THEMBISILE HANI LOCAL MUNICIPALITY

UPGRADING OF TWEEFONTEIN K WASTE WATER TREATMENT WORKS (WWTW) PHASE 3 (RE-ADVERT)

CONTRACT NO.: THLM/SCM34/2023-2024/WS09

BILL OF QUANTITIES

BILL A: PRELIMINARY & GENERAL

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
1			**SCHEDULE 1 - PRELIMINARY & GENERAL**				
1.1			FIXED-CHARGE ITEMS				
1.1.1	A8.3.1		Contractual requirements The sum shall cover the Contractor's initial costs of providing sureties, insurance of the Works and plant, third party or public liability insurance and unemployment insurance to cover his compliance with the requirements of the Workmen's Compensation Act and any other initial financing obligations of a preliminary and general nature	sum	1.00		
1.1.2	8.3.2		Establish facilities on site				
1.1.2.1			Provide, maintain and furnish one air-conditioned office for the use of the Engineer. The office shall consist of one room with a floor area of 30m2, and shall be used as a venue for all site meetings throughout the contract period. Contractor to provide 2x tables and 12 chairs.	sum	1.00		
1.1.2.2			Name boards as detailed by specialist	no	2.00		
1.1.2.3			Survey Assistant and equipment	sum	1.00		
1.1.3	8.3.2.2		Facilities for Contractor				
1.1.3.1			Office and storage sheds	sum	1.00		
1.1.3.2			Living accommodation	sum	1.00		
1.1.3.3			Ablution facilities	sum	1.00		
1.1.3.4			Tools and equipment	sum	1.00		
1.1.3.5			Water, electricity power and communication	sum	1.00		
1.1.3.6			Dealing with water	sum	2.00		
1.1.3.7			Facilities for the Engineer	P.Sum	1.00	150,000.00	150,000.00
1.1.3.8	8.3.3		Other fixed-charge obligations The sum shall cover the fixed costs of all other obligations that are required for the proper execution of the Works in accordance with the requirements of the specification and the conditions of contract, and that are not specifically covered in SABS 1200 A: 8.3.1, 8.3.2 or 8.3.4	sum	1.00		
1.1.3.9	8.3.4		Remove Contractor's site establishment on completion The sum shall cover the cost of the demolition on and the removal from the surface of the Site of all items established in terms of SABS 1200 A: 8.3.2 and 8.3.3, and shall provide for the making good and the restoring of the Site to the satisfaction of the Engineer	sum	1.00		
1.1.3.9			Survey-ground control	sum	1.00		
1.1.3.10			Cutting of Vegetation (Grass) to 50mm length (max). And removal of noxious weeds and vegetation Site Wide	sum	2.00		
1.1.3.11	Constr Reg 2003		OCCUPATIONAL HEALTH AND SAFETY Adherence to Occupational Health and Safety Act, 1993 (Act 85 of 1993) and Construction Regulation, 2003, 2015 & 2020. See OHS specifications and requirements.	sum	1.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
1			SCHEDULE 1 - PRELIMINARY & GENERAL				
1.2			TIME RELATED ITEMS				
1.2.1	8.4.1		Contractual requirements	sum	1.00		
1.2.2	8.4.2		Operate and maintain facilities on site for the Contractor	sum	1.00		
1.2.3	8.4.2		Operate and maintain facilities on site for the Engineer	P.Sum	1.00	100,000.00	100,000.00
1.2.4	8.4.3		Supervision	sum	1.00		
1.2.5	8.4.4		Company and head office overhead cost for the duration of the contract	sum	1.00		
1.2.5	8.4.5		Other time related items	sum	1.00		
1.3	8.5		SUMS STATED PROVISIONALLY BY ENGINEER				
1.3.1			Training and capacity building	PC sum	1.00	500,000.00	500,000.00
1.3.2			Community involvement, CLO	PC sum	18.00	12,000.00	216,000.00
1.3.3			Student Training	PC sum	18.00	12,500.00	225,000.00
1.3.4			Provide a sum of R 700 000.00 for the engineer for (but not limited to) dayworks by the Contractor, material & compaction testing by the Engineer	PC Sum	1.00	700,000.00	700,000.00
1.3.5			Provide a sum of R 1000.00 per month for telephone cost for the Engineer	month	18.00	1,000.00	18,000.00
1.3.6			PC item for modification to connect to existing structures	PC sum	1.00	250,000.00	250,000.00
1.3.7			PC item for the survey & plotting of existing services with ground penetrating radar technology	PC sum	1.00	100,000.00	100,000.00
1.3.8			PC item for rerouting of existing services.	PC sum	1.00	75,000.00	75,000.00
1.3.8	8.8.6		PC item for Special Water Control for abnormal circumstances	PC sum	1.00	100,000.00	100,000.00
1.4	Constr Reg 2003		OCCUPATIONAL HEALTH AND SAFETY Adherence to Occupational Health and Safety Act, 1993 (Act 85 of 1993) and Construction Regulation, 2003, 2015 & 2020. See OHS specifications and requirements.	sum	1.00		
			TOTAL CARRIED TO SUMMARY PAGE				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
2			**SCHEDULE 2 - INLET WORKS**				
2.1	DA D8..2.1		EARTHWORKS Measurements will be to finished shapes, sections and profiles as shown on drawings or ordered, and no excavation and no embankment formed outside the specified lines and levels will be included in the measurements unless such extra work has been done on the written instructions of the Engineer				
	8..2.2		Except where earthworks are carried out to simple geometric shapes, the volumes of material handled will be computed from cross-sections at suitable intervals by the method of average end areas The free haul distance for the project will be 3km				
2.1.1	DA8.3.2		Restricted Excavations Excavate in all materials (including 2.5m workspace & min 600mm under structure) The rate shall cover the cost of excavation, basic selection, loading, transportation within free haul distance, offloading, spreading or backfilling, watering, compacting, final grading, complying with the requirements for tolerances, providing for testing, and disposal of spoil, all in accordance with the requirements of the specification	m^3	1398.00		
2.1.2	DB8.3.2b.2		Extra Over 3.1.1 for hard rock excavation. Rate shall incl for blasting, mechanical breakers or any other means as decided by Contractor. Quantities to be measured and recorded in the site instruction for payment certificates, by the Engineer's representative. Item shall cover the disposal of rock material	m^3	840.00		
2.1.3	D-8.3.4		Importing of materials Importation of G5 or better materials from commercial or own sources. The rate for importing from commercial or own sources by the Contractor shall cover the cost of royalties and acquiring suitable material, including loading, transportation, offloading at the point of placing	m^3	1290.00		
2.1.4	D-8.3.4		Selected layerwork Construct 4x 150mm layers for soil raft below all structures, with imported material. Compaction to 95 % of MOD AASHTO dry density at optimum moisture content, in max 150mm thick layers The rate shall cover the cost of transporting, preparing, processing, shaping, watering, mixing, compacting to the densities and finishing as specified	m^3	187.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
2			**SCHEDULE 2 - INLET WORKS**				
2.1.5	DB-8.3.2.a		Bulk backfill of workspace around structures with stock piled bulk excavation material. Compaction to 93% MOD AASHTO dry density or as instructed by the Engineer	m^3	1117.50		
2.1.6			Shore deep excavation opposite structure	m^2	290.00		
2.1.7	DM7.2		Provide sum for the testing of the compaction of every 300mm deep constructed building platform layerwork. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 DM 7.2 (min 4 tests per 2000m^2 of every 2nd layer placed).	sum	1.00		
2.1.8			SUB-SOIL DRAINAGE				
2.1.8.1			Restricted hand excavation & disposal of excavated material of 400x400 sub-soil drainage trenches	m^3	33.00		
2.1.8.2			Supply & install A4 bidim material	m^2	1590.00		
2.1.8.3			Supply, deliver & install 150 dia geopipe sub-soil drainage pipes to the suppliers spesifications	m	205.00		
2.1.8.4			Supply, deliver & place 19mm dia stone around the geopipe	m^3	30.00		
2.2	G		CONCRETE (STRUCTURAL) All concrete shall be Class 25/19 & 35/19 as specified or better at 28 day compressive strength testing. All concrete work shall comply with SABS 0100-2, SABS 1200:G specifications and best concrete practices Concrete rates shall include for all placing and/or pumping equipment required for the placing of concrete				
2.2.1	8.2		FORMWORK All inclusive rates for the complete supply, fix, support & protects all formwork				
2.2.1.1	8.2.2		Smooth - straight, vertical for foundations & steps max 1000mm high	m	100.00		
2.2.1.2	8.2.2		Smooth - straight, vertical walls	m^2	806.00		
2.2.1.3	8.2.2		Smooth - circular, vertical for pista walls	m^2			
2.2.1.4	8.2.2		Horizontal shuttering & formwork for suspended floors	m^2	53.00		
	8.2.6		Box out holes / Form voids and pockets				
2.2.1.5			a) Square 1.5m x 1.5m recesses in walls	no	2.00		
2.2.1.6			b) Small, circular, of diameter up to and including 0.5m	no	5.00		
2.2.1.7			c) Small, circular, of diameter up to and including 0.8m	no	2.00		
2.2.1.8			Supply, deliver & install 20x20mm chamfers for all exposed concrete edges	m	285.00		
2.2.1.9			Supply, deliver & install all labour, material,& equipment to form 200x80mm sluice recesses	m	83.00		
2.2.1.10			Allow a sum to ensure that all horizontal weir overflow discharge points (formwork & concrete final level), comply with a PD Class I degree of accuracy (max 3mm)	sum	1.00		
2.2.2	8.3		REINFORCEMENT Supply, cut, splice and fix high tensile reinforcing as per applicable bending schedule				
2.2.2.1	8.3.1		Mild steel bars	kg	1120.00		
2.2.2.2	8.3.1		High tensile steel bars	kg	16819.00		
2.2.2.3			Supply, place and fix concrete cover blocks (concrete or commercial plastic type) to ensure the required concrete cover to reinforcing.	sum	1.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
2			SCHEDULE 2 - INLET WORKS				
			TOTAL BROUGHT FORWARD				
2.2.3	8.4		STRENGTH CONCRETE Refer to concrete specifications & requirements on plans				
2.2.3.1	8.4.3		Class 15/19 fibre reinforced concrete in blinding layers	m^3	14.00		
2.2.3.2			Class 25/19 fibre reinforced concrete for benching	m^3	23.00		
2.2.3.3			Class 35/19 fibre reinforced concrete	m^3	158.00		
2.2.3.4			No-fines layer	m^3	14.00		
2.2.3.5			Extra over for the supply & mix of cementitious crystalline additive with non-toxic tracing agent, dosed at 0,8% by weight of total binder content, with 20-year warranty to manufacturers specification for all 35MPa concrete for liquid retaining structures (Penetron admix or similar)	sum	1.00		
2.2.3.6			Supply, deliver & install controlled swellable waterbar to prepared and primed surface with 20-year warranty as per manufacturers specifications (Penebar SW55 or similar)	m	351.00		
2.2.3.7			Supply, deliver & install 230mm central bulb waterbar type waterstops for walls, as required by the engineer	m	120.00		
2.2.3.8			Supply, deliver & install expansion type waterstops min 250mm wide for floors, as required by the engineer	m	120.00		
2.2.3.9			Provide a provisional sum for the consulation & submission of crystalline admixture specification with specialist service providers	prov sum	1.00	3,500.00	3,500.00
2.2.3.10			Provide a sum for the provisional consulation & submission of water stop & bar installation plans and specifications	prov sum	1.00	4,500.00	4,500.00
2.2.3.11			Supply, deliver & install filter fabric (Bidum A4 or similar)	m^2	140.00		
2.2.3.12			Supply, deliver & install 250 micron plastic sheeting on NFC	m^2	140.00		
2.2.3.13			Allow a rate for cube testing of concrete delivered on site. Min one (1) test per $12m^2$ concrete delivered Cubes shall be taken on-site in the prescribed procedure Each test shall consist of 6 cubes, to be tested at 7 and 28 days respectively	sum	1.00		
2.2.4	8.4.4		UNFORMED SURFACE FINISHES				
2.2.4.1			Wood float finish	m^2	67.00		
2.2.4.2			Steel trowelled finish	m^2	75.00		
2.2.4.3			Benching (concrete measure elsewhere)	m^2	90.00		
2.2.5			GROUTING All HDG mild steel pipes to be cast into structures will be supplied by the M&E contractor. Setting the following pipes or fittings into or through concrete work, incl. for formwork around the pipes and fixing the pipes to the designated lines and levels using ABE Durated expansive cementitious grout (pipes measured elsewhere):				
2.2.5.1			Grout in sluice gate recesses (each ave 3.2m deep recess)	no	20.00		
2.2.5.2			Grout in pipes / specials of diameter up to and including 0.5m	no	5.00		
2.2.5.3			Grout in pipes / specials of diameter up to and including 0.8m	no	5.00		
2.2.5.4			Grout in Venturi Flume supplied by others	no	1.00		
2.3			MISCELLANEOUS #001				
2.3.1			Supply and cast in cable ducting 80mmØ uPVC class 12 pipe into floor slab	m	60.00		
2.3.2			Penstocks	no	10.00		
2.3.3			Supply, handle and install/construct ground pressure relieve valve as detailed	no	6.00		
2.3.4			Supply and install 9kg dry chemical fire extinguishers	each	4.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
2			SCHEDULE 2 - INLET WORKS				
			TOTAL BROUGHT FORWARD				
2.4	8.3.2		HANDRAILING & STAIRCASE				
2.4.1			Supply and install Fibergrate handrails complete	m	30.00		
2.4.2			Supply and install Fibergrate stairs complete	no	14.00		
2.4.3			Provide a sum for the design & shop drawings of the Fibergrate stairs complete	prov sum	1.00	5,000.00	5,000.00
2.4.4	8.3.2(a)1		Fibergrate trench covers complete, including supports	m^2	10.00		
			TOTAL CARRIED TO SUMMARY PAGE				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
3			**SCHEDULE 3 - SECONDARY SETTLER TANK 1**				
3.1	DA D8..2.1		EARTHWORKS Measurements will be to finished shapes, sections and profiles as shown on drawings or ordered, and no excavation and no embankment formed outside the specified lines and levels will be included in the measurements unless such extra work has been done on the written instructions of the Engineer				
	8..2.2		Except where earthworks are carried out to simple geometric shapes, the volumes of material handled will be computed from cross-sections at suitable intervals by the method of average end areas The free haul distance for the project will be 3km				
3.1.1	DA8.3.2		Restricted Excavations Excavate in all materials (including 2.5m workspace & min 600mm under structure) The rate shall cover the cost of excavation, basic selection, loading, transportation within free haul distance, offloading, spreading or backfilling, watering, compacting, final grading, complying with the requirements for tolerances, providing for testing, and disposal of spoil, all in accordance with the requirements of the specification	m^3	4228.50		
3.1.2	DB8.3.2b.2		Extra Over 3.1.1 for hard rock excavation. Rate shall incl for blasting, mechanical breakers or any other means as decided by Contractor. Quantities to be measured and recorded in the site instruction for payment certificates, by the Engineer's representative. Item shall cover the disposal of rock material	m^3	2917.50		
3.1.3	D-8.3.4		Importing of materials Importation of G5 or better materials from commercial or own sources. The rate for importing from commercial or own sources by the Contractor shall cover the cost of royalties and acquiring suitable material, including loading, transportation, offloading at the point of placing	m^3	5710.50		
3.1.4	D-8.3.4		Selected layerwork Construct 4x 150mm layers for soil raft below all structures, with imported material. Compaction to 95 % of MOD AASHTO dry density at optimum moisture content, in max 150mm thick layers The rate shall cover the cost of transporting, preparing, processing, shaping, watering, mixing, compacting to the densities and finishing as specified	m^3	1365.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
3			SCHEDULE 3 - SECONDARY SETTLER TANK 1				
			TOTAL BROUGHT FORWARD				
3.1.5	DB-8.3.2.a		Bulk backfill of workspace around structures with stock piled bulk excavation material. Compaction to 93% MOD AASHTO dry density or as instructed by the Engineer	m^3	2508.00		
3.1.6			Shore deep excavation opposite structure	m^2	788.00		
3.1.7	DM7.2		Provide sum for the testing of the compaction of every 300mm deep constructed building platform layerwork. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 DM 7.2 (min 4 tests per 2000m^2 of every 2nd layer placed).	sum	1.00		
3.1.8			SUB-SOIL DRAINAGE				
3.1.8.1			Restricted hand excavation & disposal of excavated material of 400x400 sub-soil drainage trenches	m^3	68.00		
3.1.8.2			Supply & install A4 bidim material	m^2	2253.00		
3.1.8.3			Supply, deliver & install 150 dia geopipe sub-soil drainage pipes to the suppliers spesifications	m	426.00		
3.1.8.4			Supply, deliver & place 19mm dia stone around the geopipe	m^3	71.00		
3.2	G		CONCRETE (STRUCTURAL) All concrete shall be Class 25/19 & 35/19 as specified or better at 28 day compressive strength testing. All concrete work shall comply with SABS 0100-2, SABS 1200:G specifications and best concrete practices Concrete rates shall include for all placing and/or pumping equipment required for the placing of concrete				
3.2.1	8.2		FORMWORK All inclusive rates for the complete supply, fix, support & protects all formwork				
3.2.1.1	8.2.2		Rough - vertical for foundations, max 500mm high Smooth - vertical, circular :	m	145.00		
3.2.1.2			a. Radiussed to 8.550m to outer edge of wall	m^2	286.00		
3.2.1.3			b. Radiussed to 8.2m to inner edge of wall	m^2	276.00		
3.2.1.4			c. Radiussed to 1.75m to central column foundation, max 500 high	m	13.00		
3.2.1.5			d. Radiussed to 0.4m to centre column outside	m^2	9.00		
3.2.1.6			e. Radiussed to 1.75m to outer face of sludge channel on central foundation	m^2	8.00		
3.2.1.7			f. Radiussed to 1.5m to inner face of sludge channel on central foundation	m^2	7.00		
3.2.1.8			g. Radiussed to 7.850m to outer face of overflow weir wall of launder	m^2	21.00		
3.2.1.9			h. Radiussed to 7.70m to inner face of overflow weir wall of launder	m^2	31.00		
3.2.1.10			i. Form a 70x70 overflow chamfer radiussed to 7.850m to outside face of overflow weir wall of launder	m	60.00		
3.2.1.11	8.2.5		Smooth horizontal to soffits of slabs for launder channel, incl 1m wider for working space	m^2	90.00		
3.2.1.12	8.2.2		Smooth, straight vertical 200mm high to floor panels	m^2	12.00		
3.2.1.13	8.2.6		Box out holes/ form voids & pockets for flanged puddle pipes (supplied by others) up to & including 500mm dia	no	6.00		
3.2.1.14			Supply, deliver & install 20x20mm chamfers for all exposed concrete edges	m	248.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
3			SCHEDULE 3 - SECONDARY SETTLER TANK 1				
			TOTAL BROUGHT FORWARD				
3.2.2	8.3		REINFORCEMENT Supply, cut, splice and fix high tensile reinforcing as per applicable bending schedule				
3.2.2.1	8.3.1		Mild steel bars	kg	1500.00		
3.2.2.2	8.3.1		High tensile steel bars	kg	43522.00		
3.2.2.3			Supply, place and fix concrete cover blocks (concrete or commercial plastic type) to ensure the required concrete cover to reinforcing.	sum	1.00		
3.2.3	8.4		STRENGTH CONCRETE Refer to concrete specifications & requirements on plans				
3.2.3.1	8.4.3		Class 15/19 fibre reinforced concrete in blinding layers	m^3	28.00		
3.2.3.2	8.4.3		Class 15/19 fibre reinforced concrete as casing to inlet and outlet pipes	m^3	18.00		
3.2.3.3			Class 25/19 fibre reinforced concrete	m^3	12.00		
			Class 35/19 fibre reinforced concrete:				
3.2.3.4			a. in wall foundation	m^3	49.00		
3.2.3.5			b. in wall	m^3	94.00		
3.2.3.6			c. in centre column foundation	m^3	5.00		
3.2.3.7			d. in centre column	m^3	2.50		
3.2.3.8			e. in centre sludge channel wall	m^3	4.50		
3.2.3.9			f. in weir wall of launder	m^3	4.50		
3.2.3.10			g. in weir slab of launder	m^3	6.00		
3.2.3.11			h. in floor panels	m^3	82.00		
3.2.3.12			i. in effluent outlet chamber	m^3	1.50		
3.2.3.13			No-fines layer	m^3	60.00		
			Concrete screeds				
3.2.3.14			a. Average 40mm thick x 350mm wide in overflow channel	m^3	1.00		
3.2.3.15			b. Average 80mm thick in sludge draw off channel	m^3	4.50		
3.2.3.16			Extra over for the supply & mix of cementitious crystalline additive with non-toxic tracing agent, dosed at 0,8% by weight of total binder content, with 20-year warranty to manufacturers specification for all 35MPa concrete for liquid retaining structures (Penetron admix or similar)	sum	1.00		
3.2.3.17			Supply, deliver & install controlled swellable waterbar to prepared and primed surface with 20-year warranty as per manufacturers specifications (Penebar SW55 or similar)	m	330.00		
3.2.3.18			Supply, deliver & install 230mm central bulb waterbar type waterstops for walls, as required by the engineer	m	270.00		
3.2.3.19			Supply, deliver & install expansion type waterstops min 250mm wide for floors, as required by the engineer	m	80.00		
3.2.3.20			Provide a provisional sum for the consulation & submission of crystalline admixture specification with specialist service providers	prov sum	1.00	4,500.00	4,500.00
3.2.3.21			Provide a sum for the provisional consulation & submission of water stop & bar installation plans and specifications	prov sum	1.00	6,000.00	6,000.00
3.2.3.22			Supply, deliver & install filter fabric (Bidum A4 or similar)	m^2	440.00		
3.2.3.23			Supply, deliver & install 250 micron plastic sheeting on NFC	m^2	440.00		
3.2.3.24			Allow a rate for cube testing of concrete delivered on site. Min one (1) test per 12m^2 concrete delivered Cubes shall be taken on-site in the prescribed procedure Each test shall consist of 6 cubes, to be tested at 7 and 28 days respectively	sum	1.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
3			SCHEDULE 3 - SECONDARY SETTLER TANK 1				
			TOTAL BROUGHT FORWARD				
3.2.4	8.4.4		UNFORMED SURFACE FINISHES				
3.2.4.1			Wood float finish	m^2	224.00		
3.2.4.2			Steel trowelled finish	m^2	400.00		
3.2.4.3			Benching (concrete measure elsewhere)	m^2	40.00		
3.2.4.4			Broomed finish - floor	m^2	400.00		
3.3			GROUTING All HDG mild steel pipes to be cast into structures will be supplied by the M&E contractor. Setting the following pipes or fittings into or through concrete work, incl. for formwork around the pipes and fixing the pipes to the designated lines and levels using ABE Durated expansive cementitious grout (pipes measured elsewhere):				
3.3.1			315mmØ uPVC class 12 pipe under floor slab for inlet	m	5.00		
3.3.2			160mmØ uPVC class 12 pipe under floor slab for sludge draw off	m	2.00		
3.3.3			400x400 scumbox outlet	m	2.00		
3.3.4			500x500 final effluent outlet	m	2.20		
3.4			MISCELLANEOUS				
3.4.1			Supply and cast in cable ducting 80mmØ uPVC class 12 pipe into floor slab	m	40.00		
3.4.2			Penstocks	no	10.00		
3.4.3			Supply, handle and install/construct ground pressure relieve valve as detailed	no	4.00		
3.4.4			Supply and install 9kg dry chemical fire extinguishers	each	4.00		
			TOTAL CARRIED TO SUMMARY PAGE				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
4			**SCHEDULE 4 - PIPELINE EARTHWORKS**				
4.1			SITE PREPERATION				
4.1.1	A5.1.1		Provide for the setting out of works for construction & the survey of the constructed stormwater network for the compilation of as-built plans; as required in SABS 1200	sum	1.00		
4.1.2	8.8.4		Dealing with services that intersect or adjoin the pipe trenches involved in this contract. Excavate by hand in soft material to expose existing services that cross trenches and provide permanent or temporary protection	sum	1.00		
4.2			EXCAVATION All levels as shown on the drawings and documents must be checked by the Contractor before the commencement of the construction and the Engineer must be notified in writing of any discrepancies. If not, levels will be considered as correct.				
4.2.1	DB8.3.2a		Excavation in all material: 0 - 1.5m deep	m^3	805.00		
4.2.2			Excavation in all material: 0 - 2.5m deep	m^3	860.00		
4.2.3			Excavation in all material: 0 - 3.5m deep	m^3	590.00		
4.2.4			Excavation in all material: 0 - 4.5m deep	m^3	310.00		
4.2.5	8.3.2b.2		Extra Over 4.2.1 to 4.2.4 for hard rock excavation. Quantities to be measured and recorded in the site instruction for payment certificates, by the Engineer's representative	m^3	1180.00		
4.2.6	8.3.2.c		Excavate unsuitable material from tench bottom and dispose of it, 100mm deep	m^3	40.00		
4.2.7			Shore deep excavations	m^2	2255.00		
4.3			BEDDING AND BACKFILL Placing and finish to level Provision of bedding and blanket covering imported material from own source				
4.3.1	LB8.2.1a		Preparation and compaction of Class B bedding, 100mm deep. Imported material	m^3	85.00		
4.3.2		LIC	Backfill around and 300mm above the pipe with selected imported material from own source, compact to 90% MOD AASHTO dry density.	m^3	545.00		
4.3.3			Bulk backfilling of trenches with insitu material, after the completion of the blanket filling, to 90% MOD AASHTO dry density, incl around manholes.	m^3	2020.00		
4.3.4	8.2.2.2		Make up deficiency in backfill material due to spoiling of unsuitable or rock material, from own source. Rate shall included loading and transport. Compaction and placing of material is measured under Item 8.3.1 and 8.3.2	m^3	40.00		
4.3.5	8.2.3		19mm stone to be used for bedding if requested by the Engineer in the site instruction book. Quantities to be measured and recorded in the site instruction for payment certificates, by the Engineer's representative. Item shall cover the cost of acquiring the material regardless of the distance, delivering to points alongside the trenches, and the disposal of material displaced by such importation.	m^3	40.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
4			**SCHEDULE 4 - PIPELINE EARTHWORKS**				
			TOTAL BROUGHT FORWARD				
4.4			ELECTRICAL CABLE TRENCHING				
4.4.1	DB8.3.2a		Excavation in all material: 0 - 1.5m deep	m³	260.00		
4.4.2	LB8.2.1a		Preparation and compaction of Class B bedding, 100mm deep. Imported material	m³	18.00		
4.4.3		LIC	Backfill around and 300mm above the electrical cable with selected imported material from own source, compact to 90% MOD AASHTO dry density.	m³	52.00		
4.4.4			Bulk backfilling of trenches with insitu material, after the completion of the blanket filling, to 90% MOD AASHTO dry density, incl around manholes.	m³	208.00		
			TOTAL CARRIED TO SUMMARY PAGE				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
5			**SCHEDULE 5 - PIPELINES**				
5.1			PIPES				
	LD8.2.1		Supply and lay, handle, bed on Class B (or as specified by the Engineer or his representative) bedding, joint test and connect into manholes various sewer pipes of the following sizes and types:				
5.1.1			30mm dia Type 4 Class 10 HDPE pipes	m	70		
5.1.2			50mm dia Type 4 Class 10 HDPE pipes	m	228		
5.1.3			160mm dia Type 4 Class 10 HDPE pipes	m	92		
5.1.4			100mm dia Class 12 uPVC pipes	m	90		
5.1.5			150mm dia Class 12 uPVC pipes	m	36		
5.1.6			160mm dia Class 12 uPVC pipes	m	168		
5.1.7			250mm dia Class 12 uPVC pipes	m	60		
5.1.8			350mm dia Class 12 uPVC pipes	m	24		
5.2			PIPES FITTINGS				
	LD8.2.1		Supply and lay, handle, bed on Class B (or as specified by the Engineer or his representative) bedding, joint test and connect into manholes various sewer pipes of the following sizes and types:				
5.2.1			90 deg elbow:				
5.2.1.1			30mm dia Type 4 Class 10 HDPE pipes	no	2		
5.2.1.2			100mm dia Class 12 uPVC pipes	no	5		
5.2.1.3			150mm dia Class 12 uPVC pipes	no	4		
5.2.1.4			160mm dia Class 12 uPVC pipes	no	7		
5.2.1.5			250mm dia Class 12 uPVC pipes	no	6		
5.2.1.6			350mm dia Class 12 uPVC pipes	no	0		
5.2.2			45 deg elbow:				
5.2.2.1			30mm dia Type 4 Class 10 HDPE pipes	no	3		
5.2.2.2			100mm dia Class 12 uPVC pipes	no	3		
5.2.2.3			150mm dia Class 12 uPVC pipes	no	2		
5.2.2.4			160mm dia Class 12 uPVC pipes	no	5		
5.2.2.5			250mm dia Class 12 uPVC pipes	no	3		
5.2.2.6			350mm dia Class 12 uPVC pipes	no	3		
5.2.3			Tee's:				
5.2.3.1			100mm dia Class 12 uPVC pipes	no	2		
5.2.4			Viking-Johnson couplings (VJ's):				
5.2.4.1			30mm dia Type 4 Class 10 HDPE pipes	no	0		
5.2.4.2			100mm dia Class 12 uPVC pipes	no	0		
5.2.4.3			150mm dia Class 12 uPVC pipes	no	2		
5.2.4.4			160mm dia Class 12 uPVC pipes	no	6		
5.2.4.5			250mm dia Class 12 uPVC pipes	no	2		
5.2.4.6			350mm dia Class 12 uPVC pipes	no	2		
5.2.5			Puddles stainless steel all flanges - Horizontal + bellmouth				
5.2.5.1			160mm dia Class 12 uPVC pipes	no	5		
5.2.5.2			250mm dia Class 12 uPVC pipes	no	2		
5.2.5.3			350mm dia Class 12 uPVC pipes	no	2		
5.2.6			Puddles stainless steel all flanges - Verticall + bellmouth				
5.2.6.1			150mm dia Class 12 uPVC pipes	no	2		
5.2.6.2			250mm dia Class 12 uPVC pipes	no	2		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
5			SCHEDULE 5 - PIPELINES				
			TOTAL BROUGHT FORWARD				
5.2.7			Puddles stainless steel all flanges - 90deg elbow				
5.2.7.1			150mm dia Class 12 uPVC pipes	no	2		
5.2.7.2			160mm dia Class 12 uPVC pipes	no	11		
5.2.7.3			350mm dia Class 12 uPVC pipes	no	3		
5.2.8			Puddles stainless steel all flanges - 2.0m long distance piece				
5.2.8.1			160mm dia Class 12 uPVC pipes	no	5		
5.2.8.2			250mm dia Class 12 uPVC pipes	no	3		
5.2.8.3			350mm dia Class 12 uPVC pipes	no	2		
5.3	LD8.2.3		MANHOLES Supply and install 1 000mm diameter concrete manhole bases and concrete rings including the reinforced concrete cover slab (access opening closing with reinforced concrete slab whose frame equipped with steel ring cast into concrete cover slab), step irons cast into concrete rings at 300mm staggered intervals, the rate shall cover all necessary excavations in all types of materials, the backfill in 150mm thick layers compacted to 90% MOD AASHTO density, the compaction of ground before the placing of base commences to 90% MOD AASHTO density, the connection of the main sewer pipes to the manhole and the water tight sealing of the structure as per specifications in SABS 1 200 DB 8.3.2 and 8.3.3 as well as SABS 1 200 LD 5.6 for the following depths (depths are to be confirmed from the relevant longitudinal section drawings supplied in the construction drawings for this contract, any changes and/or deviations from the designs are to be confirmed and agreed upon by the Engineer or his representative on site in the site instruction book and accompany the relevant certificates of payment purposes):				
5.3.1			From 0.0m up to and including 2.5m	no	2.00		
5.4			PIPE ANCILLARY ITEMS				
5.4.1	8.2.11		Break into and connect to existing manholes, at positions and levels indicated on the relevant plans, sections and details on the drawings, make good all benching and ensure water tight sealing of the existing structure after connection, the rate shall include all excavations, backfill and re-compaction as per Item 8.3.2 and 8.3.3 of SABS 1 200 Section DB - compaction to be 90% MOD AASHTO density	no	4.00		
5.4.2	8.2.8		Anchor trust blocks and pedestals using mass concrete of a mix of 15 Mpa strength where required by the Engineer's representative in the site instruction book, item shall include the cost of concrete, irrespective of size, reinforcement and formwork if required with the constituent labor thereof	m^3	56.00		
5.4.3	8.2.9.		Installation of pipe marker posts at all Horizontal bends (PI's) as instructed and indicated on the drawings	no	48.00		
5.4.4	L-8.2.13		Supply, deliver and install plastic valve boxes complete	each	5		
5.5			DISTRIBUTION & DIVISION CHAMBERS				
5.5.1			Allowance for the construction of reinforced concrete distribution & division chambers complete	prov sum	1.00	200,000.00	200,000.00
5.5.2			Allowance for the construction of the final effluent discharge point, incl but not limited to the discharge chamber, erosion rip/rap, etc	prov sum	1.00	50,000.00	50,000.00
			TOTAL CARRIED TO SUMMARY PAGE				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
6			**SCHEDULE 6 - ROADS & PARKING**				
6.1			SITE PREPARATION				
6.1.1			Provide for the setting out of works for construction as required in SABS 1200	sum	1.00		
6.1.2	A-8.8.4		Provide a sum for the detection and protection of all and unknown services	sum	1.00		
6.1.3			Clear and grub topsoil 100mm deep Transport materials and debris to unspecified sites and dump at the discretion of the Engineer. The rate shall cover the cost of loading, transporting. dumping, and any charges for the use of the dumping site	m²	26500.00		
6.2			ROADBED All levels as shown on drawings and in documents must be checked by the contractor before the commencement of construction and the engineer must be notified in writing of any discrepancies If not, levels & quantities will be considered as correct Free haul distance of 3km to be included in the rate The rates shall cover the cost of scarifying, watering, shaping and compacting the road-bed material to the applicable minimum degree of compaction including mixing of in-place and imported material if required				
6.2.1	DM-8.3.4a		Cut to stockpile and/or spoil, where indicated by the Engineer for use on other road reserves; free haul up to 3km	m^3	3385.00		
6.2.2	DM-8.3.3a(2)		Rip & compact insitu 150mm thk layer to minimum 90% of modified AASHTO dry density. Rip and compact only where road bed is in cut	m^3	850.00		
6.2.3	DM-8.3.6a		Extra over for intermediate excavation	m^3	290.00		
6.2.4	DM-8.3.6b		Extra over for hard excavation	m^3	1560.00		
6.2.5	DM-8.3.6c		Boulder excavation Class A&B	m^3	780.00		
6.2.6	DM-7.2		Provide a sum for the testing of the compaction of the roadbed layer Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 DM 7.2 (min 4 tests per 2000m^2 of roadbed area)	sum	1.00		
6.2.7	DM-8.3.4a		Cut to spoil where indicated by the Engineer in unsuitable Clay material for roadbed preperation	m^3	195.00		
6.2.8			Supply, deliver, fill and compact Dump Rock to 93% MOD AASHTO for item 6.2.7	m^3	195.00		
6.3			BASE, SUB-BASE AND UPPER SELECTED Construct a base, sub-base and upper selected course with material from approved commercial sources or mechanical stabilizing Rates to include all costs for transporting, placing, shaping and compacting of material according to specified tolerances and specifications				
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
6			SCHEDULE 6 - ROADS & PARKING				
			TOTAL BROUGHT FORWARD				
			The rate shall cover the cost of locating the source, complying with all the relevant precautions required in terms of SABS 1200 D-5.1, procuring the material, basic selection, transporting from source to point of deposition on the road, spreading, watering, compacting, final grading, complying with the tolerances and testing.				
6.3.1	ME-8.3.1		Construct the upper-selected layer with approved imported G5 material from own commercial source; compacted to 95% MOD AASHTO 150mm thick	m^3	2540.00		
6.3.2	MF-7.2		Provide a sum for the testing of the compaction of the upper-selected layer. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 MF 7.2 (min 4 tests per 2000m^2 of upper-selected layer area)	sum	1.00		
6.3.3	MF-8.3.3b		Construct the sub-base with approved imported C4 material (G2 with 2% cement stabilized) from own commercial source; compacted to 95% MOD AASHTO, 150mm thick. (The rate shall also include the processing as well as the stabilization agent.)	m^3	850.00		
6.3.4	MF-7.2		Provide a sum for the testing of the compaction of the sub-base layer. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 MF 7.2 (min 4 tests per 2000m2 of sub-base area)	sum	1.00		
6.3.5	MF-8.3.3b		Construct the base with approved imported G1 material from own commercial source; compacted to 88% Aparent Relevant Density, 150mm thick.	m^3	850.00		
6.3.6	MF-7.2		Provide a sum for the testing of the compaction of the base layer. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 MF 7.2 (min 4 tests per 2000m^2 of base layer area)	sum	1.00		
6.4			KERBING				
6.4.1	MK-8.2.1(b)		Supply, deliver and install to specification pre-cast Fig 8C Blitz concrete kerbing or similar approved, as per SABS 1200 MK. The unit rate for precast kerbing shall cover the cost of supply of all materials for the kerbing and bedding, and for bedding, jointing, excavation, compacting and for all labour in laying and jointing, together with all backfilling (class 25/19 concrete haunching behind each joint), compacting, and removal of excess material.	m	1385.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
6			**SCHEDULE 6 - ROADS & PARKING**				
			TOTAL BROUGHT FORWARD				
6.5			PAVING				
6.5.1	MJ-8.2.2		Supply, deliver and spread 20mm crusher sand for paving bedding. Rate shall include for the removal of excess sand.	m^3	115.00		
6.5.2	MJ-8.2.2		Vibration of approved locking sand between paving with plate vibrator and finish surface.	m^2	5640.00		
6.5.3	MJ-8.2.3		Cutting units to fit edge restraints.	m	1595.00		
6.5.4	MJ-8.2.2		Supply, deliver and install 60mm thick 25MPa type S-A interlocking concrete paving blocks to line and level according to SABS 1200 MJ & CMA specifications It is important to note that the strength as required by SANS 1058 is based on day of despatch and not 28 day strength.	m^2	5640.00		
6.5.5	MJ-8.2.1		1:3 cement sand filling between kerb and paving blocks where the gap is smaller than 25mm.	m^3	3.00		
6.5.6	MJ-3.1.2		Rate for the testing of the compressive strength of concrete paving blocks. Compressive strength test frequency and quantity will be in accordance with requirements of SABS 1058 (min 12 sample blocks per test per 1500m^2) and as instructed by the Engineer.	sum	1.00		
			TOTAL CARRIED TO SUMMARY PAGE				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
7			**SCHEDULE 7 - STORMWATER**				
7.1			SITE PREPERATION				
7.1.1	A-5.1.1		Provide for the setting out of works for construction & the survey of the constructed stormwater network for the compilation of as-built plans; as required in SABS 1200	sum	1		
7.2			EXCAVATION All levels as shown on the drawings and documents must be checked by the Contractor before the commencement of the construction and the Engineer must be notified in writing of any discrepancies. If not, levels will be considered as correct.				
7.2.1	DB-8.3.2a		Excavation in all material: 0 - 1.5m deep	m³	690		
7.2.2	DB-8.3.2b.2		Extra Over 7.2.1 for hard rock excavation. Quantities to be measured and recorded in the site instruction for payment certificates, by the Engineer's representative	m³	270		
7.2.3	DB-8.3.7	LIC	Allow for shoring of both sides of trenches according to Occupational Health and safety act, 1993 (Act 85 of 1993) Construction regulation, 2003. Maximum length of open trenches 500m.	m	160		
7.3			BEDDING AND BACKFILL Placing and finish to level. Provision of bedding and blanket covering imported material from own source.				
7.3.1	LB-8.2.1a		Preparation and compaction of Class B bedding, 100mm deep. Imported material	m³	46		
7.3.2	LB-8.2.1a	LIC	Backfill around and 300mm above the pipe with selected imported material from own source, compact to 90% MOD AASHTO dry density.	m³	345		
7.3.3	LB-8.2.1a		Bulk backfilling of trenches with insitu material, after the completion of the blanket filling, to 90% MOD AASHTO dry density, incl around manholes.	m³	345		
7.3.4	LB-8.2.2.2		Make up deficiency in backfill material due to spoiling of unsuitable or rock material, from own source. Rate shall included loading and transport. Compaction and placing of material is measured under Item 7.3.1 and 7.3.2	m³	19		
7.3.5	LB-8.2.3		19mm stone to be used for bedding if requested by the Engineer in the site instruction book. Quantities to be measured and recorded in the site instruction for payment certificates, by the Engineer's representative. Item shall cover the cost of acquiring the material regardless of the distance, delivering to points alongside the trenches, and the disposal of material displaced by such importation.	m³	19		
7.4			PIPELAYING Provide a tariff for the supply, deliver, storage of all materials for the complete installation of the following pipelines (Rate shall include all cutting and joining if required).				
7.4.1	LD-8.2.1		450mm dia class 50D spigot & socket joint concrete stormwater pipes to manufacturers specifications. Including waterproofing at manholes and catchpits	m	380		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
7			**SCHEDULE 7 - STORMWATER**				
			TOTAL BROUGHT FORWARD				
7.5			BUILDING OF STORMWATER CATCHPITS & KERB INLETS Supply, deliver and install all materials to construct masonry stormwater catchpits (kerb inlets) complete as per drawings, incl excavations in all materials, catchpit floor, cover slabs to the following depths.				
	LD-8.2.3	LIC	0 - 1.5m deep	no	6		
7.6			BUILDING OF MANHOLES Supply and install 1 000mm diameter concrete manhole bases and concrete rings including the reinforced concrete cover slab (access opening closing with reinforced concrete slab whose frame equipped with steel ring cast into concrete cover slab), step irons cast into concrete rings at 300mm staggered intervals, the rate shall cover all necessary excavations in all types of materials, the backfill in 150mm thick layers compacted to 90% MOD AASHTO density, the compaction of ground before the placing of base commences to 90% MOD AASHTO density, the connection of the main sewer pipes to the manhole and the water tight sealing of the structure as per specifications in SABS 1 200 DB 8.3.2 and 8.3.3 as well as SABS 1 200 LD 5.6 for the following depths (depths are to be confirmed from the relevant longitudinal section drawings supplied in the construction drawings for this contract, any changes and/or deviations from the designs are to be confirmed and agreed upon by the Engineer or his representative on site in the site instruction book and accompany the relevant certificates of payment purposes):				
	LD-8.2.3	LIC	0 - 1.5m deep	no	9		
7.7			STORMWATER OUTLETS/ DISCHARGE STRUCTURE Sum for the construction of a stormwater outlet with wing walls	PC sum	1	R 75,000.00	75,000.00
			TOTAL CARRIED TO SUMMARY PAGE				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
8			**SCHEDULE 8 - SITEWORKS CIVIL**				
			FENCING				
8.1			Remove and dispose of existing perimeter fence	sum	1.00		
8.2			Clear and grub topsoil 50mm deep, 6m wide	m²	2870.00		
8.3			Supply, deliver, install & erect steel fencing for perimeter to drawing specifications.	m	646.00		
8.4			Supply, deliver, install & erect double vehicle gate to drawing specifications, incl 4x level 5 high security pad locks using 1 key.	no	2.00		
			TOTAL CARRIED TO SUMMARY PAGE				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
9			**SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT**				
	D8..2.1		Measurements will be to finished shapes, sections and profiles as shown on drawings or ordered, and no excavation and no embankment formed outside the specified lines and levels will be included in the measurements unless such extra work has been done on the written instructions of the Engineer				
	8..2.2		Except where earthworks are carried out to simple geometric shapes, the volumes of material handled will be computed from cross-sections at suitable intervals by the method of average end areas The free haul distance for the project will be 3km				
9.1			**DEMOLITION & REHABILITATION OF REDUNDANT STRUCTURES: 2X CLARIFIERs**				
9.1.1			Rate for the draining by means of pumping, incl re-routing, temporary piping, etc as instructed by the Engineer	m³	2520.00		
9.1.2			Clean sludge, mud & organic material from clarifiers. Rate shall include all labour, equipment, tools & material required	m³	1260.00		
9.1.3			Demolish & dispose of redundant reinforced concrete structures. The rate shall cover the cost of mechanical breaking/demolish of structures, loading, transportation within free haul distance, offloading & spreading	m³	504.00		
9.1.4	8.3.2.c		Excavate unsuitable insitu material from excavation and dispose of it	m³	50.00		
9.1.5	D-8.3.4		Importing of materials Importation of G5 or better materials from commercial or own sources. The rate for importing from commercial or own sources by the Contractor shall cover the cost of royalties and acquiring suitable material, including loading, transportation, offloading at the point of placing	m^3	3496.00		
9.1.6	D-8.3.4		Selected layerwork Backfill excavation in 150mm layers with imported material. Compaction to 95 % of MOD AASHTO dry density at optimum moisture content, in max 150mm thick layers The rate shall cover the cost of transporting, preparing, processing, shaping, watering, mixing, compacting to the densities and finishing as specified	m^3	3496.00		
9.1.7	DM7.2		Provide sum for the testing of the compaction of every 300mm deep constructed building platform layerwork. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 DM 7.2 (min 4 tests per 2000m^2 of every 2nd layer placed).	sum	1.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
9			**SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT**				
			TOTAL BROUGHT FORWARD				
9.2			**DEMOLITION & REHABILITATION OF REDUNDANT STRUCTURES: 2X DRYING BEDS**				
9.2.1			Demolish & dispose of redundant reinforced concrete structures. The rate shall cover the cost of mechanical breaking/demolish of structures, loading, transportation within free haul distance, offloading & spreading	m^3	890.00		
9.2.2	D-8.3.4		Importing of materials Importation of G5 or better materials from commercial or own sources. The rate for importing from commercial or own sources by the Contractor shall cover the cost of royalties and acquiring suitable material, including loading, transportation, offloading at the point of placing	m^3	890.00		
9.2.3	D-8.3.4		Selected layerwork Backfill excavation in 150mm layers with imported material. Compaction to 95 % of MOD AASHTO dry density at optimum moisture content, in max 150mm thick layers The rate shall cover the cost of transporting, preparing, processing, shaping, watering, mixing, compacting to the densities and finishing as specified	m^3	890.00		
9.2.4	DM7.2		Provide sum for the testing of the compaction of every 300mm deep constructed building platform layerwork. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 DM 7.2 (min 4 tests per 2000m^2 of every 2nd layer placed).	sum	1.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
9			**SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT**				
			TOTAL BROUGHT FORWARD				
9.3			**DEMOLITION & REHABILITATION OF REDUNDANT STRUCTURES: INLETWORKS**				
9.3.1			Rate for the draining by means of pumping, incl re-routing, temporary piping, etc as instructed by the Engineer	m^3	310.00		
9.3.2			Clean sludge, mud & organic material from inletworks. Rate shall include all labour, equipment, tools & material required	m^3	90.00		
9.3.3			Demolish & dispose of redundant reinforced concrete structures. The rate shall cover the cost of mechanical breaking/demolish of structures, loading, transportation within free haul distance, offloading & spreading	m^3	185.00		
9.3.4	8.3.2.c		Excavate unsuitable insitu material from excavation and dispose of it	m^3	10.00		
9.3.5	D-8.3.4		Importing of materials Importation of G5 or better materials from commercial or own sources. The rate for importing from commercial or own sources by the Contractor shall cover the cost of royalties and acquiring suitable material, including loading, transportation, offloading at the point of placing	m^3	460.00		
9.3.6	D-8.3.4		Selected layerwork Backfill excavation in 150mm layers with imported material. Compaction to 95 % of MOD AASHTO dry density at optimum moisture content, in max 150mm thick layers The rate shall cover the cost of transporting, preparing, processing, shaping, watering, mixing, compacting to the densities and finishing as specified	m^3	460.00		
9.3.7	DM7.2		Provide sum for the testing of the compaction of every 300mm deep constructed building platform layerwork. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 DM 7.2 (min 4 tests per 2000m^2 of every 2nd layer placed).	sum	1.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
9			**SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT**				
			TOTAL BROUGHT FORWARD				
9.4			**REFURBISHMENT OF EXISTING BALANCING DAM**				
9.4.1			Rate for the draining of the dam by means of pumping, incl isolation, re-routing, temporary piping, etc as instructed by the Engineer	m³	6150.00		
9.4.2			Clean sludge, mud & organic material from balancing dam. Rate shall include all labour, equipment, tools & material required. Lining damage done by the Contractor will be repaired by a specialist for the account of the Contractor	m³	2100.00		
9.4.3			Rate for pressure wash & cleaning of the liner. Rate shall include all labour, equipment, tools & material required	m²	2300.00		
9.4.4			Contractor to inspect & compile a detailed report on the status quo condition of the existing dam liner. This must be done incooperation with a specialist dam lining services provider	sum	1.00		
9.4.5			Rate for the sealing & repair of damaged (ito 8.4.4 report & quantification as approved by the Engineer) HDPE dam liner by a approved specialist service provider. Rate shall include all labour, equipment, tools & material required	m²	575.00		
9.4.6			Provisional sum for the construction of mass concrete anchor points for new floating aerators	prov sum	1.00	15,000.00	15,000.00
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
9			SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT				
			TOTAL BROUGHT FORWARD				
9.5			UPGRADING OF EXISTING PUMP STATION				
9.5.1			Cleaning & fencing:				
9.5.1.1			Remove and dispose of existing perimeter fence	sum	1.00		
9.5.1.2			Clear and grub topsoil 50mm deep	m²	3400.00		
9.5.1.3			Supply, deliver, install & erect steel fencing for perimeter to drawing specifications.	m	240.00		
9.5.1.4			Supply, deliver, install & erect double vehicle gate to drawing specifications, incl 4x level 5 high security pad locks using 1 key.	no	1.00		
9.5.2			Pump station emergency dam:				
9.5.2.1			Rate for the draining of the dam by means of pumping, incl isolation, re-routing, temporary piping, etc as instructed by the Engineer	m³	3900.00		
9.5.2.2			Clean sludge, mud & organic material from balancing dam. Rate shall include all labour, equipment, tools & material required. Lining damage done by the Contractor will be repaired by a specialist for the account of the Contractor	m³	1180.00		
9.5.2.3			Rate for pressure wash & cleaning of the liner. Rate shall include all labour, equipment, tools & material required	m²	1100.00		
9.5.2.4			Contractor to inspect & compile a detailed report on the status quo condition of the existing dam liner. This must be done incooperation with a specialist dam lining services provider	sum	1.00		
9.5.2.5			Rate for the sealing & repair of damaged (ito 8.5.2.4 report & quantification as approved by the Engineer) HDPE dam liner by a approved specialist service provider. Rate shall include all labour, equipment, tools & material required	m²	275.00		
9.5.3			Pump station sump structure:				
9.5.3.1			Rate for the draining of the sump by means of pumping, incl isolation, re-routing, temporary piping, etc as instructed by the Engineer	m³	200.00		
9.5.3.2			Clean sludge, mud & organic material from balancing dam. Rate shall include all labour, equipment, tools & material required. Lining damage done by the Contractor will be repaired by a specialist for the account of the Contractor	m³	60.00		
9.5.3.3			Rate for pressure wash & cleaning of the liner. Rate shall include all labour, equipment, tools & material required	m²	230.00		
9.5.3.4			Contractor to inspect & compile a detailed report on the status quo condition of the existing dam liner. This must be done incooperation with a specialist dam lining services provider	sum	1.00		
9.5.3.5			Provisional sum for the repair of existing expansion joints & cracks in sump	prov sum	1.00	45,000.00	45,000.00
9.5.3.6			Rate for the preparation & application of Penetron slurry specialist concrete sealer to the existing structure (ito 8.5.3.4 report & quantification as approved by the Engineer) by a approved specialist service provider. Rate shall include all labour, equipment, tools &	m²	100.00		
9.5.3.7			Allowance for the construction of reinforced concrete inflow & bypass chambers complete (for Installation of grinder / conditioner and coarse hand-rake)	sum	1.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
9			**SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT**				
			TOTAL BROUGHT FORWARD				
9.6			**UPGRADING OF NIGHTSOIL DISCHARGE:**				
9.6.1			Clear and grub topsoil 50mm deep	m^2	460.00		
9.6.2	DA8.3.2		Excavate in all materials (including 1m workspace & min 600mm under structure)	m^3	320.00		
9.6.3	D-8.3.4		Importation of G5 or better materials from commercial or own sources.	m^3	320.00		
9.6.4	D-8.3.4		Construct 4x 150mm layers for soil raft below all structures, with imported material. Compaction to 95 % of MOD AASHTO dry density at optimum moisture content, in max 150mm thick layers	m^3	320.00		
9.6.5	DM7.2		Provide sum for the testing of the compaction of every 300mm deep constructed building platform layerwork. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 DM 7.2 (min 4 tests per 2000m^2 of every 2nd layer placed).	sum	1.00		
9.6.6	8.2.2		Smooth - straight, vertical	m^2	85.00		
9.6.7			Supply, deliver & install 20x20mm chamfers for all exposed concrete edges	m	150.00		
9.6.8	8.3.1		Supply, cut, splice and fix high tensile reinforcing as per applicable bending schedule	kg	12220.00		
9.6.9			Supply, place and fix concrete cover blocks (concrete or commercial plastic type) to ensure the required concrete cover to reinforcing.	sum	1.00		
9.6.10	8.4.3		Class 30/19 fibre reinforced concrete	m^3	125.00		
9.6.11			Broomed finish	m^2	460.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
9			SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT				
			TOTAL BROUGHT FORWARD				
9.7			REFURBISH EXISTING BNR:				
9.7.1			Rate for the draining of the BNR by means of pumping, incl isolation, re-routing, temporary piping, etc as instructed by the Mech Engr	m³	1690.00		
9.7.2			Clean sludge, mud & organic material from BNR. Rate shall include all labour, equipment, tools & material required. Lining damage done by the Contractor will be repaired by a specialist for the account of the Contractor	m³	580.00		
9.7.3			Rate for pressure wash & cleaning of the BNR walls. Rate shall include all labour, equipment, tools & material required	m²	2485.00		
9.7.4			Contractor to inspect & compile a detailed report on the status quo condition of the existing dam liner. This must be done incooperation with a specialist dam lining services provider	sum	1.00		
9.7.5			Provisional sum for the repair of existing expansion joints & cracks in sump	prov sum	1.00	375,000.00	375,000.00
9.7.6			Rate for the preparation & application of Penetron slurry specialist concrete sealer to the existing structure (ito 8.5.3.4 report & quantification as approved by the Engineer) by a approved specialist service provider. Rate shall include all labour, equipment, tools &	m²	1500.00		
9.7.7			Provide a rate for the diamond blade cut, mechanical breaking/demolish & disposal of existing 250mm wide walls to create new openings (1000x500mm). Rate per opening shall include all labour, equipment, tools & material required for: Saw cut 3000mm, break out 1000x500mm reinforced concrete, 2x coats epoxy sealing of exposed rebar (Sika, ABE or similar approved by the Engineer), allow for 0.1m³ non-shrink structral grouting per opening	no	6.00		
9.7.8			Provide a rate for core drilling of openings (maximum 250mm diameter) in existing 250mm wide walls to create new openings. Rate per opening shall include all labour, equipment, tools & material required for: Core drill 250mm dia, remove & dispose core, 2x coats epoxy sealing of exposed rebar (Sika, ABE or similar approved by the Engineer), allow for 0.03m³ non-shrink structral grouting per opening	no	6.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
9			SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT				
			TOTAL BROUGHT FORWARD				
9.8			REFURBISH EXISTING CHLORINE CONTACT CHANNELS				
9.8.1			Rate for the draining of the chlorine contact channels by means of pumping, incl isolation, re-routing, temporary piping, etc as instructed by the Mech Engr	m³	210.00		
9.8.2			Clean sludge, mud & organic material from chlorine contact channels. Rate shall include all labour, equipment, tools & material required. Lining damage done by the Contractor will be repaired by a specialist for the account of the Contractor	m³	75.00		
9.8.3			Rate for pressure wash & cleaning of the BNR walls. Rate shall include all labour, equipment, tools & material required	m²	160.00		
9.8.4			Contractor to inspect & compile a detailed report on the status quo condition of the existing dam liner. This must be done incooperation with a specialist dam lining services provider	sum	1.00		
9.8.5			Provisional sum for the repair of existing expansion joints & cracks in sump	prov sum	1.00	95,000.00	95,000.00
9.8.6			Rate for the preparation & application of Penetron slurry specialist concrete sealer to the existing structure (ito 9.8.4 report & quantification as approved by the Engineer) by a approved specialist service provider. Rate shall include all labour, equipment, tools &	m²	240.00		
9.9			INSPECT & ASSESS EXISTING PIPEWORK:				
9.9.1	DA8.3.2		Restricted hand excavation @ six posisions in all materials to expose existing pipework for inspection and assessment by the Engineer	m^3	42.00		
9.9.2	D-8.3.4		Backfill excavation in 150mm layers with excavated material. Compaction to 90% of MOD AASHTO dry density at optimum moisture content	m^3	42.00		
9.10			MISCELLANEOUS CONCRETE SLABS: (GENERATOR, TEMP RAS PS, WASH WATER PS & BALANCING DAM PS)				
9.10.1			Clear and grub topsoil 50mm deep	m²	76.00		
9.10.2	DA8.3.2		Excavate in all materials	m^3	36.00		
9.10.3	D-8.3.4		Importation of G5 or better materials from commercial or own sources.	m^3	36.00		
9.10.4	D-8.3.4		Construct 4x 150mm layers for soil raft below all structures, with imported material. Compaction to 95 % of MOD AASHTO dry density at optimum moisture content, in max 150mm thick layers	m^3	36.00		
9.10.5	DM7.2		Provide sum for the testing of the compaction of every 300mm deep constructed building platform layerwork. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 DM 7.2 (min 4 tests per 2000m^2 of every 2nd layer placed).	sum	1.00		
9.10.6	8.2.2		Smooth - straight, vertical	m^2	84.00		
9.10.7			Supply, deliver & install 20x20mm chamfers for all exposed concrete edges	m	84.00		
9.10.8	8.3.1		Supply, cut, splice and fix high tensile reinforcing as per applicable bending schedule	kg	600.00		
9.10.9			Supply, place and fix concrete cover blocks (concrete or commercial plastic type) to ensure the required concrete cover to reinforcing.	sum	1.00		
9.10.10	8.4.3		Class 30/19 fibre reinforced concrete	m³	20.00		
9.10.11			Broomed finish	m^2	72.00		
			TOTAL CARRIED FORWARD				

Item No	SABS 1200		DESCRIPTION	Unit	Quantity	Rate	Amount
9			**SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT**				
			TOTAL BROUGHT FORWARD				
9.11			**REFURBISHMENT OF EXISTING BUILDINGS** Provisional sum for the refurbishment of the existing buildings	prov sum	1.00	1,275,000.00	1,275,000.00
9.12			**DEMOLITION & REHABILITATION OF REDUNDANT STRUCTURES: Old Chlorination and Small MCC Room**				
9.12.1.			Rate for the draining by means of pumping, incl re-routing, temporary piping, etc as instructed by the Engineer	m^3	38.00		
9.12.2.			Clean sludge, mud & organic material from old chlorination. Rate shall include all labour, equipment, tools & material required	m^3	12.00		
9.12.3.			Demolish & dispose of redundant reinforced concrete structures. The rate shall cover the cost of mechanical breaking/demolish of structures, loading, transportation within free haul distance, offloading & spreading	m^3	10.00		
9.12.4.	8.3.2.c		Excavate unsuitable insitu material from excavation and dispose of it	m^3	3.00		
9.12.5	D-8.3.4		Importing of materials Importation of G5 or better materials from commercial or own sources. The rate for importing from commercial or own sources by the Contractor shall cover the cost of royalties and acquiring suitable material, including loading, transportation, offloading at the point of placing	m^3	38.00		
9.12.6	D-8.3.4		Selected layerwork Backfill excavation in 150mm layers with imported material. Compaction to 95 % of MOD AASHTO dry density at optimum moisture content, in max 150mm thick layers The rate shall cover the cost of transporting, preparing, processing, shaping, watering, mixing, compacting to the densities and finishing as specified	m^3	14.00		
9.12.7	DM7.2		Provide sum for the testing of the compaction of every 300mm deep constructed building platform layerwork. Compaction tests frequency and quantity will be in accordance with requirements of SABS 1200 DM 7.2 (min 4 tests per 2000m^2 of every 2nd layer placed).	sum	1.00		
9.12.8.			Demolish & dispose of redundant MCC Brickwork Building, Chlorination brickwork structure & Slabs. The rate shall cover the cost of mechanical breaking/demolish of structures, loading, transportation within free haul distance, offloading & spreading	sum	1.00		
			TOTAL CARRIED TO SUMMARY PAGE				

BILL OF QUANTITIES

BILL B: MECHANICAL

The Following Applies to each section of Bill B and C of this Bill of Quantities:						
		! Pricing will be for NEW equipment, whereafter a refurbishment methodology will be followed, if equipment is found to not be refurbishable, the contractor will be compensated by an extra-over item for removal of the existing equipment, and new equipment shall be supplied.				
		! A refurbishment methodology / approach must be used, to re-use existing equipment and infrastructure as practical, and feasible as possible.				
		! The refurbishment methodology includes but is not limited to (as indicated by the engineer during construction): Removal of equipment, transport to workshop/facility, clean, evaluate, report status quo of equipment including refurbishment methodology for the approval of the engineer, Repair/Refurbish, deliver to site or extended site, Install. If equipment can not be refurbished after evaluations (as indicated by the Engineer), new equipment must be supplied.				
		! All Datasheets of new equipment or method statements on refurbishing of existing equipment must be submitted to the Engineer for approval prior to procurement/ Incurring Cost				
		! Site Specific General Arrangement Drawings, Including Equipment & Pipework, Cable routing, electrical Motors and cable schedule, Single Line Diagrams must be submitted to the engineer for approval.				
		! The equipment will be commissioned if and when the equipment can be put in operation for their intended use. The equipment will be dry commissioned before wet commissioning can commence. As part of the commissioning, the contractor shall submit his/her operation and maintenance manual for approval.				
		! An Operation and Maintenance Manual must be provided for all equipment for approval by the Engineer.				
		! Training on all equipment must be provided.				
		! Payment Shall be certified upon approval/ Acceptance by the Engineer, of completion of the Following for each item above:				
	a)	***Removal of Existing Equipment. (Extra over)***	%	***15***	-	-
	b)	***General Arrangement Drawings***	%	10	-	-
	c)	***Approval Of Data sheets (New Equipment) or Method Statement (Refurbishment)***	%	20	-	-
	d)	***Supply and Deliver to site or extended site, accepted by the client and engineer***	%	20	-	-
	e)	***Erect and Installation***	%	20	-	-
	f)	***Comprehensive Operations and Maintenance Manual***	%	15	-	-
	g)	***Commissioning (Dry and Wet)***	%	10	-	-
	h)	***Proof of Training as witnessed Submitted***	%	5	-	-

BILL OF QUANTITIES

BILL B: MECHANICAL

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
1		**Nightsoil Discharge**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
1.1.		New Manual Bar Screen complete with Rake and accessories	Each	1		-
1.2.		Supply, deliver, handle, store, up-hold for 12 months, and install as per the engineer's approval, **new waste bin.**	each	1		
		TOTAL CARRIED TO SUMMARY PAGE				

BILL OF QUANTITIES

BILL B: MECHANICAL

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
2		**Refurbishment of Existing Balancing Dam**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
2.1.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months new DN200 pump **suction pipe work.**	sum	1		
2.2.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months new **DN200 discharge pipe work.**	sum	1		
2.3.		Design, manufacture, Supply, deliver, handle, store, install and up-hold for 12 months the new **pipe supports**.	each	3		
2.4.		Supply, deliver, handle, store install, as per the Engineer's approval, and uphold for 12 months new **non-return valves (Ball type)**	each	2		
		TOTAL CARRIED FORWARD				

BILL OF QUANTITIES

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
2		**Refurbishment of Existing Balancing Dam**				
		TOTAL BROUGHT FORWARD				
2.5.		Supply, deliver, handle, store install, as per the Engineer's approval, and uphold for 12 months new **air-release valves**	each	2		
2.6.		Supply, deliver, handle, store install, as per the Engineer's approval, and uphold for 12 months new **resilient seal isolation valves.**	each	2		
2.7.		Supply, deliver, handle, store install, as per the Engineer's approval, and uphold for 12 months new **Mag-Flow Flowmeter**	each	1		
2.8.		Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval the **new main pump sets**: 4" Self Priming Pump and 15 kW kW high efficiency, 400V motors, **complete with V-Belt coupling , base plate.**	each	2		
2.9.		Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval the **new 22 kW Floating Aerator** c/w anchoring system	each	2		
2.10.		Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval the **new Pond Exit Safety Ladder**	each	1		
		TOTAL CARRIED TO SUMMARY PAGE				

BILL OF QUANTITIES

BILL B: MECHANICAL

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
3		**Refurbishment of Existing BNR**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
3.1.		Remove existing, clean, handle, tag, transport to client storage, as per the Engineer's Approval the **Existing Lamella Packing, Weirs, Baffles.**	sum	1		
3.2.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new Air Diffusers** at existing aeration basin.	sum	1		
3.3.		Extra over item 4.2. for Remove existing , inspect, evaluate, report **Air Diffusers at the existing aeration basin.**	%		15%	
3.4.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new Air Diffusers** at aeration basin extention.	sum	1		
3.5.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new Air Pipework and Laterals** at existing aeration basin.	sum	1		
3.6.		Extra over item 4.2. for Remove existing , inspect, evaluate, report **Air Pipework and Laterals at the existing aeration basin.**	%			
3.7.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new Air Pipework and Laterals** at aeration basin extention.	sum	1		
3.8.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new submersible mixers**	Each	3		
3.9.		Extra Over item 4.8 for:Remove existing , inspect, evaluate, report.	%		15%	
3.10.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new S-Recycle Pump**	Each	1		
3.11.		Extra Over item 4.10. for:Remove existing , inspect, evaluate, report.	%		15%	
3.12.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new R-Recycle Pump**	Each	1		
3.13.		Extra Over item 4.12. for:Remove existing , inspect, evaluate, report.	%		15%	
		TOTAL CARRIED FORWARD				

BILL OF QUANTITIES

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
3		**Refurbishment of Existing BNR**				
		TOTAL BROUGHT FORWARD				
3.14.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new A-Recycle Pump**	Each	1		
3.15.		Extra Over item 4.14. for:Remove existing , inspect, evaluate, report.	%		15%	
3.16.		Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval the **new WAS pump sets**: 3" Self Priming Pump and 11 kW high efficiency, 400V motors, complete with V-Belt coupling , base plate.	each	1		
3.17.		Extra over item 4.16. for Remove Existing from balancing dam, Inspect, Evaluate, Report	%		15%	
3.18.		Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval the **new main pump sets**: 3" Self Priming Pump and 11 kW high efficiency, 400V motors, complete with V-Belt coupling , base plate.	each	1		
3.19.		Extra over item 4.18. for Remove Existing (at BNR), Inspect, Evaluate, Report	%		15%	
3.20.		Design, Manufacture, Supply, deliver, handle, store, install and up-hold for 12 months, including new joint sets as per the Engineer's Approval the DN150 pump **suction pipe work.**	sum	1		
3.21.		Extra Over Item 4.20 for :Remove Existing from the balancing dam, Evaluate, Report	%		15%	
3.22.		Design, Manufacture, Supply, deliver, handle, store, install and up-hold for 12 months, including new joint sets as per the Engineer's Approval the DN150 pump discharge **pipe work.**	sum	1		
3.23.		Extra Over Item 4.22 for :Remove Existing from the balancing dam, Evaluate, Report	%		15%	
3.24.		Design, Manufacture, Supply, deliver, handle, store, install and up-hold for 12 months, including new joint sets as per the Engineer's Approval the DN150 resilient seal isolation valves	each	2		
3.25.		Extra Over Item 4.24 for :Remove Existing from the balancing dam, Evaluate, Report	%		15%	
		TOTAL CARRIED FORWARD				

BILL OF QUANTITIES

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
3		**Refurbishment of Existing BNR**				
		TOTAL BROUGHT FORWARD				
3.26.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new Lifting Equipment: Lifting Davit, Crawl, Hoist.**	Each	3		
3.27.		Extra Over item 4.20. for:Remove existing , inspect, evaluate, report.	%		15%	
3.28.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new Lifting Equipment: Gantry, Crawler, Hoist**	Each	6		
3.29.		Extra Over item 4.22. for:Remove existing , inspect, evaluate, report.	%		15%	
3.30.	MPS 26 5.1,5.2,5.3	Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new Sluice Gates**	Each	5		
3.31.		Extra Over item 4.24. for:Remove existing , inspect, evaluate, report.	%		15%	
3.32.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new Handrails and Walkways**	Sum	1		
3.33.		Extra Over item 4.26. for:Remove existing , inspect, evaluate, report.	%		15%	
3.34.		New 300 NB SANS1123 1000/3 Bi-Directional Knife Gate Valve with 6400mm Spindle	Each	2		
3.35.		Extra Over item 4.28. for:Remove existing , inspect, evaluate, report.	%		15%	
		TOTAL CARRIED FORWARD				

BILL OF QUANTITIES

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
3		**Refurbishment of Existing BNR**				
		TOTAL BROUGHT FORWARD				
3.36.		New 300 NB SANS1123 1000/3 Bi-Directional Knife Gate Valve with 2000mm Spindle	Each	1		
3.37.		Extra Over item 4.30. for:Remove existing , inspect, evaluate, report.	%		15%	
3.38.		New 150NB SANS1123 1000/3 Gate Valve with 4500mm spindle	Each	2		
3.39.		Extra Over item 4.32. for:Remove existing , inspect, evaluate, report.	%		15%	
3.40.		New 150NB SANS1123 1000/3 Gate Valve with 2000mm spindle	Each	1		
3.41.		Extra Over item 4.34. for:Remove existing , inspect, evaluate, report.	%		15%	
3.42.		New 200NB SANS1123 1000/3 Butterfly Valve	Each	2		
3.43.		Extra Over item 4.36. for:Remove existing , inspect, evaluate, report.	%		15%	
3.44.		New 150NB SANS1123 1000/3 Gate Valve	Each	2		
3.45.		Extra Over item 4.38. for:Remove existing , inspect, evaluate, report.	%		15%	
3.46.		New Clamp-on ultrasonic flowmeter.	Each	1		
3.47.		Extra Over item 4.40. for:Remove existing , inspect, evaluate, report.	%		15%	
		TOTAL CARRIED TO SUMMARY PAGE				

BILL B: MECHANICAL

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
4		**Washwater Pumps**				
! The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.						
4.1.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months **new Wash Water Pumps** c/w pipework and control	Each	2		
4.2.		New Ultrasonic Level Meter	Each	1		
		TOTAL CARRIED TO SUMMARY PAGE				

BILL OF QUANTITIES

BILL B: MECHANICAL

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
5		**New Inlet Works**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
5.1.		New Coarse Mechanical Bar Screen Complete	Each	1		
5.2.		New Fine Mechanical Bar Screen Complete	Each	1		
5.3.		New Coarse Manual bar screen c/w rake and accessories	Each	1		
5.4.		New Fine Manual bar screen c/w rake and accessories	Each	1		
5.5.		New Hydro Conveyor Set	Each	1		
5.6.		New Screenings Compactor	Each	1		
5.7.		New Waste Bin	Each	2		
5.8.		New Inflow Flowmeter flume (For Ultrasonic)	Each	1		
5.9.		New Channel sluice Gate (MPS26 5.4)	Each	2		
5.10.		New Channel sluice Gate (MPS26 5.5)	Each	2		
5.11.		New Channel sluice Gate (MPS26 5.6)	Each	6		
5.12.		New Penstock Sluice Gate (MPS26 5.7)	Each	1		
5.13.		New Penstock Sluice Gate (MPS26 5.8)	Each	1		
5.14.		New Grit Channel Drain Valves	Each	3		
		TOTAL CARRIED TO SUMMARY PAGE				

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
6		**New Secondary Settling Tank**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
6.1.		New SST Rotating Bridge C/w Scrapers & Scum Collection	Each	1		
6.2.		New Bridge Drive Unit (Motor & Gearbox)	Each	1		
6.3.		New Channel sluice Gate (MPS26 5.10)	Each	2		
6.4.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months new DN150 suction pipe work for RAS.	Sum	1		
6.5.		Extra Over item 8.4 for:Remove existing from remote pumpstation , inspect, evaluate, report	%		15%	
6.6.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months new DN150 discharge pipe work for RAS.	sum	1		
6.7.		Extra Over item 8.6 for:Remove existing from remote pumpstation , inspect, evaluate, report	%		15%	
6.8.		Supply, deliver, handle, store install, as per the Engineer's approval, and uphold for 12 months new **air-release valves** for RAS	each	3		
		TOTAL CARRIED FORWARD				

BILL OF QUANTITIES

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
6		**New Secondary Settling Tank**				
		TOTAL BROUGHT FORWARD				
6.9.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months new DN150 non-return valves (Ball type) for RAS.	each	2		
6.10.		Extra Over item 8.9 for:Remove existing from remote pumpstation , inspect, evaluate, report.	%		15%	
6.11.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months new DN150 resilient seal isolation valves for RAS.	each	2		
6.12.		Extra Over item 8.11 for:Remove existing from remote pumpstation , inspect, evaluate, report.	%		15%	
6.13.		Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval the **main pump sets: 3" Self Priming Pumps and 5.5 kW high efficiency, 400V motors, complete with V-Belt coupling , base plate.**	each	2		
6.14.		Extra Over item 8.13 for:Remove existing from remote pumpstation , inspect, evaluate, report.	%		15%	
6.15.		Supply, deliver, handle, store install, as per the Engineer's approval, and uphold for 12 months new **DN150 mag-flow flowmeter** for RAS	each	1		
6.16.		Extra Over item 8.15 for:Remove existing from remote pumpstation , inspect, evaluate, report.	%		15%	
		TOTAL CARRIED TO SUMMARY PAGE				

BILL OF QUANTITIES

BILL B: MECHANICAL

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
7		**Pipework**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
7.1.		Refurbishment of Existing Pipework	P. Sum	1	R 150,000.00	R150,000.00
7.2.		New Pipework	P. Sum	1	R 150,000.00	R150,000.00
		TOTAL CARRIED TO SUMMARY PAGE				

BILL B: MECHANICAL

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
8		**Backup Generator**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
8.1.		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months as per the Engineer's Approval the new 165 kVA Backup Generator	Sum	1		
8.2.		Extra Over item 10.2. for:Remove existing from remote pumpstation , inspect, evaluate, report.	%		15%	
		TOTAL CARRIED TO SUMMARY PAGE				

BILL B: MECHANICAL

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
9		**Supplementary works & Sundries**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
9.1.		5000 litre Water Tank	Each	2		
9.2.		Pipe Wall Thickness Test Instrument	Each	1		
9.3.		Waste Bin Trailer	Each	1		
9.4.		3x3x3m Shelter for protection of equipment from rain, Mildsteel, Painted, Chromadek roof Sheeting.	Each	4		
9.5.		Outflow v-notch Weir	Each	1		
9.6.		Remove existing , handle, transport to client storage as per the Engineer's Approval and the **Existing Clarifier air blowers (Robusch)** and all associated pipework and installations, located in the Blower room that will become the new electrical room.	Each	2		
		TOTAL CARRIED TO SUMMARY PAGE				

BILL C: ELECTRICAL						
Item	**Pay Ref.**	**Description**	**Unit**	**Qty**	**Rate**	**Amount**
1.		**Remote Pumpstation**				
! The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.						
1.1.		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval **new dedicated transformer / minisub**	sum	1		
1.2.		Extra over item 1.1 for: remove existing, inspect, evaluate, report.	%		15%	
1.3.		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval **new main feeder cable between the Transformer/Minisub and the Motor Control (MCC) Panel.**	m	100		
1.4.		Extra over item 1.3 for: remove existing, inspect, evaluate, report.	%		15%	
1.5.		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval **new electrical cables from the MCC panel to the equipment. Terminate adequately.**	m	15		
1.6.		Extra over item 1.5 for: remove existing, inspect, evaluate, report.	%		15%	
1.7		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval **new cable routing complete with trays, fixtures, supports and accessories from the MCC panel to the equipment. Cable Routing must be Hot Dip galvanised complete with accessories and fixtures of equivalent material.**	m	15		
1.8		Extra over item 1.7 for: remove existing, inspect, evaluate, report.	%		15%	
		TOTAL CARRIED FORWARD				

Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
1.		**Remote Pumpstation**				
		TOTAL BROUGHT FORWARD				
1.9.		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval **new Motor Control Centre (MCC) complete with enclosure, switchgear and monitoring components, cables and termination.**	sum	1		
1.10.		Extra over item 1.9 for: remove existing, inspect, evaluate, report.	%		15%	
1.11.		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval new **outdoor/area lighting** 1no. Outdoor Light complete with fixtures, cables control (Day/night) and switches centered on each wall of the pumpstation or as per the engineer's approval. 1no. High Mast Outdoor Area Light Complete with 4no. Luminaires, mast, cables, control (Day/night) and switches located adequately within the site as per the engineers approval.	sum	1		
1.12.		Extra over item 1.11 for: remove existing, inspect, evaluate, report.	%		15%	
1.13.		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval new **indoor lighting** All Indoor Areas must be fully illuminated complete with fittings and fixtures, cables, routing and accessories, switches.	sum	1		
1.14.		Extra over item 1.13 for: remove existing, inspect, evaluate, report.				
1.8.		Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval new cable work and remote kiosk c/w termination for the grinder/conditioner.	sum	1		
1.9.		Supply, deliver, handle, store, install, as per the engineer's approval and up-hold for 12 months, new **ultra sonic level sensor** complete with accessories at the inflow sump.	Each	1		
1.10.		Supply, deliver, handle, store, up-hold for 12 months, and install, as per the Engineer's approval **new control probes** (High/Low level On/Off) complete with accessories at the **inflow sump** as back-up to the ultrasonic level meter.	Each	1		
		TOTAL CARRIED TO SUMMARY PAGE				

BILL C: ELECTRICAL						
Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
2		**Bulk Power**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
2.1		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval **new dedicated transformer / minisub**	sum	1		
2.2.		Extra over item 2.1 for: remove existing, inspect, evaluate, report.	%		15%	
2.3.		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval **new main feeder cable between the Transformer/Minisub and the Existing BNR1 Motor Control (MCC) Panel.**	m	100		
2.4.		Extra over item 2.3 for: remove existing, inspect, evaluate, report.	%		15%	
2.5.		Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval new cable work (Feeder cable) to Main (Inletworks) MCC.	m	100		
2.6.		Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval The main DB MCC	sum	1		
		TOTAL CARRIED TO SUMMARY PAGE				

BILL C: ELECTRICAL						
Item	Pay Ref.	Description	Unit	Qty	Rate	Amount
3.		**New Main MCC (Inletworks)**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
3.1		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months new Inletworks MCC	Sum	1		-
3.2		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months a new **main feeder cable** between the Transformer/Minisub and the Motor Control (MCC) Panel.	m	100		
3.3		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months the **new electrical cables** between the Inletworks MCC and Inletworks Equipment,	m	100		
3.4		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months the **new cable routing** complete with trays, fixtures, supports and accessories from the MCC panel to the equipment.	m	100		
3.5.		New Ultrasonic Differential Level meters	Each	4		
3.6.		New Ultrasonic Level meter (Flume)	Each	1		
		TOTAL CARRIED TO SUMMARY PAGE				

BILL C: ELECTRICAL						
Item	**Pay Ref.**	**Description**	**Unit**	**Qty**	**Rate**	**Amount**
4		**Existing BNR1 MCC**				
! *The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.*						
4.1.		Refurbishment of the Existing BNR1 MCC	PC Sum	1	150,000.00	150,000.00
		TOTAL CARRIED TO SUMMARY PAGE				

BILL C: ELECTRICAL						
Item	**Pay Ref.**	**Description**	**Unit**	**Qty**	**Rate**	**Amount**
5		**Balancing Dam Outdoor Panel**				
! The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.						
5.1		Design, manufacture, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months new Temporary Balancing Dam MCC	Sum	1		-
5.2		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months a new **main feeder cable** between the Inletworks MCC and theBalancing Dam MCC.	m	50		
5.3		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months the **new cable work** between the Balancing Dam MCC and Balancing Dam Equipment	m	82		
5.4		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months the **new cable routing** complete with trays, fixtures and accessories from the Balancing Dam MCC panel to the equipment.	m	82		
5.5.		Supply, deliver, handle, store, install, as per the engineer's approval and up-hold for 12 months, new **ultra sonic level sensor** complete with accessories.	Each	1		
		TOTAL CARRIED TO SUMMARY PAGE				

BILL C: ELECTRICAL						
Item	**Pay Ref.**	**Description**	**Unit**	**Qty**	**Rate**	**Amount**
6		**Area and Outdoor Lighting**				
! The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.						
		Design, Manufacture, Supply, deliver, handle, store install and uphold for 12 months as per the engineer's approval new **outdoor/area lighting**				
6.1		1no. Outdoor Light complete with fixtures, cables control (Day/night) and switches centered on each wall of each of the four (4) buildings or as per the engineer's approval. 2no. High Mast Outdoor Area Light Complete with 4no. Luminaires, mast, cables, control (Day/night) and switches located adequately within the site as per the engineers approval.	sum	1		
6.2.		Extra over item 6.1 for: remove existing, inspect, evaluate, report.	%		15%	
6.3.		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months the **new solar LED outdoor Area (high Mast) Lighting.**	each	8		
6.4.		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months the **new solar LED outdoor Area (Building) Lighting.**	each	20		
		TOTAL CARRIED TO SUMMARY PAGE				

BILL C: ELECTRICAL						
Item	**Pay Ref.**	**Description**	**Unit**	**Qty**	**Rate**	**Amount**
7		**Supplementary Works & Sundries**				
! The Contractor must include for the following; Design, G.A. drawings, manufacture/supply, deliver/store, install, commission, up-hold during the 12-month defects liability period and training, of the equipment listed below. All work and equipment must comply with the specifications forming part of the contract document.						
7.1		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months the **new VSD's for the existing 30kW Fine Bubble Aeration Blowers**	each	2		
7.2.		Design, supply, deliver, handle, store install, as per the Engineer's Approval, and uphold for 12 months new 2kW Extraction Fan (Electrical Building)	each	2		
7.3.		Outflow Ultrasonic Level Meter (at v-notch weir)	each	1		
		TOTAL CARRIED TO SUMMARY PAGE				

THEMBISILE HANI LOCAL MUNICIPALITY

UPGRADING OF TWEEFONTEIN K WASTE WATER TREATMENT WORKS (WWTW), PHASE 3 (RE-ADVERT)

CONTRACT NO.: THLM/SCM34/2023-2024/WS09

SUMMARY PAGE

ITEM	*DESCRIPTION*	*AMOUNT*
PRELIMINARY & GENERAL & CIVIL		
1	PRELIMINARY AND GENERAL	
	SUB-TOTAL PnG	
BILL A: CIVIL		
2	SCHEDULE 2 - INLET WORKS	
3	SCHEDULE 3 - SECONDARY SETTLER TANK 1	
4	SCHEDULE 4 - PIPELINE EARTHWORKS	
5	SCHEDULE 5 - PIPELINES	
6	SCHEDULE 6 - ROADS & PARKING	
7	SCHEDULE 7 - STORMWATER	
8	SCHEDULE 8 - SITEWORKS CIVIL	
9	SCHEDULE 9 - GENERAL UPGRADING, REHABILITATION & REFURBISHMENT	
	SUB-TOTAL Bill A	
BILL B: MECHANICAL		
1	Nightsoil Discharge	
2	Refurbishment of Existing Balancing Dam	
3	Refurbishment of Existing BNR	
4	Washwater Pumps	
5	New Inlet Works	
6	New Secondary Settling Tank	
7	Pipework	
8	Backup Generator	
9	Supplementary works & Sundries	
	SUB-TOTAL Bill B	**R -**
BILL C: ELECTRICAL		
1	Remote Pumpstation	
2	Bulk Power	
3	New Main MCC (Inletworks)	
4	Existing BNR1 MCC	
5	Balancing Dam Outdoor Panel	
6	Area and Outdoor Lighting	
7	Supplementary Works & Sundries	
	SUB-TOTAL Bill C	**R -**
	SUB-TOTAL 1 (Bill PnG + A + B + C)	**R -**
	10.0% Contingencies	R -
	SUB-TOTAL 2	**R -**
	5% Escalation	
	SUB-TOTAL 3	
	15% VAT	R -
	TOTAL CONSTRUCTION COST	**R -**