

SCHEDULE OF QUANTITIESINSTALLATION OF BOREHOLES AT BRAAMFONTEIN ROLLING STOCK

<u>Item No</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Rate</u>	<u>Amount</u>
	<p><b>SECTION No. 1</b></p> <p><b>BILL NO. 1</b></p> <p><b>PRELIMINARY AND GENERAL FOR SPRINGFONTEIN STATION</b></p> <p>The JBCC Series 2000 Principal Building Agreement (July 2007 edition 5.0) prepared by the Joint Building Contracts Committee, shall be the agreement, amended as hereinafter</p> <p>The Preliminaries for use with the JBCC Series 2000 Principal Building Agreement (May 2005 edition) prepared by the Joint Building Contracts Committee, shall be deemed to be incorporated in these bills of quantities Contractors are referred to the above-mentioned documents for the full intent and meaning of each clause thereof These clauses are hereinafter referred to by clause number and heading only. Where standard clauses or alternatives are not entirely applicable to this contract such modifications, corrections or supplements as will apply are given under each relevant clause heading and such modifications, corrections or supplements shall take precedence notwithstanding anything contrary contained in the above-mentioned documents</p> <p><b>SECTION A: PRINCIPAL BUILDING AGREEMENT</b></p> <p>1 Clause 1.0 - Definitions and interpretation Interpretation (A1-A7)</p> <p><b>Preliminary and General</b></p> <p>1 All Preliminary and General applicable to this project</p> <p><b>Occupational Health and safety</b></p> <p>The contractor shall comply with all the requirements set out in the Construction Regulations, issued under The Occupational Health &amp; Safety Act no 85 of 1993.</p> <p>Safety file shall be provided by the contractor prior to commencement of work.</p> <p>The contractor shall carry out the works with as little noise and mess as possible. All rubble shall be taken away from site on a daily basis.</p> <p><b>Note: All designated items should comply with local content threshold.</b></p> <p>2 Compliance with Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Employers Health and Safety</p>	Sum	1		
				Carried to final summary	
<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Rate</u>	<u>Amount</u>
	<p><b>SECTION NO. 2</b></p> <p><b><u>BILL OF QUANTITIES FOR BOREHOLE DRILLING AND EQUIPPING</u></b></p> <p><b><u>BILL NO. 1</u></b></p> <p>1 Allow for conducting a Hydrological site survey to establish the best point to drill a bore hole within the station by a registered Hydrologist and produce a detailed report to the Project Manager. The result of this will either justify or negate the next event.</p> <p>2 Allow for the application and acquisition of WULA permit for drilling a bore hole from relevant authorities as per National Water Act 36 of 1998.</p> <p>3 Preparation of working drawings and "As installed/ as built" record drawings.</p>	Item	1		
		Item	1		
		Item	1		

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**The following borehole drilling shall take place if item 1, 2, and 3 are successfully completed and the relevant documents released to the Project Manager.**

4	Mobilization/ demobilization of drilling unit, equipment materials, personnel, and all other required supplies.	Item	1
5	Erecting/ dismantling of drilling unit.	Item	1
6	Drilling 215mm diameter borehole from 0-100m below surface.	m	100
<b>Casing</b>			
7	Supply and installation of 165mm outer diameter class 9 uPVC borehole solid casing suitable for borehole.	m	100
8	Supply and installation of 200mm diameter slotted Upvc casing suitable for borehole.	m	100
9	Supply and installation of filler gravel pack	m <sup>3</sup>	5
10	Test pumping to ascertain borehole yield for at least 24 hours including installation and withdrawal of test pumping unit, recovery measurements and production of detailed Test Pump results.	Item	1
11	Construction of 20Mpa concrete plinth around wellhead.	m <sup>3</sup>	2
12	Borehole capping	Item	1
13	Allow for all costs involved in providing water for all requirements of the contract drilling field etc.	Item	1
14	Allow for the production of bacteriological Water chemical analyses and borehole completion report.	Item	1
15	Geological logging	Item	1
16	Supply and install galvanized lockable masonry borehole protections cover size 750 x 750 x 600mm Complete with 2 x heavy-duty stainless-steel Padlocks to includes keys.	No.	1
17	Supply and install PVC Class 'B' 50mm diameter water pipe (observation pipe)	m	100
18	Supply and install high quality pressure gauge range 0-7kgf/cm <sup>2</sup> complete with accessories	No.	2
19	Supply and install single orifice air valve, complete with pipe mounting accessories.	No.	2
20	Supply and install 50mm diameter class 10 HDPE Pipe rising main	m	120
21	Supply and install 50mm diameter rising main galvanized mild steel pipes class 'C' complying to BS 1387 with screwed and socketed joints to BS 143	m	100
22	50mm galvanized steel pipe Fittings	No.	5
23	50mm galvanized steel pipe Tee reducer to 15mm	No.	2
24	50mm galvanized steel pipe Bend	No.	10
25	50mm diameter gate valve	No.	3
26	50mm diameter non-return valve	No.	5
27	50mm diameter GI bend	No.	5
28	50mm diameter water meter	No.	1
29	50mm diameter HDPE Class 10 water pipe (water supply pipe) laid in and including trenches not exceeding 1m deep	m	1500
30	50mm diameter HDPE Class 10 Fittings	No.	17
31	50mm diameter HDPE Class 10 Tee	No.	10
32	50mm diameter HDPE Class 10 Bend	No.	7

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33	50mm diameter HDPE Class 10 reducer to 25mm	No.	5
34	25mm galvanized steel pipe	m	800
35	25mm galvanized steel pipe Fittings	No.	100
36	25mm galvanized steel pipe Tee reducer to 15mm	No.	40
37	25mm galvanized steel pipe Bend	No.	15
38	25mm galvanized steel pipe reducer to 15mm	No.	40
39	1m high 15mm galvanized steel stand pipes	No.	40
40	Heavy duty 15mm garden hose bip tap	No.	40
41	Any other items necessary to complete the works but not listed on the BoQ (please specify below)	Item	1
	<b>MANHOLES</b>		
	<b>EXCAVATION, FILLING, ETC</b>		
	<b>Excavation in earth not exceeding 1m deep by hand</b>		
42	Holes	m <sup>3</sup>	3
	<b>Compaction of surfaces</b>		
43	Compaction of ground surface under floors etc. to 93% Mod AASHTO density	m <sup>2</sup>	3
	<b>CONCRETE WORK</b>		
	<b>UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES</b>		
	<b>25MPa/20mm Concrete</b>		
44	Concrete slab	m <sup>3</sup>	2
	<b>CONCRETE SUNDRIES</b>		
	<b>Finishing top surface of concrete smooth with a wood float</b>		
45	Concrete slab	m <sup>2</sup>	5
	<b>MASONRY</b>		
	<b>Bricks shall have been obtained from an approved manufactured and shall be either general purpose (special) burn clay bricks or Engineering bricks that comply with the applicable requirements of SABS 285. The contractor shall submit to the project manager samples of the bricks that he/she intends using in the construction of the works. The sample of the bricks that are approved will be retained by the Project manager. See sub clause 3.1 of SABS 1200A or 1200AA as applicable</b>		
	<b>Bricks in Class II mortar</b>		
46	One brick wall for manhole	m <sup>2</sup>	5
	<b>FOUNDATIONS (PROVISIONAL)</b>		
	<b>15MPa/20mm concrete</b>		
47	50mm blinding layer	m <sup>3</sup>	3
	<b>PLASTIC VERTICAL WATER TANK</b>		
48	Supply and deliver 5000 L linear low density polyethylene SABS approved, ECO friendly vertical water tank including water tank float valve kit and all other tanks accessories mounted on top of tank stand	No.	2

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49	Miscellaneous Fittings	Item	1		
	<b>TANK STAND</b>				
50	Supply and install 3m high galvanized tank stand as per Manufactures specification suitable for full 5000l plastic tank	No.	2		
51	Testing of Borehole system	Item	1		
				Carried to final summary	
<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate</b>	<b>Amount</b>
	<b>SECTION NO. 3: ELECTRICAL WORK</b>				
	<b>BILL NO.1</b>				
1	Supply and install centrifugal borehole pump including control box, continuously rated and capable of pumping 10m <sup>3</sup> /hr. of water against a total head of 200m. The entire pump-set body, impellers, shaft etc. shall be made of heavy-duty stainless steel material. The pump shall have inbuilt non-return valve, tail strainer, and cable guard.	No.	1		
2	Allow for installation of temporary borehole pump and accessories	No.	1		
3	Supply and install heavy duty industrial horizontal 22kW 380V Close Coupled Monoblock pump with Flanged Connections water tank booster pump with a Flow rate up to 6000 l/min (360 m <sup>3</sup> /h) and Head up to 100 m including Counter flange KIT complete with bolts, nuts and washers, tank connector kit and all other accessories	No.	2		
4	Supply and install low noise level, automatic start/stop funtion, dry-running protection, overcurrent protection, efficiency pressure range 2 to 5 bar, efficiency flow range 16 to 70lt/min, pre-wired with 3 point plug, auto rotation A built in to automatically to start the pump within a 12-hour cycle to rotate the bearing and with a motor power of 1.5kw water tank booster pump including tank connector kit and all other accessories	No.	4		
5	Supply and install a control panel to be mounted off the wall. The control panel shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear. The control panel 25A 3-pole isolator complete with extended rotary handle as main incomer. 0 – 500V voltmeter complete with fuse protection and selector switch under/ over voltage phase failure protection relay complete fuse protection 0 -10-20A ammeter for the 5.5kw bore hole pump 16 A 3-pole MCB for the 5.5kw pump. 1A 3-POL3 MCB type for the 45watt motor complete with auxiliary relay for 5.5kw pump. 45W 1 - phase 240V AC DOL starter complete with thermal overload relay for doser pump dry run alarm for the 45watt chemical doser pump, incorporating a float switch in the doser level regulator, to trigger the alarm when chemical level is low. low level indicator lamp for chlorine dosser	No.	3		
6	6mm <sup>2</sup> 4-core PVC round hardened PVC submersible electric Waterproof cable.	m <sup>2</sup>	100		
7	2.5mm <sup>2</sup> 4-core PVC round hardened PVC electrode cables waterproof.	m	150		
8	2.5mm <sup>2</sup> 4-core PVC/SWA/PVC cable from control panel to water tanks.	m	50		
9	25mm diameter heavy gauge PVC ducts	m	200		
10	Excavate trench of dimensions 300mm wide x 500mm deep to invert to lay cables, backfilling	m <sup>3</sup>	100		
11	Electrode pair	No.	2		
12	Level regulators complete with mounting box	No.	2		
	<b>EARTHING</b>				
13	Earth bonding for all the buildings as per SANS 10142 and the specification including 1.2 Earth spike x 6.	Sum	1		
	<b>ELECTRICAL COMPLIANCE</b>				
	<b>All work to comply to SANS 10142 Compliance certificate to be provided on completion Pricing to include all necessary complete connection</b>				

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14	Certificate of compliance and all other testing required including 12 month guarantee certificate	Item	1	Carried to final summary
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**FINAL SUMMARY**  
**INSTALLATION OF BOREHOLES AT BRAAMFONTEIN ROLLING STOCK DEPOT**

1	PRELIMINARY AND GENERAL	SECTION No.1			R
2	BOREHOLE DRILLING AND EQUIPING	SECTION No.2			R
3	ELECTRICAL WORK	SECTION No.3			R
				SUB TOTAL	R
				ADD VAT @ 15%	R
				TOTAL TENDER AMOUNT	R