

SECTION 4 : EXCUTION OF WATER TREATMENT COMPACT PLANT, AND SEWAGE PROJECT
SECTION 4-1 : EXCUTION OF WATER TREATMENT COMPACT PLANT WITH ACAPACITY OF 50MGD (225000 M3LD)

1

CODE	DESCRIPTION	QTY
13-01-00001	<p>THERE ARE 14 VERTICAL WET TYPE PUMPS EXISSTING IN TWO GROUPS EACH GROUP 7 PUMPS CAPACITY OF EACH PUMP 2500 m³/h</p> <p>H = 19.0 m , rpm 960 , P=185 Kw , EACH GROUP CONNECTED WITH MAIN COLECTOR PIPE .</p> <p>THE TOtAL CAPACITY (WITH STANDBY PUMPS) IS ABOUT 35000 m³/h IN ORDER TO INCREASE THE CAPACITY OF THE LOW LIFT STATION (BOTH GROUPS) TO 55000 m³/h IT IS REQUIRED THE FOLLOWING :-</p> <p>1- REPLACING 8 VERTICAL EXISSTING PUMPS WITH NEW 8 VERTICAL ONCE CAPACITY OF EACH ONE 5000 m³/h , H = 19.0 m , P = NOT LESS THAN 410 Kw , V = 5.5 Kv EFFICIENCY > 0.88 .</p> <p>2- REPLACING ALL THE EXISSTING DISCHARGE BUTTERFLY VALVES, NON - RETURN VALVES , BRANCH PIPE , MAIN COLLECTOR PIPE FOR BOTH GROUPS.</p> <p>3- FOR THE EXISSTING PUMPS THERE ARE TWO COLLECTOR PIPES WITH TWO MAIN ELECTRICAL BUTERFLY VALVES AND BY PASS THEN TWO MAIN DISCHARGE PIPES EACH WITH DIAMETER 1500mm , FOR THE NEW SYSTEM IT IS REQUIRED THE FOLLOWING :-</p> <p>1- REPLACING THE OLD COLLECTOR PIPES FOR BOTH GROUPS WITH NEW ONCE CAPABILE FOR THE NEW FLOW RATE AND THEN CONNECTED TO THE EXISSTING VALVES .</p> <p>2- MAKING BRANCHE SIZE 1200mm DN WITH ELECTRICAL VALVES BUTTERFLY FROM EACH COLLECTOR THEN BOTH BRANCHES WILL CONNECTED WITH ONE MAIN DISCHARGE PIPE IT IS DIAMETER 1500mm</p> <p>TOTAL LENGTH APROXIMATLY 1000m AT THE END WILL DIVIDED IN TWO BRANCHES EACH ONE WILL HAVE BUTTERFLY VALVE AND THEN CONNECTED TO THE COMMON DISTRIBUTION TANK .</p> <p>LOW LIFT PUMPING STATION:-</p> <p>THIS STATION INCLUDES THE FOLLOWING :-</p> <p>* 8 VERTICAL WET TYPE PUMPS , Q = 5000 m³/h , H =19m , P > 410 Kw</p> <p>V = 5.5 Kv .</p> <p>* CONSTRUCTION MATERICAL AS BELOW :-</p> <p>1- IMPELLER , SHAFTS , STAINLESS - STEEL</p> <p>2- SHAFT SLEEVE GUN METAL</p> <p>3- THE SHAFT TO BE ENCLOSED PIPE TYPE SPARE PARTS (SHAFTS , SHAFT SLEEVE , SHAFT COUPLING , ONE COMPLETE SET FOR EACH PUMP)</p> <p>4- 4 SET IMPELLERS AS SPARE FOR 8 PUMPS</p> <p><u>COMMON DISTRBUTION TANK :-</u></p>	

THIS TANK INCLUDES TWO PARTS EACH ONE WILL SUPPLY THE RAW WATER TO FIVE CIRCULAR GLASS COATED SEDIMENTATION TANKS LAMELLA TYPE .

SEDIMENTATION TANK :-

THE TOTAL NUMBER FOR A/m TANK IS 10 TANKS IN TWO GROUPS

THERE ARE TWO MAIN BYPASS CONNECTION BETWEEN BOTH GROUPS

ONE IN THE INLET BEFORE RAW WATER DISTRIBUTED THE SECOND

ONE AT THE OUTLET BEFORE INTERING STORAGE TANK , EACH MAIN CLARIFIED OUTLET COLLECTOR PIPE FOR EACH GROUP HAS ALSO MAIN BUTTERFLY VALVE .

THESE TANKS INCLUDE THE FOLLOWING :-

- 1- AUTOMATIC DESLUDGING SYSTEM
- 2- FLASH MIXERS WITH RETENTION TIME 1.2 MINUTES
- 3- HYDRAULIC FLOCCULATION RING RETENTION TIME 13 MINUTES
- 4- CLARIFIER LAMELLA RING , SURFACE LOAD $1.0 \text{ m}^3/\text{m}^2/\text{h}$
- 5- CLARIFIED RING
- 6- WALK WAY AROUND AND AT THE TOP OF THE TANKS
- 7- THE TANKS TO BE BOLTED STEEL GLASS COATED TYPE

2

CODE

DESCRIPTION

QTY

STORAGE TANK :-

A/m TANK REQUIRED TO BE GLASS COATED TYPE FOR BALANCING

IT IS CAPACITY 1000m^3 DIVIDED IN TWO PARTS EACH PART CONNECTED IN ONE MAIN BUTTERFLY VALVE AND COLLECTOR PIPE IT IS DIAMETER SUFFICIENT TO OPERATE 4 PUMPS CAPACITY OF EACH ONE $2000\text{m}^3/\text{h}$

FILTER LOADING PUMPS :-

CAPACITY OF EACH ONE $2000\text{m}^3/\text{h}$, H = 50m , NPSH = 4m , DRIVING POWER NOT LESS THAN 410 Kw , V= 5.5Kv , HORIZONTAL SPLITE CASE

PUMPS , WEASTERN,EFFICIENCY NOT LESS THAN 0,85,CONSTRUCTION

* MATERIAL AS BELOW :

- IMPELLER : GUN METAL
- SHAFT SLEEVE : GUN METAL
- IMPELLER RING : GUN METAL
- SHAFT : STAINLESS STEEL
- PUMP CASE : CAST IRON

* SEALING SYSTEM BY PACKING

* LUBRICATION BY MEANS OF GREASE

FILTER LOADING PUMPS INCLUDE ALSO THE FOLLOWING :-

- * BUTTERFLY VALVE FOR SUCTION OF EACH PUMP
- * NON - RETURN VALVE FOR DISCHARGE OF EACH PUMP
- * ELECTRICAL BUTTERFLY VALVE FOR DISCHARGE OF EACH PUMP
- * METALIC STRUCTURE HOUSING FOR ALL THE PUMPS INCLUDES ELECTRICAL OVERHEAD CRANE WITH CAPACITY 5 TON AND ALL THE ECCESSORIES
- * MAIN ELECTRICAL BUTTERFLY VALVE FOR EACH GROUP (STREAM)

AND BYPASS ELECTICAL BUTTERFLY VALVE BETWEEN THE BOTH STREAMS .

PRESSURE FILTERS :-

INCLUDE 50 FILTERS DIVIDED IN TWO STREAMS EACH STREAM WITH

25 FILTERS , THE SPECIFICATIONS AS FOLLOW :-

* FLOW RATE $8 \text{ m}^3/\text{m}^2/\text{h}$

* PLATE THICKNESS 16mm

* DISH END THICKNESS 18mm

* SPECIFICATIONS OF FILTER MEDIA :-

a- UNIFORMITY COEFFICIENT NOT > 1.5

b- EFFECTIVE SIZE 0.6 - 0.65

c- SLUDGE MAX 2%

d- SO_3 MAX 0.55

* 2 AIR RELIEF VALVES

* 4 MANHOLES FOR MAINTENANCE 2 IN UPPER PART AND TWO IN LOWER PART

* ALL INLET , OUTLET , DRAINAGE VALVES , MAIN , INLET , OUTLET , BACK WASHING COLLECTOR PIPES FOR EACH STREAM , BYPASS , ULTRA - SONIC FLOW METERS FOR EACH STREAM

* OPERATION , BACKWASH BY AIR AND BY WATER TO BE FULLY AUTOMATIC BY PNEUMATIC SYSTEM AND CONTROLLED BY PLC

* FILTER TESTING PRESSURE 10 bar

* FILTER OPERATING PRESSURE 5 bar

* FILTER STATION INCLUDES ALL THE INTER CONNECTION PIPES , CABLES , INSTRUMENTS

* COLLECTOR PIPE FOR INLET RAW WATER AND OUTLET FOR FILTERED WATER FOR BOTH STREAMS AND MAIN ELECTR. BUTTERFLY

VALVE FOR EACH OUTLET COLLECTOR PIPE

* MAIN COLLECTOR PIPE FOR BOTH STREAMS WITH DIAMETER 1400mm

LENGTH 1000m

3

* COLLECTOR PIPE FOR THE OUTLET OF BACK WASHING, SLUDGING

, DRAINING, OF BOTH STREAMS AND ALL THE VALVES, ACCESSORIES

TILL THE RIVER WITH DIAMETER APPROXIMATELY 1000mm AND APPROXIMATE LENGTH 500m

BACK WASHING SYSTEM

* 4 AIR BLOWERS 2 DUTY + 2 STANDBY WITH FLOWRATE $60 \text{ m}^3/\text{m}^2/\text{h}$ HEAD = 0.5 bar

* 4 BACK WASH PUMPS 2 DUTY + 2 STANDBY WITH FLOWRATE $30 \text{ m}^3/\text{m}^2/\text{h}$, HEAD = 0.8 bar

* A/M SYSTEM INCLUDES ALL THE INTERCONNECTION PIPES, CABLES

AND ALL THE BUTTERFLY VALVES , NON - RETURN VALVES , INSTRUMENTS

* 2 AIR COMPRESSORS FOR PRESSURE FILTER VALVES WITH ALL THE EQUIPMENTS , AND THE ACCESSORIES , ELECTRICAL OVERHEAD

CRANE , METALIC STRUCTURE

ALUMINUM SULPHATE STATION :-

THE STATION WILL INCLUDES THE FOLLOWING :-

* 2 PREPARATION TANKS

* 2 SATURATION TANKS CAPACITY OF 120m³ FOR EACH TANK WHICH

MADE FROM BOLTED STEEL GLASS COATED TYPE

* INLET VALVES , FLOAT VALVES , OVER FLOW VALVES , DRAINAGE VALVES AND ALL THE ACCESSORIES

* 2 MIXERS

* 8 ALUMINUM SULPHATE DOSING PUMPS CAPACITY 2000 L/h FOR EACH PUMP , HEAD 50m , PULSATION DAMPENERS

* 2 LINES TO THE FLASH MIXER ZONE WHICH MUST BE DESIGNED AT THE INLET OF THE CLARIFIER TANKS BEFORE FLOCCULATION STAGE WITH ALL THE ACCESSORIES , MANOMETERS , FLOWMETERS,

VALVES , INSURE OPERATION THE STATION PROPERL .

* 1 ELECTRICAL BOARD WITH ALL STARTERS AND THE ECCESSORIES

DISINFECTION STATION :-

THIS STATION INCLUDES THE FOLLOWING :-

* 8 DISINFECTION CONTROL UNITS CAPACITY 40 Kg/h

* 8 INJECTORS

* 2 PRESSURE REDUCING VALVES ELECTRICALFLY OPERATE

* 2 HEADERS

* 5 CHANGE OVER SWITCHES

* 2 LEAK DETECTORS

* 1 ELECTRICAL OVERHEAD CRANE OF 3 TON CAPACITY

* 4 BOOSTING PUMPS , Q = 80 m³/h , HEAD = 70 m , WITH ALL PIPES , FITTINGS , ACCESSORIES

* THE INJECTION POINT , COMMON DISTRIBUTION TANK , STORAGE TANK, AT THE MAIN FILTERD, OUTLET COLLECTOR PIPE

* 2 EVAPORATORS 200 Kg/h WITH ALL THE ACCESSORIES

* METALIC STRUCTURE HOUSE FOR BOTH A/m EQUIPMENTS AND ALSO FOR THE CYLINDER STORE .

* COMPLETE VENTILATION SYSTEM B189

4

ELECTRICAL EQUIPMENTS

CODE	DESCRIPTION	QTY
	11 Kv SWITCH BOARD INCLUDING :-	
	2 INCOMER 630A	
	1BUS COUPLER 630A	
	6 OUTGOING 630A	
	2 GENERATOR FEEDER 630A	
	TREATED WATER 5.5Kv SWITCH BOARD INCLUDING :-	
	2 INCOMER 630A	
	1 BUS COUPLER 630 A	
	2 TRANSFORMER FEEDER 630 A	
	8 PUMP STARTER	
	RAW WATER 5.5 Kv SWITCH BOARD INCLUDING :-	
	2 INCOMER 630A	
	1 BUS COUPLER 630 A	
	2 TRANSFORMER FEEDER 630 A	
	8 PUMP STARTER	
	TRANSFORMERS :-	
	5 - 11/5.5 Kv TRANSFORMER 4MVA , 4 DUTY , 1 STAND BYE .	
	3 - 11/0.4 Kv TRANSFORMER 500 KVA , 2 DUTY , 1 STANDBYE	
	3 - 11/0.4 Kv TRANSFORMER 160 KVA , 2 DUTY , 1 STANDBYE	
	GENERATOR STATION :-	

2 GENERATORS 11Kv , 750rpm , 50Hz , CAPACITY OF EACH ONE 2.2MW

CONTINUOUS OPERATION INCLUDE ALL ACCESSORIES , WATER COOLING SYSTEM FOR 48 HOURS DUTY, UPS , CHARGER AND BATTERIES WITH ITS ELECTRICAL SWITCH BOARD CONSIST OF CIRCUITS BREAKERS , ANND SERVICES SWITCH BOARD . ELECTRICAL AND MECHANICAL INTER LOCK, AUTOMATIC CONTROLLER

STORED ENERGY OPERATING MECHANISM - MEASURING EQUIPMENT

LOW VOLTAGE DISTRIBUTION BOARDS INCLUDING :-

MAIN DISTRIBUTION BOARDS IN TREATED WATER AND RAW WATER STATIONS .

LOCAL SWITCH BOARDS FOR ALL EQUIPMENTS AND ACCESSORIES.

THE ABOVE L.T BOARDS INCLUDING ALL CIRCUIT BREAKERS AND STARTERS FOR ALL EQUIPMENTS SUCH AS :-

- 1- AIR BLOWERS WITH ACCESSORIES
- 2- BACK WASH PUMPS AND BOOSTERS
- 3- ALUM DOSING AND MIXERS
- 4- CLARIFIERS EQUIPMENTS
- 5- FILTERS EQUIPMENTS
- 6- TREATED WATER AND RAW WATER SERVICES AND ACCESSORIES

7- ILLUMINATION AND SMALL POWER EQUIPMENTS

POWER FACTOR CORRECTION UNITS :-B246

SUITABLE POWER FACTOR CORRECTION UNIT UP TO 0.94 .

NOTE :-

* 11 Kv , 5.5 Kv , L.T SWITCH BOARDS AND BREAKERS INCLUDE ALL NECESSARY PROTECTIONS AND METERING SUCH AS : (SHORT CIRCUIT , UNDER VOLTAGE , OVER CURRENT , EARTH LEAKAGE , PHASE SEQUENCE , ... ETC .

* THE SUPPLIER RESPONSIBLE FOR SUPPLYING AND CONNECTING ALL THE CABLES FOR THE STATION INCLUDING CABLES BETWEEN 11 Kv SWITCH BOARD AND RAW WATER STATION OF ADISTANCE (2 x 1200 m) APPROXIMATLY .

5

GENERAL NOTES :-

1- THE GOTATION SHOULD INCLUDE ALL THE EQUIPMENTS AND ACCESSORIES

SUFFICIENT TO OPERATE THE PLANT PROPERLY .

2- ALL THE PIPES FOR THE RAW AND TREATED WATER TO BE DUCTILE TYPE

ACCEPT DISINFECTION AND ALUMINUM SULPHATE PIPES TO BE SPECIALE

3- ITEMIZED PRICES .

4- SPARE PARTS FOR 2 YEARS OPERATION .

5- THE OFFER SHOULD INCLUDE INSTALLATION , ERECTION ALL THE EQUIPMENTS

AND ALSO THE INTER CONNECTION PIPES , CABLES , AND THE CONCRETE WORK

FOR THE CLARIFIER FOUNDATIONS AND ALL OTHERS SYSTEMS .

6- SITE VISITING IS NECESSARY .

7- THE OFFER INCLUDES ALL THE METALIC STRUCTURES AND THERE FOUNDATIONS

FOR ALL THE EQUIPMENTS .

- 8- 4 DOUBLE CABINET TOYOTA CARS .
- 9- 2- FORK LIFTS 2.5 TON .
- 10- 10 AIR CONDITIONS WINDOW TYPE 24000 BTU .
- 11- 4 WATER COOLER STANDARD SIZE AND CAPACITY B638.

SECTION 4-2: EXCUTION OF WATER TREATMENT COMPACT PLANT WITH ACAPACITY OF 15MGD (66500 M/D)

CODE	DESCRIPTION	QTY
13-01-00002	<p>THE ABOVE MENTIONED PLANT HAS EXISSTING RECTANGULAR SEDIMENTATION TANKS WHICH REQUIST TO BE DEMOLISHED AND INSTALL NEW CIRCULAR TANK WHICH INCLUDES ONE DISTRIBUTION TANK , THREE CIRCULAR TANKS LAMELLA TYPE BOLTED STEEL GLASS COATED TYPE , SURFACE LOAD 1.0m³/m²/h WALK WAY AROUND AND AT THE TOP OF ALL THE TANK .</p> <p>- INTER MEDIATE TANK OF CAPACITY 300m³</p> <p>1- PRESSURE FILTER (HORIZONTAL TYPE) WITH FOLLOWING SPECIFICATIONS :-</p> <ul style="list-style-type: none"> - CAPACITY OF EACH FILTER 200m³ /h . - FLOW RATE OF THE FILTER 8 m³ /m³ /h . - THICKNESS OF THE SHELL 16 mm . - THICKNESS OF THE DISHED END 18 mm . - BACK WASHING FLOW RATE 30m³/m³/h . - NO. OF THE FILTERS 16 . - THE FILTERS EQUIPED WITH ALL INLET , OUTLET , BACKWASHING , DRAIN , AIR RELIF VALVES , INLET , OUTLET MANOMETERS , AND ALSO CONTAINS SAND , GRAVEL . - ALL THE FILTERS INSTALLED IN TWO ROWS ONE FACE TO THE OTHER:- 1- THE MAIN OUTLET FILTERED PIPE WITH ITS FITTINGS AND ACCESSORIES . 2- MAIN PIPE FOR THE OUTLET OF THE BACK WASHING DRAINAGE , DESLUDGING , CONNECTED TO APIT . 3+B1513- MAIN FLOWMETER AND PRESSURE METER FOR THE OUTLET OF THE PLANT :- - THE FILTERS TO BE ON SKID . <p>2- ALUMINIUM SULPHATE SOLUTION PREPARING AND DOSING SYSTEM INCLUDES :-</p> <ul style="list-style-type: none"> - 2 TANKS FOR PREPARATION THE SOLUTION AND TWO TANKS FOR DOSING CAPACITY OF EACH ONE 40 m³ . - ONE MIXER FOR EACH TANK . - FOUR DOSING PUMPS CAPACITY OF EACH 1000 L/h , HEAD 50 m WITH ALL PVC FITTINGS BETWEEN TANKS AND PUMPS , BETWEEN PUMPS AND INJECTION POINTS+B1541 AND ALSO INCLUDES FLOWMETER (0 –3000 L/h) AND PRESSURE METER . - LIFTING CRANE CAPACITIES 500 Kg SUPPORTED BETWEEN THE TANKS . - LADDER AND WALK WAY AROUND THE TANKS . - THE TANKS COVERED WITH ROOF . <p style="text-align: center;">2</p> <p style="text-align: center;">DESCRIPTION</p> <p>3- DISINFECTION SYSTEM INVOLVES THE FOLLOWING :-</p>	QTY

- FOUR CHLORINATORS CAPACITY OF EACH ONE 10 Kg/h INCLUDES ALL THE FITTINGS AND THE ACCESSORIES LIKE PRESSURE , VACUUM REGULATORS , INJECTORS , WATER PRESSURE METER , CHLORINE GAS PRESSURE METER .
- FLEXIBLE PIPES WITH VALVES BETWEEN THE GAS CYLINDER , AND THE COLLECTOR PIPE , AND BETWEEN THE COLLECTOR PIPE AND THE CHLORINATORS :-
- * GAS LEAK DETECTOR AND ALARM .
- * CHANGE OVER SWITCH .
- * TWO BOOSTER PUMPS WITH TWO STARTERS FIXED IN ONE ELECTRICAL BOARD ONE STAND BY AND THE OTHER UNDER OPERATION CAPACITY OF EACH ONE 6 m³/h , H = 80 m .
- * THERE ARE TWO LOCATIONS FOR THE DISINFECTION :-
- AT THE MAIN INLET SEDIMENTED WATER PIPE (PRE -CHLORINATION)
- .
- AT THE MAIN OUTLET FILTERED WATER PIPE (POST -CHLORINATION) .
- THE SYSTEM INCLUDES BOTH INJECTION POINTS AND ALL THE PVC PIPES AND THE CONNECTIONS .

4- AIR BLOWERS

- THIS SYSTEM TO BE USED IN THE BACK WASHING OF THE FILTERS .
- TWO AIR BLOWERS ONE STAND BY THE OTHER UNDER OPERATION CAPACITY OF EACH ONE 60 m³/h , H = 8 m .
 - ELECTRICAL PANEL INCLUDES MAIN CIRCUIT BREAKER AND TWO STARTERS WITH ALL PROTECTION UNITS , CABLES , AND THE FITTINGS BETWEEN THE AIR BLOWERS AND THE STARTERS .
 - AIR BLOWER SYSTEM MUST BE CONNECTED TO ALL FILTERS SO MUST INCLUDES NON-RETURN VALVES , VALVE FOR EACH FILTER , ALL PIPES AND FITTINGS

5- BACK WASHING PUMPS :

TWO WASHING PUMPS CAPACITY OF EACH 30 m³/m^{+B1562}/h , HEAD 0.8 bar WITH ALL FITTING , ACCESSORIES , FLOW METER , PRESSURE METER +B1582

6- AIR COMPRESSOR SYSTEM

TWO UNITS WITH ALL ACCESSORIES FOR OPERATING THE PRESSURE FILTERS AUTOMATICALLY AND ALL REQUIREMENTS FOR PLC SYSTEM BY PNEUMATIC WAY .

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DESCRIPTION

7- SUPPLY AND INSTALL 4 FILTER LOADING PUMPS IN ONE ROOM WITH CAPACITY Q =1000m³/h H =50 m FOR EACH PUMP .

- 3 PUMPS UNDER OPERATION THE FOURTH IS STAND BY
- SUCTION OF THE PUMPS TO BE ONE COLLECTED PIPE DIAMETER () LINED ALONG THE CHANEL INCLUDES :-
- BRANCH WITH BUTTERFLY B1620 VALVE .
- FOR EACH PUMP .
- SCREEN FOR EACH BRANCH ALL THE FITTINGS .
- BUTTER FLY VALVE FOR EACH .
- NON-RETURN VALVE FOR EACH .
- MAIN COLLECTOR PIPE FOR ALL THE DISCHARGES OF THE PUMPS .
- MAIN FLOW METER AND PRESSURE METER .
- PRESSURE METER FOR EACH PUMP .

4

DESCRIPTION

11 KV SWITCH BOARD CONSIST OF :

- 2 INCOMER CIRCUIT BREAKER 630 A .
- 1 GENERATOR CIRCUIT BREAKER 630 A .
- 1 BUS – COUPLER C.B 630 A .
- 2 OUT – GOING C.B 630 A .

ALL C.B ARE SF6 TYPE (MOTORIZED CHARGING ,ELECTRICALLY ANDMECHANICALLY) .

THE BOARD INCLUDE ALL PROTECTION AND CONTROL RELAYS ,SUCHAS SH.CT , OVER LOAD , UNDER VOLTAGE , EARTH , LEAKAGE , REVERSEPOWER PHASE FAILIR .

- INTER LOCKS , MEASURMENT AND CONTROL , RELAY WITH DISPLAY.

TRANSFORMERS

- 2 TRANSFORMERS OF 2 MVA .
- RATED FREQAENCY 50 Hz .
- CONNECTION DYNLL .
- RATED H.V 11000 .
- RATED L.V 416 .
- 3 PHASE .
- 2000 KVA .
- TYPE OF COOLING ONAN .

GENERATOR STATION

- 1 STAND BY GENERATOR 11 KV , 1500 RPM , 50 Hz .
- GENERATOR OF 1250 KVA (PRIME) .
- INCLUDE ALL ACCESSORIES , WATER COOLING SYSTEM RADIATORS ,OIL LUBRICATION PUMPS , FUEL TANKS FOR 48 HOURS DUTY , UPSCHARGER AND BATTERIES .
- WITH ITS ELECTRICAL SWITCH BOARD CONSIST OF CHANGE OVERSWITCH , AND SERVICES SWITCH BOARD .

L.T SWITCH BOARD CONSIST OF :

- 2 INCOMER CIRCUIT BREAKERS 2000 A .
- 1 BUS COUPLER C.B 2000 A .
- 6 CIRCUIT BREAKERS 630 A .
- 4 CIRCUIT BREAKERS 100 A .
- 2 CIRCUIT BREAKERS 63 A .
- 2 CIRCUIT BREAKERS 25 A .
- ALL BREAKERS CONSIST OF PROTECTIONS AND CONTROL UNITS ,REVERSE . POWER , SHORT CIRCUIT , EARTH FAILAIR , OVER CURRENT ,ACCORDING TO IEC 947 – 2 STAND ARD.
- ELECTRICAL AND MECHANICAL INTER LOCK , AUTOMATICCONTROLLER STORED ENERGY OPERATING MECHANISIM – MEASARINGEQUIPMENTS .

MOTOR STARTERS

- 4 PUMPS MOTOR STARTERS ,TYPE SOFT START - SOFT STOP UNITSSEVERE DUTY APPLICATIONS , RANGE 630 A , 3Ph , 50 Hz , 400 V WITHPROTECTION AND DISPLAY ADJUSTMENT AMBIENT TEMP – (55 0C) .

POWER FACTOR CORRECTION UNITS

SUITABLE POWER FACTOR CORRECTION UNIT UP TO 0.94 .

SERVICES ELECTRICAL SWITCH BOARDS

- 1 ELECTRICAL SWITCH BOARD FOR EACH OF , ALUM SULPHAT ,CHLORINATION , BOOSTING , AIR BLOWERS , BACK WASHING , CRANESERVICES , SYSTMES , CONSIST OF CIRCUIT BREAKER AND STARTERS .

5

DESCRIPTION

8+B1769- LOW LIFT PUMPING STATION THE STATION ABOVE WILL BEIMPLEMENTED LOCALLY :-

4 (FOUR) ROW WATER PUMPS WITH CAPACITY OF 1060 m³/h , H =20 m , NPSHr = 2.5 m , N = 1450 RPM OR LESS , SPLITE CASE PUMPTYPE SUCTION FOOT VALVE FOR EACH UNIT .

SUCTION VALVE FOR EACH PUMP WITH DIAMETER ACCORDINGTO THE PUMP DIMENTIONS .

DISCHARGE VALVE AND NON-RETURN VALVES WITH DIAMETERS ACCORDING TO THE PUMP DIMENSTIONS .

ALL THE ACCESSORIES FITTINGS , PRIMING VALVES ANDFITTINGS .

OVER HEAD TRAVELLING CRANE WITH CAPACITY 3.5 TON ANDALL THE EQUIPMENTS FOR THE CRANE THE TOTAL HEIGHT OFTHE STATION IS() THE LENGTH () THE WIDTH ()

ELECTRICAL EQUIPMENTS FOR LOW LIFT PUMPING STATION (15 MGD - 6)

DESCRIPTION

11 KV SWITCH BOARD CONSIST OF :

- 2 IN COMER CIRCUIT BREAKER 630 A .

- 1 BUS – COUPLER C.B 630 A .

- 2 OUT – GOING C.B 630 A .

ALL C.B ARE SF6 TYPE (MOTORIZED CHARGING , ELECTRICALLY ANDMECHANICALLY) .

THE BOARD INCLUDE ALL PROTECTION AND CONTROL RELAYS , SUCHAS SH.CT , OVER LOAD , UNDER VOLTAGE , EARTH , LE+B1789AKAGE , REVERSEPOWER . INTER LOCKS , MEASURMENT AND CONTROL , RELAY WITHDISPLAY .

TRANSFORMERS

- 2 TRANSFORMERS OF 1 MVA FOR EACH ONE .

- RATED FREQAENCY 50 Hz .

- CONNECTION DYNLL .

- RATED H.V 11000 .

- RATED L.V 416 .

- 3 PHASE .

- 1000 KVA .

- TYPE OF COOLING ONAN .

GENERATOR FOR LOW PUMPING STATION

- 1 STAND BY GENERATOR 416 V , 750 RPM , 50 Hz , 3 Ph .

- GENERATOR OF 650 KVA (PRIME) .

- INCLUDE ALL ACCESSORIES , WATER COOLING SYSTEM RADIALOR

- OIL LUBRICATION PUMPS , FUEL TANKS FOR 48 HOURS PUTY , UPSCHARGER AND BATTERIES .

- WITH ITS ELECTRICAL SWITCH BOARD CONSIST OF CHANGE OVERSWITCH , AND SERVICES SWITCH BOARD .

L.T SWITCH BOARD CONSIST OF :

- 2 INCOMER CIRCUIT BREAKERS 2000 A .
- 1 BUS COUPLER C.B 2000 A .
- 1 CIRCUIT BREAKERS FOR GENERATOR 800 A .
- 6 DISTRIBUTION CIRCUIT BREAKERS 400 A .
- 2 CIRCUIT BREAKERS 100 A .
- ALL CIRCUIT BREAKERS CONSIST OF PROTECTIONS AND CONTROL UNITS , REVERSE . POWER , SHORT CIRCUIT , EARTH FAULT , OVERCURRENT , ACCORDING TO IEC 947 – 2 STANDARD .
- ELECTRICAL AND MECHANICAL INTER LOCK , AUTOMATIC CONTROLLER STORED ENERGY OPERATING MECHANISM – MEASURING EQUIPMENTS .

MOTOR STARTERS

- 4 PUMPS MOTOR STARTERS , TYPE SOFT START - SOFT STOP UNITS SEVERE DUTY APPLICATIONS , RANGE 400 A , 3Ph , 50 Hz , 400 V WITH PROTECTION AND DISPLAY ADJUSTMENT AMBIENT TEMP – 55 OC .

POWER FACTOR CORRECTION UNITS

SUITABLE POWER FACTOR CORRECTION UNIT UP TO 0.94 .

- NOTICE :-

RESPONSIBILITY OF THE SUPPLIERS :-

- INSTALLATION OF THE FILTERS , PUMPS , PANELS , STARTERS , AIR BLOWERS , CRANES , CHEMICAL SYSTEMS , PIPES , FITTINGS , CABLES .

- OPERATION FOR TESTING .

TRAINING ENGINEERING STAFF FOR ONE MONTH

DESCRIPTION

LOW LIFT PUMPING STATION :-

THERE IS EXISTING PUMPSTATION INCLUDES 6 PUMPS WITH CAPACITY 680 m³/h FOR EACH PUMP , H=14m SUCTION PIPE DIAMETER 350 mm THEN 400mm LENGTH 120m WITH FOOT VALVE . IN ORDER TO MODIFY THIS STATION IT IS REQUIRED THE FOLLOWING :-

1- REPLACING THE OLD SIX PUMPS WITH NEW SIX PUMPS AS BELOW :

a- Q=1800 m³/h , H=20m , P NOT LESS THAN 155 Kw , EFFICIENCY > 0.8, NPS Hr = 2.6m , HORIZONTAL SPLIT CASE PUMPS , CLOCK WISE ROTATION , CONSTRUCTION UNALERIAL AS BELOW :

* IMPELLER , SHAFT SLEEVE , QUNMETAL , SHAFT , STAINLESS STEEL .

* SEALING SYSTEM PACKING

* LUBRICUTION BY GREOZE

* FLEXIBD COUPLING

* SCQUREL CUGE INDUCTION MOTOR , INSULATION CLASS F , IP 55 , VOLT 400 , FREQAINLY 50 c/s

b- COMPLETE 2SETS OF VACUM SYSTEM EACH SET INCLUDES 3 EVACUATION PUMPS WITH ALL THE FITTINGS AND ACCESSORIES .

2- REPLACING THE ALL THE SUCTION PIPES FOR 6 PUMPS THE DISTANCE BETWEEN THE PUMPS AND THE FOOT VALVES IS ABOUT 120m FOR EACH PUMP WITH ALL THE FITTINGS , ACCESSORIES , MODIFICATION , REPLACING THE FOOT VALVES WITH NEW ONCE .

3- REPLACE ALL THE SUCTION AND DISCHARGE BRANCHES , NON - RETURN , VALVES AND THE MAIN COLLECTOR PIPE .

4- INSTULL AND ERRECT NEW COLLECTOR PIPE CONVENIENT FOR FLOW RATE OF 10000 m³/h THEN THIS PIPE MUST BE DIVIDED IN TWO MAIN DISCHARGE PIPES ONE OF THEM CONNCETED TO THE OLD EXISSTING PIPE THE SECOND ONE CONNECTED TO THE NEW PIPE DN 1000 mm LENGTH 2600m WITH MAIN BUTTERFLY ELECTRICAL VALVE IN THE INLET OF EACH PIPE WITH ULTRA -SONIC FLOWMETER AND TURBIDIMETER FOR EACH BRANCH

5- THE EXISSTING STATION REGUIRED THE FOLLOWING :-

* REPAIRING THE UNDER GROUND PART OF THE BUILDING AND PAINTING IT .

* DEMOLISHING THE ABOVE GROUND PART OF THE BUILDING AND MAKING NEW REINFORCED CONCRERE COLUMUNS WHICH INCLUDES SUPORTS OF THE OVERHEAD TRAVELLING CRANE BEAMS THEN THE VEINFORCED CONCRERE ROOF WITH ALL THE ACCESSORIES .

6- SUPPLY AND INSTALL IN APIT INSIDE THE STATION SUBMERSIBLE PUMP FOR DRAINAGE WITH SIZE 3" NUMBER TWO (ONE DUTY + ONE STARD BY) WITH STARTERS AND ALL THE PIPES , VALVES AND THE ACCESSORIES .

7- ALL THE LIGHTINGS .

8- TELEFONE SYSTEM (INTER COMMUNICATION) BETWEEN THE LOW LIFT PUMP STATION AND THE MAIN SITE OF 15 MGD THE TOTAL DISTANCE ABOUT 2.6 Km .

CODE NO	DISCERPTION	QTY
13-01-00003	Execution of sewage network for Zafaraniya District in Baghdad which is one of the mostly densely populated areas of more than 100000 inhabitants and it is noted that those people are of limited income community . The Project will help in solving the problems of repeatedly flooded Septictanks and reduce the hazards of infectious diseases . The Project includes :	
CODE NO	DISCERPTION	QTY
	sewage treatment compact unit flow 10000 m3 / day population 50000 upvc pipes and fittings for sewers and shall comply with the requirments of Din (8061-8062) wall thickness to comply with Din 8062, all pipes and fittings shall have rubber ring joints + 10 % additional quantity of rubber ring joints	4
	DIA 110 MM	125 000M
	DIA 160 MM	13 000M
	DIA 250 MM	117500 M
	DIA 315 MM	5800 M
	= 400 MM	2800 M
	= 500 MM	4000 M
	= 630 MM	1800 M
	= 710 MM	7200 M
	= 800 MM	1000 M
submersible pumps		
CODE NO	DISCERPTION	QTY
	Supply of submersible pumps for sewage pumping stations with the following installation accessories :	

	- control panels and control system	
	- Discharge pipes	
	4 inch diameter (DN 100)	6
	solid size 70-80 mm	
	H: 12-15 m	
	Q: 30-40 L /sec	
	Rated Voltage: 380 V	
	6 inch Diameter (DN 150)	10
	H:12-15 m	
	Q:50- 70 L /sec	
	10 inch Diameter (DN 250)	14
	H:12-15 m	
	Q:120-140 L /sec	
	12 inch Diameter (DN 300)	3
	H:12-15 m	
	Q:150-200 L /sec	
	Further details can be obtained from Amanat Baghdad .	
13-01-00004	electro mechanical equipment for compact units 200 m3/h: the application includes 87 line items	100 unit
13-01-00005	Compat unit consisting of: equipment for clarify and intermediate tanks, for filters, water meters, aluminium dosing pump, chlorinators, pumps, accessories and spare parts.	49 unit
13-01-00006	Electrical and mechanical equipments for effag Al-bder water treatment plant 600 line items	1 plant
13-01-00013	Equipment for Um-Qaser water treatment plant	17,161 pcs