

O. R. TAMBO DISTRICT MUNICIPALITY

IMPLEMENTATION OF WATER CONSERVATION AND DEMAND MANAGEMENT IN THE THORNHILL WTW WATER SUPPLY SYSTEM

ORTDM SCMU 10 - 26/27

SECTION 1 : PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
1	SANS 1200 A	PRELIMINARY AND GENERAL				
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	<u>Facilities for Engineer</u>				
1.1.2	PSAB 3.2	a) Furnished offices (1No.)	Sum	1		
1.1.3		b) Telephone	Sum	1		
1.1.4		c) Nameboards (1 No.)	Sum	1		
1.1.5		d) Provision of survey equipment	Sum	1		
		<u>Facilities for Contractor</u>				
1.1.6		(a) Offices and storage sheds	Sum	1		
1.1.7		(b) Workshops	Sum	1		
1.1.8		(c) Laboratories	Sum	0		
1.1.9		(d) Living accommodation	Sum	1		
1.1.10		(e) Ablution and latrine facilities at the site camp	Sum	1		
1.1.11		(f) Ablution and latrine facilities at the work site	Sum	1		
1.1.12		(g) Refuse bins at the site camp	Sum	1		
1.1.13		(h) Refuse bins at the work site	Sum	1		
1.1.14		(i) Tools and equipment	Sum	1		
1.1.15		(j) Water supplies, electric power and communications	Sum	1		
1.1.16		(k) Dealing with water	Sum	1		
1.1.17		(l) Access	Sum	1		
1.1.18	8.3.3	Other Fixed-charge Obligations	Sum	1		
1.1.19	8.3.4	Removal of Site Establishment	Sum	1		
	PSA 8.4.6	Compliance with the OHS Act (1993, as amended), the Construction Regulations (2014) and the Particular Safety Specification:				
1.1.20	PSHSS 6.1.2; CR 5(1)(l)	i) Preparation of the Contractor's site specific Health and Safety Plan	Sum	1		
1.1.21	CR 7(1)(b)	ii) Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	Sum	1		
		ii) OHS File preparation and monitoring	Month	4		
	CR 7(1)(g);	iii) Cost of medical certificates and medical surveillance	No	15		
1.1.22	PSHSS 7.2	(a) Initial (baseline) medical examinations for AC Handling	No	15		
1.1.23		(b) Exit medical examinations	No	15		
1.1.24		iv) Allowance for Health and Safety Officer	Sum	1		
	GSR 2; PSHSS 7.7	v) Provision of EPWP Branded SABS Personal Protective Equipment				
1.1.25		(a) Hard Hats	No	10		
					Carried Forward	

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
1.1.26		(b) Reflective vests	No	15		
1.1.27		(c) Protective foot wear	No	15		
1.1.28		(d) Dust masks FFP2	No	15		
1.1.29		(e) Gloves	No	15		
1.1.30	PSA 8.4.7	Compliance with EMP and EMPr	Sum	1		
1.2	8.4	<u>TIME-RELATED ITEMS</u>				
1.2.1	8.4.1	Contractual Requirements	Sum	1		
	8.4.2	Operation and Maintenance of Facilities on Site, for Duration of Construction, except where otherwise stated				
	8.4.2.1	<u>Facilities for Engineer:</u>				
1.2.2		a) Furnished offices (1No.)	Sum	1		
1.2.3		b) Telephone	Sum	1		
1.2.4		c) Nameboards (1 No.)	Sum	1		
1.2.5		d) Survey assistants and materials	Sum	1		
	8.4.2.2	<u>Facilities for Contractor:</u>				
1.2.6		a) Offices and storage sheds	Sum	1		
1.2.7		b) Workshops	Sum	1		
1.2.8		c) Laboratories	Sum	0		
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	Sum	1		
1.2.14		i) Access	Sum	1		
1.2.15		j) Plant	Sum	1		
1.2.16	8.4.3	Contractors supervision for the duration of the contract	Sum	1		
1.2.17	8.4.5	Other Time-related Obligations	Sum	1		
1.2.18		Supervision of Subcontractor / SMMEs	Sum	1		
1.2.19		External full-time SACPCMP registered Construction Health and Safety Officer supervision for the duration of the contract	Prov. Sum	1	R 60 000,00	R 45 000,00
1.2.20		Overheads , charges and profit on 1.2.19	%	R 60 000,00		
1.2.21		Allowance for Social Facilitation (ISD) services for the duration of the contract	Prov. Sum	1	R 110 000,00	R 110 000,00
1.2.22		Overheads , charges and profit on 1.2.21	%	R 110 000,00		
Carried Forward						

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
				Brought Forward		
1.3	8.5	<u>Sums stated provisionally by Engineer (Subclause 8.1.2.1 (d))</u>				
1.3.1	PSA3	Employment of CLO for the duration of the Contract (R8500 pm plus R500 pm cellphone allowance)	Prov. Sum	1	R 45 000,00	R 45 000,00
1.3.2		Overheads , charges and profit on 1.3.1	%	R 45 000,00		
1.3.3		Allow for senior Project Manager for the full duration of the contract	Prov. Sum	1	R 60 000,00	R 60 000,00
1.3.4		Allow for full time site supervision Resident Engineer for the full duration of the contract	Prov. Sum	1	R 50 000,00	R 50 000,00
1.3.5		Overheads , charges and profit on 1.3.3 and 1.3.4	%	R 110 000,00		
1.3.6		Allow for Civil Engineering trainee student. (R9000 pm plus R500 pm cellphone allowance)	Prov. Sum	1	R 47 500,00	R 47 500,00
1.3.7		Overheads , charges and profit on 1.3.6	%	R 47 500,00		
1.3.8		Allow for accommodation for site personnel for the full duration of the contract	Prov. Sum	1	R 21 000,00	R 21 000,00
1.3.9		Overheads , charges and profit on 1.3.8	%	R 21 000,00		
1.3.10		Provision of printer for the use of the RE for the full duration of the contract (A printer that can print A3)	Prov. Sum	1	R 8 000,00	R 8 000,00
1.3.11		Overheads , charges and profit on 1.3.10	%	R 8 000,00		
1.3.12		Allow for Data and Airtime to the Engineers site personnel for the duration of the Contract	Prov. Sum	1	R 2 100,00	R 2 100,00
1.3.13		Overheads , charges and profit on 1.3.12	%	R 2 100,00		
1.3.14		Allow for the provision of the Engineer's Vehicle for the duration of the Contract. The amount allowed for is inclusive of fuel	Prov. Sum	1	R 30 000,00	R 30 000,00
1.3.15		Overheads , charges and profit on 1.3.14	%	R 30 000,00		
1.3.16		Payment of PSC members for attendance of meetings for the duration of the contract (5 No members at R500 per member per meeting)	Prov. Sum	1	R 12 500,00	R 12 500,00
1.3.17		Overheads , charges and profit on 1.3.16	%	R 12 500,00		
1.3.18		Allow for the supply of five (3) loggers for pressure and flow profiling within DMAs. Each logger shall comprise LTE Data Logger with Flow & Pressure Channels, Roaming SIM Card, Sub Antenna with 12 months connectivity, Pulse Input Cable with IP Connector ready for connection to meter pulse cable, and Coiled Pressure Hose with Quick Release Fittings. These loggers shall be supplied specifically for the Engineer's use, and the Contractor shall ensure that all units are delivered with Protectice covers.	Prov. Sum	1	R 62 200,00	R 62 200,00
1.3.19		Overheads , charges and profit on 1.3.16	%	R 62 200,00		
1.3.20		<u>Temporary Works</u> Maintain all roads where construction activities will take place	Prov. Sum	1	R 10 000,00	R 10 000,00
1.4	8.7	<u>Dayworks</u>				
1.4.1		Foreman	hr	50		
1.4.2		Skilled	hr	50		
1.4.3		Semi-skilled	hr	50		
1.4.4		Unskilled	hr	50		
				Carried Forward		

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
1,5	PSA 8.9	<u>Provision for compliance to the specification ema : Environmental Management</u>	Prov. Sum	1	R 60 000,00	R 60 000,00
1.5.1		The sum shall cover the cost of all activities necessary to comply with the Specification EMA: Environmental Management, which have not been included in the tendered rates for the scheduled items allowed elsewhere in the bill of quantities				
Total Carried Forward To Summary						

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SECTION 2: SITE CLEARANCE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
2	SANS 1200 C & PSC	SECTION 2 : SITE CLEARANCE				
2.1		<u>CLEAR SITE</u>				
2.1.1	8.2.1	Clear and grub vegetation in strip 2m wide on pipe route. Rate to include for trees of girth up to and including 1m.	m	3 000		
2.1.2	8.2.2	<u>Where instructed remove and grub large trees and tree stumps of girth:</u>				
2.1.2.1	8.2.2(a)	over 1m and up to 2m.	No.	5		
2.1.2.2	8.2.10	Remove topsoil in 800mm wide strip to depth of 150mm, stockpile, maintain and reinstate.	m ³	360		
2.2	PSC 8.2.13	<u>Remove existing gravel layer works to stockpile and maintain (for use as selected layers) as instructed by the Engineer.</u>				
2.2.1		Gravel layer works to Municipal Roads.	m ³	10		
2.2.2		Fill material	m ³	10		
2.2.3		Relocation of existing fences	km	1		
2.2.4		Working adjacent to existing services (stormwater pipes, stormwater v-drains, water pipes and electrical and telecommunication services)	m	500		
2.2.5		Working parallel to existing services (stormwater pipes, stormwater v-drains, water pipes, electrical and telecommunication services)	No	30		
Total Carried Forward To Summary						

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SECTION 3: PIPE TRENCHES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
3	SANS 1200 D & 200 DB	SECTION 3 : PIPE TRENCHES				
3.1	PSDB 8.3.2	<u>Excavation</u>				
	8.3.2(a)	<u>Excavate in all materials for trenches backfill, compact, and dispose of surplus/unsuitable material, for pipes:</u>				
3.1.1		<u>Up to and including 450mm ND for total trench depth:</u>				
3.1.1.1		Exceeding 0,0m but not exceeding 1.5m	m ³	4 500		
3.1.1.2		Exceeding 1.5m but not exceeding 3.5m	m ³	0		
3.1.1.3		Extra over item for 3.1.1.1 for hard rock (Prov)	m ³	450		
3.1.1.4		Extra over item for 3.1.1.1 for boulder excavation (Prov)	m ³	90		
3.1.1.5		Extra over item for 3.1.1.1 for blasting to remove rock	Prov. Sum	1	R 100 000,00	R 100 000,00
3.2.		<u>Slope Protection (Provisional)</u>				
3.2.1		Earth diversion berms as instructed by the Engineer	No.	10		
Total Carried Forward to Summary						

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SECTION 4: MEDIUM PRESSURE PIPELINES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
4.	SANS 1200 L	SECTION 4: MEDIUM PRESSURE PIPELINES				
4.1		<u>Supply, bed, lay, disinfect, join and test potable water pipelines. All works inclusive in the rate, except where specific items are provided. All activities in accordance with project specifications.:</u>				
		<u>PVC Pipes</u>				
4.1.1		75 mm dia. PN 16	m	1 200		
4.1.2		355 mm dia. PN 16	m	1800		
4.2		Pipeline Markers. Work to be executed by a nominated SMME sub contractor	No.	60		
4.3		Connect PVC pipeline to existing AC pipeline, complete with all labour, materials, fittings, couplings/adapters, excavation, bedding, jointing, testing, and reinstatement. All work shall be carried out in accordance with project specifications and SANS 1200 standards, ensuring a watertight and durable connection.	Prov. Sum	1	R 60 000,00	R 60 000,00
		Overheads , charges and profit on 5.3	%	R 60 000,00		
Total Carried Forward to Summary						

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SECTION 5: BEDDING

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
5	SANS 1200 LB & PS LB	SECTION 5 : BEDDING				
5.1	8.2.1 & PS LB 3.1	<u>Provision of Bedding from Trench Excavation</u>				
5.1.1	8.2.1 (a)	Selected granular material	m ³	900		
5.1.2	8.2.1 (b)	Selected fill material	m ³	630		
5.2	8.2.2	<u>Supply only of Bedding by Importation</u>				
5.2.1	8.2.2.1	<u>From other necessary excavations (Provisional)</u>				
5.2.1.1	8.2.2.1 (a)	Selected granular material	m ³	5		
5.2.1.2	8.2.2.1 (b)	Selected fill material	m ³	5		
5.3	8.2.2.3	<u>From Commercial sources</u>				
5.3.1	8.2.2.3 (a)	Selected granular material	m ³	45		
5.3.2	8.2.2.3 (b)	Selected fill material	m ³	32		
5.4	8.2.3	<u>Concrete Bedding Cradle (Provisional)</u>				
5.4.1		15/19 Grade concrete	m ³	20		
5.5	8.2.4	<u>Encasing of Pipes in Concrete (Provisional)</u>				
5.5.1		Encasement of Pipe in 25/19 Grade concrete including all formwork and reinforcement (100kg steel per m ³ concrete) for water crossings. Refer to standard detail	m ³	20		
5.6	8.2.4	<u>Thrust Blocks</u>				
5.6.1		Construct thrust blocks in 25/19 Grade concrete including all preparation work and formwork required.	m ³	45		
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SECTION 6 : PIPE SPECIALS AND FITTINGS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
6	SANS 1200 L	SECTION 6 : PIPE SPECIALS AND FITTINGS <u>Supply, lay, joint and bed including cutting pipes where required for the following:</u>				
6.1		<u>Flexible Rubber Sleeve / Compression Coupling</u>				
6.1.1		- Straight join between two pipes (75 mm dia)	No.	200		
6.1.2		- Straight join between PVC to AC (75mm dia)	No.	10		
6.1.3		- Straight join between two pipes (355 mm dia)	No.	300		
6.1.4		- Straight join between PVC to AC (355 mm dia)	No.	4		
6.2		<u>Transition Coupling or Adapter</u>				
6.2.1		- Straight join between PVC to AC (75mm dia)	No.	8		
6.2.2		- Straight join between PVC to AC (355mm dia)	No.	10		
6.3		<u>Butt Fusion Elbow 90°/45°</u>				
6.3.1		- Change direction of pipeline	No.	12		
6.4		<u>Equal Tee</u>				
6.4.1		- For creating tee junctions	No.	8		
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SECTION 7 : Collect AND INSTALL ISOLATION VALVES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
7		SECTION 7 : ISOLATION VALVES AND CHAMBERS				
7.1		<u>Collection & Installation of Isolation Valves for DMA</u> Collect & Install the following flanged Resilient seal Gate valves complete with prefabricated valve chamber, PN 12 with non-rising spindle, Clockwise closing, including all gaskets, bolts, nuts and washers as per detailed drawings. All valve chambers will be installed by SMME contractors				
7.1.1		- Collect & install DN80 isolation valve (flanged)	No.	1		
7.1.2		- Collect & install DN200 isolation valve (flanged)	No.	1		
7.1.3		- Collect & install DN300 isolation valve (flanged)	No.	4		
7.1.4		- Collect & install DN450 isolation valve (flanged)	No.	1		
7.2		<u>Construction of Valve Chambers</u> Construction of valve chambers including earthworks, precast or in-situ concrete base and walls, manhole cover, frame and access ladder and drainage weep holes				
7.2.1		- Construct DN80 valve chamber (900×900×900mm)	No.	1		
7.2.2		- Construct DN200 valve chamber (1,500×1,200×1,200mm)	No.	1		
7.2.3		- Construct DN300 valve chamber (1,800×1,500×1,500mm)	No.	4		
7.2.4		- Construct DN450 valve chamber (1,800×1,500×1,500mm)	No.	1		
Carried Forward						

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SECTION 7 : Collect AND INSTALL ISOLATION VALVES

Brought Forward						
ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
7.3		<u>Associated Works</u>				
7.3.1		- Thrust block construction at each valve	No.	7		
7.3.2		- Pipe fittings & flanged adaptors (DN80–DN450 range)	Sum	1		
7.3.3		- Testing & commissioning of valves	No.	7		
7.3.4		- Pipe markers at chamber (including signage)	No.	7		
Total Carried Forward To Summary						

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SECTION 8 : WATER METERS WITH STRAINERS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
8	SANS 1200 DB & DK	SECTION 8 : WATER METER CHAMBERS Collect & Install Water Meter assemblies complete with prefabricated meter chamber as per detailed drawings.				
8,1		<u>Collection & installation of water meters with strainers</u>				
8.1.1		- DN80 water meter + strainer (PN16 flanged)	No.	1		
8.1.2		- DN200 water meter + strainer (PN16 flanged)	No.	1		
8.1.3		- DN300 water meter + strainer (PN16 flanged)	No.	4		
8.1.4		- DN450 water meter + strainer (PN16 flanged)	No.	1		
8,2		<u>Construction of Chambers</u>				
8.2.1		- Construct DN80 meter chamber (900×900×900mm)	No.	1		
8.2.2		- Construct DN200 meter chamber (1500×1200×1200mm)	No.	1		
8.2.3		- Construct DN300 meter chamber (1800×1500×1500mm)	No.	4		
8.2.4		- Construct DN450 meter chamber (1800×1500×1500mm)	No.	1		
8,3		<u>Associated Works</u>				
8.3.1		- Pipe fittings, adaptors, bolts, gaskets (DN80–DN300 range)	Sum	1		
8.3.2		- Thrust/anchor blocks per meter installation	No.	7		
8.3.3		- System pressure testing and commissioning	No.	7		
8.3.4		- Pipe marker post at chamber (signage & route ID)	No.	7		
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SECTION 9 : SUPPLY AND INSTALL PRVs TO REDUCE EXCESS PRESSURE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
9	SANS 1200 DB & DK	SECTION 9 : PRESSURE REDUCING VALVES AND CHAMBERS				
	DK & DK	<u>Collect and install Pressure Reducing Valves complete with components to reduce excess pressure in the water distribution systems</u>				
9.1		<u>Collect and install PRV on a 150mm diameter pipeline</u>				
9.1.1		- 150mm Flanged Pressure Reducing Valve (PRV), PN16	No.	2		
9.1.2		- 150mm Flanged Isolating Gate Valve (wheel-operated)	No.	4		
9.1.3		- 150mm Flanged Adaptor	No.	4		
9.1.4		- 150mm Concentric Flanged Reducer to 100mm	No.	2		
9.1.5		- 150mm Flanged Paddle Spool Piece (for flow testing/sensor)	No.	2		
9.1.6		- 100mm Dirtbox (filter chamber unit)	No.	2		
9.1.7		- 100mm Flanged Adaptor	No.	2		
9.1.8		- 150mm Bulk Water Meter (flanged, Woltmann type)	No.	2		
9.1.9		- 100mm Flanged Pressure Reducing Valve	No.	2		
9.1.10		- 150x150x100mm Equal Tee (Flanged Ductile Iron)	No.	2		
9.1.9		- 100mm Air Valve (Double Orifice) with Isolation Ball Valve	No.	2		
9.1.12		- Pressure Gauges (upstream/downstream)	No.	4		
9.1.13		- Flanges, gaskets, bolts, nuts, washers	No.	2		
9.1.14		- Spool pieces, jointing, alignment, fittings support	No.	2		
9.2	GA/GE	<u>Construct reinforced concrete chamber with external dimensions 5.04 m (L) × 2.52 m (W) × 2.00 m (D) and internal clear dimensions 4.06 m (L) × 2.08 m (W), including:</u>				
9.2.1		- Excavation, backfill and compaction	m ³	30		
9.2.2		- 25 MPa Concrete Base Slab (150mm thick)	m ²	6		
9.2.3		- 190mm Brick Walls, plastered & sealed	m ²	60		
9.2.4		- RC Top Slab with manhole cover	No	2		
9.2.5		- Galvanized Ladder/Steps	No	2		
9.2.6		- Internal drain and sump	Sum	2		
Carried Forward						

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SECTION 9 : SUPPLY AND INSTALL PRVs TO REDUCE EXCESS PRESSURE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
9.3	LC	<u>Testing and Commissioning</u>				
9.3.1		- Hydrostatic pressure testing and commissioning of PRV assembly	No.	2		
9.3.2		- Calibration & functional test of PRVs and water meter	No	2		
9.3.3		- Disinfection of pipework + chamber	No	2		
9.4		<u>Ancillary Works</u>				
9.4.1		- Thrust block (at PRV and tee junctions)	No	2		
9.4.2		- Pipe marker post and directional signage	No	2		
9.5	DK & DK	<u>Collect and install PRV on a 200mm diameter pipeline</u>				
9.5.1		- 200mm dia flanged PRV valve (ductile iron, epoxy)	No.	1		
9.5.2		- 200mm dia flanged isolating gate valves	No.	2		
9.5.3		- 200mm dia flanged paddle spool (removable section)	No.	1		
9.5.4		- 200mm dia flanged water meter (Woltmann)	No.	1		
9.5.5		- 200x200x100mm flanged equal tee (DI)	No.	1		
9.5.6		- 100mm dia PRV downstream	No.	1		
9.5.7		- 100mm dia isolating valve (flanged)	No.	1		
9.5.8		- 100mm dia flanged air valve with isolating ball valve	No.	1		
9.5.9		- 100mm dia dirt box	No.	1		
9.5.10		- All flange adaptors, gaskets, bolts, jointing compound	No.	1		
9.6	GA/GE	<u>Construct reinforced concrete chamber with external dimensions 5.04 m (L) × 2.52 m (W) × 2.00 m (D) and internal clear dimensions 4.06 m (L) × 2.08 m (W). including:</u>				
9.6.1		- Excavation, backfill and compaction	m ³	15		
9.6.2		- 25 MPa RC Concrete floor slab (150mm thick)	m ²	4,5		
9.6.3		- 190mm Brick Walls, plastered & sealed	m ²	15		
9.6.4		- RC roof slab + heavy-duty ductile iron access covers	m ²	4,5		
9.6.5		- Galvanized Ladder/Steps	No	1		
9.6.6		- Ventilation pipework + weep holes	Sum	1		
9.6.7		- Sump pit + drain pipe outlet	Sum	1		
9.6.8		- Internal rendering, waterproofing, paint	Sum	1		
9.7		<u>Testing and Commissioning</u>				
9.7.1		- Hydrostatic pressure testing and commissioning of PRV assembly	No.	1		
9.7.2		- Calibration & functional test of PRVs and water meter	No	1		
9.7.3		- Disinfection of pipework + chamber	No	1		
9.8		<u>Ancillary Works</u>				
9.8.1		- Thrust block at PRV and Tee Junction (25MPa concrete with 16mm rebar, 1.2m ³ each)	No	2		
9.8.2		- Pipe marker post and directional signage	No	1		
9.8.3		- Directional signage plates (PRV + Meter + Air Valve)	No	3		
Total Carried Forward To Summary						

O. R. TAMBO DISTRICT MUNICIPALITY

IMPLEMENTATION OF WATER CONSERVATION AND DEMAND MANAGEMENT IN THE THORNHILL WTW WATER SUPPLY SYSTEM

ORTDM SCMU 10 - 26/27

SECTION 10 : ASBESTOS HANDLING AND TRANSPORTATION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
10	SANS 1200-D & DB	SECTION 10 : ASBESTOS PIPE HANDLING AND DISPOSAL <u>Appointment of AIA for monitoring and clearance certification</u> The sum shall cover the full cost of all activities necessary for the appointment of an Approved Inspection Authority (AIA) to undertake asbestos monitoring, inspections, air quality assessments, and to issue the required clearance certification.	Prov. Sum	1	R 150 000,00	R 150 000,00
10,1						
10,2	SANS 10229-1	<u>Asbestos Handling and Packaging</u>				
10.2.1		- Safe removal of AC pipe, avoiding breakage	m	3000		
10.2.2		- Wetting, double wrapping in 200-micron plastic, labeling	m	3000		
10.2.3		- PPE and AIA procedures including air decontamination	Sum	1		
10.2.4		- On-site hazardous waste storage (temporary containment area)	Sum	1		
10,3	SANS 1200-A	<u>Transportation and Disposal</u>				
10.3.1		- Load wrapped AC pipes onto licensed HAZMAT vehicle	Ton	60		
10.3.2		- Transport from Mthatha to Shongweni landfill (600 km)	Ton	60		
10.3.3		- Disposal at licensed hazardous waste site	Ton	60		
10.3.4		- Disposal certificates, weighbridge slips, manifest documentation	Sum	1		
Total Carried Forward To Summary						

O. R. TAMBO DISTRICT MUNICIPALITY

IMPLEMENTATION OF WATER CONSERVATION AND DEMAND MANAGEMENT IN THE THORNHILL WTW WATER SUPPLY SYSTEM

ORTDM SCMU 10 - 26/27

SECTION 11 : DISTRICT METERED AREAS (DMA) DISCRETENESS TESTING

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
11	SANS 1200	SECTION 11 : DMA LOGGING AND WATER BALANCE CALCULATION				
	GA & DB	<u>DMA discreteness testing & water balance to IWA Standard</u>				
11,1		<u>Installation of Monitoring Equipment</u>				
11.1.1		- Supply & install loggers at strategic DMA nodes (LTE Data Logger Flow & Pressure Channels Roaming Sim Card, Sub Antenna - 12 months Connectivity, Pilsa Input Cable with IP Connector ready for connection to meter pulse cable , Coiled Pressure Hose with Quick Release Fittings)	No.	7		
11.1.2		- Calibration, commissioning, and security of equipment	No.	1		
11,2	DB & LC	<u>Data Collection & Analysis for 30 Days</u>				
11.2.1		- Remote/manual logger download and servicing (weekly)	Visit	4		
11.2.2		- Night flow monitoring and analysis (IWA minimum night flow method)	Day	7		
11.2.3		- Pressure behavior profiling (inlet and zone monitoring) under the guidance and supervision of the Engineer	Day	30		
11,3	DB	<u>DMA Discreteness Verification</u>				
11.3.1		- Controlled valve closure test (inlets/outlets)	Test	7		
11.3.2		- Flow continuity test (leakage/cross-feed check)	Sum	1		
11.3.3		- Leak detection within DMA boundaries	km	20		
11,4	ISO 24516-1 & SANS 10366	<u>Water Balance Calculation to IWA Standards</u>				
11.4.1		- Collect and classify customer metering data	Sum	1		
11.4.2		- Quantify: System input, billed consumption, NRW, real and apparent losses	Sum	1		
11.4.3		- Create IWA standard water balance table and interpret KPIs (ILI, UARL)	Sum	1		
11,5	A	<u>Reporting</u>				
11.5.1		- Weekly status reports and field observations (4 reports)	No.	4		
11.5.2		- Final field technical report: DMA discreteness, water balance, IWA summary	Sum	1		
11,6		<u>Provisional & Ancillary</u>				
11.6.1		- Allow for emergency repairs or extra instrumentation	Prov Sum	1	R 30 000,00	R 30 000,00
Total Carried Forward To Summary						

O. R. TAMBO DISTRICT MUNICIPALITY

IMPLEMENTATION OF WATER CONSERVATION AND DEMAND MANAGEMENT IN THE THORNHILL WTW WATER SUPPLY SYSTEM

ORTDM SCMU 10 - 26/27

SECTION 10 : WATER CONSERVATION PROMOTION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
12		WATER CONSERVATION PROMOTION				
12.1		<u>Awareness Program – Educational Approach</u>				
12.1.1		Design and production of educational materials (posters, brochures, infographics)	Prov. Sum	1	R 150 000,00	R 150 000,00
12.1.2		Community workshops and school visits (including facilitators & logistics)	Event	20		
12.1.3		Reporting	Sum	1		
12.2		<u>Awareness Program – Behavioural Approach</u>				
12.2.1		Behavioural Approach – WC/WDM Promotion & Awareness Programme: Provision for behavioural interventions designed to influence consumer habits and embed sustainable water-use practices. Scope includes street-pole advertising, household pledge campaigns, door-to-door engagement in high-consumption areas, incentive-based competitions, social media outreach, and a media campaign (radio slots, community papers). Activities aim to reduce peak demand, discourage illegal connections, improve payment compliance, and foster a culture of accountability and responsible water use.	Prov. Sum	1	R 109 700,00	R 109 700,00
12.2.2		Reporting	Sum	1		
12.3		<u>Awareness Program – Engineering Approach</u>				
12.3.1		Engineering Awareness Approach – WC/WDM Promotion & Awareness Programme: Provision for engineering-focused awareness interventions designed to link technical measures to public understanding. Scope includes District Metered Area (DMA) campaigns, meter installation drives, pressure management education, plumbing device demonstrations, and media communication. Activities aim to help communities recognize the role of infrastructure upgrades in reducing water losses, improving system efficiency, and supporting sustainable water conservation.	Prov. Sum	1	R 109 800,00	R 109 800,00
12.3.2		Reporting	Sum	1		
Total Carried Forward To Summary						

O. R. TAMBO DISTRICT MUNICIPALITY

IMPLEMENTATION OF WATER CONSERVATION AND DEMAND MANAGEMENT IN THE THORNHILL WTW WATER SUPPLY SYSTEM

ORTDM SCMU 10 - 26/27

O.R. TAMBO DISTRICT MUNICIPALITY

IMPLEMENTATION OF WATER CONSERVATION AND DEMAND MANAGEMENT IN THE THORNHILL WTW WATER SUPPLY SYSTEM

ORTDM SCMU 50 - 25/26

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
1	SECTION 1 : PRELIMINARY AND GENERAL	
2	SECTION 2 : SITE CLEARANCE	
3	SECTION 3 : PIPE TRENCHES	
4	SECTION 4: MEDIUM PRESSURE PIPELINES	
5	SECTION 5 : BEDDING	
6	SECTION 6 : PIPE SPECIALS AND FITTINGS	
7	SECTION 7 : ISOLATION VALVES AND CHAMBERS	
8	SECTION 8 : WATER METER CHAMBERS	
9	SECTION 9 : PRESSURE REDUCING VALVES AND CHAMBERS	
10	SECTION 10 : ASBESTOS PIPE HANDLING AND DISPOSAL	
11	SECTION 11 : DMA LOGGING AND WATER BALANCE CALCULATION	
12	SECTION 12 : WCDM AWARENESS	
10	TOTAL OF SECTIONS (VAT EXCLUDED)	
11	ADD: CONTINGENCIES @ 10%	
12	SUB-TOTAL	
13	ADD: VAT @ 15%	
14	TOTAL PROJECT COST	