



RENOVATIONS AT ELANDSFONTEIN FACILITIES DEPOT

SCHEDULE OF QUANTITIES

SECTION A

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PART A: SCHEDULE OF QUANTITIES

CIVIL AND MINOR WORKS AT
ELANDSFONTEIN DEPOT

	<u>BILL NO. 1</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
	<u>ALTERATIONS (PROVISIONAL)</u>						
	<u>REMOVAL OF EXISTING WORK</u>						
	Carefully breaking down and removing brickwork etc						
1	One brick wall	m ²	20	R	-	R	-
2	Half brick wall	m ²	30	R	-	R	-
	Taking out and removing piping, sanitary fittings, etc including disconnection piping from fittings						
3	Pan and cistern	No.	2	R	-	R	-
4	Kitchen sink cabinet	No.	3	R	-	R	-
5	Ceramic wash hand basin	No.	2	R	-	R	-
6	0.15 x 0.15m high box gutter including down pipes	m	70	R	-	R	-
7	0.25 x 0.2m high box gutter including down pipes	m	40	R	-	R	-
8	50mm uPVC piping including fittings and brackets	m	5	R	-	R	-
	Taking out and removing doors including ironmongery and steel frame from walls						
9	Timber single door and frame 813x2032mm high	No.	3	R	-	R	-
	Taking out and removing door frame						
10	Double door steel frame 1800 x 2032mm high	No.	1	R	-	R	-
	Taking out and removing doors						
11	Single door 813 x 2032mm high from steel frame	No.	3	R	-	R	-
	Taking up and removing floor covering						
12	Vinyl tile/ceramic floor covering/mosaic floor tile/skirting including preparing screed to receive new floor tiling	m ²	80	R	-	R	-
	Hacking up/off and removing ceramic wall tile						

13	Tiles to walls	m ²	15	R	-	R	-
	Taking down and removing ceiling						
14	Rhino board ceilings including cornices, brandering, jointing strips, etc	m ²	100	R	-	R	-
	Taking out and removing glass from steel window frame						
15	clear glass from steel window frames including cleaning out rebates and preparing for new glass	m ²	5	R	-	R	-
	Taking out and removing glazed steel window frame						
16	Glazed still window 2000 x 2000mm high from one brick wall	No.	4	R	-	R	-
	Taking out and removing trees						
17	Taking out and remove tree from its roots and make good	No.	2	R	-	R	-
	Taking out and removing blinds						
18	2000 x 2000mm high horizontal blinds	No.	5	R	-	R	-
	Taking out and removing roof sheets						
19	Corrugated side roof sheeting	m ²	150	R	-	R	-
	Taking out and removing Fascia and barge board						
20	Fascia and barge board not exceeding 300mm girth	m	60	R	-	R	-
	Clean down existing face brick façade, painted walls, etc with water and brush						
21	External face brick walls	m ²	150	R	-	R	-
	Taking down and removing from site						
22	Torch on waterproofing membrane on concrete roof	m ²	40	R	-	R	-
23	Removing containers and deliver them at the nearest facilities depot.	no	7	R		R	
24	Remove concrete palisade fence and deliver the to the nearest facilities depot and make good.	m ²	300	R		R	

25	Allow to safely remove industrial steel gate and install at the new place allocated by the project manager, and allow all material to reinstall it, allow to install industrial gate motor and make	no	1	R	R
26	Allow to price for safety measures which will be required during the time of construction.		sum	R	R
					R -
	<u>BILL NO 2</u> <u>EARTHWORKS</u> <u>SUPPLEMENTARY AND PREAMBLES</u> Excavation: No claim for rock excavation will be entertain unless the contractor has timeously notified the project manager thereof prior to backfilling Laying, backfilling, bedding, etc Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instruction Where no manufacturers' instruction exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of SABS 1200 L Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7, and 7 of SABS 1200 DB Earthworks (Pipe trenches) Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB : Bedding (Pipes) <u>Leave site in good condition</u> The contractor shall leave the site where plumbing was executed, clean and neat at completion. EXCAVATION, FILLING, ETC Excavation in earth not exceeding 1m deep by hand	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>
1	Trenches	m ³	120	R -	R -
2	Hole for catch basin	m ³	5	R -	R -
	<u>Keeping excavation free of water</u>				

3	Keeping excavation free of water Earth filling obtain from the excavation and/or prescribed stock piles on site compacted to 93% Mod AASHTO before and after bedding, final backfilling, etc	Item		R	-	R	-
4	100mm Bedding after compaction of underground surfaces	m ²	65	R	-	R	-
5	Backfilling to trenches, holes after open channel/Catch basin and sewer line has been laid Compaction of surfaces	m ³	100	R	-	R	-
6	Compaction of ground surface under floors etc to 93% Mod AASHTO density Cut to spoil or stockpile, site to be located by the contractor Material obtained from	m ²	240	R	-	R	-
7	Soft excavation	m ³	60	R	-	R	-
						R	-
	<u>BILL NO 3</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
	<u>CONCRETE WORK</u>						
	<u>REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES</u>						
	25MPa/20mm Concrete						
1	Strip footing	m ³	15	R	-	R	-
2	Concrete slab for concrete wall	m ³	35	R	-	R	-
	CONCRETE SUNDRIES						
	Finishing top surface of concrete smooth with a wood float						

3	Strip footing, floor slab, etc	m ²	150	R	-	R	-
<u>SMOOTH FORMWORK (DEGREE OF ACCURACY III)</u>							
Smooth formwork to sides							
4	Concrete slab	m ²	10	R	-	R	-
MOVEMENT JOINTS ETC							
Saw cut Joints							
5	20 x 45mm Saw cut joints on top of concrete	M	10	R	-	R	-
						R	-
<u>BILL NO 4</u>		<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
<u>MASONRY</u>							
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							
Bricks in Class II mortar							
1	One brick wall for cavity face brick wall	m ²	90	R	-	R	-
<u>FOUNDATIONS (PROVISIONAL)</u>							
15MPa/20mm concrete							
2	50mm blinding layer	m ³	45	R	-	R	-
SUPERSTRUCTURE							
20-30MPa Silver-gray Travertine or similar approved							

	Imperial FBX clay face brick, size 222 x 106 x 73mm, manufactured in accordance with SANS 227:2007, bedded and jointed in Class I mortar and pointed with flush vertical, flush horizontal joints, with every 6th horizontal joint to be recessed.					
3	One brick foundation	m ²		R	-	R -
4	One concrete cavity face brick walls	m ²	500	R	-	R -
	BRICKWORK SUNDRIES					
	Brick reinforcement					
5	150mm wide reinforcement built in horizontal	m	150	R	-	R -
6	230mm wide reinforcement built in horizontal	m	600	R	-	R -
	Face brick coping					
7	Coping on top of one brick wall	m	120	R	-	R -
	Striking and Pointing on face brick work					
8	Striking and pointing on face brick work	m ²	750	R	-	R -
9	Extra over brick work for brick on edge header course band	m	15	R	-	R -
						R -
	<u>BILL NO 5</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>	
	<u>CARPENTRY AND JOINERY</u>					
	<u>DOORS</u>					
	44mm thick interior grade flush solid core timber single door with 3 mm thick commercial ply on both sides with consolidated edges fitted and complying with SABS 545 in pressed steel frame. All painted in accordance with architects colour schedule.					

1	813 x 2032 x 44mm single interior leaf solid core 44mm thick exterior grade flush solid core timber single door with 3mm thick commercial ply on both sides with consolidated edges fitted and complying with SABS 545 in pressed steel frame. All painted in accordance with architect's colour schedules	No.	10	R	-	R	-
2	813 x 2032 x 44mm single exterior leaf solid core <u>FITTINGS</u> <u>The following in modular timber cupboards, counters, duty stations, desk etc. as per Cupboard Connections Specification</u> <u>Carcasses of 16mm thick particle board with both faces white melamine with white Masonite backs. Shelving of 16mm particle board, both faces white melamine and front edge in white PVC. Doors of 16mm particle board with post formed vertical edges and laminated in Renolit. Tops of 32mm particle board with post formed leading edges and laminated in high pressure decorative laminate. All butt edges and edges against walls to be sealed with silicon sealant. Hinges to be "Hettich". Drawer runners to be metal 500mm series with nylon runners or similar. All units complete with door, handles, hinges, cupboards, door, locks, barrel bolts and shelves. Floor unit complete with kick plates. (Formica tops measured elsewhere)</u> <u>Built in cupboards fittings</u> Kitchen sink floor cupboard 3000 x 600 x 900mm high with sides, bottom, back, 3 hinged doors and one drawer completely working including handles, etc. top and sink measured else where Grocery cabinet 2.1m high x 0.5m wide x 0.6m 3 lockable separated parking compartment including locks and handles Change room cabinet Locker to combines steel body with supawood beech veneer doors. Locker body to be epoxy coated and oven baked for superior finish with grey colour Standard body.	No.	5	R	-	R	-
3		No.	3	R	-	R	-
4		No.	2	R	-	R	-

5	1800mm high x 450mm width x 500mm depth 2 door lockable lockers completely with heavy duty hinges and locks	No.	20	R	-	R	-
	Single sided Locker bench unit						
	Manufactured in angle iron (40x40x5mm), square (50x50x1.2mm or round tubing (50x1.2mm) heavy duty galvanized powder coated steel frame, with 6x70mm wide x 32mm thick Meranti slats, Electroplating powder coating legs and Adjustable feet and base plates						
6	400mm high x 1000mm width x 1500mm long single sided locker bench unit	No.	6	R	-	R	-
	CANTEEN BENCH UNIT						
	Legs manufactured with 75 x 75 mm square tubing, 1100mm wide x 280mm depth x 400mm high steel sheet seat, and table width of 1100 x 1100 x 700. All steel thickness to be 1.6mm thick galvanized powder coated with 70mm Oak hardwood for seats and table top finish						
7	1960 wide x 1960mm depth 4 legs canteen bench unit	No.	4	R	-	R	-
	COUNTER TOP						
	Wrought hardwood to cupboards, etc						
8	19 x 70mm cleats	m	25	R	-	R	-
9	19 x 50mm cleats fixed for worktop support	m	25	R	-	R	-
	Interior type particle board with Formica veneer						
10	900 x 30mm thick granite with all exposed edges large bevel edged, fixed to supports using dabs of 100% black silicone adhesive along all supports with all joints filled with matching polyester resin glue. Granite surface to be sealed using an approved stone sealer, all in accordance with the manufacturer's recommendations.	m	10	R	-	R	-
11	2mm thick edge strip 32mm wide	M	25	R	-	R	-
12	Cut 50mm work top to fit end bowl sink, measured elsewhere	No.	3	R	-	R	-
	Nutec fibre cement						
13	3000 x 10 x 300mm fascia boards including PVC H-Profile fascia board joiner	M	40	R	-	R	-

14	3000 x 10 x 300mm barge boards including PVC H-Profile barge board joiner	m	20	R	-	R	-
	Glazed shower doors						
15	Tri-slider patterned obscure glazed shower door	No.	7	R	-	R	-
16	800 – 1020mm x 4mm tick obscure pivot shower door	No.	12	R	-	R	-
	Skirting						
17	20 x 120mm solid meranti skirting	m	300	R	-	R	-
						R	-
	<u>BILL NO 6</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
	<u>CEILING WORK</u>						
	<u>SUPPLEMENTARY PREAMBLES</u>						
	<u>Description</u>						
	Items described as “nailed” shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete						
	Items described as “plugged” shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as “bolted”, bolts priced elsewhere						
	6.4mm “Rhino” gypsum plaster board with H-Type pressed steel jointing strips						
1	Ceiling including 38 x 38mm sawn softwood brander at 450mm centres	m ²	350	R	-	R	-
2	Extra over ceiling for 800 x 800mm trap door of 38 50mm wrought softwood rebated framing with one 38 x 38mm sawn softwood cross brander covered with ceiling board and fitted flush in opening	No.	4	R	-	R	-
	“Rhino” gypsum plasterboard cornice						
3	75mm coved cornices	m ²	150	R	-	R	-

						R -
	<u>BILL NO 7</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>
	<u>IRONMONGERY</u>					
	<u>LOCKS</u>					
1	3 liver union lock with handles	No.	12	R -	R	-
2	Ultra-security heavy duty locks	No.	5	R -	R	-
3	Stainless Steel Toilet Cubicle Indicator bolt & lock set, Grade 304Stainless Steel indicator bolt fixed to surface with matching stainless steel screws.	No.	8	R -	R	-
4	Satin stainless steel toilet roll holders for 2 rolls with central shaft system and cylinder lock, plugged and screwed to the wall with stainless steel screws. (vandal resistant)	No	8	R -	R	-
	<u>SIGNAGE</u>					
	<u>External signage</u>					
5	500 x 150mm High double sided ceiling mounted directional sign anodized aluminium female and male ablutions pictogram door sign, suspended from ceiling grids with brass chains. Minimum of 2,1m above finished floor level.	No.	4	R -	R	-
						R -
	<u>BILL NO 8</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>
	<u>TILING</u>					
	<u>Prices:</u>					
	Prices are to include for all square cutting and waste, cleaning off on completion and protection from injury. Areas are measured net to face of brickwork and concrete. Any additional area caused by the thickness of tiling and screed are to be allowed for in prices					

<u>FLOOR TILING</u>						
600x600mm Full Bodied polished Porcelain tiles with 3mm grouting lines						
1	On floors	m ²	360	R	-	R -
300x300x6mm Full Bodied polished Porcelain mosaic tiles with 3mm grouting lines						
2	On floors	m ²	25	R	-	R -
<u>WALL TILING</u>						
Matt Full Bodied Porcelain tiles, size 600 x 300mm x 12mm fixed to internal wall plaster backing with TAL tile adhesive mixed with TAL bonding liquid in lieu of water with joints continuous in both directions and grouted with TAL tile grout, excess grout on the surface to be cleaned with water as work proceeds.						
3	On walls	m ²	25	R	-	R -
300x300x6mm Full Bodied polished Porcelain mosaic tiles with 3mm grouting lines						
4	On walls	m ²	80	R	-	R -
						R -
<u>BILL NO 9</u>		<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>
<u>PLUMBING WORK</u>						
<u>SANITARY FITTINGS</u>						
1	Vaal Sanitary ware Hibiscus vitreous china close coupled suite colour White , comprising 90° outlet open rim pan with matching 9 litre front single flush cistern including lid and fitments and Jazz Thermoset seat.	No.	9	R	-	R -
2	Vaal Sanitary ware Hibiscus vitreous china lavatory basin colour White, size 510 x 405mm with two tap hole including integrated overflow and chain stay hole bolted to wall with two x 10mm bolts and including Classic floor mounted pedestal and sealed with silicone sealant where basin meets wall.	No.	8	R	-	R -
3	Top entry ceramic urinal basin with Junior flush master exposed chrome flush valve including flush pipe, spreader, etc	No.	5	R	-	R -

	WASTE UNINON ETC						
4	Bath and Basin waste, plug, chain, stay and backnut	No.	10	R	-	R	-
	TRAPS ETC						
5	365/40 CP bottle trap 40 x 40 INC CP/PVC adaptor to 40mm	No.	3	R	-	R	-
6	38mm sink “P” trap	No.	9	R	-	R	-
7	Brass shower P trap with square ss grating	No.	7	R	-	R	-
	SINK, BASIN, ETC						
8	Double bowls stainless steel double end bowl inset sink, overall size 1200 x 535mm wide with two 340 x 370 x 150mm deep bowls, fitted onto cupboard (elsewhere specified) including 38mm waste fitting and PVC traps (traps elsewhere specified).	No.	6	R	-	R	-
	TAPS, VALVES, ETC						
9	15mm chrome plated deck mounted sink mixer with overarm swivel outlet and adjustable flanges, manufactured in accordance with SANS 226:2004 Type 1.	No.	6	R	-	R	-
10	Push button pillar tap for hot and cold water	No.	24	R	-	R	-
11	Flexi connector	No.	30	R	-	R	-
12	15 Mini Ball Valve	No.	30	R	-	R	-
13	Single function vandal resistant shower head including shower arm, stainless steel polished body	No.	12	R	-	R	-
14	Chrome plated Shower tap mixer	No.	12	R	-	R	-
15	22mm Brass Gate Valve	No.	18	R	-	R	-
16	600kpa pressure control valve	No.	3	R	-	R	-
17	Relieve/safety valve	No.	6	R	-	R	-
18	Vacuum breaker	No.	6	R	-	R	-
19	Drain cock	No.	3	R	-	R	-
	0.8mm galvanized sheet iron						

20	125 x 100mm eaves gutter	m	80	R	-	R	-
21	Extra over 125 x 100mm eaves gutter for stopped end	No.	12	R	-	R	-
22	Extra over 125 x 100 eaves gutter for angle	No.	14	R	-	R	-
23	Extra over 125 x 100mm eaves gutter for outlet for 100 x 75mm pipe	No.	12	R	-	R	-
24	100 x 75mm rainwater pipes	m	25	R	-	R	-
25	Extra over 100 x 75mm rainwater pipe for shoe	No.	10	R	-	R	-
0.9mm galvanized sheet iron							
26	250 x 200mm industrial eaves gutter including heavy duty brackets fixed at 500mm centers	m	40	R	-	R	-
27	Extra over 250 x 200mm eaves gutter for stopped end	No.	4	R	-	R	-
28	Extra over 250 x 200 eaves gutter for angle	No.	6	R	-	R	-
29	Extra over 125 x 100mm eaves gutter for outlet for 300mm pipe	No.	6	R	-	R	-
30	300mm rainwater pipes	m	25	R	-	R	-
31	Extra over 300mm rainwater pipe for shoe	No.	6	R	-	R	-
Extra over PVC pipes for fittings							
32	110mm pan connector	No.	14	R	-	R	-
WATER SUPPLIERS							
Class “O” copper pipe							
33	15mm pipes chased into brick walls	m	70	R	-	R	-
34	22mm pipes	m	30	R	-	R	-
35	22mm pipes chased into brick walls and make good	m	50	R	-	R	-
Extra over class “O” copper pipes for capillary fittings							
36	15mm fitting	No.	15	R	-	R	-
37	15mm Tee	No.	15	R	-	R	-

38	15mm bend	No.	5	R	-	R	-
39	22mm fitting	No.	20	R	-	R	-
40	22mm Tee	No.	15	R	-	R	-
41	22mm bend	No.	5	R	-	R	-
ELECTRIC WATER HEATERS							
Supply, deliver and install Electrical geysers with all other accessories							
42	250L 600i dual electric water heater Geyser completely with safety valve, drain cock, vacuum breaker, gate valve, 1350 x 650mm tray and pressure regulating valve.	No.	2	R	-	R	-
Manhole covers and grid inlets							
43	560mm wide x 65mm thick heavy duty polymer grid inlet including frame	m	150	R	-	R	-
SOIL DRAINAGE							
Upvc waste pipes							
44	50mm pipes with all connection and make good	m	30	R	-	R	-
Upvc class 34 pipes including excavation, bedding, backfilling and compaction and disposal of surplus material							
45	110mm pipes vertical or ramped to cleaning eyes etc (no excavation)	m	10	R	-	R	-
46	110mm pipes laid in and including trenches not exceeding 1m deep	m	50	R	-	R	-
47	50mm pipes with all connection and make good	m	5	R	-	R	-
Extra over Upvc class 34 pipes for fittings							
48	110 Bend	No.	4	R	-	R	-
49	110mm junction	No.	2	R	-	R	-
50	110mm Access bend	No.	4	R	-	R	-
Upvc Gulley							

51	110mm Gulley not exceeding 1m deep formed of trap, vertical pipe and gully head with loose grating, encased in 15MPa unreinforced concrete, with top of gully 50mm above surrounding finished surfaces, top surface of concrete splayed and with 1:3 cement plaster on exposed surfaces	No.	2	R	-	R	-
	Sundries						
52	110mm Upvc cleaning eye to end of 110 Upvc pipe	No.	3	R	-	R	-
53	350 x 350 x 50mm thick precast concrete inspection eye marker slab finished smooth on exposed surfaces with letters "I.E" or "I.O" on top and placed flush in ground or paving	No.	3	R	-	R	-
54	Testing soil drainage system	Item		R	-	R	-
	Manhole covers						
	Precast concrete manholes with medium duty concrete manhole cover and frame bedded in 1:3 cement mortar, spacers bedded in 1:6 cement mortar and precast concrete slab including excavation, backfilling, compaction, risk of collapse, cartaway surplus material, 300mm thick unreinforced 20MPa/19mm concrete base projection 75mm wide from walls, benching, junctions, channeling and step irons						
55	980mm diameter (internally) Precast concrete manhole not exceeding 1m deep	No.	2	R	-	R	-
56	980mm diameter (internally) Precast concrete manhole exceeding 1m deep and not exceeding 2m deep	No.	2	R	-	R	-
57	980mm diameter Precast concrete manhole cover including frame	No.	2	R	-	R	-
	Sewer connection						
58	Cutting into sides of existing manhole chamber for and connecting 110mm pipe including inserting 110mm channel junction and making good concrete benching	Item		R	-	R	-
	WATER RETICULATION						
	PREMBLES						
	The contractor is referred to the General Preambles for trades 2017 published by the Association of South Africa Quantity Surveyors before pricing						

	WATER PIPEWORK					
	HDPE PE 100PN 12.5 pipes including excavation, bedding, backfilling, and compaction and disposal of surplus material					
59	25mm pipes laid in and including trenches not exceeding 1m deep	m	50	R	-	R -
	Extra over HDPE					
60	25mm elbow	No.	4	R	-	R -
61	25mm equal tee	No.	2	R	-	R -
62	25mm couplings pipe connectors	No.	2	R	-	R -
						R -
	<u>BILL NO. 10</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>
	<u>GLAZING</u>					
	<u>GLAZING TO ALUMINIUM WITH CLIP ON BEADS</u>					
	4mm patterned glass					
1	Panes exceeding 0.1m ² and 0.5 m ²	m ²	22	R	-	R -
	4mm clear float glass					
2	Panes exceeding 0.1m ² and 0.5 m ²	m ²	10	R	-	R -
	<u>MIRROR</u>					
	6.5mm silvered float glass copper backed mirrors with polished adges holed for and fixed with chromium plated dome capped mirror screws with rubber buffers to plugs in brickwork					
3	Mirror 600 x 1200mm high with four screws	No.	14	R	-	R -
						R -

	<u>BILL NO.11</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>
	<u>METAL WORK</u>				
	<u>PRESSED STEEL DOOR FRAMES, LOUVRE GRILLE FRAMES, ETC</u>				
	Preparation, supply and install 1.2mm Double rebated frames suitable for one brick work				
1	External Frame for door 813 x 2032mm high 1.2mm Double rebated frames suitable for half brickwork	No.	6	R -	R -
2	Internal Frame for door 813 x 2032mm high	No.	8	R -	R -
	SECURITY GATES				
	Supply and install Burglar door				
3	815 x 2100mm high Heavy duty Burglar door and frame with 16mm steel round bar and 40 x 40 x 2.5mm square tubing as per attached drawing for single door	No.	5	R -	R -
	STEEL ROLLER SHUTTERS				
	Roll-Up solid galvanised, SABS 1461, & epoxy coated M/S manually hand chain operated push-up roller shutter for maximum opening 3000 x 3000mm high with standard bottom rail, 75 x 0.8mm thick end-locked slats, 120mm extra-wide tamper proof guides, 4.5mm end plates, closed shaft and 2 x slidebolts, extruded with Aluminium Tbar & Astragal rubber weather seal. Including galv. cover box and powder coated components incl. door curtain, end plates, cover box, guides & T-bar. Door fixed to brick, concrete or structural steel jambs and concrete or steel lintel over. Contractor to provide cavity of 160mm x 120mm for recessing guides				
4	Manual hand chain Push-up Roller Shutters, for openings not exceeding 3000mm x 2500mm high.	No.	4	R -	R -
	Supply and install Burglar windows				

5	600mm W x 600mm H Box windows guard constructed with 5mm of expanded metal and 50 x 50 x 6mm equal angles.	No.	8	R	-	R	-
6	1200mm W x 600mm H Box windows guard constructed with 5mm of expanded metal and 50 x 50 x 6mm equal angles.	No.	14	R	-	R	-
7	1500mm W x 900mm H Box windows guard constructed with 5mm of expanded metal and 50 x 50 x 6mm equal angles.	No.	2	R	-	R	-
<u>FENCING AND GATES</u>							
Constructed of galvanized steel sections, palisade fence with an 2400mm min height. The materials, construction and installation procedure for steel palisade fences to be in accordance with SANS 30112:2004 " South African National Standard for fence part 12 specifications for steel Palisade fences". Reference to applicable SANS specifications for full details.							
8	2400mm high galvanized steel palisade fencing and post at 3m centers	m		R	-	R	-
<u>ALUMINIUM WINDOW FRAMES</u>							
9	PT66 (600x600mm high) bronze window frame	No.	24	R	-	R	-
10	PT126 (1200x600mm high) bronze window frame	No.	4	R	-	R	-
11	PT159 (1500x900mm high) bronze window frame	No.	2	R	-	R	-
						R	-
<u>BILL NO.12</u>		<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>		
<u>PLASTERING</u>							
<u>SUPPLEMENTARY PREAMBLES</u>							
<u>Preparatory work for textured finishes:</u>							
Textured finishes to be applied to plaster (plaster elsewhere)							
All surfaces are to be inspected and approved by Prasa representative before any work is commenced with							

	<u>Price for texture finishes:</u> Prices are to include for all priming, preparatory work, etc INTERNAL PLASTER Preparation and Cement plaster on brick work						
1	walls	m ²	100	R	-	R	-
2	Narrow width	m ²	20	R	-	R	-
						R	-
	<u>BILL NO.13</u> <u>PAINTWORK</u> For preambles see “Model Preambles for Trades” 2008 edition published by the Association of South African Quantity Surveyors SUPPLEMENTARY PREAMBLES Previously painted plastered surfaces Surfaces shall be thoroughly washed down and allowed to dry completely before any paint is applied. Blistered or peeling paint shall be completely removed and cracks shall be opened, filled with a suitable filler and finished smooth Previously painted metal surfaces Surfaces shall be thoroughly rubbed and cleaned down. Blistered or peeling paint shall be completely removed down to bare metal Previously painted wood surfaces Surfaces shall be thoroughly cleaned down. Blistered or peeling paint shall be completely removed and cracks and crevices shall be primed, filled with a suitable filler and finished smooth	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>		

	PAINTWORK, ETC TO NEW WORK						
	ON FLOATED PLASTER						
	One coat professional plaster primer and two coats acrylic paint						
1	On ceiling and cornices	m ²	500	R	-	R	-
	One coat professional plaster primer and two coats contractors White Gloss Enamel						
2	On gutters and downpipes	m ²	70	R	-	R	-
3	On fascia and barge boards	m ²	50	R	-	R	-
	One coat professional plaster primer and two coats contractors Brick and Slasto Dressing/Brick seal						
4	On internal and external face brick walls	m ²	750	R	-	R	-
	ON WOOD						
	One coat wood primer, one Universal Undercoat and two coats PRASA Brown						
5	On Doors	m ²	70	R	-	R	-
	Sand with abrasive paper, leaving surface dry, clean and dust free. Wash knots and resinous areas with Lacquer Thinners (ILS 1) and coat with Woodcare Knot Seal (PK 2) and apply one coat of Dulux or Plascon Woodcare Pretreatment (WWP 1), overcoated within 48 hours with a moisture content of BD 2 scale (A1-A5) < 14% or less. Prime with one coat Varnish with an overcoating time of 6 hours and finish with two coats Varnish with 6 hours drying time between coats.						
6	On skirting	m ²	50	R	-	R	-
	<u>ON METAL</u>						
	One coat zinc chromate primer, one Undercoat and						

	two coats Professional Gloss Enamel						
7	On rails, bars, handrails, steel work, window frames, door frames, burglar gates and window, gates, gutters and down pipes	m ²	150	R	-	R	-
	One coat zinc chromate primer, one Undercoat and two coats Chromadek Prasa Kingfisher Blue suitable for roof						
8	On roofs	m ²	460	R	-	R	-
	One coat zinc chromate primer, one Undercoat and two coats Chromadek Prasa Dove Grey suitable for roof						
9	On roofs	m ²	200	R	-	R	-
	PAINTWORK, ETC TO PREVIOUSLY PAINTED WORK						
	Surface preparation and apply two coats acrylic paint						
10	On ceiling and cornices	m ²	100	R	-	R	-
	ON WOOD						
	Surface preparation and apply two coats PRASA Brown						
11	On Doors	m ²	50	R	-	R	-
	<u>ON METAL</u>						
	One coat zinc chromate primer, one Undercoat and two coats Professional Gloss Enamel						
12	On rails, bars, handrails, steel work, window frames, door frames, burglar gates and window, gates, gutters and down pipes	m ²	50	R	-	R	-
	Wash with polycell sugar soap and rinse with clean water to remove all traces of soap, remove all loose flaking paint and repair any cracks and defects, spot prime bare and repaired areas with bonding liquid and apply one coat sealer and two coats of interior quality Prasa neutral						

13	On internal walls Wash with polycell sugar soap and rinse with clean water to remove all traces of soap, remove all loose flaking paint and repair any cracks and defects, spot prime bare and repaired areas with bonding liquid and apply one coat sealer and two coats of interior quality nonconductive floor epoxy paint	m ²	200	R	-	R	-
14	On floors	m ²	300	R	-	R	-
						R	-
	<u>BILL NO. 14</u> <u>WATERPROOFING</u> Waterproofing to roofs	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
1	Preparation of surfaces including replacing of worn nails, Roll top ridging and corrugated roof sheeting	m ²	400	R	-	R	-
2	Polyester Membrane or any other approved with the applicable guarantee of five years Applied to bolt heads and lap joints applied as per manufactures specification and certificate of 5 year guarantee submitted after completion	m ²	400	R	-	R	-
	<u>WATERPROOFING TO ROOFS</u> On flat concrete roofs slab with parapet walls						
3	Surface preparation, Supply and lay 4mm torch on waterproofing system saturated with Bitumen Silver UV protective agent (approved by the Professional Waterproofing Association) applied by means of the torch on fusion/gas weld application method, with 75mm overlaps, 100mm endlaps and 200mm upturns onto parapet walls. laid in strict accordance with Manufacturer's instructions	m ²	40	R	-	R	-
							R -

	<u>BILL NO. 15</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>
	<u>BLINDS</u>				
1	25mm aluminium venetian blinds including brackets and mounting accessories to fit 2000 x 1300mm high window opening	No.	12	R -	R -
2	25mm aluminium venetian blinds including brackets and mounting accessories to fit 1500 x 900mm high window opening	No.	12	R -	R -
3	25mm aluminium venetian blinds including brackets and mounting accessories to fit 600 x 600mm high window opening	No.	12	R -	R -
					R -

FINAL SUMMARY

CIVIL AND MINOR WORKS AT ELANDSFONTEIN DEPOT

	STATION NAME	PAGE	AMOUNT
1	Alterations	3 to 4	R -
2	Earthworks	4 to 6	R -
3	Concrete work	6 to 7	R -
4	Masonry	7 to 8	R -
5	Carpentry and Joinery	8 to 11	R -
6	Ceiling work	11	R -
7	Ironmongery	11 to 12	R -
8	Tiling work	12 to 13	R -
9	Plumbing work	13 to 18	R -
10	Glazing	18 to 19	R -

11	Metal work	19 to 20	R	-
12	Plastering	20 to 21	R	-
13	Painting work	21 to 24	R	-
14	Waterproofing	24 to 25	R	-
15	Blinds	25	R	-
SUB TOTAL			R	-
ADD VAT @ 15%			R	-
			R	-
TOTAL				

ANNEXURE B ELECTRICAL WORKS: SCHEDULE OF QUANTITIES

PROVISIONAL SCHEDULE OF QUANTITIES

Major Supply and Installation of Depot Lighting at Elandsfontein
Facilities Depot

	<u>Description</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>
	OCCUPATIONAL HEALTH AND SAFETY The contractor shall comply with all the requirements set out in the Construction Regulations, issued under The Occupational Health & Safety Act no 85 of 1993. Safety file shall be provided by the contractor prior to commencement of work. 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. Note: All designated items should comply with local content threshold. <u>Schedule of Quantities</u> Unless otherwise stated the description of each item shall be deemed to include manufacturing, conveying, and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting, waste, patterns, plant, temporary works, establishment charges, profit and other obligations arising out of the conditions of contract <u>BILL NO. 1</u> <u>ALTERATIONS (PROVISIONAL)</u> <u>REMOVAL OF EXISTING WORK</u> Taking out and removing electrical work				
1	Bulkhead fittings	No.	10	R -	R -

2	4/5 foot fluorescent fittings	No.	50	R	-	R	-
	Carried to final summary					R	-
	<u>BILL NO.2</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
	<u>ELECTRICAL WORK</u>						
	Fluorescent fittings waterproofed fixture white including 2x58w T8 LED Fluorescent tubes and polycarbonate base with clear polycarbonate cover IP65						
1	Waterproof polycarbonate LED 5ft 2 x58w T8 fluorescent fitting including 2 LED tubes	No.	37	R	-	R	-
2	1200m (4 foot) 2x36w Open channel cool white LED Fluorescent fittings double tubes for ticket office building	No.	10	R	-	R	-
	Bulkhead fittings						
3	7w LED bulk head fittings completely with bulbs	No.	5	R	-	R	-
4	2 x PL9 fittings including bulbs suitable for outdoor installation	No.	5	R	-	R	-
	The luminaire to consists of a separate lamp, control gear and spigot compartment. The control gear housing to be separated from the lamp housing for thermal reasons. To be designed to operate 70/400W mercury vapour and 70/400W high- pressure sodium/metal halide lamps.						
	LED FLOOD LIGHTS						
5	150w Flood LED luminaire manufactured from high pressure unpainted die - cast aluminium housing complying with SANS 60588 --5. Both LED engine and power supply	No.	2	R	-	R	-
	<u>PLUGS</u>						
6	4 X 4 single plug	No.	10	R	-	R	-

7	4 X 4 double plug	No.	5	R	-	R	-
<u>SWITCHES</u>							
8	Day light switches	No.	2	R	-	R	-
9	Single 200v 40 Amps contactors	No.	5	R	-	R	-
10	White 1 lever 2 way switch	No.	10	R	-	R	-
11	White 2 lever 1 way switch	No.	5	R	-	R	-
Electrical cables							
12	4mm ² GP wires for stove and geyser	m	50	R	-	R	-
13	2.5mm ² GP wires (Red, white, blue, black and earth) for lights rewiring of shelters, footbridge, ablutions and access points in 3 phase system	m	100	R	-	R	-
14	2.5mm ² suffix cable or GP wire for plugs	m	100	R	-	R	-
15	1.5mm ² suffix cable or GP wire for lights	m	100	R	-	R	-
Electrical casing							
16	25 x 40mm PVC trunking	m	30	R	-	R	-
17	20mm PVC SABS conduit completely with all the couplings, saddle, spacer bar assembly and heavy duty U clamps	m	50	R	-	R	-
Circuit breakers							
18	10 A 3P 6KA circuit breaker	No.	5	R	-	R	-
19	20 A 3P 6KA circuit breaker	No.	5	R	-	R	-
20	40 A stove Isolator	No.	1	R	-	R	-

21	30A Air conditioner and gyser Isolator	No.	4	R	-	R	-
DB BOARDS							
22	Flush mounted min distribution board completely with circuit breakers	No.	1	R	-	R	-
23	Lockable fiber glass water proofed 12 way CBI DB Eaves box to be mounted on external walls for platform shelters, waiting areas, access point, ablutions, etc	No.	2	R	-	R	-
HVAC Systems							
24	Supply, install and commission new 24000 BTU split unit, inverter technology air conditioner completely with all accessories (drain pipe, amorflex, copper pipe, refrigerant, cable, communication wire, brackets, circuit breaker, isolator, etc)	No.	3	R	-	R	-
<u>ELECTRICAL COMPLIANCE</u>							
All work to comply to SANS 10142 Compliance certificate to be provided on completion Pricing to include all necessary complete connection							
25	Certificate of compliance and all other testing required including 12 month guarantee certificate	Item	1	R	-	R	-
Carried to final summary						R	-

ELECTRICAL WORK FINAL SUMMARY***UPGRADING STATION LIGHTING RETICULATION AT ELANDSFONTEIN DEPOT***

	STATION NAME	PAGE	AMOUNT
1	Alterations	27 to 28	R -
2	Electrical work	28 to 31	R -
SUB TOTAL			R -
ADD VAT @ 15%			R -
TOTAL			R -

ANNEXURE C: FINAL SUMMARY***RENOVATIONS AT ELANDSFONTEIN DEPOT***

	STATION NAME	PAGE	AMOUNT
1	Annexure A : General Building work	3 to 27	R -
2	Annexure B Electrical work	27 to 31	R -
SUB TOTAL			R -
ADD VAT @ 15%			R -
TOTAL			R -

**BUILDING OF NEW GUARD ROOM, BRICKWALL AND
ABLLUTION AT ELANDSFONTEIN ELECTRICAL DEPOT.**

SECTION B

SCOPE, SPECIFICATIONS AND SCHEDULE OF QUANTITIES

PROVISIONAL SCHEDULE OF QUANTITIES
PRELIMINARY AND GENERAL
ANNEXTURE A

	OCCUPATIONAL HEALTH AND SAFETY	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>
	The contractor shall comply with all the requirements set out in the Construction Regulations, issued under The Occupational Health & Safety Act no 85 of 1993. Safety file shall be provided by the contractor prior to commencement of work. 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. Note: All designated items should comply with local content threshold. <u>BILL NO. 1</u> <u>PRELIMINARY AND GENERAL</u> <u>Preliminary and General</u>				
1	All Preliminary and General applicable to this project	Sum	1	R -	R -
	<u>Occupational Health and safety</u>				
2	Compliance with Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Employers Health and Safety	Sum	1	R -	R -
	<u>Architectural work</u>				
3	Design, drawing and approval of the building plans from Municipality for 3.5m wide x 3m long x 2.6m high guard room, toilet inclusive with 200mm reinforced concrete roof slab floor plan including elevations	Sum	1	R -	R -
	Carried to final summary				R -

ANNEXURE B: GB AND CIVIL WORK

	<u>BILL NO 2</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>
	<u>Earthworks (Provisional)</u> <u>Supplementary Preambles</u> All soil poisoning and insecticide to be applied under a ten year guarantee by an approved firm of specialist <u>General notes</u> Fill material shall be placed in lift of not more than 150mm Compaction density to be controlled using DCP apparatus to a maximum of 30mm/blow 93% MOD AASHTO compaction is to be achieved Where backfill is required on both sides of walls, backfill both sides simultaneously. Where compaction of fill material behind retaining walls is done using mechanical rollers, the rollers must be kept 500mm away from the wall and this 500mm portion must be compacted with hand stampers or wackers. <u>Excavation in earth not exceeding 1m deep</u>					
1	Trenches	m ³	160	R	-	R -
	<u>Extra over all excavation for carting away</u> Surplus material from excavation and/or stock piles on site to a dumping site to be located by the contractor					
2		m ³	40	R	-	R -
	<u>Keeping excavation free of water</u> Keeping excavation free of water					
3		Item		R	-	R -
	<u>Earth filling obtain from the excavation and/or prescribed stock piles on site compacted to 93% Mod AASHTO density</u>					

4	Backfilling to trenches, holes, etc	m ³	40	R	-	R	-
	<u>Compaction of surfaces</u>						
5	Compaction of ground surface under floors etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% Mod AASHTO density	m ²	80	R	-	R	-
	<u>Soil poisoning: Soil insecticide</u>						
6	To bottom and sides of trenches	m ²	120	R	-	R	-
	Carried to final summary					R	-
	<u>BILL NO 3</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>		
	<u>Concrete, Formwork and Reinforcement</u>						
	<u>Cost of test:</u>						
	The costs of making, storing and testing of concrete test cubes as required under clause 7, “test” of SABS 1200 G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the test to the Architects. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the architect						
	<u>Formwork</u>						
	Descriptions of formwork shall be deemed to include use and waste only (except where described as “left in” or “permanent”, for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use.						
	The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until newly constructed work is able to support itself.						
	Formwork to sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be						

measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavation, provision for which is made in "Earthworks".

CONCRETE WORK

REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES

25MPa/20mm Concrete

1	Strip footing	m ³	15	R	-	R	-
2	Concrete slab for guard room , ablution and brick wall and standby generator	m ³	60	R	-	R	-

REINFORCED CONCRETE

25MPa/20mm Concrete

3	200mm concrete roof slab	m ³	60	R	-	R	-
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TEST BLOCKS

4	Making and testing 150 x 150 x 150mm concrete strength test cube	No.	1	R	-	R	-
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CONCRETE SUNDRIES

Finishing top surface of concrete smooth with a wood float

5	Surface beds, floor slab, etc	m ²	30	R	-	R	-
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Finishing top surface of concrete smooth with a power float

6	Surface beds, floor slab, etc	m ²	300	R	-	R	-
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	<u>ROUGH FORMWORK (DEGREE OF ACCURACY III)</u>					
	Rough formwork to sides					
7	Strip footings	m ²	30	R	-	R -
	<u>SMOOTH FORMWORK (DEGREE OF ACCURACY III)</u>					
	Smooth formwork to sides					
8	Concrete slab	m ²	15	R	-	R -
9	Concrete roof slab	m ²	15	R	-	R -
	Smooth formwork to soffit					
10	Roof concrete slab	m ²	25	R	-	R -
	MOVEMENT JOINTS ETC					
	Saw cut Joints					
11	20 x 45mm Saw cut joints on top of concrete	m	10	R	-	R -
	REINFORCEMENT					
	Reinforcement to structural concrete work					
12	Calculate, design, Fabrication and placing reinforcement for footings, floor and roof slab. Bending schedule to be submitted for approval prior to construction	Sum		R	-	R -
	Carried to final summary					R -
	<u>BILL NO 4</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>	
	<u>MASONRY</u>					
	<u>BRICKWORK</u>					
	<u>FOUNDATIONS (PROVISIONAL)</u>					

	15MPa/20mm concrete						
1	50mm blinding layer	m ³	300	R	-	R	-
	Brickwork of NFP bricks in class II mortar						
2	One brick walls	m ²	350	R	-	R	-
	SUPERSTRUCTURE						
	20-30MPa Silver-gray Travertine or similar approved Imperial FBX clay face brick, size 222 x 106 x 73mm, manufactured in accordance with SANS 227:2007, bedded and jointed in Class I mortar and pointed with flush vertical, flush horizontal joints, with every 6th horizontal joint to be recessed.						
3	One brick walls	m ²	360	R	-	R	-
4	Half brick walls	m ²	30	R	-	R	-
	BRICKWORK SUNDRIES						
	Brick reinforcement						
5	150mm wide reinforcement built in horizontal	m	120	R	-	R	-
6	230mm wide reinforcement built in horizontal	m	450	R	-	R	-
	Pre-stressed fabricated lintels						
7	150 x 70mm lintels in length not exceeding 4m long	m	24	R	-	R	-
	Face brick coping						
8	Coping on top of one brick wall	m	60	R	-	R	-
	Striking and Pointing on face brick work						

9	Striking and pointing on face brick work	m ²	500	R	-	R	-
10	Extra over brick work for brick on edge header course band	m	110	R	-	R	-
	Carried to final summary					R	-
	<u>BILL NO 5</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
	<u>WATERPROOFING</u>						
	<u>WATERPROOFING TO ROOFS</u>						
	On flat concrete roofs slab with parapet walls						
	Surface preparation, Supply and lay 4mm torch on waterproofing system saturated with Bitumen Silver UV protective agent (approved by the Professional Waterproofing Association) applied by means of the torch on fusion/gas weld application method, with 75mm overlaps, 100mm endlaps and 200mm upturns onto parapet walls. laid in strict accordance with Manufacturer's instructions						
1		m ²	0	R	-	R	-
	<u>DAMP PROOFING OF WALLS AND FLOORS</u>						
	One layer of 375 micron “Plastic Brikgrip DPC” embossed damp proof course						
2	In walls	m	150	R	-	R	-
	One layer of 250 micron “Consol Plastic Black” waterproof sheeting sealed at laps with Pressure Sensitive Tape”						
3	On earth feeling under slabs	m ²	150	R	-	R	-
	JOIN SEALANTS, ETC						
	bitumen impregnated foam plastic joint sealing strips						
4	10 x 20 expansion joints	m	10	R	-	R	-
	Carried to final summary					R	-

BILL NO 6UnitQTYRateAmount**CARPENTRY AND JOINERY****SUPPLEMENTARY PREAMBLES****Particle board shall comply with the following specification**

- 1) SABS 1300 Particle board: exterior and flooring type
- 2) SABS 1301 Particle board: interior type

Description of hardwood joinery shall be deemed to include pelleting of bolt holes

Joinery

Description of frames shall be deemed to include frames, transoms, mullions, rails, etc

Fixing

Items described as “nailed” shall be deemed to be fixed with hardened steel nails or short pims to brickwork or concrete

Items described as “plugged” shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as “bolted” the bolts have been given elsewhere

Decorative

Decorative laminate finish shall be glued under pressure. Edge strips shall be butt jointed at junctions with adjacent similar finish

ROOFS ETC**Plate nailed timber roof truss construction**

The following is applicable in respect of roof trusses:

Trusses are at maximum 1000mm centres and with a pitch of

	The roof to have 600mm overhang on both sides (along lengths), eaves cladded with 4mm fibre cement ceiling Roof to have vertical cladded gable end projecting 150mm at ends of the building. The first set of dimensions given with the descriptions are the external dimensions of the building, the second set of dimensions (in brackets) are the external dimensions of the roofs which include the dimensions of the overhangs along lengths and at ends All trusses are to be fabricated in a factory by specialist approved by the Architect All trusses shall be designed by a registered Professional Engineer (in accordance with the draft SABS Code of Practice for the Design of Timber Structures) The Manufacture of the trusses shall supply a written guarantee that the trusses are design, manufactured and erected to support the roof covering specified. The guarantee shall be valid for a period of 10 (ten) years Sawn softwood Roof construction to double pitched roof with two gable ends over rectangular shaped building erected in position complete including all trusses, jack rafters, permanent bracing, gang nail plates (wall plates and purlins measured elsewhere)						
1.	Building size 6500 x 15000mm long overall on plan	No.	1	R	-	R	-
2.	Building size 25000 x 12000mm long overall on plan	No	1	R		R	
	<u>Wrought softwood</u>						
2	50 x 75mm purlins at 900mm centre's to sides of trusses	m	350	R	-	R	-
3	38mm x 114mm wall plates	m	150	R	-	R	-
4	38mm x 100mm Grade M4 ridge beam	m	50	R	-	R	-
	<u>Sundries</u>						

5	Two coats creosote on sawn timbers	m ²	40	R	-	R	-
<u>Fascia Board</u>							
6	250mm wide x 38mm thick timber fascia boards	m	70	R	-	R	-
7	250mm wide x 38mm thick timber barge boards	m	50	R	-	R	-
<u>DOORS</u>							
<u>External Doors</u>							
8	813 x 2032 x 44mm Single leaf semi solid door with 3.2mm hardwood veneer covering on both sides and concealed hardwood vertical edge strip hung to steel door frame	No.	5	R	-	R	-
<u>Internal Doors</u>							
9	813 x 2032 x 44mm single leaf semi solid door with 3.2mm hardwood veneer covering on both sides and concealed hardwood vertical edge strip hung to steel door frame	No.	7	R	-	R	-
<u>FITTINGS</u>							
<u>Built in cupboards fittings</u>							
<u>The following in modular timber cupboards, counters, duty stations, desk etc. as per Cupboard Connections Specification</u>							
<u>Carcasses of 16mm thick particle board with both faces white melamine with white Masonite backs. Shelving of 16mm particle board, both faces white melamine and front edge in white PVC. Doors of 16mm particle board with post formed vertical edges and laminated in Renolit. Tops of 32mm particle board with post formed leading edges and laminated in high pressure decorative laminate. All butt edges and edges against walls to be sealed with silicon sealant. Hinges to be "Hettich". Drawer runners to be metal 500mm series with nylon runners or similar. All units complete with door, handles, hinges, cupboards, door, locks, barrel bolts and shelves. Floor unit complete with kick plates. (Formica tops measured</u>							

	<u>elsewhere)</u>						
10	32mm office work top 450mm wide post formed one side only	m	3	R	-	R	-
	<u>Furniture</u>						
	<u>Black with square tube steel frame, chip foam seat, medium back density foam with fabric covering</u>						
11	825 (h) x 450 (w) x 560 (d) black office chairs	No.	2	R	-	R	-
	Carried to final summary					R	-
	<u>BILL NO 7</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
	<u>TILING</u>						
	<u>Prices:</u>						
	Prices are to include for all square cutting and waste, cleaning off on completion and protection from injury. Areas are measured net to face of brickwork and concrete. Any additional area caused by the thickness of tiling and screed are to be allowed for in prices						
	<u>FLOOR TILING</u>						
	600x600mm Full Bodied polished Porcelain tiles with 3mm grouting lines						
1	On floors	m ²	315	R	-	R	-
	<u>WALL TILING</u>						
	Matt Full Bodied Porcelain tiles, size 600 x 300mm x 12mm fixed to internal wall plaster backing with TAL tile adhesive mixed with TAL bonding liquid in lieu of water with joints continuous in both directions and grouted with TAL tile grout, excess grout on the surface to be cleaned with water as work proceeds.						
2	On walls	m ²	15	R	-	R	-
	<u>SKIRTING</u>						
	Meranti skirting						

3	20 x 120mm solid meranti skirting	m	110	R	-	R	-
	Carried to final summary					R	-
	<u>BILL NO 8</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
	<u>IRONMONGERY</u>						
	<u>HINGES, BOLTS, ETC</u>						
	<u>Supply and install</u>						
1	Heavy duty steel hinges for steel door frames	No.	6	R	-	R	-
2	Grade 304 Stainless Steel floor mounted door stop, plugged and screwed to floor with matching stainless steel screws.	No.	4	R	-	R	-
	<u>LOCKS</u>						
	<u>Supply and install</u>						
3	Ultra-security heavy duty lock	No.	4	R	-	R	-
4	3 lever lock with handles	No.	14	R	-	R	-
5	Grade 304Stainless Steel indicator bolt (code: fixed to surface with matching stainless steel screws.	No.	12	R	-	R	-
	<u>Bathroom accessories</u>						
6	Satin stainless steel toilet roll holders for 2 rolls with central shaft system and cylinder lock, plugged and screwed to the wall with stainless steel screws. (vandal resistant)	No.	7	R	-	R	-
	Carried to final summary					R	-
	<u>BILL NO 9</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
	<u>PLUMBING WORK</u>						
	<u>SANITARY FITTINGS</u>						
	<u>Supply and install</u>						

1	Water close coupled suite colour White , comprising 90° outlet open rim pan with matching 9 litre front single flush cistern including lid and fitments and Thermoset seat.	No.	7	R	-	R	-
2	Basin colour White, size 510 x 405mm with two tap hole including integrated overflow and chain stay hole bolted to wall with two x 10mm bolts and including Classic floor mounted pedestal and sealed with silicone sealant where basin meets wall.	No.	7	R	-	R	-
WASTE UNION ETC							
Supply and install							
3	Basin waste, plug, chain, stay and backnut	No.	7	R	-	R	-
SOIL DRAINAGE							
Upvc class 34 pipes including excavation, bedding, backfilling and compaction and disposal of surplus material							
4	110mm pipes vertical or ramped to cleaning eyes etc (no excavation)	m	10	R	-	R	-
5	110mm pipes laid in and including trenches not exceeding 1m deep	m	200	R	-	R	-
6	110mm pipes laid in and including trenches exceeding 1m and not exceeding 2m deep	m	150	R	-	R	-
7	50mm pipes with all connection and make good	m	25	R	-	R	-
8	50mm pipes chased into brick walls with all connection and make good	m	25	R	-	R	-
Extra over Upvc class 34 pipes for fittings							
9	110 Bend	No.	22	R	-	R	-
10	110mm junction	No.	22	R	-	R	-
11	110mm Access bend	No.	22	R	-	R	-
Upvc Gulley							
12	110mm Gulley not exceeding 1m deep formed of trap, vertical pipe and gully head with loose grating, encased in 15MPa unreinforced concrete, with top of gully 50mm above surrounding finished surfaces, top surface of	No.	2	R	-	R	-

	concrete splayed and with 1:3 cement plaster on exposed surfaces						
	Sundries						
13	110mm Upvc cleaning eye to end of 110 Upvc pipe	No.	7	R	-	R	-
14	350 x 350 x 50mm thick precast concrete inspection eye marker slab finished smooth on exposed surfaces with letters "I.E" or "I.O" on top and placed flush in ground or paving	No.	3	R	-	R	-
15	Testing soil drainage system	Item		R	-	R	-
	Manhole covers						
	Precast concrete manholes with medium duty concrete manhole cover and frame bedded in 1:3 cement mortar, spacers bedded in 1:6 cement mortar and precast concrete slab including excavation, backfilling, compaction, risk of collapse, cartaway surplus material, 300mm thick unreinforced 20MPa/19mm concrete base projection 75mm wide from walls, benching, junctions, channeling and step irons						
16	980mm diameter (internally) Precast concrete manhole not exceeding 1m deep	No.	6	R	-	R	-
17	980mm diameter (internally) Precast concrete manhole exceeding 1m deep and not exceeding 2m deep	No.	6	R	-	R	-
	Sewer connection						
18	Cutting into sides of existing manhole chamber for and connecting 110mm pipe including inserting 110mm channel junction and making good concrete benching	No.	2	R	-	R	-
	WATER RETICULATION						
	PREAMBLES						
	The contractor is referred to the General Preambles for trades 2017 published by the Association of South Africa Quantity Surveyors before pricing						
	WATER PIPEWORK						
	HDPE PE 100PN 12.5 pipes including excavation, bedding, backfilling, and compaction and disposal of surplus material						
19	25mm pipes laid in and including trenches not exceeding	m	150	R	-	R	-

	1m deep						
	Extra over HDPE						
20	25mm elbow	No.	3	R	-	R	-
21	25mm equal tee	No.	12	R	-	R	-
	TRAPS ETC						
	Supply and install						
22	38mm wash hand basin “P” trap	No.	12	R	-	R	-
	TAPS, VALVES, ETC						
	Supply and install						
23	15mm Push button pillar tap.	No.	7	R	-	R	-
24	Flexi connector	No.	8	R	-	R	-
25	15 Brass Gate Valve	No.	5	R	-	R	-
26	Mini Ball Valve	No.	6	R	-	R	-
27	22mm Brass Gate Valve including cast iron valve box	No.	2	R	-	R	-
	Extra over PVC pipes for fittings						
28	110mm pan connector completely	No.	4	R	-	R	-
29	110 PVC pipes 87.5 degree soil and vent horn access heel bend	No.	4	R	-	R	-
30	110 PVC pipe with all the fittings	m	10	R	-	R	-
	WATER SUPPLIERS						
	Class “O” copper pipe						
31	15mm pipes	m	20	R	-	R	-
32	15mm pipes chased into brick walls and make good	m	50	R	-	R	-
	Extra over class “O” copper pipes for capillary fittings						
33	15mm fitting	No.	20	R	-	R	-

34	15mm Tee	No.	15	R	-	R	-
RAINWATER DISPOSAL SYSTEMS							
0.8mm galvanized sheet iron including painting to Prasa colours							
35	150 x 150mm eaves gutter with bracket at every 1m intervals	m	30	R	-	R	-
36	Extra over 150 x 150mm eaves gutter for stopped end	No.	8	R	-	R	-
37	Extra over 150 x 150mm eaves gutter for outlet for 0.15mm pipe	No.	8	R	-	R	-
38	0.15mm rainwater pipes	m	35	R	-	R	-
39	Extra over 0.15mm rainwater pipe for shoe	No.	8	R	-	R	-
	Carried to final summary					R	-
	<u>BILL NO.10</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
	<u>METAL WORK</u>						
	SECURITY GATES						
	Supply and install Burglar door						
1	900 x 2100mm high Heavy duty Burglar door and frame with 16mm steel round bar and 40 x 40 x 2.5mm square tubing as per attached drawing for single door	No.	5	R	-	R	-
	Supply and install Burglar window						
2	1m W x 1m H Box windows guard constructed with 5mm of expanded metal and 50 x 50 x 6mm equal angles. To be briefly explain during the briefing session.	No.	1	R	-	R	-
	ALUMINIUM WINDOWS						
	Standard residential window						
3	Window type PT66 Bronze 600 x 600mm high	No.	25	R	-	R	-
4	Horizontal bronze sliding window 1790w x 890h opening right and left	No.	2	R	-	R	-

Carried to final summary						R	-
	<u>BILL NO.11</u> <u>ROOF COVERING ETC</u> <u>PROFILED METAL SHEETING AND ACCESSORIES</u> <u>Roof sheeting to be Concealed Fix interlocking "KLIP-LOK 700", 0,58mm thick heavy industrial Z275 spelter galvanised steel sheeting with Chromadek, ColorPlus, Colourbond or Globalcoat finish to one side and Grey other side and accessories, fixed to steel purlins using SL 700 approved clips and fasteners. Cover width 700mm. High wind - 120km/h plus - loading to be considered with installation and fixing must be in accordance with manufacturer's recommendations and specifications.</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
1	Roof covering with pitch not exceeding 25 degrees	m ²	260	R	-	R	-
2	450mm galvanized steel roll top ridge	m	45	R	-	R	-
Carried to final summary						R	-
	<u>BILL NO. 12</u> <u>GLAZING</u> <u>GLAZING TO STEEL WITH PUTTY</u> <u>4mm obscure glass</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	
1	Panels exceeding 0.1m ² and 0.5 m ² <u>6.38mm white arctic snow obscure safety glass</u>	m ²	10	R	-	R	-
2	Panels exceeding 0.1m ² and 0.5 m ²	m ²	20	R	-	R	-
Carried to final summary						R	-

<u>BILL NO. 13</u>		<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>
<u>PAINTWORK</u>						
For preambles see “Model Preambles for Trades” 2008 edition published by the Association of South African Quantity Surveyors						
SUPPLEMENTARY PREAMBLES						
Paint:						
All paint, complete with undercoat, primer, etc. to be used strictly in accordance with the manufactures specification. Only paint which bears the described trade names will be permitted onsite. No Substitution will be allowed						
Previously painted metal surfaces						
Surfaces shall be thoroughly rubbed and cleaned down. Blistered or peeling paint shall be completely removed down to bare metal						
Previously painted wood surfaces						
Surfaces shall be thoroughly cleaned down. Blistered or peeling paint shall be completely removed and cracks and crevices shall be primed, filled with a suitable filler and finished smooth						
PAINTWORK, ETC TO NEW WORK						
One coat professional plaster primer and two coats contractors White Gloss Enamel						
1	On gutters and downpipes	m ²	25	R	-	R -
2	On fascia and barge boards	m ²	25	R	-	R -
One coat professional plaster primer and two coats contractors Brick and Slasto Dressing/Brick seal						
3	On internal and external face brick walls	m ²		R	-	R -

	ON WOOD One coat wood primer, one Universal Undercoat and two coats PRASA Brown						
4	On Doors	m ²	30	R	-	R	-
	<u>ON METAL</u> One coat zinc chromate primer, one Undercoat and two coats Professional Gloss Enamel						
5	On rails, bars, window frames, door frames, burglar gates, gates, gutters and down pipes	m ²	20	R	-	R	-
	PAINTWORK, ETC TO PREVIOUSLY PAINTED WORK ON FLOATED PLASTER Wash with polycell sugar soap and rinse with clean water to remove all traces of soap, remove all loose flaking paint and repair any cracks and defects, spot prime bare and repaired areas with bonding liquid and apply one coat sealer and two coats of interior quality nonconductive floor epoxy paint						
6	On floors	m ²	0	R	-	R	-
	Carried to final summary					R	-
	<u>BILL NO. 14</u> <u>PAVING WORK</u> <u>Earthworks</u> <u>Supplementary and preambles</u> Excavation: No claim for rock excavation will be entertain unless the contractor has timeously notified the project manager thereof prior to backfilling	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>		<u>Amount</u>	

	Laying, backfilling, bedding, etc						
	Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instruction						
	Where no manufacturers' instruction exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of SABS 1200 L						
	Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7, and 7 of SABS 1200 DB						
	Earthworks (Pipe trenches)						
	Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB : Bedding (Pipes)						
	<u>Leave site in good condition</u>						
	The contractor shall leave the site where plumbing was executed, clean and neat at completion.						
	Cut and borrow to fill including all material, site to be located by the contractor						
1	G5 Material in compacted layer thickness 200mm less compacted to 90% modified AASHTO density	m ³	600	R	-	R	-
	Extra over for excavation and breaking down material in:						
2	Soft rock	m ³	120	R	-	R	-
3	Hard rock	m ³	40	R	-	R	-
	Cut to spoil or stockpile, site to be located by the contractor						
	Material obtained from						
4	Soft excavation	m ³	40	R	-	R	-
5	Hard excavation	m ³	40	R	-	R	-
6	Rip to 450mm of all previous compacted areas	m ³	300	R	-	R	-

	EXCAVATION, FILLING, ETC						
	Excavation in earth not exceeding 1m deep						
7	Trenches for kerbs and kerbing support	m ³	100	R	-	R	-
8	Holes for catchpits	m ³	40	R	-	R	-
	Cut and borrow to fill including all material, site to be located by the contractor						
9	Material in compacted layer thickness 200mm and less, compacted to 90% Mod AASHTO density	m ³	00	R	-	R	-
	Earth filling obtain from the excavation and/or prescribed stock piles on site compacted to 93% Mod AASHTO density						
10	Backfilling to trenches	m ³	120	R	-	R	-
	Compaction of surfaces						
11	Remove all unwanted vegetation, level ground and create a natural fall for drainage, Compaction of ground surface under floors etc	m ²	600	R	-	R	-
	Carried to final summary					R	-

SUMMARY TO FINAL – SECTION B**ELANDSFONTEIN PERWAY GUARD ROOM**

	STATION NAME	PAGE	AMOUNT
1	Alterations	33	R -
2	Earthworks	34	R -
3	Concrete work	35	R -
4	Masonry	37	R -
5	Waterproofing	39	R -
6	Carpentry and Joinery	40	R -
7	Tiling work	43	R -
8	Ironmongery	44	R -
9	Plumbing work	44	R -
10	Metal work	48	R -
11	Roof covering	49	R -
12	Glazing	49	R -
13	Painting	50	R -
15	Paving work	51	R -
SUB TOTAL			R -
ADD VAT @ 15%			R -
TOTAL FINAL SUMMARY			R -

PROVISIONAL SCHEDULE OF QUANTITIES
ELECTRICAL WORK AT ELANDSFONTEIN ELECTRICAL
FACILITIES DEPOT

	OCCUPATIONAL HEALTH AND SAFETY	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>
	The contractor shall comply with all the requirements set out in the Construction Regulations, issued under The Occupational Health & Safety Act no 85 of 1993. Safety file shall be provided by the contractor prior to commencement of work. 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. Note: All designated items should comply with local content threshold.				
	<u>BILL NO.1</u>	<u>Unit</u>	<u>QTY</u>	<u>Rate</u>	<u>Amount</u>
	<u>ELECTRICAL WORK</u>				
	LED Light fittings				
1	1500m (5 foot) 58w Open channel LED Fluorescent fittings double tubes for ticket office building	No.	36	R -	R -
2	150w Flood LED luminaire manufactured from high pressure unpainted die - cast aluminium housing complying with SANS 60588 --5. Both LED engine and power supply	No.	24	R -	R -
3	7w LED bulk head fittings completely with bulbs	No.	3	R -	R -
	PLUGS				
4	4 X 4 Double plug	No.	15	R -	R -
5	4 X 4 Single plugs	No.	15	R -	R -
	Electrical casing				

6	25 x 40mm PVC trunking	m	90	R	-	R	-
7	20mm PVC SABS conduit completely with all the couplings, saddle, spacer bar assembly and heavy duty U clamps	m	150	R	-	R	-
8	20mm galvanized SABS conduit completely with all the couplings and heavy duty U clamps	m	60	R	-	R	-
9	40mm PVC SABS conduit completely with all the couplings, saddle, spacer bar assembly and heavy duty U clamps	m	110	R	-	R	-
<u>SWITCHES</u>							
10	White 1 lever 2 way switch	No.	6	R	-	R	-
11	White 2 lever 1 way switch	No.	15	R	-	R	-
Electrical cables							
12	35mm ² PVC 4 core cable 600/1000V main supply on earth not exceeding 1m deep covered with concrete and re-surfacing after cable has been laid	m	450	R	-	R	-
13	2.5mm ² suffix cable or GP wire for plugs	m	300	R	-	R	-
14	1.5mm ² suffix cable or GP wire for lights	m	300	R	-	R	-
Circuit breakers							
15	40 Amp circuit breaker	No.	9	R	-	R	-
16	20 Amp circuit breaker	No.	12	R	-	R	-
17	63 A Main circuit breaker	No.	6	R	-	R	-
18	63 A earth leakage	No.	4	R	-	R	-
19	100 Amp main circuit breaker	No.	3	R	-	R	-

20	Wall mounted 40A isolator	No.	6	R	-	R	-
	<u>Distribution board</u>						
21	Supply, install and commission new Single phase indoor 13mm IP 40 white wall mounted DB board completely supplied with adjustable galvanized wall tray, c/w earth, neutral bars with all circuit breakers mounted on wall and make good	No.	4	R	-	R	-
	HVAC Systems						
22	Supply, install and commission new 24000 BTU split unit, inverter technology air conditioner completely with all accessories (drain pipe, amorflex, copper pipe, refrigerant, cable, communication wire, brackets, circuit breaker, isolator, etc)	No.	6	R	-	R	-
	Motor gate						
23	Supply, install and commission new 24Vdc electromechanical Heavy Duty gear motor with built in control unit battery charger, base plate, 2 batteries 12v, limit switch cams, 4m rack, 2 remotes, anti-theft brackets and to be equipped with power pack, external receiver and wall mounted console system controlled from the guard room 40m away from the motor gate, etc completely installed and working for gates up to 1200 kg's.	No.	1	R	-	R	-
	<u>SWITCHES</u>						
24	Daylight switches	No.	10	R	-	R	-
	<u>STANDBY GENERATOR</u>						
25	Supply, install and commission new 41KVA diesel Generator including canopy, 38kva prime power, maximum 41kva standby, 380v, 1500 RPM 75 liter tank: 13 hours runtime @ 75% load built in AVR delivers non fluctuating power starter motor 4.5kw 24v electric starter 4 cylinder 4 stroke powerful diesel engine 3 phase out put 38Kva prime silent diesel generator with 100A three phase automatic transfer switch	No.	1	R	-	R	-

26	<u>EAR THING</u> Earth bonding for all the buildings as per SANS 10142 and the specification.	No.	1	R	-	R	-
27	<u>ELECTRICAL COMPLIANCE</u> All work to comply to SANS 10142 Compliance certificate to be provided on completion Pricing to include all necessary complete connection Certificate of compliance and all other testing required including 12 month guarantee	Item	1	R	-	R	-
Carried to final summary						R	-

ELECTRICAL WORK FINAL SUMMARY

ELECTRICAL WORK AT THE GUARD ROOM AND ABLUTION

	STATION NAME	PAGE	AMOUNT
1	Electrical work	55 to 58	R -
SUB TOTAL			R -
ADD VAT @ 15%			R -
TOTAL			R -

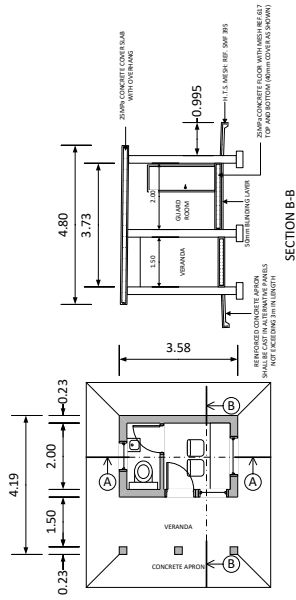
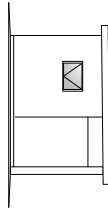
ELANDSFONTEIN GUARD ROOM AND ABLUTION FINAL SUMMARY**SECTION B**

	STATION NAME	PAGE	AMOUNT
1	Annexure A : Preliminary and General	33	R -
2	Annexure B : General building works	3 to 54	R -
3	Annexure C Electrical work	55 to 58	R -
SUB TOTAL			R -
ADD VAT @ 15%			R -
TOTAL AMOUNT TO SECTION C			R -

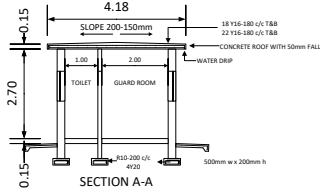
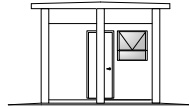
FINAL SUMMARY ELANDSFONTEIN ELECTRICAL DEPOT UPGRADE

FINAL SUMMARY SECTION A MINOR UPGRADE OF ELANDSFONTEIN ELECTRICAL DEPOT	R
FINAL SUMMARY SECTION B BUILDING OF GUARD ROOM AND ABLUTION.	R
TOTAL SUMMARY	R

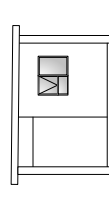
ELEVATION B-B



ELEVATION A



ELEVATION B



ELANDSONTEIN ABLUTION PROPOSED PLAN

