

Appendix B - Construction Material

Mechanical Equipment List

Equipment Number			Item Description	Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
REA 310			CRUSHING					
310	BN	01	ROM Bin	Nominal 198t capacity, 120m3, lined with 12mm thick bisalloy		-	-	A
310	GR	01	ROM Bin Grizzly	Fabricated CS tapered box section grizzly bars, bisalloy wear plate, 600mm square aperture, 1800mm wide, 8m long		-	-	A
310	FE	01	Primary Crusher Apron Feeder		Apron feeder	30	-	A
310	CH	01	Apron Feeder Spillage Chute	6 mm CS		-	-	A
310	FE	02	Primary Crusher Scalping Grizzly Feeder	1300mm wide, 6100 Long		30	-	A
310	CH	02	Primary Crusher Feed Chute	6 mm CS, sides lined with 12mm thick bisalloy, impact zone lined with 50x50 bisalloy billets		-	-	A
310	CR	01	Primary Crusher	Single toggle jaw crusher complete with auto lube system	C130	160	-	A
310	CH	03	Primary Crusher Discharge Chute	6 mm CS, sides lined with 12mm thick bisalloy, impact zone lined with 50x50 bisalloy billets		-	-	A
310	LU	01	Primary Crusher Lube Unit			-	-	A
310	CV	01	Primary Crusher Conveyor	1200 Wide, 1.75 m/s, Gravity Take-Up with 45kW Drive and Shaft Mounted Gearbox	35 deg troughing belt conveyor	45	-	A
310	CH	04	Primary Conveyor Head Chute	6 mm CS, sides lined with 12mm thick bisalloy, impact zone lined with 50x50 bisalloy billets		-	-	A
310	CV	02	Screen Feed Conveyor	1200 Wide, 1.75 m/s, Gravity Take-Up with 110kW Drive and Shaft Mounted Gearbox	35 deg troughing belt conveyor	110	-	A
310	CH	05	Screen Feed Conveyor Head Chute	6 mm CS, sides lined with 12mm thick bisalloy, impact zone lined with 50x50 bisalloy billets		-	-	A
310	MG	01	Primary Crusher Magnet	Self Cleaning Conveyor Tramp Metal Magnet	STEINERT Australia/ Mod 44 IL SC	6.5	-	A
310	BN	02	Magnet Tramp Bin	Carbon Steel, Unlined, Volume: 3m3		-	-	A
310	DC	01	Crushing Area Dust Collector	Dust collector for crushing area		-	-	A
310	FA	01	Crushing Area Dust Collector Fan	Direct Drive		4	-	A
310	BN	03	Surge Bin	Steel Fabricated, lined with 12mm thick bisalloy, 40m3 capacity		-	-	A
310	FE	03	Product Screen Feeder	2400 wide x 3400, Divergent feeder	Low head feeder	60	-	A
310	SN	01	Product Screen	3.6 x 7.3m double deck screen 40mm top deck, 16mm bottom deck	RF3072	55	-	A
310	CH	06	Product Screen Top Deck Oversize Chute	6 mm CS, sides lined with 12mm thick bisalloy, impact zone lined with 50x50 bisalloy billets		-	-	A
310	CH	07	Product Screen Undersize Chute	6 mm CS, sides lined with 12mm thick bisalloy, impact zone lined with 50x50 bisalloy billets		-	-	A
310	CH	08	Product Screen Bottom Deck Oversize Chute	6 mm CS, sides lined with 12mm thick bisalloy, impact zone lined with 50x50 bisalloy billets		-	-	A
310	DC	02	Screening Area Dust Collector	Dust collector for crushing area		-	-	A
310	FA	02	Screening Area Dust Collector Fan	Direct Drive		4	-	A
310	BN	04	Secondary Crusher Surge Bin	Steel Fabricated, lined with 12mm thick bisalloy		-	-	A
310	CH	09	Secondary Crusher Feed Bin Discharge Chute	6 mm CS, sides lined with 12mm thick bisalloy, impact zone lined with 50x50 bisalloy billets		-	-	A
310	FE	04	Secondary Crusher Feeder	1300mm wide, 6100 Long	Vibrating Pan	30	-	A
310	CR	02	Secondary Crusher	Standard head cone crusher with a coarse liner, complete with auto lube system	HP6	450	-	A
310	LU	02	Secondary Crusher Lube Unit			-	-	A
310	BN	05	Tertiary Crusher Surge Bin	Steel Fabricated, lined with 12mm thick bisalloy		-	-	A
310	CH	10	Tertiary Crusher Feed Bin Discharge Chute	6 mm CS, sides lined with 12mm thick bisalloy, impact zone lined with 50x50 bisalloy billets		-	-	A
310	FE	05	Tertiary Crusher Feeder	1300mm wide, 6100 Long	Vibrating Pan	30	-	A
310	CR	03	Tertiary Crusher	Short head cone crusher with a medium liner, complete with auto lube system	HP6	450	-	A
310	LU	03	Tertiary Crusher Lube Unit			-	-	A
310	CV	03	Stockpile Feed Conveyor	1000 Wide, 1.1 m/s, Gravity Take-Up with 75kW Drive and Shaft Mounted Gearbox	35 deg troughing belt conveyor	75	-	A
310	WT	01	Crusher Weightometer	Belt weigher and associated equipment including FAK0100 junction box, jockey wheel speed sensor VEG20600, VBW	BMP09	0.1	-	A
310	HT	01	Primary Crusher Hoist	1T SWL, lifting speed 1.3/8 m/min, trolley 5/20 m/min, pendant control.		5	-	A
310	HT	01	Secondary Crushing Maintenance Hoist	Monorail		5	-	A
310	TX	01	Crusher Area Transformer	11kV/433V 2000kVA		-	-	A
310	CV	04	Secondary Crusher Feed Conveyor	1000 Wide 1.0m/s, Gravity Take Up with 37kW drive and shaft mounted gearbox	35 deg troughing belt conveyor	37	-	A
310	MG	02	Secondary Crusher Magnet	Self Cleaning Conveyor Tramp Metal Magnet	STEINERT Australia/ Mod 22 IL SC	4.1	-	A
310	BN	02	Magnet Tramp Bin	Carbon Steel, Unlined, Volume: 3m3		-	-	A
310	MD	01	Secondary Crusher Metal Detector		Thermo Scientific / ortronics III / Metal Detector	-	-	A
310	CV	05	Tertiary Crusher Feed Conveyor	1000 Wide 1.0m/s, Gravity Take Up with 30kW drive and shaft mounted gearbox	35 deg troughing belt conveyor	30	-	A
310	MG	03	Tertiary Crusher Magnet	Self Cleaning Conveyor Tramp Metal Magnet	STEINERT Australia/ Mod 22 IL SC	4.1	-	A
310	MD	02	Tertiary Crusher Metal Detector		Thermo Scientific / ortronics III / Metal Detector	-	-	A
310	BN	02	Magnet Tramp Bin	Carbon Steel, Unlined, Volume: 3m3		-	-	A
REA 320			ORE STORAGE AND HANDLING					
320	CH	01	Stockpile Feed Conveyor CV-02 Head Chute	cs 6mm mild steel, 10mm Bisalloy liners.		-	-	A
320	CH	02	Stockpile Reclaim Feeder 1 Feed Chute	cs 6mm mild steel, 10mm Bisalloy liners.	Shop fabricated	-	-	A
320	FE	01	Stockpile Reclaim Apron Feeder 1	1200mm wide, 8m long	1,200 mm x 8,083mm D4	37	-	A
320	CH	03	Stockpile Reclaim Feeder 1 Discharge Chute	cs 6mm mild steel, 8mm Bisalloy liners.	Shop fabricated	-	-	A
320	FE	02	Stockpile Reclaim Apron Feeder 2	1200mm wide, 8m long	1,200 mm x 8,083mm D4	37	-	A
320	CH	04	Stockpile Reclaim Feeder 2 Feed Chute	cs 6mm mild steel, 10mm Bisalloy liners.	Shop fabricated	-	-	A
320	CV	06	Stockpile Reclaim Conveyor	1000 Wide, 1.1 m/s, Gravity Take-Up with 45kW Drive and Shaft Mounted Gearbox	35 deg troughing belt conveyor	45	-	A
320	WT	01	Mill Feed Weightometer	Weightometer		-	-	A
320	CH	05	Stockpile Reclaim Feeder 2 Discharge Chute	cs 6mm mild steel, 8mm Bisalloy liners.	Shop fabricated	-	-	A
320	PP	01	Reclaim Area Sump Pump	Vertical Spindle Sump Pump		5.50	-	A

Equipment Number			Item Description	Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
320	HP	01	Emergency Hopper Feed	Emergency feed/ ball loading	Shop fabricated	-	-	A
320	CH	07	Emergency Feeder Discharge Chute	900mm wide x10 m, 1m/s	Shop fabricated	-	-	A
320	FE	03	Emergency Belt Feeder	1200mm wide, 8m long		37	-	A
320	DC	01	Lime Silo Dust Collector 1	200 t lime silo c/w slide gate, ladder, support structure and mezzanine floor		1.00	-	A
320	BN	01	Lime Silo	Part of Lime Silo package		-	-	A
320	AC	01	Lime Silo Bin Activator	Part of Lime Silo package		2.50	-	A
320	VA	02	Rotary Valve	Part of Lime Silo package		-	-	A
320	FE	04	Lime Silo Screw Feeder	Part of Lime Silo package		2.2	-	A
320	PP	02	Lime Area Sump Pump	Vertical Spindle Sump Pump		5.50	-	A
REA 330 GRINDING AND CLASSIFICATION								
330	CH	01	Mill Feed Conveyor Head Chute	Mild steel construction, bisalloy lined	Shop fabricated	-	-	A
330	BU	01	Ball Mill Ball Bunker	Concrete bunker		-	-	A
330	CH	02	Ball Mill Feed Chute	Part of Ball Mill package - Trolley mounted feed spout and transition chute		-	-	A
330	EM	01	Ball Mill Motor 1	Part of Ball Mill package	VVVF	-	-	A
330	EM	02	Ball Mill Inching Drive Motor 1	Part of Ball Mill package		-	75	A
330	GB	01	Ball Mill Gearbox 1	Part of Ball Mill package		-	-	A
330	GB	02	Ball Mill Inching Drive 1	Part of Ball Mill package		-	-	A
330	EM	03	Ball Mill Inching Brake Thruster Motor 1	Part of Ball Mill package		0.33	-	A
330	HR	17	Ball Mill Gear Lube Heater 1	Part of Ball Mill package		-	-	A
330	HR	22	Ball Mill Motor Anti Condensation Heater 1	Part of Ball Mill package		0.822	-	A
330	PP	12	Ball Mill Reducer Lube Pump 1	Part of Ball Mill package		18.5	-	A
330	PP	13	Ball Mill Reducer Lube Pump 2	Part of Ball Mill package		-	18.5	A
330	PP	14	Ball Mill Motor Lube Pump 1	Part of Ball Mill package		1.1	-	A
330	PP	15	Ball Mill Motor Lube Pump 2	Part of Ball Mill package		-	1.1	A
330	PP	17	Ball Mill Inching Drive Clutch Hydraulic Pump 1	Part of Ball Mill package		0.55	-	A
330	EM	04	Ball Mill Motor 2	Part of Ball Mill package	VVVF	-	-	A
330	EM	05	Ball Mill Inching Drive Motor 2	Part of Ball Mill package		-	75	A
330	GB	03	Ball Mill Gearbox 2	Part of Ball Mill package		-	-	A
330	GB	04	Ball Mill Inching Drive 2	Part of Ball Mill package		-	-	A
330	EM	06	Ball Mill Inching Brake Thruster Motor 2	Part of Ball Mill package		0.33	-	A
330	HR	23	Ball Mill Gear Lube Heater 2	Part of Ball Mill package		-	-	A
330	HR	24	Ball Mill Motor Anti Condensation Heater 2	Part of Ball Mill package		0.822	-	A
330	PP	21	Ball Mill Reducer Lube Pump 3	Part of Ball Mill package		18.5	-	A
330	PP	22	Ball Mill Reducer Lube Pump 4	Part of Ball Mill package		-	18.5	A
330	PP	23	Ball Mill Motor Lube Pump 3	Part of Ball Mill package		1.1	-	A
330	PP	24	Ball Mill Motor Lube Pump 4	Part of Ball Mill package		-	1.1	A
330	PP	25	Ball Mill Inching Drive Clutch Hydraulic Pump 2	Part of Ball Mill package		0.55	-	A
330	FA	02	Ball Mill Trunnion / Pinion Lube Cooling Fan 1	Part of Ball Mill package		4	-	A
330	FA	03	Ball Mill Trunnion / Pinion Lube Cooling Fan 2	Part of Ball Mill package		4	-	A
330	FA	04	Ball Mill Trunnion / Pinion Lube Cooling Fan 3	Part of Ball Mill package		4	-	A
330	FA	05	Ball Mill Trunnion / Pinion Lube Cooling Fan 4	Part of Ball Mill package		4	-	A
330	FA	06	Ball Mill Reducer Lube Cooling Fan 1	Part of Ball Mill package		2.2	-	A
330	FA	07	Ball Mill Reducer Lube Cooling Fan 2	Part of Ball Mill package		2.2	-	A
330	FA	08	Ball Mill Reducer Lube Cooling Fan 3	Part of Ball Mill package		2.2	-	A
330	FA	09	Ball Mill Motor Lube Cooling Fan	Part of Ball Mill package		4	-	A
330	HD	01	Ball Mill Inching Drive Clutch Hydraulic Unit	Part of Ball Mill package		-	-	A
330	HD	02	Ball Mill Feed Chute Hydraulic Unit	Part of Ball Mill package		60A	-	A
330	HD	03	Ball Mill Jacking Hydraulic Unit	Part of Ball Mill package		-	-	A
330	HR	01	Ball Mill Trunnion / Pinion Lube Heater 1	Part of Ball Mill package		2	-	A
330	HR	02	Ball Mill Trunnion / Pinion Lube Heater 2	Part of Ball Mill package		2	-	A
330	HR	03	Ball Mill Trunnion / Pinion Lube Heater 3	Part of Ball Mill package		2	-	A
330	HR	04	Ball Mill Trunnion / Pinion Lube Heater 4	Part of Ball Mill package		2	-	A
330	HR	05	Ball Mill Trunnion / Pinion Lube Heater 5	Part of Ball Mill package		2	-	A
330	HR	06	Ball Mill Trunnion / Pinion Lube Heater 6	Part of Ball Mill package		2	-	A
330	HR	07	Ball Mill Reducer Lube Heater 1	Part of Ball Mill package		2	-	A
330	HR	08	Ball Mill Reducer Lube Heater 2	Part of Ball Mill package		2	-	A
330	HR	09	Ball Mill Reducer Lube Heater 3	Part of Ball Mill package		2	-	A
330	HR	10	Ball Mill Reducer Lube Heater 4	Part of Ball Mill package		2	-	A
330	HR	11	Ball Mill Reducer Lube Heater 5	Part of Ball Mill package		2	-	A
330	HR	12	Ball Mill Reducer Lube Heater 6	Part of Ball Mill package		2	-	A

Equipment Number			Item Description	Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
330	HR	13	Ball Mill Motor Lube Heater 1	Part of Ball Mill package		2	-	A
330	HR	14	Ball Mill Motor Lube Heater 2	Part of Ball Mill package		2	-	A
330	HR	15	Ball Mill Motor Lube Heater 3	Part of Ball Mill package		2	-	A
330	HR	16	Ball Mill Bearing Seal Lube Heater	Part of Ball Mill package		-	-	A
330	HR	18	Ball Mill Gear Guard Heater 1	Part of Ball Mill package		2	-	A
330	HR	19	Ball Mill Gear Guard Heater 2	Part of Ball Mill package		2	-	A
330	HR	20	Ball Mill Gear Guard Heater 3	Part of Ball Mill package		2	-	A
330	HR	21	Ball Mill Gear Guard Heater 4	Part of Ball Mill package		2	-	A
330	PP	05	Ball Mill Trunnion / Pinion Lube Conditioning Pump 1	Part of Ball Mill package		15	-	A
330	PP	06	Ball Mill Trunnion / Pinion Lube Conditioning Pump 2	Part of Ball Mill package		-	15	A
330	PP	07	Ball Mill Pinion Bearing Lube Pump 1	Part of Ball Mill package		1.1	-	A
330	PP	08	Ball Mill Pinion Bearing Lube Pump 2	Part of Ball Mill package		-	1.1	A
330	PP	09	Ball Mill Trunnion Bearing Lube Pump 1	Part of Ball Mill package		45	-	A
330	PP	10	Ball Mill Trunnion Bearing Lube Pump 2	Part of Ball Mill package		45	-	A
330	PP	11	Ball Mill Trunnion Bearing Lube Pump 3	Part of Ball Mill package		-	45	A
330	PP	16	Ball Mill Motor Jacking Pump	Part of Ball Mill package		1.5	-	A
330	PP	18	Ball Mill Bearing Seal Lube Pump	Part of Ball Mill package		0.25	-	A
330	PP	19	Ball Mill Gear Lube Pump	Part of Ball Mill package		0.25	-	A
330	LU	01	Ball Mill Trunnion / Pinion Lube Unit	Part of Ball Mill package. 3500 litre tank, 2 off conditioning pumps, 2 off pinion bearing lube pumps, 3 off trunnion bearing lube pumps, 6 off oil heaters, diverter valves, flow control valves, sensors and all ancillaries including air cooled heat exchanger mounted on a common skid.		-	-	A
330	LU	02	Ball Mill Reducer Lube Unit	Part of Ball Mill package. 4500 litre tank, 2 off lube pumps, 6 off oil heaters, diverter valves, flow control valves, sensors and all ancillaries including air cooled heat exchanger mounted on a common skid.		-	-	A
330	LU	03	Ball Mill Motor Lube Unit	Part of Ball Mill package. 4500 litre tank, 2 off lube pumps, 6 off oil heater units, diverter valves, flow control valves, sensors and all ancillaries including air cooled heat exchanger mounted on a common skid.		-	-	A
330	LU	04	Ball Mill Bearing Seal Lube Unit	Part of Ball Mill package. Includes air operated diffusers, injectors, timers, 200 litre grease drum with air operated pump, heater, hoses and sundries.		-	-	A
330	LU	05	Ball Mill Gear Lube Unit	Part of Ball Mill package. Includes air operated diffusers, injectors, timers, 200 litre grease drum with air operated pump, heater, hoses and sundries.		-	-	A
330	ML	01	Ball Mill	7.9 mØ x 11.6 m trommel discharge Ball Mill		16,000	-	A
330	CH	04	Ball Mill Trommel Cover	Mild steel construction, unlined	Shop fabricated	-	-	A
330	CH	05	Ball Mill Scats Chute	Mild steel construction, unlined	Shop fabricated	-	-	A
330	SN	02	Ball Mill Trommel	Part of Ball Mill package		-	-	A
330	LA	01	Ball Mill Discharge Launder		Shop fabricated	-	-	A
330	BU	02	Ball Mill Scats Bunker	Concrete bunker		-	-	A
330	HA	01	Mill Liner Handler			55	-	A
330	HP	01	Mill Discharge Hopper	28 m³ capacity, mild steel construction, rubber lined	Shop fabricated	-	-	A
330	PP	01	Cyclone Feed Pump 1	Horizontal centrifugal slurry pump	300-ST-MCU	500	-	A
330	PP	02	Cyclone Feed Pump 2	Horizontal centrifugal slurry pump	300-ST-MCU	-	500	A
330	CY	01	Cyclone Cluster	26 x 250mm diameter cyclones (22 op, 3 std by 1 spare c/w dart box)	Weir 26 x 250CVX10 Cavex	-	-	A
330	CY	01A	Cyclone Underflow Dart Plug		Shop fabricated	-	-	A
330	BX	01	Cyclone Underflow Boilbox	Mild steel construction, rubber lined	Shop fabricated	-	-	A
330	HT	02	Cyclone Maintenance Crane	0.5 t davit crane		5.7	-	A
330	PP	03	Mill Area Sump Pump 1	Vertical Spindle Sump Pump	100 VE-GPS	22	-	A
330	PP	04	Mill Area Sump Pump 2	Vertical Spindle Sump Pump	65 VDH-GPS	7.5	-	A
330	SS	01	Grinding Area Safety Shower 2	Combination shower & eye wash unit		-	-	A
330	SS	02	Grinding Area Safety Shower 3	Combination shower & eye wash unit		-	-	A
330	TX	02	Ball Mill Transformer	Transformer Onan Type V1:11 kV, V2:3300 VAC V 7500 kVA Service	Transformer Onan Type V1:11 kV, V2:3300 VAC V 7500 kVA Service	-	-	A
330	TX	03	Grinding Area Transformer	11kV/433V 2000kVA		-	-	A
330	VS	01	Ball Mill VVVF			45 kVa	-	A
REA 332 GRAVITY RECOVERY AND SEPARATION								
332	BX	02	Gravity Screen Feed Box	Mild steel construction, rubber lined	Sizetec SDS820	-	-	A
332	SN	03	Gravity Feed Scalping Screen	Size (W x L): 1.8m x 4.8m Deck Material: Polyurethane Deck Aperture: 2.4 x 10 Motors: 2x 5.5 kW	Sizetec SDS616	11	-	A
332	CH	06	Gravity Screen Underpan	Mild steel construction, rubber lined. c/w 2 discharge nozzles.	Sizetec SDS820	-	-	A
332	CH	07	Gravity Screen Oversize Chute	Mild steel construction, rubber lined	Sizetec SDS820	-	-	A
332	GC	01	Gravity Concentrator 1	Centrifugal Concentrator with G5 bowl, 400 tph capacity	Knelson KC-QS40	30	-	A
332	GC	02	Gravity Concentrator 2	Centrifugal Concentrator with G5 bowl, 400 tph capacity	Knelson KC-QS40	30	-	A
332	HT	03	Gravity Concentrator Hoist	0.75 t wire rope monorail hoist to service both concentrators		5	-	A
REA 340 LEACHING AND ADSORPTION								

**PRIMARY GOLD LIMITED
MT BUNDY GOLD PROJECT
EQUIPMENT
LIST**

Equipment Number			Item Description	Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
340	BX	01	Trash Screen Feed Distributor	Mild steel construction, rubber lined	Shop fabricated	-	-	A
340	SN	04	Trash Screen 1	2.4mx 4.2m Vibrating Horiz. Deck; polyurethane 0.8x18mm XF panels.		15	-	A
340	CH	01	Trash Screen Underpan 1	Mild steel construction, rubber lined	Shop fabricated	-	-	A
340	CH	02	Trash Screen Oversize Chute 1	Mild steel construction, unlined	Shop fabricated	-	-	A
340	SN	05	Trash Screen 2	2.4mx 4.2m Vibrating Horiz. Deck; polyurethane 0.8x18mm XF panels.		15	-	A
340	CH	03	Trash Screen Oversize Chute 2	Mild steel construction, unlined	Shop fabricated	-	-	A
340	CH	04	Trash Screen Underpan 2	Mild steel construction, rubber lined	Shop fabricated	-	-	A
340	TK	07	Blanking Tank 1	10.3Ø x 11.2m height		-	-	A
340	AG	07	Blanking Tank 1 Agitator			55	-	A
340	TK	08	Blanking Tank 2	10.3Ø x 11.2m height		-	-	A
340	AG	08	Blanking Tank 2 Agitator			55	-	A
340	BN	01	Trash Screen Bin	Skip bin (by others)		-	-	A
340	BX	02	Pre Leach Thickener Feed Box	Mild steel construction, rubber lined		-	-	A
340	TH	01	Pre Leach Thickener	25m diameter		22	-	A
340	MX	01	Flocculant Static Mixer	Inline mixer		-	-	A
340	PP	03	Leach Area Sump Pump	Vertical Spindle Sump Pump	65 VDH-GPS	7.5	-	A
340	PP	01	Leach Feed Pump 1	443m3h duty/standby		55	-	A
340	PP	02	Leach Feed Pump 2	443m3h duty/standby		-	55	A
340	BX	03	Leach Feed Distribution Box	Mild steel construction, rubber lined	Shop fabricated	-	-	A
340	TK	01	CIL Tank 1	Ø14.6 x 14.6m tank, mild steel construction, external surface treatment only system 2, 1970m ³ live volume	Site fabricated	-	-	A
340	AG	01	CIL Tank 1 Agitator	Dual impellor agitator, HA800 up pumping upper impellor, HA720 down pumping lower impellor, air down shaft	Mixtec 4070 / Series 4000	90	-	A
340	SN	07	Intertank Screen 1	Interstage pumped screen, 12 m ²	MPS 1100(P)	22	-	A
340	LA	01	Intertank Launder 1	700mm (W)x 800mm (D) Launder, MS construction c/w Mechanical Gates	Shop fabricated	-	-	A
340	PP	04	Loaded Carbon Pump	Recessed Impellor Pump	4/4 VDH-TC	11	-	A
340	TK	02	CIL Tank 2	Ø14.6 x 14.6m tank, mild steel construction, external surface treatment only system 2, 1970m ³ live volume	Site fabricated	-	-	A
340	AG	02	CIL Tank 2 Agitator	Dual impellor agitator, HA800 up pumping upper impellor, HA720 down pumping lower impellor, air down shaft	Mixtec 4070 / Series 4000	90	-	A
340	PP	05	Carbon Transfer Pump 2	Recessed Impellor Pump	4/4 VDH-TC	5.5	-	A
340	SN	08	Intertank Screen 2	Interstage pumped screen, 12 m ²	MPS 1100(P)	22	-	A
340	LA	02	Intertank Launder 2	700mm (W)x 800mm (D) Launder, MS construction c/w Mechanical Gates	Shop fabricated	-	-	A
340	TK	03	CIL Tank 3	Ø14.6 x 14.6m tank, mild steel construction, external surface treatment only system 2, 1970m ³ live volume	Site fabricated	-	-	A
340	AG	03	CIL Tank 3 Agitator	Dual impellor agitator, HA800 up pumping upper impellor, HA720 down pumping lower impellor, air down shaft	Mixtec 4070 / Series 4000	90	-	A
340	SN	09	Intertank Screen 3	Interstage pumped screen, 12 m ²	MPS 1100(P)	22	-	A
340	LA	03	Intertank Launder 3	700mm (W)x 800mm (D) Launder, MS construction c/w Mechanical Gates	Shop fabricated	-	-	A
340	PP	06	Carbon Transfer Pump 3	Recessed Impellor Pump	4/4 VDH-TC	5.5	-	A
340	TK	04	CIL Tank 4	Ø14.6 x 14.6m tank, mild steel construction, external surface treatment only system 2, 1970m ³ live volume	Site fabricated	-	-	A
340	AG	04	CIL Tank 4 Agitator	Dual impellor agitator, HA800 up pumping upper impellor, HA720 down pumping lower impellor, air down shaft	Mixtec 4070 / Series 4000	90	-	A
340	SN	10	Intertank Screen 4	Interstage pumped screen, 12 m ²	MPS 1100(P)	22	-	A
340	LA	04	Intertank Launder 4	700mm (W)x 800mm (D) Launder, MS construction c/w Mechanical Gates	Shop fabricated	-	-	A
340	PP	07	Carbon Transfer Pump 4	Recessed Impellor Pump	4/4 VDH-TC	5.5	-	A
340	TK	05	CIL Tank 5	Ø14.6 x 14.6m tank, mild steel construction, external surface treatment only system 2, 1970m ³ live volume	Site fabricated	-	-	A
340	AG	05	CIL Tank 5 Agitator	Dual impellor agitator, HA800 up pumping upper impellor, HA720 down pumping lower impellor, air down shaft	Mixtec 4070 / Series 4000	90	-	A
340	SN	11	Intertank Screen 5	Interstage pumped screen, 12 m ²	MPS 1100(P)	22	-	A
340	LA	05	Intertank Launder 5	700mm (W)x 800mm (D) Launder, MS construction c/w Mechanical Gates	Shop fabricated	-	-	A
340	PP	08	Carbon Transfer Pump 5	Recessed Impellor Pump	4/4 VDH-TC	5.5	-	A
340	TK	06	CIL Tank 6	Ø14.6 x 14.6m tank, mild steel construction, external surface treatment only system 2, 1970m ³ live volume	Site fabricated	-	-	A
340	AG	06	CIL Tank 6 Agitator	Dual impellor agitator, HA800 up pumping upper impellor, HA720 down pumping lower impellor, air down shaft	Mixtec 4070 / Series 4000	90	-	A
340	SN	12	Intertank Screen 6	Interstage pumped screen, 12 m ²	MPS 1100(P)	22	-	A
340	LA	06	Intertank Launder 6	700mm (W)x 800mm (D) Launder, MS construction c/w Mechanical Gates	Shop fabricated	-	-	A
340	PP	09	Carbon Transfer Pump 6	Recessed Impellor Pump	4/4 VDH-TC	5.5	-	A
340	BX	04	Loaded Carbon Screen Feed Box	Mild steel construction, rubber lined	Shop fabricated	-	-	A
340	SN	06	Loaded Carbon Screen	1.2 x 3.0m Vibrating Screen, 1.0 x 18mm	SD12/36	7.5	-	A
340	CH	05	Loaded Carbon Screen Underpan	Mild steel construction, rubber lined	Shop fabricated	-	-	A
340	CH	06	Loaded Carbon Screen Oversize Chute	Mild steel construction, unlined	Shop fabricated	-	-	A

Equipment Number			Item Description	Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
340	BX	05	Barren Carbon Screen Feed Box	Mild steel construction, rubber lined	Shop fabricated	-	-	A
340	SN	14	Barren Carbon Screen	1.2 x 2.0m Vibrating Dewatering Screen. 1.2 x 18mm	VD9/24	5.5	-	A
340	CH	07	Barren Carbon Screen Underpan	Mild steel construction, rubber lined	Shop fabricated	-	-	A
340	CH	08	Barren Carbon Screen Oversize Chute	Mild steel construction, unlined	Shop fabricated	-	-	A
340	HT	01	CIL Overhead Crane	7.5 t SWL Electric Portal Crane, TBC m lift, TBC m travel c/w Wire Rope Hoist (8kW), Electric Trolley (0.37kW), Transverse Travel (2 x 0.4kW), Catenary Cable System		15	-	A
340	PP	11	CIL Area Sump Pump 1	Vertical Spindle Sump Pump	65 VDH-GPS	15	-	A
340	PP	12	CIL Area Sump Pump 2	Vertical Spindle Sump Pump	65 VDH-GPS	15	-	A
340	SS	03	CIL Area Safety Shower 1	Combination shower & eye wash unit		-	-	A
340	SS	04	CIL Area Safety Shower 2	Combination shower & eye wash unit		-	-	A
340	TX	04	Leaching Area Transformer	11kV/433V 2000kVA		-	-	A
REA 350			GOLD RECOVERY					
350	CL	01	Acid Wash Column	8t capacity, mild steel rubber lined construction		-	-	A
350	CL	02	Elution Column	8t capacity, stainless steel construction		-	-	A
350	MX	01	Acid Wash Column Eductor	Inline mixer	AE2833/02C	-	-	A
350	MX	02	Elution Column Eductor	Inline mixer	AE2833/01C	-	-	A
350	FR	01	Elution Filter 1	Basket Filter		-	-	A
350	FR	02	Elution Filter 2	Basket Filter		-	-	A
350	HR	01	Elution Heater	3000kW Elution Heater		12	-	A
350	HX	01	Primary Heat Exchanger	Part of Elution Heater package - Plate Heat Exchanger		-	-	A
350	HX	02	Recovery Heat Exchanger	Part of Elution Heater package - Plate Heat Exchanger		-	-	A
350	TK	01	Elution Heater Expansion Tank	Part of Elution Heater package		-	-	A
350	PP	10	Elution Heater Recirculation Pump	Part of Elution Heater package		55	-	A
350	TK	02	Elution Recycle Tank	100 m3 capacity, mild steel construction		-	-	A
350	PP	01	Elution Recycle Pump			11	-	A
350	BX	01	Kiln Dewatering Screen Feed Box	Mild steel construction, unlined		-	-	A
350	SN	15	Kiln Dewatering Screen	1.2 x 2.0m Vibrating Dewatering Screen, 1.2 x 18mm	VD9/24	5.5	-	A
350	CH	01	Kiln Dewatering Screen Underpan	Mild steel construction, unlined		-	-	A
350	CH	02	Kiln Dewatering Screen Oversize Chute	Part of Carbon Regeneration Kiln package		-	-	A
350	DR	01	Kiln Pre-dryer	Mild steel construction, rubber lined		-	-	A
350	HP	01	Kiln Feed Hopper	Part of Carbon Regeneration Kiln package - 8t capacity, mild steel construction		-	-	A
350	FE	01	Kiln Screw Feeder	Part of Carbon Regeneration Kiln package		0.75	-	A
350	SN	16	Kiln Pipe Screen	Part of Carbon Regeneration Kiln package		-	-	A
350	KN	01	Carbon Regeneration Kiln	Carbon Regeneration Kiln - 500 kg/h 1.1 kW main drive 3 x 0.53 kW burners 220 W 24 V DC emergency drive	HK870LP	3	-	A
350	FA	01	Kiln Pre-dryer Fan	Part of Carbon Regeneration Kiln package		0.37	-	A
350	TK	03	Carbon Quench Tank	16m3	Shop fabricated	-	-	A
350	MX	03	Carbon Quench Tank Eductor	CS eductor	NE-ML-CS-2.0-NPT	-	-	A
350	TK	04	Eduction Water Tank	80 m3 capacity, mild steel construction		-	-	A
350	PP	02	Eduction Water Pump	80m3h		22	-	A
350	TK	05	Elution Raw Water Tank	100 m3 capacity, mild steel construction		-	-	A
350	PP	03	Acid Wash Pump	Helical Rotor Pump	ROTO RLCB611R2CD1L	11	-	A
350	TK	06	Elution Water Tank	100 m3 capacity, mild steel construction, insulated		-	-	A
350	PP	04	Elution Water Pump	Helical Rotor Pump	ROTO RLCB611E7CD1P	11	-	A
350	TK	07	Pre-Treatment Solution Tank	15 m3 capacity, mild steel construction		-	-	A
350	PP	05	Pre-Treatment Solution Pump	Helical Rotor Pump	ROTO RLCB611E7CD1P	11	-	A
350	TK	08	Pregnant Solution Tank	100 m3 capacity, mild steel construction, insulated		-	-	A
350	PP	06	Electrowinning Cell Pump 1	Horizontal End Suction Centrifugal Pump	GLOBAL ISO80X50-200	3	-	A
350	PP	07	Electrowinning Cell Pump 2	Horizontal End Suction Centrifugal Pump	GLOBAL ISO80X50-200	-	3	A
350	PP	09	Elution Barren Solution Pump	Flow Rate: 18.0 m³/h		4	-	A
350	EC	01	Electrowinning Cell	800mm x800mm x 12 off Cathodes, SS Construction	CSE812	-	-	A
350	EH	01	Electrowinning Cell Fume Hood	Stainless steel construction	Shop fabricated	-	-	A
350	EC	02	Gravity Electrowinning Cell	600mm x600mm x 9 off Cathodes, SS Construction	CSE609	-	-	A
350	EH	02	Gravity Electrowinning Cell Fume Hood	Stainless steel construction	Shop fabricated	-	-	A
350	FA	02	Electrowinning Extraction Fan	Axial Inline Fan		1.5	-	A
350	HR	02	Gravity Pregnant Solution Tank Heater 1			20	-	A
350	HR	03	Gravity Pregnant Solution Tank Heater 2			20	-	A
350	TK	09	Gravity Pregnant Solution Tank	8m3		-	-	A

Equipment Number			Item Description	Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
350	PP	08	Gravity Electrowinning Cell Pump	Centrifugal Helical Rotor Pump		3	-	A
350	TK	11	Gravity Electrowinning Sealpot	Mild steel construction	Shop fabricated	-	-	A
350	PP	11	Barren Solution Pump	Flow Rate: 18.0 m³/h		4	-	A
350	OV	01	Drying Oven	Drying Oven, Electric Heat Elements, 300-400°C Op. Temp.		10.5	-	A
350	EH	04	Drying Oven Fume Hood	Stainless steel construction	Shop fabricated	-	-	A
350	FA	03	Goldroom Extraction Fan 1	Wall Mounted Fan, 8000 L/sec	WBR6-790	1.5	-	A
350	FU	01	Smelting Furnace	Smelting furnace, LPG Fired, A200 Crucible		0.55	-	A
350	FA	04	Smelting Furnace Extraction Fan	Axial Inline Fan		1.5	-	A
350	EH	05	Smelting Furnace Fume Hood	Stainless steel construction	Shop fabricated	-	-	A
350	BN	01	Flux Mixing Drum			-	-	A
350	HT	02	Furnace Hoist	Manual Hoist (Column Mounted Davit)		-	-	A
350	FE	02	Leach Aid Screw Feeder		Flowtech	0.75	-	A
350	HR	04	Intensive Leach Reactor Solution Heater 1			20	-	A
350	HR	05	Intensive Leach Reactor Solution Heater 2			20	-	A
350	TK	12	Intensive Leach Reactor Seal Pot	Mild steel construction	Shop fabricated	-	-	A
350	TK	13	Intensive Leach Reactor Solution Tank	8m³		-	-	A
350	HP	02	Sludge Hopper	Stainless steel construction	Shop fabricated	-	-	A
350	FR	03	Sludge Filter	Stainless steel construction	Shop fabricated	-	-	A
350	PP	14	Sludge Filter Vacuum Pump			0.4	-	A
350	HT	01	Goldroom Hoist	0.75 t wire rope monorail hoist		4.7	-	A
350	FT	01	Goldroom Filter 1			-	-	A
350	FT	02	Goldroom Filter 2			-	-	A
350	VA	01	Goldroom Vault			-	-	A
350	MS	01	Cathode Washing Station	Stainless steel construction	Shop fabricated	-	-	A
350	MS	02	Goldroom Balance			-	-	A
350	MS	03	Cell Sludge Trolley			-	-	A
350	PP	12	Acid Wash Column Sump Pump	Vertical Spindle Sump Pump		7.5	-	A
350	PP	13	Elution Area Sump Pump	Warman 65QV-WBV Vertical Spindle Pump		7.5	-	A
350	PP	15	Goldroom Sump Pump	Vertical Spindle Sump Pump		5.5	-	A
350	LR	01	Intensive Leach Reactor	Intensive Leach Reactor	Acacia CS3000	-	-	A
350	AG	01	Intensive Leach Reactor Solution Tank Agitator		Mixtec	0.75	-	A
350	PP	16	Intensive Leach Reactor Tailings Pump		Weir Warman 2/1.5 B-AH	11	-	A
350	PP	17	Intensive Leach Reactor Drain Pump	Air operated diaphragm pump		0.25	-	A
350	PP	18	Intensive Leach Reactor Solution Pump			3	-	A
350	RE	01	Electrowinning Cell Rectifier 1	800A Rectifier	RHE800	8	-	A
350	RE	03	Gravity Electrowinning Cell Rectifier	800A Rectifier	RHE800	8	-	A
350	SF	01	Goldroom Safe	High Security Safe, Digital Locking System		-	-	A
350	SS	05	Elution Area Safety Shower 1	Combination shower & eye wash unit		-	-	A
350	SS	06	Elution Area Safety Shower 2	Combination shower & eye wash unit		-	-	A
350	SS	07	Goldroom Safety Shower 1	Combination shower & eye wash unit		-	-	A
350	SS	08	Goldroom Safety Shower 2	Combination shower & eye wash unit		-	-	A
350	SS	09	Elution Area Safety Shower 3	Combination shower & eye wash unit		-	-	A
350	TK	10	Carbon Fines Settling Tank		Shop fabricated	-	-	A
REA 360			REAGENTS					
360	CH	01	Cyanide Truck Unloading Tundish	Mild steel construction	Shop fabricated	-	-	A
360	TK	01	Cyanide Storage Tank 1	160m³ capacity, mild steel construction	Shop fabricated	-	-	A
360	TK	02	Cyanide Storage Tank 2	160m³ capacity, mild steel construction	Shop fabricated	-	-	A
360	PP	01	Cyanide Circulation Pump 1	Horizontal End Suction Centrifugal Pump	GLOBAL ISO 50X32-200	11	-	A
360	PP	02	Cyanide Circulation Pump 2	Horizontal End Suction Centrifugal Pump	GLOBAL ISO 50X32-200	-	11	A
360	PP	03	Cyanide Area Sump Pump	Warman 65QV - WBV Vertical Spindle Pump		7.5	-	A
360	SS	13	Cyanide Unloading Safety Shower	Combination shower & eye wash unit		-	-	A
360	SS	14	Cyanide Area Safety Shower 2	Combination shower & eye wash unit		-	-	A
360	SS	15	Cyanide Area Safety Shower 3	Combination shower & eye wash unit		-	-	A
360	TK	03	Cyanide Storage Tank Seal Pot	Mild steel construction	Shop fabricated	-	-	A
360	TK	04	Sodium Hydroxide Storage Tank	30 m³ capacity, mild steel construction	Shop fabricated	-	-	A
360	HR	01	Sodium Hydroxide Storage Tank Heat Trace			-	-	A
360	PP	04	Sodium Hydroxide Circulation Pump 1	Horizontal End Suction Centrifugal Pump	GLOBAL ISO 50X32-200	11	-	A
360	PP	05	Sodium Hydroxide Circulation Pump 2	Horizontal End Suction Centrifugal Pump	GLOBAL ISO 50X32-200	-	11	A
360	PP	06	Sodium Hydroxide Area Sump Pump	Plastic Air Operated Diaphragm Pump	VERDERAIR VA50 HE PP/TF	0.25	-	A
360	TK	05	Acid Storage Tank	30 m³ capacity, HDPE construction		-	-	A

Equipment Number			Item Description	Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
360	PP	07	Acid Dosing Pump 1	Gear Pump	S 93039JD	1.5	-	A
360	PP	08	Acid Dosing Pump 2	Gear Pump	S 93039JD	-	1.5	A
360	PP	09	Acid Area Sump Pump	Plastic Air Operated Diaphragm Pump	VERDERAIR VA40 PVDF/TF	0.25	-	A
360	SS	10	Acid Area Safety Shower 1	Combination shower & eye wash unit		-	-	A
360	SS	11	Acid/Sodium Hydroxide Unloading Safety Shower	Combination shower & eye wash unit		-	-	A
360	SS	12	Sodium Hydroxide Area Safety Shower	Combination shower & eye wash unit		-	-	A
360	TK	06	Acid Storage Seal Pot	Mils steel construction	Shop fabricated	-	-	A
360	HP	01	Flocculant Hopper	1,000kg capacity		-	-	A
360	VC	01	Flocculant Powder Vacuum Unit	Part of Flocculant package		2.2	-	A
360	FT	01	Flocculant Dust Filter	Part of Flocculant package		-	-	A
360	FA	01	Flocculant Dust Filter Fan	Part of Flocculant package		3	-	A
360	FE	01	Flocculant Screw Feeder	Part of Flocculant package		0.18	-	A
360	HP	02	Flocculant Heated Hopper	Part of Flocculant package		-	-	A
360	AC	01	Flocculant Hopper Activator	Part of Flocculant package		1.1	-	A
360	BL	01	Flocculant Blower	Part of Flocculant package		2.2	-	A
360	MX	01	Flocculant Wetting Head	Part of Flocculant package		-	-	A
360	TK	07	Flocculant Mixing Tank	HDPE Construction, 14m3 capacity		-	-	A
360	AG	01	Flocculant Mixing Tank Agitator	Part of Flocculant package		3	-	A
360	PP	10	Flocculant Transfer Pump	Part of Flocculant package		2.2	-	A
360	TK	08	Flocculant Storage Tank	54m3		-	-	A
360	PP	11	Flocculant Dosing Pump 1			1.5	-	A
360	PP	12	Flocculant Dosing Pump 2			1.5	-	A
360	PP	13	Flocculant Dosing Pump 3			1.5	-	A
360	PP	14	Flocculant Dosing Pump 4			1.5	-	A
360	PP	15	Flocculant Area Sump Pump	Vertical Spindle Sump Pump		5.5	-	A
360	PP	16	Polymax Dosing pump			0.25	-	A
360	PP	17	Polymax Dosing pump			0.25	-	A
360	BD	01	Flocculant Mixing Shed	Fully enclosed		-	-	A
360	BD	02	Reagent Storage Shed	Fully enclosed		-	-	A
360	SS	16	Flocculant Safety Shower			-	-	A
360	SS	17	Flocculant Safety Shower			-	-	A
360	HT	02	Reagents Hoist	1 t wire rope monorail hoist		5	-	A
360	BB	04	SMBS Bag Breaker	Mild Steel Construction	Shop fabricated	-	-	A
360	TK	09	SMBS Mix Tank	30m ³	Shop fabricated	-	-	A
360	AG	02	SMBS Agitator			0.75	-	A
360	PP	18	SMBS Transfer pump		Shop fabricated	2.2	-	A
360	TK	09	Hydrogen Peroxide Storage Tank	30m ³		-	-	A
360	PP	18	Hydrogen Peroxide Dosing Pump 1	1.81m ³ /h		0.75	-	A
360	PP	19	Hydrogen Peroxide Dosing Pump 2	1.81m ³ /h		-	0.75	A
360	BB	01	Copper Sulphate Bag Breaker	Mild Steel Construction	Shop fabricated	-	-	A
360	TK	10	Copper Sulphate Mix Tank	12m3		-	-	A
360	AG	02	Copper Sulphate Agitator			0.5	-	A
360	PP	20	Copper Sulphate Transfer pump			1.1	-	A
360	TK	11	Copper Sulphate Storage Tank	12m3	Shop fabricated	-	-	A
360	PP	21	Copper Sulphate Dosing Pump 1	0.37m ³ /h		0.25	-	A
360	PP	22	Copper Sulphate Dosing Pump 2	0.37m ³ /h		-	0.25	A
360	PP	23	Reagents Area Sump Pump	Warman 65QV - WBV Vertical Spindle Pump		7.5	-	A
REA 390 WATER STORAGE AND RETICULATION								
390	PD	01	Raw Water Pond	Capacity 7,000 m ³		-	-	A
390	PP	01	Raw Water Pump 1	Horizontal End Suction Centrifugal Pump 500m3h	GLOBAL ISO 200x150	90	-	A
390	PP	02	Raw Water Pump 2	Horizontal End Suction Centrifugal Pump 500m3h	GLOBAL ISO 200x150	-	90	A
390	PP	03	Fire Water Pump	Horizontal End Suction Centrifugal Pump		75	-	A
390	PP	04	Diesel Fire Water Pump	Horizontal End Suction Centrifugal Pump c/w Diesel Engine & Tank	GLOBAL ISO 80X50-250	-	0	A
390	PP	05	Jockey Fire Water Pump			1.5	-	A
390	PP	06	Gland Water Pump 1	Vertical Multistage Pump	GRUNDFOS CR 5-22	11	-	A
390	PP	07	Gland Water Pump 2	Vertical Multistage Pump	GRUNDFOS CR 5-22	-	11	A
390	PP	08	HP Gland Water Pump 1	Vertical Multistage Pump	GRUNDFOS CR 5-22	11	-	A
390	PP	09	HP Gland Water Pump 2	Vertical Multistage Pump	GRUNDFOS CR 5-22	-	11	A
390	PD	02	Process Water Pond	Capacity 6,000 m ³		-	-	A
390	PP	10	Clean Process Water Pump 1	Horizontal End Suction Centrifugal Pump 500m3h	GLOBAL ISO 250X200-400	90	-	A

Equipment Number			Item Description	Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
390	PP	11	Clean Process Water Pump 2	Horizontal End Suction Centrifugal Pump 500m3h	GLOBAL ISO 250X200-400	-	90	A
390	PD	03	Clean Process Water Pond	Capacity 6,000 m ³		-	-	A
390	PP	12	Process Water Pump 1	Horizontal End Suction Centrifugal Pump		45	-	A
390	PP	13	Process Water Pump 2	Horizontal End Suction Centrifugal Pump		-	45	A
390	PD	04	Site Drainage Pond	Capacity 15,000 m ³		-	-	A
390	PP	14	Site Drainage Pump	Submersible Pump (4.7 kW)		4.7	-	A
390	PD	05	Clean Water Pond	Capacity 26,000 m ³		-	-	A
390	PP	15	Clean Water Pump 1	Horizontal End Suction Centrifugal Pump 750m3h		150	-	A
390	PP	16	Clean Water Pump 2	Horizontal End Suction Centrifugal Pump 750m3h		-	150	A
390	PP	17	Clean Water Pump 3	Horizontal End Suction Centrifugal Pump 750m3h		150	-	A
390	TK	01	RO Plant Feed Tank			-	-	A
390	PP	18	RO Plant Feed Pump			5	-	A
390	PP	19	RO Plant Feed Pump			-	5	A
390	RO	01	RO Plant	plant 450m3/day		100	-	A
390	RO	02	Sterilisation potable water plant	Sodium hypochlorite sterilisation plant (Plant)		5.5	-	A
390	PP	20	Diesel potable water pump			-	-	A
390	TK	02	Plant Potable Water Tank	50 m ³ capacity, enclosed HDPE tank		-	-	A
390	PP	21	Potable Water Pump 1	Vertical Multistage Pump (Electric)	GRUNDFOS 15-4	3	-	A
390	PP	22	Potable Water Pump 2	Vertical Multistage Pump (Diesel)	ISO 50X32-200	-	3	A
390	PP	23	Diesel potable water pump			-	-	A
390	TK	03	Safety Shower Water Tank	10 m ³ capacity, enclosed HDPE tank		-	-	A
390	AC	01	Safety Shower Chiller			2.2	-	A
390	PP	24	Safety Shower Pump			7.5	-	A
390	PP	25	Safety Shower Diesel Pump			-	7.5	A
390	TX	05	Water Services Transformer	11kV/433V 630kVA		-	-	A
REA 391 RAW WATER SUPPLY								
391	PP	26	Bore Pump 1			11	-	A
391	PP	27	Bore Pump 2			11	-	A
391	PP	28	Bore Pump 3			11	-	A
391	PP	29	Bore Pump 4			11	-	A
391	PP	30	Raw Water Supply Pump 1	250m3		45	-	A
391	PP	31	Raw Water Supply Pump 2	250m3		-	45	A
391	TK	04	Raw Water Transfer Tank	50 m ³ capacity, enclosed HDPE tank	n/a	-	-	A
391	PP	32	Raw Water Transfer Pump 1	304L Stainless Steel Submersible Bore pump		150	-	A
391	PP	33	Raw Water Transfer Pump 2	304L Stainless Steel Submersible Bore pump		-	150	A
REA 400 TAILINGS DISPOSAL								
400	FR	01	Carbon Bag Frame	Mild steel construction	Shop fabricated	-	-	A
400	SN	17	Carbon Safety Screen	2.4 x 6.1m Horizontal Vibrating Screen, c/w Spray bars, 0.8 x 15mm aperture	HG24/61	18.5	-	A
400	BX	01	Tailings Screen Feed Distributor	Mild steel construction, rubber lined		-	-	A
400	SN	18	Tailings Screen 1	2.4mx 3.6m Vibrating Horiz. Deck; polyurethane 0.6x18mm XF panels.		11	-	A
400	CH	01	Carbon Safety Screen Underpan	Mild steel construction, rubber lined		-	-	A
400	CH	02	Carbon Safety Screen Oversize Chute	Mild steel construction, rubber lined		-	-	A
400	SN	19	Tailings Screen 2	2.4mx 3.6m Vibrating Horiz. Deck; polyurethane 0.6x18mm XF panels.		11	-	A
400	CH	03	Carbon Safety Screen Underpan	Mild steel construction, rubber lined		-	-	A
400	CH	04	Carbon Safety Screen Oversize Chute	Mild steel construction, rubber lined		-	-	A
400	SS	19	Tailings Area Safety Shower	Combination shower & eye wash unit		-	-	A
400	MX	01	Tailings Thickener Flocculant Static Mixer			-	-	A
400	BX	02	Tailings Thickener Feed Box	Mild steel construction, rubber lined		-	-	A
400	TH	02	Tailings Thickener	25m diameter		22	-	A
400	PP	01	Tailings Thickener Underflow Pump 1	8/6 AH		30	-	A
400	PP	02	Tailings Thickener Underflow Pump 2	8/6 AH		-	30	A
400	PP	03	Tailings Thickener Area Sump Pump	Warman 65QV-WBV Vertical Spindle		15	-	A
400	HP	01	Tailings Hopper	15 m ³ capacity, mild steel construction, rubber lined	Shop fabricated	-	-	A
400	PD	04	Tailings Storage Facility			-	-	A
400	PP	04	Tailings Pump 1	Horizontal Centrifugal Slurry Pump		400	-	A
400	PP	05	Tailings Pump 2	Horizontal Centrifugal Slurry Pump		-	400	A
400	PP	06	Tailings Area Sump Pump	Vertical Spindle Sump Pump		7.5	-	A
400	AG	01	Detoxification Tank Agitator	783 Q 150, A315 Impeller		110	-	A
400	TK	01	Detox Tank	Mild Steel, 8m Dia x 10m high		-	-	A
400	PP	07	Return Water Pump 1	Horizontal Centrifugal Slurry Pump		125	-	A
400	PP	08	Return Water Pump 2	Horizontal Centrifugal Slurry Pump		-	125	A
REA 402 DECANT RETURN								
402	PP	08	Decant Pump	Submersible Pump (37 kW)	S2.100.200.260.4.58L.S.266.GND	30	-	A
402	PP	09	Tailings Seepage Pump	Submersible Pump (4.7 kW)		4.7	-	A
402	PP	10	Under Drain Pump	Submersible Pump (4.5 kW)		4.5	-	A

Equipment Number	Item Description		Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
402	PP	11	Decant Return Pump	S2-100-200-260.4.58L.S.266.GND	37	-	A
REA 410 FUEL STORAGE							
410	FD	01	Fuel Storage Facility	Fuel (Diesel) Storage Facility (by others)	-	-	A
410	TK	01	LPG Storage Tank 1	7.5 kL Tank	-	-	A
410	TK	02	LPG Storage Tank 2	7.5 kL Tank	-	-	A
410	TK	03	LPG Storage Tank 3	7.5 kL Tank	-	-	A
410	TK	04	LPG Storage Tank 4	7.5 kL Tank	-	-	A
410	TK	05	LPG Storage Tank 5	7.5 kL Tank	-	-	A
410	TK	06	LPG Storage Tank 6	7.5 kL Tank	-	-	A
REA 420 AIR SERVICES							
420	AR	01	Plant Air Receiver	Air Receiver, 3.0 m3 Capacity c/w Press. Relief & Drain Valves	N/A	-	A
420	AR	02	Instrument Air Receiver	Air Receiver, 1.0 m3 Capacity c/w Press. Relief & Drain Valves	N/A	-	A
420	AD	01	Instrument Air Dryer	FXe16	N/A	-	A
420	AC	01	Plant Air Compressor 1	Screw Compressor 184.3 l/s @ 750kPa complete with integral dryer/filters	GA 55+	55	A
420	AC	02	Plant Air Compressor 2	Screw Compressor 184.3 l/s @ 750kPa complete with integral dryer/filters	GA 55+	-	A
420	FT	01	Plant Air Filter	Particle Filter	-	-	A
420	FT	02	Plant Air Filter	Coalescing Filter	-	-	A
420	PT	04	Liquid oxygen plant		-	-	A
REA 430 PLANT BUILDINGS							
430	BD	01	Administration Office(incl EMR, Mining & 1st Aid)	41.4m x 24m steel chassis transportable building (GRES providing crane and power and water services only)	25	-	A
430	BD	02	Ablution Block	9m x 6.5m steel chassis transportable building (GRES providing crane and power and water services only)	5	-	A
430	BD	03	Cribroom	12m x 3m steel chassis transportable building (GRES providing crane and power and water services only)	10	-	A
430	BD	04	Control Room	8.4 m (L) x 3.3 m (W) Transportable Steel Chassis Control Room with reverse cycle AC	10	-	A
430	BD	05	Gold Room	TBC m x TBC m steel framed building	10	-	A
430	BD	06	Wet Plant Switchroom	Equipped MCC / Switchroom with bottom entry cabling	10	-	A
430	BD	07	High Voltage Switchroom	Equipped 11kV Switchboard and Mill VSD with bottom entry cabling	10	-	A
430	BD	08	Crusher Switchroom		-	-	A
430	PP	01	Sewage Pump Pit		3	-	A
430	TX	06	Plant Buildings Transformer	11kV/433V 630kVA	-	-	A
REA 440 WORKSHOP / STORES							
440	BD	01	Plant Workshop	42m x 12m steel framed building	50	-	A
440	BD	02	Maintenance Office	6m x 12m steel chassis transportable building (GRES providing crane and power and water services only)	10	-	A
440	BD	03	Plant Store	42m x 12m steel framed building	10	-	A
440	OS	01	LV Washdown Oil Water Separator	Oil Water Separation Unit	-	-	A
440	PP	01	LV Washdown High Pressure Washer	High Pressure Cleaner & Water Hose Reel	HP151-2250-PSO-14LPM-5.5HP	4	A
440	TK	01	Washdown Tank	30m3	-	-	A
440	PP	02	HV Washdown pressure washer		4	-	A
REA 460 LABORATORY							
460	BD	01	Laboratory	6.95m x 14m containerised Wet Lab (assay facilities) and Dry Sample Prep and equipment	50	-	A
460	BD	02	Sample Prep Shed	14m x 15.5m steel framed building	-	-	A
460	PP	01	Laboratory Sump Pump	Vertical Spindle Sump Pump	5.5	-	A
430	SS	20	Laboratory Safety Shower	Combination shower & eye wash unit	-	-	A
REA 495 MOBILE EQUIPMENT							
495	LV	01	Resident Manager Vehicle				
495	LV	02	Mine Manager Vehicle				
495	HV	01	Truck 10 tonne				
495	HV	02	Truck 3 tonne				
495	HV	03	3t Forklift (Warehouse)				
495	HV	04	3t Forklift (Baghouse)				
495	HV	05	Skid Steer Loader				
495	HV	06	TeleHandler 3 tonne				
495	HV	07	Container Lifter 30 tonne WLL				
495	HV	08	Integrated Tool Carrier				
495	HV	09	Mobile Crane - 25t				
495	HV	10	Articulated Boom Lift				
495	HV	11	22 Seat Bus				
495	HV	12	56 Seat Coach 1				
495	HV	13	56 Seat Coach 2				
495	HV	14	Fire Tender				
495	HV	15	Ambulance				
495	LV	03	Plant Manager Vehicle				
495	LV	04	Process Plant Utility 1 (Dual Cab)				

Equipment Number			Item Description	Duty & Detailed Specification	Make / Model / Type	Motor Size (Duty) kW	Motor Size (Standby) kW	Rev
495	LV	05	Process Plant Utility 2 (Dual Cab)					
495	LV	06	Plant Maintenance Utility 1 (Single Cab)					
495	LV	07	Plant Maintenance Utility 2 (Single Cab)					
495	LV	08	Stores Utility (Single Cab)					
495	LV	09	Survey Utility					
495	LV	10	Geology Vehicle 1					
495	LV	11	Geology Vehicle 2					
495	LV	12	Mine Utility 1					
495	LV	13	Mine Utility 1					
495	LV	14	Mine Utility 1					
495	LV	15	Mine Utility 1					
TOTAL INSTALLED POWER						22145	2050	

DRAFT

Earth Moving, Administration and Workshop Areas

Item Description	number	Duty & Detailed Specification	Make model type	KW (duty) each	KW standby
Excavator	2	EX2000	Hitachi	764	0
Excavator support	1	EX1200	Hitachi	567	0
Trucks	8	Cat 785 140 tonne	Caterpillar	1193	0
MMU	1	Explosives truck	Volvo	300	0
Bull dozer	2	Cat D9	Caterpillar	337	0
Grader	2	Cat 16G	Caterpillar	216	0
Water trucks	2	Cat773 50 tonne	Caterpillar	536	0
Service fuel trucks	1	FM tray	Volvo	300	0
Light vehicles	12	landcruisers	Toyota	151	0
Lighting plants	8	LED 2kW	Allight	2	0
In pit water pumps	3	medium head centrifical	Sykes MH130	62	0
High head dewatering pumps	2	high head centrifical	Sykes XH150	250	0
Transportable offices inc AC	5	12m by 3m size	Various	8	0
Air compressors for workshop	2	Blue diamond 42CFM	Blue diamond	8.25	0
Oil traps (washbay)	1	Oil Separator	Fox FX20000SS	3	0

Tailings Storage Facility Construction Materials

Item	Description	Unit	Rate	Stage 1		Stage 2+		Closure		Total
				Quantity	Cost	Quantity	Cost	Quantity	Cost	Cost
1	PRELIMINARY AND GENERAL COSTS									
1.1	Preliminary and General									
1.1.1	Preliminary and general costs (including mobilization and demobilization)	Item	35%	1	\$ 7,545,869	1	\$ 19,005,510	1	\$ 5,410,659	\$ 31,962,038
	<i>Sub Total</i>				\$ 7,545,869		\$ 19,005,510		\$ 5,410,659	\$ 31,962,038
2	TSF SITE PREPARATION									
2.1	Site Preparation									
2.1.1	Clear and grub embankment footprints, haul vegetation to designated stockpiles	m2	\$ 0.13	213,000	\$ 26,625	571,000	\$ 71,375	-	\$ -	\$ 98,000
2.1.2	Clear and grub area of TSF basin, haul vegetation to designated stockpiles	m2	\$ 0.13	1,312,000	\$ 164,000	599,000	\$ 74,875	-	\$ -	\$ 238,875
2.1.3	Strip topsoil from embankment footprints, haul to designated stockpiles (200mm)	m3	\$ 1.36	42,600	\$ 57,936	114,200	\$ 155,312	-	\$ -	\$ 213,248
2.1.4	Strip topsoil from TSF basin area, haul to designated stockpiles (200mm)	m3	\$ 1.36	262,400	\$ 356,864	119,800	\$ 162,928	-	\$ -	\$ 519,792
2.1.5	Excavate unsuitable material from the TSF embankment footprints and basin, haul to designated stockpile (nominal allowance)	m3	\$ 4.50	21,300	\$ 95,850	57,100	\$ 256,950	-	\$ -	\$ 352,800
2.2	Stockpiles & Borrow Areas									
2.2.1	Clear designated stockpiles, push material to perimeter (2m high)	m2	\$ 0.13	430,000	\$ 53,750	395,000	\$ 49,375	11,000	\$ 1,375	\$ 104,500
2.2.2	Clear designated borrow areas, push material to perimeter (4m deep)	m2	\$ 0.13	102,000	\$ 12,750	200,000	\$ 25,000	132,000	\$ 16,500	\$ 54,250
2.2.3	Strip topsoil from stockpile and borrow areas, haul to designated stockpiles (200mm)	m3	\$ 1.36	106,400	\$ 144,704	119,000	\$ 161,840	28,600	\$ 38,896	\$ 345,440
2.2.4	Supply suitable Zone E erosion protection material to stockpile (includes win, haul and place in stockpile)	m3	\$ 12.50	14,800	\$ 185,000	15,600	\$ 195,000	4,600	\$ 57,500	\$ 437,500
2.2.5	Supply suitable Zone F1 sand material to stockpile (includes win, haul and place in stockpile)	m3	\$ 18.00	40,700	\$ 732,600	8,800	\$ 158,400	-	\$ -	\$ 891,000
2.2.6	Supply suitable Zone F2 gravel material to stockpile (includes win, haul and place in stockpile)	m3	\$ 18.00	600	\$ 10,800	-	\$ -	-	\$ -	\$ 10,800
	<i>Sub Total</i>				\$ 1,840,879		\$ 1,311,055		\$ 114,271	\$ 3,266,205
3	TSF EMBANKMENT CONSTRUCTION									
3.1	Main Embankment									
3.1.1	Excavate embankment cut off trench, haul and place in Zone C of embankment or designated stockpile	m3	\$ 3.00	47,400	\$ 142,200	30,400	\$ 91,200	-	\$ -	\$ 233,400
3.1.2	Extra over for breaking hard rock material (nominal allowance)	m3	\$ 30.00	4,800	\$ 144,000	3,100	\$ 93,000	-	\$ -	\$ 237,000
3.1.3	Win from borrow, load, haul, spread, condition and compact Zone A material in cutoff trench	m3	\$ 6.67	52,200	\$ 348,174	33,500	\$ 223,445	-	\$ -	\$ 571,619
3.1.4	Scarify, condition and compact suitable in situ subgrade (200 mm depth) within embankment footprint area	m2	\$ 0.60	213,000	\$ 127,800	571,000	\$ 342,600	-	\$ -	\$ 470,400
3.1.5	Win from borrow, load, haul, spread, condition and compact Zone C material in embankment (MINE FLEET)	m3	\$ 3.00	871,000	\$ 2,613,000	7,781,000	\$ 23,343,000	-	\$ -	\$ 25,956,000
3.1.6	Win from borrow, load, haul, spread, condition and compact Zone A material in embankment	m3	\$ 6.67	215,000	\$ 1,434,050	596,000	\$ 3,975,320	-	\$ -	\$ 5,409,370
3.1.7	Win from stockpile, load, haul, place and spread Zone F1 drainage medium in chimney and blanket drain	m3	\$ 6.50	28,000	\$ 182,000	-	\$ -	-	\$ -	\$ 182,000
3.1.8	Win from borrow, load, haul, place, spread, condition and compact wearing course on embankment crest	m3	\$ 8.31	5,900	\$ 49,029	92,300	\$ 767,013	-	\$ -	\$ 816,042
3.1.9	Win from borrow or stockpile, load, haul, place, spread and shape Zone D safety bund on embankment crest	m3	\$ 3.50	1,500	\$ 5,250	23,100	\$ 80,850	-	\$ -	\$ 86,100
3.1.10	Remove wearing course and safety bund from embankment, haul to stockpile	m3	\$ 4.00	-	\$ -	115,400	\$ 461,600	12,822	\$ 51,289	\$ 512,889
	<i>Sub Total</i>				\$ 5,045,503		\$ 29,378,028		\$ 51,289	\$ 34,474,820
4	BASIN LINER CONSTRUCTION									
4.1	Low Permeability Liner									
4.1.1	Scarify, condition and compact suitable in situ subgrade (200mm depth) as low permeability soil liner (where suitable)	m2	\$ 0.60	919,000	\$ 551,400	419,000	\$ 251,400	-	\$ -	\$ 802,800
4.1.2	Prepare in-situ subgrade for imported low permeability soil liner (200mm depth)	m2	\$ 0.25	424,000	\$ 106,000	180,000	\$ 45,000	-	\$ -	\$ 151,000
4.1.3	Win from borrow, load, haul, spread, condition and compact Zone A material (300 mm depth) as low permeability soil liner (where in situ soils unsuitable)	m3	\$ 6.64	128,000	\$ 849,920	54,000	\$ 358,560	-	\$ -	\$ 1,208,480
	<i>Sub Total</i>				\$ 1,507,320		\$ 654,960		\$ -	\$ 2,162,280
5	UNDERDRAINAGE RETURN									
5.1	Upstream Toe Drain									
5.1.1	Supply and install A14 Bidim geotextile inner cover in upstream toe drain	m2	\$ 3.45	19,800	\$ 68,310	12,700	\$ 43,815	-	\$ -	\$ 112,125
5.1.2	Supply and install Textel 600R non-woven geotextile outer cover in upstream toe drain	m2	\$ 3.45	19,800	\$ 68,310	12,700	\$ 43,815	-	\$ -	\$ 112,125
5.1.3	Supply and install 160mm draincoil with all tees, bends and jointing complete in toe drain	lin m	\$ 16.44	3,949	\$ 64,922	2,526	\$ 41,527	-	\$ -	\$ 106,449
5.1.4	Win from stockpile, load, haul, place and spread Zone F1 drainage medium in toe drain	m3	\$ 6.50	4,000	\$ 26,000	2,600	\$ 16,900	-	\$ -	\$ 42,900
5.2	Downstream Toe Drain									
5.2.1	Supply and install 160mm draincoil with all tees, bends and jointing complete in toe drain	lin m	\$ 16.44	4,107	\$ 67,519	2,929	\$ 48,153	-	\$ -	\$ 115,672
5.2.2	Win from stockpile, load, haul, place and spread Zone F1 drainage medium in toe drain	m3	\$ 6.50	4,200	\$ 27,300	3,000	\$ 19,500	-	\$ -	\$ 46,800
5.2.3	Win from supplied stockpile, load, haul, place and spread Zone E erosion protection in toe drain	m3	\$ 6.50	3,100	\$ 20,150	2,200	\$ 14,300	-	\$ -	\$ 34,450
5.3	Seepage Collection Sump									
5.3.1	Excavate downstream seepage collection outflow trench, haul to stockpile	m3	\$ 3.00	700	\$ 2,100	-	\$ -	-	\$ -	\$ 2,100
5.3.2	Win from stockpile, load, haul, place and spread Zone F1 bedding material in base of outflow trench	m3	\$ 6.50	10	\$ 65	-	\$ -	-	\$ -	\$ 65
5.3.3	Supply and install 160mm solid HDPE pipe with all tees, bends and jointing complete in outflow trench	lin m	\$ 16.44	490	\$ 8,056	-	\$ -	-	\$ -	\$ 8,056
5.3.4	Backfill downstream seepage collection outflow trench with Zone D material	m3	\$ 3.00	700	\$ 2,100	-	\$ -	-	\$ -	\$ 2,100
5.3.5	Excavate downstream seepage collection sump, haul to stockpile	m3	\$ 3.00	25	\$ 75	-	\$ -	-	\$ -	\$ 75
5.3.6	Supply and install 25MPa reinforced concrete tower base for seepage collection sump	lin m	\$ 6,500.00	3	\$ 19,500	-	\$ -	-	\$ -	\$ 19,500
5.3.7	Supply and install 1200mm diameter slotted concrete pipe for seepage collection sump	lin m	\$ 4,189.00	6	\$ 25,134	-	\$ -	-	\$ -	\$ 25,134
5.3.8	Backfill downstream seepage collection sump with Zone A material	m3	\$ 3.00	25	\$ 75	-	\$ -	-	\$ -	\$ 75
5.4	Finger Drain									
5.4.1	Supply and install 100mm draincoil groundwater drain, with all tees, bends and joints complete (including filter sock), in finger drain	lin m	\$ 7.44	23,505	\$ 174,874	-	\$ -	-	\$ -	\$ 174,874
5.4.2	Win from supplied stockpile, load, haul, place and spread Zone F1 drainage medium in central groundwater drain	m3	\$ 6.50	2,200	\$ 14,300	-	\$ -	-	\$ -	\$ 14,300
5.4.3	Supply and install A14 Bidim geotextile inner wrap in finger drains (including smooth HDPE erosion protection sheet)	m2	\$ 3.45	34,100	\$ 117,645	-	\$ -	-	\$ -	\$ 117,645
5.4.4	Supply and install Textel 600R non-woven geotextile outer cover in finger drains	m2	\$ 3.45	34,100	\$ 117,645	-	\$ -	-	\$ -	\$ 117,645
5.5	Collector drain									
5.5.1	Excavate and shape collector drains and channel, haul to stockpile	m3	\$ 3.00	13,100	\$ 39,300	21,400	\$ 64,200	-	\$ -	\$ 103,500
5.5.2	Supply and install 100mm draincoil with all tees, bends and joints complete and geotextile wrapped, in collector drain	lin m	\$ 16.44	3,949	\$ 64,916	6,474	\$ 106,433	-	\$ -	\$ 171,349
5.5.3	Supply and install A14 Bidim geotextile inner cover in collector drain	m2	\$ 3.45	39,000	\$ 134,550	63,900	\$ 220,455	-	\$ -	\$ 355,005
5.5.4	Supply and install Textel 600R non-woven geotextile outer cover in collector drain	m2	\$ 3.45	39,000	\$ 134,550	63,900	\$ 220,455	-	\$ -	\$ 355,005
5.5.5	Win from supplied stockpile, load, haul, place and spread Zone F1 drainage medium in collector drain	m3	\$ 6.50	1,900	\$ 12,350	3,200	\$ 20,800	-	\$ -	\$ 33,150
5.6	Underdrainage Collection Sump and Riser Pipe									
5.6.1	Excavate and shape underdrainage collection sump, haul to stockpile	m3	\$ 3.00	900	\$ 2,700	-	\$ -	-	\$ -	\$ 2,700
5.6.2	Extra over for breaking hard rock material (nominal allowance)	m3	\$ 30.00	90	\$ 2,700	-	\$ -	-	\$ -	\$ 2,700
5.6.3	Supply 630 mm diameter HDPE underdrainage riser pipe (slotted), including all fittings	Lin m	\$ 150.00	133	\$ 19,950	58	\$ 8,700	-	\$ -	\$ 28,650
5.6.4	Supply 630 mm diameter HDPE underdrainage riser pipe (solid), including all fittings	Lin m	\$ 150.00	18	\$ 2,700	-	\$ -	-	\$ -	\$ 2,700
5.6.5	Win from supplied stockpile, load, haul, place and spread Zone F1 drainage medium in underdrainage collection sump	m3	\$ 6.50	300	\$ 1,950	-	\$ -	-	\$ -	\$ 1,950
5.6.6	Win from supplied stockpile, load, haul, place and spread Zone F2 drainage medium in underdrainage collection sump	m3	\$ 6.50	600	\$ 3,900	-	\$ -	-	\$ -	\$ 3,900
5.6.7	Supply and install A14 Bidim geotextile in underdrainage sump	m2	\$ 3.45	2,400	\$ 8,280	-	\$ -	-	\$ -	\$ 8,280
5.6.8	Install HDPE wear sheet beneath underdrainage riser pipe	m2	\$ 8.00	133	\$ 1,064	58	\$ 464	-	\$ -	\$ 1,528
5.6.9	Supply and install concrete filled Solid HDPE ballast pipes including 316 stainless steel plate straps (1000mm c/c)	m3	\$ 285.00	266	\$ 75,810	116	\$ 33,060	-	\$ -	\$ 108,870
5.6.10	Supply and install submersible underdrainage pump (and associated infrastructure)	Item	By Others	3	\$ -	-	\$ -	-	\$ -	\$ -
	<i>Sub Total</i>				\$ 1,328,799		\$ 902,577		\$ -	\$ 2,231,377
6	TURRET SYSTEM									
6.1	Turret Inlet Channel									
6.1.1	Excavate decant turret trench, haul and place in Zone C of causeway or designated stockpile	m3	\$ 3.00	27,000	\$ 81,000	8,000	\$ 24,000	-	\$ -	\$ 105,000
6.1.2	Extra over for breaking hard rock material (nominal allowance)	m3	\$ 30.00	1,400	\$ 42,000	400	\$ 12,000	-	\$ -	\$ 54,000
6.2	Turret Causeway									
6.2.1	Supply and Install Turret (and associated infrastructure)	Item	By Others	1	\$ -	-	\$ -	-	\$ -	\$ -
6.2.2	Supply and install pump (and associated infrastructure)	Item	By Others	1	\$ -	-	\$ -	-	\$ -	\$ -
6.2.3	Relocate existing pump along causeway	Item	By Others	5	\$ -	9	\$ -	-	\$ -	\$ -
6.2.4	Win from borrow or stockpile, load, haul, place, spread, condition and compact Zone C material (MINE FLEET)	m3	\$ 4.50	-	\$ -	-	\$ -	-	\$ -	\$ -
6.2.5	Win from borrow or stockpile, haul, place, spread, condition and compact wearing course along access road and bunded corridor	m3	\$ 8.31	2,100	\$ 17,451	400	\$ 3,324	-	\$ -	\$ 20,775
6.2.6	Win from supplied stockpile, load, haul, place and spread Zone E erosion protection over inlet trench and causeway batters	m3	\$ 7.65	10,600	\$ 81,090	2,000	\$ 15,300	-	\$ -	\$ 96,390
6.2.7	Win from borrow or stockpile, haul and place Zone D safety bund along access road	m3	\$ 3.50	700	\$ 2,450	200	\$ 700	-	\$ -	\$ 3,150
	<i>Sub Total</i>				\$ 223,991		\$ 55,324		\$ -	\$ 279,315
7	EMERGENCY SPILLWAY									
7.1	Spillway									
7.1.1	Clear and grub, emergency spillway haul to designated stockpile	m2	\$ 0.13	4,000	\$ 500	37,929	\$ 4,741	15,265	\$ 1,908	\$ 7,149
7.1.2	Strip topsoil from emergency spillway to 150mm depth, haul to designated stockpiles	m3	\$ 1.36	800	\$ 1,088	7,600	\$ 10,336	3,100	\$ 4,216	\$ 15,640
7.1.3	Excavate and shape emergency spillway, haul and place in Zone C of embankment or designated stockpile	m3	\$ 3.00	3,800	\$ 11,400	40,800	\$ 122,400	62,300	\$ 186,900	\$ 320,700
7.1.4	Scarify, condition and compact base of spillway channel (200 mm depth)	m2	\$ 0.60	2,900	\$ 1,740	30,900	\$ 18,540	8,100	\$ 4,860	\$ 25,140
7.1.5	Win from supplied stockpile, load, haul, place and spread Zone E erosion protection to spillway channel	m3	\$ 6.50	1,100	\$ 7,150	11,400	\$ 74,100	4,600	\$ 29,900	\$ 111,150
	<i>Sub Total</i>				\$ 21,878		\$ 230,117		\$ 227,784	\$ 479,779
8	TAILINGS & DECANT PIPELINE									

Item	Description	Unit	Rate	Stage 1		Stage 2+		Closure		Total
				Quantity	Cost	Quantity	Cost	Quantity	Cost	Cost
9	MONITORING & INSTRUMENTATION									
9.1	Instrumentation									
9.1.1	Install survey pins complete in TSF embankments	Item	\$ 500.00	14	\$ 7,000	205	\$ 102,500	-	\$ -	\$ 109,500
9.1.2	Install standpipe piezometers complete in TSF embankments	Item	\$ 1,500.00	16	\$ 24,000	246	\$ 369,000	-	\$ -	\$ 393,000
9.1.3	Decommission standpipe piezometers on previous TSF embankment raise	Item	\$ 1,000.00	-	\$ -	246	\$ 246,000	27	\$ 27,333	\$ 273,333
9.1.4	Install monitoring bores complete (shallow)	Item	\$ 5,000.00	5	\$ 25,000	-	\$ -	-	\$ -	\$ 25,000
9.1.5	Install monitoring bores complete (deeph)	Item	\$ 15,000.00	5	\$ 75,000	-	\$ -	-	\$ -	\$ 75,000
	<i>Sub Total</i>				\$ 131,000		\$ 717,500		\$ 27,333	\$ 875,833
10	TSF REHABILITATION									
10.1	Tailings Cap									
10.1.1	Reshape and cut to fill capping surface	m2	\$ 0.60	-	\$ -	-	\$ -	176,000	\$ 105,600	\$ 105,600
10.1.2	Win from adjacent wastedump, load, haul, place, spread, condition and compact Zone C fill over tailings surface (500mm) as Capillary break	m3	\$ 3.00	-	\$ -	-	\$ -	878,000	\$ 2,634,000	\$ 2,634,000
10.1.3	Win from borrow, load, haul, place, spread, condition and compact Zone A low permeability fill over tailings surface (300mm)	m3	\$ 6.67	-	\$ -	-	\$ -	527,000	\$ 3,515,090	\$ 3,515,090
10.2	Rehabilitation									
10.2.1	Win from stockpile, load, haul, place and spread topsoil over tailings surface (200mm)	m3	\$ 6.50	-	\$ -	-	\$ -	351,000	\$ 2,281,500	\$ 2,281,500
10.2.2	Win from stockpile, load, haul, place and spread topsoil along embankment downstream slope (200mm)	m3	\$ 6.50	-	\$ -	-	\$ -	95,000	\$ 617,500	\$ 617,500
10.2.3	Revegetate tailings surface and embankment downstream slope, including hydroseeding, hand seeding, labour, etc	m2	\$ 1.00	-	\$ -	-	\$ -	474,000	\$ 474,000	\$ 474,000
	<i>Sub Total</i>				\$ -		\$ -		\$ 9,627,690	\$ 9,627,690
11	SUMMARY									
1	PRELIMINARY AND GENERAL COSTS				\$ 7,545,869		\$ 19,005,510		\$ 5,410,659	\$ 31,962,038
2	TSF SITE PREPARATION				\$ 1,840,879		\$ 1,311,055		\$ 114,271	\$ 3,266,205
3	TSF EMBANKMENT CONSTRUCTION				\$ 5,045,503		\$ 29,378,028		\$ 51,289	\$ 34,474,820
4	BASIN LINER CONSTRUCTION				\$ 1,507,320		\$ 654,960		\$ -	\$ 2,162,280
5	UNDERDRAINAGE RETURN				\$ 1,328,799		\$ 902,577		\$ -	\$ 2,231,377
6	TURRET SYSTEM				\$ 223,991		\$ 55,324		\$ -	\$ 279,315
7	EMERGENCY SPILLWAY				\$ 21,878		\$ 230,117		\$ 227,784	\$ 479,779
8	TAILINGS & DECANT PIPELINE				\$ 3,914,386		\$ 2,046,387		\$ -	\$ 5,960,772
9	MONITORING & INSTRUMENTATION				\$ 131,000		\$ 717,500		\$ 27,333	\$ 875,833
10	TSF REHABILITATION				\$ -		\$ -		\$ 9,627,690	\$ 9,627,690
	Total				\$ 21,559,625		\$ 54,301,458		\$ 15,459,027	\$ 91,320,110