture seed.  Hydro-seeding with stratack with pasture seed.  Hydromulch - base granthat can be irrigated by  Hydromulch - bonded fi areas to stabilise up to fertilise species.  Single application of fertilise constructs and areas.  Single application of fertilise constructs and areas.  Construct to-climb stocareas.  Purchase and erect was supply from external scontract standard stocareas.  Purchase and erect was supply from external scontract and areas construct standard stocareas.	Tailings Capping- reshaping, capping / of weak or soft surfaced tailings facility with sical properties (significantly hydrophilic, r strength limits equipment choice greatly, strengthening required) OR visible adverse on legacy sites from chemical reactivity ythy 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 costle in addition to this can.
Sealing of structure to runoff, seepage et. me environment water qual tong nausage sour rives capoino/covers, removir appearation (Growth Media Development and Ecosystem Establishment)   Source, cart and spread Distance from List)	al materials required for reshaping, capping of structure to facilitate water quality from sepage etc. meeting site-specific nent 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.).
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)  Planting mature trees ( Planting tube stock (<1) Direct seeding / fertilise species)  Hydro-seeding with stre tack with native seed  Hydromulch - base gran that can be irrigated by  Hydromulch - base gran that can be irrigated by  Hydromulch - base gran that can be irrigated by  Single application of fer  Single application of fer  Spoil amelioration (add growth media ameliorat Construct no-climb stoc areas Construct standard stoc areas Construct mo-climb stoc areas Construct material (VENM Supply from external sc natural material (VENM	al materials required for reshaping, capping of structure to facilitate water quality from sepage etc. meeting site-specific nent 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.).
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)  Planting mature trees (Planting tube stock (-1) Direct seeding / fertilise species)  Hydro-seeding with stratack with native seed  Hydro-seeding with stratack with pasture seed  Hydromulch - base granthat can be irrigated by  Hydromulch - binded fi areas to stabilise up to  Hydromulch - high perfinedium grade  Single application of fertilise species)  Single application of fertilise areas  Construct no-climb stocareas  Construct tandard stocareas  Purchase and erect was  Supply from external sc natural material (VENM)  Supply from external sc virgin excavated natural material (VENM)	ulage soil / weathered rock / sediment e.g. 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 /
Revegetation (Growth Media Development and Ecosystem Establishment)  Source, cart and spread Distance from List)  Planting mature trees (Planting tube stock (<1 Direct seeding / fertilise species)  Hydro-seeding with stretack with native seed  Hydro-seeding with stretack with pasture seed  Hydromulch - base grathat can be irrigated by  Hydromulch - bigh perfimedium grade  Single application of fertilise species  Single application of fertilise species  Construct no-climb stocareas  Construct standard stocareas  Purchase and erect was  Supply from external schatural material (VENM)  Supply from external schatural material (VENM)  Supply from external schatural material (VENM)		_	ī	T		ste Subtotal	\$0		
Planting tube stock (<1 Direct seeding / fertilise Direct seeding / fertilise species)  Hydro-seeding with stratack with native seed  Hydro-seeding with stratack with pasture seed  Hydromulch - base grathat can be irrigated by  Hydromulch - bigh perfinedium grade  Single application of fertilise up to  Single application of fertilise applicatio	cart and spread growth media (Select Haul from List)	Υ		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 / fertilise  Direct seeding / fertilise species)  Hydro-seeding with stre tack with native seed  Hydro-seeding with stre tack with pasture seed  Hydromulch - base grathat can be irrigated by  Hydromulch - bigs grathat can be irrigated by  Hydromulch - bigs grathat can be irrigated by  Single application of fermedium grade  Supply from external stop areas  Construct no-climb stoc areas  Construct standard stoc areas  Purchase and erect was  Supply from external stop areas  satural material (VENM)  Supply from external stor areas are		Y		allow	\$15.00		\$0		4 m centres.
Direct seeding / fertilise species)  Hydro-seeding with stratack with native seed  Hydro-seeding with stratack with pasture seed  Hydromulch - base grathat can be irrigated by  Hydromulch - binded fi areas to stabilise up to  Hydromulch - high perfinedium grade  Single application of fertilise single application of f	tube Stock (<15 CM)	Y		allow	\$6.60		\$0		4 m centres. Includes treating, weighing, mixing with
species)  Hydro-seeding with stratack with native seed  Hydro-seeding with stratack with pasture seed  Hydromulch - base granthat can be irrigated by  Hydromulch - bonded fi areas to stabilise up to  Hydromulch - high perfinedium grade  Single application of fer  Spoil amelioration (add growth media ameliorat Construct no-climb stocareas  Construct no-climb stocareas  Construct standard stocareas  Purchase and erect was  Supply from external sc natural material (VENM  Supply from external sc virgin excavated natura	eding / fertiliser (pasture grass species)	Y	<u></u>	ha	\$1,875		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).
Hydro-seeding with stratack with pasture seed  Hydromulch - base grathat can be irrigated by  Hydromulch - bonded fi areas to stabilise up to  Hydromulch - high perfi medium grade  Single application of fer  Single application of fer  Single application of fer  Spoil amelioration (add growth media amelioration (add growth media amelioration careas  Construct no-climb stot areas  Purchase and erect was  Supply from external sc natural material (VENM)  Supply from external sc virgin excavated natura	eding / fertiliser (tree or native grass	Υ		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
Hydromulch - base grathat can be irrigated by  Hydromulch - bonded fiareas to stabilise up to  Hydromulch - high perfimedium grade  Single application of fer  Single application of fer  Spoil amelioration (add growth media amelioration (add growth media amelioration careas  Construct no-climb stocareas  Purchase and erect was  Supply from external scatural material (VENM  Supply from external scaturing in excavated natural wirgin excavated natural	eeding with straw mulching and bitumen 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
Hydromulch - bonded fi areas to stabilise up to  Hydromulch - binded fi areas to stabilise up to  Hydromulch - high perfi medium grade  Single application of fer  Spoil amelioration (add growth media ameliorat  Construct no-climb stot areas  Construct standard stot areas  Purchase and erect wat  Supply from external sc natural material (VENM)  Supply from external sc virgin excavated natura	eeding with straw mulching and bitumen pasture seed	Y		m2	\$0.43		\$0		Process to be used on flat well preparer 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
areas to stabilise up to  Hydromulch - high perfi medium grade  Single application of fer  Single application of fer  Spoil amelioration (add growth media ameliorat  Construct no-climb stot areas  Construct standard stot areas  Purchase and erect was  Supply from external sc natural material (VENM  Supply from external sc	ulch - base grade or standard for flat areas 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.
Single application of fer  Single application of fer  Spoil amelioration (add growth media ameliorat Construct no-climb stoc areas Construct standard stoc areas Purchase and erect wai  Supply from external sc natural material (VENM Supply from external sc	ulch - bonded fibre matrix grade for steep 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.
Single application of fer  Spoil amelioration (add growth media ameliorat  Construct no-climb stor areas  Construct standard stor areas  Purchase and erect war  Supply from external sc natural material (VENM  Supply from external sc virgin excavated natura	ulch - high performance flexible growth 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/hg minimum. This cost includes cover crop only, additional seeding required.
Spoil amelioration (add growth media ameliorat Construct no-climb stod areas Construct standard stod areas Purchase and erect was Supply from external sc natural material (VENM Supply from external sc virgin excavated natura	oplication 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.
growth media amelioral Construct no-climb stoc areas Construct standard stoc areas Purchase and erect wai Supply from external sc natural material (VENM Supply from external sc	oplication of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of curren conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
Construct no-climb stod areas Construct standard stod areas Purchase and erect was Supply from external sc natural material (VENM Supply from external sc virgin excavated natura	elioration (adding lime / gypsum etc.)	Y		ha	\$1,000		\$0		Assumes 2.5 t / ha as an average application rate.
areas Construct standard stor areas Purchase and erect war Supply from external sc natural material (VENM Supply from external sc	nedia amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
areas Purchase and erect war  Supply from external sc natural material (VENM  Supply from external sc virigin excavated natura	et no-climb stock fence around rehabilitated	Y		m	\$22.00		\$0		Standard rate for no-climb stock
areas Purchase and erect war  Supply from external sc natural material (VENM  Supply from external sc virigin excavated natura	et standard stock fence around rehabilitated	1							fencing. Standard rate for standard stock
Supply from external sc natural material (VENM Supply from external sc virgin excavated natura		Y		m	\$13.00		\$0		fencing. Compliance with AS 1319-1994 - Safety
natural material (VENM Supply from external sc virigin excavated natura	e and erect warning signs	Y		allow	\$250.00		\$0		signs for the occupational environment - installed every 25 m.
virgin excavated natura	rom external sources virgin excavated naterial (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.
etc.	rom external sources a combination of cavated natural material (VENM) and spoil ge excavation for filing voids and/or capping	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	and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
Topsoil stripping	stripping	Y		m3	\$4.86		\$0		yegetation grown e.g. regrowing Stripping or topsoil at a approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
Growth media supplem	nedia 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 Ecosysten	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 pastur 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 an dozer to clean out the dam.
				Wa	ater Managem	ent Subtotal	\$0		
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, fertilisin- 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 replacemen
	Existing rehabilitation repair - major	Υ		ha	\$2,500		\$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface wate 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 Re	habilitated Ar	eas Subtotal	\$0		
					Additional Ite	ems Subtotal	\$0		

#### Domain 4c: Active Mine & Voids

# **Total Cost for Active Mine & Voids Domain**

\$0

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Open Cut	Active pit area – benches blasted and doze to acceptable grade	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  High wall treatment – (trench and safety berm)	Y		m3	\$0.95 \$90.00		\$0 \$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.  D10 dozer, 16H Grader and
	riigii man treatherit (testeri and ealet) beriii)					Cut Subtotal	\$0		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			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	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	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	ks (Landforn	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 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		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	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.

Total Cost for Active Mine & Voids Domain								\$0	
					Additional Ite	ems Subtotal	\$0		
	Maintenance of Rehabilitated Areas Subtotal								
	Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0 <b>\$0</b>		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
	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 - 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'	Υ		ha	\$925		\$0		Rehabilitation maintenance might include re-seeding, watering, fertilising minor re-shaping, erosion control, inspections/audits - does not include maior reoair works.
	•			Wa	ter Managem	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 dam 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	о органия	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.
	Land Preparation and Revegetation (Grov	vth Media De	velopment ar	nd Ecosysten	n Establishme	ent) Subtotal	\$0		inyurumuching.
	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		necessary.  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
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allo nominal rate of \$60/m3 for imported fi 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 fil material.
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safe signs for the occupational environmen installed every 25 m.
	Security fence around steep section of high wall	Υ		m	\$64.00		\$0		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		last few years however in light of curre conditions (lower fuel prices, reduced demand etc) this is a suitable standar rate.

#### **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:						

		Applicable			Default Unit	Alternative		Basis for Costs Estimation	
Management Precinct	Activity / Description	(Y or N)	Quantity	Unit	Rate	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	Repairs and/or stabilisation of new or compromised				ater Managem	ent Subtotal	\$0		Assumes material is suitable for
	water course diversion	Y		m	\$2,500		\$0		revegetating and has a reasonable chance of stabilising.  Assumes maintenance has been kept
	Long term maintenance of water course diversion – Channel constructed through backfilled material	Y		m	\$1,500		\$0		up and significant works are not required.  Assumes maintenance has been kept
	Long term maintenance of water course diversion – Channel constructed through competent material	Y		m	\$750.00		\$0		up and significant works are not required.
	Installation of rock armouring	Y		m2	\$6.00		\$0		Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
Maintenance of Debabilitated					Creek Diversi	ons Subtotal	\$0		Food calculated believe accesses to
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 managemen activities.
Hadran Irana			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		
	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		Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assumes outcomes of studies readily available including modelling, landform design, geochemistry, demolition, etc. Costs to finalise options by domain and finalise designs for construction. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, 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 detail 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. Includer 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. Provisions sum to be used to refline the conceptua 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, fine land use requirements and knowledge base investigations can range to >\$3 M Sites with more than 1 pit to add \$50,000 to rate.

Page 47 of 50

Develop a Review of Environmental Factors (REF) to facilitate orhabilitation including contamination works.  Site security during closure  Y  yr.  \$75,000  \$0  Site security during closure  Y  yr.  \$75,000  \$0  Select type of HAZMAT Clean-up required deeming 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  allow  \$0  Solidation and Demobilisation  Mobilisation and Demobilisation for small mine or year of medical public lands for rehabilisation for small mine or year of medical public lands of provisional sum for remove disposal demolity public lands for rehabilisation for small mine or year of the cell of th
Site security during closure  Y  yr.  \$75,000  S0  measures required during of includes nightly parties response in the event of an incident.  Select 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  So  Select 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  Provisional sum for remove disposal of and grease traps, pipe work etc  Provisional sum for remove disposal of radiation devices  Y  acid  Removal and disposal of radiation devices  Y  allow  Use alternate rate cell  Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities  Sundry Items Subtotal  Mobilisation and Demobilisation  Mobilisation & Demobilisation for small mine or quarry - small fleet  Mobilisation & Demobilisation for small mine or quarry - small fleet  May include specialist dem equipment and required incident. May include specialist dem equipment and/or suitable general states and contaminate and/or suitable general states. The provision of the provision of the event of an incident.  Select type of HAZMAT Clean-up required - cleaning and decontaminate reports and incident.  Type of HAZMAT Clean-up required - decended and provision of the event of an incident.  Type of HAZMAT Clean-up required - decended and provision and provision of the event of an incident.  Select type of HAZMAT Clean-up required and incident.  Select type of HAZMAT Clean-up required and response incident.  Type of HAZMAT Clean-up required and response in incident.  Type of HAZMAT Clean-up required and response in incident.  Select type of HAZMAT Clean-up required and response incident and response in incident.  Select type of HAZMAT Clean-up required and response in incident.  Select type of HAZMAT Clean-up required and select type of HAZMAT Clean-up required and response
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  Clean-up Required  Type of HAZMAT Clean-up cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, pipe work etc  Provisional sum for remove disposal of an internal storage locations, pipe work etc  Provisional sum for remove disposal of monitoring devi conveyors using a radiation conveyors using a radiation and plant to the provisional sum for remove disposal of monitoring devi conveyors using a radiation of sum in the provisional sum for remove disposal of monitoring devi conveyors using a radiation of sum in the provisional sum for remove disposal of monitoring devi conveyors using a radiation of sum in the provisional sum for remove disposal of monitoring devi conveyors using a radiation of sum in the provisional sum for remove disposal of monitoring devi conveyors using a radiation of supposal sum for remove disposal of monitoring devi conveyors using a radiation of supposal sum for remove disposal of monitoring devi conveyors using a radiation of supposal sum for remove disposal of monitoring devi conveyors using a radiation of supposal sum for remove disposal of monitoring devi conveyors using a radiation of supposal sum for remove disposal of monitoring devi conveyors using a radiation of supposal sum for remove disposal of monitoring devi conveyors using a radiation of remove disposal of monitoring devi conveyors using a radiation of remove disposal of monitoring devi conveyors using a radiation of remove disposal of monitoring devi conveyors using a radiation of remove disposal of monitoring devi conveyors using a radiation of remove disposal of monitoring devi conveyors using a radiation of remove disposal of monitoring devi conveyors using a radiation of remove disposal of monitoring devi conveyors using a radiation of remove disposal of monitoring devi conv
Removal and disposal of radiation devices  Y each \$31,630  \$0  Gaesium - 137 etc). Source Isotope type, quanti weight, source holder type, holder weight at each of the type of type of the type of type of the type of the type of the type of type of the type of type of type of the type of type of type of the type of ty
public lands for rehabilitation/remediation activities 1 allow rate cell 50  Sundry Items Subtotal 50  Mobilisation and Demobilisation & Demobilisation for small mine or quarry - small fileet 4 substitution of the small mine or quarry - small fileet 50 substitution of the small mine or quarry - small mine or q
Mobilisation and Demobilisation  Mobilisation & Demobilisation & Demobilisation for small mine or quarry - small fleet  Y Item \$12,000  \$0  May include specialist dem equipment and/or suitable pexecute bulk earthworks as  May include specialist dem
Mobilisation & Demobilisation for small mine or quarry - small fleet  S12,000  S0  May include specialist dem equipment and/or suitable pexecute bulk earthworks as  May include specialist dem specialis
quarry - medium to large fleet  Y  Item  \$35,000  \$0  equipment and/or suitable pexecute bulk earthworks as
Mobilisation & Demobilisation (Distance to site <150 y item \$100,000 \$0 May include specialist dem equipment and/or suitable pexecute bulk earthworks as
Mobilisation & Demobilisation (Distance to site >150 Y item \$150,000 \$0 May include specialist dem equipment and/or suitable pexecute bulk earthworks as
Mobilisation & Demobilisation (Distance to site >500 Y item \$300,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
Mobilisation & Demobilisation (Distance to site Y item \$500,000 \$0 May include specialist dem equipment and/or suitable pexecute bulk earthworks as
Mobilisation and Demobilisation Subtotal \$0
Additional Items Other 1 <insert> N This item includes &lt;<to be="" operator="" the="">&gt;</to></insert>
Other 2 <insert>  N   deliberately   This item includes &lt;<to be="" operator="" the="">&gt;</to></insert>
This large is alludes and the
Other 3 <insert>  N   left blank   the operator&gt;</insert>

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

In completing the Rehabilitation Cost Estimation, we are seeking an adjustment to the rates currently utilised in the Rehabilitation Cost Estimation. 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 altered in the Rehabilitation Cost Estimation Tool.								
	Authrorisation Representatives		Date					

**Adopted Rates** 

Justification