

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
1.1	SANS 1200A 8.3	SCHEDULED FIXED CHARGE AND VALUE RELATED ITEMS				
1.1.1	8.3.1	Contractual Requirements	Sum	1		
	8.3.2 PSAB 8.2.1 to 8.2.9	<u>Establishment of Facilities on Site:</u>				
	8.3.2.1	<u>1) Facilities for Engineer (SANS 1200 AB) as amended in PSAB</u>				
1.1.2		a) Furnished office	Sum	1		
1.1.3		b) Meeting room	Sum	1		
1.1.4		c) Nameboards (2 No.)	Sum	1		
1.1.5		d) Survey assistant	Sum	1		
1.1.6		e) Survey equipment	Sum	1		
1.1.7		f) Covered Parking Bays (2 No.)	Sum	1		
1.1.8		g) All other specified facilities (incl wifi internet connection, printer and 2 vehicles)	Sum	1		
	8.3.2.2	<u>2) Facilities for Contractors</u>				
1.1.9		a) Office and storage sheds	Sum	1		
1.1.10		b) Workshops	Sum	1		
1.1.11		c) Laboratories	Sum	1		
1.1.12		d) Living accommodation	Sum	1		
1.1.13		e) Ablution and latrine facilities	Sum	1		
1.1.14		f) Tools and equipment	Sum	1		
1.1.15		g) Water supplied, electric power and communications.	Sum	1		
1.1.16		h) Dealing with water (Sub-clause 5.5)	Sum	1		
1.1.17		i) Access (Sub-clause 5.8)	Sum	1		
1.1.18		j) Plant	Sum	1		
1.1.19		k) Security and fencing and hoarding	Sum	1		
1.1.20	8.3.3 PSA 8.2.1	General Responsibilities and other fixed charge obligations (including making allowance for effects and payments taking up to 60 days from date of invoice)	Sum	1		
1.1.21	8.3.4	Removal of Engineer's and Contractor's site establishment on completion of works	Sum	1		
<b>CARRIED FORWARD</b>						

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
		<u>Fixed charges associated with complying with Health and Safety Requirements:</u>				
1.1.22		1a) OH&S documentation	Sum	1		
1.1.23		1b) Entry medicals for all workers	Sum	1		
1.1.24		1c) Provision of PPE and all other protective clothing	Sum	1		
1.1.25		1d) Signage (warning, traffic, hazard, danger, construction, excavation, fire etc)	Sum	1		
1.1.26		1e) Training (OHS reps, First Aiders, Scaffolding Erectors and Inspectors, basic working at heights, Fire-fighters etc)	Sum	1		
1.1.27		1f) First Aid (kits, rescue equipment, hazchem spill kits, polyvalent snake antivenom etc)	Sum	1		
1.1.28		1g) All other items	Sum	1		
1.1.29		2) Completing and checking the Project H&S File and handing over the Client on completion of the works and exit medicals for all workers	Sum	1		
1.1.30		3) Provision of HIV/Aids Awareness plan and all necessary fixed charge items to achieve compliance with SANS 1921 Part 6 HIV/Aids Awareness	Sum	1		
1.1.31	PSA 8.11	Fixed charges associated with complying with the Environmental Management Plan	Sum	1		
<b>1.2</b>	<b>8.4</b>					
	<b>PSA 8.2.1</b>	<b>TIME-RELATED ITEMS</b>				
1.2.1	8.4.1	Contractual Requirements	Sum	1		
	8.4.2	<u>Operate and maintain of Facilities on Site for the duration of the construction, except where otherwise stated:</u>				
	8.4.2.1	<u>1) Facilities for Engineer as per PSAB clause</u>				
1.2.2	PSAB 3.2 PSAB 5.2	a) Furnished office	Sum	1		
1.2.3	PSAB 3.2 PSAB 5.2	b) Meeting room	Sum	1		
1.2.4	PSAB 3.1	c) Nameboards (2 No.)	Sum	1		
1.2.5	PSAB 5.5	d) Survey assistant	Sum	1		
1.2.6	PSAB 5.6	e) Survey equipment	Sum	1		
<b>CARRIED FORWARD</b>						

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
<b>BROUGHT FORWARD</b>						
1.2.7	PSAB 4.2	f) Covered Parking Bays (2 No.)	Sum	1		
1.2.8	PSAB 4.1 PSAB 4.3	g) All other specified facilities (incl wifi internet connection, printer, monthly cell phone allowance (3 x R500pm)	Sum	1		
	8.4.2.2	<u>2) Facilities for Contractor</u>				
1.2.9		a) Office and storage sheds	Sum	1		
1.2.10		b) Workshops	Sum	1		
1.2.11		c) Laboratories	Sum	1		
1.2.12		d) Living accommodation	Sum	1		
1.2.13		e) Ablution and latrine facilities	Sum	1		
1.2.14		f) Tools and equipment	Sum	1		
1.2.15		g) Water supplied, electric power and communications.	Sum	1		
1.2.16		h) Dealing with water (Sub-clause 5.5)	Sum	1		
1.2.17		i) Access (Sub-clause 5.8)	Sum	1		
1.2.18		j) Plant	Sum	1		
1.2.19		k) Security and maintaining fencing & hoarding	Sum	1		
1.2.20	8.4.3	Supervision for duration of construction	Sum	1		
1.2.21	8.4.4	Company and head office overhead costs for the duration of the contract	Sum	1		
1.2.22	8.4.5 PSA 8.2.2	General Responsibilities and other time-related obligations (including making allowance for effects and payments taking up to 60 days from date of invoice)	Sum	1		
	PSA 8.10 PS - OHS	<u>Time-related charges associated with complying with Health and Safety Requirements:</u>				
1.2.23		1) Cost of full-time registered Construction Safety Officer on Site (all costs associated with providing a CSO for the full duration of the tendered Time for Completion)	Sum	1		
1.2.24		2) Updating and amending the risk assessments, safe work procedures, the project H&S File, the H&S Plan, medicals for all workers, the provision of PPE and protective clothing and all other H&S matters that fulfill OHS Act 85 of 1993 and construction regulation 2014	Sum	1		
<b>CARRIED FORWARD</b>						

CONTRACT: ORTDM SCMU 22-22/23

BILL OF QUANTITIES

CONTRACT TITLE: CONSTRUCTION OF MTHATHA DAM RAW WATER PUMPSTATION: CIVIL WORKS

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
1.2.25		3) Full compliance with all H&S matters during the construction of the works under the Contract	Sum	1		
1.2.26		4) Compliance with SANS 1921 Part 6 HIV/Aids Awareness plan during the contract	Sum	1		
1.2.27	PSA 8.11	Time-related charges associated with complying with the Environmental Management Plan	Sum	1		
<b>TOTAL FOR SECTION 1 CARRIED FORWARD TO SUMMARY</b>						

SECTION: 2 PROVISIONAL SUMS & DAYWORKS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
2.1	PSA 8.5	<b>PROVISIONAL SUMS</b>				
		<u>SURVEY</u>				
2.1.1		Ad-hoc survey and survey to establish new Benchmarks and exposed services as requested by the Engineer.	Prov.Sum	1	80 000.00	80 000.00
2.1.2		Overheads, Charges and profit on item 2.1.1 above	%	80 000.00		
	PSA 8.5.1	<u>COMMUNITY LIASON OFFICER</u>				
2.1.3		Employment of CLO for the duration of the contract (R5000 pm plus R300 pm cellphone allowance)	Prov.Sum	1	50 000.00	50 000.00
2.1.4		Overheads, Charges and Profit on item 2.1.3 above	%	50 000.00		
2.1.5		Employment of PSC for duration of contract (6 No. at R500 pm each)	Prov.Sum	1	72 000.00	72 000.00
2.1.6		Overheads, Charges and Profit on item 2.1.5 above	%	72 000.00		
		<u>TRAINING</u>				
2.1.7		Allowance for training of local unskilled labour	Prov.Sum	1	50 000.00	50 000.00
2.1.8		Overheads, Charges and profit on item 2.1.7 above	%	50 000.00		
		<u>COMPENSATION PAYMENTS</u>				
2.1.9		Payments to local residents as compensation as directed by the Engineer	Prov.Sum	1	300 000.00	300 000.00
2.1.10		Overheads, Charges and Profit on item 2.1.9 above	%	300 000.00		
2.2	PSA 8.6	<b>PRIME COST ITEMS</b>				
		<u>COMPLIANCE TESTING BY ENGINEER</u>				
2.2.1		Additional Acceptance control testing as may be required by the Engineer (Note that the Contractor's tendered rates are to include for all Quality Control testing required to achieve compliance with the specifications and that this scheduled item is to cover only the Engineer's additional testing that the Engineer may require)	PC Sum	1	50 000.00	50 000.00
2.2.2		Overheads, Charges and Profit on item 2.2.1 above	%	50 000.00		
		<u>CATHODIC PROTECTION</u>				
<b>CARRIED FORWARD</b>						

SECTION: 2 PROVISIONAL SUMS & DAYWORKS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
2.2.3		Specialist design and installation of impressed current cathodic protection system plus Pipe Current Mapping or DCVG survey by others progressively with pipe laying, all under the direction of the Employer's specialist Cathodic Protection professional service provider.	PC Sum	1	100 000.00	100 000.00
2.2.4		Overheads, Charges and Profit on item 2.2.3 above	%	100 000.00		
2.2.5		Implementation of cathodic protection system by Specialist Professional Service Provider (Employer to arrange 3 quotes).	PC Sum	1	300 000.00	300 000.00
2.2.6		Overheads, Charges and Profit on item 2.2.5 above	%	300 000.00		
		<u>ISD CONSULTANTS FEES</u>				
2.2.7		Fees paid to ISD (direct payment by Employer through cession)	PC Sum	1	350 000.00	350 000.00
2.2.8		Overheads, Charges and Profit on item 2.2.7 above	%	350 000.00		
		<u>ENVIRO CONTROL OFFICER FEES</u>				
2.2.9		Fees paid to ECO (direct payment by Employer through cession)	PC Sum	1	180 000.00	180 000.00
2.2.10		Overheads, Charges and Profit on item 2.2.9 above	%	180 000.00		
		<u>OH&amp;S FEES</u>				
2.2.11		Fees paid to OH&S Agent (direct payment by Employer through cession)	PC Sum	1	200 000.00	200 000.00
2.2.12		Overheads, Charges and Profit on item 2.2.11 above	%	200 000.00		
		<u>INDEPENDANT INSPECTORATE</u>				
2.2.13		Independent inspectorate (Welds, corrosion protection and also concrete quality control)	PC Sum	1	300 000.00	300 000.00
2.2.14		Overheads, Charges and Profit on item 2.2.13 above	%	300 000.00		
		<u>VEHICLE FOR ENGINEER</u>				
2.2.15		Rental bakkies for Engineer's Site Staff	PC Sum	1	360 000.00	360 000.00
2.2.16		Overheads, Charges and Profit on item 2.2.15 above	%	360 000.00		
<b>2.3</b>	<b>PSA 8.7</b>	<b>DAYWORKS</b>				
<b>CARRIED FORWARD</b>						

SECTION: **2 PROVISIONAL SUMS & DAYWORKS**

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
	8.7	<u>LABOUR</u>				
2.3.1		a) Team leader / charge hand	hr	100		
2.3.2		b) Artisan	hr	100		
2.3.3		c) Skilled	hr	100		
2.3.4		d) Semi-skilled	hr	100		
2.3.5		e) Unskilled	hr	100		
	8.7	<u>PLANT</u>				
2.3.6		For plant used in execution of Dayworks as agreed with Engineer	PC Sum	1	100 000.00	100 000.00
2.3.7		Overheads, Charges and Profit on item 2.3.6 above	%	100 000.00		
	8.7	<u>MATERIALS</u>				
2.3.8		For materials used in execution of Dayworks as agreed with the Engineer	PC Sum	1	100 000.00	100 000.00
2.3.9		Overheads, Charges and Profit on item 2.3.8 above	%	100 000.00		
<b>TOTAL FOR SECTION 2 CARRIED FORWARD TO SUMMARY</b>						

SECTION: 3 SITE WORKS: CLEARANCE, BULK EARTHWORKS, RETAINING WALLS & FENCING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
3.1	SANS 1200 C	<b>SITE CLEARANCE</b>				
3.1.1	8.2.1	Clear and grub Site	ha	0.36		
	8.2.2	Remove and grub large trees and tree stumps of girth Over and up to				
3.1.2		1 m 2 m	No.	1		
3.2	SANS 1200 D	<b>BULK EARTHWORKS</b>				
3.2.1		<i>STRIP TOPSOIL</i> i) The entire pumpstation platform area (including Contractor's excavation for access and working space); ii) Pipeline routes outside the platform area; iii) Temporary stockpile areas (except topsoil stockpile areas); iv) Any other otherwise undisturbed area used by Contractor for his own purposes (the latter NOT measured for payment).				
3.2.1.1	8.3.1.2	Strip topsoil to 150mm depth, stockpile and maintain for duration of Contract	m <sup>2</sup>	3550		
3.2.2	PSD 8.3.2	<i>CREATE BULK EARTHWORKS PLATFORMS</i> Excavate in material classified as 'soft' material:				
3.2.2.1		Cut to fill in soft soil material to site platforms including conditioning to OMC and compacting to 93% modAASHTO and trimming and compacting surfaces to line and level	m <sup>3</sup>	70		
3.2.2.2		Excavate to spoil in vicinity (incl levelling with min 1:100 free-draining falls, compacting and neatening final spoil platform) Excavate in material using 30t excavator fitted with rock bucket	m <sup>3</sup>	3358		
3.2.2.3		Cut to fill, compact in layers not exceeding 200mm and construct fill platforms to specified line and levels, including conditioning by gridding and compacting to 93% ModAASHTO	m <sup>3</sup>	30		
3.2.2.4		Excavate to spoil in vicinity (incl levelling with min 1:100 free-draining falls, compacting and neatening final spoil platform) Excavate to spoil in material classified as 'hard rock':	m <sup>3</sup>	200		
<b>CARRIED FORWARD</b>						



SECTION: 3 SITE WORKS: CLEARANCE, BULK EARTHWORKS, RETAINING WALLS & FENCING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
3.2.2.5		Excavator-mounted heavy duty hydraulic breaker	m <sup>3</sup>	700		
	PSD 8.3.6	Overhaul				
3.2.2.6		Extra over all excavations to spoil at designated spoil site (approx 2.3km away)	m <sup>3</sup> .km	3200		
	8.3.10	REPLACE TOPSOIL				
3.2.2.7		Excavate from stockpile and spread in 150mm layer such that natural grass can re-establish itself	m <sup>2</sup>	50		
<b>3.3</b>		<b>FENCING</b>				
		PERIMETER FENCE				
		Design, supply and installation of fence as described below				
		1.8m GMS High-Density Weldmesh Perimeter Fence				
3.3.1		Construct fencing complete including excavation, mass concrete footings and ground beam, precast concrete posts, straining wires and mesh and flat wrap coil. Refer to dwg J31067-STD 703	m	400		
3.3.2		Extra-over item 3.3.1 for double leaf gates. Refer to dwg J31067-STD 703	No.	1		
<b>3.4</b>		<b>DRY-STACK CONCRETE BLOCK RETAINING WALLS</b>				
		<i>Refer to Dwg J31067-STD-570-A DRY STACK RET WALL DETAILS</i>				
3.4.1	SABS 1200 D	EARTHWORKS				
	PSD 8.3.3	RESTRICTED EXCAVATION				
		Excavation for base of retaining wall:				
3.4.1.1		Excavate in soft material to spoil in vicinity	m <sup>3</sup>	256		
3.4.1.2		Excavate in intermediate / hard material using 30t excavator fitted with Heavy Duty Hydraulic Breaker	m <sup>3</sup>	50		
	PSD 8.3.6	Overhaul				
3.4.1.3		Extra over all excavations to spoil at designated spoil site (approx 2.3km away)	m <sup>3</sup> .km	250		
<b>CARRIED FORWARD</b>						

SECTION: **3 SITE WORKS: CLEARANCE, BULK EARTHWORKS, RETAINING WALLS & FENCING**

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
3.4.2		<b>BROUGHT FORWARD</b> <i>DRY-STACK CONCRETE BLOCK RETAINING WALLS</i>				
	SANS 1200 G	Dry-Stack Retaining Block Foundations				
		Reinforcement				
		High Tensile Steel				
3.4.2.1	8.3.1	All diameter bars	t	1		
		Concrete				
3.4.2.2	8.4.2	50mm Blinding 15 MPa/19mm	m <sup>2</sup>	157		
3.4.2.3	8.4.3	15 MPa/19 mm Concrete footings to dry laid precast concrete block wall	m <sup>3</sup>	50		
	GIBB 015	Construct dry-laid precast concrete block wall using Loffelstein blocks at 63°				
	9.1	Design, supply and installation of dry-laid precast concrete block retaining wall for heights as follows:				
3.4.2.4		a) over 0m up to and including 3m	m <sup>2</sup>	240		
3.4.2.5		b) over 3m up to and including 6m	m <sup>2</sup>	15		
	SABS1200 D, SABS1200 LE	Backfill & subsoil drainage				
3.4.2.6	8.3.9	Selected granular material from stockpile, place, spread, compact and backfill behind retaining wall to density as specified, including benching, finishing off to levels specified	m <sup>3</sup>	176		
3.4.2.7		Sand compacted to 100% Mod AASHTO to aact as free draining material next to stone drain	m <sup>3</sup>	100		
3.4.2.8	PSLB 8.2.6 b)	Supply and install filter geotextile between last two rows of blocks (Kaymat U24 or similar approved)	m <sup>2</sup>	150		
3.4.2.9	PSLB 8.2.6 a)	Supply and install 19 mm aggregate stone for drains where specified	m <sup>3</sup>	10		
3.4.2.10	PSL 8.2.1 a)	Supply and install 50 mm diameter Netlon geopipe, incl. outlets at 7m centres and T-junctions (weepoles)	m	22		
<b>CARRIED FORWARD</b>						

SECTION: 3 SITE WORKS: CLEARANCE, BULK EARTHWORKS, RETAINING WALLS & FENCING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
3.4.2.11	PSL 8.2.1 a)	110mm diameter class 4 slotted drainage pipe complete with all fittings. i.e. elbows, endcaps and tee connections.	m	100		
3.4.2.12	PSL 8.2.1 a)	110mm diameter class 4 drainage pipe (unslotted) at ends of retaining wall	m	10		
3.4.2.13	PSLB 8.2.6	200gr/m2 needlepunched geofabric to surround 19mm stone subsurface drains	m <sup>2</sup>	120		
3.4.3		<i>WALL FINISHES</i>				
	SANS 1200 DK	STONE PITCHING				
		Grouted Stone pitching (Light duty - minimum grout penetration 100mm, stones minimum nominal 150mm dia) to protrude from surface by 50mm). Complete including all labour, plant and materials				
3.4.3.1	8.2.5	to top of dry-stack retaining wall	m <sup>2</sup>	100		
<b>3.5</b>		<b>CONCRETE RETAINING WALL</b>				
		<i>Refer to drawing J31067-BUI-300-11</i>				
3.5.1	SANS 1200D	<i>EARTHWORKS</i>				
	PSD 8.3.3	RESTRICTED EXCAVATION				
		Excavation for base of retaining wall:				
3.5.1.1		Excavate in soft material to spoil in vicinity	m <sup>3</sup>	200		
3.5.1.2		Excavate to spoil in intermediate and hard material using 30t excavator fitted with Heavy Duty Hydraulic Breaker	m <sup>3</sup>	120		
	PSD 8.3.6	Overhaul				
3.5.1.3		Extra over all excavations to spoil at designated spoil site (approx 2.3km away)	m <sup>3</sup> .km	55		
	8.3.4	PREPARATION OF FOUNDATIONS				
	8.3.4	Backfill of overbreak (within 150mm overbreak allowance; beyond 150mm to Contractor's account)				
3.5.1.4		Import G5 material from commercial source or borrow pit, place in layers not exceeding 150mm, compact to 98% ModAASHTO, including trimming of surface ready to receive for retaining wall footing	m <sup>3</sup>	50		
<b>CARRIED FORWARD</b>						

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ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
	SABS1200 D, SABS1200 LE	Backfill & subsoil drainage				
3.5.1.5	8.3.9	Selected granular material from stockpile, place, spread, compact and backfill behind retaining wall to density as specified, including benching, finishing off to levels specified	m <sup>3</sup>	80		
3.5.1.6		Sand compacted to 100% Mod AASHTO to aact as free draining material next to stone drain	m <sup>3</sup>	40		
3.5.1.7	PSLB 8.2.6 b)	Supply and install filter geotextile between last two rows of blocks (Kaymat U24 or similar approved)	m <sup>2</sup>	80		
3.5.1.8	PSLB 8.2.6 a)	Supply and install 19 mm aggregate stone for drains where specified	m <sup>3</sup>	2		
3.5.1.9	PSL 8.2.1 a)	110mm diameter class 4 slotted drainage pipe complete with all fittings. i.e. elbows, endcaps and tee connections.	m	26.5		
3.5.1.10	PSL 8.2.1 a)	110mm diameter class 4 drainage pipe (unslotted) at ends of retaining wall	m	6		
3.5.1.11	PSLB 8.2.6 b)	200gr/m2 needlepunched geofabric to surround 19mm stone subsurface drains	m <sup>2</sup>	40		
3.5.2	SANS 1200G	<b>CONCRETE (STRUCTURAL)</b>				
	8.2	<b>FORMWORK</b>				
	8.2.1	Rough to:				
3.5.2.1		Sides of retaining wall footing	m <sup>2</sup>	21		
	8.2.2	Smooth to:				
		Plane, vertical to:				
3.5.2.2		Retaining wall face	m <sup>2</sup>	90		
3.5.2.3		Exposed External retaining wall face	m <sup>2</sup>	70		
	8.2.5	Narrow widths up to 350mm				
3.5.2.4		On sides of columns or stiffeners at retaining wall	m <sup>2</sup>	2.1		
	8.3	<b>REINFORCEMENT</b>				
3.5.2.5	8.3.1	Mild steel bars up to 12mm	t	0.2		
<b>CARRIED FORWARD</b>						

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ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
3.5.2.6	8.3.1	High-tensile steel bars: 8 to 10 mm dia	t	0.2		
3.5.2.7		10 to 12 mm dia	t	2		
3.5.2.8		16 to 20 mm dia	t	6		
	8.4	CONCRETE Mass Concrete 15 MPa/19mm concrete				
3.5.2.9	8.4.2	50mm blinding under retaining wall footings	m <sup>3</sup>	3.3		
	PSG 8.1.3 & 8.4.3	Strength Concrete 35 MPa/19 mm watertight concrete with Xypex waterproofing				
3.5.2.10		Retaining wall footing and wall	m <sup>3</sup>	50		
	PSG 8.4.4	UNFORMED SURFACE FINISHES Wood-float finish to horizontal surfaces:				
3.5.2.11		Top of footings	m <sup>2</sup>	50		
		Steel-float finish to horizontal surfaces:				
3.5.2.12		Top of retaining wall	m <sup>2</sup>	10		
	PSG8.5	WATER RETAINING JOINTS Vetical construction joints in the retaining wall	m	50		
3.5.2.13						
<b>3.6</b>		<b>GABION RETAINING WALL</b>				
3.6.1	SABS 1200 DK	GABIONS & PITCHING Surface preparations for bedding of gabions				
3.6.1.1	8.2.1(a)	Cavities filled with approved excavated materials	m <sup>2</sup>	10		
		Mattress Gabions: Hexagonal nominal 80mm galvanised and PVC coated wire mesh				
3.6.1.2	8.2.2	1m X 2m gabions box Facing of gabions	m <sup>3</sup>	8		
3.6.1.3	8.2.3	Extra-over Items 3.6.1.2 for packing selected stone at exposed face	m <sup>2</sup>	8		
<b>CARRIED FORWARD</b>						

SECTION: 3 SITE WORKS: CLEARANCE, BULK EARTHWORKS, RETAINING WALLS & FENCING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
3.6.1.4	8.2.4	Supply and lay non-woven geotextile (minimum mass 270g/m2) Below and on sides of mattress gabions	m <sup>2</sup>	12		
<b>3.7</b>		<b>DRIVEWAY AND HARDSTAND SURFACING</b>				
		Refer to Dwg J31067-STD-704-1 STANDARD ROAD DETAILS SHEET 1 and J31067-STD-704-2 STANDARD ROAD DETAILS SHEET 2				
3.7.1	PSD 8.3.3	<i>RESTRICTED EXCAVATION</i>				
3.7.1.1		Excavate in all materials other than "soft" or "intermediate" to spoil	m <sup>3</sup>	250		
	8.3.3 (b)	<u>Extra-over item 3.7.1.1 for</u>				
3.7.1.2		Excavate in intermediate mudstone / siltstone using 30t excavator fitted with Heavy Duty Hydraulic Breaker	m <sup>3</sup>	50		
3.7.1.3		Hard rock excavation using heavy-duty hydraulic breaker	m <sup>3</sup>	50		
3.7.2		<i>HLPS DRIVEWAY AND HARDSTAND</i>				
	SANS 1200MF	BASE				
3.7.2.1	8.3.3	Construct 150mm layer of G2 base and compacted to 100% of Mod AASHTO density. Gravel to be imported from commercial source or contractors source of choice. Mixed and processed with 3% cement	m <sup>3</sup>	251		
	SANS 1200ME	G2 Base Stabilised with 3% cement				
3.7.2.2	8.3.8(b)	Cement	t	7.5		
	SANS 1200MJ	BLOCK PAVING (DRIVEWAY AND SIDEWALKS)				
3.7.2.3	8.2.2	Concrete segmented paving blocks (Type SA, 80 mm thick), complete with 20mm fine sand bedding	m <sup>2</sup>	1420		
3.7.2.4	8.2.3	Edge cutting	m	21		
3.7.3	SANS 1200MK	<i>KERBING AND CHANNELING</i>				
<b>CARRIED FORWARD</b>						

SECTION: 3 SITE WORKS: CLEARANCE, BULK EARTHWORKS, RETAINING WALLS & FENCING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
	8.22	Precast kerbing to SANS 927: Figure 8c Mountable kerb with channel or fillet including concrete backing and haunching.				
3.7.3.1		a)Radius <20m	m	20		
3.7.3.2		b)Radius over 20m and straight section	m	70		
	8.2.2	Precast kerbing to SANS 927: Figure 12 Mountable kerb with channel or fillet including concrete backing and haunching.				
3.7.3.3		a)Radius <20m	m	120		
3.7.3.4		b)Radius over 20m and straight section	m	10		
3.7.4	SANS MM	<i>ROAD FURNITURE</i>  Guardrails  Refer to Dwg J31067-STD-703GUARDRAIL				
3.7.4.1	8.2.1 (a)	Supply and erect new galvanised steel guard	m	115		
3.7.4.2	8.2.2	Extra-over item for horizontally curved	m	15		
3.7.4.3	8.2.3 (a)	End wings	No	4		
<b>TOTAL FOR SECTION 3 CARRIED FORWARD TO SUMMARY</b>						

SECTION: 4 INTERCONNECTING PIPEWORK

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
4.1	SANS 1200D	J31067-WAT-101 & 102 - 2 X DN1000 Suction pipes to PStn -PLUS- J31067-WAT-103 - DN1200 from PStn to Pipe Bridge -PLUS- DN1200 from PStn to tie-in with existing 2 X DN800 pipelines <b>EARTHWORKS</b>				
4.1.1	PSD 8.3.3	<i>RESTRICTED EXCAVATION</i>				
4.1.1.1		Excavate to spoil in soft material by hand to expose existing DN800 & DN1200 pipes for tie-ins	m³	30		
4.1.1.2		Excavate in intermediate mudstone / siltstone using 30t excavator fitted with Heavy Duty Hydraulic Breaker	m³	5		
4.2	SANS 1200DB	<b>EARTHWORKS (PIPE TRENCHES)</b>				
4.2.1		<i>SITE CLEARENCE</i>				
	8.3.1	Clear and Grub (outside platform area)				
4.2.1.1		Construction corridor 15m wide	m	275		
4.2.1.2		Remove tosoil to nominal depth of 150mm, 15m wide strip	m²	4000		
4.2.2		<i>TRENCH EXCAVATION</i>				
	8.3.2(a)	Excavate in all materials for trenches, backfill, compact and dispose of surplus unsuitable material, for up to DN1200 pipes for the following depths below. Rate to include for all temporary works including trimming, shoring and dewatering where necessary:				
		Over            Up to and including				
4.2.2.1		0m            1.5m	m	11		
4.2.2.2		1,5m        2,5m	m	77		
4.2.2.3		2,5m        3,5m	m	235		
4.2.2.4		3,5m        4,5m	m	115		
	PSD 8.3.2.b	Extra over Items 4.2.2.1 to 4.2.2.4 for excavation in:				
4.2.2.5	7)	Intermediate mudstone / siltstone using 30t excavator fitted with Heavy Duty Hydraulic Breaker	m³	470		
<b>CARRIED FORWARD</b>						



SECTION: 4 INTERCONNECTING PIPEWORK

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
4.2.2.6	7)	Excavation in hard material (eg sandstone) using excavator-mounted heavy-duty hydraulic breaker (where approved by the Engineer)	m³	250		
	8.3.3	Excavation Ancillaries				
4.2.2.7	8.3.3.1(a)	Make up deficiency in backfill materials from other necessary excavations on site (PROVISIONAL)	m³	300		
		Existing Services-that Intersect or Adjoin a Pipe Trench				
		a) Services that intersect a trench				
4.2.2.8		Thornhill Raw water main DN1200	No.	1		
4.2.2.9		MV Electrical cable (Overhead)	No.	1		
		b) Services that intersect a trench				
4.2.2.10		MV Electrical cable (Overhead)	m	50		
4.3	<b>SANS 1200L</b>	<b>MEDIUM-PRESSURE PIPELINES</b>				
4.3.1		INSPECTING AND CLEANING OF FREE-ISSUE MILD STEEL PIPES				
		DN1200 Grade X42 10mm wall thickness steel pipes, 9.14m long, bevel-ended, cml lined, polyurathane coated, Free Issued by the Employer.				
4.3.1.1	PSL 8.2.1 (b)	Inspect all steel pipes in Pipeyard with the Engineer's representative, identify and document any defects	Sum	1		
4.3.1.2		Clean coating of fire-damaged 1200mm pipes, prime and wrap such sections with Denso wrap system (50% overlap) - measured per m run of pipe actually wrapped	m	150		
4.3.2		HIGHBURY RISING MAIN				
		<i>Refer to Dwg J31067-WAT-402 Highbury RM PLAN AND LS</i>				
	PSL 8.2.1 a)	Supply, lay, joint, bed, disinfect and test pipes, including all cutting and preparation as required, welding, and making good of all linings and coatings and keeping clean as laying progress and cleaning pipes before filling, weld tests all as specified for the pipe sizes below:				
<b>CARRIED FORWARD</b>						

SECTION: 4 INTERCONNECTING PIPEWORK

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
4.3.2.1	PSL 8.2.2	<b>BROUGHT FORWARD</b> DN900 Grade X42 10mm wall thickness Steel Pipes, bevel-ended, cement mortar lined and polyurethane coated, from Pump Station to Isolation Chamber	m	76		
4.3.2.2		Extra-Over Item 4.3.2.1 for the fabrication, handling, laying, jointing, bedding and installing of bends, gusseted tees, reducers and specials including for making good internal linings and external coatings:	No.	1		
4.3.2.3		DN900: Three mitre, 4 segment bends, 30° and larger but less than 45°:	No.	2		
4.3.2.4		DN900: Four mitre, 5 segment bends, 45° and larger but less than 60°:	No.	1		
4.3.2.5		DN900 Straight pipe (where less than full length pipe required)	No	1		
4.3.2.6		DN900 Mitre cutting of two pipe ends and forming bend over 3° but less than 9° - ie two pipe ends scarfed on site	No	1		
	PSL 8.2.1 (b)	Collect from Designated Pipe Yard/s the following free issue pipe diameters, transport, careful handling to not damage de-bonded cml, lay, joint, bed, disinfect, test. including all cutting and preparation as required, welding, and making good of all linings and coatings and keeping clean as laying progress and cleaning pipes before filling, weld tests all as specified for the pipe sizes below:				
4.3.2.7	PSL 8.2.2	DN1200 Grade X42 10mm wall thickness Steel Pipes, bevel-ended, cement mortar lined and polyurethane coated, from Isolation Chamber to existing DN1200 steel rising main	m	74		
		Extra-Over Item 4.3.2.7 for the fabrication, handling, laying, jointing, bedding and installing of bends, gusseted tees, reducers and specials including for making good internal linings and external coatings:				
4.3.2.8		DN1200: One mitre, 2 segment bends, 9° and larger but less than 15°:	No.	2		
4.3.2.9		DN1200: Three mitre, 4 segment bends, 30° and larger but less than 45°:  TIE-INS TO EXISTING PIPELINES	No.	1		
<b>CARRIED FORWARD</b>						

SECTION: 4 INTERCONNECTING PIPEWORK

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
4.3.2.10	PSL 8.2.18	<p>Complete DN1200 Highbury raw water Rising Main (tie-in near pipe bridge)</p> <p>Laying of DN1200 steel pipe measured elsewhere. This section involves the final jointing of the DN1200 steel pipe to the existing DN1200 Rising Main</p> <p>Open scour valve (under pipe bridge) and drain water out. Remove temporary bull-nose end-cap and tie-in new DN1200 pipe to complete Rising Main. Re-fill rising main with water from dam or river to soak cml for min 3 weeks, then drain Rising Main again and make good cml over weld joints (using nearby access tee in Isolating Chamber) then refill entire Rising Main to await WTW commissioning. No pressure test of this section.</p>	Sum	1		
4.3.3		<p>THORNHILL BOOSTER PIPELINE</p> <p><i>Refer to Dwg J31067-WAT-403 THORNHILL BOOSTER MAIN PLAN AND LS</i></p>				
	PSL 8.2.1 (b)	Collect from Designated Pipe Yard/s the following free issue pipe diameters, transport, careful handling to not damage de-bonded cml, lay, joint, bed, disinfect, test. including all cutting and preparation as required, welding, and making good of all linings and coatings and keeping clean as laying progress and cleaning pipes before filling, weld tests all as specified for the pipe sizes below:				
4.3.3.1		DN1200 Grade X42 10mm wall thickness Steel Pipes, bevel-ended, cement mortar lined and polyurethane coated, from Isolation Chamber to existing DN1200 steel rising main	m	160		
4.3.3.2		DN800 Grade X42 10mm wall thickness Steel Pipes, bevel-ended, cement mortar lined and polyurethane coated, for connection to two existing DN800 pipelines	m	12		
	PSL 8.2.2	Extra-Over Item 4.3.3.1 and 4.3.3.2 for the fabrication, handling, laying, jointing, bedding and installing of bends, gusseted tees, reducers and specials including for making good internal linings and external coatings:				
4.3.3.3		DN900 PN10 Epoxy lined and coated flanged end to standard DN900 pipe; complete with epoxy-coated blank flange, gasket and nuts and bolts	No.	1		
<b>CARRIED FORWARD</b>						

SECTION: 4 INTERCONNECTING PIPEWORK

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
4.3.3.4		DN900 x DN1200 eccentric reducer, plain-ended, 500mm F/F, outside of pump station to connect to DN1200 rising main. Refer to Dwg BUI-300-12	No.	1		
4.3.3.5		DN1200: Two mitre, 3 segment bends, 15° and larger but less than 30°:	No.	2		
4.3.3.6		DN1200: Three mitre, 4 segment bends, 30° and larger but less than 45°:	No.	1		
4.3.3.7		DN1200: Skew cutting of free-issue pipe and forming bend up to and including 3° - ie one pipe end scarfed on site	No	1		
4.3.3.8		DN1200 x DN800 plain ended 45 degree Y-branch and reducer (to join 1200 pipe to 2 No. parallel DN800 existing pipeline - See Indicative Connection Detail on Dwg J31067-WAT-403)	Sum	1		
		TIE-INS TO EXISTING PIPELINES				
	PSA8.13, PSL 8.2.18	<u>Complete DN1200 / DN800 Thornhill raw water Rising Main (tie-in after existing pumpstation)</u>				
		Laying of DN1200 steel pipe measured elsewhere. This section involves the final jointing of the D1200 steel pipe to the existing 2 x DN800 Rising Mains				
4.3.3.9		Locate and close isolation valves on existing DN800 Rising Main. Identify best location for tying in excavate and inspect the condition of existing DN800 steel pipe.	Sum	1		
4.3.3.10		Fabricate, lay, joint, bed, backfill DN1200 steel manifold with 1 x DN800 branch and 1200 x 800 reducer and 1 x 45 deg DN 900 bend (fabrication measured separately). 2 x DN800 ends tie into two separate existing DN800 pipe. Weld branch to pipe and make good all coatings and linings as per specifications. backfill and compact surrounding earth with approved bedding sand and backfill and open the upstream isolation valves ONLY. Refill entire Rising Main to await WTW commissioning. No pressure test of this section.	Sum	1		
4.3.4		REPAIR OF COATINGS AND LININGS (PROVISIONAL)				
		Repair of Coatings Defects by Denso tape wrapping (50% overlap)				
4.3.4.1	PSL 8.2.22 (a)	Repair Coatings smaller than 650mm <sup>2</sup> (Small Areas)	No	5		
<b>CARRIED FORWARD</b>						

SECTION: 4 INTERCONNECTING PIPEWORK

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
4.3.4.2	PSL 8.2.22 (b)	Repair Coatings larger than 650mm <sup>2</sup> (Large Areas)	No	6		
4.3.4.3	PSL 8.2.22 (c)	Repair Coatings larger than 1000mm <sup>2</sup> (Very Large Areas)	m <sup>2</sup>	3		
		Repair of Lining Defects				
4.3.4.4	PSL 8.2.24	Repair CML Linings according to manufacturers recommendations	m <sup>2</sup>	20		
4.3.5		<b>CORROSION PROTECTION</b>				
		Corrosion Protection:				
	PSL 8.2.15 a)	Additional Corrosion Protection of Flanges and Flexible Adaptor/Anchoring Joints				
	PSL 8.2.15 b)	Additional Corrosion Protection of Buried Valves, and specials				
4.3.5.1		DN1200 x DN800 (2No.) steel manifold at connection to 2 x DN800 pipes	No	1		
4.3.6		Pipeline markers				
4.3.6.1	PSL 8.2.16	Supply and install concrete pipe markers as detailed on standard Drawing No STD-705	No	10		
4.3.7		Cement Stabilising Bedding and Selected Fill around Pipes (6%) including thoroughly mixing immediately prior to placing and compacting so as to establish rigid "soil-crete" material				
4.3.7.1	PSL 8.2.19	entrance and exit to pumpstation	m <sup>3</sup>	10		
4.3.7.2	PSL 8.2.19	Under and around DN1200 steel pipe bends all as directed on site	m <sup>3</sup>	10		
<b>4.4</b>	<b>SANS 1200 LB</b>	<b>BEDDING (PIPES)</b>				
	8.2.1	<u>Provision of approved 'sibunga' bedding from commercial sources</u>				
4.4.1	a)	Selected granular material (cradle)	m <sup>3</sup>	850		
4.4.2	b)	Selected fill material (blanket)	m <sup>3</sup>	180		
4.4.3		Extra over all pipe lay items for 6% cement stabilised bedding material around pipe (to 300mm above crown) for pipes crossing under roads or where directed by the Engineer	m <sup>3</sup>	10		
	PSLB 8.2.6	Drainage Layer				
<b>CARRIED FORWARD</b>						

CONTRACT: ORTDM SCMU 22-22/23

BILL OF QUANTITIES

CONTRACT TITLE: CONSTRUCTION OF MTHATHA DAM RAW WATER PUMPSTATION: CIVIL WORKS

SECTION: 4 INTERCONNECTING PIPEWORK

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
<b>BROUGHT FORWARD</b>						
4.4.4	PSLB 8.2.6 (a)	Supply and place in trench bottom, 150 mm layer of crushed stone as pipe drainage layer beneath pipes up to DN 1200 diameter pipe (Prov)	m <sup>3</sup>	20		
4.4.5	PSLB 8.2.6 (b)	Supply and installation of geofabric filter material (BIDIM Grade A4 or similar) around stone (Prov)	m <sup>2</sup>	50		
<b>TOTAL FOR SECTION 4 CARRIED FORWARD TO SUMMARY</b>						

SECTION: 5 ISOLATION CHAMBER

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
5.1	SANS 1200D	Refer to Dwgs J31067-DET-200-01, J31067-DET-200-05, J31067-DET-200-06, J31067-DET-200-07 <b>EARTHWORKS</b>				
5.1.1	PSD 8.3.3	<i>RESTRICTED EXCAVATION</i>				
5.1.1.1		Excavate to spoil in soft material	m <sup>3</sup>	30		
5.1.1.2		Excavate in intermediate mudstone / siltstone using 30t excavator fitted with Heavy Duty Hydraulic Breaker	m <sup>3</sup>	5		
5.1.1.3		Hard rock excavation using heavy-duty hydraulic breaker	m <sup>3</sup>	5		
5.1.1.4		Hard rock excavation using expanding grout	m <sup>3</sup>	10		
	PSD 8.3.6	Overhaul				
5.1.1.5		Extra over all excavations to spoil at designated spoil site (approx 2.3km away)	m <sup>3</sup> .km	200		
5.1.2	8.3.4	<i>PREPARATION OF FOUNDATIONS</i>				
	8.3.4	Backfill of overbreak (within 150mm overbreak allowance; beyond 150mm to Contractor's account)				
5.1.2.1		Supply G2 crusher run, place and compact in maximum 150mm layers under sloping floor compacted to 100% mod AASHTO density and trim to line and level ready to receive no-fines blinding layer	m <sup>3</sup>	10		
5.2		<b>TRENCH FOR DRAINAGE PIPES</b>				
5.2.1	SANS 1200DB	<i>EARTHWORKS (PIPE TRENCHES)</i>				
		<b>Drainage Pipe</b>				
	8.3.2 (a)	Excavate in all materials for trenches, backfill, compact and dispose of surplus unsuitable material, for 100mm pipe diameter for the following depths below. Rate to include for all temporary works including trimming, shoring and dewatering where necessary:				
5.2.1.1		Over and Up to 0,0 m 1,0 m	m	2		
5.2.1.2		1,0 m 1,5 m	m	5		
		Extra over items 5.2.1.1 to 5.2.1.1 for (Prov):				
<b>CARRIED FORWARD</b>						

SECTION: 5 ISOLATION CHAMBER

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
5.2.1.3	8.3.2 (b)	Hard rock excavation	m <sup>3</sup>	2		
5.2.1.4	8.3.2 (c)	Excavate and dispose of unsuitable material from trench bottom (Provisional)	m <sup>3</sup>	2		
<b>5.3</b>	<b>SABS 1200LE</b>	<b>DRAINAGE PIPES</b>				
	PSL 8.2.1 a)	Supply, handle, lay and bed SABS 791 class 34 heavy duty uPVC pipes for drainage complete with socketed rubber ring-coupled joints:				
5.3.1		110 mm	m	5		
<b>5.4</b>	<b>SANS 1200 LB</b>	<b>BEDDING (PIPES)</b>				
	PSLB 8.2.1	Provision of bedding from trench or other excavation on site				
5.4.1	a)	Selected granular material	m <sup>3</sup>	1		
5.4.2	b)	Selected fill material	m <sup>3</sup>	1		
<b>5.5</b>	<b>SABS 1200 G</b>	<b>CONCRETE</b>				
5.5.1	8.2	<i>FORMWORK</i>				
		<b><u>Isolation and Scour Chamber:</u></b>				
	8.2.1	Rough: Plane vertical to concealed surfaces				
5.5.1.1		External walls	m <sup>2</sup>	80		
	8.2.5	Rough vertical plane narrow widths:				
5.5.1.2		Floor slab	m	30		
	8.2.2	Smooth: vertical plane to elements:				
5.5.1.3		internal & external walls	m <sup>2</sup>	80		
5.5.1.4		2100x1645 access opening inside face	m <sup>2</sup>	3		
5.5.1.5		2300x1140 access opening inside face	m <sup>2</sup>	2.7		
	8.2.2	Horizontal plane to elements:				
5.5.1.6		Soffit to roof slab	m <sup>2</sup>	40		
	8.2.5	narrow widths Vertical up to 400mm high:				
5.5.1.7		Floor slab	m	30		
<b>CARRIED FORWARD</b>						



SECTION: 5 ISOLATION CHAMBER

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
5.5.1.8		2100x1645 access opening outside face	m	9.1		
5.5.1.9		2300x1140 access opening outside face	m	8.5		
5.5.1.10		900 sq access lid opening	m	11		
		Trench Open Grid Flooring Edge Supports				
5.5.1.11		Supply and install 45 x 45 x 5mm GMS angle framing section cast into concrete edge with fishtail lugs at 600mm centres over trench complete including all formwork, labour materials etc measured per linear meter each edge for:				
5.5.1.12		Drainage Sump	m	1.2		
	8.2.6	Box out holes/form voids:				
5.5.1.13		Small rectangular of area up to and including 0,1 m <sup>2</sup> and up to 400 mm deep	No	1		
5.5.1.14		Medium rectangular of area up to over 0,1 m <sup>2</sup> and up to 0,5 m <sup>2</sup> and up to 250 mm deep	No	1		
5.5.1.15		Large rectangular of area over 0,5 m <sup>2</sup> and up and including to 1,5 m <sup>2</sup> and up to 200 mm deep	No	2		
5.5.1.16		Large rectangular of area over 0,5 m <sup>2</sup> and up and including to 1,5 m <sup>2</sup> and up to 400 mm deep	No	2		
	PSG 8.4.7	Setting/casting the following diameter pipes and items through concrete work, such as slabs and walls, including formwork, box outs, concrete/grouting work, making good, fixing, securing for accuracy for the listed pipes through walls of the following thickness (supply and delivery of pipe material, cutting, jointing, bending, sealing, cleaning measured elsewhere):				
5.5.1.17		DN 110 PVC Roof Ventilators through roof up to 200mm thick	No	4		
5.5.1.18		DN 110 Drain through sump walls up to 200mm thick	No	1		
5.5.1.19		DN 110 Cable ducts	No	3		
5.5.2	8.3	<b>REINFORCEMENT</b>				
		<b>All Structures</b>				
5.5.2.1	8.3.1	Mild steel bars up to 12mm	t	0.2		
	8.3.1	High-tensile steel bars:				
<b>CARRIED FORWARD</b>						

SECTION: 5 ISOLATION CHAMBER

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
5.5.2.2		8 to 10 mm dia	t	0.2		
5.5.2.3		10 to 12 mm dia	t	2		
5.5.2.4		16 to 20 mm dia	t	7		
5.5.3	8.4	<i>CONCRETE</i>				
		<b><u>Isolation and Scour Chamber:</u></b>				
5.5.3.1	8.4.2	Blinding layer in 15 MPa/19 mm concrete: 50mm thick to horizontal surfaces	m <sup>2</sup>	51		
	8.4.3	Strength concrete Grade 15 MPa/19 mm:				
5.5.3.2		Mass filling where ordered (Provisional)	m <sup>3</sup>	1		
5.5.3.3		Pipe supports and drain pipe encasement Grade 35 MPa/19mm for:	m <sup>3</sup>	2		
5.5.3.4		Floor	m <sup>3</sup>	40		
5.5.3.5		Walls	m <sup>3</sup>	82		
5.5.3.6		Roof	m <sup>3</sup>	30		
	PSG 8.4.4	Unformed surface finishes:				
5.5.3.7		a) Wood float finish to roof slab	m <sup>2</sup>	50		
5.5.3.8		b) Screed finish to floor slab	m <sup>2</sup>	38.5		
5.5.4	PSG 8.6	<i>PRECAST UNITS</i>				
		Manufacture and erect precast reinforced concrete access lids as per drawing STD-705 inclusive of all lifting holes, plugging material as per detail, formwork, reinforcing (65kg/unit), concrete (grade 25/19), finishing, storage on site, transportation to final position and positioning at required level for lid sizes:				
5.5.4.1		2700x2245x150 slab	No	1		
5.5.4.2		2900x1740x150 slab	No	1		
5.5.5	PSG 8.5	<i>JOINTS</i>				
		<b><u>All Structures</u></b>				
		Plain horizontal wall Construction joint:				
5.5.5.1		Highbury Isolation and Scour Chamber	m	0		
<b>CARRIED FORWARD</b>						

SECTION: 5 ISOLATION CHAMBER

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
5.5.6		<b>BROUGHT FORWARD</b> <i>GROUTING</i> <b>All Structures</b> Cast in pipe of diameters:				
5.5.6.1		up to and incl DN300	No.	1		
5.5.6.2		greater than DN300	No.	2		
5.5.7	PSG 8.13	<b>MISCELLANEOUS</b> <b>All Structures</b> Air Vents (STD-705)				
5.5.7.1		Construct precast concrete air vent blocks and cast into chamber roofs complete as shown on detail drawing, including DN110 uPVC pipework, end cap with holes and gauze, formwork and mesh reinforcement:	No.	3		
5.5.7.2		Extra over Item 5.5.7.1 for extended 110 mm diameter Class 6 uPVC pipe droppers inside chambers, including supply and installation of aluminium holderbats & drilling and grouting same into walls	m	6		
5.6	SANS 1200H	<b>STRUCTURAL STEEL</b>  Supply, fabrication, corrosion protection, delivery and erection, shop drawings of steelwork complete  <b>Isolation and Scour Chamber:</b>				
5.6.1	8.3.8	Ladders GMS Isolation chamber "internal type" caged access ladder including separate handle. Refer to Drawing No. STD-708-1	No.	3		
5.6.2	8.3.9	GMS Rectagrid type RS40 banded grating with 40x4,5mm bearer bars over Drainage sump	m <sup>2</sup>	0.25		
5.6.3	PSH8.3	GMS Access Manholes Supply and install "Multilocks" (MC10M-T-L) with standard pop shackle and master keyed to suit OR Tambo District Municipality standard key.	No	1		
<b>CARRIED FORWARD</b>						

SECTION: 5 ISOLATION CHAMBER

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
5.6.4		Supply and install 900 x 900 GMS hinged covered frame as per standard drawing STD-702 for chambers	No.	3		
5.6.5		Supply and install Y25 Lifting hooks including cast into concrete, shaping, coating	No.	2		
<b>5.7</b>	<b>SANS 1200 L</b>	<b>PIPEWORK</b>				
5.7.1	PSL 8.2.2	<i>SPECIALS AND FITTINGS</i>				
		NOTE: All pipes, pipe fittings and flange drillings to a minimum SANS Table 1123: 1000/3 unless otherwise specified				
		Supply, install, lay, and test steel pipes, valves and specials (short pipe runs), including all corrosion protection, jointing, fastening, welding, making good of joints and wrapping of joints as specified. Rates to include for shop drawings and the design of crotch and/or wrapper plates and/or gusseted tees and pipe wall thicknesses				
		<b>Isolation Chamber Pipework, Drawing. No. DET-200-5, DET-200-6, DET-200-7,</b>				
5.7.1.1	PSL 8.2.2	Item 1: DN900 x DN250 UNEQUAL STEEL TEE, DN900 FL/PE BARREL 2300mm LONG WITH DN1200 REDUCER WELDED TO PE, DN250 FL BRANCH 595 C/F POSITIONED 630mm FROM FL END OF BARREL WELDED AT 135 DEG FROM VERTICAL. DN250 AND DN100 BRANCH TO HAVE 10mm THICK COLLAR PLATE IN BARREL.	No	1		
5.7.1.2		Item 1A: DN900 x DN250 FL/PE STEEL TEE, DN900 FL/PE BARREL 2300mm LONG, DN250 FL BRANCH 595 C/F POSITIONED 1670mm FROM PE END OF BARREL WELDED AT 225 DEG FROM VERTICAL. DN250 BRANCH TO HAVE 10mm THICK COLLAR PLATE IN BARREL	No	1		
5.7.1.3		Item 3: DN900 x DN700 A/FL STEEL TEE, DN900 D/FL BARREL 2520mm LONG, DN700 FL BRANCH 810mm C/F POSITIONED 1055mm FROM RHS FL END. DN50 FLANGED TEE 650mm C/F POSITOINED 300mm FROM LHS FL END.	No	1		
5.7.1.4		Item 5: DN900 x DN700 D/FL STEEL TEE, DN900 FL BARREL 2522mm LONG, DN700 FL BRANCH 810mm C/F POSITIONED 1036mm FROM RHS FL END. DN50 FLANGED TEE 650mm C/F POSITOINED 300mm FROM RHS FL END.	No	1		
<b>CARRIED FORWARD</b>						

SECTION: 5 ISOLATION CHAMBER

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
5.7.1.5		Item7: DN250 x DN100 A/FL UNEQUAL STEEL TEE, DN250 D/FL BARREL 986mm F/F, DN100 BRANCH 255mm C/F POSITIONED 608mm FROM ONE END	No	1		
5.7.1.6		Item 8: DN250 x 90° MEDIUM RADIUS D/FL STEEL BEND, 510mm C/F	No	2		
5.7.1.7		Item 9: DN250 EQUAL A/FL TEE, DN250 FL BARREL 1940mm F/F WITH DN250 FL BRANCH AT 280mm C/F POSITIONED 980mm FROM ONE END	No.	1		
5.7.1.8		Item 10: DN250 ALL EQUAL FL TEE 280mm C/F	No	4		
5.7.1.9		Item 12: DN250 x 850mm LONG D/FL SPOOL PIECE, WITH DN250 PUDDLE FL WELDED 460mm FROM ONE END	No	1		
5.7.1.10		Item 14: DN300 WYE JUNCTION WITH 45 DEGREE MEDIUM RADIUS BEND ON WYE BRANCH ALL ENDS FLANGED	No	2		
5.7.1.11		Item 21: DN300 X DN250 D/FL STEEL CONCENTRIC REDUCER 340mm C/F,	No	2		
5.7.1.12		Item 23: DN700 BLANK FL WITH HOLE CENTRAL DRILLED TO SUIT ID OF DN80 FL/ PE PIPE. DN80 PIPE 200mm LONG WELDED OVER OPENING ON PE SIDE. 2NO. SUITABLY SIZED LIFTING HOOKS PLACED 600mm APART 200mm FROM EDGE AND 500mm FROM EDGE OF DN700 FL	No	2		
5.7.1.13		Item 25: DN250 x 90° LONG RADIUS D/FL STEEL BEND,760mm C/F	No	2		
5.7.1.14		Item 26: DN250 FL/PE PIPE , WITH DN250 X DN300 DIFFUSER WELDED TO PE SIDE. LENGTH TO BE DETERMINED ON SITE	No	1		
	PSL8.2.2	Couplings				
5.7.1.15		Item 4: DN900 DISMANTLING JOINT 307mm F/F TO SUIT 914mm OD STEEL PIPE, INCLUSIVE OF ALL SHORT AND EXTENSION BOLTS. COUPLING AND BOLTING ALL MEASURED HERE.	No	1		
5.7.1.16		Item 13: DN250 DISMANTLING JOINT 200mm F/F TO SUIT 274mm OD STEEL PIPE, , INCLUSIVE OF ALL SHORT AND EXTENSION BOLTS. COUPLING AND BOLTING ALL MEASURED HERE.	No	1		
<b>CARRIED FORWARD</b>						

SECTION: 5 ISOLATION CHAMBER

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
5.7.1.17		Item 19: DN300 DISMANTLING JOINT 200mm F/F TO SUIT 323.9mm OD STEEL PIPE, INCLUSIVE OF ALL SHORT AND EXTENSION BOLTS. COUPLING AND BOLTING ALL MEASURED HERE.	No	1		
	PSL 8.2.3	Valves				
5.7.1.18	PSL 8.2.3	Item 2: DN900 D/FL BUTTERFLY VALVE 330mm F/F, TO SUITE SABS 665, L SERIES 13, 'MAMMOUTH' BY 'AMRI' OR SIMILAR APPROVED WITH RIGHT-HAND GEARBOX AND HANDWHEEL	No	1		
5.7.1.19		Item 11: DN250 D/FL WEDGE GATE VALVE TO SUIT SABS 665, 'VOSA' OR SIMILAR APPROVED, WITH HANDWHEEL AND NON-RISING SPINDLE, 356mm F/F	No	3		
5.7.1.20		Item 17: DN50 D/FL WEGDE GATE VALVE TO SUIT SABS 665, 'VOSA' OR SIMILAR APPROVED, WITH HANDWHEEL AND NON-RISING SPINDLE,	No	2		
5.7.1.21		Item 18: DN300 D/FL BUTTERFLY VALVE TO SUIT SABS 665 BY 'AUMA' OR SIMILAR APPROVED WITH HANDWHEEL AND NON RISING SPINDLE	No	1		
5.7.1.22		Item 20: 40mm thick DN300 MARIC CONTROL VALVE WAFFER TYPE, GUN METAL (G). HIGH PRESSURE (1), 8854 L/MIN 300W G N6 8854 - Approval required by Engineer	No	2		
		Extra-over installation of pipework and fittings for supplying and installation of insulating flange kit complete including: insulating gaskets, sleeves, washers, explosion proof spark gaps, tape wrapping, bolts etc				
5.7.1.23		i) for DN900 flanged connections	No	2		
5.7.1.24		ii) for DN250 flanged connections	No	1		
		Corrosion Protection:				
	PSL 8.2.15 a)	Additional Corrosion Protection of Flanges and Flexible Adaptor/Anchoring Joints				
5.7.1.25		DN250 Flange	No	1		
	PSL 8.2.15 c)	Additional Corrosion protection of Cast-in Pipes and Fittings				
<b>CARRIED FORWARD</b>						

SECTION: 5 ISOLATION CHAMBER

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
5.7.1.26		Item 1: DN900 By DN250 Unequal Tee, Barrel Flanged one end Plane Ended the Other, With DN250 Branch and DN 900 Puddle Flange.	No.	1		
5.7.1.27		Item 1A: DN900 By DN250 Unequal Tee, Barrel Flanged one end Plane Ended the Other, With DN250 Branch .(Branch Location mirrored from Item 1) and DN 900 Puddle Flange	No.	1		
5.7.1.28		Item 12: DN250 Flanged Puddle Pipe	No	1		
		HDPE scour pipeline from Isolation Chamber to tie into MH4 of Stormwater system:				
5.7.1.29		250mm dia HDPE PN6 PE100	m	10		
5.7.1.30		250mm dia butt welded stub flange with galvanised backing ring	No.	1		
<b>5.8</b>		<b>PLINTHS &amp; PIPE SUPPORTS</b>				
		Small pipe supports as per drawing STD 709. Rate to include, design, manufacture, supply, deliver, erect, construct, load test pipe supports inclusive of all formwork, concrete work, to suit pipe diameter:				
5.8.1		Pipe supports (Type 2) to DN300 pipes in Highbury Isolation Chamber	No	1		
5.8.2		Pipe supports (Type 2) to DN250 pipes in Highbury Isolation Chamber	No	3		
5.8.3		Pipe supports (Type 2) to DN100 pipes in Highbury Isolation Chamber	No	2		
		Large Pipe supports detailed on drawing STD 709. Rate to include, design, manufacture, supply, deliver, erect, construct, load test pipe supports inclusive of all steel materials, pipe wrapping material, nuts, bolts, shop fitting drawings Corrosion protection as per spec to suit pipe diameter:				
5.8.4		Pipe supports (Type 5) to DN900 Pipe in Highbury Isolation Chamber	No.	2		
5.8.5		Valve supports (Type 3) to DN900 butterfly valves Highbury Isolation Chamber	No.	1		
<b>TOTAL FOR SECTION 5 CARRIED FORWARD TO SUMMARY</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
6.1	SANS 1200D	<b>EARTHWORKS</b>				
6.1.1	PSD 8.3.3	<i>RESTRICTED EXCAVATION</i> Excavation for base of retaining wall columns and brickwalls footings:				
6.1.1.1		Excavate in all materials other than "soft" or "intermediate" to spoil	m <sup>3</sup>	536		
	8.3.3 (b)	<u>Extra-over item 6.1.1.1 for</u>				
6.1.1.2		Excavate in intermediate mudstone / siltstone using 30t excavator fitted with Heavy Duty Hydraulic Breaker	m <sup>3</sup>	200		
6.1.1.3		Hard rock excavation using heavy-duty hydraulic breaker	m <sup>3</sup>	300		
	PSD 8.3.6	Overhaul				
6.1.1.4		Extra over all excavations to spoil at designated spoil site (approx 2.3km away)	m <sup>3</sup> .km	1150		
6.1.2	8.3.4	<i>PREPARATION OF FOUNDATIONS</i>				
	8.3.4	Backfill of overbreak (within 150mm overbreak allowance; beyond 150mm to Contractor's account)				
6.1.2.1		Supply G2 crusher run, place and compact in maximum 150mm layers under sloping floor compacted to 100% mod AASHTO density and trim to line and level ready to receive no-fines blinding layer	m <sup>3</sup>	155		
		Floor slab foundation layers				
6.1.2.2		Cement stablized (6% cement by vol) selected 'Intermediate' material from other local excavations, place in layers not exceeding 150mm, compact to 98% ModAASHTO, including trimming of surface ready to receive floor slab	m <sup>3</sup>	372		
6.1.2.3		Cement stablized (6% cement by vol) selected 'Intermediate' material from other local excavations, place in layers not exceeding 150mm, compact to 98% ModAASHTO, behind retaining wall	m <sup>3</sup>	257		
		Soil insecticide				
<b>CARRIED FORWARD</b>						



SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
6.1.2.4	PSA8.11	Aldrin emulsifiable concentrates solution to SAN 618, under floor slabs, spread to manufacturer's specifications under floors of surface beds etc including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming	m <sup>2</sup>	1652		
6.1.2.5		To bottoms and sides of cable and drainage trenches	m <sup>2</sup>	446		
<b>6.2</b>	<b>SANS 1200G</b>	<b>CONCRETE (STRUCTURAL)</b>				
6.2.1		<i>FORMWORK</i>				
	8.2.1	Rough to:				
6.2.1.1		sides of retaining wall exposed	m <sup>2</sup>	125		
6.2.1.2		Sides of strip footings for brick wall	m <sup>2</sup>	51		
6.2.1.3		Sides of column foundation bases	m <sup>2</sup>	66		
6.2.1.4		Sides of retaining wall footing	m <sup>2</sup>	54		
6.2.1.5		To sides of stooling under strip footings	m <sup>2</sup>	5		
	8.2.2	Smooth:				
		Plane, vertical to:				
6.2.1.6		Columns	m <sup>2</sup>	446		
6.2.1.7		Retaining wall hidden	m <sup>2</sup>	125		
6.2.1.8		drainage trench walls	m <sup>2</sup>	130		
6.2.1.9		Plinth	m <sup>2</sup>	94		
6.2.1.10		Ramps	m <sup>2</sup>	6		
6.2.1.11		Corbel	m <sup>2</sup>	10		
6.2.1.12		Stairs	m <sup>2</sup>	1.6		
6.2.1.13		Pipe support pedestals	m <sup>2</sup>	78		
		Plain horizontal to:				
6.2.1.14		Suspended beams (all prop heights)	m <sup>2</sup>	153		
6.2.1.15		Suspended slabs	m <sup>2</sup>	1240		
		Inclined Plane to elements				
6.2.1.16		Soffit of stairs	m <sup>2</sup>	7.7		
6.2.1.17		Face of Corbels	m <sup>2</sup>	15		
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
		Boxing in to form rebates, chamfers, etc				
6.2.1.18		Formwork to edge of cable trench wall to form 50 x 50mm rebate along top edge	m	200		
6.2.1.19		Formwork to edge of drainage trench wall to form 50 x 50mm rebate along top edge	m	161		
		25x25mm chamfers to edges of:				
6.2.1.20		Rainwater drip groove in roof slab soffit	m	180		
	8.2.5	Narrow widths upto 350mm				
6.2.1.21		Sides of surface bed (exposed)	m	200		
6.2.1.22		Sides of platform column bases	m	40		
6.2.1.23		Sides of platform stair bases	m	32		
		<b>BOXOUTS</b>				
	8.2.6	Box out holes/Formwork/form voids/cast in pipes and fittings/ sleeves and conduits				
6.2.1.24	8.2.6.a.1	Small Circular of diameter up to and including 0.35m, 300mm diameter for sleeves for whirly bird ventilation	No.	14		
6.2.1.25	8.2.6.a.1	Small Circular of diameter up to and including 0.35m, 350mm diameter to form openings for solar tubes	No.	16		
6.2.1.26	8.2.6.b	Small other than circular of area up to 0.1m <sup>2</sup>	No.	1		
6.2.1.27	8.2.6.d	Large other than circular of area over 0.1m <sup>2</sup> and up to and including 0.5m <sup>2</sup> , for openings through retaining walls to allow cables through from electrical room into pump room	No.	2		
	PSG 8.11	Setting/casting the following diameter pipes and items through concrete, such as slabs and walls, including formwork, box outs, concrete/grouting work, making good, fixing, securing for accuracy for the listed pipes through walls of the following thickness (supply and delivery of pipe material, cutting, jointing, bending, sealing, cleaning measured elsewhere):				
6.2.1.28		Electrical cable ducts up to 160 mm OD diameter	No.	10		
6.2.1.29		DN1000 steel pipe through concrete / brickwork walls up to 300 thick	No.	2		
6.2.1.30		DN900 steel pipe through concrete / brickwork walls up to 300 thick	No.	2		
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
6.2.1.31		DN160 PVC pipe through trench brickwork (drainage)	No.	1		
6.2.1.32		DN160 PVC pipe through concrete trench	No.	1		
6.2.2		<i>REINFORCEMENT</i>				
	8.3.1	Mild steel				
6.2.2.1		All diameter bars	t	9		
	8.3.1	High tensile steel				
6.2.2.2		All diameter bars up to 25mm	t	65		
6.2.2.3	8.3.2	High-tensile welded mesh reference 245 (double layer) in ramp	m <sup>2</sup>	10		
6.2.3	8.4	<i>CONCRETE</i>				
		Mass Concrete				
		15 MPa/19mm concrete				
6.2.3.1	8.4.2	50mm blinding under strip footings, retaining wall footings, bases, cable and drainage trench floors	m <sup>3</sup>	21		
6.2.3.2		Mass concrete for thrust block encasement on pipe outlet	m <sup>3</sup>	2		
6.2.3.3		Concrete encase drain pipe under surface bed	m <sup>3</sup>	1		
	8.4.3	Strength Concrete				
		15 MPa/12mm concrete to:				
6.2.3.4		Brickwall cavity infill	m <sup>3</sup>	4.35		
		30 MPa/19mm concrete				
6.2.3.5		Wall Strip footings	m <sup>3</sup>	50		
6.2.3.6		Bases	m <sup>3</sup>	27		
6.2.3.7		Suspended slab	m <sup>3</sup>	306		
6.2.3.8		Suspended beams and ground beams	m <sup>3</sup>	80		
6.2.3.9		Surface bed cast in panels on DPC waterproofing and ramp	m <sup>3</sup>	220		
6.2.3.10		Columns and stub columns	m <sup>3</sup>	43		
6.2.3.11		Cable trench footings	m <sup>3</sup>	70		
6.2.3.12		Plinth	m <sup>3</sup>	94		
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
6.2.3.13		dainage trench walls and floor	m <sup>3</sup>	46		
6.2.3.14		Corbels	m <sup>3</sup>	22		
6.2.3.15		Pipe support pedestals	m <sup>3</sup>	15		
6.2.3.16		Stairs	m <sup>3</sup>	1.5		
6.2.3.17		Retaining wall	m <sup>3</sup>	76		
6.2.4	PSG 8.4.4	<b>UNFORMED SURFACE FINISHES</b>				
		Steel-float finish to horizontal surfaces:				
6.2.4.1		Top of suspended slab	m <sup>2</sup>	1076		
6.2.4.2		Top of drainage trench	m <sup>2</sup>	40		
6.2.4.3		Top of retaining wall	m <sup>2</sup>	7		
6.2.4.4		Top of cable trench floor	m <sup>2</sup>	100		
6.2.4.5		Top of corbels	m <sup>2</sup>	3		
		Power-floated finish to horizontal surfaces:				
6.2.4.6		Surface bed and ramp	m <sup>2</sup>	1100		
6.2.5	PSG8.5	<b>JOINTS</b>				
		Isolation Joints: closed cell expanded polystyrene joint filler between vertical concrete and/or brick surfaces:				
6.2.5.1		10mm Joints in surface beds not exceeding 300mm high	m	585		
6.2.5.2		Construction joints in the floor	m	56		
6.2.5.3		Vetical construction joints in the retaining wall	m	19		
6.3	SANS 1200 H	<b>STRUCTURAL STEEL</b>				
6.3.1		<b>GANTRY CRANE</b>				
		Supply, fabrication and preparation of shop drawings, delivery to and erection on site including all necessary bolting and welding to Engineer's approval				
		Inclusive of positioning of U-bolts at correct line, level and tolerances for casting in by main contractor				
6.3.1.1		Prime Cost Item for specialist design, fabrication and installation of gantry rails to pump station building	PC	1		
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
6.3.1.2		Contractors mark-up on Item 6.3.1.1	%			
6.3.2		<i>OPEN GRID FLOORING</i>				
	8.3.9	Supply and install, hot dip galvanise to ISO1461:2009 or stainless steel EN Grade 1.4301 S/S 304 as specified in the specification open grid flooring:				
6.3.2.1		GMS Rectagrid type RS40 banded grating with 40x4,5mm bearer bars over				
6.3.2.2		drainage trench;	m <sup>2</sup>	43		
6.3.2.3		cable duct trench;	m <sup>2</sup>	100		
6.3.2.4		GMS Rectagrid type RS40 banded grating with 50x4,5mm bearer bars over steel platform over manifold	m <sup>2</sup>	230		
6.3.2.5	8.3.1	Supply and fix / welded GMS 50x50x5mm angle support frame for grating over				
6.3.2.6		steel platform	t	0.58		
6.3.2.7		45 x 45 x 5mm Galvanized mild steel angle framing section cast into concrete edge with fishtail lugs at 600mm centres				
6.3.2.8		drainage trench;	t	0.25		
6.3.2.9		cable duct trench;	t	0.4		
		"Vastrap"				
6.3.2.10		Supply and install aluminium Vastrap floor plate 4.5mm thick for stair treads,	m <sup>2</sup>	36		
6.3.3		<i>HANDRAILS AND STANCHIONS</i>				
	8.3.7c	Manufacture and or supply and install, hot dip galvanise to ISO1461:2009 or stainless steel EN Grade 1.4301 S/S 304 as per corrosion spec hand and knee rails stanchions, 150mm kick plates, base plates, fixings, end closures and bends including all anchors, grouting in, bolts, nuts and washers on rates to include for painting as per specification if Handrails, stanchions and kick plates are GMS only.				
6.3.3.1		Supply and Install GMS platform or side mounted stanchions complete including all fixings, labour, materials, tools etc.	No.	16		
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
6.3.3.2		Supply and Install GMS hand and knee rails to steel platforms complete including all fixing, labour, materials, tools, etc. (both rails measured as a single linear distance)	m	30		
6.3.4		Supply and Install GMS Closure to suit 6.3.3.2 above complete including all fixing, labour, materials, tools, etc.	No.	2		
6.3.5		Supply and Install GMS shaped bends (All angles) to suit complete including all fixing, labour, materials, tools, etc. (both rails bends measured as a single Bend)	No	4		
6.3.6		<b>LADDERS</b>				
		Supply, manufacture, deliver and install, hot dip galvanise to ISO1461:2009 or stainless steel EN Grade 1.4301 S/S 304 as specified in GIBB 007 specification , access ladders with or without safety cage as per drawing indicated below, including all anchors, grouting in, bolts, nuts and washers (material to match ladder), site welding for:				
6.3.6.1		GMS "external type" access ladder from platform to pump hall floor. Refer to drawing std-702	No	1		
<b>6.4</b>		<b>BUILDING WORK (SPEC QB)</b>				
6.4.1	QB 6.2.4	<b>BRICKWORK</b>				
		SUPPLEMENTARY PREAMBLES				
		"one brick" is a double-skin wall and "half brick" is a single-skin wall				
		<b>Trench Foundations:</b>				
		<u>Brickwork of NFX bricks (14 MPa nominal compressive strength) in class I mortar</u>				
6.4.1.1		230mm thick brick trench	m <sup>2</sup>	332		
		<b>Superstructure:</b>				
		<u>Brickwork of NFX bricks (14 MPa nominal compressive strength) in class II mortar</u>				
6.4.1.2		230mm walls of two half brick skins	m <sup>2</sup>	293		
6.4.1.3		280mm cavity walls of two half brick skins	m <sup>2</sup>	1290		
6.4.1.4		330 mm cavity walls concrete infill of two half brick skins	m <sup>2</sup>	40		
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
	QB 6.2.4	FACE BRICKWORK Extra over items 6.4.1.1 and 6.4.1.4 brickwork for single sided face brickwork  "Corobrick Montana Travertine FBS" or similar approved face bricks to External Face of walls (unless otherwise specified) pointed with recessed horizontal and vertical joints				
6.4.1.5		Trench brickwork (internal face only)	m <sup>2</sup>	150		
6.4.1.6		Superstructure 280mm thick brickwork (external face only)	m <sup>2</sup>	551		
6.4.1.7		330mm thick brickwork for one external face (one side external face only)	m <sup>2</sup>	40		
6.4.1.8		Extra over brickwork for horizontal corbelled bands one courses high and 30mm projection, pointed on faces and soffits	m	144		
6.4.1.9		Extra over brickwork for brick-on-edge window cill slightly projecting	m	9		
	QB 6.2.12	Setting/casting the following pipes into or through brickwork, including concrete/grouting work, making good, fixing, securing for accuracy for the listed fittings below:				
6.4.1.10		DN1200 steel pipe through 280mm cavity brickwork	No.	3		
6.4.1.11		160 Ø PVC pipe through trench brickwork	No.	1		
6.4.1.12		110 Ø PVC pipe through trench brickwork	No.	1		
		<b>BRICKWORK SUNDRIES</b>				
		<u>Miscellaneous</u>				
6.4.1.13		Extra for building brickwork to oversailing face with each course projecting 30mm	m <sup>2</sup>	12		
6.4.1.14		Splayed mortar fillet one course high in 50mm cavity	m	18		
6.4.1.15		Closing 50mm cavity of hollow wall horizontally with one course of brickwork	m	7		
		<u>Joint forming material in movement joints</u>				
6.4.1.16		10mm Expanded polystyrene (density 33kg per m <sup>3</sup> ) with one tear off strip, built in vertically through brick walls	m <sup>2</sup>	135		
	8.2.4.5	Brickwork reinforcement				
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
6.4.1.17		150mm Wide reinforcement built in horizontally	m	5769		
	8.2.3.1	Prestressed fabricated lintels				
6.4.1.18		150 x 70mm Lintels in lengths not exceeding 4m	m	28		
		Galvanised hoop iron cramps, ties, etc.				
6.4.1.19		30 x 1,6mm Wall tie 450mm long with one end shot pinned to concrete and other end built into brickwork	No	1190		
6.4.2	8.2.4.3	<b>FLOOR &amp; WALL WATERPROOFING</b>				
		One layer of 375 micron "Consol Plastics Brikgrip DPC" embossed damp proof course				
6.4.2.1		In brick walls	m <sup>2</sup>	1000		
		One layer of 500 micron "Consol Plastics Gunplas USB Green" waterproof sheeting				
6.4.2.2		Under surface bed and ramp	m <sup>2</sup>	1200		
6.4.2.3		Under cable trench floor	m <sup>2</sup>	195		
6.4.2.4		On the face of trench walls	m <sup>2</sup>	264		
		One layer derbigum SP4 waterproofing membrane, with 75mm side and 100mm end laps, sealed to bitumen primed surface to falls and crossfalls by means of ' Torchfusion'. Finish with reflective aluminium-Bitumen paint. Waterproofing to be carried out by an approved derbigum contractor.				
6.4.2.5		Derbigum waterproofing behind retaining wall	m <sup>2</sup>	190		
6.4.2.6		Waterproofing protection behind retaining wall before backfilling	m <sup>2</sup>	190		
6.4.2.7		Derbigum waterproofing over roof slab	m <sup>2</sup>	1390		
6.4.3		<b>JOINT SEALANTS, ETC.</b>				
		"Fosroc Thioflex 600" or similar approved two part grey polysulphide sealing compound, including backing cord, bond breaker, primer, etc.				
6.4.3.1		6 x 10mm In saw cut joints in floors	m	350		
6.4.3.2		10 x 10mm In expansion joints in floors	m	585		
6.4.3.3		15 x 10mm In vertical expansion joints, including raking out expansion joint filler if necessary	m	100		
<b>CARRIED FORWARD</b>						



SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
6.4.4		<b>BROUGHT FORWARD</b> <i>CARPENTRY AND JOINERY</i>				
		<b>Doors</b> Design Supply, manufacture, deliver, install and make good steel fire resistant doors, including all ironmongery, frames, joinery, hinges, locks, corrosion protection, as per finishing schedules				
6.4.4.1		D1 - as per finishing schedule on dwg BUI-300-14	No	2		
		Design Supply, manufacture, deliver, install and make good steel transformer room doors, including all ironmongery, frames, joinery, hinges, locks, corrosion protection, as per finishing schedules				
6.4.4.2		D3 - as per finishing schedule on dwg BUI-300-15	No	2		
		Design Supply, manufacture, deliver, install and make good steel transformer room doors, including all ironmongery, frames, joinery, hinges, locks, corrosion protection, as per finishing schedules				
6.4.4.3		D4 - as per finishing schedule on dwg BUI-300-14	No	2		
		Design Supply, manufacture, deliver, install and make good steel transformer room doors, including all ironmongery, frames, joinery, hinges, locks, corrosion protection, as per finishing schedules				
6.4.4.4		D5 - as per finishing schedule on dwg BUI-300-14	No	3		
		Design Supply, manufacture, deliver, install and make good steel transformer room doors, including all ironmongery, frames, joinery, hinges, locks, corrosion protection, as per finishing schedules				
6.4.4.5		D7 - as per finishing schedule on dwg BUI-300-14	No	2		
		<b>Roller Shutter Door</b>				
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
		Design Supply, manufacture, deliver, install and make good roller shutter door, mounted internally complete with motorised/manual gearbox and control unit (if applicable) and emergency chain lift including all ironmongery, frames, joinery, hinges, locks, corrosion protection, fixing bolts, tracks etc as per finishing schedules				
6.4.4.6		RD01 - as per finishing schedule on dwg BUI-300-14	No	1		
		<b>Windows</b>				
		Design Supply, manufacture, deliver, install and make good windows, including all ironmongery, frames, joinery, corrosion protection, as per finishing schedules:				
6.4.4.7		W01 - as per finishing schedule on dwg BUI-300-15	No	3		
		Design Supply, manufacture, deliver, install and make good 600x600 Winblok WB66-260 high density pre-cast concrete window including all ironmongery, frames, joinery, glazing corrosion protection, as per finishing schedules:				
6.4.4.8		W02 - 600 mm x 600 mm high opening Winblok windows as per schedule BUI-300-15	No	86		
6.4.5		<b>SKYLIGHTS</b>				
		Supply and install complete in concrete roof slab with fixings and water-proofing complete:				
6.4.5.1	8.2.6.2	300mm 'Solar Tube Skylight' or similar approved	No	16		
6.4.6	8.2.7.1	<b>PLASTERING</b>				
		Cement plaster on brickwork				
6.4.6.1		On walls	m <sup>2</sup>	6940		
6.4.6.2		On narrow widths	m <sup>2</sup>	0		
6.4.7	8.2.8	<b>PLUMBING AND DRAINAGE</b>				
	PSL 8.2.1	Supply, handle, lay, cut, encase in concrete, the following drainage pipe under the surface bed:				
6.4.7.1		160mm class 12	m	5		
6.4.8	8.2.9	<b>PAINTWORK</b>				
		<u>Concrete</u>				
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
6.4.8.1		One coat alkali resistant primer, one coat masonry filler rubbed and sanded smooth to an approved finish, one undercoat and two coats Plascon Double Velvet (or equal approved) paint  On internal concrete columns and roof slab and beam sides / soffit  <u>Floated Plaster</u>  One coat masonry primer, one coat masonry filler rubbed and sanded smooth to an approved finish, one undercoat and two coats Plascon Double-Velvet paint	m <sup>2</sup>	1570		
6.4.8.2		On internal plastered walls	m <sup>2</sup>	6940		
6.4.9		<b>FLOOR COATING</b>  Floor coatings by Specialist SubContractor:  Prepare surfaces and apply Stonkote 723 onto Stonprime 639 primed surfaces.  Roller Coat: High build 0.5mm roller application at 4 to 5m <sup>2</sup> /litre/coat, 2 coats required.				
6.4.9.1		All pumpstation and electrical room floors	m <sup>2</sup>	1076		
6.4.9.2		All pumpstation and electrical room skirtings (100mm high)	m	681		
6.4.9.3		Supply, deliver, prepare and apply demarcation lines:  Lightly abrade and chemical wipe existing coating and apply 2 roller coats carboline 134ZA polyurethane system measuring 10mm wide to form demarcation lines	m	200		
<b>6.5</b>		<b>DRAINAGE PIPE</b>				
6.5.1	SANS 1200DB	<b>EARTHWORKS (PIPE TRENCHES)</b>  <b>From Pumpstation to Manhole</b>				
6.5.1.1	8.3.2 (a)	Excavate in all materials for trenches, backfill, compact and dispose of surplus unsuitable material, for 160mm pipe diameter for the following depths below. Rate to include for all temporary works including trimming, shoring and dewatering where necessary:  Over and Up to 0,0 m 1,0 m	m	3		
<b>CARRIED FORWARD</b>						

SECTION: 6 PUMPSTATION BUILDING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
6.5.1.2		1,0 m            1,5 m Extra over items 5.2.1.1 to 5.2.1.1 for (Prov):	m	6		
6.5.1.3	8.3.2 (b)	Hard rock excavation	m <sup>3</sup>	2		
6.5.1.4	8.3.2 (c)	Excavate and dispose of unsuitable material from trench bottom (Provisional)	m <sup>3</sup>	2		
6.5.2	SABS 1200LE	PIPES				
	PSL 8.2.1 a)	Supply, handle, lay and bed SABS 791 class 34 heavy duty uPVC pipes for drainage complete with socketed rubber ring-coupled joints:				
6.5.2.1		160 mm	m	8		
6.5.3	SANS 1200 LB	BEDDING (PIPES)				
	PSLB 8.2.1	Provision of bedding from trench or other excavation on site				
6.5.3.1	a)	Selected granular material	m <sup>3</sup>	1		
6.5.3.2	b)	Selected fill material	m <sup>3</sup>	1		
<b>TOTAL FOR SECTION 6 CARRIED FORWARD TO SUMMARY</b>						

SECTION: 7 GUARDHOUSE

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
7.1	SANS 1200 D	<b>EARTHWORKS</b>				
7.1.1	8.3.3	<i>RESTRICTED EXCAVATION</i> <u>Excavation in all materials not exceeding 2m deep and dispose of to spoil or stockpile or backfill</u>				
7.1.1.1		Column bases and strip footings for walls	m <sup>3</sup>	37		
7.1.1.2		Remove and spoil unsuitable material under floor slabs to depth as directed by the Engineer <u>Extra over all excavations for overhaul</u>	m <sup>3</sup>	22		
7.1.1.3		Surplus material from excavations to spoil site approx 2,4km away Floor slab foundation layers	m <sup>3</sup> .km	200		
7.1.1.4		Import selected G7 material from stockpile, place in layers not exceeding 150mm, compact to 95% ModAASHTO, including trimming of surface ready to receive floor slab	m <sup>2</sup>	238		
7.1.2		<i>SOIL POISONING</i> Soil insecticide				
7.1.2.1		Under floors etc including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming	m <sup>2</sup>	186		
7.2	SANS 1200 G	<b>CONCRETE (STRUCTURAL)</b>				
7.2.1	8.1.2	<i>REINFORCEMENT</i> <b>Foundation</b>				
	8.3.1	<u>Mild Steel Bars:</u>				
7.2.1.1		Mild Steel Bars	t	0.1		
7.2.1.2		High tensile steel bars - all sizes	t	0.04		
7.2.2		<i>CONCRETE ITEMS</i> <b>Foundation</b>				
		<u>Mass Concrete</u> 15MPa/19mm concrete				
7.2.2.1		50mm blinding under footings and bases	m <sup>3</sup>	1		
	8.1.3	<u>Strength Concrete</u> 25MPa/19mm concrete				
<b>CARRIED FORWARD</b>						

SECTION: 7 GUARDHOUSE

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
7.2.2.2		Strip footings	m <sup>3</sup>	3		
	8.1.3	<b>Superstructure</b> 25MPa/19mm concrete				
7.2.2.3		Surface beds on waterproofing	m <sup>3</sup>	2		
7.2.2.4		Surface beds cast in panels on waterproofing	m <sup>3</sup>	2		
		<u>MOVEMENT JOINTS ETC</u>				
		Expansion joints with closed cell expanded polystyrene joint filler between vertical concrete and/or brick surfaces				
7.2.2.5		12mm Joints not exceeding 300mm high	m	37		
		Saw cut joints				
7.2.2.6		3 x 35mm Saw cut joints in top of concrete	m	20		
7.2.3		<b>UNFORMED SURFACES</b>				
		Finishing top surfaces of concrete smooth with a power float				
7.2.3.1		Surface beds, slabs, etc	m <sup>2</sup>	12		
		Finishing top surfaces of concrete smooth with a wood float				
7.2.3.2		Aprons, slabs, etc to falls	m <sup>2</sup>	19		
		Fabric reinforcement				
7.2.3.3		Type 245 fabric reinforcement in concrete surface beds, slabs, etc	m <sup>2</sup>	31		
<b>7.3</b>		<b>BUILDING WORK (SPEC QB)</b>				
7.3.1		<b>BRICKWORK</b>				
		<u>FOUNDATIONS</u>				
		Brickwork of NFX bricks (14 MPa nominal compressive strength) in class I mortar				
7.3.1.1		Half brick walls	m <sup>2</sup>	4		
7.3.1.2		One brick walls	m <sup>2</sup>	29		
		Brickwork reinforcement				
7.3.1.3		75mm Wide reinforcement built in horizontally	m	51		
7.3.1.4		150mm Wide reinforcement built in horizontally	m	339		
<b>CARRIED FORWARD</b>						

SECTION: 7 GUARDHOUSE

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
		<u>SUPERSTRUCTURE</u>				
		Brickwork of NFX bricks (14 MPa nominal compressive strength) in class I mortar				
7.3.1.5		Half brick walls	m <sup>2</sup>	8		
7.3.1.6		Half brick walls in beamfilling	m <sup>2</sup>	1		
7.3.1.7		One brick walls	m <sup>2</sup>	47		
7.3.1.8		One brick walls in beamfilling	m <sup>2</sup>	3		
		<u>BRICKWORK SUNDRIES</u>				
		Miscellaneous				
7.3.1.9		Extra for building brickwork to oversailing face with each course projecting 30mm	m <sup>2</sup>	1		
		Brickwork reinforcement				
7.3.1.10		75mm Wide reinforcement built in horizontally	m	52		
7.3.1.11		150mm Wide reinforcement built in horizontally	m	240		
		Prestressed fabricated lintels				
7.3.1.12		110 x 75mm Lintels in lengths not exceeding 3m	m	11		
		Galvanised hoop iron cramps, ties, etc				
7.3.1.13		30 x 1,6mm Roof tie 1,5m long with one end fixed to timber and other end built into brickwork	No.	6		
		<u>FACE BRICKWORK</u>				
		<u>"Montana Travertine FBS" face bricks pointed with recessed horizontal and vertical joints</u>				
7.3.1.14		Extra over brickwork for face brickwork	m <sup>2</sup>	13		
7.3.1.15		Extra over brickwork for horizontal corbelled bands one courses	m	16		
		high and 30mm projection, pointed on faces and soffits				
7.3.1.16		Extra over brickwork for brick-on-edge window cill slightly projecting	m	3		
		<u>NUTEC-CEMENT WINDOW SILLS</u>				
		Natural grey sills in single lengths bedded in class I mortar, including metal fixing lugs etc				
7.3.1.17		150 x 12mm Wide sills set flat and slightly projecting	m	3		
<b>CARRIED FORWARD</b>						

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ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
7.3.2		<b>BROUGHT FORWARD</b> <i>WATERPROOFING</i> <u>DAMP-PROOFING OF WALLS AND FLOORS</u> One layer of 375 micron "Consol Plastics Brikgrip DPC" embossed damp proof course				
7.3.2.1		In walls	m <sup>2</sup>	14		
7.3.2.2		Under surface beds <u>JOINT SEALANTS, ETC</u> "Fosroc Thioflex 600" two part grey polysulphide sealing compoud, including backing cord, bond breaker, primer, etc	m <sup>2</sup>	12		
7.3.2.3		6 x 10mm In saw cut joints in floors	m	20		
7.3.2.4		10 x 10mm In expansion joints in floors	m	37		
7.3.3		<i>ROOF COVERINGS ETC</i> <u>PROFILED METAL SHEETING AND ACCESSORIES</u> 0,5mm "Klip-Lok" Z275 spelter galvanised high yield steel ribbed sheeting with "Chromadek" finish on outside side and white on inside, in single lengths fixed to steel purlins or rails and 0,6mm galvanised steel accessories with "Chromadek" finish on one side				
7.3.3.1		Roof covering with pitch not exceeding 25 degrees	m <sup>2</sup>	24		
7.3.3.2		<u>ROOF AND WALL INSULATION</u> "Lambdaboard" high density 35kg/m <sup>3</sup> insulation or other equal or approved insulation 40mm Thick insulation laid taut over purlins as per manufacturer's specification	m <sup>2</sup>	16		
7.3.4		<i>CARPENTRY AND JOINERY</i> <u>ROOFS, ETC</u>				
7.3.4.1		Design, supply and install roof trusses complete with wall plates, fixings, purlins <u>EAVES, VERGES, ETC</u>	Sum	1		
<b>CARRIED FORWARD</b>						



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ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
7.3.4.2		"Everite" pressed nutec-cement 12 x 225mm Fascias and barge boards including galvanised steel H-profile jointing strips	m	20		
7.3.4.3		<u>SKIRTINGS</u> Wrought meranti 19 x 75mm Bullnosed skirting plugged and screwed to walls	m	18		
7.3.4.4		<u>FITTINGS</u> <u>Fittings to Guard House</u> Worktop with legs 3 000mm long x 800mm wide x 714 mm high overall with 215 mm high edge panel to back and sides, comprising frame, tops, etc as per architects drawing No.	No.	1		
7.3.4.5		<b>Doors</b> Design Supply, manufacture, deliver, install and make good aluminum door, including all ironmongery, frames, joinery, hinges, locks, corrosion protection, as per finishing schedules D01 - as per finishing schedule on dwg BUI-300-14	No	1		
7.3.4.6		Design Supply, manufacture, deliver, install and make good hardwood door, including all ironmongery, frames, joinery, hinges, locks, corrosion protection, as per finishing schedules D02 - as per finishing schedule on dwg BUI-300-14	No	1		
7.3.4.7		<b>Windows</b> Design Supply, manufacture, deliver, install and make good windows, including all ironmongery, frames, joinery, corrosion protection, as per finishing schedules: W01 - as per finishing schedule on dwg BUI-300-14	No	1		
7.3.4.8		W02 - as per finishing schedule on dwg BUI-300-14	No	1		
7.3.4.9		W03 - as per finishing schedule on dwg BUI-300-14	No	1		
<b>CARRIED FORWARD</b>						

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ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
7.3.5		<b>BROUGHT FORWARD</b> <i>CEILINGS, PARTITIONS AND ACCESS FLOORING</i>				
		<u>CEILINGS ETC</u> "Aerolite" insulation				
7.3.5.1		75mm Insulation closely fitted and laid on top of brandering between roof timbers etc	m <sup>2</sup>	12		
		<u>NAILED UP CEILINGS</u> 9mm "Rhino" gypsum plasterboard with H-type pressed steel jointing strips				
7.3.5.2		Sloping ceilings including 38 x 38mm sawn softwood brandering at 400mm centres	m <sup>2</sup>	12		
		"Rhino" gypsum board cornices				
7.3.5.3		75mm Coved cornices	m	20		
7.3.6		<i>FLOOR COVERINGS, PLASTIC LININGS, ETC</i>				
		<u>FLOOR COVERINGS</u> 300 x 300 x 2mm Polyfloor classic mystique homogeneous vinyl floor tiles				
7.3.6.1		On floors	m <sup>2</sup>	12		
		<u>POLISH, SEALERS, ETC</u> Three coats wax polish				
7.3.6.2		On vinyl floors	m <sup>2</sup>	12		
7.3.7		<i>IRONMONGERY</i>				
		<u>SUNDRIES</u> "Union"				
7.3.7.1		"AL8730AS" door stop plugged	No.	1		
7.3.7.2		AL8722AS Aluminium buffer hat and coat hook	No.	1		
7.3.8		<i>METALWORK</i>				
		ENTRANCE WAY				
7.3.8.1		Entrance Sign	Prov.Sum	1	15 000.00	15 000.00
<b>CARRIED FORWARD</b>						

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ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
7.3.8.2		Contractors Profit, Mark-up, attendance etc. on Item 7.3.8.1	%	15 000.00		
7.3.8.3		Entrance Swing / Sliding Gate	Prov.Sum	1	50 000.00	50 000.00
7.3.8.4		Contractors Profit, Mark-up, attendance etc. on Item 7.3.8.3	%	50 000.00		
7.3.8.5		Entrance Pedestrian Gate	Prov.Sum	1	25 000.00	25 000.00
7.3.8.6		Contractors Profit, Mark-up, attendance etc. on Item 7.3.8.5	%	25 000.00		
7.3.9		<u>PLASTERING</u>  All floor areas receiving epoxy screed and floor surface hardener will adhere to the following curing process:Curing process to be controlled to Tolarence of 2mm max per 25m2				
		<u>SCREEDS</u>  TAL screed master self leveling screed on concrete				
7.3.9.1		10mm Self-levelling screed applied to floors to receive new floor finish	m <sup>2</sup>	12		
		<u>INTERNAL PLASTER</u>  Cement plaster on brickwork				
7.3.9.2		On walls	m <sup>2</sup>	11		
7.3.9.3		On narrow widths	m <sup>2</sup>	2		
		<u>EXTERNAL PLASTER</u>  Cement plaster on brickwork				
7.3.9.4		On walls	m <sup>2</sup>	40		
7.3.9.5		On walls in raised panels	m <sup>2</sup>	3		
7.3.9.6		On narrow widths	m <sup>2</sup>	1		
7.3.10		<u>PLUMBING AND DRAINAGE</u>  <u>RAINWATER DISPOSAL</u>  0,8mm Galvanised sheet iron				
7.3.10.1		75 x 100mm Eaves gutters	m	4		
7.3.10.2		Extra over for stopped end	No.	2		
7.3.10.3		100mm Diameter rainwater pipes	m	3		
<b>CARRIED FORWARD</b>						

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ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
7.3.10.4		Extra over 100mm diameter rainwater pipe for shoe	No.	1		
7.3.10.5		Extra over 100mm diameter rainwater pipe for bend	No.	1		
7.3.10.6		Extra over 100mm diameter rainwater pipe for eaves or plinth offset 600mm projection	No.	1		
		<u>FIRE APPLIANCES ETC</u>				
		"Chubb"				
7.3.11		4,5kg Carbon dioxide fire extinguisher complete with 520 x 115 x 22mm thick timber backboard plugged to wall and varnished	No.	1		
7.3.12		<u>GLAZING</u>				
		<u>TOPS, SHELVES, DOORS, MIRRORS, ETC</u>				
		6mm Silvered float glass copper backed mirrors with polished bevelled edges holed for and fixed with chromium plated dome capped mirror screws with rubber buffers to plugs in brickwork or concrete				
7.3.12.1		Mirror 900 x 600mm high with four screws	No.	1		
7.3.13		<u>PAINTWORK</u>				
		<u>ON FLOATED PLASTER</u>				
		One coat alkali resistant primer, one coat masonry filler rubbed and sanded smooth to an approved finish, one undercoat and two coats Plascon Double Velvet (or equal approved) paint				
7.3.13.1		On internal walls	m <sup>2</sup>	12		
		One coat masonry primer, one coat masonry filler rubbed and sanded smooth to an approved finish, one undercoat and two coats Plascon Wall and All paint				
7.3.13.2		On external walls	m <sup>2</sup>	21		
		<u>ON PLASTERBOARD</u>				
		One coat primer, one coat undercoat and two coats Plascon acrylic PVA paint				
7.3.13.3		On ceilings and cornices	m <sup>2</sup>	12		
		<u>ON FIBRE-CEMENT</u>				
<b>CARRIED FORWARD</b>						

SECTION: 7 GUARDHOUSE

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
7.3.13.4		One coat bonding liquid, one coat universal primer and two coats "Plascon" velvagio polyurethane enamel paint On fascias and barge boards	m <sup>2</sup>	9		
7.3.13.5		On cills not exceeding 300mm girth	m	3		
		<u>ON WOOD</u>				
7.3.13.6		One coat wood primer, one coat undercoat and two coats Plascon velvagio polyurethane enamel paint On doors	m <sup>2</sup>	4		
7.3.13.7		One coat wood primer, one coat undercoat and two coats Plascon Double Velvet (or equal approved) paint On skirtings, rails, etc not exceeding 300mm girth	m	20		
7.3.14		<b>PIT TOILET OUT HOUSE</b> On-site dry sanitation solution complete with Pre-Fabricated Concrete Out house Structure Fitted with a polyethylene pit toilet unit. Components as described below: <u>Pre-Fabricated Concrete Element (Concretex or similar approved):</u> Element shall be manufactured from sound concrete, free of structural defects, complying with any sample if previously submitted. Element shall have off-shutter finish on three sides, with the fourth side having a wood floated finish. The required concrete compressive strength in all prefabricated elements shall be a minimum of 40 Mpa at 28 days, determined in accordance with SABS method 863. All concrete elements shall be cured in accordance with the recommendations given in SABS method 863.				
<b>CARRIED FORWARD</b>						

SECTION: 7 GUARDHOUSE

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<p><b>BROUGHT FORWARD</b></p> <p>All steel used for reinforcements in prefabricated elements shall be high yield steel and shall be free of rust, loose scale, flux, grease or oil substances and shall in general comply with SABS 1024-1991. The opening will be reinforced with Y-10 steel bar.</p> <p><u>Superstructure:</u></p> <p>1.5m x 1.0m x 0.05m reinforced with Ref 311 mesh. Cast slab with positioning holes for four concrete posts.</p> <p>Concrete ribs reinforced with 4 x 4mm Hard Drawn wire along the length of the post. Posts shall be recessed to accommodate side panels and bolted together using 8mm galvanised steel bolts. Posts to be positioned to the floor slab at each corner and bolted to rear and side panels for which holes are provided.</p> <p>35mm thick panels bolted onto the posts to form the side and rear walls of the toilet. All panels to be reinforced with Ref 100 mesh.</p> <p>40mm thick panel positioned on to the top of the structure. The panel shall have holes into which the top of the concrete posts fit. Ref 245 mesh is used for reinforcing.</p> <p>Plastic moulded door complete with lockable barrel bolt is fitted to the front of the unit using recessed holes in the Roof and Floor panels for the pivot hinge.</p> <p><u>Calcamite (or similar approved) pit toilet system:</u></p> <p>Polyethylene base complete with toilet pedestal</p> <p>Polyethylene drying plate</p> <p>Polyethylene solar dome with hinge lid</p> <p>340mm vent pipe (positioned on the north side of the structure)</p> <p>Wind master / extractor</p>				
7.3.14.1		Pre-Fabricated Concrete Out house Structure complete	Sum	1		
7.3.14.2		Pit toilet system complete	Sum	1		
<b>TOTAL FOR SECTION 7 CARRIED FORWARD TO SUMMARY</b>						

SECTION: 8 STORMWATER DRAINAGE AND ANCILLARY WORKS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
8.1	SANS 1200DB	<b>EARTHWORKS (PIPE TRENCHES)</b>				
8.1.1		<i>SITE CLEARENCE</i>				
	8.3.1	Clear and Grub (outside platform area)				
8.1.1.1		Strips, 4m wide	m	90		
8.1.1.2		Remove tosoil to nominal depth od 150mm, 4m wide strip	m <sup>2</sup>	360		
8.1.2		<i>TRENCH EXCAVATION</i>				
	8.3.2(a)	Excavate in all materials for trenches, backfill, compact and dispose of surplus unsuitable material, for up to DN450 pipes for the following depths below. Rate to include for all temporary works including trimming, shoring and dewatering where necessary:				
		Over            Up to and including				
8.1.2.1		0m            1.5m	m	16.6		
8.1.2.2		1,5m           2,5m	m	79.8		
8.1.2.3		2,5m           3,5m	m	95.6		
8.1.2.4		3,5m           4,5m	m	7.6		
	PSD 8.3.2.b	Extra over Items 4.2.1 to 4.2.1 for excavation in:				
8.1.2.5	7)	Intermediate mudstone / siltstone using 30t excavator fitted with Heavy Duty Hydraulic Breaker	m <sup>3</sup>	382		
8.1.2.6	7)	Excavation in hard material (assumed sandstone) using excavator-mounted heavy-duty hydraulic breaker (where approved by the Engineer)	m <sup>3</sup>	30		
8.1.2.7	7)	Hard rock by use of expanding grout where ordered by the engineer (typically up against pre built structures)	m <sup>3</sup>	10		
	8.3.3	Excavation Ancillaries				
8.1.2.8	8.3.3.1(a)	Make up deficiency in backfill materials from other necessary excavations on site (PROVISIONAL)	m <sup>3</sup>	300		
8.1.3	SANS 1200 LB	<i>BEDDING (PIPES)</i>				
		STORMWATER PIPES				
<b>CARRIED FORWARD</b>						

SECTION: 8 STORMWATER DRAINAGE AND ANCILLARY WORKS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
	8.2.2.3	Provision of Bedding selected from local excavations or stockpile (across open areas)				
8.1.3.1		Selected bedding material	m <sup>3</sup>	37.7		
8.1.3.2		Selected fill material	m <sup>3</sup>	128.7		
	8.2.2.3	Provision of Bedding from Commercial Sources (under or along roads & platforms)				
8.1.3.3		Selected bedding material	m <sup>3</sup>	37.7		
8.1.3.4		Selected fill material	m <sup>3</sup>	128.7		
8.1.4	SANS 1200 LE	<b>STORMWATER DRAINAGE</b>				
		<u>PIPES</u>				
	PSLE 8.2.1	Supply, handle, lay, bed pipes under roadways, concrete pipes with spigot and socket with rubber o rings				
8.1.4.1		450 mm diameter class 75D	m	200		
	PSLE 8.2.14	<u>MANHOLES</u>				
		<u>Construct manholes complete with covers and frames as detailed on Drawing No. J31067/STD 710 for depths:</u>				
		<u>Over and up to</u>				
8.1.4.2		1.5 m      2.5m	No	4		
8.1.4.3		2.5 m      3.5m	No	1		
		<u>CATCHPITS</u>				
	PSLE 8.2.14	Construct Type S2 Catchpits complete as per Drawing No J31067/STD_710 for depths:				
		<u>Over and up to</u>				
8.1.4.4		1,5 m      2,5 m	No.	3		
8.1.4.5		2,5 m      3,5 m	No.	1		
		<u>HEADWALLS</u>				
	PSLE 8.2.14	Construct complete as per Drawing No J31067/SW-420 &/STD 713-02				
8.1.4.6		On 450mm diameter	No.	1		
	8.2.10	<u>ACCESSORIES</u>				
<b>CARRIED FORWARD</b>						



SECTION: 8 STORMWATER DRAINAGE AND ANCILLARY WORKS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
8.1.4.7	8.2.10a)	Manhole covers Heavy Duty cast iron cover including frames	No.	4		
8.1.5	SABS 1200 DK	<b>GABIONS &amp; PITCHING</b>				
		Surface preparations for bedding of gabions				
8.1.5.1	8.2.1(a)	Cavities filled with approved excavated materials	m <sup>2</sup>	10		
		Mattress Gabions: Hexagonal nominal 80mm galvanised and PVC coated wire mesh				
8.1.5.2	8.2.2	0.3m X 1m mattress gabions	m <sup>3</sup>	3		
		Supply and lay non- woven geotextile (minimum mass 270g/m2)				
8.1.5.3	8.2.4	Below and on sides of mattress gabions	m <sup>2</sup>	12		
<b>8.2</b>		<b>CABLE DUCTING</b>				
8.2.1	SABS1200 LC	<b>TRENCH EXCAVATION</b>				
	8.2.2	Excavate in all materials for trenches, backfill, compact and dispose of surplus unsuitable material, for pipes up to 160mm OD HDPE for the following depths below. Rate to include for all temporary works including trimming, shoring and dewatering where necessary:				
8.2.1.1		0,0 m to 1,0 m	m	20		
8.2.1.2		1,0 m to 2,0 m	Sum	20		
	PSD 8.3.2.b	Extra over Items 8.2.1.1 to 8.2.1.2 for excavation in:				
8.2.1.3	7)	Intermediate mudstone / siltstone using 30t excavator fitted with Heavy Duty Rock Bucket	m <sup>3</sup>	20		
8.2.1.4	7)	Excavation in hard material (assumed sandstone) using excavator-mounted heavy-duty hydraulic breaker (where approved by the Engineer)	m <sup>3</sup>	5		
8.2.2	SABS1200 LC	<b>CABLE DUCTS</b>				
	8.2.5	Supply, lay, bed and prove HDPE structured wall cable duct pipe complete with couplers and ultra-violet resistance draw wires, etc. for the following diameters: duct to conform to SANS 61386-24 type N450				
<b>CARRIED FORWARD</b>						

CONTRACT: ORTDM SCMU 22-22/23

BILL OF QUANTITIES

CONTRACT TITLE: CONSTRUCTION OF MTHATHA DAM RAW WATER PUMPSTATION: CIVIL WORKS

SECTION: 8 STORMWATER DRAINAGE AND ANCILLARY WORKS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		<b>BROUGHT FORWARD</b>				
8.2.2.1		160 mm Ø supplied in Coils	m	76.5		
8.2.3	SABS1200 LC	DRAW PITS / MANHOLES				
	8.2.7	Construct manholes complete with covers and frames as detailed on Drawing No.TYP/018 for depths:				
		Over and up to				
8.2.3.1		0.0 m      1.0 m	No	1		
8.2.3.2		1.0 m      1.5m	No	4		
<b>TOTAL FOR SECTION 8 CARRIED FORWARD TO SUMMARY</b>						