

**SECTION 5-1: DOURA II SEWAGE PUMPING STATION AND DUPLICATE WEST TRUNK**

CODE NO	DESCRIPTION	QTY
13-02-00001	<p>EXCUTION OF THE DOURA II PUMPING STATION WHICH IS DESIGNED TO LIFT COMBINED SEWAGE FLOWS FROM THE NEW DUPLICATE WEST TRUNK SEWER THROUGH TRIPLE RISING MAINS INTO THE KERKH SEWAGE TREATMENT WORKS THE WORKS INCLUDES THE FOLLOING UNITS</p> <p>DOURA II PUMPING STATION  INLET DISTRIBUTION CHAMBER  THREE SCREEN CHAMBER WITH MECANICALLY RAKED SCREEN AND CONVEYORS  MAIN PUMP BUILDING HOUSING, NINE SEWAGE PUMP SETS AND INCORPORATING WET WELL , DRY WELL , MOTOR ROOM WITH SERVICE ROOM  VALVE CHAMBER ON OUTGOING RISING MAINS  HIGH VOLTAGE SWITCH GEAR AND TRANSFORMER BUILDING  STAND -BY GENERATORS WITH DIESEL STORAGE TANKS  SITEROADWORKS FENCING AND SEIVVCES  DUPLICATE WEST TRUNK SEWER</p> <p>THE WORKS COMPRISE THE COMPLETE CONSTRUCTION OF A PVC-LINED IN-SITU CONCRETE TRUNK SEWER INCLUDING MANHOLES , VARYING FROM 2.8M DIA TO 3.6M DIA TOTAL LENGTH 7.3 KM APPROXIMATELY  TRIPLE 1.6 M DIA .DUCTILE IRON RISING MAINS TOTAL LENGTH 4.5 KM APPROXIMATELY .</p> <p>THE SCOPE OF THE WORK FOR THE COMELETE CONSTRUCTION OF THE WORKS AS DETAILD IN THE SPECIFICATION , BILLS OF QUANTITIES AND DRAWINGS WHICH CAN BE OBTAINED FROM AMANAT BAGDAD.</p>	

**SECTION 5-2: WATER TREATMENT PLANT WITH A CAPACITY OF 5**

CODE NO.	DESCRIPTION	QTY
13-02-00002	<p><b>1- DISTRIBUTION TANK (CONCRETE TANK)</b>  SOURCE OF THE RAW WATER WILL BE FROM THE NET WORK , THIS TANK WILL RECEIVE WATER AND DISTRIBUTE IT BY GRAVITY TO THE CLARIFIERS</p> <p><b>2- LAMELLA CLARIFIER TANK (CONCRETE TANK) :-</b>  *- MAXIMUM SURFACE LOAD 1.0 m/h  *- AUTOMATICALLY DESLUDGING VALVES  *- MECHANICAL RAPID MIXERS FOR THE COAGULANT , AND HYDRULIC FLOCCULATION  *- OVER FLOW PIPE</p> <p><b>3- STORAGE TANK (CONCRETE TANK) :-</b>  CAPACITY OF THE TANK 200 m<sup>3</sup> WHICH INCLUDES :-  *- MAIN VALVES BETWEEN THE CLARIFIER AND THE S.TANK AND BETWEEN THE S.TANK AND THE FILTER PUMPS  ** OVER FLOW PIPE  * DRAINAGE VALVES  ** LOW AND HIGH LEVEL FLOAT SWITCHES  ** LEVEL INDICATER  ** THE TANK IS DIVIDED IN TWO PARTS FOR MAINTENANCE CASE</p>	

#### 4- FILTERS PUMP STATION

THIS STATION CONTAINS :-

- 1- (3) PUMPS (2 DUTY + 1 STANDBY) CAPACITY OF EACH PUMP IS 600 m<sup>3</sup>/h H= 40 m, HORIZONTAL, SPLITE CASE TYPE, ALL THESE PUMPS CONNECTED TO THE STORAGE TANK BY SUCTION PIPE ITS DIMATER DEPENDS ON THE SPECIFICATION OF THE PUMP.
- 2- SUCTION VALVE AND PIPES FOR EACH PUMP.
- 3- DELIVERY NON-RETURN, VENTING, VALVES, B2011 FITTINGS AND PIPES.
- 4- MANUMETER FOR EACH PUMP.
- 5- TWO DELIVERY COLLECTOR PIPES CONNECTED THROUGH BY PASS VALVE.
- 6- TWO MAIN BUTTER FLY ELECTRICAL VALVES.
- 7- ALL THE EQUIPMENTS FOR THE FILTER PUMPS.
- 8- OVER HEAD ELECTRICAL CRANE CAPACITY 2 TON WITH 1 BEAMS, BRIDGE AND ALL THE ACCESSORIES.
- 9- ELECTRICAL BOARD WITH MAIN CIRCUIT BREAKERS, SOFT START-STOP STARTERS CAPACITY 132 KW.

#### 5- PRESSURE FILTERS STATION :-

THIS STATION WILL INCLUDES THE FOLLOWING :-

- 1- CAPACITY OF EACH UNIT 200 m<sup>3</sup>/h, FLOW RATE 8 m<sup>3</sup>/m<sup>2</sup>/h, OPERATING PRESSURE 5 bar, TESTING PRESSURE 10 bar DISHEND THICKNESS 18 mm.
- 2- MEDIA OF THE FILTER 3 LAYERS AS BELOW :-
  - \* FIRST LAYER 10 cm HEIGHT SIZE 3.15 mm - 5.6 mm
  - \* SECOND LAYER 15 cm HEIGHT SIZE 2 mm - 3.15 mm
  - \* THIRD LAYER APPROXIMATELY 75 cm SIZE 0.8 - 1.25 mm
- 3- FILTER UNIT WILL BE INCLUDED THE FOLLOWING VALVES, INLET, OUTLET, DRAINAGE, RELIEF, OUTLET OF BACK WASHING, INLET OF BACK WASHING FOR BOTH WATER AND AIR.
- 4- INLET AND OUTLET MANUMETER.
- 5- MAINTENANCE MANHUALES TWO IN THE UPPER PART AND TWO IN THE LOWER PART OF THE FILTER.
- 6- THE FILTER WILL BE SKID MOUNTED.
- 7- PAINTING OF THE INTERNAL AND EXTERNAL SURFACES WILL BE ACCORDING TO THE WORLD STANDARD SPECIFICATION.
- 8- THE TOTAL NUMBER OF THE PRESSURE FILTERS TO BE FILTERS DIVIDED IN TWO ROWS THERE ARE TWO MAIN VALVES FOR EACH ROW ONE FOR THE INLET AND THE OTHER FOR THE OUTLET.
- 9- FILTERD WATER FOR BOTH GROUBS CONNECTED IN ONE MAIN COLLECTOR PIPE.
- 10- MAIN BUTTERFLY ELECTRICALLY OPERATED VALVE.

#### 6- ALUMINUM SULPHATE SYSTEM

THIS SYSTEM INCLUDES THE FOLLOWING :-

- a- PREPARATION AND SATURATION TANKS :-
  - 1- 3 - TANKS WITH CAPACITY 10 m<sup>3</sup>/PER TANK, MATERIAL OF THE TANK ANTICORROSIVE FOR ALUMINUM-SULPHATE.
  - 2- THE TANKS WILL BE SUPPLIED WITH SERVICE WATER FROM THE OUTLET FILTED WATER LINE.
  - 3- LADDER AND WALK WAY AROUND THE TANK.
  - 4- ELECTRICAL OVER HEAD CRANE WITH CAPACITY 500 Kg.
  - 5- ELECTRICAL MIXER FOR EACH TANK MANUFACTURED FROM STAINLESS-STEEL AND S-STEEL BASKET CAPACITY 500 Kg AT THE UPPER PART OF THE TANK.
  - 6- ALUMINUM SULPHATE TANKS INCLUDE ALL THE FOLLOWING :-

\* INLET , OUTLET , DRAINAGE , OVER FLOW VALVES ,  
 \* LEVEL INDICATORS ,  
 \* METALIC STRUCTURE WITH COVER ,  
 \* LIGHTING ,  
 6- ALUMINUM SULPHATE DOSING PUMPS AS BELOW ,  
 - NUMBER OF THE PUMPS THREE PUMPS WITH  
 CAPACITY 1000 L/h HEAD 50 m FOR EACH PUMP ,  
 C- ALUMINUM SULPHATE SYSTEM INCLUDES ALL THE  
 UPVC PIPES ,  
 VALVES , FITTINGS , PULSATER DAMPNER ,  
 MANUMETERS , TWO  
 ADJUSTABLE FLOWMETER , TWO MAIN DISCHARGE  
 PIPES WHICH  
 MUST BE CONNECTED TO THE INJECTION POINTS OF  
 THE  
 FLOCCULATION TANK .

7- CHLORINATION STATION  
 CHLORINE GAS WILL BE USED FOR THE DISINFECTION  
 SO IT SHALL BE INJECTED AT THE STORAGE TANK  
 AND THE INLET OF THE LAMELLA TANK AS PRE –  
 CHLORINATION AND ALSO WILL BE INJECTED AT THE  
 OUTLET OF THE PRESSURE FILTERS AS POST –  
 CHLORINATION , THIS STATION INCLUDES THE  
 FOLLOWING :-  
 - 3 CHLORINATORS CAPACITY 5 Kg/h FOR EACH UNIT ,  
 - 3 INJECTERS ,  
 - 1 CHANGE OVER DEVICE ,  
 - 1 LEAK DETECTOR ,  
 - 2 HEADERS WITH ALL THE INLET AND OUTLET  
 VALVES ,  
 - 50 FLEXIBLE PIPES BETWEEN THE CYLINDERS AND  
 THE HEADERS (5 DUTY + 45 SPARES) ,  
 - 3 PRV .(1 DUTY + 2 STAND BY)  
 - 3 CATCH POT ,  
 - WATER AND GAS MANUMETERS ,  
 - 3 BOOSTING PUMPS CAPACITY 4 m<sup>3</sup>/h , H = 80 m FOR  
 EACH WITH ALL THE PIPES , VALVES , NON – RETURN  
 VALVES , FITTINGS ,  
 - ALL THE FITTINGS , PIPES , VALVES , INJECTION POINTS

8- AIR BLOWER SYSTEM  
 THE SYSTEM INCLUDES THE FOLLOWING :-  
 - 3 – AIR BLOWERS . THE REQUIRED FLOW RATE WILL BE  
 60 m<sup>3</sup>/m<sup>2</sup>/H DURING THE SEQUENCE OF BACK WASHING  
 THE FILTER WITH AIR BLOWER ,  
 - ALL THE VALVES FOR THE INLET , OUTLET , NON –  
 RETURN , INLET FOR EACH FILTER , PIPES , MANUMETERS  
 , FITTINGS .

9- BACK WASHING WATER  
 THE REQUIRED FLOW RATE FOR THE BACK WASHING  
 WITH WATER MUST BE NOT LESS 30 m<sup>3</sup>/m<sup>2</sup>/h THIS CAN  
 BE CREATED MAINLY THROUGH BRANCH FROM THE  
 MAIN FILTERD WATER AND BY USING HORIZONTAL  
 PUMPS (AS OPTION) .

10- GENERATOR STATION  
 - 1 STAND BY GENERATOR 0.4 KV , 1000 RPM , 50 HZ ,  
 - CAPACITY 360 KVA (PRIME) ,  
 - INCLUDE ALL ACCESSORIES , WATER COOLING  
 SYSTEM RADIATORS , OIL LUBRICATION PUMPS , FUEL  
 TANKS FOR 48 HOURS DUTY , UPS CHARGER AND  
 BATTERIES 10 TON CHLORINE DRUM STORE WITH 2 TON  
 OVER HEAD CRANE

1- WITH ITS ELECTRICAL SWITCH BOARD CONSIST OF CIRCUITS  
1 BREAKERS AND SERVICES SWITCH BOARD.

11-ELECTRICITY POWER

SPECIFICATIONS OF THE EQUIPMENTS WHICH REQUIRED FOR WTP WILL BE AS BELOW :-

a- HIGH TENTION BOARD

1- 2 INCOMING FEEDERS + ONE BUS - COUPLERS (11 KV , 630 A)

1- 2 OUT GOING (11 KV , 630 A) TO THE TRANSFORMERS

b- 2 TRANSFORMERS (11 KV/0.4 KV) CAPACITY OF EACH ONE 400kVA

c- LOW TENTION BOARD (400 V , 50 c/s) INCLUDES THE FOLLOWING :-

1- 2 MAIN CIRCUIT BREAKERS (400 V , 800 A , 50 c/h)

1- 1 MAIN CIRCUIT BREAKERS (400 V , 800 A , 50 c/h FOR GENERATOR )

1- 1 BUS - COUPLERS (400 V , 800 A , 50 c/h)

1- 5 CIRCUIT BREAKER (630A) (3 CB FOR 132 KW STARTERS + 2 SPARES)

1- 5 CIRCUIT BREAKER (100A)

1- 3 CIRCUIT BREAKER (50A)

d- SOFT STARTERS BOARDS

1- 5 SOFT START - STOP STARTERS (132 KW) .(2 STAND BY)

1- 1 BOARD INVOLVES THREE STARTERS FOR THE AIR BLOWERS ACCORDING TO THE BLOWERS SPECIFICATIONS

1- 1 BOARD FOR ALL THE AUXILIARY EQUIPMENTS LIKE OVER HEAD CRANE , FLOCCULATORS , ELECTRICAL VALVES , LIGHTINGS , MIXERS , VENTILATORS , AIR CONDITIONERS , FLOWMETERS

1- 1 BOARD FOR THE CHLORINATION STATION WHICH INVOLVES

1- 3-STARTERS FOR THE BOOSTING PUMPS , AND ALL OTHER

1- ACCESSORIES

1- 1 BOARD FOR THE ALUMINUM SULPHATE SYSTEM WHICH INCLUDES :-

\*\* STARTERS FOR THE MIXERS

\*\* STARTERS FOR THE DOSING PUMPS

\*\* STARTER FOR THE OVER HEAD CRANE AND ALL OTHER ACCESSORIES

\*\* GENERAL NOTES :-

1- ALL THE BOARD INCLUDE ALL PROTECTIONS AND INTERLOCKS SUCH AS UNDER VOLTAGE , SHORT CIRCUIT , OVER LOAD THERMOSTATE PROTECTION OF MOTORS ECT , METERS VOLTMETER , BULBS

2- THE LOW VOLTAGE (STARTERS OF MOTORS) INCLUDE POWER FACTOR CORRECTION UNIT UP TO 0.9

3- RECALCULATE THE LOAD FOR BETTER DESIGN

4- THE OFFER SHOULD INCLUDE ALL EQUIPMENT AND ACCESSORIES SUFFICIENT TO OPERATE THE PLANT PROPERLY

5- GIVE AS OPTIONS IF THERE ARE BETTER OR MODERN EQUIPMENTS SUITABLE FOR PLANT

6- RECHECK CALCULATION AND SPECIFICATIONS ACCORDING TO HIGH STANDARDS AND GIVE AS YOUR COMMENTS

7- THE OFFER SHOULD INCLUDE INSTALATION AND ERECTION OF ALL BUILDINGS INCLUDING CONCRETE WORK

8- SPARE PARTS FOR 2 YEARS OF OPERATION (ITEMIZED SPARE PARTS)

9- SUPPLIER RESPONSIBILITIES ARE :

a- ERRECTION AND INSTULATION OF ALL THE EQUIPMENTS

b- SUPPLYING AND INSTALLATION HOUSES FOR ALL THE STATIONS AND THE SYSTEMS

10- THE OFFER INCLUDES ALL THE CABLES BETWEEN THE ELECTRICAL EQUIPMENTS

11- THE OFFER INCLUDES ALL THE INTER CONNECTION PIPES BETWEEN ALL THE STATIONS.