

Al Baidah Eco Village - Petra, Jordan

Volumes 1, 2 and 3 – Conditions of Contract – “Re-measured Contract”

Volume 4 – Specification and Soil Report

Volume 5 – Bills of Quantities & Preambles

Volume 6 – Drawings

October 2015

BILL 1/2 - VILLAGE

DIVISION 03 - CONCRETE

Al Baidah Eco Village - Petra, Jordan

**BILL NO. 1/2 - Village
DIVISION 3 - CONCRETE**

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	CONCRETE				
	SUBSTRUCTURE				
	03 21 00 - Reinforcement Bars				
	Deformed high yield steel bar reinforcement of characteristic strength FY=460N/mm², including bending, hooks, tying wires, distance blocks, chairs and spacers, complete as per Specification and Drawings				
A	Various diameters for kheir trail	94,819	kg		
B	Various diameters for swimming pools and amenities	14,227	kg		
C	Various diameters for restaurant	74,961	kg		
	03 10 00 - Concrete Forming and Accessories				
	032200- Fabric and Grid Reinforcing				
	03 30 00 - Cast-In-Place Concrete				
	033500 - Concrete Finishing				
	03 39 00 - Concrete Curing				
	Plain concrete (C15), 15 N/mm² at 28 days cube compressive strength with ordinary Portland cement including all necessary plain formwork, complete as per Specification and Drawings				
D	Blinding, 100mm thick, under foundations for kheir trail	133	m3		
E	Blinding, 50mm thick, under slab on grade for kheir trail	157	m3		
F	Blinding, 100mm thick, under slab on grade for swimming pools	21	m3		
G	Blinding, 100mm thick, under foundation for swimming pools pump rooms	4	m3		
H	Blinding, 50mm thick, under slab on grade for pool amenities	2	m3		
I	Blinding, 100mm thick, under foundations for pool amenities	3	m3		
J	Blinding, 100mm thick, under raft foundations for restaurant	100	m3		
K	Blinding, 50mm thick, under slab on grade for restaurant	64	m3		
Carried to Collection					

Al Baidah Eco Village - Petra, Jordan

**BILL NO. 1/2 - Village
DIVISION 3 - CONCRETE**

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	CONCRETE (Cont'd)				
	SUBSTRUCTURE (Cont'd)				
	03 10 00 - Concrete Forming and Accessories				
	032200- Fabric and Grid Reinforcing				
	03 30 00 - Cast-In-Place Concrete				
	033500 - Concrete Finishing				
	03 39 00 - Concrete Curing				
	Reinforced concrete (C25), 25N/mm² at 28 days cube compressive strength with ordinary Portland cement, all necessary plain formwork, construction joint, complete as per Specification and Drawings				
A	Grade beams for kheir trail	448	m3		
B	Strip footing for kheir trail	197	m3		
C	Slab on grade for kheir trail, 150mm thick	469	m3		
D	Walls for kheir trail, 250mm thick	252	m3		
E	Stairs for kheir trail	22	m3		
F	Slab on grade for pool amenities, 200mm thick	5	m3		
G	Strip footing for pool amenities	7	m3		
H	Walls for pool amenities, 200mm thick	8	m3		
	Reinforced concrete (C30), 30 N/mm² at 28 days cube compressive strength with ordinary Portland cement, all necessary plain formwork, construction joint, complete as per Specification and Drawings				
F	Restaurant Raft	703	m3		
G	Restaurant Slab on Grade, 100mm thick	96	m3		
H	Restaurant basement walls	75	m3		
I	Restaurant steps on grade	40	m3		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - Village
DIVISION 3 - CONCRETE

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>CONCRETE (Cont'd)</u>				
	<u>SUBSTRUCTURE (Cont'd)</u>				
	<u>03 10 00 - Concrete Forming and Accessories</u>				
	<u>032200- Fabric and Grid Reinforcing</u>				
	<u>03 30 00 - Cast-In-Place Concrete</u>				
	<u>033500 - Concrete Finishing</u>				
	<u>03 39 00 - Concrete Curing</u>				
	Reinforced concrete (C40), 40 N/mm ² at 28 days cube compressive strength with ordinary Portland cement, all necessary plain formwork, construction joint, complete as per Specification and Drawings				
A	Swimming pools slab on grade	90	m3		
B	Swimming pools walls	30	m3		
C	Pump room foundation	20	m3		
D	Pump room walls	31	m3		
E	Pump room Slabs	10	m3		
F	Water tank walls at restaurant	28	m3		
F	Water tank slab on grade	13	m3		
G	Water tank suspended slab	13	m3		
	<u>Sundries</u>				
	Hydrophilic water stops including all necessary fixings and overlaps, complete				
G	For swimming pools	12	m		
H	For water tank at restaurant	42	m		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

**BILL NO. 1/2 - Village
DIVISION 3 - CONCRETE**

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	CONCRETE (Cont'd)				
	SUPERSTRUCTURE				
	03 21 00 - Reinforcement Bars				
	Deformed high yield steel bar reinforcement of characteristic strength $FY=460N/mm^2$, including bending, hooks, tying wires, distance blocks and spacers, complete as per Specification and Drawings				
A	Various diameters for restaurant	64,900	Kg		
	03 10 00 - Concrete Forming and Accessories				
	032200- Fabric and Grid Reinforcing				
	03 30 00 - Cast-In-Place Concrete				
	033500 - Concrete Finishing				
	03 39 00 - Concrete Curing				
	Reinforced concrete (C30), 30 N/mm ² at 28 days cube compressive strength with ordinary Portland cement, all necessary plain formwork, construction joint, complete as per Specification and Drawings				
B	Restaurant suspended slabs, 350mm thick	378	m3		
C	Restaurant columns	26	m3		
D	Restaurant Stairs	20	m3		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - Village
DIVISION 3 - CONCRETE

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>CONCRETE (Cont'd)</u> <u>COLLECTION</u> From Page - B1/2-Div.3/Page 1 From Page - B1/2-Div.3/Page 2 From Page - B1/2-Div.3/Page 3 From Page - B1/2-Div.3/Page 4				
BILL 1/2 - DIVISION 03 - CONCRETE / CARRIED TO SUMMARY				JD	

BILL 1/2 - VILLAGE

DIVISION 04 - MASONRY

Al baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE
DIVISION 4 - MASONRY

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>MASONRY</u>				
	<u>04 22 00 - Concrete Unit Masonry</u>				
	Hollow concrete block works including mortar beds, joints, concrete lintels, jambs, heads, sills, cutting, bonding and tie beams and stiffener columns, complete				
	<u>Internal Wall</u>				
A	Hollow block wall, 100mm thick for restaurant	50	m2		
B	Hollow block wall, 150mm thick for restaurant	370	m2		
	Solid concrete block works including mortar beds, joints, concrete lintels, jambs, heads, sills, cutting, bonding and tie beams and stiffener columns, complete				
C	Solid block wall, 100mm thick for restaurant	7	m2		
D	Solid block wall, 150mm thick for restaurant	40	m2		
Carried to Collection				JD	

Al baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE
DIVISION 4 - MASONRY

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>MASONRY (Cont'd)</u> <u>COLLECTION</u> From Page - B1/2-Div.4/Page 1				
BILL 1/2 - DIVISION 04 - MASONRY / CARRIED TO SUMMARY				JD	

BILL 1/2 - VILLAGE

DIVISION 05 - METALS

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 5 - METALS

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<p><u>METALS</u></p> <p><u>NON-STRUCTURAL STEEL WORK</u></p> <p><u>05 50 00 Metal fabrications</u></p> <p><u>05 51 33 - Metal Ladders</u></p> <p>Supply and install ready made hot dip galvanized steel service ladders including fabrication, spacing, side rails, rungs, decorations and all necessary accessories as shown on Drawings and Specification, fixing in position complete</p>				
A	To pool mechanical room	2	No.		
	<p>Aluminum access panels including all necessary fixings, fittings, accessories, hardware, welding, bolts and anchors, complete</p>				
B	Access panel for swimming pool pump room	2	No.		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE
DIVISION 5 - METALS

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>METALS (Cont'd)</u> <u>COLLECTION</u> From Page - B1/2-Div.5/Page 1				
	BILL 1/2 - DIVISION 05 - METALS / CARRIED TO SUMMARY			JD	

BILL 1/2 - VILLAGE

DIVISION 06 - WOOD, PLASTICS & COMPOSITES

Al Baidah Eco Village - Petra, Jordan

BILL NO.1/2 - VILLAGE

DIVISION 6 - WOODS, PLASTICS AND COMPOSITES

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>WOODS, PLASTICS AND COMPOSITES</u>				
	<u>06 15 13 Wood Floor Decking</u>				
	Supply and construction of pool decking including finishes, expansion joints, caulking, drains, fixing accessories and all other related works, complete all in accordance with the drawing and specification				
A	For Sun and moon swimming pools	96	m2		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO.1/2 - VILLAGE

DIVISION 6 - WOODS, PLASTICS AND COMPOSITES

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<p><u>METALS (Cont'd)</u></p> <p><u>COLLECTION</u></p> <p>From Page - B1/2-Div.6/Page 1</p>				
BILL 1/2 - DIVISION 06 - WOODS, PLASTICS AND COMPOSITES /CARRIED TO SUMMARY				JD	

BILL 1/2 - VILLAGE

DIVISION 07 - THERMAL & MOISTURE PROTECTION

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 -VILLAGE

DIVISION 7 -THERMAL AND MOISTURE PROTECTION

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>THERMAL AND MOISTURE PROTECTION</u>				
	<u>07 13 52 - Modified Bituminous Sheet Water Proofing</u>				
	One layer 4mm thick, torch applied asphalt waterproofing membrane				
A	To foundations and walls below grade for keir trail	5,915	m2		
B	Under slab on grade for kheir trail	3,207	m2		
C	To swimming pools and pump rooms	550	m2		
D	To restaurant raft	802	m2		
E	To restaurant basement walls	330	m2		
F	Under slab on grade for restaurant	286	m2		
G	Under slab on grade for amenities	18	m2		
H	To foundations and walls below grade for amenities	127	m2		
	<u>07 26 00 - Vapor Retarders</u>				
	0.15mm thick polyethylene sheet vapor barrier, including all necessary fixings, fittings and accessories, complete as per Specification and Drawings				
I	To foundations for keir trail	5,915	m2		
J	Under slab on grade for kheir trail	3,207	m2		
K	To swimming pools and pump rooms	329	m2		
L	To restaurant raft	730	m2		
M	Under slab on grade for restaurant	286	m2		
N	Under slab on grade for amenities	18	m2		
O	To foundations and walls below grade for amenities	21	m2		
	Epoxy paint including all necessary preparation works and under coats, complete				
P	To water tank at restaurant	175	m2		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 -VILLAGE

DIVISION 7 -THERMAL AND MOISTURE PROTECTION

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>THERMAL AND MOISTURE PROTECTION (Cont'd)</u> <u>COLLECTION</u> From Page - B1/2-Div.7/Page 1				
	BILL 1/2 - DIVISION 07 - THERMAL AND MOISTURE PROTECTION / CARRIED TO SUMMARY			JD	

BILL 1/2 - VILLAGE

DIVISION 9 - FINISHES

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 9 - FINISHES

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>FINISHES</u>				
	<u>INTERNAL FINISHES</u>				
	<u>09 24 00 - Cement Plaster</u>				
	Cement and sand plastering to block or concrete walls to receive finishes (finishes measured separately) including background preparation and accessories, all in accordance with the drawings and specification				
A	To internal walls, 25mm thick to received finish	115	m2		
	25mm thick cement sand plastering to soffit of slab to receive paint finishes (measured separately) complete all in accordance with the drawings and specification				
B	To internal ceiling, 25mm thick to received finish	61	m2		
	<u>09 30 13 - Ceramic Tiles</u>				
	<u>Floor finishes</u>				
	Ceramic floor tiles; including mortar, sand fill and approved grout to match tile, cement screed (measured separately) and accessories, all in accordance with the drawing and specification				
B	Heavy duty ceramic tiles 300x300mm	61	m2		
	<u>Skirting</u>				
	Ceramic tile skirting including background preparation, adhesive, grout to match tile and accessories, complete; all in accordance with the drawing and specification				
C	50mm high ceramic skirting, heavy duty	37	m		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE
DIVISION 9 - FINISHES

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>FINISHES (Cont'd)</u>				
	<u>INTERNAL FINISHES (Cont'd)</u>				
	<u>09 91 23 - Interior Painting</u>				
	Wall paint finish on concrete / plastered wall (measured separately) and accessories, all in accordance with the drawing and specification				
A	Emulsion paint	115	m2		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE
DIVISION 9 - FINISHES

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>FINISHES (Cont'd)</u> <u>COLLECTION</u> From Page - B2/2-Div.9/Page 1 From Page - B2/2-Div.9/Page 2				
BILL 1/2 - DIVISION 09 - FINISHES / CARRIED TO SUMMARY				JD	

BILL 1/2 - VILLAGE

DIVISION 13 - SPECIAL CONSTRUCTION

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 13 - SPECIAL CONSTRUCTION

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>SPECIAL CONSTRUCTION</u>				
	<u>13 11 00.00.10 - Swimming Pools Architectural and Structural Requirements</u>				
	<u>Supply and construction of swimming pool including civil works, waterproofing works, finishes, electrical works, plumbing works, equipment's and all other related works to complete the works; all in accordance with Specification and drawings</u>				
A	20mm screed with plasticizer	197	m2		
B	3-layers Cementitious Water proofing layer, horizontal	197	m2		
C	3-layers Cementitious Water proofing layer, vertical	99	m2		
D	Alkali-resistant glass fiber mesh	197	m2		
E	Grey Mosaic tiles 2x2cm including adhesive, to swimming pool floor	197	m2		
F	Grey Mosaic tiles 2x2cm including adhesive, to swimming pool wall	99	m2		
G	Channel grating	75	m2		
H	Grating trench	75	m2		
J	Stainless steel handrail, including stainless steel step ladder, white rubber bumper, anchor socket and escutcheon plate		Item		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 13 - SPECIAL CONSTRUCTION

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>SPECIAL CONSTRUCTION (Cont'd)</u>				
	<u>13 11 00.00.10 - Swimming Pools Architectural and Structural Requirements (cont'd)</u>				
	<u>Supply and construction of swimming pool including civil works, waterproofing works, finishes, electrical works, plumbing works, equipment's and all other related works to complete the works; all in accordance with Specification and drawings</u>				
	Swimming Pools				
A	Inlet Fittings, Ref. "IF"	14	No.		
B	Overflow, Ref. "O.F"	7	No.		
C	Bottom drain, Ref. "BD"	3	No.		
D	Vacuum fitting, Ref. "VF"	2	No.		
E	PVC pipework and fittings				
	1. Diam.32 mm (1 1/4")	7	MR		
	2. Diam.40 mm (1 1/2")	5	MR		
	3. Diam.50 mm (2")	7	MR		
	4. Diam.75 mm (3")	15	MR		
	5. Diam.110 mm (4")	140	MR		
	Pipe Sleeves Penetrating Structural Walls For Pipes Of Diameters:	1	L.S		
F	Surge Tank				
G	WT-01	1	No.		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 13 - SPECIAL CONSTRUCTION

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
<u>13 11 00.00.10 - Swimming Pools Architectural and Structural Requirements (Cont'd)</u>					
A	Surge Tank Accessories	1	LS		
B	Isolating valves for piping networks				
	1. Diam.32 mm (1 1/4")	4	No.		
	2. Diam.110 mm (4")	6	No.		
C	Check valves for piping networks				
	1. Diam.32 mm (1 1/4")	1	No.		
	2. Diam. 110 mm (4")	1	No.		
D	Double regulating valves for piping networks				
	1. Diam. 110 mm (4")	1	No.		
	Hi-rate sand filter				
E	Ref. SFL-1	1	No.		
	Water circulating pump complete with hair lint, strainer				
F	Ref. CP-1	2	No.		
G	Acid Dosing Pump with Tank	1	No.		
H	Soduim Hypochlorinate Dosing Pump with Tank	1	No.		
J	Aluminuim Sulphate Dosing Pump with Tank	1	No.		
K	Pool Heat Pump				
L	Ref. PHP-01	1	No.		
Carried To Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 13 - SPECIAL CONSTRUCTION

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>SPECIAL CONSTRUCTION (Cont'd)</u>				
	<u>13 11 00.00.10 - Swimming Pools Architectural and Structural Requirements (cont'd)</u>				
	<u>Supply and construction of Jacuzzi including civil works, waterproofing works, finishes, electrical works, plumbing works, equipment's and all other related works to complete the works; all in accordance with Specification and drawings</u>				
	<u>Jacuzzi</u>				
A	Inlet Fittings, Ref. "IF"	4	No.		
B	Overflow, Ref. "O.F"	4	No.		
C	Bottom drain, Ref. "BD"	2	No.		
D	'Suction outlet, Ref. "OS"	4	No.		
E	Jet Inlet, Ref. "JI"	24	No.		
F	Air Blower Perforated Pipe				
	1. Dia. 40mm	12	M.R.		
G	Surge Tank Accessories	1	LS		
H	PVC pipework and fittings				
	1. Diam.32 mm (1 1/4")	14	MR		
	2. Diam.40 mm (1 1/2")	65	MR		
	3. Diam.65 mm (2 1/2")	95	MR		
	4. Diam.75 mm (3")	50	MR		
	5. Diam.110 mm (4")	100	MR		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 13 - SPECIAL CONSTRUCTION

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>SPECIAL CONSTRUCTION (Cont'd)</u>				
	<u>13 11 00.00.10 - Swimming Pools Architectural and Structural Requirements (cont'd)</u>				
A	Pipe Sleeves Penetrating Structural Walls For Pipes Of Diameters:	1	L.S		
B	Water circulating pump complete with hair lint strainer				
	Ref. CP-02	2	No.		
	Ref. CP-03	2	No.		
C	Hi-rate sand filter				
	1.Ref. SFL-2	1	No.		
	2.Ref. SFL-3	1	No.		
D	Surge Tank				
	WT-02	1	No.		
	WT-03	1	No.		
E	Jet pump complete with hair lint strainer				
	Ref. JP-1	2	No.		
	Ref. JP-2	2	No.		
F	Air blower complete with strainer				
	Ref. AB-1	1	No.		
	Ref. AB-2	1	No.		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 13 - SPECIAL CONSTRUCTION

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
<u>SPECIAL CONSTRUCTION (Cont'd)</u>					
<u>13 11 00.00.10 - Swimming Pools Architectural and Structural Requirements (cont'd)</u>					
A	Acid Dosing Pump with Tank	2	No.		
B	Sodium Hypo chlorinate Dosing Pump with Tank	2	No.		
C	Heat Exchanger				
	Ref. HEX-1	1	No.		
	Ref. HEX-2	1	No.		
D	Isolating valve				
	1. Diam.32 mm (1 1/4")	6	No.		
	2. Diam.40 mm (1 1/2")	2	No.		
	3. Diam.65 mm (2 1/2")	4	No.		
	4. Diam.75 mm (3")	8	No.		
	5. Diam.110 mm (4")	4	No.		
E	Check valves for piping networks				
	1. Diam.32 mm (1 1/4")	2	No.		
	2. Diam. 110 mm (4")	2	No.		
F	Double regulating valves for piping networks				
	1. Diam.75 mm (3")	2	No.		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 13 - SPECIAL CONSTRUCTION

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>SPECIAL CONSTRUCTION (Cont'd)</u>				
	<u>COLLECTION</u>				
	From Page - B1/2-Div.13/Page 1				
	From Page - B1/2-Div.13/Page 2				
	From Page - B1/2-Div.13/Page 3				
	From Page - B1/2-Div.13/Page 4				
	From Page - B1/2-Div.13/Page 5				
	From Page - B1/2-Div.13/Page 6				
	BILL 1/2 - DIVISION 13 - SPECIAL CONSTRUCTION / CARRIED TO SUMMARY			JD	

BILL 1/2 - VILLAGE

DIVISION 22 - PLUMBING

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 22 - PLUMBING

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>PLUMBING</u>				
	<u>22 00 00 - Plumbing</u>				
	<u>Domestic Water System</u>				
	Pipes for cold and Softened water supply for pipe runs Underground				
A	Diam. 25 mm (1")	80	MR		
B	Diam. 40 mm (1 1/2")	150	MR		
C	Diam. 50 mm (2")	180	MR		
D	Diam. 63 mm (2 1/2")	135	MR		
E	Diam. 75 mm (3")	165	MR		
F	Diam. 110 mm (4")	115	MR		
	Isolating valves for piping networks according to specifications.				
G	Diam. 40 mm (1 1/2")	2	No.		
H	Diam. 50 mm (2")	2	No.		
	Valves with Valves Chambers For Domestic Water				
J	Diam 20mm	40	No.		
K	Diam 25mm	80	No.		
L	Water Reservoir Accessories	1	No.		
	HDPE pipes for cold and Softened water supply for pipe				
M	Diam. 50 mm (2")	10	MR		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 22 - PLUMBING

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	PLUMBING (Cont'd)				
	22 00 00 - Plumbing (Cont'd)				
	UPVC Drainage Pipes And Fittings for Below Ground Installations				
A	Diam. 100 mm (4")	140	MR		
B	Diam. 150 mm (6")	250	MR		
C	Diam. 200 mm (8")	640	MR		
	Perforated Pipe				
D	Diam. 110mm	80	M.R.		
E	Drain Stub Up	55	No.		
	Polypropylene Drain for Kitchen				
D	Diam. 150 mm (6")	50	MR		
	Submersible Pit Complete With Submersible pump sets.				
E	Ref. SMP-1	1	Set		
	Grease Interceptor				
F	Ref. GI-1	1	No.		
	Manholes for sewage and rain water drainage				
H	Depth < 1500 mm	30	No.		
J	Depth > 1500 mm	11	No.		
	Trench drain outlets				
L	Diam. 150mm	3	No.		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 22 - PLUMBING

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	22 00 00 - Plumbing (Cont'd)				
	Rain water drain outlets				
A	Ref. RWO-2	2	No.		
	Gully Trap				
B	Ref. GT-1	4	No.		
	Planter Drain				
C	Ref. PD-1	2	No.		
	Trenches Including Frames And Heavy Duty Cast Iron Gratings for Mechanical Rooms & Laundry area as per drawings				
D	Size 300 x300 (Width x Depth)	5	MR		
	Fuel & LPG System				
	Below Ground Fuel Oil Tank				
E	Ref. FOT-1	1	No.		
	Black steel pipes, seamless schedule 40, with malleable threaded complete with denso tape protection.				
F	Diam. 25mm (1")	20	MR		
G	Quick Coupling Filling	1	No.		
	Isolating valve				
H	Diam. 25mm (1")	3	No.		
Carried To Collection				JD	0.00

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 22 - PLUMBING

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<p><u>PLUMBING (Cont'd)</u></p> <p align="center"><u>COLLECTION</u></p> <p>From Page - B1/2-Div.22/Page 1</p> <p>From Page - B1/2-Div.22/Page 2</p> <p>From Page - B1/2-Div.22/Page 3</p>				
	BILL 1/2 - DIVISION 22 - PLUMBING				
	CARRIED TO SUMMARY			JD	

BILL 1/2 - VILLAGE

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)</u>				
	<u>23 00 00 - Air Supply, Distribution, Ventilation And Exhaust Systems</u>				
	PPR-CT Heating Water pipes and fittings with Insulation				
A	Diam. 32 mm (1 1/4")	500	MR		
B	Diam. 40 mm (1 1/2")	340	MR		
C	Diam. 50 mm (2")	100	MR		
D	Diam. 63 mm (2 1/2")	600	MR		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<p><u>HEATING, VENTILATING, AND AIR CONDITIONING (HVAC) (Cont'd)</u></p> <p align="center"><u>COLLECTION</u></p> <p>From Page - B1/2-Div.23/Page 1</p>				
	<p>BILL 1/2 - DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC) CARRIED TO SUMMARY</p>			JD	

BILL 1/2 - TVILLAGE

DIVISION 26 - ELECTRICAL

Al Baidah Eco Village - Petra, Jordan

**BILL NO. 1/2 - VILLAGE
DIVISION 26 - ELECTRICAL**

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>ELECTRICAL WORKS</u>				
	<u>Section (1) - Electrical Installations</u>				
A	<u>Multicore non-armoured cables</u>				
	600/1000V copper/XLPE//PVC for the following sizes:				
	1. 4X6 mm2	20	M.R		
	2. 4X6+1X6 mm2	10	M.R		
B	<u>Isolating switch</u>				
	1. 30A ,SIX POLE, IP54	2	No.		
	2. 30A ,FOUR POLE, IP54	2	No.		
	3. 15A ,FOUR POLE, IP54	4	No.		
	4. 20A ,THREE POLE, IP54	2	No.		
	5. 15A ,THREE POLE, IP54	9	No.		
C	<u>Wiring Accessories (Restaurant Building-First Fix only)</u>				
	1. Lighting Point	44	No.		
	2. 13A, Single phase, one gang socket outlet. (Point)	23	No.		
	3. 13A, Single phase, one gang socket outlet IP55 (Point)	11	No.		
	4. Ditto as item 3 but double gang (Point)	6	No.		
	5. Ditto as item 2 but double gang (Point)	3	No.		
	6. Spur outlet (Point).	1	No.		
	7. Fan Points	9	No.		
	8 Grid Switch Points	1	No.		
C	<u>Wiring Accessories (Complete Installation)</u>				
	1. 13A, Single phase, one gang socket outlet IP55.	5	No.		
	2. External lighting points.	25	No.		
	3. Internal lighting points.	52	No.		
	Carried to Collection			JD	

Al Baidah Eco Village - Petra, Jordan

**BILL NO. 1/2 - VILLAGE
DIVISION 26 - ELECTRICAL**

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>ELECTRICAL (Cont'd)</u>				
	<u>Section (1) - Electrical Installations (Cont'd)</u>				
D	<u>External Works- Power Network</u>				
	1. 150mm UPVC conduit	3950	MR		
	2. 50mm UPVC conduit	3900	MR		
	3.80x80x100 cm Depth Pre-cast made Electrical Manhole with heavy duty cover	39	No.		
E	<u>External Works-Low Current System Network</u>				
	1. 50mm UPVC conduit	3300	MR		
	2.60x60x80 cm Depth Pre-cat made Low current system (LCS) Manhole with heavy duty cover	40	No.		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

**BILL NO. 1/2 - VILLAGE
DIVISION 26 - ELECTRICAL**

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>ELECTRICAL (Cont'd)</u>				
	<u>Section (2) - Lighting Installation (Supply & Install)</u>				
A	<u>Internal Lighting Fixtures</u>				
	1. TYPE F1	4	No.		
	2. TYPE F1E	4	No.		
B	<u>External Lighting fixtures</u>				
	1. TYPE F2	10	No.		
	2. TYPE F3	8	No.		
	<u>Section (3) - Electrical Distribution system</u>				
A	<u>Motor Center</u> From-2B, IP-54				
	1. MCC-SP	1	No.		
	2. MCC-MP	1	No.		
A	<u>Section (4) - Fire Detection and Alarm system</u> <u>(Restaurant Building- First Fix only)</u>				
	1. Addressable Smoke detector point	13	No.		
	2. Manual call point	2	No.		
	3. Control module point	3	No.		
	4. Siren with buitl in Flasher point	3	No.		
	5. Addressable Heat detector point	2	No.		
	6. Fire Alarm control Panel ref. FACP-RR (Collection Box)	1	No.		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

**BILL NO. 1/2 - VILLAGE
DIVISION 26 - ELECTRICAL**

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>ELECTRICAL (Cont'd)</u>				
B	<u>Section (4) - Fire Detection and Alarm system (Cont'd)</u> <u>(Complete Installation w/o supply of device)</u>				
	1. Addressable Smoke detector point	2	No.		
	2. Manual call point point	2	No.		
	3. Control module point	2	No.		
	4. Siren woth buitl in Flasher IP-54	2	No.		
	<u>Section (5) - Earthing and Bonding system</u>				
	1. Earthing and bonding of MCC-SP	L.S	L.S		
	2. Earthing and bonding of MCC-MP	L.S	L.S		
	Carried to Collection			JD	

Al Baidah Eco Village - Petra, Jordan

**BILL NO. 1/2 - VILLAGE
DIVISION 26 - ELECTRICAL**

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<p><u>ELECTRICAL (Cont'd)</u></p> <p align="center"><u>COLLECTION</u></p> <p>From Page - B1/2-Div.26/Page 1</p> <p>From Page - B1/2-Div.26/Page 2</p> <p>From Page - B1/2-Div.26/Page 3</p> <p>From Page - B1/2-Div.26/Page 4</p>				
BILL 1/2 - DIVISION 26 - ELECTRICAL CARRIED TO SUMMARY				JD	

BILL 1/2 - VILLAGE

DIVISION 31 - EARTHWORKS

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE
DIVISION 31 - EARTHWORKS

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>EARTHWORKS</u>				
	<u>31 22 00-Grading</u>				
	<u>31 23 00 - Excavation and Fill</u>				
	Excavation in any kind of soil, rock ... etc., starting at natural ground level to approved excavation level, including removal of surplus material from site to an approved dumping area , complete as per Specification and Drawings				
A	Excavations, to reduced level for kheir trail	908	m3		
B	Structural Excavation to foundations for kheir trail	2,199	m3		
C	Excavations, to reduced level for pool amenities	13	m3		
D	Structural Excavation for pool amenities	38	m3		
E	Excavation, generally for swimming pools and pump rooms	1027	m3		
F	Excavation generally for Restaurant	3341	m3		
	<u>FILLING/BACKFILLING</u>				
	Backfilling with approved excavated Engineering fill material, subject to the Engineer's approval, including compaction in layers, complete as per Specification and Drawings				
G	To make up levels for kheir trail	352	m3		
H	To make up slab levels for amenities	1	m3		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE
DIVISION 31 - EARTHWORKS

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>EARTHWORKS (Cont'd)</u>				
	<u>COLLECTION</u>				
	From Page - B1/2-Div.31-/Page 1				
	From Page - B1/2-Div.31-/Page 2				
	BILL 1/2 - DIVISION 31 - EARTHWORKS / CARRIED TO SUMMARY			JD	

BILL 1/2 - VILLAGE

SUMMARY

Al Baidah Eco Village - Petra, Jordan

BILL NO. 1/2 - VILLAGE
SUMMARY

Division	Description	Amount
		JD
03	CONCRETE	
04	MASONRY	
05	METALS	
06	WOOD, PLASTICS & COMPOSITES	
07	THERMAL & MOISTURE PROTECTION	
09	FINISHES	
13	SPECIAL CONSTRUCTION	
22	PLUMBING	
23	HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)	
26	ELECTRICAL	
31	EARTHWORKS	
BILL 1/2 - VILLAGE CARRIED TO GENERAL SUMMARY		

BILL 2 - PROVISIONAL SUM

Al Baidah Eco Village - Petra, Jordan

BILL NO. 2

PROVISIONAL SUM

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<p><u>PROVISIONAL SUM</u></p> <p>The Contractor shall allow a percentage for Profit and Overheads and Attendance for supervision and coordination with Client's appointed sub-contractors as Nominated Sub Contractors, as defined in the Conditions of Contract for the following packages. The selection and nomination, if any, of the Nominated Sub Contractors shall be at the sole discretion of the Client.</p> <p><u>Waste water treatment plant</u></p> <p>A Allow Provisional Sum of JD 100,000 for the design supply and installation of a waste water treatment plant</p> <p>B Allow for Main Contractor's overhead and profit</p> <p>C Allow for Main Contractor's attendance</p> <p>D Allow for all associated Builders work in connection with these works</p> <p><u>Power Transformer and MV cabling</u></p> <p>A Allow provisional sum for Power Transformer 33kV/400V/50HZ, Outdoor type , 500kVA and 33kV direct buried MV cable from the nearest power network (approx distance 100 MR)</p> <p>B Allow for Main Contractor's overhead and profit</p> <p>C Allow for Main Contractor's attendance</p> <p>D Allow for all associated Builders work in connection with these works</p>				100,000
			Sum		
			%		
			Item		
			Item		
					25,000.00
			Sum		
			%		
			Item		
			Item		
Carried to Collection				JD	

Al Baidah Eco Village - Petra, Jordan

BILL NO. 2

PROVISIONAL SUM

Item	Description	Quantity	Unit	Rate	Amount
				JD	JD
	<u>PROVISIONAL SUM (Contd)</u>				
	<u>COLLECTION</u>				
	From Page No. B2/1				
	BILL 2 - PROVISIONAL SUM / CARRIED TO GENERAL SUMMARY			JD	

GENERAL SUMMARY

Al Baidah Eco Village - Petra, Jordan

GENERAL SUMMARY

Bill No.	Description	Page	Amount JD
Bill 1	Village	B1/S/1	
Bill 2	Provisional Sum	B2/PS/1	
TOTAL AMOUNT OF TENDER			
AMOUNT IN WORDS			
JD.....			
Baidah Eco Village GENERAL SUMMARY			

Al Baidah Eco Village
Petra-Jordan

Bill of Quantity

Preambles & Method of Measurements

October 2015

DIVISION 3 - Concrete

Concrete Formwork

1. Water Stops

Water stops shall be measured in linear meters.

The unit rate is deemed to include:

- All necessary cuttings, fixings and other requirements called for in the specifications..

Concrete Reinforcement

1. Bar reinforcement

High yield and mild steel bar reinforcement is given separately.

Bar reinforcement is given in Kilograms.

The unit rate is deemed to include:

- Preparing schedules for bar bending.
- Fixing bars in any position and in any member.
- Fixing bars horizontally, vertically and sloping.
- Any diameter, section and length of bars.
- Forming straight, bent and curved bars and links.
- Cutting, lapping and jointing (including special joints)
- Hooks, tying wire, spacers, chairs and the like.
- The weight of surface treatments and rolling margin.

DIVISION 3 - Concrete (Cont'd)

Concrete Formwork Cast-in-place Concrete Concrete Curing

1.0 In Situ Concrete

Each class of concrete is given separately, stating the kind of cement and whether plain or reinforced.

Wall and column kickers are included with the measurement of walls and columns respectively.

Columns are measured from top of slab to underside of beams or slab above.

Projections, nibs, attached columns and the like are included with the measurement of the adjacent member "unless otherwise indicated".

Columns are only measured as such when their length on plan is not exceeding four times their thickness.

Details of each type of composite or complex unit and feature are stated in descriptions.

Fairface finish, broom and surface hardener finishes as indicated on the drawing are measured separately as indicated in BOQ which shall be given in square meter.

Unless otherwise stated in B.O.Q. in situ concrete is given in cubic meters measured net except that deductions are not made for the following:

- Reinforcement.
- Steel sections of area not exceeding 0.50m²
- Cast in accessories.
- Voids not exceeding 0.05 m³ volume.

The unit rate is deemed to include:

- Formwork to all surfaces, edges, sloping, curved, racking, tops, grooves, chamfers, niches, end of walls, sides of voids, opening and the like.
- Designing mixes.
- Any method of pouring, placing, compacting and curing.
- Pouring on or against earth or unblended hard-core.
- Any thickness, cross-sectional area or number of members.
- Horizontal, sloping, vertical and curved.

DIVISION 3 - Concrete (Cont'd)

Concrete Formwork (cont'd)

Cast-in-place concrete (cont'd)

Concrete Curing (cont'd)

1.0 In Situ Concrete (Cont'd)

The unit rate is deemed to include:

- Placing or finishing to falls and cross falls.
- Basic finish as struck from formwork (including curved or troughed formwork) and tamped worked finish.
- Extra width of concrete or formwork to edges of blinding beds.
- Formwork, left in Formwork or other form of temporary support to top of sloping upper surfaces of blinding beds.
- Day joints (construction joints) and joints required in the forming of bays including Formwork and treatment of reinforcement crossing the joint.
- All labours on concrete including working around pipes or cables, cutting channels, chases, mortices, pockets and holes and including subsequent grouting or filling and making good

Division 4 - Masonry

Mortar

Concrete Masonry Unit

1.0 Generally

1.1 Each kind of block and brick is given separately. Those used in work constructed as Formwork and with joint reinforcement are each so described.

1.2 Work of each of the following types is given separately and measured in square meters:

- i) 100 mm thick walls.
- ii) 150 mm thick walls.
- iii) 200 mm thick walls.
- iv) Cavity walls

1.3 Work is deemed to be vertical unless otherwise described.

1.4 Thickness of wall is stated in descriptions. Thickness stated is the nominal thickness unless otherwise described.

1.5 Walls, are given in square meters measured on the center line of the material. No deduction is made for voids not exceeding 0.1m²

1.6 The unit rate is deemed to include:

Mortar for bedding and jointing

Type of bond and method of pointing.

Raking out joints or leaving rough joints to form key.

Battering work (i.e. sloping with parallel sides),

Extra materials for curved work, tapering work and for work bonded at back to other work.

Building against or tying to other work (i.e. not bonded) , including extra material.

Temporary strutting to work used as Formwork.

Joint reinforcement in reinforced work.

Overhand building.

Division 4 – Masonry (Cont'd)

Mortar (cont'd)

Concrete Masonry Unit (cont'd)

1.6 The unit rate is deemed to include (cont'd);

Forming cavities in hollow walls and between wall and other work, including providing wall ties, and closing cavities at ends, tops and around openings including extra materials.

Bonding ends of walls to other work including providing ties reinforcement and anchorage or other fixings and extra material in bonding.

Pinning up load bearing walls to structural soffits and filling voids with mortar.

Reveals, angles and intersections.

Rough and fair cutting.

Grooves, throats, mortices, chases, rebates, holes, stops, mitres and the like.

Weather fillets and like and pointing in flashing including cutting grooves or chases.

Labours in returns, ends and angles.

Building in or cutting and pinning ends of lintels, sills, bearing bars, steps, timbers, steel sections and the like.

Templates for forming openings and lift shafts, centering, and temporary supported protection to built-in frames.

Fixings in position.

Lintels, bond beams and stiffener columns.

Formwork and steel bars reinforcement for lintels, bond beams and stiffener column.

Division 4 – Masonry (Cont'd)

Natural Stone Works

1.0 Generally

1.1 Natural stone works shall be measured net as indicated in the B.O.Q. built in position for the various thickness specified

1.2 The unit rate is deemed to include:

Cement and sand mortar bed and backing

Forming expansion joints

Pointing and jointing

Sealant – Expansion joint filler, if required

Galvanized steel anchors, related accessories and steel mesh

Special stones, such as external, internal and triangular angles, heads, jambs, sills...etc.

Movement joints, cleaning, sealing and pointing

Mechanical fixation system “where required”

Cement base paint for the back of the stone

Weather shield sealant for the face of the stone

All necessary related works and materials

DIVISION 5 - Metals

Miscellaneous Metal Fabrication

Ladders

Ladders are enumerated, the unit rate is deemed to include vertical and horizontal posts, fixing, fittings, welding, painting and accessories

DIVISION 7 - Thermal and Moisture Protection

1.0 Thermal and moisture protection

Each kind of thermal and moisture protection items are given separately stating the type of material.

The thermal and moisture protection items are given in square meters unless otherwise indicated measured the area in contact with the base. No deduction is made for voids not exceeding 0.10m².

Cast-In-Place Concrete

1. Protection topping is given in square meters.
2. The unit rate is deemed to include:
 - a. Forming shallow channels within the thickness of light weight concrete to roofs and protection topping.
 - b. Temporary support work to face of risers and the like
 - c. Angle fillet around the parameters

Bituminous Membrane Waterproofing For Under Ground Works

- Bituminous membrane waterproofing is measured in square meters.

The unit rate is deemed to include:

- Primers, bonding compounds, adhesives and keying mixes.
- Applying coatings by brush or spray
- Sloping and curved work to coatings.
- Work of any width, height or girth.
- Work laid to falls and crossfalls, and intersections on sloping work.
- Extra material for lapping membranes including adhesive tape.
- Internal and external angles, fillets and the like.
- Edges, arises and turning into grooves or channels and sealing.
- Cutting, notching and bending membranes.
- Holes for pipes and the like, forming collars and sealing.
- All necessary related works and materials.

Rigid Insulation

Rigid insulation is given in square meters, the unit rate is deemed to include all necessary cutting and fixing.

DIVISION 7 - Thermal and Moisture Protection (Cont'd)

Modified Bitumen Membrane Roofing

- Modified bitumen membrane roofing is given in square meters, the unit rate is deemed to include overlaps, preparation of surfaces, mastic sealants, priming, a rich coat of hot bitumen and necessary torch application.

Sundries

- Protection boards are given in square meter, the unit rate is deemed to include fixings, preparation works and all necessary related works and materials.

DIVISION 9 - Finishes

Portland Cement Plaster

Work items in this section shall be measured as the net area covered. Work to reveals of openings and all other narrow widths shall be included in the measurement.

Plastering behind tiles shall be measured in square meters for the net plastered areas.

The unit rate is deemed to include:

- Cement sand plaster materials as specifications section (plaster guides should be for the walls and ceilings).
- All mixes mentioned in specification section.
- Metal accessories, expansion joints and anchorages as specified in the specifications.
- Completion of the work as specified.
- Angle beads, casing stops and wire mesh.
- All necessary related works.

Ceramic Tiles

Work items in this section are measured as the net area covered. Work to narrow widths shall be incorporated in the measurement.

Floors and walls are measured in square meters. Skirting is given in linear meter.

The unit rates is deemed to include :

- Adhesive and grouting as specifications.
- Expansion and contraction joints.
- Glazed edge tiles, special and non standard tiles and pieces, spacers and fittings, sand leveling bed, cement mortar and backing, cuttings, intersections, cleaning and joints

DIVISION 9 - Finishes (Cont'd)

Painting

Painting and clear finishing is given in square meters measured the net area covered and measured flat

The Unit rate is deemed to include

- Internal work
- Work of any girth, any height.
- Method of application, rubbing down between coats, work requires to be carried out before fixings, weather on or off site.
- Priming back of frames, edges of rebates
- Work in multi-colours, defined as the application
- Work in hinges and fastenings to doors, frames and lining in work to general surfaces
- Removing ironmongery from surfaces to be decorated and refixings masking adjacent surfaces.
- Preparation works, undercoats and all necessary related works and materials.

DIVISION 31 - Earthworks

Excavation and BackFill

1. Excavation

Excavation is given in cubic meters. The quantities given are the bulk before excavating.

The unit rate is deemed to include:

- Any method of excavating and working.
- Excavating in any material whatsoever encountered including rock.
- Variations to bulk.
- Commencing excavating at any level, and excavating to any depth.
- Any width of trench and any number of pits.
- Curved excavation.
- Excavating below ground water level (irrespective of any difference between the post-contract and pre-contract level).

- Excavating next to existing services and around existing services crossing excavations including temporary support, temporarily re-routing, sealing and removing services as required.

- Breaking out existing materials and hard paving including concrete, reinforced concrete, brickwork, blockwork, stone work, drains, and coated macadam or asphalt and the like.

- Extra excavation for working space and to accommodate earthwork support including additional disposal, backfilling, work below ground water level, breaking out and earthwork support.

- Disposal of excavated material, on site or off site, including spreading and leveling or depositing in spoil heaps, providing tip and paying fees and multiple handling.

- Backfilling to excavations around foundations, walls and columns with material arising from excavations or imported materials including depositing and compacting in layers and multiple handling.

- Surface treatments including compacting surface of ground and bottoms of excavations, leveling and grading to falls, trimming slopping surfaces and trimming vertical surfaces to sides of cuttings (including trimming in rock) and applying herbicides and pesticides.

- Shoring system where required.

2. Filling

Filling materials is given in cubic meters and as measured in BOQ.

The unit rate is deemed to include:

- Preparing surfaces to receive filling.
- Filling of any thickness
- Multiple handling
- Filling and compacting in layers including leveling and grading to falls and slopes.

Division 26 - Electrical Works

BILL OF QUANTITIES ELECTRICAL INSTALLATIONS

I- METHOD OF MEASUREMENT

A. Complete Items

1. The Bills of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, technical electrical installation specifications issued by Ministry of Public Works and Housing, particular technical specifications issued for this project, Appendixes and Drawings. The documents are to be taken as mutually explanatory and inter-related to one another.
2. Unless otherwise mentioned, all quantities of works shall be measured "Net" in accordance to the approved Shop and As-Built drawings or/as ordered by the engineer, and generally, according to method of payment mentioned in the contract documents.
3. In the case of discrepancy in quantities of works performed by the contractor and those shown on the drawings, and should such discrepancy be acceptable to the employer, then the quantities agreed by the Engineer shall be taken into account in the measurement of quantities.
4. All quantities shown in the Bill of Quantities are approximate, and the purpose of such quantities is to obtain a close estimate of the value of the Tender/Contract. However, the contractor shall be paid for the actual amount of work carried out in accordance with the contract, as determined by direct measurement during the progress of the works whether the actual quantities are more or less than those shown in the Bills of Quantities. Those quantities are not intended to be used by the contractor for the materials take-off and ordering.
5. The Unit Price and the rates inserted in the Bills of Quantities respectively shall be comprehensive and shall include for complying in all respects with the requirements of the project technical specifications, covering all the obligations under the contract and all matters and things necessary for the proper construction, completion of and remedy of defects in the works. No claims for additional payment will be allowed for any error, or misunderstanding of the work involved by the contractor.
6. In the Bills of Quantities, a unit price or rate shall be inserted against items with quantities only. The value of any item left un-priced shall be deemed to be covered by other rates and prices entered in the Bills of Quantities.
7. All measurements of the executed works called for in the Contract shall be based on the unit price stated in the Bills of Quantities and made according to the specifications. Any work done by the Contractor, but not called for in the Contract or not requested in writing by the Engineer, shall not be included in the measurement.
8. The item unit rate of the materials and equipment shall be based on the contract drawings, specifications, all components as required and specified under each related item concerned, technical data, manufacturers requirement and recommendations and Notes on, and all other Contract documents.

In addition to the above-mentioned requirements, the item unit rate shall include the followings:

The following requirements are complementary to the mentioned items in the B.O.Q;

- A. Supply of materials and equipment.
- B. Off loading and handling from trucks on site to place of installation (including carnage, unpacking, erecting in place).
- C. On-site material protection and storage before installation.

Division 26 - Electrical Works

- D. Installation of materials and equipment.
- E. All civil works required and related to the electrical works, such as: equipment, tools, concrete bases and supports, cutting and chasing through block and concrete walls and slabs for passage of conduits, sleeves, trays, trunking and ladders, concrete re-patching, fixing of conduits, trunking, cable trays/ladders and supports to structure, excavation and back-fillings, riggings, hoisting, waterproofing, cleaning, protection and painting, fire sealant materials to ensure the compartment(ion) integrity .
- F. All testing, commissioning and operation by independent company (if required), including all expenses of tests requested by the engineer, and all costs of repairs to damage(s) caused until issuing the satisfactory completion certificate by the Project's Engineer
- G. All labor, materials, tools, instruments, electric power supply, fuel and water required project's execution, testing, operation and commissioning.
- H. Installation identifications, tags, labels, nameplates, and charts.
- I. Preparation of the shop-drawings and As-built drawings.
- J. Preparation of the operation and maintenance manuals.
- K. Training.
- L. Samples as required by the Engineer.
- M. Maintenance as per the Contract Conditions.
- N. Coordination with other specialty contractors, such as special equipment supplier(s) and subcontractor(s) etc.
- O. All final tie-in connections to all mechanical, special systems and machines, all as per the approved workshop drawings prepared by the specialty contractor.

9. Where BOQ item is stated (Install only), all above mentioned items shall be mandatory and within the contractor's scope of work and item's price, except for items 8. A, K, L and M.

10. Materials and Equipment, such as but not limited:

10.1 Empty PVC or Galvanized Steel Conduit and Power/LCS manholes

The unit rate shall include all conduit, fittings and joints such as bends, tees, elbows, boxes, supports, adapters, pull cords, excavation and back-filling, chasing in walls and opening in slabs, conduit/manhole drain, heavy duty cover and precast work for manhole .

Conduits shall be measured in meter run (MR), manholes to be measured in Number.

10.2 Cable for Power Distribution Networks and Low Current Systems

The item unit rate shall include all Armored, Non-Armored sheathed, 600/1000V for power cables, and 450/750V for wires, continuous protective support, such as but not limited to PVC and/or galvanized steel conduits, hot dip galvanized cable trays for power cables horizontal runs, GI trunking for vertical and horizontal low current systems cables and cable ladders for power cables vertical rises, cable glands, termination lugs and joints, excavation and back filling, chasing in walls and

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opening in slabs, concrete trenches and draw manholes including covers and drain, cable support, painting and protection against corrosion, and cable termination at both ends and all accessories needed as specified and as shown on the drawings.

Note:

- a) Sizing of the hot dip galvanized steel cable trays and ladders shall be carried-out by the contractor based on the distance between two adjacent cables is twice the biggest cable diameter and 25% space for future, cable tray thickness shall not be less than 1.6 mm.
- b) Sizing of the hot dip galvanized steel and/or PVC cable trunking shall be carried-out by the contractor based on the filling factor shall not exceeds 40% of the trunk area, cable trunking thickness shall not be less than 1.2 mm.

Cable shall be measured in meter run (MR).

10.3 Motor Control Center (MCC)

The item unit rate shall include all circuit breakers, moulded case, miniature and earth leakage type, bus-bars, termination blocks, enter assemblies glands, selector switches, push-buttons and indicator lamps, metering and measurement instruments, contactors, relays, manual change over switch, current transformers, building management system (BMS) provisions, connection terminals and all required inter- assemblies (inside MCC) control wiring and cabling, metal clad assemblies, concrete plinths, concrete trenches with heavy duty steel cover and drain, all required bolts, washers and nuts, painting and protection against dust and corrosion, and all other requirements as specified and detailed on the drawings.

Motor Control Center (MCC) shall be measured in Lump Sum (L.S.)

10.4 Lighting Point (for Internal & External Lighting Fixtures having a conductor size up to and including 4mm²)

The item unit rate shall include all PVC and/or galvanized steel conduits, switches and grid switches, bolted ceiling roses, cables and/or wires up to 4 mm² from the appropriate distribution board and/or control panel to the served lighting point, galvanized steel trunking, transformer(s) installations complete with all in and out cables up to the served lighting fixture as per the manufacturer's recommendations, heat resistant cables from the ceiling rose to the lighting fixture enclosed in galvanized steel PVC coated flexible conduits for exposed installation and heavy duty PVC flexible conduits for recessed installations above false ceiling , and all other accessories needed in accordance to the relevant codes of practice and highest prevailing engineering standards.

Lighting point shall be measured in Number (No.).

Note; where lighting point is served by wire size more than 4 mm², then; supply circuit will be measured on meter run (M.R) separately as per item 10.2 aforementioned.

All external lighting installations shall be carried out by using cables Cu/XLPE/PVC type.
All cables for external lighting pole shall be CU/XLPE/PVC/SWA type.

10.5 Power Outlet

The item unit rate shall include all PVC and/or galvanized steel conduits, U-channels and floor or wall mounting boxes, power socket outlet including face plate and/or fused or non fused connection units, double pole switches, all rated as indicated, plugs for industrial range socket outlets, power cables and/or wires up to and including 4mm² conductor size from the appropriate distribution board to the served point, all other accessories needed as shown on the drawings and as called for in the specifications and in accordance with relevant codes of practice and highest prevailing engineering standards.

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Outlets face plate color, material shape and type of finishes shall be as per the Engineer approval, back boxes of the outlets shall be coordinated with the approved type /model of the outlets intended to be used on this project.

Power outlet shall be measured in Number (No.).

Note; where power point/outlet is served by wire size more than 4 mm², then; supply circuit will be measured on meter run (M.R) separately as per item 10.2 aforementioned.

10.6 Isolating Switch Complete with Wiring (Having a conductor size up to and including 4mm²)

The item unit rate shall include all PVC and/or galvanized steel conduits, trunking and/or cable trays as described on item 10.2 aforementioned, isolating switch rated as indicated, mounting back box, steel angles for pedestal mounted isolating switches, power cables and/or wires up to and including 4mm² conductor size from the appropriate distribution board , MCC or CP to the served isolator, and from isolator to the served equipment, painting and protection against corrosion, and all other requirements and accessories needed as shown on the drawings and as called for in the specifications and in accordance with relevant codes of practice and highest prevailing engineering standards.

Isolating switch shall be measured in Number (No.).

10.7 Isolating Switch (Having Conductor Size over 4mm²)

The item unit rate shall include all the works described in item 10.7 aforementioned except for power cables and/or wires, which shall be measured separately in accordance to item 10.2 aforementioned.

Isolating switch shall be measured in Number (No.)

10.8 Lighting Fixture

The item unit rate shall include the lighting fixture as described in the tender documents complete with all supports, suspension clamps, tri-phosphor fluorescent lamps, electronic switchgears/ ballast, transformers for LV type fixtures, internal heat resistance wires and/or cables, back boxes in concrete slabs, wall and / or stone, chasing in walls or slabs, opening in false ceiling tiles, mounting frames to conceal around the fixture's cut-outs, sealant and making good around opening and chasing, and all accessories needed as shown on the drawings and as called for in the specifications, all in accordance with relevant codes of practice and highest prevailing engineering standards.

Lighting fixture shall be measured in Number (No.).

10.9 Earthing and Bonding Systems

The item unit rate shall include all bare and/or PVC covered copper tapes, socket lugs, bolts, nuts, washers, reverts, clamps, cleats, earth electrodes (rods or plates), test clamps, earth collecting bars, PVC and/or galvanized steel conduits, cable trays, ladders and trunking, equi-potential bonding with all metal works, concrete manhole with steel covers and drain, excavation and back-filling, chasing in walls, and opening in slabs, termination of the protective conductors or tapes at both ends, any measures to be taken to reduce the soil resistivity to achieve 2 ohms, all accessories needed as shown on the drawings and as called for in the specifications, and in accordance with relevant BSEN codes of practice and highest prevailing engineering standards.

Earthing, and Bonding systems shall be measured in Lump Sum (L.S).

10.10 Fire Detection and Alarm System (First Fix only)

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The unit price shall include PVC and / or galvanized steel conduits, from the limit of the room to the served device, appropriate mounting boxes (galvanized steel for wall mounted and PVC for recessed in slab installations), chasing in walls and opening in concrete slabs and/or false ceiling, making good around opening, excavation and backfilling , concrete manhole with steel cover for external networks, galvanized steel supports and all accessories needed for proper performance of the system as shown on the drawings, manufacturer's recommendations and as called for in the specifications.

Fire Detection and Alarm System's devices shall be measured in Number (No.).

10.11 Power Cable tray & Low Current Systems Cable Trunking

The unit rate shall include all continuous support, such as but not limited to support brackets, stop ends, bendable connectors, cross connectors, inside & outside risers, hanger rods, earth continuity connectors, etc, chasing in walls and opening in slabs, painting and protection against corrosion, fire sealant material to maintain the fire compartmentation integrity, and all accessories needed as specified and as shown on the drawings.

Power Cables trays/Low current systems cable trunking shall be included in the price of cables

B. First Fix Items

General:

Where BOQ item(es) specified as first fix, all items 1 through 9 mentioned under General of item A "Complete items" shall be applicable to this works and shall be read as part of the following scope of work description.

1. Empty PVC Pipes / Conduits / Sleeves

The item unit rate shall include all heavy gauge rigid PVC pipes/conduits, sleeves, fittings and joints such as bends, tees, elbows, support accessories, hot dip galvanized steel back boxes for all wall mounted installed electrical devices and PVC for ceiling mounted installed devices, adapters, pull cords and wires, all associated civil works such as but not limited to excavation and back-filling, chasing in walls and opening in slabs, conduits drains, painting and protection against corrosion unless otherwise mentioned, price shall also include remedy works for all blocked/closed conduits/pipes/ sleeves, coordination with other trades and contractors, all as per technical specifications and in accordance to the Engineer instructions.

Pipes/Conduits and sleeves shall be measured in meter run (MR).

II- **List of the recommended manufacturers of the electrical equipment and materials**

The approved manufacturers mentioned in the tender documents are to reflect the minimum material specifications and quality intended to be used by the contractor.

III. **Names of Manufacturers of Materials and Equipment offered by the bidders Form**

The Bidder shall fill herein under the names of companies, manufacturing, country of origin, and details of materials & equipment mentioned here, and shall enclose with his submitted bid for construction, completion and maintenance of this project.

As applicable to this tender / contract document; the contractor shall specify the material and equipment intended to be used for this project from the recommended list of approved manufacturers, any deviations from the said list shall be clearly marked and will be subject to the Engineer review and approval.

The list is prepared as to be the most comprehensive and cover all items related to the project. However;

The bidder/ contractor shall add any missing item(s) not included hereunder.

The bidder / contractor shall insert Not Applicable (NA) for item(s) not used in this tender / contract.

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Item	Material or Equipment	Name of Supplier/ Manufacturer Country of Origin
1	XLPE insulated non-armored / armored single-core/multi-core power cables	
2	PVC Wires	
3	Fire Resistant Cables	
4	PVC Conduits and Accessories	
5	Cable Trays / ladders and Accessories	
6	Cable Trunking (Steel or PVC)	
7	Lighting Switches	
8	Earthing and Bonding Systems	
9	Socket outlets	
10	Water Proof Power Socket Outlets	
11	Isolating Switches (All types and rating)	
12	Galvanized Steel Conduit	
13	Fluorescent Lighting Fixtures (Provide catalogue cuts for all types)	
14	Underwater Lighting Fixtures (Provide catalogue cuts for all types)	
15	Switchgears (MCCs)	

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	Add any missing item(s) hereunder;	

Al Baidah Eco Village
Petra-Jordan

Bill of Quantity

Preambles & Method of Measurements

October 2015

BILL OF QUANTITIES

MECHANICAL INSTALLATIONS

PREAMBLES

The Bills of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical Specifications, Appendices and Drawings. The documents are to be taken as mutually explanatory and inter-related to one another.

Unless otherwise mentioned, all quantities of works shall be measured "Net" in accordance to the drawings or/as ordered by the engineer, and generally, according to method of payment mentioned in the tender documents.

The Unit Price and the rates inserted in the Bills of Quantities respectively shall be comprehensive and shall include for complying in all respects with the requirements of the Technical Specifications, drawings and all other related tender documents. This shall cover all the obligations under the contract and all matters deemed necessary for the proper construction, completion and remedy of defects in the works. No claims for additional payment will be allowed for any error, misunderstanding or failure to acquaint with all necessary information of the work.

The unit prices inserted in the Bill of Quantity shall be of fixed rates. The contractor shall not be entitled for new rates should the quantities be altered during the construction and execution of the works.

In the Bills of Quantities, a unit price or rate shall be inserted against its respective item with quantities only. The value of any item left unpriced shall be deemed to be to be included in the total cost of the BOQ.
Bead

All measurements of the executed works called for in the Contract shall be based on the unit price stated in the Bills of Quantities and made according to the specifications. Any work done by the Contractor, but not called for in the Contract or not requested in writing by the Engineer, shall not be included in the measurement.

The unit rate of the materials and equipment shall be based on the Specification, all components as required and specified under each item concerned in the Specifications, Technical Data and Notes on Contract Drawings, and all other Contract documents

The Bills of quantities are classified under headings and sections with the same reference numbers and titles as the specifications.

Each section referred to in the Bills of quantities shall be read in conjunction with the respective section and with all other related sections of specifications.

The Bills of Quantities, Specifications, Schedule of Equipment and Drawings and all other Contract documents are complementary to each other.

It is the responsibility of the Contractor to check the locations and quantities of the materials and equipment to be executed in accordance with the contract drawings.

Any discrepancy between the Drawings and Specifications and Bill of Quantities shall be brought to the notice of the engineer in writing for his decision as to which is the correct interpretation before the commencement of the work. In General, Drawings shall take preference over those stated in the Specifications.

In the case of discrepancy in quantities of works performed by the contractor and those shown on the drawings, and should such discrepancy be acceptable to the employer, then the quantities agreed by the Engineer shall be taken into account in the measurement of quantities.

The contract is a Remeasured Contract. The Contractor shall be responsible for all the works deemed necessary to complete the scope of work. For this purpose the Bill of Quantities shall be used for guidance only and all works shall be carried out as shown on drawings, and covered in the Specifications. All materials quantities shall be lbe remeasured on site after execution, and payment be made be made in accordance to the executed worksy.

Bill Of Quantities are not intended to be used by the contractor for the ordering of materials.

Method Of Measurement

The Unit Rate shall include the following:

(The following requirements are complementary to the mentioned items in the B.O.Q.),

A. General

1. Supply of materials and equipment.
2. Off loading and handling to place of installation.
3. Installation of materials and equipment.
4. All civil and builders work , whether temporary or permanent, as required for the complete installation, including :-
 - a. Excavation, bedding backfilling, riggings, hoisting, water proofing, cleaning, protection and painting.
 - b. Concrete plinths, bases and supports.
 - c. Chasing through walls and slabs, cutting and pinning for passage of all pipes conduits ducts, pipe sleeves, and equipment.
 - d. Closing of all shafts and openings between floors and slabs after installation of services
 - e. Repatching, fixing of pipe and duct hangers and supports to structure,
 - f. All frames for air outlets and louvers and wall mounted fans,
 - g. Flashing and waterproofing of all pipe, pipe sleeves, ducts crossing walls and slabs.
5. Testing & Commissioning: -
 - a. All testing, balancing, adjusting, commissioning and handling to client complete operational equipment.
 - b. All testing, balancing, adjusting, commissioning and handling to client complete operational systems.
 - c. All testing materials.
6. Painting, cleaning, proper protection of all equipment, plants, pipes, ducts, insulations, electrical installations and structures.
7. Disinfections, flushing and water treatment.
8. All labor, materials, tools, instruments, electric power supply fuel and water required for installation, testing, balancing, adjusting, disinfections, flushing, operation and commissioning.
9. Coordination with other trades
10. Thermal insulation for all equipment, valves, trimming and accessories
11. System identifications, tags, labels, nameplates, and charts.
12. Shop-drawings and record drawings.
13. Flexibility (expansion) analysys for all piping systems
14. Spare parts and components for ideal running of all services and equipment.
15. Spare parts information and tools.
16. Operation and maintenance manuals.

17. Training
18. Samples as required by the Engineer.
19. Inspection, testing and rejection of all materials and workmanship.
20. Maintenance of all items supplied by contractor as per contract conditions
21. Warranty and manufacturer guarantee for a period as specified, but not less than one year.
22. Coordination with other contractors, and specialty suppliers such as kitchen and laundry, Fixed furniture and finishing contractors... etc
23. Liaising with the structural contractors and providing all necessary details and information for all related systems, such as vibration control, structural openings plinth and equipment loads, kinetic floating slabs, etc...
24. Liaising with local authorities and official departments, such as Civil Defense Department, water authority, Electrical Authorities, municipality, etc... As to obtain and grant all necessary approvals for the shop drawings, materials and equipment.

Note:

- a. Where BOQ item is stated as "Install only", all above shall be mandatory except for item 1 ,5.a ,14, 15, 16, 17 and 18. The unit rate shall include coordination with the engineer for the proper equipment selections and verification of the client opted selections as required to meet the design specifications and the actual systems requirements based on site conditions. The price shall also include supply, install test and commission of all equipment related trimmings and ancillaries as shown on drawings or called for in specifications and all other tender documents.
- b. Where BOQ item is stated as "Supply only", item 1 ,5.a ,14, 15, 16, 17 and 18. shall only be mandatory.
- c. Provisional sum items to be priced by the bidder as for supply, install, test and commission item. Bidders to allow for attendance and profit for these items if supplied, installed and commissioned by others.

B. Units of Measurement and Abbreviations

The Bills of Quantities have been prepared in accordance with the Principles of Measurement (International) (POMI) for works of construction, June 1979 as published by the Royal Institution of Chartered Surveyors unless otherwise stated in the Preambles and this is deemed to be the Method of Measurement for this Contract. Unless otherwise stated, all works have been measured net as fixed in its place with no allowance for laps or waste and irrespective of any local customs. Where there is a divergence between the Principles of Measurement and the Preambles the Preambles shall take precedence.

The price shall include for all materials and labour and for the provision and use of all plant - whether mechanical required or non-mechanical required for the expeditious carrying out of the works in their proper sequence - for shifting, altering and adapting such temporary work and plant as may be required during the progress of works and removing at completion and making good any surfaces disturbed; and if not included in any prices inserted against the clauses of the Conditions of Contract above, for the Guarantees and bonds required; for the costs of preparing a tender; and the final account; and for all other establishment charges and on costs of whatever nature. No claim for additional payment will be allowed for any error or misunderstanding by the Contractor in these respects.

All units of measurement shall be based on the Metric System of weights and measurements except where other units are specifically for standard products.

The Metric terms and symbols occurring in the Contract Documents are based on the "System International d'Unites (S. I. System)"

<u>Abbreviation</u>	<u>Definition</u>
MR.	Linear meter run
M2	Square meter
M3	Cubic meter
kg	Kilogram
mm	Millimeter
cm	Centimeter
No.	Number
LS - Item	Lump Sum
PS	Provisional Sum
Set	Complete Package Unit

C. Method Of Measurement

1. Pipe work:

The unit price shall include: -

- All pipe fittings and joints such as elbows, traps, bends, tees, reducers, unions, sockets, all stub ups, couplings, flanges, and all other joining materials.
- All flexible joints, couplings, anchoring, sleeves, floor plates, puddle flanges adapters and dielectric unions for connecting dissimilar materials , plugs, taps and end caps.
- All automatic air vents with isolating valves, drain cocks vent cap, cowls, clean outs and rodding eyes.
- All pipe insulations, cladding and protections.
- All pipes acoustic insulation including claddings trays.
- All pressure gages, temperature gages and thermometers, balancing and measuring taps, test point as shown on drawings or as called for in specifications and as deemed necessary for systems testing, balancing and commissioning.
- All pipe hangers, saddles supports, pipe trays and ladders.
- All tie inn points to existing networks, headers, etc. as shown in drawings and as per Engineer's Instructions.
- Seismic springs and snubbers suspensions for the unit frame.
- Special connections, special joints and isolated joints in pipes.
- Flexibility (expansion) analysys.
- Expansion loops, expansion compensators, bellows with guides and anchors substantiated by thermal expansion calculations by the supplier.
- Painting with anticorrosion coats for piping and supports.
- All shock absorbers and joints.
- All Fire retardant and protection sealants for all pipes crossing fire rated structures.
- Excavation and back filling, chasing in walls, making good, painting, pipe protection against corrosion, pipe coating,

All as required per specifications and/or as shown on drawings.

Pipe work shall be measured in meter run (MR).

2. Ductwork: For Ventilation and Air Conditioning.

The unit price shall include_

- Metal sheets ducting with all joints, stiffeners , sealant compound,
- Fire retardant sealants for all ductwork passing through fire rated structures,
- All hangers, supports and brackets, reinforcing angles bolts, nuts, washers, fasteners
- Seismic springs and snobbers abd suspensions as per IBC requirements.
- All flexible connections between equipment and ducts
- All access doors and panels,
- All vanes, volume splitter damper (VSD), volume control and regulating damper, fire dampers, smoke dampers, fire and smoke dampers including Access door.
- All wall sleeves and flanges.
- All measuring tap holes and caps.
- All necessary wiring, power supply, electrical isolator and interface with the fire alarm system for smoke dampers and fire dampers
- Metal mesh and insect screens for all bell mouths fresh air and exhaust air terminals. cowls and louvers.
- All expansion with rod and lock screws, coating, painting volume damper adapter and coupling and all accessories.

All as required per specifications and/or shown on drawings.

a. Packaged Domestic Water Pump set.

The unit price shall include all pumps, factory skid, concrete base, all interconnecting pipe work and headers, control panel, **variable speed controller**, pressure vessels, **pressure sensors installed on locations as per**

manufacturers recommendations, and all other accessories as per specifications main isolating valves, flexible connections and strainers and concrete base,
The unit price of each pump shall also include:
Two isolating valves check valves, two pressure gauges complete with stop/drain cock and pig tail connection, differential pressure switch, and vibration isolators, anti vibration pad.

b. Submersible Pumps

The unit price of Submersible pumps shall include:

- All pumps,
- All isolating valves check valves for each pump.
- All sliding rails and lifting chains
- Pits and valves chambers including covers
- All studs, bolts, nuts, screws and washers
- All adjustable level controller switches and alarms including indication relayed to control panel.
- Weather proof control panel, including indication lights switches, and controllers.
- Access covers, step cast iron and sump vents.
- Local isolators located adjacent to the sump for isolation of units during maintenance

other accessories as shown in the drawing and called for in the specifications.

4. Water Reservoir Accessories:

Including fire fighting tanks, domestic water tanks and softened water tanks.

The unit price shall include all piping connections to reservoir, puddle flanges, floor plates, all water inlets connections, all isolating valves, vents, bird and insect screens, girded Plexiglas gauge set and protector rods with floating indicators, overflows, water ball floating valves, access openings and doors, stainless steel access openings doors frames and covers, stainless steel cat ladder of each side of the opening, drain outlets and valves, all of conduits and sleeves, and all other accessories as shown on drawing and called in specifications.

5. Water Tanks :

Including GRP; prefabricated fiber glass, PE, RTR or steel tanks.

The unit price shall include:

- Tanks complete with steel saddle base and supports.
- access manholes and covers
- All piping connections to tanks, including water inlets and outlet connections,
- All isolating valves, vents, bird and insect screens
- Level indicator and gauge overflows,
- Water ball floating valves, and / or level switches complete with motorized valves.
- Drain outlets and valves,
- All power and control wiring complete with conduits and sleeves,
- Concrete supports and all other accessories as shown on drawing and called for in the specification.

6. Domestic Water Electric Heater

The unit price shall also include all angle valves, check valves, safety valves, automatic air vent, thermometer, electric coil element, with copper tubes connections, high temperature cut outs. All fixation and supports, all electrical wiring to nearest isolating switch, automatic controls and switches, brackets and bolts.

7. Water Filters:

Including: multi media filter, sand filter, carbon filter, and sediment filters

The price shall include all filter tanks, filters' media, all face piping, under drain systems, all isolating diaphragm valves, and by-pass valves, anti-vacuum valves, pressure relief valves, automatic back wash flow controller, differential pressure switches, gage panels with pressure gages, and controller, All civil works including steel skids, concrete plinth, kinetic base, and floating slabs, as shown on the Drawings and as called for in the Specifications.

8. Scale Inhibitors:

The unit price of shall include all isolating and bypass valves, strainer and all related electrical works as shown on drawings and requested in specifications.

9. Pressure vessels/Expansion Tanks:

The price shall also include: -

- Isolating valve
- Pressure relief valve
- Pressure gages
- Pressure sensors
- All pressurizing tap
- Concrete bases and all other related accessories
- All accessories as shown on drawing

10. Pressurization/ Expansion Set:

The unit price shall include:

- Break tank complete with ball float valve, isolating valve drain outlet valves and supports.
- Pressurization pump including two isolating valves, check valve, pressure reducing valve, suction flow control valve, air purger, automatic air vent with isolating valve, base and vibration isolating pad and flexible connections.
- Expansion tank including two isolating valves, relief valve, air and nitrogen filling connection, pressure-regulating valve.
- Base frame.
- Control panel including low and high level switches, low and high level alarms, flow switches, all electrical and control connections.
- Pressure gages
- All other fittings as called for in specifications
- All civil works including steel skids, concrete plinth, kinetic base, and floating slabs, as shown on the Drawings and as called for in the Specifications.

11. Dosing Pump :

The unit price shall include the chemical dosing pump, microprocessor and LCD display, chemical tank, suction assembly with foot/suction valve, suction tube and two-stage level switch, dosing material, one spare part kit for the dosing pump. And all other accessories as shown on drawing and called in specifications.

12. Heating Water Boilers:

The unit price shall include the boiler and burner complete with control with all accessories. The Unit price shall include supply, install, test and commission boilers, valves and trimmings including safety valves, air release vents, one lockable right angle cast steel stop valve with operating chain, a double regulating valve with measuring orifice drain valve, pressure gauges with combined shut off and drain cock and water siphon, thermometers on the supply and return headers inspectors' test gauge connection with cock , feed water line connections with double check valve and vacuum breaker, support, vibration isolators, access limit. Labeling, hangers and supports and all related pipe work, electrical connections to nearest **valves** and controls. All civil works including steel skids, concrete plinth, kinetic base, and floating slabs, as shown on the Drawings and as called for in the Specifications.

13. Chimney (Smoke Stack and Breaching):

The unit price shall include the double skinned metal sheets ducting flues, elbows, tees, draught regulators, **motorized** shut off dampers, clean outs, wall sleeves, condensate collectors, rain caps, and the inner insulation. Complete with all joints, captive fasteners, holding bands hangers and supports, brass earthing bolts, bracing bracket, base plates, gussets, and holding down bolts, reinforcing angles, flexible connections, draft regulating and relief dampers, expansion with rod and lock screws, concrete foundations and coating and painting and all other accessories as shown on drawings and called for in the specification.

14. Domestic Water outlets

The unit price shall include supply and installation of isolating valves including angle valves & all related plugs.

15. Sanitary Fixtures

The unit price shall include the complete supply and installation of all of the sanitary fixtures, complete with their mixers, fittings, hanger, soap dispensers, rails, hand grabs, and all other accessories.

The unit price shall also include the supply installation and commissioning of the all angle valves, flexible conduits, all types of traps, including the chrome plated bottle traps, P-traps, all flanges and eschetchoons. All adaptors and connectors, all types of sealants and fasteners.

16. Manholes:

Including Petrol interceptors, sediment traps and lint interceptors.

The unit price shall include all materials and works for the construction of manholes such as reinforced concrete, blinding, base, walls, manhole cover frames, benching, clean outs, iron steps, plastering, caulking, framework shuttering etc. shown on drawings and called for in the specification. The price shall also include all related civil works including excavation, backfilling, compacting, protections and making good.

17. Motor Control Centers:

The unit price shall include the enclosure complete with all components and accessories required for manual and automatic operation as specified; such as: circuit breakers, bus-bars, push buttons, indication lamps, contactors, relays, over-load protection, interlocking devices, alternators, selector switches, 3 phase isolating switch, phase failure, phase reversal, earth leakage protection, voltmeters, ammeters, hour meter for each equipment, visible and audible alarms, interconnecting wiring, labels for wiring terminals, equipment served and for enclosures.
Refer to electrical drawings and specifications for the details of the MCC's.

18. Control Panels:

The unit price shall include the enclosure complete with all components and accessories required for manual and automatic operation as specified; such as: circuit breakers, bus-bars, push buttons, indication operation and fault lamps, contactors, relays, over-load protection, interlocking devices, alternators, selector switches, 3 phase isolating switch, earth leakage protection, interconnecting wiring, labels for wiring terminals, equipment served and for enclosures.

Refer to electrical drawings and specifications for further details of the CP's.

19. Control Field Devices:

The unit price shall include all Automatic control field devices, including thermostats, temperature sensors, motorized valves, actuators, dampers motors, level controllers, DP switches, pressure sensors, level switches etc,

20. Direct Digital Controllers:

The unit price shall include the microprocessor based local and remote direct digital controllers (DDC's) complete with all hardware, digital and analog input and output electronic connections and modems, including assembly, wiring and installation in an IP54 enclosure.

21. Valve Chamber and Valve Box:

The unit price shall include all materials and works for the construction of chamber and valve box, such as reinforced concrete, blinding, base, walls, cover iron steps, plastering, framework, shuttering etc. The price shall also include all related civil works including the excavation, backfilling protection and making good.

22. Painting:

The unit price shall also include surface treatment, priming, under coating, barrier coating, finish painting and protective paintings and labeling as described in the specifications.