Project No: ORTDM SCMU 26-20/21

OR TAMBO DISTRICT MUNICIPALITY
MQANDULI SECONDARY BULK WATER SCHEME PHASE 2 – CONTRACT 4

29 January 2021

ADDENDUM No. 1

NOTICE TO TENDERERS

Tenderers for the abovementioned Contract are hereby notified as follows:
PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM AS FOLLOWS:

1. Complete the attached acknowledgement of receipt and submit the completed form with your tender as part of the returnables (Section T2.2, Form CC).

2. No Addendums will be issued within (5) working days on the close of Tender.

Failure to acknowledge receipt of this Addendum by attaching it to the returnables may prejudice your Tender.

THIS ACKNOWLEDGEMENT OF RECEIPT OF ADDENDUM MUST BE SUBMITTED TOGETHER WITH THE TENDER DOCUMENT

OR Tambo District Municipality
OR Tambo House
Nelson Mandela Drive
Myezo Park
Mthatha
5100

Sir/Madam

Project No: ORTDM SCMU 26-20/21

MQANDULI SECONDARY BULK WATER SCHEME PHASE 2 – CONTRACT 4

ADDENDUM No. 1 (ONE)

I/We herewith acknowledge receipt of Addendum No 1 (One) for the above-mentioned Tender.

.....

SIGNATURE

.....

COMPANY

.....

DATE

ADDENDUM NO. 1

1. BILL OF QUANTITIES

Attached is the **revised** Bill of Quantities which supersedes the Bill of Quantities in the Tender Document.

The attached Bill of Quantities must be completed and submitted with the Tender.

2. DRAWINGS

Attached is the **revised** drawing (**DRG No.: ZCE063/FT/WA/C4/311 - Rev 1**) which supersedes the drawing (DRG No.: ZCE063/FT/WA/C4/311 - Rev 0) included in the Tender Document

SECTION 1 : SABS 1200 A - GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
1.1	8.3	FIXED-CHARGE AND VALUE RELATED ITEMS				
1.1.1	8.3.1	Contractual Requirements	Sum	1		
	8.3.2	Establishment of Facilities on the Site				
	8.3.2.1	Facilities for Engineer				
1.1.2	PSAB 3.2	a) Furnished offices (1No.)	Sum	1		
1.1.3		b) Telephone	Sum	1		
1.1.4		c) Nameboards (2 No.)	Sum	1		
	8.3.2.2	Facilities for Contractor				
1.1.5		a) Offices and storage sheds	Sum	1		
1.1.6		b) Workshops	Sum	1		
1.1.7		c) Laboratories	Sum	1		
1.1.8		d) Living accommodation	Sum	1		
1.1.9		e) Ablution and latrine facilities	Sum	1		
1.1.10		f) Tools and equipment	Sum	1		
1.1.11		g) Water supplies, electric power and communications	Sum	1		
1.1.12		h) Dealing with water (see 5.5)	Sum	1		
1.1.13		i) Access (see 5.8)	Sum	1		
1.1.14		j) Plant	Sum	1		
1.1.15	8.3.3	Other Fixed-charge Obligations	Sum	1		
1.1.16	8.3.4	Removal of Site Establishment	Sum	1		
1.1.17	PSA 8.3.5	Provision of a Materials Guarantee	Sum	1		
	PSA 8.4.6	Compliance with the OHS Act (1993, as amended), the Construction Regulations (2014) and the Particular Safety Specification:				
1.1.18	PSHSS 6.1.2; CR 5 (1)(l)	i) Preparation of the Contractor's site specific Health and Safety Plan	Sum	1		
1.1.19	CR 7(1)(b)	ii) Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	Sum	1		
	GSR 2; PSHSS 7.7	iii) Provision of SABS Personal Protective Equipment				
1.1.20		(a) Hard Hats	No	30		
1.1.21		(b) Reflective vests	No	30		
1.1.22		(c) Protective foot wear	No	30		
1.1.23		(d) Corded Earplugs	No	0		
1.1.24		(e) Dust masks FFP2	No	200		
1.1.25		(g) Gloves	No	50		
1.1.26		(h) Goggles	No	50		
CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
	CR 7(1)(g);	iv) Cost of medical certificates and medical surveillance				
1.1.27	PSHSS 7.2	(a) Initial (baseline) medical examinations	No	30		
1.1.28		(b) Exit medical examinations	No	30		
	PSHSS 7.14	v) Fall Protection				
1.1.29		a) Lifeline & anchorage	No	2		
1.1.30		b) Safety Harnesses	No	5		
1.1.31		c) Rescue Kit	No	1		
		vi) Occupational Hygiene Survey				
1.1.32	NIHL 6; PSHSS 7.3	(a) Establishment of noise zones (plant)	Sum	1		
1.1.33		(b) Compliance with Amendment of the Occupational Exposure Control Limit for Silica in Table 1 of the Hazardous Chemical Substances including air sampling and analysis	Sum	1		
1.1.34	PSA 8.4.7	Compliance with EMP and EMPr	Sum	1		
1.2	8.4	TIME-RELATED ITEMS				
1.2.1	8.4.1	Contractual Requirements		1		
	8.4.2	Operation and Maintenance of Facilities on Site, for Duration of Construction, except where otherwise stated				
	8.4.2.1	Facilities for Engineer				
1.2.2		a) Furnished offices (1No.)		1		
1.2.3	PSAB 8.4.1	b) Telephone	Sum	1		
1.2.4		c) Nameboards (2 No.)	Sum	1		
1.2.5		d) Survey assistants and materials	Sum	1		
	8.4.2.2	Facilities for Contractor				
1.2.6		a) Offices and storage sheds	Sum	1		
1.2.7		b) Workshops	Sum	1		
1.2.8		c) Laboratories	Sum	1		
1.2.9		d) Living accommodation	Sum	1		
1.2.10		e) Ablution and latrine facilities	Sum	1		
1.2.11		f) Tools and equipment	Sum	1		
1.2.12		g) Water supplies, electric power and communications	Sum	1		
1.2.13		h) Dealing with water (see 5.5)	Sum	1		
1.2.14		i) Access (see 5.8)	Sum	1		
1.2.15		j) Plant	Sum	1		
1.2.16	8.4.3	Supervision for Duration of Construction	Sum	1		
CARRIED FORWARD						

SECTION 1 : SABS 1200 A - GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.2.17	8.4.5	Other Time-related Obligations	Sum	1		
	PSA 8.4.6	Compliance with the OHS Act (1993, as amended), the Construction Regulations (2014) and the Particular Safety Specification:				
1.2.18	CR 5(1)(g)	i) Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	month	12		
1.2.19	CR 8(5); PSHSS 6.1.5	ii) Provision of a full- time SACPCMP registered Construction Health and Safety Officer	month	12		
1.2.20		iii) Provision of a part-time assistant SACPCMP Candidate Construction Health and Safety Officer for Subcontractor Management & Assistance	month	12		
		iv) OH&S Legal Compliance Training - SAQA UNIT STANDARD				
1.2.21	GSR 3(5); PSHSS 7.5	a) First Aid	No	1		
1.2.22	PSHSS 6.1.7	b) H&S Representative	No	1		
1.2.23	PSHSS 7.14	c) Working at height & rescue operations	No	20		
1.2.24	CR 29(h)	d) Basic Fire Fighting	No	1		
1.2.25	PSHSS 6.1.3/4	e) Safety for Supervisors	No	2		
1.2.26	PSHSS 7.13	f) Temporary Works Training	No	20		
1.2.27	SANS 10085; PSHSS 7.13	g) Scaffolding	No	5		
1.2.28	PSHSS 7.10	h) Plant Operators	No	5		
1.2.29	PSHSS 6.1.6	i) Temporary Roadworks Signage	Sum	1		
1.2.30	PSHSS 7.17	j) Excavation Safety - Supervisors	No	12		
1.2.31		k) Other	Sum	1		
1.2.32	GSR 3; PSHSS 7.5	v) Provision of First Aid Boxes to GSR requirements	No	3		
1.2.33	GMR 18; PSHSS 7.13	vi) Lifting Equipment Inspection by AIA	Sum	1		
1.2.34	PSHSS 7.13	vii) Temporary Works Designs, Inspections and Approval	Sum	1		
1.2.35	CR 7(1)(c)(e)	viii) Submission of a Health and Safety File	Sum	1		
1.2.36	PSA 8.4.7	Compliance with EMP and EMPr	Sum	1		
1.2.37	PSA 8.4.8	Supervision of Subcontractor	Sum	1		
CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.3	8.5	SUMS STATED PROVISIONALLY BY ENGINEER (Subclause 8.1.2.1 (d))				
1.3.1		Community Liason Officer	Prov. Sum	1	60 000.00	60 000.00
1.3.2		Overheads, charges and profit on 1.3.1 above	%	60000		
1.3.3		Additional Tests required by Engineer	Prov. Sum	1	100 000.00	100 000.00
1.3.4		Overheads, charges and profit on 1.3.3 above	%	100000		
1.3.5		Allowance for additional survey	Prov. Sum	1	100 000.00	100 000.00
1.3.6		Overheads, charges and profit on 1.3.5 above	%	100000		
1.3.7		Allowance for relocation of existing services	Prov. Sum	1	100 000.00	100 000.00
1.3.8		Overheads, charges and profit on 1.3.7 above	%	100000		
1.3.9		Allowance for connections to existing infrastructure	Prov. Sum	1	50 000.00	50 000.00
1.3.10		Overheads, charges and profit on 1.3.9 above	%	50000		
1.3.11		Allowance for River Crossings	Prov. Sum	1	75 000.00	75 000.00
1.3.12		Overheads, charges and profit on 1.3.11 above	%	75000		
1.3.13		Allowance for lightning protection at Reservoir	Prov. Sum	1	50 000.00	50 000.00
1.3.14		Overheads, charges and profit on 1.3.13 above	%	50000		
1.3.15		Allowance for HIV awareness and training	Prov. Sum	1	10 000.00	10 000.00
1.3.16		Overheads, charges and profit on 1.3.15 above	%	10000		
		Expanded Public Works Programme (EPWP)				
1.3.17		Allowance for training on targeted labour	Prov. Sum	1	100 000.00	100 000.00
1.3.18		Overheads, charges and profit on 1.3.17 above	%	100000		
1.3.19		Transportation and accomodation of workers for training where it is not possible to undertake in close proximity	Prov. Sum	1	10 000.00	10 000.00
1.3.20		Overheads, charges and profit on 1.3.19 above	%	10000		
CARRIED FORWARD						

SECTION 1 : SABS 1200 A - GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.3.21		Allowance for the supply of safety apparel (safety boots, reflectors, vests, orange overalls bearing the EPWP logo and large EPWP logo on the back and safety gloves for all targeted labour)	Prov. Sum	1	20 000.00	20 000.00
1.3.22		Overheads, charges and profit on 1.3.21 above	%	20000		
1.3.23		Equipment for the Engineer	Prov. Sum	1	125 000.00	125 000.00
1.3.24		Overheads, Charges and Profit on item 1.3.23 above	%	125000		
1.3.25		Allowance for Civil Engineering Student / Trainee	Prov. Sum	1	96 000.00	96 000.00
1.3.26		Overheads, Charges and Profit on item 1.3.25 above	%	96000		
1.3.27		Training of SMME Contractors	Prov. Sum	1	200 000.00	200 000.00
1.3.28		Overheads, Charges and Profit on item 1.3.27 above	%	200000		
1.3.29		Transportation for the Engineer for the duration of the contract (R30000 pm).	Prov. Sum	1	360 000.00	360 000.00
1.3.30		Overheads, Charges and Profit on item 1.3.29 above	%	360000		
1.3.31		Cellphone allowance for the Engineer for the duration of the contract (R5000 pm).	Prov. Sum	1	60 000.00	60 000.00
1.3.32		Overheads, Charges and Profit on item 1.3.31 above	%	60000		
	PSA 8.7	DAYWORK (See 8.1.2.1 (d))				
1.3.33		a) Labour	Prov. Sum	1	75 000.00	75 000.00
1.3.34		Overheads, charges and profit on item 1.3.33 above	%	75000		
1.3.35		b) Materials	Prov. Sum	1	75 000.00	75 000.00
1.3.36		Overheads, charges and profit on item 1.3.35 above	%	75000		
1.3.37		c) Plant	Prov. Sum	1	75 000.00	75 000.00
1.3.38		Overheads, charges and profit on item 1.3.38 above	%	75000		
1.4	8.8	TEMPORARY WORKS (See 8.1.2.1 (d))				
1.4.1	8.8.1	Main Access Road to Works (construct and maintain)	Sum	1		
1.4.2	PSA 8.8.2	Dealing with traffic	Sum	1		
1.4.3	PSA 8.8.7	Contractor to provide "Construction Record" Information	Sum	1		
TOTAL FOR SECTION 1 CARRIED FORWARD TO SUMMARY						

SECTION 2 : 1 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
2.1	SANS 1200D	EARTHWORKS				
		Site Clearance and Removal of Topsoil				
2.1.1	8.3.1	Prepare Reservoir Site	ha	0.2		
2.1.2	8.3.1.2	Remove topsoil to nominal depth of 150 mm and stockpile or dispose	m²	1250		
2.1.3	SANS 1200C 8.2.9 PSC3.1 PSD 8.3.6	Transport and dispose of materials to suitable dumping site	m³.km	1000		
2.2	SANS 1200D	EXCAVATION				
2.2.1	8.3.2	Bulk Excavation				
2.2.1.1	8.3.2(a) PSD 8.3.2	Excavate in all materials to bulk excavation line (that is about 100mm above the Final Excavation Level), stockpile and maintain for backfill and dispose of remainder to approved spoil site (including shaping to be free-draining and with embankment slopes shallower than 1:3 and compacting)	m³	2500		
	8.3.2(b)	Extra-over Item 3.2.1.1 for excavation in :				
2.2.1.2		1) Intermediate material	m³	450		
2.2.1.3		2) Hard rock material (blasting)	m³	750		
2.2.1.4		3) Hard rock excavation near residential buildings (Mounted hydraulic breaker where directed by the Engineer)	m³	100		
2.2.1.5		4) Boulder material class A	m³	175		
2.2.1.6		5) Boulder material class B	m³	175		
2.2.2	8.3.4	Importing of Materials				
2.2.2.1	8.3.4(a)	Import approved topsoil from commercial source (provisional)	m³	30		
2.2.2.2		Import approved 25 mm stone chips (reflective quatzite) from commercial source, stockpile and place by hand on reservoir roof	m³	30		
	8.3.4(a)	Layer works To backfill over-excavation of unsuitable material:				
2.2.2.3		Supply G2 crusher run, place and compact in max 150mm layers under reservoir (Prov) compacted to 100% mod AASHTO density	m³	90		
2.2.2.4		Supply G5 subbase, place and compact in 150mm layers under reservoir (Prov) stabilised with 3% ordinary portland cement (to create C4 material as directed by the Engineer) compacted to 98% mod AASHTO density	m³	270		
CARRIED FORWARD						

SECTION 2 : 1 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
2.2.2.5		Supply G5 subbase, place and compact in 150mm layers under reservoir (Prov) compacted to 95% mod AASHTO density	m³	50		Rate Only
2.2.2.6		Supply G7 natural gravel, place and compact in 150mm layers under reservoir (Prov) compacted to 95% mod AASHTO density	m³	90		
2.2.3		Finishing				
2.2.3.1	8.3.10	Topsoiling	m²	1500		
2.2.3.2	8.3.11	Grassing or other Vegetation Cover	m²	750		
2.2.4	SANS 1200DA	Restricted Excavation				
2.2.4.1		Excavate in all materials by hand to expose existing services	m³	75		
	8.3.2(a)	Excavate for restricted foundations, footings and trenches in all materials and use for backfill or embankment or dispose				
2.2.4.2		Excavate and trim to lines and levels under reservoir	m³	100		
2.2.4.3		Other restricted excavation for chambers etc	m³	100		
	8.3.3(b)	Extra over items 2.3.2 for restricted excavation in:				
2.2.4.4		1) Intermediate material	m³	25		
2.2.4.5		2) Hard rock material	m³	50		
2.2.4.6		Excavate unsuitable material from below founding level as ordered by Engineer and dispose of to approved spoil site	m³	150		
2.2.5	SANS 1200DB	PIPE EXCAVATIONS				
2.2.5.1	8.3.2 PSDB 8.1.4 PSDB 8.3.3.4	(a) Excavate in all material for trenches backfill and dispose of surplus and unsuitable material. Rate to include for all temporary works including trimming, shoring and dewatering where necessary.	m³	500		
	8.3.2	(b) Extra over item 3.2.5.1 for excavation in:				
2.2.5.2		1) Intermediate material	m³	50		
2.2.5.3		2) Hard rock (Prov)	m³	150		
2.3	SANS 1200G	REINFORCED CONCRETE RESERVOIR				
2.3.1	8.1.1 8.2	FORMWORK				
	8.2.1	Rough vertical to degree of accuracy III				
2.3.1.1		Footings to walls (curved)	m²	50		
CARRIED FORWARD						

SECTION 2 : 1 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
2.3.1.2		Walls outside below ground level (curved)	m²	200		
2.3.1.3		Sump & encasement to pipes	m²	40		
2.3.1.4		Manholes	m²	120		
	8.2.2	Smooth vertical to degree of accuracy II				
2.3.1.5		Walls inside & outside above ground level (curved)	m²	475		
2.3.1.6		Column bases	m²	30		
2.3.1.7		Footing at expansion joint	m²	20		
2.3.1.8		Circular Columns	m²	60		
2.3.1.9		Roof slab & upstand	m²	60		
2.3.1.10		Sump	m²	20		
2.3.1.11		Manhole cover slab	m²	10		
2.3.1.12		Manholes	m²	100		
	8.2.2	Smooth horizontal to degree of accuracy II				
2.3.1.13		Roof soffit	m²	325		
2.3.1.14		Manholes	m²	50		
	8.2.6	Box-outs for pipe specials to be installed then grouted in place:				
		1) Box-out in reservoir wall to accommodate:				
2.3.1.15		a) DN150 inlet pipe	No.	1		
2.3.1.16		b) DN150 scour pipe	No.	1		
2.3.1.17		c) DN250 outlet pipe	No.	1		
2.3.1.18		d) DN300 overflow pipe	No.	1		
		2) Box-out in chamber wall to accommodate:				
2.3.1.19		a) DN150 scour pipe	No.	1		
2.3.1.20		b) DN250 outlet pipe	No.	1		
2.3.1.21		c) DN300 overflow pipe	No.	1		
		3) Box-out in reservoir roof to accommodate:				
2.3.1.22		a) DN50 holes for level control and telemetry equipment	No.	4		
2.3.1.23		b) DN100 holes for sampling equipment	No.	2		
2.3.1.24		c) DN150 air vents	No.	8		
2.3.1.25		d) DN150 roof drainage outlets	No.	18		
2.3.2	8.3	REINFORCEMENT				
	8.3.1	Mild steel bars				
2.3.2.1		R8 Basic Price	t	2		
CARRIED FORWARD						

SECTION 2 : 1 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
	8.3.1	Extra-over item 3.3.2.1 for bars of diameter				
2.3.2.2		R10	t	1		
	8.3.1	High-tensile steel bars				
2.3.2.3		Y25 Basic price	t	35		
	8.3.1	Extra-over item 3.3.2.3 for bars of diameter				
2.3.2.4		Y10	t	8		
2.3.2.5		Y12	t	20		
2.3.2.6		Y16	t	4		
2.3.2.7		Y20	t	1		
	8.3.2	High-Tensile Welded Mesh				
2.3.2.8		Type reference #245	m²	60		
2.3.2.9		Type reference #193	m²	20		
2.3.3	8.4 PSG 8.1.3	CONCRETE				
2.3.3.1	PSG 5.5.1.6 PSG 8.10	No-fines concrete under floor & to fill voids	m³	45		
	8.4.2	Blinding Layer (Grade 15/19 MPa)				
2.3.3.2	PSG 8.2.8	50mm blinding layer	m³	50		
2.3.3.3		5mm 1:5 Dry Mortar Mix layer below plastic bond breaker	m²	380		
	8.4.3	Strength concrete: 35MPa/19 mm watertight concrete with an approved crystalline waterproofing concrete additive				
2.3.3.4		Walls above footing	m³	75		
2.3.3.5		Footings to walls	m³	50		
2.3.3.6		Floor slabs	m³	65		
2.3.3.7		Roof slab & upstand	m³	90		
2.3.3.8		Columns with bases	m³	15		
2.3.3.9		Encasement to inlet / outlet / overflow / scour pipes	m³	20		
2.3.3.10		Inlet & outlet chambers (as per Drawings)	m³	30		
	8.4.3	Strength concrete: 15 MPa/19 mm				
2.3.3.11	PSG 8.2.8	Minimum thickness 75 mm blinding layer to chambers and encasements	m³	7		
2.3.3.12		Mass concrete including splash aprons from roof overflow and filling under reservoir footings (where ordered by the Engineer)	m³	50		
	8.4.3	Strength 25MPa/19mm concrete				
CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
2.3.3.13		25MPa/19mm concrete to benching	m³	5		
2.3.4	8.4.4 PSG 8.4.4	UNFORMED SURFACE FINISHES				
		(a) Wood-floated finish (to degree of accuracy II)				
2.3.4.1		Top of reservoir wall footing (outside)	m²	25		
2.3.4.2		Reservoir roof	m²	320		
2.3.4.3		Invert to reservoir sump	m²	4		
2.3.4.4		Top of upstand	m²	7		
		(b) Steel-floated (to degree of accuracy II)				
2.3.4.5		Top of reservoir Wall	m²	20		
2.3.4.6		Top Reservoir Floor Slab & Footing inside	m²	320		
2.3.4.7		Top of column Bases	m²	20		
2.3.5	8.5 PSG 8.5	JOINTS				
2.3.5.1		1) Expansion Joints in reservoir floor against wall footing (as per drawings) measured by the total lengths of expansion joints complete with:	m	70		
		a) 250 mm wide x 2mm thick hypalon bandage				
		b) 2mm aluminium strip with 50mm wide backing bondage breaker				
	PSG 3.11.2	c) 250mm rearguard waterstop as per detail on drawings				
		d) Closed cell Polyethylene 100kg/m or 30mm closed cell high density void former				
2.3.5.2		2) Contraction joints in reservoir floor (as per drawings) measured by the total lengths of contraction joints complete with:	m	35		
		a) 200mm wide x 2 mm thick hypalon bandage or similar approved				
	PSG 3.11.2	b) 250mm rearguard waterstop with centre bulb				
2.3.5.3		3) Construction joints in reservoir walls (as per drawings) measured by the total lengths of construction joints complete with:	m	130		
		a) 150mm wide by 1.6mm thick mild steel strips, hot dip galvanized GI waterstop				
		b) 150mm wide Lanko Bandage or similar approved				
CARRIED FORWARD						

SECTION 2 : 1 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
2.3.5.4		4) Isolation Joints in reservoir (as per drawings) measured by the total lengths of isolation joints complete with:	m	75		
		a) 10mm Jointex or softboard				
	PSG 3.11.4	b) 10x10mm polysulphide sealant to SABS 1077				
2.3.6		MISCELLANEOUS CONCRETE ITEMS				
2.3.6.1	PSG 3.11.4 PSG 8.17	500 micron black plastic bond breaker over no-fines concrete under reservoir floor	m²	380		
2.3.6.2	PSG 8.18	Neoprene (Kilcher or similar approved) Teflon sliding bearing type 3T50/75	m	65		
2.3.6.3	PSG 8.19	Polyurethane seal between reservoir roof and walls	m	65		
2.3.6.4		Precast 220x70 deep x790 long saddleback Deranco coping (or similar approved) to reservoir roof complete installation including casting shuttering and placing on mortar.	m	65		
2.3.6.5		Concrete planks to reservoir over outlet manhole to reservoir.	No	4		
2.3.6.6		Cast in situ (25MPa concrete) standard 1000mm wide v-channelling around reservoir perimeter on 200gm/m2 needle punched geotextile around reservoir perimeter complete (see standard detail drg)	m	75		
2.3.6.7		200gm/m2 needle punched geotextile (1m width)	m²	75		
2.3.6.8		Cleaning and sterilizing reservoir and associated pipework to Engineer's approval	Sum	1		
2.3.6.9	PSG8.15	Reservoir Watertightnes test including reservoir roof	sum	1		
2.3.6.10		Supply and install "Pulltrude" type fibreglass 25 deep 36x36 grating panel 650x1000mm	No	1		
2.3.6.11		150mm dia glvanised outlets, cut from a 150mm dia pipe with metal guaze vermin proof (GALVANISED AFTER FABRICATION) as per detail on the drawings (300mm long)	No	14		
		Manhole items				
2.3.6.12		Concrete cover slab without manhole,including lifting hooks and air vents.	No	1		
2.3.6.13		Concrete cover slab complete with manhole frame cast in, including lifting hooks and air vents. Note payment of cast iron manhole frame and cover paid seperately	No	1		
CARRIED FORWARD						

SECTION 2 : 1 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
2.3.6.14	PSG 8.16	"Calcimite" or similar approved step irons general purpose to BS1247:1975	No	10		
2.3.6.15	PSG 8.16	Manhole cover (to SABS 558) type 9E with frame	No	2		
2.4	SANS 1200 HA	RESERVOIR STRUCTURAL WORK				
2.4.1		STRUCTURAL STEELWORK				
	8.3.1	Supply, fabricate, deliver and install steelwork,to the finishes/coatings specified in the specification and on the drawings				
		Access ladders with Cage				
2.4.1.1		Internal 3.5m high ladder to reservoir as per drawings. Stainless steel grade 316L	No	1		
2.4.1.2		External 3.2m high GMS ladder to outer wall of reservoir as per drawings (HD Galvanised)	No	1		
2.4.1.3		2m high GMS ladder to inlet & outlet chambers as per drawings	No	2		
		Reservoir and Chambers' roof elements				
2.4.1.4		50mm diameter sleeved holes in reservoir roof for level control and telemetry equipment as shown on the drawings.	No	4		
2.4.1.5		100mm diameter sleeved holes in reservoir roof for sampling equipment (As required).	No	2		
2.4.1.6		Supply and install GMS manhole locking bar (reservoir roof) as per drawing details	No	8		
2.4.1.7	PSG 8.16	Supply and install 600x600 GMS hinged manhole cover and frame to chambers as per standard detail drawing complete.	No	2		
	PSG 8.16	Air Vents				
2.4.1.8		GMS DN150 reservoir ventilators as per detail on drawings	No	4		
		Wall-Brackets for inlet pipe as per drawings				
2.4.1.9		100x100x10mm thick end plate welded to 50mm dia pipe fixed to concrete with 4 No. M12 s/s bolts	No.	4		
2.4.1.10		1 No. M20 stainless steel bolt grade 8.8	No.	8		
2.4.1.11		1 No. M16 s/s bolt	No.	8		
2.4.1.12		50mm dia pipe 4mm wall thickness	No.	4		
2.5	SANS 1200L	RESERVOIR PIPEWORK				
CARRIED FORWARD						

SECTION 2 : 1 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
		Supply, handle, install and commission complete with couplings and GMS nuts and bolts and corrosion protection (all bolted connections to coated with Tectile mastic and bandaged with petrolatum saturated textile (Denso or equivalent)				
2.5.1	8.2.5	INLET, OUTLET, SCOUR & OVERFLOW SPECIALS AND FITTINGS				
	PSL 8.2.1	OVERFLOW & SCOUR DRAINAGE PIPELINES				
2.5.1.1		300mm diameter uPVC Class 34 Heavy Duty Sewer Drainage Pipe	m	100		
2.5.1.2		Construct headwall complete with 2.2m wide by 3m long stone pitched scour apron, see detail drawing and build-in DN600 concrete pipe	Sum	1		
		SPECIALS AND FITTINGS				
		All pipework to be eproxy coated and lined galavanised mild steel, 4mm wall thickness.				
		OUTLET				
2.5.1.3		P1: DN250 epoxy coated and lined mild steel short radius 90° bend. Flanged, PN16 one end and DN550 bellmouth the other. 1100mm c/bellmouth and 2900mm C/F	No.	1		
2.5.1.4		P2: DN250 PN16 flanged double off-set butterfly valve with gearbox and handle wheel	No.	1		
2.5.1.5		P3: DN250 dismantling joint	No.	1		
2.5.1.6		P4: DN250 epoxy coated and lined mild steel pipe flanged PN16 one end and plain-ended the other, with DN100 flanged PN10 branch. Pipe barrel to be 1800mm f/plain end. Branch to be located 500mm C/Plain-end and extending 350 mm C/F	No.	1		
2.5.1.7		P5: DN100 RS gate valve flanged PN10 with non-rising spindle and handwheel	No.	1		
2.5.1.8		P6: DN100 multi-orifice anti-shock air valve as specified	No.	1		
2.5.1.9		P7: DN250 x DN110 eoxy coated and lined mild steel reducer flanged PN16 both ends		0		
2.5.1.10		P8: DN110 uPVC PN16 flange adaptor to suit spigot & socket uPVC pipe	No.	1		
		OVERFLOW				
2.5.1.11		P9: DN300 epoxy coated and lined mild steel pipe,buttressed flanged PN16 one end and DN450 bellmouth with 4 no. anti-vortex baffles the other end. 3250mm f/bellmouth.	No.	1		
CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
2.5.1.12		P10: DN300 epoxy coated and lined mild steel 90° bend. Buttressed flanged PN16 one end and plain ended the other. 1250mm c/f and 3050mm c/plain end.	No.	1		
		SCOUR				
2.5.1.13		P11: DN150 Rilsan coated and lined short radius 90° bend. Flanged PN10 one end and DN250 bellmouth the other. 750mm c/bellmouth and 11175mm c/f.	No.	1		
2.5.1.14		P12: DN150 clockwise closing non-rising spindle flanged wedge gate valve to SANS 664.	No.	1		
2.5.1.15		P13: DN150 Rilsan coated and lined mild steel short radius 90° bend. Flanged PN10 one end and plain ended the other end with standard c/f dimensions.	No.	1		
		INLET				
2.5.1.16		P14: DN150 epoxy coated and lined mild steel puddle pipe, flanged PN16 both ends. Pipe barrel to be 600mm f/f with puddle flange 300mm from plain end.	No.	1		
2.5.1.17		P15: DN150 epoxy coated and lined mild steel 90° short radius bend, flanged PN16 both ends, 150mm c/f and 2800mm c/f.	No.	1		
2.5.1.18		P16: DN150 epoxy coated and lined mild steel pipe with 45° short radius bends each end, flanged PN16 both ends, length to suit.	No.	1		
2.5.1.19		P17: DN150 x DN110 epoxy coated and lined mild steel concentric reducer flanged each end 600mm long, PN16.	No.	1		
2.5.1.20		P17A: DN110 PN16 uPVC flange adaptor.	No.	1		
2.5.1.21		P18: DN150 Direct Acting Reservoir Control Float Valve PN16 to Engineer's Approval. (design max flow: 50 l/s; Max static head (no flow): 50m)	No.	1		
2.5.2	1200LB	BEDDING (overflow and scour pipelines)				
	8.2.1 PSL 8.2.1	Provision of bedding from available sources on site				
2.5.2.1		Selected granular material	m³	20		
2.5.2.2		Selected fill material	m³	200		
	8.2.2 PSL 8.2.2	Supply only of bedding by importation (provisional)from commercial sources				
2.5.2.3		Selected granular material	m³	75		
2.5.2.4		Selected fill material	m³	100		
2.5.3	PSL 8.2.6	SUBSOIL DRAINAGE (Reservoir)				
CARRIED FORWARD						

SECTION 2 : 1 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
		Supply and lay (as detailed on drawing):				
2.5.3.1		Sand compacted to 100% Mod AASHTO	m³	30		
2.5.3.2		19mm crushed stone to reservoir perimeter	m³	45		
2.5.3.3		200gr/m² needle punched geofabric to subsurface drains (bidim)	m²	750		
2.5.3.4		110mm diameter class 4 slotted drainage pipe complete with all fittings. i.e. elbows, endcaps and tee connections to suit details on the drawings	m	175		
2.5.3.5		25mm proprietary drainage void former using premoulded HDPE or Similar Approved	m²	200		
2.6		RESERVOIR SITE WORKS				
2.6.1		RESERVOIR FENCING AND SITEWORKS				
		FENCING				
2.6.1.1		Supply and install fencing around reservoir and pumpstation complete with gates (3 quotes from local contractors to be arranged)	Prov Sum	1	250 000.00	250 000.00
2.6.1.2		Charges on profit on item 3.6.1.1 above	%	250000		
2.7		RESERVOIR ACCESS ROAD				
2.7.1	SANS 1200DM	EARTHWORKS (ROADS, SUBGRADE)				
	8.3.3b)	Road-bed preparation and compaction of material				
2.7.1.1		Scarify and compact in-situ material and compact to 93% Mod AASHTO density in 150 mm layer (Prov)	m³	175		
		Extra over item 3.7.1.1 :				
2.7.1.2		Process in-situ material with Lime stabiliser	m³	300		
2.7.2	SANS 1200MF	WEARING COURSE				
2.7.2.1	8.3.3a)	Import G5 wearing course material,place and compact to 95% Mod AASHTO in a 150mm layer	m³	300		
2.8		MISCELLANEOUS				
2.8.1	1200DK	GABIONS AND PITCHING				
2.8.1.1	8.2.1a	Surface preparation for bedding of gabions with approved excavated material	m²	10		
2.8.1.2	8.2.2	1mx1mx2m Gabions	m³	6		
2.8.1.3	8.2.2	230mm thick reno mattress	m²	10		
CARRIED FORWARD						

SECTION 2 : 1 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
2.8.1.4	8.2.4	200grm/m2 needlepunched geofabric	m²	20		
	SANS 1200ME	Stabilizing agent				
2.8.2	8.3.8	Ordinary Portland cement (CEM 1) 3% by weight.	50kg Bags	250		
2.8.3		Lime Stabiliser	t	1		
TOTAL FOR SECTION 2 CARRIED FORWARD TO SUMMARY						

SECTION 3 : 2 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
3.1	SANS 1200D	EARTHWORKS				
		Site Clearance and Removal of Topsoil				
3.1.1	8.3.1	Prepare Reservoir Site	ha	0.35		
3.1.2	8.3.1.2	Remove topsoil to nominal depth of 150 mm and stockpile or dispose	m²	2500		
3.1.3	SANS 1200C 8.2.9 PSC3.1 PSD 8.3.6	Transport and dispose of materials to suitable dumping site	m³.km	1500		
3.2	SANS 1200D	EXCAVATION				
3.2.1	8.3.2	Bulk Excavation				
3.2.1.1	8.3.2(a) PSD 8.3.2	Excavate in all materials to bulk excavation line (that is about 100mm above the Final Excavation Level), stockpile and maintain for backfill and dispose of remainder to approved spoil site (including shaping to be free-draining and with embankment slopes shallower than 1:3 and compacting)	m³	3000		
	8.3.2(b)	Extra-over Item 3.2.1.1 for excavation in :				
3.2.1.2		1) Intermediate material	m³	675		
3.2.1.3		2) Hard rock material (blasting)	m³	1125		
3.2.1.4		3) Hard rock excavation near residential buildings (Mounted hydraulic breaker where directed by the Engineer)	m³	150		
3.2.1.5		4) Boulder material class A	m³	260		
3.2.1.6		5) Boulder material class B	m³	260		
3.2.2	8.3.4	Importing of Materials				
3.2.2.1	8.3.4(a)	Import approved topsoil from commercial source (provisional)	m³	45		
3.2.2.2		Import approved 25 mm stone chips (reflective quatzite) from commercial source, stockpile and place by hand on reservoir roof	m³	45		
	8.3.4(a)	Layer works To backfill over-excavation of unsuitable material:				
3.2.2.3		Supply G2 crusher run, place and compact in max 150mm layers under reservoir (Prov) compacted to 100% mod AASHTO density	m³	110		
3.2.2.4		Supply G5 subbase, place and compact in 150mm layers under reservoir (Prov) stabilised with 3% ordinary portland cement (to create C4 material as directed by the Engineer) compacted to 98% mod AASHTO density	m³	325		
CARRIED FORWARD						

SECTION 3 : 2 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
3.2.2.5		Supply G5 subbase, place and compact in 150mm layers under reservoir (Prov) compacted to 95% mod AASHTO density	m³	110		Rate Only
3.2.2.6		Supply G7 natural gravel, place and compact in 150mm layers under reservoir (Prov) compacted to 95% mod AASHTO density	m³	110		
3.2.3		Finishing				
3.2.3.1	8.3.10	Topsoiling	m²	2500		
3.2.3.2	8.3.11	Grassing or other Vegetation Cover	m²	1400		
3.2.4	SANS 1200DA	Restricted Excavation				
3.2.4.1		Excavate in all materials by hand to expose existing services	m³	75		
	8.3.2(a)	Excavate for restricted foundations, footings and trenches in all materials and use for backfill or embankment or dispose				
3.2.4.2		Excavate and trim to lines and levels under reservoir	m³	150		
3.2.4.3		Other restricted excavation for chambers etc	m³	150		
	8.3.3(b)	Extra over items 2.3.2 for restricted excavation in:				
3.2.4.4		1) Intermediate material	m³	35		
3.2.4.5		2) Hard rock material	m³	75		
3.2.4.6		Excavate unsuitable material from below founding level as ordered by Engineer and dispose of to approved spoil site	m³	225		
3.2.5	SANS 1200DB	PIPE EXCAVATIONS				
3.2.5.1	8.3.2 PSDB 8.1.4 PSDB 8.3.3.4	(a) Excavate in all material for trenches backfill and dispose of surplus and unsuitable material. Rate to include for all temporary works including trimming, shoring and dewatering where necessary.	m³	750		
	8.3.2	(b) Extra over item 3.2.5.1 for excavation in:				
3.2.5.2		1) Intermediate material	m³	75		
3.2.5.3		2) Hard rock (Prov)	m³	225		
3.3	SANS 1200G	REINFORCED CONCRETE RESERVOIR				
3.3.1	8.1.1 8.2	FORMWORK				
	8.2.1	Rough vertical to degree of accuracy III				
3.3.1.1		Footings to walls (curved)	m²	75		
CARRIED FORWARD						

SECTION 3 : 2 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
3.3.1.2		Walls outside below ground level (curved)	m²	350		
3.3.1.3		Sump & encasement to pipes	m²	60		
3.3.1.4		Manholes	m²	120		
	8.2.2	Smooth vertical to degree of accuracy II				
3.3.1.5		Walls inside & outside above ground level (curved)	m²	700		
3.3.1.6		Column bases	m²	30		
3.3.1.7		Footing at expansion joint	m²	30		
3.3.1.8		Circular Columns	m²	60		
3.3.1.9		Roof slab & upstand	m²	60		
3.3.1.10		Sump	m²	30		
3.3.1.11		Manhole cover slab	m²	10		
3.3.1.12		Manholes	m²	100		
3.3.1.13		Roof Slab drop panels (2.4mx2.4mx100mm)	m²	15		
	8.2.2	Smooth horizontal to degree of accuracy II				
3.3.1.14		Roof soffit	m²	525		
3.3.1.15		Manholes	m²	50		
	8.2.6	Box-outs for pipe specials to be installed then grouted in place:				
		1) Box-out in reservoir wall to accommodate:				
3.3.1.16		a) DN150 inlet pipe	No.	1		
3.3.1.17		b) DN150 scour pipe	No.	1		
3.3.1.18		c) DN250 outlet pipe	No.	1		
3.3.1.19		d) DN300 overflow pipe	No.	1		
		2) Box-out in chamber wall to accommodate:				
3.3.1.20		a) DN150 scour pipe	No.	1		
3.3.1.21		b) DN250 outlet pipe	No.	1		
3.3.1.22		c) DN300 overflow pipe	No.	1		
		3) Box-out in reservoir roof to accommodate:				
3.3.1.23		a) DN50 holes for level control and telemetry equipment	No.	4		
3.3.1.24		b) DN100 holes for sampling equipment	No.	2		
3.3.1.25		c) DN150 air vents	No.	8		
3.3.1.26		d) DN150 roof drainage outlets	No.	18		
3.3.2	8.3	REINFORCEMENT				
CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
	8.3.1	Mild steel bars				
3.3.2.1		R8 Basic Price	t	5		
	8.3.1	Extra-over item 3.3.2.1 for bars of diameter				
3.3.2.2		R10	t	1		
	8.3.1	High-tensile steel bars				
3.3.2.3		Y25 Basic price	t	65		
	8.3.1	Extra-over item 3.3.2.3 for bars of diameter				
3.3.2.4		Y10	t	12		
3.3.2.5		Y12	t	30		
3.3.2.6		Y16	t	6		
3.3.2.7		Y20	t	2		
	8.3.2	High-Tensile Welded Mesh				
3.3.2.8		Type reference #245	m²	90		
3.3.2.9		Type reference #193	m²	30		
3.3.3	8.4 PSG 8.1.3	CONCRETE				
3.3.3.1	PSG 5.5.1.6 PSG 8.10	No-fines concrete under floor & to fill voids	m³	75		
	8.4.2	Blinding Layer (Grade 15/19 MPa)				
3.3.3.2	PSG 8.2.8	50mm blinding layer	m³	75		
3.3.3.3		5mm 1:5 Dry Mortar Mix layer below plastic bond breaker	m²	550		
	8.4.3	Strength concrete: 35MPa/19 mm watertight concrete with an approved crystalline waterproofing concrete additive				
3.3.3.4		Walls above footing	m³	105		
3.3.3.5		Footings to walls	m³	75		
3.3.3.6		Floor slabs	m³	125		
3.3.3.7		Roof slab & upstand	m³	195		
3.3.3.8		Columns with bases	m³	20		
3.3.3.9		Encasement to inlet / outlet / overflow / scour pipes	m³	30		
3.3.3.10		Inlet & outlet chambers (as per Drawings)	m³	45		
	8.4.3	Strength concrete: 15 MPa/19 mm				
3.3.3.11	PSG 8.2.8	Minimum thickness 75 mm blinding layer to chambers and encasements	m³	15		
CARRIED FORWARD						

SECTION 3 : 2 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
3.3.3.12		Mass concrete including splash aprons from roof overflow and filling under reservoir footings (where ordered by the Engineer)	m³	75		
	8.4.3	Strength 25MPa/19mm concrete				
3.3.3.13		25MPa/19mm concrete to benching	m³	10		
3.3.4	8.4.4 PSG 8.4.4	UNFORMED SURFACE FINISHES				
		(a) Wood-floated finish (to degree of accuracy II)				
3.3.4.1		Top of reservoir wall footing (outside)	m²	35		
3.3.4.2		Reservoir roof	m²	550		
3.3.4.3		Invert to reservoir sump	m²	8		
3.3.4.4		Top of upstand	m²	15		
		(b) Steel-floated (to degree of accuracy II)				
3.3.4.5		Top of reservoir Wall	m²	25		
3.3.4.6		Top Reservoir Floor Slab & Footing inside	m²	550		
3.3.4.7		Top of column Bases	m²	35		
3.3.5	8.5 PSG 8.5	JOINTS				
3.3.5.1		1) Expansion Joints in reservoir floor against wall footing (as per drawings) measured by the total lengths of expansion joints complete with:	m	95		
		a) 250 mm wide x 2mm thick hypalon bandage				
		b) 2mm aluminium strip with 50mm wide backing bondage breaker				
	PSG 3.11.2	c) 250mm rearguard waterstop as per detail on drawings				
		d) Closed cell Polyethylene 100kg/m or 30mm closed cell high density void former				
3.3.5.2		2) Contraction joints in reservoir floor (as per drawings) measured by the total lengths of contraction joints complete with:	m	60		
		a) 200mm wide x 2 mm thick hypalon bandage or similar approved				
	PSG 3.11.2	b) 250mm rearguard waterstop with centre bulb				
3.3.5.3		3) Construction joints in reservoir walls (as per drawings) measured by the total lengths of construction joints complete with:	m	175		
CARRIED FORWARD						

SECTION 3 : 2 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
		a) 150mm wide by 1.6mm thick mild steel strips, hot dip galvanized GI waterstop				
		b) 150mm wide Lanko Bandage or similar approved				
3.3.5.4		4) Isolation Joints in reservoir (as per drawings) measured by the total lengths of isolation joints complete with:	m	95		
		a) 10mm Jointex or softboard				
	PSG 3.11.4	b) 10x10mm polysulphide sealant to SABS 1077				
3.3.6		MISCELLANEOUS CONCRETE ITEMS				
3.3.6.1	PSG 3.11.4 PSG 8.17	500 micron black plastic bond breaker over no-fines concrete under reservoir floor	m²	620		
3.3.6.2	PSG 8.18	Neoprene (Kilcher or similar approved) Teflon sliding bearing type 3T50/75	m	100		
3.3.6.3	PSG 8.19	Polyurethane seal between reservoir roof and walls	m	100		
3.3.6.4		Precast 220x70 deep x790 long saddleback Deranco coping (or similar approved) to reservoir roof complete installation including casting shuttering and placing on mortar.	m	100		
3.3.6.5		Concrete planks to reservoir over outlet manhole to reservoir.	No	4		
3.3.6.6		Cast in situ (25MPa concrete) standard 1000mm wide v-channelling around reservoir perimeter on 200gm/m2 needle punched geotextile around reservoir perimeter complete (see standard detail drg)	m	100		
3.3.6.7		200gm/m2 needle punched geotextile (1m width)	m²	100		
3.3.6.8		Cleaning and sterilizing reservoir and associated pipework to Engineer's approval	Sum	1		
3.3.6.9	PSG8.15	Reservoir Watertightnes test including reservoir roof	sum	1		
3.3.6.10		Supply and install "Pulltrude" type fibreglass 25 deep 36x36 grating panel 650x1000mm	No	1		
3.3.6.11		150mm dia glvanised outlets, cut from a 150mm dia pipe with metal guaze vermin proof (GALVANISED AFTER FABRICATION) as per detail on the drawings (300mm long)	No	18		
		Manhole items				
3.3.6.12		Concrete cover slab without manhole,including lifting hooks and air vents.	No	1		
CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
3.3.6.13		Concrete cover slab complete with manhole frame cast in, including lifting hooks and air vents. Note payment of cast iron manhole frame and cover paid seperately	No	1		
3.3.6.14	PSG 8.16	"Calcimite" or similar approved step irons general purpose to BS1247:1975	No	10		
3.3.6.15	PSG 8.16	Manhole cover (to SABS 558) type 9E with frame	No	2		
3.4	SANS 1200 HA	RESERVOIR STRUCTURAL WORK				
3.4.1		STRUCTURAL STEELWORK				
	8.3.1	Supply, fabricate, deliver and install steelwork,to the finishes/coatings specified in the specification and on the drawings				
		Access ladders with Cage				
3.4.1.1		Internal 4.5m high ladder to reservoir as per drawings. Stainless steel grade 316L	No	1		
3.4.1.2		External 4.2m high GMS ladder to outer wall of reservoir as per drawings (HD Galvanised)	No	1		
3.4.1.3		3m high GMS ladder to inlet & outlet chambers as per drawings	No	2		
		Reservoir and Chambers' roof elements				
3.4.1.4		50mm diameter sleeved holes in reservoir roof for level control and telemetry equipment as shown on the drawings.	No	4		
3.4.1.5		100mm diameter sleeved holes in reservoir roof for sampling equipment (As required).	No	2		
3.4.1.6		Supply and install GMS manhole locking bar (reservoir roof) as per drawing details	No	8		
3.4.1.7	PSG 8.16	Supply and install 600x600 GMS hinged manhole cover and frame to chambers as per standard detail drawing complete.	No	2		
	PSG 8.16	Air Vents				
3.4.1.8		GMS DN150 reservoir ventilators as per detail on drawings	No	4		
		Wall-Brackets for inlet pipe as per drawings				
3.4.1.9		100x100x10mm thick end plate welded to 50mm dia pipe fixed to concrete with 4 No. M12 s/s bolts	No.	4		
3.4.1.10		1 No. M20 stainless steel bolt grade 8.8	No.	8		
3.4.1.11		1 No. M16 s/s bolt	No.	8		
3.4.1.12		50mm dia pipe 4mm wall thickness	No.	4		
3.5	SANS 1200L	RESERVOIR PIPEWORK				
CARRIED FORWARD						

SECTION 3 : 2 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
		Supply, handle, install and commission complete with couplings and GMS nuts and bolts and corrosion protection (all bolted connections to coated with Tectile mastic and bandaged with petrolatum saturated textile (Denso or equivalent)				
3.5.1	8.2.5	INLET, OUTLET, SCOUR & OVERFLOW SPECIALS AND FITTINGS				
	PSL 8.2.1	OVERFLOW & SCOUR DRAINAGE PIPELINES				
3.5.1.1		300mm diameter uPVC Class 34 Heavy Duty Sewer Drainage Pipe	m	100		
3.5.1.2		Construct headwall complete with 2.2m wide by 3m long stone pitched scour apron, see detail drawing and build-in DN600 concrete pipe	Sum	1		
		SPECIALS AND FITTINGS				
		All pipework to be eproxy coated and lined galavanised mild steel, 4mm wall thickness.				
		OUTLET				
3.5.1.3		P1: DN250 epoxy coated and lined mild steel short radius 90° bend. Flanged, PN16 one end and DN550 bellmouth the other. 1100mm c/bellmouth and 2900mm C/F	No.	1		
3.5.1.4		P2: DN250 PN16 flanged double off-set butterfly valve with gearbox and handle wheel	No.	1		
3.5.1.5		P3: DN250 dismantling joint	No.	1		
3.5.1.6		P4: DN250 epoxy coated and lined mild steel pipe flanged PN16 one end and plain-ended the other, with DN100 flanged PN10 branch. Pipe barrel to be 1800mm f/plain end. Branch to be located 500mm C/Plain-end and extending 350 mm C/F	No.	1		
3.5.1.7		P5: DN100 RS gate valve flanged PN10 with non-rising spindle and handwheel	No.	1		
3.5.1.8		P6: DN100 multi-orifice anti-shock air valve as specified	No.	1		
3.5.1.9		P7: DN250 x DN110 eoxy coated and lined mild steel reducer flanged PN16 both ends		0		
3.5.1.10		P8: DN110 uPVC PN16 flange adaptor to suit spigot & socket uPVC pipe	No.	1		
		OVERFLOW				
3.5.1.11		P9: DN300 epoxy coated and lined mild steel pipe,buttressed flanged PN16 one end and DN450 bellmouth with 4 no. anti-vortex baffles the other end. 3250mm f/bellmouth.	No.	1		
CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
3.5.1.12		P10: DN300 epoxy coated and lined mild steel 90° bend. Buttressed flanged PN16 one end and plain ended the other. 1250mm c/f and 3050mm c/plain end.	No.	1		
		SCOUR				
3.5.1.13		P11: DN150 Rilsan coated and lined short radius 90° bend. Flanged PN10 one end and DN250 bellmouth the other. 750mm c/bellmouth and 11175mm c/f.	No.	1		
3.5.1.14		P12: DN150 clockwise closing non-rising spindle flanged wedge gate valve to SANS 664.	No.	1		
3.5.1.15		P13: DN150 Rilsan coated and lined mild steel short radius 90° bend. Flanged PN10 one end and plain ended the other end with standard c/f dimensions.	No.	1		
		INLET				
3.5.1.16		P14: DN150 epoxy coated and lined mild steel puddle pipe, flanged PN16 both ends. Pipe barrel to be 600mm f/f with puddle flange 300mm from plain end.	No.	1		
3.5.1.17		P15: DN150 epoxy coated and lined mild steel 90° short radius bend, flanged PN16 both ends, 150mm c/f and 2800mm c/f.	No.	1		
3.5.1.18		P16: DN150 epoxy coated and lined mild steel pipe with 45° short radius bends each end, flanged PN16 both ends, length to suit.	No.	1		
3.5.1.19		P17: DN150 x DN110 epoxy coated and lined mild steel concentric reducer flanged each end 600mm long, PN16.	No.	1		
3.5.1.20		P17A: DN110 PN16 uPVC flange adaptor.	No.	1		
3.5.1.21		P18: DN150 Direct Acting Reservoir Control Float Valve PN16 to Engineer's Approval. (design max flow: 50 l/s; Max static head (no flow): 50m)	No.	1		
3.5.2	1200LB	BEDDING (overflow and scour pipelines)				
	8.2.1 PSL 8.2.1	Provision of bedding from available sources on site				
3.5.2.1		Selected granular material	m³	20		
3.5.2.2		Selected fill material	m³	200		
	8.2.2 PSL 8.2.2	Supply only of bedding by importation (provisional)from commercial sources				
3.5.2.3		Selected granular material	m³	75		
3.5.2.4		Selected fill material	m³	100		
3.5.3	PSL 8.2.6	SUBSOIL DRAINAGE (Reservoir)				
CARRIED FORWARD						

SECTION 3 : 2 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
		Supply and lay (as detailed on drawing):				
3.5.3.1		Sand compacted to 100% Mod AASHTO	m³	30		
3.5.3.2		19mm crushed stone to reservoir perimeter	m³	60		
3.5.3.3		200gr/m² needle punched geofabric to subsurface drains (bidim)	m²	4000		
3.5.3.4		110mm diameter class 4 slotted drainage pipe complete with all fittings. i.e. elbows, endcaps and tee connections to suit details on the drawings	m	270		
3.5.3.5		25mm proprietary drainage void former using premoulded HDPE or Similar Approved	m²	200		
3.6		RESERVOIR SITE WORKS				
3.6.1		RESERVOIR FENCING AND SITEWORKS				
		FENCING				
3.6.1.1		Supply and install fencing around reservoir and pumpstation complete with gates (3 quotes from local contractors to be arranged)	Prov Sum	1	375 000.00	375 000.00
3.6.1.2		Charges on profit on item 3.6.1.1 above	%	375000		
3.7		RESERVOIR ACCESS ROAD				
3.7.1	SANS 1200DM	EARTHWORKS (ROADS, SUBGRADE)				
	8.3.3b)	Road-bed preparation and compaction of material				
3.7.1.1		Scarify and compact in-situ material and compact to 93% Mod AASHTO density in 150 mm layer (Prov)	m³	175		
		Extra over item 3.7.1.1 :				
3.7.1.2		Process in-situ material with Lime stabiliser	m³	300		
3.7.2	SANS 1200MF	WEARING COURSE				
3.7.2.1	8.3.3a)	Import G5 wearing course material,place and compact to 95% Mod AASHTO in a 150mm layer	m³	300		
3.8		MISCELLANEOUS				
3.8.1	1200DK	GABIONS AND PITCHING				
3.8.1.1	8.2.1a	Surface preparation for bedding of gabions with approved excavated material	m²	10		
3.8.1.2	8.2.2	1mx1mx2m Gabions	m³	6		
3.8.1.3	8.2.2	230mm thick reno mattress	m²	10		
CARRIED FORWARD						

SECTION 3 : 2 ML RESERVOIR

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
3.8.1.4	8.2.4	200grm/m2 needlepunched geofabric	m²	20		
	SANS 1200ME	Stabilizing agent				
3.8.2	8.3.8	Ordinary Portland cement (CEM 1) 3% by weight.	50kg Bags	300		
3.8.3		Lime Stabiliser	t	1		
TOTAL FOR SECTION 3 CARRIED FORWARD TO SUMMARY						

SECTION 4 : SUBCONTRACTOR'S SCOPE

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
4.1	C3.3.2.1	Scope of mandatory subcontract works	Sum	1	7 755 000.00	7 755 000.00
TOTAL FOR SECTION 4 CARRIED FORWARD TO SUMMARY						

SUMMARY OF BILL OF QUANTITIES

		AMOUNT
SECTION 1	SABS 1200 A - GENERAL	
SECTION 2	1 ML RESERVOIR	
SECTION 3	2 ML RESERVOIR	
SECTION 4	SUBCONTRACTOR'S SCOPE	

NETT TOTAL OF TENDER **……..**

ALLOWANCE FOR CONTINGENCIES (10% OF SUBTOTAL) **……..**
(to be spend as the Engineering may direct and to be deducted in whole or in part it not required)

TOTAL INCLUDING CONTINGENCIES **……..**

ALLOWANCE FOR CONTRACT PRICE ADJUSTMENT (6%) **……..**

TOTAL INCLUDING CONTRACT PRICE ADJUSTMENT **……..**

ALLOWANCE FOR VAT 15% **……..**

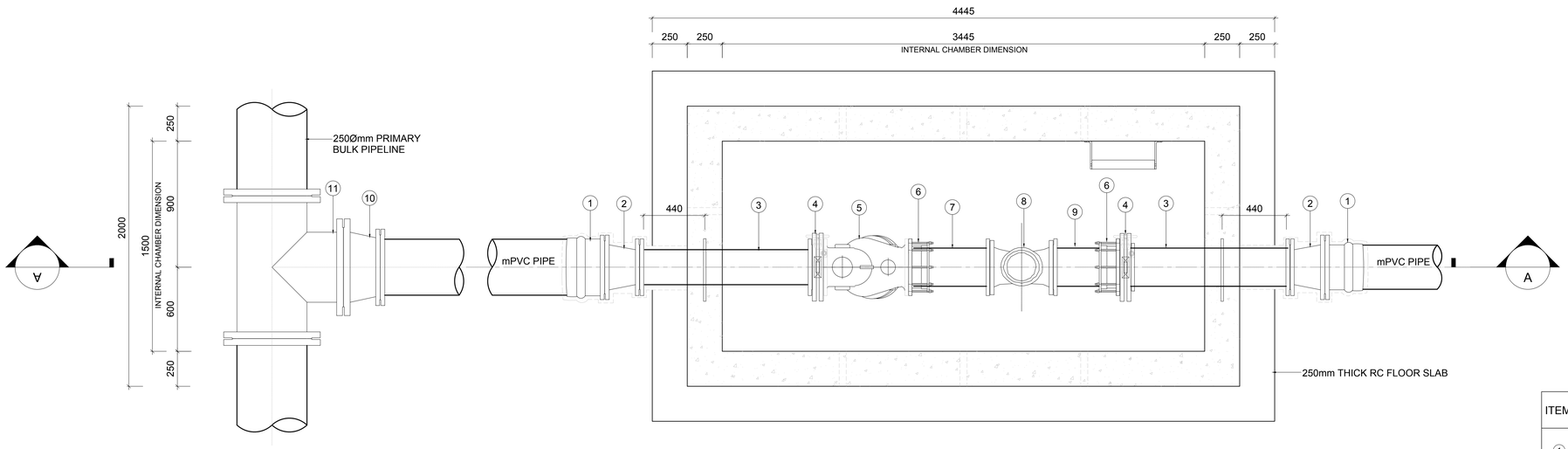
GROSS TOTAL CARRIED TO PART C1.1 FORM OF OFFER & ACCEPTANCE **……..**

TIME FOR COMPLETION OF CONTRACT (not to exceed 52 weeks) **…… weeks**

SIGNED BY/ON BEHALF OF TENDERER

NAME	**SIGNATURE**	**DATE**

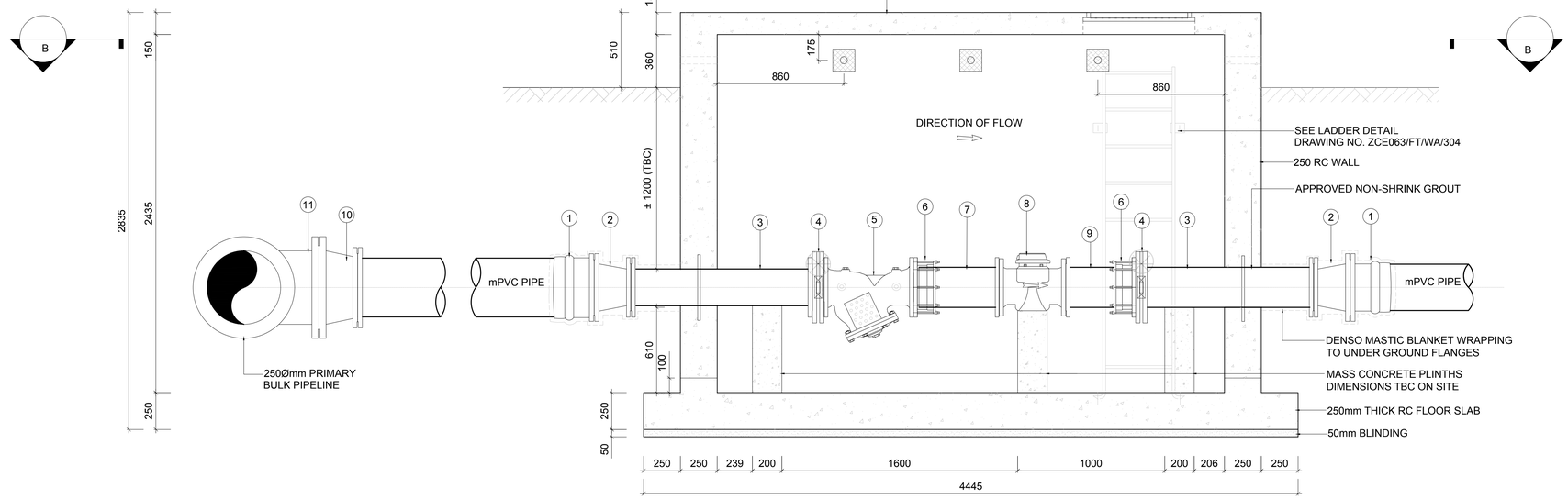
COMPANY STAMP



SECTION "B-B"

NOTE:

ASSUME 0.1 TONS STEEL PER m^3 OF CONCRETE

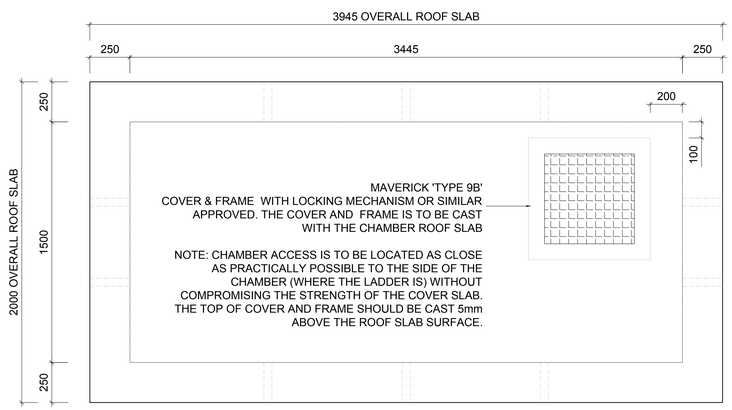


SECTION "A-A"

SCALE 1:20

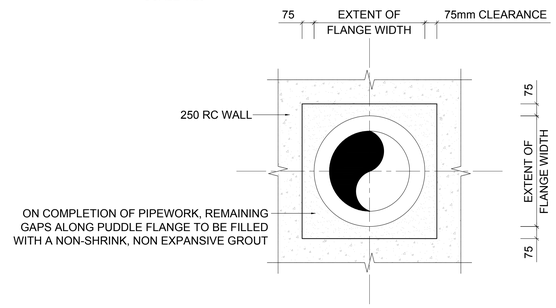
200mm Ø mPVC SCHEDULE TABLE

ITEM	NOMINAL DIAMETER	QTY	DESCRIPTION	SKETCH	PN
①	200	2	CI FLANGE ADAPTOR		16
②	200 X 150	2	GMS FLANGED REDUCER	± 180	16
③	150	2	GMS PIPE, F.B.E. 1290mm LONG WITH PUDDLE FLANGE 410mm FROM ONE END.	440 / 1290	16
④	150	2	FLANGED AMRI BUTTERFLY VALVE, OR SIMILAR APPROVED, ±56mm WIDTH		16
⑤	150	1	FLANGED BERMAD STRAINER OR SIMILAR APPROVED, ±415mm FLANGE TO FLANGE		16
⑥	150	2	VJ FLANGE ADAPTOR, OR SIMILAR APPROVED		16
⑦	150	1	GMS PIPE, 830mm LONG, F.O.E	830	16
⑧	150	1	FLANGED SENSUS WATER METER OR SIMILAR APPROVED, ±300mm LONG		16
⑨	150	1	GMS PIPE, 520mm LONG, F.O.E	520	16
⑩	500 X 400	1	GMS FLANGED REDUCER	± 200	16
⑪	500 X 500	1	GMS EQUAL TEE, F.A.E	1020 / 510	16



PLAN VIEW - OFF-TAKE CHAMBER COVER SLAB

SCALE 1:20



TYPICAL BOX OUT DETAIL

SCALE 1:20

ABRV.	DESCRIPTION	SKETCH
F.A.E.	FLANGED ONE END	
F.B.E.	FLANGED BOTH ENDS	
F.A.E.	FLANGED ALL ENDS.	

CHAMBER NOTES:

1. ALL WORK IN ACCORDANCE WITH THE RELEVANT SECTIONS OF SANS 1200.
2. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
3. ALL PIPE FITTINGS TO BE CHECKED ON SITE. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER PRIOR TO MANUFACTURE
4. ALL PIPEWORK TO BE GMS UNLESS STATED OTHERWISE.
5. ALL FLANGES SHALL BE RATED AND DRILLED TO SABS 1123.
6. ALL BOLTS TO BE HOT-DIPPED GALVANISED
7. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT CIVIL MECHANICAL DRAWINGS.
8. ALL BURIED FLANGES AND FITTINGS TO BE WRAPPED IN "DENSO MASTIC" BLANKET WRAPPING.
9. ALL CONCRETE IS TO BE GRADE 25/19 UNLESS STATED OTHERWISE

CONCRETE NOTES:

1. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
2. FOUNDATION EXCAVATIONS TO BE APPROVED BY THE STRUCTURAL / GEOTECHNICAL ENGINEER.
3. REINFORCING TO BE CHECKED BY THE ENGINEER.
4. CONCRETE STRENGTHS @ 28 DAYS:
   BLINDING : 15 MPa
   BASES : 25 MPa
   SLABS : 30 MPa
   WALLS : 25 MPa
5. COVER TO STEEL REINFORCING:
   CHAMBER : 40mm
6. ALL SHARP EXPOSED EDGES TO BE CHAMFERED 20 x 20mm.

Ziinzame Consulting Engineers (Pty) Ltd.
Reg No. 2013/054699/07
25 Falcon Street
Southernwood
Mthatha
5099
e-mail: wnjomi@ziinzame.co.za
Tel (047) 531 0269
Fax (047) 531 0269

Sub-Consultant:
GIBB

TENDER DRAWING

DATE : 03-11-2020

SIGNED BY :

CONSULTING ENGINEER

REV	DATE	DESCRIPTION	BY	CHK

DRG. NO. | REFERENCE DRAWINGS

CLIENT LOGO

O.R. TAMBO DISTRICT MUNICIPALITY

CLIENT NAME

O.R. TAMBO DISTRICT MUNICIPALITY

PROJECT TITLE

MQANDULI SECONDARY BULK WATER SUPPLY PHASE 2

CONTRACT 4

DRAWING TITLE

OFF-TAKE CHAMBER DETAILS

	RESPONSIBLE PERSON	DATE
DESIGNED	M.NDABANKULU	03-11-2020
CHECKED	V.MWAFUKA	03-11-2020
DRAWN	D.GENGAN	03-11-2020
CHECKED	V. MWAFUKA	03-11-2020
SCALES	AS SHOWN	SHEET SIZE A0

DRAWING NO. ZCE 063/FT/WA/C4 311

REVISION 1