Site Registration

Date June 2020

Complete the following fields prior to calculating the Security Deposit.

Mine Name:	Integra Underground Mine
Lease(s):	
Title Holder:	HV Coking Coal Pty Limited
Mine Operator:	Glencore
Expiry of MOP:	30 December 2021 (End of MOP is 2023)
Current Security:	$10,990,000
Date of last Security Deposit review	10/12/2018; 31/05/2019
Mine Contact:	Chloe Piggford
Position:	Environment and Community Manager
Address:	HV Coking Coal Pty Limited PO Box 534 Singleton NSW 2330
Phone:	0265774200
Email:	chloe.piggford@glencore.com.au

Site Description - End of MOP

The following site specific information is requested to provide background information in the context of calculating the Security Deposit.

Summary of Mine Activities

Total annual production (tonnes):	Up to 4.5Mtpa
Mine lease area (ha):	3158.1
Area of extraction (ha):	836
Area of disturbance (ha):	121.6
Rehabilitation in progress (ha):	25.7
Rehabilitation complete (ha): Achieved ecosystem sustainability	0
MOP Utilised: Reference MOP no. version and date	MOP Plan 3E (2023)
MOP Plan(s) utilised: Reference Plan no. version and date	1 MOP Plan 3E (2023) 2 3

☐ Plan(s) attached

NOTE:
Ensure rehabilitation cost estimation reflects all environmental issues affecting the lease. Contingencies should be allocated where costs have not been incorporated elswhere in the estimation.

Environmental Sensitivities

Surrounding land use (tick all that apply):

- ☐ Cropping
- ☑ Pasture
- ☑ Forest
- ☑ Undisturbed habitat
- ☐ Urban

Environmental Issues affecting site (tick all that apply)

- ☑ Threatened flora
- ☐ Threatened fauna
- ☑ Cultural heritage items
- ☐ Natural heritage features
- ☑ Mine subsidence
- ☐ Surface water pollution
- ☐ Ground water pollution
- ☐ Hydrocarbon contamination
- ☑ Methane drainage/venting
- ☐ Spontaneous combustion
- ☐ Acid Mine Drainage
- ☐ Within drinking water catchment
- ☐ Other (describe below)

Underground Summary Rehabilitation Cost Estimation

Note: Sections of this page are automatically filled in from the registration page

Mine Name:	Integra Underground Mine
Lease(s):	CL382, ML1437, ML1518, ML1525, ML1551, ML1676, ML1786, ML1740, ML1742
Mine Owner:	HV Coking Coal Pty Limited
Mine Operator:	Glencore
Expiry of MOP:	30 December 2021 (End of MOP is 2023)
Current Security:	$10,990,000
Date of Last Security Deposit Review:	10/12/2018; 31/05/2019
Mine Contact:	Chloe Piggford
Position:	Environment and Community Manager
Address:	HV Coking Coal Pty Limited PO Box 534 Singleton NSW 2330
Phone:	0265774200
Email:	chloe.piggford@glencore.com.au

Domain		Security Deposit
Domain 1: Infrastructure		7,625,500.28
Domain 2: Tailings & Rejects		
Domain 3: Overburden & Waste		
Domain 4: Subsidence & Management		828,547.00
Subtotal (Domains and Sundry Items)		**$8,454,047.28**
Contingency	**10%**	**$845,404.73**
Post Closure Environmental Monitoring	**10%**	**$845,404.73**
Project Management and Surveying	**10%**	**$845,404.73**
Total Security Deposit for the Mining Project (excl. of GST)		**$10,990,261.47**

Note: GST is not included in the above calculation or as part of rehabilitation security deposits required by the Department

☐ Alterations have been made to unit prices within this spreadsheet. (Attach a separate sheet providing details of changes).

☑ The proposed rehabilitation design is generally consistent with the development consent for the project.

This Registration Form, Summary Report and calculation pages are to be printed and attached as an appendix the AEMR or MOP.

This mine security calculation has been estimated using the best available information at the time.
It is a true and accurate reflection of the total rehabilitation liability held by this mine.

Michael Pajkovic
Company Representative's Name

26/06/2020
Date

Director
Company Representative's Role / Responsibility

Signature

Underground Operations

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain **$7,625,500**

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

The RCE is based on MOP Plan 3E (End of MOP). As this will be a greater area of disturbance.	**Key Rehabilitation Area Data for Domain**	**Enter data below manually**
Based on GIS files for MOP Plan 3E from Integra Underground	**Total Landform Establishment:**	0.00
	Total Growth Media Development:	0.00
	Total Ecosystem and Landuse Establishment:	18.50

December 2018 Calculation

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**	Updated for Nov 2018 MOP to only cover the pit top.	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**	3	allow	**$5,500**		**$16,500**	Line item 1.02 and 2.02 from previous RCE. Relates to Pit top and Surface Ventilation Area. Nov 2018 MOP - Updated to cover 2 x vent shafts and goaf drainage area.	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**	10.886	km	**$15,000**		**$163,290**	Line item 1.03 and 2.03 from previous RCE. Relates to 11kv line at Pit top and Surface Ventilation site. Additional powerlines as part of MOD 8. Covers powerlines at site. This includes the following additional powerlines: Approximately 4.35kms of 11kV overhead power lines Approximately 1.64kms of 66kV powerlines. Current powerlines around pit top and existing ventilation area.	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**	0.1	km	**$100,000**		**$10,000**	Line item 1.04 and 2.04 from previous RCE. Relates to 66kv line at Pit top and Surface Ventilation site.	Applies to power lines on steel tower and steel lattice structures assuming 3 towers / km.
	Remove significant rail, road, water course overpass - manage potential interuptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	**N**		Item	**$350,000**				Major structures 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**	993	m2	**$600.00**		**$595,800**	Line item 1.05, 2.08 and 5.06 from previous RCE. Increase based on change from @$25k to m2 rate. Area estimates made from aerial assume that each enclosed building is 200m2 (x 3 substations = 600m2). Total switchyard costed in below line item.	Simple structure to demolish. Assumes single story building and segregation of contents for scrap as applicable.
	Demolish and remove switchyard. Dispose of waste material on-site/locally	**Y**	2753	m2	**$55.00**		**$151,415**	Line item 1.06 and 2.05 from previous RCE. Relates to switchyard at pit top and plant area within Surface Ventilation site.	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**	626.5	m2	**$40.00**		**$25,060**	Addition of new buildings for office block and toilet complex. Integra Underground data indicates 41.5m2 area. 2 demountable buildings (585m2) added for MOP Amendment A.	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**	717	m2	**$65.00**		**$46,605**	Line item 2.06 from previous RCE. Relates to small buildings at Surface Ventilation site. Includes pit top small buildings, ventilation area buildings. Includes 'pump housing' = 40m2. Includes '11KV housing' = 50m2. Total = 931m2 +40m2+50m2. 2 small buildings (304m2) removed. .Removed as part of MOP Amendment A	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**	2009	m2/floor	**$115.00**		**$231,035**	Line item 1.08 and 2.07 from previous RCE (pit top and vent site). Store added for this MOP (approximately 800m)	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 industrial buildings (workshops tyre change and servicing area etc not CHPP/process plant) and disposal on-site/locally	**Y**	556	m2/floor	**$180.00**		**$100,080**	Line item 1.09 from previous RCE (pit top buildings)	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	**N**		m2/floor	**$265.00**				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**	286	m2/floor	**$265.00**		**$75,790**	Line item 1.10 from previous RCE (pit top buildings)	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	**N**		allow	**$1,000,000**				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	**N**		allow	**$2,500,000**				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	**N**		m	**$75.00**				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	**N**		allow	**$100,000**				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	**N**		allow	**$85,000**				Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
Collapse, Cut and Remove 1250 T coal silo and disposal on-site/locally	**N**		allow	**$65,000**				Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
Collapse, Cut and Remove rail loading bins and disposal on-site/locally	**N**		allow	**$65,000**				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**	344	m	**$210.00**		**$72,240**	Line item 1.11 from previous RCE. Relates to conveyors at the pit top. Assumes 50% of conveyors are on ground.	Estimate for on-ground conveyor including anything up to 10 m off the ground. Does not include transport to regional disposal facility or equivalent.
Demolish and remove elevated conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally	**Y**	344	m	**$370.00**		**$127,280**	Line item 1.12 from previous RCE. Relates to conveyors at the pit top. Assumes 50% of conveyors are elevated.	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 infrastructure	**N**		m	**$1,200**				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.
Demolish reclaim tunnel, cut reo and expose reclaim conveyor, then collapse into the reclaim tunnel void (Does not include excavation to expose reclaim tunnel, removal of conveyor or backfilling void)	**N**		m2	**$80.00**				Does not include conveyor removal or backfill.
Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of reclaim tunnel roof)	**N**		m	**$150.00**				Due to no canopy or infrastructure attached.
Demolition of reclaim tunnel concrete (Assumes complete removal and dumping in mine pit void)	**N**		m	**$950.00**				Assumes this area will be used for another land-use that requires the structure to be dug up and re-buried somewhere else.
Demolish and remove small tank clean (Thickener etc 3 - 9 m diameter) and disposal on-site/locally	**Y**	11	allow	**$10,000**		**$110,000**	Line item 1.14 from previous RCE. Includes: 1 x Portable Water Tank; 5 x Firewater Tanks; 1 x Diesel Tank; 2 x Solsenic Tanks 2 new tanks proposed - Emulsion Tanks.	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	**N**		allow	**$30,000**				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	**N**		allow	**$45,000**				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	**N**		allow	**$85,000**				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	**N**		allow	**$100,000**				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	**N**		allow	**$21,000**				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	**N**		allow	**$30,000**				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**	300	m	**$25.00**		**$7,500**	Line item 2.21. Estimated length of underground pipes provided by Operations Manager on 7 November 2016	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**	8580	m	**$60.00**		**$514,800**	Based on estimated gas drainage pipeline at closure. 4580m of existing pipeline and proposed additional 4000m at Plan 3E.	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	**N**		m	**$165.00**				For example: 1 m pipes - 2 m deep.
Remove above ground pipe (supported) and disposal on-site/locally	**Y**	7780	m	**$12.00**		**$93,360**	Length of pipeline based on Integra Underground data. Pipeline to Mount Owen. Constructed since previous review.	~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**	2010	m	**$15.00**		**$30,150**	Line item 1.17, 2.22 and 2.10 from previous RCE (pit top, and vent site)	~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 a lake or dam including pipes and electrical supply or diesel tank/s and disposal on-site/locally	**N**		allow	**$150,000**				Assumes infrastructure is moored and requires barge mobilisation to sever the mooring and / or is a significant fixed structure for controlled release of water. Does not include transport to regional disposal facility or equivalent.
Remove bitumen (car park and access roads) and dispose on-site/locally	**Y**	4820	m2	**$10.00**		**$48,200**	Line item 1.18 from previous RCE. Nov 2018 - Addition of new carpark.140m2 based on 'Parking area Slab'	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	N		m2	$20.00				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	5895.5	m2	$37.00		$218,134	Line item 1.19 and 2.12 from previous RCE (pit top and vent site). Assumes 50% of buildings at pit top, and all buildings at vent site are on concrete slabs. Updated in Nov 2018 to also include: - New workshop. = 800m2; - Main housing for fans slab = 108m2; - Switch yard footings = 92m2 - Diesel generator slab = 38m2; - Fan room slab = 44m2 -Ballast and concrete borehole slab = 33m2 and 15m2 - Raw water slab = 180m2 - Emulsion Slab = 190m2; - 66kV substation slab = 90m2	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	N		m2	$75.00				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	N		tonne	$17.00				Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 50 mm	N		tonne	$20.00				Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 30 mm	N		tonne	$22.00				Does not include haulage of materials - assumes crushing plant is readily available.
	Remove fence (cyclone/wire fence) and disposal on-site/locally	Y	2000	m	$20.00		$40,000	Line item 1.20 and 2.13 from previous RCE (pit top and vent site)	Roll up fence and remove posts.
						Termination of Services and Demolition Works Subtotal	**$2,712,239**		
Rail Infrastructure	Remove rail loop and spur, ballast etc. and disposal on-site/locally	N		m	$60.00				Remove all materials to allow area to be reshaped and rehabilitated - does not include transport to regional disposal facility or equivalent.
	Remove train loading facilities and disposal on-site/locally	N		m2	$265.00				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	N		ha	$2,500				D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation).
						Rail Infrastructure Subtotal	**$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.	N		Cluster	$15,000				The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Undertake an intrusive site investigation. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y	1	Cluster	$100,000		$100,000	Line item 1.23 and 2.14 from previous RCE required 2 x Phase 1 contam assessment to be completed (pit top and vent site). GHD Phase 1 completed in June 2017 which noted potential for chemical contamination associated with several areas (p.14). Have moved provision from Phase 1 to a Phase 2 at closure.	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.
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y	1500	L	$0.35		$525	Line item 1.12 and 2.15 from previous RCE (pit top and vent site)	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 (haul distance < 1km)	Y	18423	m3	$3.90		$71,818	**< =1km** Line item 1.25 from previous RCE.	D10 Rip and push into void at $270/hr, 0.2ha/hr, 150mm deep. 657 Scrapers cut to spoil at $430/hr, 150BCM/hr/machine, Ancillary watercart and grader at $0.75c/m3
	Load, cart and dispose of High Level contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill	N		m3	$700.00				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	N		m3	$200.00				Includes load, haul and dump fees to a licensed facility.
	Onsite remediation of hydrocarbon contaminated soils (>100 m3 but <500 m3) - manual land farming	Y	400	m3	$33.00		$13,200	**>100m3 but < 500m3** Line item 1.27 and 2.17 from previous RCE. Relates to pit top and surface vent site.	Current rates still adequate and recommend continue to allow for economies of scale.
	Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	N		Item	$150,000				Required if treatment of hydrocarbon contamination is required to be fast tracked.

	On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	**N**		m3	**$165.00**				Additional cost as the treatment process is fast tracked.
	Remove and dispose of asbestos (<750 m2)	**Y**	350	m2	**$50.00**		**$17,500**	Line item 1.28 from previous RCE. Assumes older buildings at pit top may contain some asbestos.	Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos (>750 m2)	**N**		m2	**$40.00**				Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos	**N**		tonne	**$2,400**				6 mm asbestos sheet approx. 15 kg / m2 = ~70 m2 per ton. Allowing $20 / m2 for removal, 4 hours trucking @$125 and $100 / t disposal plus 20% OHP = $2,400 / t.
	Treatment of known Acid Sulfate Soils	**N**		ha	**$2,580**				Assumes ASS is treatable via neutralisation and does not require capping and isolation.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	**N**		m2	**$1.00**				Provisional sum for cutting using ripping tynes and on-site disposal of the liner.
						Contaminated Materials Subtotal	**$203,043**		
Vents, Shafts and Boreholes	Seal portals / drifts (width >3 m) – backfill the access for at least 50 m against a concrete bulk head with drainage slots. The rate includes some reshaping of batters around the adit entrance. If concrete bulk head not required, reduce rate by 25%	**Y**	3	allow	**$250,000**		**$750,000**	Line item 1.29 from previous RCE. Includes the 3 portals (conveyor, ventilation, man & material)	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessability limitations, requirements for extra roof and/or rib support, equipment transport into the underground etc.
	Seal small adits (width <3 m) – install 0.5 concrete plug 3 m back from adit and backfill with appropriate material. The rate includes some reshaping of the batter around the entrance of the adit	**N**		allow	**$25,000**				Cost estimated from planned and executed works programs in NSW from multiple sites. Rate assumes standard works program with suitable access, and additional roof and rib stabilisation works etc. is not required.
	Seal and rehabilitate ventilation fans shafts - allows for works in a remote location	**Y**	4	allow	**$150,000**		**$600,000**	Line item 2.19 from previous RCE. This includes using the excavated spoil at ventilation shaft site to backfill shafts. If not sufficient additional material may need to be sourced from a borrow pit nearby. Currently 3 vent facilities. To be 4 vent facilities at end of the MOP.	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessability limitations, equipment transport to the shaft etc.
	Maintenance and monitoring of sealed adits/portals and shafts (5 years)	**Y**	7	allow	**$25,000**		**$175,000**	Line item 2.20 from previous RCE. Assumes that there will be a requirement to monitor and refill each shaft after some settlement. Shaft design to include inspection and refill points. Nov 2018 - Currently 3 vent facilities. To be 4 vent facilities at end of the MOP. Portals also added to be total of 7 in this area	
	Install gate or grill over the adit (Where site might be used by bats)	**N**		Item	**$200,000**				Rate accounts for a range of factors including establishing clear access, and/or working in remote locations without services, and/or stabilisation works to prevent the entry collapsing and compromising the gate etc.
	Exploration boreholes – rehabilitate boreholes and drill pads as required	**N**		depth (m)	**$40.00**				Where multiple boreholes exist, this is the rate for the total cumulative depth of all boreholes (e.g. two boreholes at 100m depth each = 200m). Assumes a per metre drilling rate of ~$150 / m of which ~25 - 30% is for rehabilitation which may include a variety of works (i.e., cut casing and install cap, install poly pipe to facilitate back-filling, grout preparation, grouting and capping, reshaping / ripping the drill pad, amelioration / seeding etc.)
	Exploration boreholes – backfill open bore holes with cuttings	**N**		allow	**$300.00**				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.
	Exploration boreholes – grout and cap open bore holes	**Y**	13	allow	**$7,950**		**$103,350**	13 exploration holes added for the December RCE update.	Includes grouting and capping 100 - 200 m exploration boreholes to meet the requirements of EDG01.
	Boreholes – cap and seal open bore holes with steel casing (i.e., goaf drainage etc.)	**N**		allow	**$6,960**				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**	63	allow	**$15,000**		**$945,000**	Gas drainage wells estimated to still be active at Plan 3E is 57 gas wells (based on data from Integra Underground). There are also proposed to be 6 auxiliary fans being active for Plan 3E. HVCC have used the borehole rate for these auxiliary fans. Area is approximately 40m x 40m.	Surface-to-in-seam gas drainage boreholes.
	Boreholes – cap and seal open bore holes - vertical gas drainage	**N**		allow	**$16,000**				Vertical gas drainage boreholes.
	Boreholes – grout (with concrete) cap and seal bore holes (i.e. where sealing aquifers)	**N**		allow	**$35,000**				Includes multi skin sleaves to prevent aquifer mixing.
	Boreholes – cap and seal service boreholes for UG operations	**Y**	5	allow	**$45,000**		**$225,000**	Includes: - Current service borehole -Proposed ballast and concrete borehole; - Proposed Emulsion borehole; - Proposed 11kV underground power feed borehole. The cost for the backfilling of the proposed goaf dewatering site has been added to the Nov 2018 RCE review.	Includes large diameter boreholes used for supplying electricity (66kV), compressed air, water, solsenic etc.
						Vents, Shafts and Boreholes Subtotal	**$2,798,350**		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	**N**		ha	**$960.00**				Assumes ~6 m road width - 16H Grader @ $212 per hour.

	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	**N**		ha	**$1,500**				Assumes ~20 m road width - D10 Dozer @ $332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	**Y**	5.8	ha	**$3,698**		**$21,448**	These cover the roads required to be rehabilitated associated with: - roads associated with gas wells (does not include existing farm tracks at site, only those disturbed by Integra Underground) - Estimated 3.5ha at end of MOP; - Areas disturbed for tracks for powerline installation (Area provided by Integra Underground) = 2.3ha.	D10 Dozer @ $332 per hour and 16H Grader @ $212 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)	**N**		ha	**$4,485**				D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation) - 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)	**N**		ha	**$3,820**				D10 Dozer @ $332 per hour and 16H Grader @ $212 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)	**N**		ha	**$4,595**				D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation) - tree/shrub seed.
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	**N**		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.
						Roads and Tracks Subtotal	**$21,448**		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – 50 m-75 m push length	**Y**	560000	m3	**$1.14**		**$639,865**	**> 50m - 100m < push** Bulk Push Around Highwall Line item 1.32 from previous RCE. This includes the bulk pushing that is needed above the RL100 coal pad and void in ML1551,ML1518 and ML1437. Calculated in May 2016 based on a review of cross sections by SLR Civil Drafter. Bulk Push to Cap Areas of carbonaceous material/concrete disposal. Added for Nov 2018 RCE review. Based on 0.5ha (5000m2) of area to be dumped x 2m height for bulk push. This adds an extra 10,000m3 of bulk push.	D11 push at $350 and 375 bcm/hr
	Minor reshaping and pushing	**Y**	13.3	ha	**$3,900**		**$51,870**	Line item 1.33 from previous RCE. Area of pushing calculated by SLR - May 2016 based on liaison with Integra.	D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation).
	Fill dams, voids etc. - Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (haul distance >1 km but <2 km)	**Y**	34871.5	m3	**$5.22**		**$182,022**	**> 1km but < = 2km** Line item 3.01 from previous RCE. Rate increase from $4.21 to $5.22	D10 push over soft material at $270/hr 657 Scrapers cut to spoil at $430/hr, 130BCM/hr/machine, Ancillary watercart and grader at $0.75c/m3
	Shotcrete application on cuttings and steep slopes	**N**		m2	**$185.00**				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**	115.5	ha	**$960.00**		**$110,880**	End of MOP disturbance. Includes the following disturbance across site: - pit top (66.7ha at end of MOP) - 2 x ventilation areas (total of 32.2 ha); - Goaf drainage area = 4ha -Active gas wells (approximately 57 wells = 9.1ha). - Based on 13 exploration holes added at MOP Amendment A (50m x50m) - Also updated for shaping of dam at closure for Hebden Seam Pre Drainage Dewatering Dam. 0.25ha	16H Grader @ $212 per hour - ripping in 1 direction only.
	Deep rip hard stand / lay down areas	**N**		ha	**$960.00**				D10 dozer @ $332 per hour - deep rip in 2 directions @ 5 m spacing ~3 hr per hectare.
	High wall treatment – (trench and safety berm)	**Y**	200	m	**$90.00**		**$18,000**	Line item 1.34 from previous RCE. Have assumed that 200m of highwall will be retained.	
	Security fence around steep section of high wall	**Y**	200	m	**$55.00**		**$11,000**	Line item 1.35 from previous RCE. Have assumed that 200m of highwall will be retained.	
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	**N**		ha	**$1,600**				Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~$200 per hour plus grader @ $212 per hour for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	**N**		m2	**$35.00**				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).
						Earthworks / Structural Works (Landform Establishment) Subtotal	**$1,013,637**		
Land Preparation and Revegetation								**> 1km but < = 2km**	

(Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance >1 km but <2 km	**Y**	115500	m3	**$3.91**		**$451,306**	End of MOP disturbance. Includes the following disturbance across site: - pit top (66.7ha at end of MOP) - 2 x ventilation areas (total of 32.2 ha); - Goaf drainage area = 4ha -Active gas wells (approximately 57 wells = 9.1ha). Roads covered in Row 100. 100mm of topsoil. - Based on 13 exploration holes added at MOP Amendment A (50m x50m) - Also updated for MOP Amendment A - shaping of dam at closure for Hebden Seam Pre Drainage Dewatering Dam. 0.25 ha	550 m3/hr with 4 x 657 scrapers at $430/hr, D10 trimming at $270/hr 3ha/day at 150mm depth
	Planting mature trees (>15 cm)	**N**		allow	**$20.00**				4 m centres.
	Planting tube stock (<15 cm)	**Y**	1500	allow	**$10.00**		**$15,000**	Line item 2.28 from previous RCE.	4 m centres.
	Direct seeding / fertiliser (pasture grass species)	**Y**	113.8	ha	**$1,240**		**$141,112**	Most of the current disturbance will be pasture at closure. See below for woodland/ - Based on 13 exploration holes added at MOP Amendment A (50m x50m) additional 3.25ha of disturbance was added - Also updated for shaping of dam at closure for Hebden Seam Pre Drainage Dewatering Dam. 0.25 ha	Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	**Y**	1.7	ha	**$2,095**		**$3,562**	This includes 9 boreholes classified as woodland rehabilitation 1.4ha). Also a section of woodland rehabilitation for the new powerline rd (0.3ha)	Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	**N**		m2	**$1.80**				Rate can fluctuate however this is a suitable standard rate.
	Single application of fertiliser (pasture)	**N**		ha	**$420.00**			Line item 2.70 from previous RCE (10.03Ha). Zeroed in 2018 as all disturbance areas have been costed with fertiliser application in line 124 above).	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)	**N**		ha	**$140.00**				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.)	**N**		ha	**$860.00**				Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	**Y**	115.5	ha	**$1,015**		**$117,233**	End of MOP disturbance. Includes the following disturbance across site: - pit top (66.7ha at end of MOP) - 2 x ventilation areas (total of 32.2 ha); - Goaf drainage area = 4ha -Active gas wells (approximately 57 wells = 9.1ha). Updated based on disturbance in MOP Plan 3E. This has remained as there is minimal good quality topsoil available for rehabilitation, especially around the pit top area. - Based on 13 exploration holes added at MOP Amendment A (50m x50m) additional 3.25ha of disturbance was added - Also updated for shaping of dam at closure for Hebden Seam Pre Drainage Dewatering Dam. 0.25 ha	Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	**N**		m	**$9.50**				Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	**N**		m	**$4.00**				Standard rate for standard stock fencing.
	Purchase and erect warning signs	**Y**	5	allow	**$250.00**		**$1,250**	Line item 1.36 from previous RCE.	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.	**N**		m3	**$80.80**				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.	**N**		m3	**$72.50**				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.
						Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal	**$729,462**		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	**Y**	2	allow	**$2,500**		**$5,000**	Line item 3.02 from previous RCE.	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.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (haul distance <1km)	**Y**	6118.75	m3	**$3.55**		**$21,722**	**< =1km** Additional dam added at new vent facility. Now includes 1691 of current water management and 500m2 for new dam. 1 metre depth removed. Based on 2 additional ponds (runoff pond and sewage pond) added at MOP Amendment A. Dams to remain at closure, with 1m of sediment removed.	80t excavator and 90c/m3 haul with artic trucks, 220m3/hr, two trucks required for short distance + 75c ancillary - excludes any stockpile treatment: no dozer (add 90c/m3 if required).
	Removal of evaporation fans and/or other water transfer and management infrastructure	**N**		allow	**$25,000**				Provisional sum for removal of water management infrastructure.
						Water Management Subtotal	**$26,722**		

Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	**Y**	134	ha	**$900.00**		**$120,600**	Error previously. This now covers the 112 Ha area proposed to be disturbed at MOP Plan 3E. Also covers 18.5ha of gas wells which are predicted to be in a rehabilitation phase at the end of the MOP. - Based on 13 exploration holes added at MOP Amendment A (50m x50m) additional 3.25ha of disturbance was added - Also updated for shaping of dam at closure for Hebden Seam Pre Drainage Dewatering Dam. 0.25 ha	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	**N**		ha	**$1,200**				Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	**N**		ha	**$1,700**				Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	**N**		ha	**$2,500**				Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	**N**		ha	**$40,000**				Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
						Maintenance of Rehabilitated Areas Subtotal	**$120,600**		
Additional Items	Other 1 <insert>	**N**			**This is**				This item includes **<<to be added by the operator>>**
	Other 2 <insert>	**N**			**deliberately**				This item includes **<<to be added by the operator>>**
	Other 3 <insert>	**N**			**left blank**				This item includes **<<to be added by the operator>>**
						Additional Items Subtotal	**$0**		
Total Cost for Infrastructure Domain							**$7,625,500**		

Underground Operations

Domain 2a: Tailings & Rejects

Total Cost for Tailings & Rejects Domain $0

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

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

December 2018 Calculation

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.	N		Cluster	$15,000				The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Undertake an intrusive site investigation. 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.	N		Cluster	$100,000				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.
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	N		L	$0.35				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)	N		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 High Level contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill	N		m3	$700.00				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	N		m3	$200.00				Includes load, haul and dump fees to a licensed facility.
	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	N		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	N		Item	$150,000				Required if treatment of hydrocarbon contamination is required to be fast tracked.
	On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	N		m3	$165.00				Additional cost as the treatment process is fast tracked.
	Remove and dispose of asbestos (<750 m2)	N		m2	$50.00				Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos (>750 m2)	N		m2	$40.00				Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos	N		tonne	$2,400				6 mm asbestos sheet approx. 15 kg / m2 = ~70 m2 per ton. Allowing $20 / m2 for removal, 4 hours trucking @$125 and $100 / t disposal plus 20% OHP = $2,400 / t.
	Treatment of known Acid Sulfate Soils	N		ha	$2,580				Assumes ASS is treatable via neutralisation and does not require capping and isolation.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	N		m2	$1.00				Provisional sum for cutting using ripping tynes and on-site disposal of the liner.
						Contaminated Materials Subtotal	$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	N		ha	$960.00				Assumes ~6 m road width - 16H Grader @ $212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	N		ha	$1,500				Assumes ~20 m road width - D10 Dozer @ $332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	N		ha	$3,698				D10 Dozer @ $332 per hour and 16H Grader @ $212 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)	N		ha	$4,485				D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation) - 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)	N		ha	$3,820				D10 Dozer @ $332 per hour and 16H Grader @ $212 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)	N		ha	$4,595				D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation) - tree/shrub seed.
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	N		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.
						Roads and Tracks Subtotal	$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	N		m3	Select from List			Select Push Length Here	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	N		ha	$3,900				D10 Dozer @ $332 per hour and 16H Grader @ $212 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)	N		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)	N		ha	$960.00				16H Grader @ $212 per hour - ripping in 1 direction only.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	N		ha	$1,600				Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~$200 per hour plus grader @ $212 per hour for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	N		m2	$35.00				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).
						Earthworks / Structural Works (Landform Establishment) Subtotal	$0		
Mine Waste	Reshaping, capping / sealing of a structure unlikely to present difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and physical properties (i.e., shear strength, etc.) - where the mine waste stream is geochemically benign and / or the strength condition within the upper 4 - 6 m meets the target shear strength profile.	N		ha	$81,000				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 1 m including growth media. Water quality from runoff, seepage etc. meets site-specific environment water quality values.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	N		allow	Use alternate rate cell				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.	N		allow	Use alternate rate cell				Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Reshaping, capping / sealing of structure likely to present moderate difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), or physical properties – shear strength, etc. limiting equipment choice.	N		ha	$108,000				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 of approximately 2 m including growth media. This may require additional materials (such as 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.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	N		allow	Use alternate rate cell				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.	N		allow	Use alternate rate cell				Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Reshaping, capping / sealing of structure likely to present considerable difficulties due to reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and / or physical properties (low shear strength greatly limiting equipment selection for material placement etc.)	N		ha	$170,000				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 2.5 m including growth media. 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.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	N		allow	Use alternate rate cell				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.	N		allow	Use alternate rate cell				Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
						Mine Waste Subtotal	$0		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	N		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)	N		ha	$1,240				Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	N		ha	$2,095				Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	N		m2	$1.80				Rate can fluctuate however this is a suitable standard rate.
	Single application of fertiliser (pasture)	N		ha	$420.00				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)	N		ha	$140.00				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.)	N		ha	$860.00				Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	N		ha	$1,015				Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	N		m	$9.50				Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	N		m	$4.00				Standard rate for standard stock fencing.
	Purchase and erect warning signs	N		allow	$250.00				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.	N		m3	$80.80				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.	N		m3	$72.50				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.
						Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal	$0		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	N		allow	$2,500				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.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	N		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.
						Water Management Subtotal	$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	N		ha	$900				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	N		ha	$1,200				Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	N		ha	$1,700				Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	N		ha	$2,500				Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	N		ha	$40,000				Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
						Maintenance of Rehabilitated Areas Subtotal	$0		
Additional Items	Other 1 <insert>	N			This is				This item includes **<<to be added by the operator>>**
	Other 2 <insert>	N			deliberately				This item includes **<<to be added by the operator>>**
	Other 3 <insert>	N			left blank				This item includes **<<to be added by the operator>>**
						Additional Items Subtotal	$0		
Total Cost for Tailings & Rejects Domain							**$0**		

Underground Operations

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain **$0**

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

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

December 2018 Calculation

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	**N**		ha	**$2,580**				Assumes ASS is treatable via neutralisation and does not require capping and isolation.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	**N**		m2	**$1.00**				Provisional sum for cutting using ripping tynes and on-site disposal of the liner.
						Contaminated Materials Subtotal	**$0**		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	**N**		ha	**$960.00**				Assumes ~6 m road width - 16H Grader @ $212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	**N**		ha	**$1,500**				Assumes ~20 m road width - D10 Dozer @ $332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	**N**		ha	**$3,698**				D10 Dozer @ $332 per hour and 16H Grader @ $212 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)	**N**		ha	**$4,485**				D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation) - 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)	**N**		ha	**$3,820**				D10 Dozer @ $332 per hour and 16H Grader @ $212 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)	**N**		ha	**$4,595**				D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation) - tree/shrub seed.
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	**N**		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.
						Roads and Tracks Subtotal	**$0**		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	**N**		m3	**Select from List**			**Select Push Length Here**	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	**N**		ha	**$3,900**				D10 Dozer @ $332 per hour and 16H Grader @ $212 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)	**N**		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	**N**		m2	**$185.00**				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)	**N**		ha	**$960.00**				16H Grader @ $212 per hour - ripping in 1 direction only.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	**N**		ha	**$1,600**				Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~$200 per hour plus grader @ $212 per hour for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	**N**		m2	**$35.00**				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).
						Earthworks / Structural Works (Landform Establishment) Subtotal	**$0**		
Mine Waste	Reshaping, capping / sealing of a structure unlikely to present difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and physical properties (i.e., shear strength, etc.) - where the mine waste stream is geochemically benign and / or the strength condition within the upper 4 - 6 m meets the target shear strength profile.	**N**		ha	**$81,000**				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 1 m including growth media. Water quality from runoff, seepage etc. meets site-specific environment water quality values.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	**N**		allow	**Use alternate rate cell**				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.	**N**		allow	**Use alternate rate cell**				Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).

	Reshaping, capping / sealing of structure likely to present moderate difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), or physical properties – shear strength, etc. limiting equipment choice.	**N**		ha	**$108,000**				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 of approximately 2 m including growth media. This may require additional materials (such as 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.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	**N**		allow	**Use alternate rate cell**				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.	**N**		allow	**Use alternate rate cell**				Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Reshaping, capping / sealing of structure likely to present considerable difficulties due to reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and / or physical properties (low shear strength greatly limiting equipment selection for material placement etc.)	**N**		ha	**$170,000**				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 2.5 m including growth media. 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.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	**N**		allow	**Use alternate rate cell**				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.	**N**		allow	**Use alternate rate cell**				Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
						Mine Waste Subtotal	**$0**		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	**N**		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)	**N**		allow	**$20.00**				4 m centres.
	Planting tube stock (<15 cm)	**N**		allow	**$10.00**				4 m centres.
	Direct seeding / fertiliser (pasture grass species)	**N**		ha	**$1,240**				Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	**N**		ha	**$2,095**				Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	**N**		m2	**$1.80**				Rate can fluctuate however this is a suitable standard rate.
	Single application of fertiliser (pasture)	**N**		ha	**$420.00**				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)	**N**		ha	**$140.00**				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.)	**N**		ha	**$860.00**				Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	**N**		ha	**$1,015**				Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	**N**		m	**$9.50**				Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	**N**		m	**$4.00**				Standard rate for standard stock fencing.
	Purchase and erect warning signs	**N**		allow	**$250.00**				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.	**N**		m3	**$80.80**				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.	**N**		m3	**$72.50**				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.
						Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal	**$0**		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	**N**		allow	**$2,500**				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.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	**N**		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.
						Water Management Subtotal	**$0**		

Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	**N**		ha	**$900.00**				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	**N**		ha	**$1,200**				Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	**N**		ha	**$1,700**				Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	**N**		ha	**$2,500**				Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	**N**		ha	**$40,000**				Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
						Maintenance of Rehabilitated Areas Subtotal	**$0**		
Additional Items	Other 1 <insert>	**N**			**This is**				This item includes **<<to be added by the operator>>**
	Other 2 <insert>	**N**			**deliberately**				This item includes **<<to be added by the operator>>**
	Other 3 <insert>	**N**			**left blank**				This item includes **<<to be added by the operator>>**
						Additional Items Subtotal	**$0**		
Total Cost for Overburden & Waste Domain							**$0**		

Underground Operations

Domain 4a: Subsidence and Management

Total Cost for Subsidence and Management Activities **$828,547**

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

This Domain Relates to MOP Domain 5 Underground Mining Area, and the previous RCE Domain 6 (HR, Admin and Sundry Items), and Domain 7 (Third Party Project Management and Contingencies)	**Key Rehabilitation Area Data for Domain**	**Enter data below manually**
	Total Landform Establishment:	0.00
	Total Growth Media Development:	0.00
	Total Ecosystem Establishment:	0.00

December 2018 Calculation

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:
Subsidence Repairs	Minor stabilisation works and maintenance of mine subsidence areas - ripping etc.	**Y**	20	ha	**$1,500**		**$30,000**	Line item 5.01 and 5.03 from previous RCE. 10ha includes undertaking surface drainage works, etc as required to remediate areas affected by mine subsidence (outside the jurisdiction of the mine subsidence board). 1Ha relates to subsidence repair on the last panel. As seam is very deep, minimal subsidence is predicted. No change in Jan 2018 update.	D8 Dozer @ $240 per hour and/or grader @ $160 per hour.
	Crack filling to repair subsidence impacts	**N**		m	**$1,485**				Undertake more substantial works to backfill cracks and/or sink holes (e.g., filling with mulch prior to grouting, grouting, etc.)
	Water course restoration to repair subsidence impacts	**N**		allow	**Use alternate rate cell**				Undertake more substantial works to remediate water courses (e.g., channel bed repairs, rock bar repairs, swamp stabilisation etc.)
	Create cut-through to re-establish natural water courses/drainage channels following subsidence	**N**		allow	**$3,000**				Includes all earthworks and revegetation required to re-establish the natural drainage profile of the subsided area.
						Subsidence Repairs Subtotal	**$30,000**		
Vents, Shafts and Boreholes	Maintenance and monitoring of sealed adits/portals and shafts (for a total of 5 years)	**N**		allow	**$25,000**				Estimate to undertake periodic inspections by a qualified person and provide a completions report for DRG sign-off.
						Vents, Shafts and Boreholes Subtotal	**$0**		
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.
						Water Management Subtotal	**$0**		
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion	**N**		m	**$2,500**				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	**N**		m	**$1,500**				Assumes maintenance has been kept 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 Diversions Subtotal	**$0**		
Land Management	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)	**Y**	142.9	ha	**$400.00**		**$57,160**	Line item 5.08 from previous RCE. Reviewed and updated in Oct 2016 to cover general land management within LWs 13 and 14 (area of these longwalls).	Undisturbed areas within the lease boundary that require land management activities.
						Land Management Subtotal	**$57,160**		
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 activities.
						Heritage Items Subtotal	**$0**		
Sundry Items	Development of an 'Unplanned' Project Closure Plan - State Significant Development	**Y**	1	allow	**$100,000**		**$100,000**	**SSD** Line item 6.02 from previous RCE. Increase in rate from $25k	Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
	DRG tender preparation and assessment, stakeholder consultation, risk assessment facilitation and management, statutory reporting and instruments, permitting and compliance requirements, document and data management	**Y**	1	allow	**$291,387**	$291,387	**$291,387**	Combines Line items 6.01, 6.03, 6.04, 6.05, and 7.08 from previous RCE. Same rates retained	Provisional sum for the NSW Government to prepare tender documentation (i.e. demolition, waste disposal, earthworks, environmental management etc.) manage stakeholders and establish permitting and compliance requirements for closure.
	Site security during closure	**Y**	2	yr.	**$75,000**		**$150,000**	Line item 6.06 from previous RCE. Increase in rate from $100k.	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.
	HAZMAT Clean-up - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	**Y**	1	allow	**$100,000**		**$100,000**	Line item 6.07 from previous RCE. Decrease in rate from $250k.	Provisional sum to perform the site clean-up and ensuring the demolition program is not interrupted due to potential contamination of waste streams.
	Removal and disposal of radiation devices	**N**		each	**$25,000**				Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i.e., Americium – 241, Plutonium – 238, Caesium - 137 etc).
	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	**$641,387**		
Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry	**N**		Item	**$40,000**				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site <150 km)	**Y**	1	item	**$100,000**		**$100,000**	Line item 7.01 from previous RCE. Decrease in rate from $100k.	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.

	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	N		item	$150,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	N		item	$300,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >1000 km)	N		item	$500,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
						Mobilisation and Demobilisation Subtotal	$100,000		
Additional Items	Other 1 <insert>	N			This is				This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
						Additional Items Subtotal	$0		
Total Cost for Subsidence and Management Activities							$828,547		