



ISLAMIC RELIEF WORLDWIDE
WASH Department
Bill of Quantity for Pipe scheme Project

Project Name: Solar power pipe network

Province: Kunar

District: Nari

Village/CDC: Ratagal (Shigi)

S/N	Activity Description	Unit	Quantity	Unit Cost AFN	Total Cost AFN	Remarks
A	BoQ for 40 cubic meter Ground water Reservoir					
A1	Excavation with prepararion : Site preparation and leveling and making of access way for Mazda Car and Excavation ground type 3-5 for proposed Tank and Valve box foundations, to clean site from all existent materials the excavated materials should be put 1.5 m away from sides (Rocky Layer, Hard cutting) According to attached technical drawing, technical specification and engineering considerations.	M ³	88			
A2	PCC (Plain Cement Concrete), M(1:2:4) mix ratio with all required work and labor cost for base of foundation with 7 days curing and watering of Water tank and Valve box , According to attached drawing and site focal point instruction.	M ³	7			
A3	RCC (Reinforced Cement Concrete), M-(1:1.5:3) Crush gravel must be used the R.C.C work including Bar-bending and Form work with all required work the curing must be continued up to a month according to attached drawing and specification as assign engineering consideration.	M ³	13			
A4	Stone Masonry Work: Stone masonry for foundation and superstructure: use 1:4 ratio of mortar, stone shall have high bearing capacity and smooth surface for decoration. With it's all related activities according to the drawing and technical specification	M ³	50			
A5	Cement Sand pointing Work: M 1:3 on stone masonry work on exposed surface including racking the joints, wetting the surface, and curing With it's all related activities according to the drawing and technical specification	M ³	50			
A6	Plastering Work (Interior of Water Tank) M(1:3) The plaster should have waterproof admixture (ISOMAT) products/zero chips/Paddlo powder with 2-2.5 cm plastering according to technical requirements, two layers, with proper curing.	M ²	66			
A7	Plastering Work (Exterior Side of Water Tank) M(1:3) The Materials Should be according to attached Specification with 2-2.5 cm plastering according to technical requirements, with proper curing.	M ²	50			
A8	Roof Insulation: Supply and installation of Isogam according to Engineering technical requirement and specification. تهیه و نصب ایزوگام برای پوشش سقف ذخیره.	M ²	35			
A9	Iron mainhole. Supply and Installation of iron gate for reservoir manhole (60x60) cm (3 mm Steel sheet) with lockable system and all required work/fittings according to drawing (Functional) تهیه و نصب ماینچول آهنی مطابق نقشه	Pcs	2			

A10	Ladder : Supply and installation of GI Ladder with painting of main ladder and interior ladder of Water tank according to Attached Drawing Specification.	M	2			
A11	Inlet GI Pipe. Supply and Installation GI Pipe Ø 2 ", Min Wall thickness =2.9 mm, Min Weight =5.20 Kg/M with cross bar welding and other accessories as drawing.	M	5			
A12	Over Flow Pipe: Supply and Installation GI Pipe Ø 2.5", Min Wall thickness =2.6mm, Min Weight =3.81Kg/M with 2 Elbows, and net cover according to the Attached Drawing Specification.	M	5			
A13	Drain Pipe: Supply and Installation GI Pipe Ø 3", Min Wall thickness =2.9 mm, Min Weight =6.25 Kg/M with cross bar welding and other accessories according to Attached Drawing Specification.	M	5			
A14	Outlet Pipe : Supply and Installation GI Pipe Ø 3", Min Wall thickness =2.9 mm, Min Weight =6.25 Kg/M with cross bar welding and other accessories according to Attached Drawing Specification.	M	5			
A15	Ventilation Pipe: Supply and Installation GI Pipe Ø 2.5", Min Wall thickness =2.6mm, Min Weight =3.81Kg/M with 2 Elbows, and net cover according to the Attached Drawing Specification.	M	5			
A16	Flanged Gate Valve : Supply and installation of Flanged Gate Valve Ø 3" with Nut Bolt and Washers and other accessories. And with relevant composite fitting to be connected with (OD 160) mm HDPE pipes. [Spec. Sec. No. 5220]	No	1			
A17	Flanged Gate Valve : Supply and installation of Flanged Gate Valve Ø 2.5" with Nut Bolt and Washers and other accessories. And with relevant composite fitting to be connected with (OD 160) mm HDPE pipes. [Spec. Sec. No. 5220]	No	1			
A18	Back Filling : Back filling by well-compacted materials (the compaction should be layer by layer according to Engineering technical considerations for elevated water tank around. پرکاری خاک معہ تپک کاری	M ³	20			
A19	Stone Sheet Sign board: Supply and installation of stone sign board for project (60x50)cm as per site Engineer instruction.	Job	2			
A20	Metalic Sign board: Supply and installation of Metalic sign board for the project (120x100)cm and height of pilar should be 2m with all required activities as per site Engineer instruction.	Job	1			
A21	Painting Work: Supply and painting of Whether Shield Painting work (100%) with three coats for water tank.	M	72			
A22	Calligraphy work: writing of Hadis Shareef and some hygiene promotion messages with pictures and logos as per site technical focal point instruction.	Job	1			
A23	Site Supervisor: the hiring of site supervisor for quality control of project activities as per IRW HR policy for 90 days.	day	90			

	Sub Total for water elevated tank and bore well protection and valve mainhole				<i>AFN</i>	-	
B	BoQ for one bore well protection main hole						
B1	Preparation/Excavation: Excavation ground type 3-5 for proposed bore well protection mainhole, to clean site from all existent materials the excavated materials should be put 1.5 m away from sides (Rocky Layer, Hard cutting) According to attached technical drawing, technical specification and engineering considerations.	M ³	4				
B2	Stone bolder Pitching: Supply and pitching of stone in foundation and surrounding area of stand post.	M ³	1				
B3	PCC (Plain Cement Concrete), M(1:2:4) mix ratio with all required work and labor cost for base of foundation with 7 days curing and watering of Water tank and Valve box , According to attached drawing and site focal point instruction.	M ³	1				
B4	RCC (Reinforced Cement Concrete), M-(1:1.5:3) Crush gravel must be used the R.C.C work including Bar-bending and Form work with all required work the curing must be continued up to a month according to attached drawing and specification as assign engineering consideration.	M ³	2				
B5	Plastering Work M(1:3) The plaster should be 2-2.5 cm plastering according to technical requirements, with proper curing.	M ²	10				
	Sub-Total Cost for one Main hole				<i>AFN</i>	-	
C	BoQ for one Controle valve mainhole for distirbution line						
C1	Preparation/Excavation: Excavation ground type 3-5 for proposed bore well protection mainhole, to clean site from all existent materials the excavated materials should be put 1.5 m away from sides (Rocky Layer, Hard cutting) According to attached technical drawing, technical specification and engineering considerations.	M ³	1				
C2	Stone bolder Pitching: Supply and pitching of stone in foundation and surrounding area of stand post.	M ³	1				
C3	RCC (Reinforced Cement Concrete), M-(1:1.5:3) Crush gravel must be used for the R.C.C work including Bar-bending and Form work with all required work the curing must be continued up to a month according to attached drawing and specification as assign engineering consideration.	M ³	1				
C4	Iron manhole. Supply and Installation of iron manhole (50x50) as per site Technical focal point instructions	Ls	1				
C5	Plastering Work M(1:3) The plaster should be 2-2.5 cm plastering according to technical requirements, with proper curing. پلستر کاری با مارک ذکر شده.	M ²	1				
	Sub-Total Cost for one Main hole				<i>AFN</i>	-	
D	Grand-Total Cost for 12 Main hole				<i>AFN</i>	-	
	BoQ for one Set House connection Stand Post						

D1	Preparation/Excavation: Excavation ground type 3-5 for proposed STP, to clean site from all existent materails the excavated materials should be put 1.5 m away from sides (Rocky Layer, Hard cutting) According to attached technical drawing, technical specification and engineering considerations.	M ³	1			
D2	Stone bolder Pitching: Supply and pitching of stone in foundation and surrounding area of stand post.	M ³	1			
D3	PCC (Plain Cement Concrete), M(1:2:4) Mix ratio with all required work and labor cost for base of foundation with 7 days curing and watering of STP , According to attached drawing and site focal point instruction.	M ³	1			
D4	Plastering Work M(1:3) The plaster should be 2-2.5 cm plastering according to technical requirements, with proper curing.	M ²	3			
D5	Painting Work: Supply and painting of Whether Shield Painting work (100%) with three coats for water tank.	M ²	3			
D6	House Connection Fittings: house connection from Main pipe to inside of house with all its features and accessories (PE-FTA, GI-Gate Valve (best Quality), Water Meter(Best Quality) 1/2", Non-Returning Valve 1/2", Water Tap (Best Quality)1/2", PPR-FTA 1/2", PPR Elbow 1/2", PPR-Pipe 16 Bars 1/2" and Water Meter Box (Best Quality, Heavy duty) with Average length of 25m of each pipe and prefabricated heavy duty water meter Box including all concerte and plaster works	Job	1			
	Sub-Total Cost for one House connection Stand tap				<i>AFN</i>	-
	Grand-Total Cost for 60 House connection Stand tap				<i>AFN</i>	-
E	BoQ Well Drilling.					
E1	Site Preparation: Including leveling and cleaning	M ²	20			
E2	Well, Drilling by Rotary Machine with Transportation: Diameter (12") inches, Depending on soil texture. The sampling should be recorded from each geological formation in a proper sample box and Recording sheet as per field engineer instruction contractor can chage the type of machinery to the Comperssor drilling machine.	M	100			
E3	PVC filter and casing pipe drop cable: Supply and installation of 10mm cable for filter and casing pipes lowring.	M	165			
E4	Screw: Supply and installation of screw can for filter and casing pipes connection.	Can	3			
E5	Glue: Supply and installation of American Glue 717 for filter and casing pipes lowring.	Kg	3			
E6	Supply and Installation of PVC Filter Casing Pipe: Diameter=(8") inches, Class D, Min Wall Thickness (10.3) mm, Min weight (10.3 kg/m) According to ASTM D1785 Sch.80, DIN 8061, DIN 8062, ASTM F480 Standards	M	52			

E7	Supply and Installation of PVC Casing Pipe: Diameter=(8") inches, Class D, Min Wall Thickness (10.3) mm, Min weight (10.3 kg/m) According to ASTM D1785 Sch.80, DIN 8061, DIN 8062, ASTM F480 Standards.	M	56			
E8	Gravel Packing: the Size of Gravel Packing (3-6) mm, the exact size will be declared after boring and Well Hydrological calculations, the Gravel should be clean and technical acceptable.	M ³	6			
E9	Soil/Clay : Supply and applying Clay soil for Blocking the Casing side of water well, special precaution should be considered	M ³	7			
E10	Well Cleaning : Cleaning should be carried out by compressor Machine until the qulaity of water clean and reached to >5 NTU as per Water quality Engineer instruction	Job	1			
E11	Pump Test: Proper pump data should be recorded, the test should be min for 8 hours.	Job	1			
	Sub-Total Cost for Well Construction				AFN	-
F	BoQ of Boundary wall, Solar fram apron and Guard room for PV-System					
F1	Excavation in Foundation: Excavation , Site Prepairation and Site Clearince according to Site requirements.	M ³	40			
F2	Stone Masonry Work: Stone masonry for foundation and superstructure: use 1:4 ratio of mortar, stone shall have high bearing capacity and smooth surface for decoration. With it's all related activities according to the drawing and technical specification	M ³	120			
F3	Pointing Work Pointing of existing stone masonry with 1:4mortar of cement and sand with it's all related activities according to required specification.	M ²	305			
F4	P.C.C (Plain Cement concrete) M(1:2:4) According to Attached Drawing and its specification	M ³	12			
F5	RCC (Reinforced Cement Concrete), M-(1:1.5:3) for solar apron beams: Crush gravel must be used the R.C.C work including Bar-bending and Form work with all required work the curing must be continued up to a month according to attached drawing and specification as asign engineering consideration.	M ³	7			
F6	Brick Masonry Work M(1:4) : Bricks masonry with burned bricks with 25% mortar(M:300, 1:4)	M ³	3			
F7	Plastering Work, M(1:4) the Sand, Cement should be according to attached specification and curing should be properly done according to site requirement and technical recommendations.	M ²	126			
F8	Metallic Steel Gate: Supply and installation of Metallic Steel gate Th=20 Gauge Iron sheet According to Technical specification and with all required item.	M ²	8			
F9	Wooden window & door: Supply and installation of best qulity slime window and door According to drawing and IRW technical focal point instruction.	M ²	6			
F10	GI solar panel frame: Supply and installation of GI solar panels frame with painting according to the attached techcal drawing and spec and as instruction of IRW site Engineer.	LS	1			

F11	Fence , Barbed Wire : Supply and installation of Safety Fence, Barbed wire according to attached drawing and its specification.	M	50			
F12	Painting Work: Whether Shield Painting work (100%) with three coats.	M ²	184			
F13	Back Filling. Layer by Layer back filling with proper compaction, and Drain out of Inside of boundary, according to site requirement.	M ³	7			
	Sub-Total Cost for boundary wall Construction				<i>AFN</i>	-
G	BoQ for Pipe networks					
G1	Excavation of Trench: Excavation of trench (Soft Soil, Hard Cutting) According attached Drawing and Specification.	M ³	971			Including House Connection Excavation {(60x25)x[X0.4x0.3]}=180M3
G2	Supply and Installation of Caution Tape: Caution tape should be installed in trench according to attached drawing.	M	500			
G3	Back Filling of Trench: Back Filling of trench with proper compaction, curing and caution,	M ³	575			
G4	Back filling of Trench with Soil: Back filling of trench by soil according to attached drawing and its specification.	M ³	396			
G5	HDPE/Pipe/PN10/Dia=40mm Supply and installation of (SDR17)- (W.T-2.4mm)- Weight(0.295Kg/m)ISO4427, DIN8074, ASTM D2239, ASTM D2737, ASTM D3035, ASTM D2515 All relevant marks should be attached in pipe (Bar, measurement length, Standards). [Spec. Sec. No. 5220]	M	3199			
G6	HDPE/Pipe/PN16/Dia=50mm Supply and installation of (SDR17)- (W.T-5.7mm)- Weight(0.653Kg/m)ISO4427, DIN8074, ASTM D2239, ASTM D2737, ASTM D3035, ASTM D2515 All relevant marks should be attached in pipe (Bar, measurement length, Standards). [Spec. Sec. No. 5220]	M	729			
G7	HDPE/Pipe/PN10/Dia=63mm Supply and installation of (SDR17)- (W.T-4.7mm)- Weight(0.95Kg/m)ISO4427, DIN8074, ASTM D2239, ASTM D2737, ASTM D3035, ASTM D2517, All relevant marks should be attached in pipe (Bar, measurement length, Standards). [Spec. Sec. No. 5220]	M	29			
G8	P.C.C (Plain Cement concrete) M(1:2:4) (M:150) for the pouring of HDPE pipe the unit cost includes all relevant costs i.e. materials, labors, formwork and curing..	M ³	20			
G9	PRV: Supply, Installation, of 40mm Dia PRV with All required activities and work (Punctual)	PCs	1			
G10	PE Fittings 16 Bars with plumbing work: Supply, Installation, Laying and fitting of HDPE+GI pipes (Flanged adapter, Sockets, Elbows, TEEs, Saddle Clamps, Reducers, M/F Adapter, Gate valve and etc.) with Supplying and installation according to drawing and its specifications.	LS	1			
G11	Suspension Cable: Stainless wire Rope 16 mm with Clamp and all required material and work as instruction of WASH focal point (punctual)	M	100			
G12	Extra Pipe for Covering of Main Pipe Network Extension Beside The Cable Brege & Iron Clips For Taiting The Pipe With The Beam of Cable Brege	1	1			

	Sub-Total Cost for Pipe Network				<i>AFN</i>	-
H	BoQ for Solar Panels					
H1	<p>Solar Panel: European-made or Equivalent meet by IEC, ISO, TUV, and CE, According to the following Electrical Parameters. Minimum Power Output (P)=540 Watts if its not available the contractor can purchase a 270-watt solar panel as per technical focal point instruction. Maximum power voltage (Vmp): 31.6.2V Open circuit voltage(Voc): 38 - 38.4V Max power point current (Imp): 8.5 - 9.5A Module short circuit current (Isc): 9 - 10 A Series Fuse Rating >=15 Amp Range of ambient temperature: 233 .. 358 K Temperature coefficient (Voc): -0.31% /C° Power tolerance: +3 to 5 % Solar module type: POLYCRYSTALLINE or MONOCRYSTALLINE Waterproof PV junction boxes IP68 for each array including DC Fuses, DC switch disconnectors, bus bars, terminals, ducts or trays, supports & labels suitable to the PV array loads. The contractor must submit a manufacturer warranty for solar panels for a period not less than 25 years. The contractor must submit all the required certificates for each PV solar panel from Serial number of PV Panel should be certified by the manufacturing company, for more details and electrical parameters refer to attached Design.</p>	Watt	13500			
H2	<p>Submersible pump with its Compatible inverter, control box and Fuse box in stainless steel. Supply and installation of European Made submersible according to the following parameters. Comply EN 1.4301 (AISI 304).EN 1.4301 (AISI 304). DIN 1.45301 (AISI 304). EN 1.4401 (AISI 316).. Rated power - P-9.2 KW, based on Pump performance Rated voltage: 3*220-230 V Rated power: 9.2 Kw Main frequency: 50 Hz Avg. water production per day: (64.4 m³), Compatible inverter: RSI 3x208-240V IP66 11 kW 31A, 31 A, Pure sine wave, VFD and soft starter. TDH =130 m, it is the initial TDH, the Actual TDH will be declare after Boring well and Pump test. with PV disconnecter for DC, from Solar panels to Inverter connction (Puncrtual) distance between tank and well =350) M, Approximately. Solar pump P2=9.2 KW according to the technical specification and requirement, Contractor must submit manufacturer warranty for solar Pump for a period not less than 2 years. Contractor must submit all the required certificates for solar pump</p>	set	1			It is the proposing pump Based on Assumption parameter for Well drawdown, the actual is depend to redesigned of the PV system.
H3	<p>Well Probe Sensor: Dry running sensor including Electrical Wire and other fittings , According to Attached Electrical parameters</p>	set	1			

H4	Float Switch : Float Switch including required Electrical Wire and conduit, The Float Switch should be installed properly according to attached Specification and engineer recommendations.	set	1			
H5	Motor (Submersible Electrical Cable) (3x20) mm² 3-phase cable for power and 1-phase cable for ground according to drawing and technical requirements(Turkish made)	M	350			
H6	PV System-Inverter Cable (1x10mm2), Cable from PV-combiner Box to Inverter (Turkish made)	M	30			
H7	Grounding/Earthing. All system Should be proper Grounded by ground Rod and Copper Cable (PV, PV-Frame, Inverter, Submersible and other electrical installed features)	LS	1			
H8	Cable Splice Kits: (2.5 mm -6mm2) : The Cable and other fixtures should be properly fixed.	set	1			
H9	Pump Holding Cable : Plastic made, diameter=12 mm with its relevant accessories and features.	M	130			
H10	Wire Ties White and Black	Packet	1			
H11	Electrical Conduit: Electrical Conduit for External Wire:	L.s	1			
H12	Circuit Breaker and Auto Fuses: Circuit Breaker and Auto fuses should be installed to prevent system during electrical issues.	Set	1			
H13	Non-Returning Valve (Flanged): Supply and installation of 50 mm Non-Returning Valve + Flanged Fittings According to Pump Rising Pipe.	Set	1			
H14	Gate Valve Supply and installatio of Get Valve (2 "), for controlling water well discharge with Washer and other relevant accessories.	No	1			
H15	Mechanic Kits, Supply and provide of mechanic kits to community (36 inch, 24 inch and 12 inch pipe wrench, 12 inch screw wrench, hack saw with 10 blads, 5 paire gloves, 2 screw drivers, 0.5 Kg hammer, wrench box, and with kit box) best quality as instruction of site engineer.	Ls	1			
	Sub-Total Cost for Solar Panels					
	Grand Total for All BoQ				AFN	-