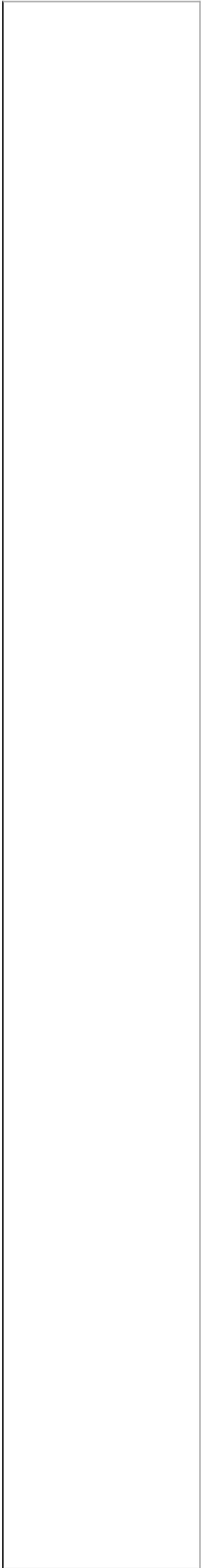


DIVISION 1 - GENERAL REQUIREMENTS

1.0 Introduction	
1.1	The Bill of Quantities (BOQ) are to be read in association with the Drawings(DRGs), Specifications (Specs) and Conditions of contract.
1.2	All works have to be executed in safe and satisfactory environmental conditions.
2.0 Quantities	
2.1	Work is measured net based on the actual finding on site as it is stated in the method of measurement in the specs, except where otherwise stated in a measurement rule applicable to the work.
3.0 Description	
3.1	Heading to groups of items in the BOQ are to be read as part of the description of the concerned item.
3.2	<p>Unless otherwise specifically stated in the BOQ or herein, the following are deemed to be included in the rate of every item with all work:</p> <ul style="list-style-type: none"> Labor and all costs in connection, Materials, goods and all costs in connection, Assembling, fitting and fixing materials and goods in position, Any method of fixing, fixing to any nature of base or background including preparation and providing fixing materials, Waste of materials, Fire stopping requirements, Sealant, Forming and finishing joints, Preparing surfaces, Bedding and under layers, Work at any location or height or depth, Work in small, isolated quantities, Protection of work, <p>Establishment and overhead charges and profit.</p>
3.3	<p>Except where items are included in the BOQ and are priced separately therein, provision of the following are deemed to be included in the rate of every item with all work:</p> <ul style="list-style-type: none"> Site administration and security, Insurances, Bonds and guarantees, Temporary water supply, Temporary electricity supply and lighting, Temporary accommodation and facilities for the use of contractor, consultants and owner, Temporary roads, hard standings, crossings and the like, Temporary fencing, hoardings, screens, fans, foot-ways, guardrails, gantries and the like, Safety, health and welfare of workers, Compliance with traffic regulations, Maintenance of public and private roads, services and adjoining property, Control of noise and pollution, prevention of fire and compliance with all other statutory and general obligations, Removing rubbish, protective casing and cleaning the works on completion, Samples and testing of materials, including providing equipment for testing, Design, co-ordination, installation, as-built and shop drawings, Reports, records, certificates, notices, proposals, details, calculations and other information required by the specs, Compliance with all other conditions of contract,
3.4	The contractor is required to make detailed shop drawing and approve it from the supervising engineers before execution.
3.5	The contractor shall provide Equipped offices with all the electrical, sanitary and furnishing details and must be equipped with lighting, electrical outlets, adaptations, computers, printer, camera, and a prepaid internet and a common kitchen and bathroom for UNDP and End user committee engineers. Also the contractor should supply Fully furnished meeting room, being used jointly with the supervision committee engineers.
3.6	The Contractor should have wide range experience in the Sewage networking work, he should have a team of electrical, mechanical and civil engineers and surveyors. The contractor should have enough and the required machinery to complete the work such as, excavators, loaders, front end loaders, trucks etc



Bill of Quantity

Full Rehabilitation of Stormwater Lift Station - Phase 2 - Jubail district - Fallu Anbar - Iraq

The Following Notes must be Taken into Account During the Contract.

- The contractor should read the attached Technical Specifications and obligations carefully and clearly. These documents shall be treated as essential Parts of the contract.
- All works, and the materials supplied by the contractor must be in accordance with the relevant Iraq's standard Specifications (It's the contractor responsibility to check the specifications, in addition to Iraqi technical specification for building works).
- All the equipment's should be imported from the original manufacture as standard specifications. More than one proposal must be submitted by the contractor in the direction of the resident engineer.
- The contractor shall be responsible of installation of all equipment's and mechanical parts. It is the contractor responsibility to fit all these equipment's to the site. If any changes happened to the civil work, the contractor shall make all these changes without asking for any additional fees.
- Before supplying any equipment, the contractor should have APPROVAL from supervisory committee
- The contractor must provide samples, mockup, catalogues for testing, inspection and approval by the site engineer.
- The contractor must deliver a work plan for the resident engineer before starting any work.
- Any mechanical parts that is not mentioned in the tender or will be needed if any modification occurs, the contractor must complete without any additional fee.
- The contractor must supply spare parts for equipment's enough for two years (the spare parts list should be submitted by suppliers).
- The contractor is responsible on the maintenance of the equipment's for one year after the handover.
- The contractor is permitted to change the pipe length and route if the pipe is passing in obstructed area after taken the agreement of the resident engineer and submitting new shop drawing.
- Supplier shall submit the detailed bill of materials used and equipment, material specifications supplied before the completion report is submitted otherwise the contractor shall be responsible.
- The entire plant equipment installed by the supplier shall be warranted for a minimum period of 12 Months and offer for Annual maintenance Contract for a period of one year.
- Any material or equipment damaged/defective during the warranty period shall be replaced / repaired at the cost of the contractor.
- All equipment should be manufactured in the same year of processing exclusively.
- The contractor is responsible for any redesign work required
- The contractor should submit health and safety plan for workers, equipment, staff.
- The contractor must provide PPE for all laborers, personnel, engineers and possible visitors to the site

Tag.No	#	Description	Unit	Qty	Price
Part 1: Mechanical Work					
	1	horizontal centerfugal storm water pumps 2520m3/hr x24m			
	1	Supply, install, connect, test and commission horizontal double suction centrifugal volute pump, type of pump: split case of (Q:2525 m3/hr.x H:24 m) capacity, 1000 r.p.m, 3 ph, V=400, IP55 ,class F, motor power rating not less than 315 kw, Efficiency: not less than 80 percent at duty point ,Casing made of Ductile iron casting, shaft made of Stainless steel / SUS403, and impeller made of Duplex Stainless steel ,Casing ring made of Stainless steel / SUS304,Packing sleeve made of Stainless steel / SUS304, the motor coil made of copper, water temp.(0°C to 80°C), ambient temp. 55c°, pumped liquid : Rian water, the work includes, all plumbing works, pressure gauges, fittings, flanges, reducers, couplings, bolts, chains, drain pipe to nearest drain point, washers and nuts...etc. inlet 350mm & outlet 300mm, five on duty and one on standby. The Painting of pump (Casing internal Epoxy resin painting for water service) and the Outside surface (Epoxy resin painting). the work include supply equipment's for test the pumps at (flow rate 2525 m3/hr and head 24m)in site after commission by using flowmeter.With all the works required to complete the Job. Also warranty for one year and spare parts for two years. Certificate of origin, inspection and test documents, BV and performance inspection and original warranty letter by manufacturer or the official agent of the manufacturer are required. The required brand is SPP. For more details , see attached compliance sheet.	No.	6	
	2	Mechanical Fitting for Connecting the Pumps			
	2	Supply, install, connect, test and commission mechanical valves, check valves, other fitting and accessories according to details shown below which should be used to connect the pumps with networks of pipes, the work includes, gaskets, fittings, flanges, couplings, bolts, washers and nuts...etc., all plumbing, cutting and welding works with all connection and installation accessories. The valve and check valve and other fitting specification: body and disk should be made of ductile iron EN-GJS-400-15 (GGG40 according to DIN 1693), the shaft made of stainless steel and all internal and external parts of valve, check valve and other fitting should be coated by using epoxy minimum thickness of 300 microns (coated by manufacturer), the required brands for all mechanical valves, check valves and other accessories are VAG,KTZ, Crane, Honeywell, KSB or equivalent, with all the works required to complete the Job. Certificates of origin, inspection documents, original warranty letter by manufacturer or the official agent of the manufacturer are required.			
11	2.1	DN600, PN16 check valve double Flange swing type	NO.	6	
19	2.2	DN1200, PN16 check valve double Flange swing type	NO.	1	
14	2.3	DN600, PN16 Butterfly valve double Flange with Reduction Gear	NO.	6	
5	2.4	DN700, PN16 Butterfly valve double Flange with Reduction Gear	NO.	6	
20	2.5	DN1200, PN16 Butterfly valve double Flange with Reduction Gear	NO.	1	
7	2.6	DN 700 PN 16 stainless steel flexible Joint	NO.	6	
45	2.7	DN 600 PN 16 stainless steel flexible Joint	NO.	6	
	3	Black Steel Fittings			
	3	Supply, Install, connect and test black steel of double flange fittings as per the details shown below of (Heavy Pipe Schedule 40 - ASTM A53 Type A) specifications, the work includes coating the fitting from inside using epoxy coating with thickness not less than 600 micron and outside using epoxy coating with thickness not less than 300 micron , the certificate verifying the suitability of the epoxy coating is required from the manufacturer, supplying, installing and connecting steel support (stand), clamp, bolts, pressure gauges , flanges, bolts, washers, nuts ...etc., all cutting and welding works and all connection and installation accessories to complete the work. And all the fittings to be provided not assembled or manufactured locally. (Western Origin) or equivalent			
8	3.1	DN700*DN350 Double Flange flat Taper (eccentric)	NO.	6	
9	3.2	DN600*DN300 Double Flange Taper (concentric)	NO.	6	
43	3.3	DN1400*DN1200 Double Flange Taper (concentric)	NO.	1	
10	3.4	DN600 Double Flange Bend-90-degree	NO.	24	
24	3.5	DN1200 Double Flange Bend-90-degree	NO.	1	
15	3.6	DN1200* DN600 Double Flange T-Fitting	NO.	6	
22	3.7	DN1200* DN200 Double Flange T-Fitting	NO.	1	
16	3.8	DN1200 Blank flange	NO.	1	
49	3.9	DN1200 Double Flange Adaptor	NO.	1	
	4	Black Steel Pipes			

	4	Supply, Install, connect and test black Steel pipe (Double Flange Pipe Pieces) (Heavy Pipe Schedule 40 - ASTM A53 Type A), the work includes coating the pipe from inside using epoxy coating with thickness not less than 600 micron and outside using epoxy coating with thickness not less than 300 micron, the coating is required from the manufacturer. The work includes supplying, installing and connecting steel support (stand), clamp, bolts, pressure gauges , flanges, bolts, washers, nuts ...etc., all cutting and welding works and all connection and installation accessories to complete the work and all the fittings to be provided not assembled or manufactured locally. (Western Origin) or equivalent			
6	4.1	DN 700, length =2.7 m, Double Flange Pipe Pieces	NO.	6	
12	4.2	DN 600, length =2m, Double Flange Pipe Pieces	NO.	12	
13	4.3	DN 600, (puddle flanged) length =1.5m, Double Flange Pipe Pieces	NO.	6	
18	4.4	DN 1200, (puddle flanged) length =3m, Double Flange Pipe Pieces	NO.	1	
17	4.5	DN 1200, length =2m, Double Flange Pipe Pieces	NO.	7	
21	4.6	DN 1200, length =1 m, Double Flange Pipe Pieces	NO.	1	
	4.7	DN 600, length =2 m, Double Flange Pipe Pieces	NO.	6	
5	Vacuum Relief-Air				
23		Supply and install DN200 PN16 combination vacuum relief-air inlet & air release valve anti-hammer type with gate valve (double flanged), with pipe, support, fittings and all connections required to complete the work. (Western Origin) or equivalent	item	1	
6	Surge Protection				
35		Design, Manufacture, Supply, Install, Test and Commission of the Surge Protection Systems including surge vessels, two compressor , control panel, the surge system connection with black Steel pipe and include supply and install black Steel pipe (Heavy Pipe Schedule 40 - ASTM A53 Type A) all fittings PN 16 such as gate valves flanges, reducers, tee, elbow, clamp, pressure gauges, bolts, washers and nuts) valve, to the transmission mains, and any other work to make Surge Protection Systems complete. Design includes undertaking surge analysis to determine the extent of surge pressure and other adverse hydraulic phenomena that may occur during the operation of the pumping systems. The Surge Protection Systems should be approved after designed by a consultancy company or a manufacturer.	item	1	
Part 2: Electrical Work					
1	Power transformer 2500 KVA				
		Supply, install, test and commission of 2.5 MVA 11/0.4 kV Transformer indoor type, similar and/or equivalent to Western origin (Schneider/ABB/ASTOR ... etc.) three phase, step down oil immersed type, ONAN cooling, vector group DYN 11, Ambient temperature 55 C, As specified in the electrical specification and shown in the electrical drawings. (Comply with Technical Compliance Sheet) and MoE Technical Specifications. The prices are complete with training, repairing, spare parts, materials, equipment, machinery, requirements and all related civil and mechanical works which are necessary to complete the installation.	No	1	
2	Power Factor Correction 500 KVr				
		Supply, Install, test and commission automatic power factor correction panel with (500kVr), similar and/or equivalent to Western origin (Schneider/ABB/MG ... etc.) Complete with all auxiliaries, instrument transformers, DC system, protections, interface ...etc and according to the drawings and technical Specification and according to the specifications of the Iraqi Ministry of Electricity.	PCS	2	
3	LV MAIN SWITCHBOARDS				
		Supply,install,Test, operate and commission LV switchboards IP54, 380/220V, similar and/or equivalent to Western origin (Schneider/ABB ... etc.) according to approved drawings and technical specification. The work should include the following tasks. Note: The control shall be PLC controlled for ACB , MCCB's between MDB's & Bus Coupler			
3.1		MDB's switch boards ,contains of one ACB breaker (2500A, 4P, 75kA ,EDO, ACB WITH TM BASED O/C & S/C PROTECTION , MCCB's according to drawings,(3) amper meter and the required C. Ts.with M,E inter look, metering & indication.	ea	2	
3.2		BUS COUPLER-2500A , ACB Breaker with all accessed and according to approval, metering & indication.	ea	2	
3.3		Transformer Panel 4000A, 4P indoor type , metal engclosed , heavy gauge metal contains of: - One main ACB breaker (4000A, 4P, 65kA ,EDO, ACB) - Tow sub ACB breaker (2000A, 4P, 65kA ,Fixed Type, ACB) - Main Bus bars 5000 A cabacity with TM BASED O/C & S/C PROTECTION ,(3) amper meter and the required C. Ts.with M,E inter look, metering & indication with all required accessories.	ea	1	
4	MOTOR CONTROL CENTER PANEL (MCC)				
		Supply,install,Test, operate and commission MCC/ Low voltage switchboard IP54, 380/220V, similar and/or equivalent to Western origin (Schneider, AB or Equivalent) according to approved drawings and technical specification. MCC Panel (1,2,3&4) SPSR2 MCC/ Low voltage switchboard IP54, 380/220V, 4 busbars, 4000A, 50 kA consist of : • (1)Main (C.B) - ACB- (2500) A with thermal and short circuit protection releases, (3) amper meter and the required C. Ts. • (3) (C.B) - ACB - (800) A with thermal and short circuit protection releases, (3) amper meter and the required C. T. • (2) (C.B) Molded cases type (630) A with thermal and short circuit protection releases. • (2) (C.B) Molded cases type (100) A with thermal and short circuit protection releases. • (1) (C.B) Molded cases type (63) A with thermal and short circuit protection releases • (3) SOFT STARTER MOTOR (300-320KW)(800A). • (3) Auxiliary contactor (Bypass Contactor) (800A).	PCS	2	
5	Power Cables				
		Supply, install and test insulated cable with copper conductor of size as indicated to be fixed on wall or ceiling or on cable tray or ladder be means of suitable P.V.C. clips or in the trench or through pipe including protection of cable with suitable size P.V.C. or heavy gauge galvanized pipe for vertical drops, connections etc ...			
5.1		Single core (1x240 mm2 CU / XLPE / SWA / PVC) Cable	M.L	7000	
			Total		

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constructed civil work. If any changes

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