

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
800/710/560/400/355/250/200mm Ø HDPE Watermain, in Wards 58 and 106**

Schedule of Quantities

Preliminary & General

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
A	SANS 1200A	<b><u>SECTION A: PRELIMINARY &amp; GENERAL</u></b>				
A.1	8.3	<u>Fixed Charged Items</u>				
A.1.1	8.3.1	Contractual Requirements	Sum	1.0		
	8.3.2	Establishment of Facilities on Site				
	8.3.2.1	Facilities for Engineer:				
A.1.2	8.3.2.1 (a) & PSAB 3.2 (a)	a) Furnished offices (air conditioned "Kwikjack" 6m x 3m office)	Sum	1.0		
A.1.3	8.3.2.1 (b) & PSAB 3.1, PS.14.5	b) Nameboards (2 No.)	Sum	1.0		
A.1.4	8.3.2.1 (a) & PSAB 3.2 (b)	c) Conference facility (air conditioned "Kwikjack" 9m x 3.4m)	Sum	1.0		
A.1.5	8.3.2.1 (a) & PSAB 3.2 (c)	d) Toilet Facilities for the Employer's Agent	Sum	1.0		
A.1.6	8.3.2.1 (a) & PSAB 3.2 (d)	e) Covered parking for Employer's Agent	Sum	1.0		
	8.3.2.2	Facilities for Contractor:				
A.1.7		a) Offices and storage sheds	Sum	1.0		
A.1.8		b) Workshops	Sum	1.0		
A.1.9		c) Laboratories	Sum	1.0		
A.1.10		d) Living Accommodation	Sum	1.0		
A.1.11		e) Ablution and latrine facilities	Sum	1.0		
A.1.12		f) Tools and equipment	Sum	1.0		
A.1.13		g) Water supplies, electric power and communication	Sum	1.0		
A.1.14		h) Dealing with water	Sum	1.0		
A.1.15		i) Access	Sum	1.0		
A.1.16		j) Plant	Sum	1.0		
A.2	8.3.3	<u>Other Fixed-charge Obligations:</u>				
A.2.1	PS.10, PSA 8.3.4, C3.4.1 & C3.4.2	a) Compliance with the Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Employer's Health and Safety Specification.	Sum	1.0		
A.2.2		b) HIV/AIDS Awareness Programme compliant to SABS 1921 Part 6 HIV/AIDS	Sum	1.0		
Total Carried Forward						

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
A.2.3	PS.9.3, PSA.8.3.4, C3.4.3	c) Compliance with Environmental Management Plan / Programme and Record of Decision.	Sum	1.0		
A.2.4	PS1.3.3 & C3.4.6	d) Provision of a Traffic Management Plan	Sum	1.0		
A.2.5	8.3.4	Removal of Site Establishment	Sum	1.0		
A.3		<u>Time Related Items</u>				
A.3.1	8.4.1	Contractual Requirements	Days	539.0		
	8.4.2	Operation and Maintenance of Facilities on Site, for the Duration of Construction Except where Otherwise Stated.				
	8.4.2.1	Facilities for Engineer:				
A.3.2		a) Furnished offices (air conditioned "Kwikjack" 6m x 3m office)	Days	539.0		
A.3.3		b) Nameboards (2 No.)	Days	539.0		
A.3.4		c) Conference facility (air conditioned "Kwikjack" 9m x 3.4m)	Days	539.0		
A.3.5		d) Toilet Facilities for the Employer's Agent	Days	539.0		
A.3.6		e) Covered parking for Employer's Agent	Days	539.0		
	8.4.2.2	Facilities for Contractor:				
A.3.7		a) Offices and storage sheds	Days	539.0		
A.3.8		b) Workshops	Days	539.0		
A.3.9		c) Laboratories	Days	539.0		
A.3.10		d) Living Accommodation	Days	539.0		
A.3.11		e) Ablution and latrine facilities	Days	539.0		
A.3.12		f) Tools and equipment	Days	539.0		
A.3.13		g) Water supplies, electric power and communication	Days	539.0		
A.3.14		h) Dealing with water	Days	539.0		
A.3.15		i) Access	Days	539.0		
A.3.16		j) Plant	Days	539.0		
A.3.17	8.4.3	Supervision for Duration of Construction	Days	539.0		
A.3.18	8.4.4	Company and Head Office Overhead Costs for the Duration of the Contract	Days	539.0		
A.4	8.4.5	<u>Other Time Related Obligations:</u>				
Total Carried Forward						

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Brought Forward						
A.4.1	PS.10, PSA 8.3.4, C3.4.1 & C3.4.2	a) Compliance with the Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Employer's Health and Safety Specification.	Days	539.0		
A.4.2		b) HIV/AIDS Awareness Programme compliant to SABS 1921 Part 6 HIV/AIDS	Days	539.0		
A.4.3	PS.9.3, PSA.8.3.4, C3.4.3	c) Compliance with Environmental Management Plan / Programme and Record of Decision.	Days	539.0		
A.4.4	PS.11	d) Provision of site security for the duration of the contract	Days	539.0		
A.4.5	PS1.3.3	e) Updating and maintained of Traffic Management Plan over the course of the project.	Days	539.0		
	8.5	Sums Stated Provisionally by the Engineer:				
A.4.6	C1.2.3.1	a) Provision for a CLO.	Prov Sum	1.0	300,000.00	300,000.00
A.4.7		b) Mark up on item A.4.6	%	300,000.00		
A.4.8	PS.29	c) Appointment of an ISD Consultant.	Prov Sum	1.0	600,000.00	600,000.00
A.4.9		d) Mark up on item A.4.8	%	600,000.00		
A.4.10		e) Survey as requested by the Engineer.	Prov Sum	1.0	10,000.00	10,000.00
A.4.11		f) Mark up on item A.4.10	%	10,000.00		
A.4.12		g) Allowance for the appointment for an Environmental Control Officer.	Prov Sum	1.0	350,000.00	350,000.00
A.4.13		h) Mark up on item A.4.12	%	350,000.00		
A.4.14		i) Allowance for HDD CCTV Pipeline Inspection.	Prov Sum	1.0	25,000.00	25,000.00
A.4.15		j) Mark up on item A.4.14	%	25,000.00		
A.4.16		k) Allowance for mechanical, electrical and telemetry works.	Prov Sum	1.0	4,000,000.00	4,000,000.00
A.4.17		l) Mark up on item A.4.16	%	4,000,000.00		
A.4.18		m) Allowance for the supply of materials that are not available at EWS Stores. Material to meet all relevant specifications	Prov Sum	1.0	50,000.00	50,000.00
A.4.19		n) Mark up on item A.4.18	%	50,000.00		
A.4.20		o) Allowance for additional material test and geotechnical investigations when requested by the Engineer.	Prov Sum	1.0	10,000.00	10,000.00
A.4.21		p) Mark up on item A.4.20	%	10,000.00		
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Brought Forward						
A.4.22	PS.2.3	q) Allowance for the relocation of services	Prov Sum	1.0	20,000.00	20,000.00
A.4.23		r) Mark up on item A.4.22	%	20,000.00		
A.4.24		s) Allowance for a construction claim consultant to assist the Employer as and when required "	Prov Sum	1.0	20,000.00	20,000.00
A.4.25		t) Mark up on item A.4.24	%	20,000.00		
A.4.26		u) Allowance for the appointment of a specialist to undertake underground detection services.	Prov Sum	1.0	25,000.00	25,000.00
A.4.27		v) Mark up on item A.4.26	%	25,000.00		
A.4.28		w) Allowance for Control Testing	Prov Sum	1.0	50,000.00	50,000.00
A.4.29		x) Mark up on item A.4.28	%	50,000.00		
A.4.30	PSAB 4.1	y) Telephone/Airtime/Data for Engineer	Prov Sum	1.0	10,000.00	10,000.00
A.4.31		z) Mark up on item A.4.30	%	10,000.00		
A.4.32		aa) Allowance for repairs to damaged Telkom, electrical or other services which could not have been reasonably foreseen or prevented by the Contractor.	Prov Sum	1.0	20,000.00	20,000.00
A.4.33		ab) Mark up on item A.4.32	%	20,000.00		
A.4.34	PS.3.8	ac) Allowance for the return of materials to EWS Stores	Prov Sum	1.0	50,000.00	50,000.00
A.4.35		ad) Mark up on item A.4.34	%	50,000.00		
A.4.36		ae) Allowance for the reinstatement of road markings to suit existing as directed by engineer	Prov Sum	1.0	10,000.00	10,000.00
A.4.37		af) Mark up on item A.4.36	%	10,000.00		
A.4.38		ag) Allowance to repair defective material	Prov Sum	1.0	25,000.00	25,000.00
A.4.39		ah) Mark up on item A.4.38	%	25,000.00		
A.5	8.7	<u>Dayworks</u>				
		Labor:				
A.5.1		a) Civils Foreman	Days	5.0		
A.5.2		b) Pipeline Foreman	Days	5.0		
A.5.3		c) Unskilled Labor	Days	5.0		
A.5.4		d) Semi-Skilled Labor	Days	5.0		
A.5.5		e) Surveyor	Days	5.0		
A.5.6		f) Survey Assistants	Days	5.0		
Total Carried Forward						

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
A.5.7		g) Site Agent	Days	5.0		
A.5.8		h) API 1104 Welder	Days	5.0		
A.5.9		i) Certified HDPE Welder	Days	5.0		
		Plant (Excavators):				
A.5.10		a) 15 Ton Wheel Excavator with a Width less than 3m	Days	5.0		
A.5.11		b) 20 Ton Wheel Excavator with a Width less than 3m	Days	5.0		
A.5.12		c) Tracker Loaded Backhoe (70kW)	Days	5.0		
		Plant (Trucks):				
A.5.13		a) 20 ton Crane Truck	Days	5.0		
A.5.14		b) Tip Truck, 10m <sup>3</sup>	Days	5.0		
A.5.15		c) Tip Truck, 6m <sup>3</sup>	Days	5.0		
A.5.16		d) Water Tanker (9000 liters)	Days	5.0		
		Plant (Compactors):				
A.5.17		a) Self propelled vibrating roller, 9 ton	Days	5.0		
A.5.18		b) Bomag 90 or similar	Days	5.0		
A.5.19		c) Plate compactor	Days	5.0		
A.5.20		d) Pneumatic roller	Days	5.0		
		Plant (Steel Pipe Welding Equipment):				
A.5.21		a) Heavy duty, self powered welding machine 400A	Days	5.0		
A.5.22		b) Welder (Coded) with assistant	Days	5.0		
		Plant (HDPE Pipe Welding Equipment):				
A.5.23		a) HDPE butt fusion welding machine in accordance with ISO 12176-1:2017 for pipe diameters from 200mm to 900mm inclusive of operator	Days	5.0		
		Plant (Small Tools)				
A.5.24		a) 11 KVA Generator	Days	5.0		
A.5.25		b) 5KVA Breaker	Days	5.0		
A.5.26		c) Water pump (75mm)	Days	5.0		
A.5.27		d) Light Delivery Vehicle and Driver	Days	5.0		
		Materials:				
A.5.28		a) Sand (building)	m <sup>3</sup>	25.0		
Total Carried Forward						



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Schedule of Quantities

Site Clearance

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
B	<b>SANS 1200C</b>	<b>SECTION B: SITE CLEARANCE</b>				
B.1	PSC 8.2.1	General clearance and grubbing along pipeline route.	m <sup>2</sup>	300.0		
	8.2.2	Remove and grub large trees and tree stumps of girth. (Provisional)				
B.1.1		a) Over 1m up to and including 2m.	No.	1.0		
B.1.2		b) Over 2m up to and including 3m.	No.	1.0		
B.1.3		c) Over 3m up to and including 4m.	No.	1.0		
B.1.4		d) Over 4m up to and including 5m.	No.	1.0		
B.2	PSC 8.2.10	Remove topsoil to nominal depth of 150 mm and stockpile	m <sup>3</sup>	50.0		
B.3	PSC 8.2.11	Saw cutting of existing asphalt surface	m	8,400.0		
B.4	PSC 8.2.13	Remove existing road asphalt surfacing to spoil	m <sup>3</sup>	1,000.0		
B.5	PSC 8.2.12	Saw cutting of existing concrete (Provisional)	m	50.0		
B.6	PSC 8.2.15	Remove existing concrete surfacing to spoil (Provisional)	m <sup>3</sup>	50.0		
B.7	PSC 8.2.17	Remove existing concrete kerbing & channeling	m	50.0		
B.8	PSC 8.2.5	Take down existing fences	m	100.0		
B.9	PSC 8.2.8	Demolish and remove existing structures/buildings	m <sup>3</sup>	50.0		
B.10	PSC 8.2.4	Reclear surfaces	m <sup>2</sup>	100.0		
B.11	PSC 8.2.16	Dismantle, storing and re-erection of road signs				
B.11.1	PSC 8.2.16	a)Area of road sign is 0m <sup>2</sup> - 2m <sup>2</sup>	No.	10.0		
Total Carried Forward To Summary						

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Schedule of Quantities

Earthworks (Pipe Trenches)

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
C	<b>SANS 1200DB</b>	<b><u>Earthworks (Pipe Trenches)</u></b>				
C.1	PSDB 8.3.2 (a)	Excavate and backfill in soft materials (pay trench width of 1.6m), compact, perform density tests and dispose of surplus material for 800mm Ø HDPE pipe for the following depths:-				
C.1.1		a) Greater than 0m and less than 1.5m	m³	50.0		
C.1.2		b) Greater than 1.5m and less than 2.5m	m³	500.0		
C.1.3		c) Greater than 2.5m and less than 3.5m	m³	280.0		
C.2	PSDB 8.3.2 (a)	Excavate and backfill in soft materials (pay trench width of 1.5m), compact, perform density tests and dispose of surplus material for 710mm Ø HDPE pipe for the following depths:-				
C.2.1		a) Greater than 0m and less than 1.5m	m³	50.0		
C.2.2		b) Greater than 1.5m and less than 2.5m	m³	4,000.0		
C.2.3		c) Greater than 2.5m and less than 3.5m	m³	1,850.0		
C.3	PSDB 8.3.2 (a)	Excavate and backfill in soft materials (pay trench width of 1.160m), compact, perform density tests and dispose of surplus material for 560mm Ø HDPE pipe for the following depths:-				
C.3.1		a) Greater than 0m and less than 1.5m	m³	50.0		
C.3.2		b) Greater than 1.5m and less than 2.5m	m³	2,450.0		
C.3.3		c) Greater than 2.5m and less than 3.5m	m³	550.0		
C.4	PSDB 8.3.2 (a)	Excavate and backfill in soft materials (pay trench width of 1.m), compact, perform density tests and dispose of surplus material for 400mm Ø HDPE pipe for the following depths:-				
C.4.1		a) Greater than 0m and less than 1.5m	m³	50.0		
C.4.2		b) Greater than 1.5m and less than 2.5m	m³	1,200.0		
C.4.3		c) Greater than 2.5m and less than 3.5m	m³	50.0		
C.5	PSDB 8.3.2 (a)	Excavate and backfill in soft materials (pay trench width of 0.955m), compact, perform density tests and dispose of surplus material for 355mm Ø HDPE pipe for the following depths:-				
C.5.1		a) Greater than 0m and less than 1.5m	m³	150.0		
C.5.2		b) Greater than 1.5m and less than 2.5m	m³	900.0		
C.5.3		c) Greater than 2.5m and less than 3.5m	m³	50.0		
C.6	PSDB 8.3.2 (a)	Excavate and backfill in soft materials (pay trench width of 0.85m), compact, perform density tests and dispose of surplus material for 250mm Ø HDPE pipe for the following depths:-				
C.6.1		a) Greater than 0m and less than 1.5m	m³	80.0		
C.6.2		b) Greater than 1.5m and less than 2.5m	m³	80.0		
Total Carried Forward						

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Schedule of Quantities

Earthworks (Pipe Trenches)

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Brought Forward						
C.6.3		c) Greater than 2.5m and less than 3.5m	m³	50.0		
C.7	PSDB 8.3.2 (a)	Excavate and backfill in soft materials (pay trench width of 0.80m), compact, perform density tests and dispose of surplus material for 200mm Ø HDPE/mPVC pipe for the following depths:-				
C.7.1		a) Greater than 0m and less than 1.5m	m³	180.0		
C.7.2		b) Greater than 1.5m and less than 2.5m	m³	120.0		
C.7.3		c) Greater than 2.5m and less than 3.5m	m³	25.0		
C.8	PSDB 8.3.2 (a)	Excavate and backfill in soft materials (pay trench width of 1.05m), compact, perform density tests and dispose of surplus material for 450mm Ø HDPE/mPVC pipe for the following depths:-				
C.8.1		a) Greater than 0m and less than 1.5m	m³	10.0		
C.8.2		b) Greater than 1.5m and less than 2.5m	m³	50.0		
C.8.3		c) Greater than 2.5m and less than 3.5m	m³	20.0		
C.9	PSDB 8.3.2 (b) (1)	Extra over items C.1 - C.8 for intermediate material excavation. (Provisional.)	m³	800.0		
C.10	PSDB 8.3.2 (b) (2)	Extra over items C.1 - C.8 for hard rock material excavation. (Provisional.)	m³	4,000.0		
C.11	PSDB 8.3.2 (b) (4)	Extra over items C.1 - C.8 for Hand Excavation (Provisional.)	m³	500.0		
C.12	PSD 5.2.4.2 & SANS 1200D 8.3.10	Topsoiling: Spread and level 150mm thick topsoil as directed by Engineer.	m²	100.0		
C.13	8.3.3.1 (a)	Make up deficiency in backfill material from trench excavation. (Provisional)	m³	100.0		
C.14	8.3.3.1 (c)	Make up deficiency in backfill material by importation from commercial or off-site source. (Provisional)	m³	6,200.0		
C.15	PSD 8.3.7 OR PSDB 8.3.8	Provide lateral support for telephone poles, electric light poles, sign posts etc. for	No	10.0		
C.16	8.3.5 (a)	Protect and maintain services that intersect a trench:				
		a) Electricity cables:				
C.16.1		i) Light voltage cables	No.	5.0		
C.16.2		ii) Medium voltage cables	No.	5.0		
		b) Watermains:				
C.16.3		i) Watermains < 300mm diameter	No.	31.0		
C.16.4		ii) Watermains > 300mm diameter	No.	10.0		
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Brought Forward						
		c) Stormwater pipes/culverts:				
C.16.5		i) Stormwater pipes/culverts < 400mm diameter	No.	10.0		
C.16.6		ii) Stormwater pipes/culverts > 400mm diameter	No.	20.0		
		d) Sewer pipes:				
C.16.7		i) Sewer pipes with diameter <300mm	No.	20.0		
C.16.8		ii) Sewer pipes with diameter >300mm	No.	5.0		
C.16.9		e) Tele-communications cables	No.	20.0		
	8.3.5 (b)	Protect and maintain services that adjoin a trench				
		a) Electricity cables:				
C.16.10		i) Light voltage cables	m	50.0		
C.16.11		ii) Medium voltage cables	m	50.0		
		b) Watermains:				
C.16.12		i) Watermains < 300mm diameter	m	500.0		
C.16.13		ii) Watermains > 300mm diameter	m	1,000.0		
		c) Stormwater pipes/culverts:				
C.16.14		i) Stormwater pipes/culverts < 400mm diameter	m	50.0		
C.16.15		ii) Stormwater pipes/culverts > 400mm diameter	m	50.0		
		d) Sewer pipes:				
C.16.16		i) Sewer pipes with diameter <400mm	m	50.0		
C.16.17		ii) Sewer pipes with diameter >400mm	m	50.0		
C.16.18		e) Tele-communications cables	m	50.0		
C.17		Excavate and dispose of unsuitable material from trench bottom. (Provisional)	m <sup>3</sup>	50.0		
C.18	PSDB 8.3.6.1	Reinstatement:				
C.18.1	PSDB 8.3.6.1 e)	a) Category A road	m <sup>2</sup>	10.0		
C.18.2	PSDB 8.3.6.1 f)	b) Category B road	m <sup>2</sup>	10.0		
C.18.3	PSDB 8.3.6.1 g)	c) Category C road	m <sup>2</sup>	4,500.0		
C.18.4	PSDB 8.3.6.1 h)	d) Category D road	m <sup>2</sup>	2,400.0		
C.18.5	PSDB 8.3.6.1 i)	e) Category E road	m <sup>2</sup>	10.0		
Total Carried Forward						

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Brought Forward						
C.18.6	PSDB 8.3.6.1 j)	f) Residential driveways concrete	m <sup>2</sup>	10.0		
C.18.7	PSDB 8.3.6.1 k)	g) Commercial driveways concrete	m <sup>2</sup>	10.0		
C.18.8	PSDB 8.3.6.1 l)	f) Industrial driveways concrete	m <sup>2</sup>	10.0		
C.18.9	PSDB 8.3.6.1 m)	g) Concrete paving	m <sup>2</sup>	10.0		
C.18.10	PSDB 8.3.6.1 n)	h) Brick paving	m <sup>2</sup>	10.0		
C.18.11	PSDB 8.3.6.1 o)	i) Kerbs and channeling	m	50.0		
C.18.12	PSDB 8.3.6.1 p)	j) Reinstatement of Fences	m	50.0		
C.18.13	PS.26	k) Removal and reinstatement of speed reducing measures	m <sup>2</sup>	100.0		
C.18.14	PSDB 8.3.6.1 q)	l) Temporary road reinstatement (Where directed by the Employer's Agent's Representative)	m <sup>2</sup>	500.0		
C.19	PSDB 8.3.6.2	Grassing	m <sup>2</sup>	300.0		
Total Carried Forward To Summary						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
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Schedule of Quantities

Pipe Bedding

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
D	<b>SANS 1200LB</b>	<b><u>SECTION D: PIPE BEDDING</u></b>				
D.1	PSDB 8.2.1 (i)	Provision of selected granular material (without screening) for bedding cradle compacted to 93% MOD AASHTO density from trench excavation.	m <sup>3</sup>	50.0		
D.2	PSDB 8.2.1 (ii)	Provision of selected granular material (with screening) for bedding cradle compacted to 93% MOD AASHTO density from trench excavation.	m <sup>3</sup>	50.0		
D.3	PSDB 8.2.1 (i)	Provision of selected fill material (without screening) for bedding cradle compacted to 93% MOD AASHTO density from trench excavation.	m <sup>3</sup>	50.0		
D.4	PSDB 8.2.1 (ii)	Provision of selected fill material (with screening) for bedding cradle compacted to 93% MOD AASHTO density from trench excavation.	m <sup>3</sup>	250.0		
D.5	PSLB 8.2.2 (i)	Provision of selected granular material for bedding cradle compacted to 93% MOD AASHTO density from commercial sources.	m <sup>3</sup>	3,700.0		
D.6	PSLB 8.2.2 (ii)	Provision of selected fill material compacted to 93% MOD AASHTO density from commercial sources.	m <sup>3</sup>	1,300.0		
D.7	PSLB 8.2.3	Provision of concrete bedding cradle	m <sup>3</sup>	50.0		
D.8	PSLB 8.2.4	Encasing of pipes in grade 20/19 MPa concrete (Provisional)	m <sup>3</sup>	20.0		
		Provision and installing material for isolation valves				
D.9		a) 6mm crushed stone chips	m <sup>3</sup>	50.0		
D.10		b) 10 MPa concrete	m <sup>3</sup>	50.0		
Total Carried Forward To Summary						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
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Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
E	SANS 1200L	<b><u>SECTION E: MEDIUM PRESSURE PIPELINES</u></b>				
		<u>HDPE Watermains</u>				
E.1	PSL 8.2.1 (a), PSL 3.7.2	Collect from employer, lay and bed pipes complete with couplings. the rates must cover all associated costs, including collecting pipes, inspection of pipes, handling, transporting, bedding, laying, cutting, jointing (butt welding of pipes and/or flange jointing), removal of internal and external beads, testing (welds and hydraulic pressure testing), any necessary corrosion protection (Denso or similar approved wrapping of joints) and disinfection.				
E.1.1		a) DN800 HDPE PE100 pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	200.0		
E.1.2		b) DN710 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	1,600.0		
E.1.3		c) DN710 HDPE pipe with a SDR of 11 and a pressure rating of 16 bar.	m	100.0		
E.1.4		d) DN560 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	1,200.0		
E.1.5		e) DN560 HDPE pipe with a SDR of 11 and a pressure rating of 16 bar.	m	100.0		
E.1.6		f) DN400 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	700.0		
E.1.7		g) DN355 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	550.0		
E.1.8		h) DN355 HDPE pipe with a SDR of 11 and a pressure rating of 16 bar.	m	50.0		
E.1.9		i) DN250 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	50.0		
E.1.10		j) DN200 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	200.0		
E.1.11		k) DN450 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	20.0		
E.2	PSL 8.2.1 (b),PSL 3.7.2	Extra-over on item E.1 for the supply of pipe				
E.2.1		a) DN800 HDPE PE100 pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	200.0		
E.2.2		b) DN710 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	1,600.0		
E.2.3		c) DN710 HDPE pipe with a SDR of 11 and a pressure rating of 16 bar.	m	100.0		
E.2.4		d) DN560 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	1,200.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
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Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.2.5		e) DN560 HDPE pipe with a SDR of 11 and a pressure rating of 16 bar.	m	100.0		
E.2.6		f) DN400 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	700.0		
E.2.7		g) DN355 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	550.0		
E.2.8		h) DN355 HDPE pipe with a SDR of 11 and a pressure rating of 16 bar.	m	50.0		
E.2.9		i) DN250 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	50.0		
E.2.10		j) DN200 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	200.0		
E.2.11		k) DN450 HDPE pipe with a SDR of 13.6 and a pressure rating of 12.5 bar.	m	20.0		
E.3	PSL 8.2.2, PSL 3.7.2	Supply, lay, and bed specials complete with couplings. The rates should include all costs associated with supplying specials, storing, handling, inspecting, transporting, bedding, laying, cutting, joining (butt welding and/or flange jointing) and testing. All HDPE specials are to be PE100 and compliance with SANS/ISO 4427.				
		<u>Fabricated HDPE Bends</u>				
		Segmented bends fabricated from DN800 HDPE PE100 pipe with a SDR of 13.6 and a pressure rating of 12.5 bar. All bends are to be in accordance with SANS/ISO 4427 and must be suited for butt welding. All bends shall have a cut angle which is less than or equal to 7.5 degrees. The derating factor for bends is to be 1. Where pipe deflections are used to achieve directional changes instead of installing fabricated bends, no payment shall be made for the fabricated bends.				
E.3.1		a) 0° to 15° (scarf) - (Provisional)	No.	1.0		
E.3.2		b) 16° to 30°	No.	1.0		
E.3.3		c) 31° to 45°	No.	1.0		
E.3.4		d) 46° to 60°	No.	1.0		
E.3.5		e) 61° to 75°	No.	1.0		
E.3.6		f) 76° to 100°	No.	1.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
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Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
		Segmented bends fabricated from DN710 HDPE PE100 pipe with a SDR of 13.6 and a pressure rating of 12.5 bar. All bends are to be in accordance with SANS/ISO 4427 and must be suited for butt welding. The maximum cut angle is 7.5 degrees. Where pipe deflections are used to achieve directional changes instead of installing fabricated bends, no payment shall be made for the fabricated bends.				
E.3.7		a) 0° to 15° (scarf) - (Provisional)	No.	10.0		
E.3.8		b) 16° to 30°	No.	6.0		
E.3.9		c) 31° to 45°	No.	4.0		
E.3.10		d) 46° to 60°	No.	1.0		
E.3.11		e) 61° to 75°	No.	1.0		
E.3.12		f) 76° to 100°	No.	1.0		
		Segmented bends fabricated from DN560 HDPE PE100 pipe with a SDR of 13.6 and a pressure rating of 12.5 bar. All bends are to be in accordance with SANS/ISO 4427 and must be suited for butt welding. The maximum cut angle is 7.5 degrees. Where pipe deflections are used to achieve directional changes instead of installing fabricated bends, no payment shall be made for the fabricated bends.				
E.3.13		a) 0° to 15° (scarf) - (Provisional)	No.	11.0		
E.3.14		b) 16° to 30°	No.	11.0		
E.3.15		c) 31° to 45°	No.	1.0		
E.3.16		d) 46° to 60°	No.	1.0		
E.3.17		e) 61° to 75°	No.	1.0		
E.3.18		f) 76° to 90°	No.	1.0		
		Segmented bends fabricated from DN400 HDPE PE100 pipe with a SDR of 13.6 and a pressure rating of 12.5 bar. All bends are to be in accordance with SANS/ISO 4427. The maximum cut angle is 7.5 degrees. Where pipe deflections are used to achieve directional changes instead of installing fabricated bends, no payment shall be made for the fabricated bends.				
E.3.19		a) 0° to 15° (scarf) - (Provisional)	No.	3.0		
E.3.20		b) 16° to 30°	No.	3.0		
E.3.21		c) 31° to 45°	No.	1.0		
E.3.22		d) 46° to 60°	No.	1.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
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Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.3.23		e) 61° to 75°	No.	1.0		
E.3.24		f) 76° to 90°	No.	3.0		
		Segmented bends fabricated from DN355 HDPE PE100 pipe with a SDR of 13.6 and a pressure rating of 12.5 bar. All bends are to be in accordance with SANS/ISO 4427. The maximum cut angle is 7.5 degrees. Where pipe deflections are used to achieve directional changes instead of installing fabricated bends, no payment shall be made for the fabricated bends.				
E.3.25		a) 0° to 15° (scarf) - (Provisional)	No.	3.0		
E.3.26		b) 16° to 30°	No.	4.0		
E.3.27		c) 31° to 45°	No.	1.0		
E.3.28		d) 46° to 60°	No.	1.0		
E.3.29		e) 61° to 75°	No.	1.0		
E.3.30		f) 76° to 90°	No.	1.0		
		Segmented bends fabricated from DN250 HDPE PE100 pipe with a SDR of 13.6 and a pressure rating of 12.5 bar. All bends are to be in accordance with SANS/ISO 4427. The maximum cut angle is 7.5 degrees. Where pipe deflections are used to achieve directional changes instead of installing fabricated bends, no payment shall be made for the fabricated bends.				
E.3.31		a) 0° to 15° (scarf) - (Provisional)	No.	1.0		
E.3.32		b) 16° to 30°	No.	2.0		
E.3.33		c) 31° to 45°	No.	1.0		
E.3.34		d) 46° to 60°	No.	2.0		
E.3.35		e) 61° to 75°	No.	1.0		
E.3.36		f) 76° to 90°	No.	1.0		
		Segmented bends fabricated from DN200 HDPE PE100 pipe with a SDR of 13.6 and a pressure rating of 12.5 bar. All bends are to be in accordance with SANS/ISO 4427. The maximum cut angle is 7.5 degrees.				
E.3.37		a) 0° to 15° (scarf) - (Provisional)	No.	1.0		
E.3.38		b) 16° to 30°	No.	1.0		
E.3.39		c) 31° to 45°	No.	1.0		
E.3.40		d) 46° to 60°	No.	1.0		
E.3.41		e) 61° to 75°	No.	1.0		
Total Carried Forward						

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Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.3.42		f) 76° to 90°  <u>HDPE Reducers</u>  HDPE PE100 reducer with a SDR of 11 and a pressure rating of 16 bar. The reducers must be suitable for butt welding on to PE100 HDPE pipe. All reducers must comply with SANS/ISO 4427	No.	1.0		
E.3.43		a) DN800 x DN710	No.	1.0		
E.3.44		b) DN710 x DN560	No.	1.0		
E.3.45		c) DN560 x DN500	No.	1.0		
E.3.46		d) DN560 x DN400	No.	1.0		
E.3.47		e) DN560 x DN355	No.	1.0		
E.3.48		f) DN400 x DN250	No.	1.0		
E.3.49		g) DN200 x DN150  <u>HDPE Stubs</u>  HDPE PE100 stub flange with a SDR of 11 and a pressure rating of 16 bar. The stub flange must be suitable for butt welding on to PE100 HDPE pipe. The rate for this item will also include for the supply of the stubs and stainless steel backing rings (as per Table 1600 of SANS 1123), electro galvanized and yellow passivated bolts and washer, the corrosion protection (Denso or similar approved) of flanges and bolts, and gaskets. All stubs must comply with SANS/ISO 4427	No.	1.0		
E.3.50		a) DN800	No.	1.0		
E.3.51		b) DN710	No.	7.0		
E.3.52		c) DN560	No.	4.0		
E.3.53		d) DN450	No.	1.0		
E.3.54		e) DN400	No.	2.0		
E.3.55		f) DN355	No.	2.0		
E.3.56		g) DN250	No.	3.0		
E.3.57		h) DN200  <u>HDPE Molded Tees</u>  HDPE PE100 molded tees with a SDR of 11 and a pressure rating of 16 bar. The molded tees must be suitable for butt welding on to PE100 HDPE pipe. The rate for this item will also include for the butt welding of the tees, extension of tee legs and machining of tees by the pipe manufacturer. All tees are to be in accordance to SANS/ISO4427.	No.	1.0		
Total Carried Forward						

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Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.3.58		a) 800x800x250 tee	No.	1.0		
E.3.59		b) 800x800x200 tee with branch flanged. The rate for this item will also include for the tee, flange and stainless-steel backing rings (as per Table 1600 of SANS 1123), electro galvanized and yellow passivated bolts and washer, the corrosion protection (Denso or similar approved) of flanges and bolts, and gaskets.	No.	1.0		
E.3.60		c) 710x710x560 tee	No.	1.0		
E.3.61		d) 710x710x200 tee with branch flanged. The rate for this item will also include for the tee, flange and stainless-steel backing rings (as per Table 1600 of SANS 1123), electro galvanized and yellow passivated bolts and washer, the corrosion protection (Denso or similar approved) of flanges and bolts, and gaskets.	No.	3.0		
E.3.62		d) 710x710x450 tee with branch flanged. The branch length must be equal to 355mm from top of main pipe. The rate for this item will also include for the tee, flange and stainless-steel backing rings (as per Table 1600 of SANS 1123), electro galvanized and yellow passivated bolts and washer, the corrosion protection (Denso or similar approved) of flanges and bolts, and gaskets.	No.	6.0		
E.3.63		e) 560x560x560 tee	No.	1.0		
E.3.64		f) 560x560x450 tee	No.	1.0		
E.3.65		g) 560x560x200 tee with branch flanged. The rate for this item will also include for the tee, flange and stainless-steel backing rings (as per Table 1600 of SANS 1123), electro galvanized and yellow passivated bolts and washer, the corrosion protection (Denso or similar approved) of flanges and bolts, and gaskets.	No.	3.0		
E.3.66		h) 560x560x355 tee. The branch length must be equal to 280mm from top of main pipe. The rate for this item will also include for the tee, flange and stainless-steel backing rings (as per Table 1600 of SANS 1123), electro galvanized and yellow passivated bolts and washer, the corrosion protection (Denso or similar approved) of flanges and bolts, and gaskets.	No.	4.0		
E.3.67		i) 400x400x250 tee. The branch length must be equal to 200mm from top of main pipe. The rate for this item will also include for the tee, flange and stainless-steel backing rings (as per Table 1600 of SANS 1123), electro galvanized and yellow passivated bolts and washer, the corrosion protection (Denso or similar approved) of flanges and bolts, and gaskets.	No.	1.0		
E.3.68		j) 400x400x250 tee	No.	1.0		
Total Carried Forward						

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Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.3.69		k) 355x355x200 tee with branch flanged. The rate for this item will also include for the tee, flange and stainless-steel backing rings (as per Table 1600 of SANS 1123), electro galvanized and yellow passivated bolts and washer, the corrosion protection (Denso or similar approved) of flanges and bolts, and gaskets.	No.	1.0		
E.3.70		l) 400x400x200 tee	No.	1.0		
E.3.71		m) 355x355x200 tee	No.	1.0		
E.3.72		n) 355x355x250 tee	No.	1.0		
E.3.73		<u>Steel &amp; Other Watermain Fittings</u>	No.	1.0		
E.4	PSL 8.2.2	Supply, lay, and bed specials complete with couplings. The rates should include all costs associated with supplying specials, storing, handling, inspecting, transporting, bedding, laying, cutting, joining (continuous welding and/or flange jointing (all flanges are as per Table 1600 of SANS 1123)), testing and corrosion protecting.				
		<u>Steel Tees</u>				
E.4.1	PSL 8.2.2	a) 4.5mm thick 350mmx350mmx350 mm Steel Tee (Grade C as per SANS 719). All ends flanged and Rilsan coated as per specifications.	No.	1.0		
E.4.2	PSL 8.2.2	b) 4.5mm thick 200mmx200mmx200 mm Steel Tee (Grade C as per SANS 719). All ends flanged and Rilsan coated as per specifications.	No.	1.0		
		<u>Steel Reducers</u>				
E.4.3	PSL 8.2.2	a) 8mm thick DN800 x DN600 FOE Steel (Grade C as per SANS 719) reducer with Rilsan coating. Flange on DN800 side.	No.	1.0		
E.4.4	PSL 8.2.2	b) 6mm thick DN700 x DN600 FBE Steel (Grade C as per SANS 719) reducer with Rilsan coating	No.	6.0		
E.4.5	PSL 8.2.2	c) 4.5mm thick DN550 x DN500 FBE Steel (Grade C as per SANS 719) reducer with Rilsan coating	No.	4.0		
E.4.6	PSL 8.2.2	d) 4.5mm thick DN550 x DN250 FBE Steel (Grade C as per SANS 719) reducer with Rilsan coating	No.	1.0		
E.4.7	PSL 8.2.2	e) 4.5mm thick DN450 x DN350 FBE Steel (Grade C as per SANS 719) reducer with Rilsan coating	No.	1.0		
E.4.8	PSL 8.2.2	f) 4.5mm thick DN250 x DN200 FBE Steel (Grade C as per SANS 719) reducer with Rilsan coating	No.	3.0		
E.4.9	PSL 8.2.2	g) 4.5mm thick DN350 x DN200 FBE Steel (Grade C as per SANS 719) reducer with Rilsan coating	No.	1.0		
Total Carried Forward						

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Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
<u>Pipe Flange Adaptors</u>						
E.4.10		a) 200mm PN16 mPVC/uPVC Flange adaptors	No.	3.0		
E.4.11		b) 250mm PN16 mPVC/uPVC Flange adaptors	No.	1.0		
E.4.12		c) 350mm PN16 AC Flange adaptors	No.	2.0		
E.4.13		d) 200mm PN16 AC Flange adaptors	No.	1.0		
<u>End Caps</u>						
E.4.14		a) 200mm PN16 mPVC/uPVC endcaps	No.	3.0		
E.4.15		b) 75mm PN16 mPVC/uPVC endcaps	No.	2.0		
E.4.16		c) 200mm PN16 AC endcaps	No.	1.0		
E.4.17		d) 350mm PN16 AC endcaps	No.	1.0		
<u>mPVC Pipe</u>						
E.4.18		a) 200mm PN16 mPVC pipe	m	100.0		
E.4.19		b)250mm PN16 mPVC pipe	m	100.0		
<u>mPVC Pipe Bends of 200mm Pipe PN16</u>						
E.4.20		a) 22.5 degree bend	No.	1.0		
E.4.21		b) 45 degree bend	No.	1.0		
E.4.22		c) 60 degree bend	No.	1.0		
E.4.23		d) 90 degree bend	No.	1.0		
<u>mPVC Pipe Bends of 250mm Pipe PN16</u>						
E.4.24		a) 22.5 degree bend	No.	1.0		
E.4.25		b) 45 degree bend	No.	1.0		
E.4.26		c) 60 degree bend	No.	1.0		
E.4.27		d) 90 degree bend	No.	1.0		
<u>Steel Bends</u>						
E.4.28		a) 6mm 600mm Steel bend FOE (Grade C as per SANS 719) with Rilsan coating (to suite on site).	No.	1.0		
E.4.29		b) 4.5mm 200mm Steel bend FBE (Grade C as per SANS 719) with Rilsan coating (to suite on site).	No.	1.0		
<u>Valves</u>						
E.5	PSL 8.2.3 (a)	Collect from employer, store, transport, lay and bed valves				
E.5.1	PSL 8.2.3 (a)	a) 200mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	11.0		
Total Carried Forward						

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Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.5.2	PSL 8.2.3 (a)	b) 250mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	2.0		
E.5.3	PSL 8.2.3 (a)	c) 350mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	1.0		
E.5.4	PSL 8.2.3 (a)	d) 400mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	1.0		
E.5.5	PSL 8.2.3 (a)	e) 500mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	2.0		
E.5.6	PSL 8.2.3 (a)	f) 600mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	1.0		
E.5.7	PSL 8.2.3 (a)	g) 100mm PN16 Air Valve as per eThekwini Municipality's Specifications (i.e. 100mmØ Air Valve, Vent-O-Mat or similar approved, Class 16 RBX)	No.	2.0		
E.5.8	PSL 8.2.3 (a)	h) 80mm PN16 Air Valve as per eThekwini Municipality's Specifications (i.e. 80mmØ Air Valve, Vent-O-Mat or similar approved, Class 16 RBX)	No.	5.0		
E.5.9	PSL 8.2.3 (a)	i) 50mm PN16 Air Valve as per eThekwini Municipality's Specifications (i.e. 50mmØ Air Valve, Vent-O-Mat or similar approved, Class 16 RBX)	No.	1.0		
E.5.10	PSL 8.2.3 (a)	j) 150mm PN16 Full Bore Bermad or similar approved Pump Control Valve with check valve and flow control feature	No.	1.0		
E.5.11	PSL 8.2.3 (a)	k) 200mm PN16 Bermad or similar approved Antislam check valve	No.	1.0		
E.5.12	PSL 8.2.3 (a)	l) 150mm PN16 Air Valve as per eThekwini Municipality's Specifications (i.e. 150mmØ Air Valve, Vent-O-Mat or similar approved, Class 16 RBX)	No.	1.0		
E.6	PSL 8.2.3 (b)	Extra-over on item E.5 for the supply of valves:				
E.6.1	PSL 8.2.3 (b)	a) 200mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	11.0		
E.6.2	PSL 8.2.3 (b)	b) 250mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	2.0		
E.6.3	PSL 8.2.3 (b)	c) 350mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	1.0		
E.6.4	PSL 8.2.3 (b)	d) 400mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	1.0		
E.6.5	PSL 8.2.3 (b)	e) 500mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	2.0		
E.6.6	PSL 8.2.3 (b)	f) 600mm PN16 Wedge Gate Valve as per eThekwini Municipality's Specifications	No.	1.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
800/710/560/400/355/250/200mm Ø HDPE Watermain, in Wards 58 and 106**

Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.6.7	PSL 8.2.3 (b)	g) 100mm PN16 Air Valve as per eThekwini Municipality's Specifications (i.e. 100mmØ Air Valve, Vent-O-Mat or similar approved, Class 16 RBX)	No.	2.0		
E.6.8	PSL 8.2.3 (b)	h) 80mm PN16 Air Valve as per eThekwini Municipality's Specifications (i.e. 80mmØ Air Valve, Vent-O-Mat or similar approved, Class 16 RBX)	No.	5.0		
E.6.9	PSL 8.2.3 (b)	i) 50mm PN16 Air Valve as per eThekwini Municipality's Specifications (i.e. 50mmØ Air Valve, Vent-O-Mat or similar approved, Class 16 RBX)	No.	1.0		
E.6.10	PSL 8.2.3 (b)	j) 150mm PN16 Full Bore Bermad or similar approved Pump Control Valve with check valve and flow control feature	No.	1.0		
E.6.11	PSL 8.2.3 (b)	k) 200mm PN16 Bermad or similar approved Antislam check valve	No.	1.0		
E.6.12	PSL 8.2.3 (a)	l) 150mm PN16 Air Valve as per eThekwini Municipality's Specifications (i.e. 150mmØ Air Valve, Vent-O-Mat or similar approved, Class 16 RBX)	No.	1.0		
		<u>100mm Air Valve Chamber (On Road Pipe)</u>				
E.7		Supply all materials and construct air valve chamber, complete, as detailed on drawing 60569 sheet 15. Rates to include all excavation, supply and placing of bedding sand and crushed store, supply and installation of concrete rings, supply and placing of roof slab, supply and installation of step irons, supply and installation of air vents, supply and installation of securex smartlock , backfilling, compacting and finishing of surrounding ground levels to suit, and painting of chamber with two coats of yellow : Protectcote as manufactured by Ivory Industries (Pty) Ltd or similar approved. The chamber will be constructed for the following depths:				
E.7.1		a) 1m - 2m	No.	1.0		
E.7.2		b) 2m - 3m	No.	1.0		
E.8	PSL 8.2.2	Supply, transport, Fabricate and Install the following Specials. COMPLETE as Detailed on drawing 60569 sheet 15, Inclusive of Flanges, gaskets, washers and Bolts. Note: Bolts and washers to be electro galvanized and yellow passivated. Rate to include for drilling, welding, internal and external corrosion protection and Rilsan Coating where applicable. Flanges to suit table 1600/3 of SANS 1123				
		For airvalve see item above				
E.8.1		a) 100mmØ X 200mm Long Spool Piece, F.B.E. to Suit Air Valve.	No.	2.0		
E.8.2		b) 15mmØ Thread-O-Let Gas Socket	No.	2.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
800/710/560/400/355/250/200mm Ø HDPE Watermain, in Wards 58 and 106**

Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.8.3		c) 15mm Ball-O-Stop Female to Male	No.	2.0		
E.8.4		d) 100mmØ Butterfly Valve	No.	2.0		
E.8.5		e) 100mmØ Long Spool Piece (F.O.E with a 100mm Ø x 90° long Radius Bend Flanged One End) cut to suit	No.	2.0		
E.8.6		f) 100mmØ Spool Piece (Flanged on both ends) cut to suit.	No.	2.0		
E.8.7		g) 100mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 100mmØ Hole Cut Centrally On A DN450 Blanked Flanged	No.	2.0		
E.8.8		h) 15mmØ Male Stop End	No.	2.0		
E.8.9		i) 100mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 100mmØ Hole Cut Centrally On A DN350 Blanked Flanged	No.	1.0		
E.8.10		j) 100mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 100mmØ Hole Cut Centrally On A DN250 Blanked Flanged	No.	1.0		
		80mm Air Valve Chamber (On Road Pipe)				
		Supply all materials and construct air valve chamber, complete, as detailed on drawing 60569 sheet 15. Rates to include all excavation, supply and placing of bedding sand and crushed store, supply and installation of concrete rings, supply and placing of roof slab, supply and installation of step irons, supply and installation of air vents, supply and installation of securex smartlock , backfilling, compacting and finishing of surrounding ground levels to suit, and painting of chamber with two coats of yellow : Protectcote as manufactured by Ivory Industries (Pty) Ltd or similar approved. The chamber will be constructed for the following depths:				
E.8.11		a) 1m - 2m	No.	3.0		
E.8.12		b) 2m - 3m	No.	2.0		
		Supply, transport, Fabricate and Install the following Specials. COMPLETE as Detailed on drawing 60569 sheet 15, Inclusive of Flanges, gaskets, washers and Bolts. Note: Bolts and washers to be electro galvanized and yellow passivated. Rate to include for drilling, welding, internal and external corrosion protection and Rilsan Coating where applicable. Flanges to suit table 1600/3 of SANS 1123				
		For airvalve see item above				
		For tees see item above				
E.8.13		a) 80mmØ X 200mm Long Spool Piece, F.B.E. to Suit Air Valve.	No.	5.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
800/710/560/400/355/250/200mm Ø HDPE Watermain, in Wards 58 and 106**

Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.8.14		b) 15mmØ Thread-O-Let Gas Socket	No.	5.0		
E.8.15		c) 15mm Ball-O-Stop Female to Male	No.	5.0		
E.8.16		d) 80mmØ Butterfly Valve	No.	5.0		
E.8.17		e) 80mmØ Long Spool Piece (F.O.E with a 80mm Ø x 90° long Radius Bend Flanged One End) cut to suit	No.	5.0		
E.8.18		f) 80mmØ Spool Piece (Flanged on both ends) cut to suit.	No.	5.0		
E.8.19		g) 80mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 80mmØ Hole Cut Centrally On A DN450 Blanked Flanged	No.	2.0		
E.8.20		h) 15mmØ Male Stop End	No.	5.0		
E.8.21		i) 80mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 80mmØ Hole Cut Centrally On A DN350 Blanked Flanged	No.	2.0		
E.8.22		j) 80mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 80mmØ Hole Cut Centrally On A DN250 Blanked Flanged	No.	1.0		
		<b>50mm Air Valve Chamber (On Road Pipe)</b>				
		Supply all materials and construct air valve chamber, complete, as detailed on drawing 60569 sheet 15. Rates to include all excavation, supply and placing of bedding sand and crushed store, supply and installation of concrete rings, supply and placing of roof slab, supply and installation of step irons, supply and installation of air vents, supply and installation of securex smartlock , backfilling, compacting and finishing of surrounding ground levels to suit, and painting of chamber with two coats of yellow : Protectcote as manufactured by Ivory Industries (Pty) Ltd or similar approved. The chamber will be constructed for the following depths:				
E.8.23		a) 1m - 2m	No.	1.0		
E.8.24		b) 2m - 3m	No.	1.0		
		Supply, transport, Fabricate and Install the following Specials. COMPLETE as Detailed on drawing 60569 sheet 15, Inclusive of Flanges, gaskets, washers and Bolts. Note: Bolts and washers to be electro galvanized and yellow passivated. Rate to include for drilling, welding, internal and external corrosion protection and Rilsan Coating where applicable. Flanges to suit table 1600/3 of SANS 1123				
		For airvalve see item above				
		For tees see item above				
E.8.25		a) 50mmØ X 200mm Long Spool Piece, F.B.E. to Suit Air Valve.	No.	1.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
800/710/560/400/355/250/200mm Ø HDPE Watermain, in Wards 58 and 106**

Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.8.26		b) 15mmØ Thread-O-Let Gas Socket	No.	1.0		
E.8.27		c) 15mm Ball-O-Stop Female to Male	No.	1.0		
E.8.28		d) 50mmØ Butterfly Valve	No.	1.0		
E.8.29		e) 50mmØ Long Spool Piece (F.O.E with a 80mm Ø x 90° long Radius Bend Flanged One End) cut to suit	No.	1.0		
E.8.30		f) 50mmØ Spool Piece (Flanged on both ends) cut to suit.	No.	1.0		
E.8.31		g) 50mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 50mmØ Hole Cut Centrally On A DN450 Blanked Flanged	No.	1.0		
E.8.32		h) 15mmØ Male Stop End	No.	1.0		
E.8.33		i) 50mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 50mmØ Hole Cut Centrally On A DN350 Blanked Flanged	No.	1.0		
E.8.34		j) 50mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 50mmØ Hole Cut Centrally On A DN250 Blanked Flanged	No.	1.0		
		<u>150mm Air Valve Chamber (On Road Pipe)</u>				
		Supply all materials and construct air valve chamber, complete, as detailed on drawing 60569 sheet 15. Rates to include all excavation, supply and placing of bedding sand and crushed store, supply and installation of concrete rings, supply and placing of roof slab, supply and installation of step irons, supply and installation of air vents, supply and installation of securex smartlock , backfilling, compacting and finishing of surrounding ground levels to suit, and painting of chamber with two coats of yellow : Protectcote as manufactured by Ivory Industries (Pty) Ltd or similar approved. The chamber will be constructed for the following depths:				
E.8.35		a) 1m - 2m	No.	1.0		
E.8.36		b) 2m - 3m	No.	1.0		
	PSL 8.2.2	Supply, transport, Fabricate and Install the following Specials. COMPLETE as drawing 60569 sheet 15, Inclusive of Flanges, gaskets, washers and Bolts. Note: Bolts and washers to be electro galvanized and yellow passivated. Rate to include for drilling, welding, internal and external corrosion protection and Rilsan Coating where applicable. Flanges to suit table 1600/3 of SANS 1123				
		a) For airvalve see item above				
		b) For tees see item above				
E.8.37		c) 15mmØ Thread-O-Let Gas Socket	No.	1.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
800/710/560/400/355/250/200mm Ø HDPE Watermain, in Wards 58 and 106**

Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.8.38		d) 15mm Ball-O-Stop Female to Male	No.	1.0		
E.8.39		e) 150mmØ Butterfly Valve	No.	1.0		
E.8.40		f) 150mmØ Long Spool Piece (F.O.E with a 150mm Ø x 90° long Radius Bend Flanged One End) cut to suit	No.	1.0		
E.8.41		g) 150mmØ Spool Piece (Flanged on both ends) cut to suit.	No.	1.0		
E.8.42		h) 150mmØ x 90° Long Radius Bend (F.O.E.) and Welded Around 100mmØ Hole Cut Centrally On A DN450 Blanked Flanged	No.	1.0		
E.8.43		i) 15mmØ Male Stop End	No.	1.0		
<u>Scour Valve Chamber and Ancillaries</u>						
E.9		Supply all materials and construct scour valve chamber, complete, as detailed on drawing 60569 sheet 16. Rates to include all excavation, supply and placing of bedding sand and crushed store, supply and installation of concrete rings, supply and placing of roof slab, supply and installation of step irons, supply and installation of air vents, supply and installation of Heavy Cast Iron Manhole Cover , backfilling, compacting and finishing of surrounding ground levels to suit, and painting of chamber with two coats of yellow : Protectcote as manufactured by Ivory Industries (Pty) Ltd or similar approved. The chamber will be constructed for the following depths:				
Up to and including:						
E.9.1		a) 1.0m to 2.0m	No.	2.0		
E.9.2		b) 2.0m to 3.5m	No.	2.0		
E.10	PSL 8.2.2	Supply, transport, Fabricate and Install the following Specials. COMPLETE as Detailed on drawing 60569 sheet 16. Inclusive of Flanges, gaskets, washers and Bolts. Note: Bolts and washers to be electro galvanized and yellow passivated. Rate to include for drilling, welding, internal and external corrosion protection and Rilsan Coating where applicable. Flanges to suit table 1600/3 of SANS 1123				
For tees refer to items above						
E.10.1		a) 200mmØ HDPE pipe SDR 11 PN16	m	100.0		
E.10.2		b) 200mmØ Gate Valve	No.	2.0		
E.10.3		c) 200mmØ HDPE pipe SDR 11 PN16 Bends	No.	10.0		
E.10.4		d) 32mmØ Spindle Extension (Length to be determined on site)	No.	11.0		
E.10.5		e) No.5 Valve Cover as per standard drawing #28	No.	11.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
800/710/560/400/355/250/200mm Ø HDPE Watermain, in Wards 58 and 106**

Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
E.10.6		f) Concrete Spacer Rings as per standard drawing #6 (Length to be determined on site)	No.	225.0		
E.10.7		g) 280mmØ HDPE outlet pipe PN12.5 SDR13.6 (length to be determined on Site)	No.	100.0		
E.10.8		h) 280mmØ HDPE outlet pipe PN12.5 SDR13.6 Bends	No.	10.0		
		i) 200mm HDPE Stub - see above				
E.10.9		j) 200mmØ PN16 HDPE stub flange	No.	3.0		
E.10.10		k) 350mmx200mm steel reducer (FOE) (Grade C, Rilsan coated)	No.	3.0		
E.10.11		l) 350mmØ x 600mm long steel spool (Grade C, Rilsan coated)	No.	3.0		
E.10.12		m) 90 degree steel bend	No.	3.0		
E.11		Supply all materials and construct a jet dispenser for Type B2 scour, complete as detailed on Drawing 60569 Sheet 16. The rate shall include: Supply and placement of bedding sand, selected fill material, and backfill material; Supply and construction of in-situ concrete thrust blocks; Supply and installation of 10m of 200mm diameter HDPE PE100 SDR11 pipe, including all necessary 45-degree bends, one stub flange, and associated steel backing flanges; Full assembly and installation of the jet dispenser; Backfilling, compaction, and finishing of surrounding ground levels to match existing conditions.	No.	3.0		
E.12		Supply all materials and construct a headwall for a Type B3 scour, complete as detailed on Drawing 60569 Sheet 16. The rate shall include: Supply and placement of bedding sand, selected fill material, and backfill material; supply of all materials to construct the head wall, Supply and construction of in-situ concrete thrust blocks; Supply and installation of 10m of 200mm diameter HDPE pipe, a 350mm x 200mm diameter HDPE reducer, and 0.5m of 350mm diameter HDPE pipe; supply and installation of reno mattress; Backfilling, compaction, and finishing of surrounding ground levels to match existing conditions. All HDPE pipe must be SDR 11, PN 16 and PE100.	No.	2.0		
		<u>Items to be collected from EWS Stores</u>				
E.13		Collect the following items from EWS Springfield Store in Electron Road:				
E.13.1		a) No.5 Valve Cover	No.	9.0		
E.13.2		b) Concrete Spacer Rings (Length to be determined on site)	No.	50.0		
E.13.3		c) 32mmØ Spindle Extension (Length to be determined on site)	No.	7.0		
Total Carried Forward						

**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
800/710/560/400/355/250/200mm Ø HDPE Watermain, in Wards 58 and 106**

Schedule of Quantities

Medium Pressure Pipelines

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
		d) GRP Ladder with the following lengths:				
E.13.4		i) 0 - 1m	No.	1.0		
E.13.5		ii) 1 - 2m	No.	1.0		
E.13.6		iii) 1 - 2m	No.	1.0		
E.13.7		e) Valve marker	No.	10.0		
E.13.8	PSL 8.2.16	f) Paint and install route marker posts as per EWS Standard detail 32	No.	25.0		
E.13.9	PSL 8.5	g) Water Interruption Sign boards	No.	200.0		
		<u>New Offtake Chambers</u>				
E.14		Demolish and remove the brick chambers. The rate shall include the removal of the cover slab, bricks and foundation slab, and disposal of the rubble at an approved dumpsite for the following depths:				
E.14.1		a) 1 - 1.5m	m <sup>2</sup>	2.0		
E.14.2		b) 1.51 - 2.5m	m <sup>2</sup>	2.0		
E.15		Supply all materials and construct chamber, complete, as detailed on drawing 60569 sheet 17. Rates to include all excavation, supply and placing of bedding sand and crushed store, supply and installation of concrete rings, supply and placing of roof slab, supply and installation of step irons, supply and installation of air vents, supply and installation of Heavy Cast Iron Manhole Cover , backfilling, compacting and finishing of surrounding ground levels to suit, and painting of chamber with two coats of yellow : Protectcote as manufactured by Ivory Industries (Pty) Ltd or similar approved. The chamber will be constructed for the following depths:				
E.15.1		a) 1 - 1.5m	No.	2.0		
E.15.2		b) 1.51 - 2.5m	No.	1.0		
		Tie into Existing Watermains				
E.16	PSL 8.3	Tie new watermain into the following:				
E.16.1	PS.3.11	a) Tie in No.1	Sum	1.0		
E.16.2	PS.3.11	b) Tie in No.2	Sum	1.0		
E.16.3	PS.3.11	c) Tie in No.3	Sum	1.0		
E.16.4	PS.3.11	d) Tie in No.4	Sum	1.0		
E.16.5	PS.3.11	e) Tie in No.5	Sum	1.0		
E.16.6	PS.3.11	f) Tie in No.6	Sum	1.0		
E.16.7	PS.3.11	g) Tie in No.7	Sum	1.0		
Total Carried Forward						



**Waterloo Reservoir to Katzkop Reservoir: The Construction of a 4.2km,  
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Schedule of Quantities

SECTION	SUMMARY OF SECTIONS DESCRIPTION	AMOUNT R
A	Preliminary & General	
B	Site Clearance	
C	Earthworks (Pipe Trenches)	
D	Pipe Bedding	
E	Medium Pressure Pipelines	
	SUBTOTAL	
	Add 15% VAT	
	Total Carried f Total Carried Forward To Summary Of Schedules	