TK-01 (CLIENT SCOPE)

RAW WATER TANK

P-01

FEED PUMP

FLOW	:	3.8 m3/hr
MATERIAL	:	SS 304
PRESSURE	:	4 bar
POWER	:	1.2 kW
MANUFACTURER	:	GRUNDFOS
MODEL	:	CM 5-5
QUANTITY	:	1No.

MMF-01

MULTI MEDIA FILTER

SIZE	:	21"ø x 62" HEIGHT
FLOW	:	3.8 m3/hr
PRESSURE	:	4 bar
MOC	:	FRP
OPERATION	:	MANUAL
MANUFACTURER	:	AVENTURA / PENTAIR
QUANTITY	:	1 No.

CF-01

CARTRIDGE FILTER

FLOW	:	3.8 m3/hr
SIZE	:	4.5"ø x 20"
FILTRATION	:	10 MICRON
MANUFACTURER	:	CCK
QUANTITY	:	1 No.

CF-02

CARTRIDGE FILTER

FLOW	:	3.8 m3/hr
SIZE	:	4.5"ø x 20"
FILTRATION	:	5 MICRON
MANUFACTURER	:	CCK
QUANTITY	:	1 No.

DTK-1

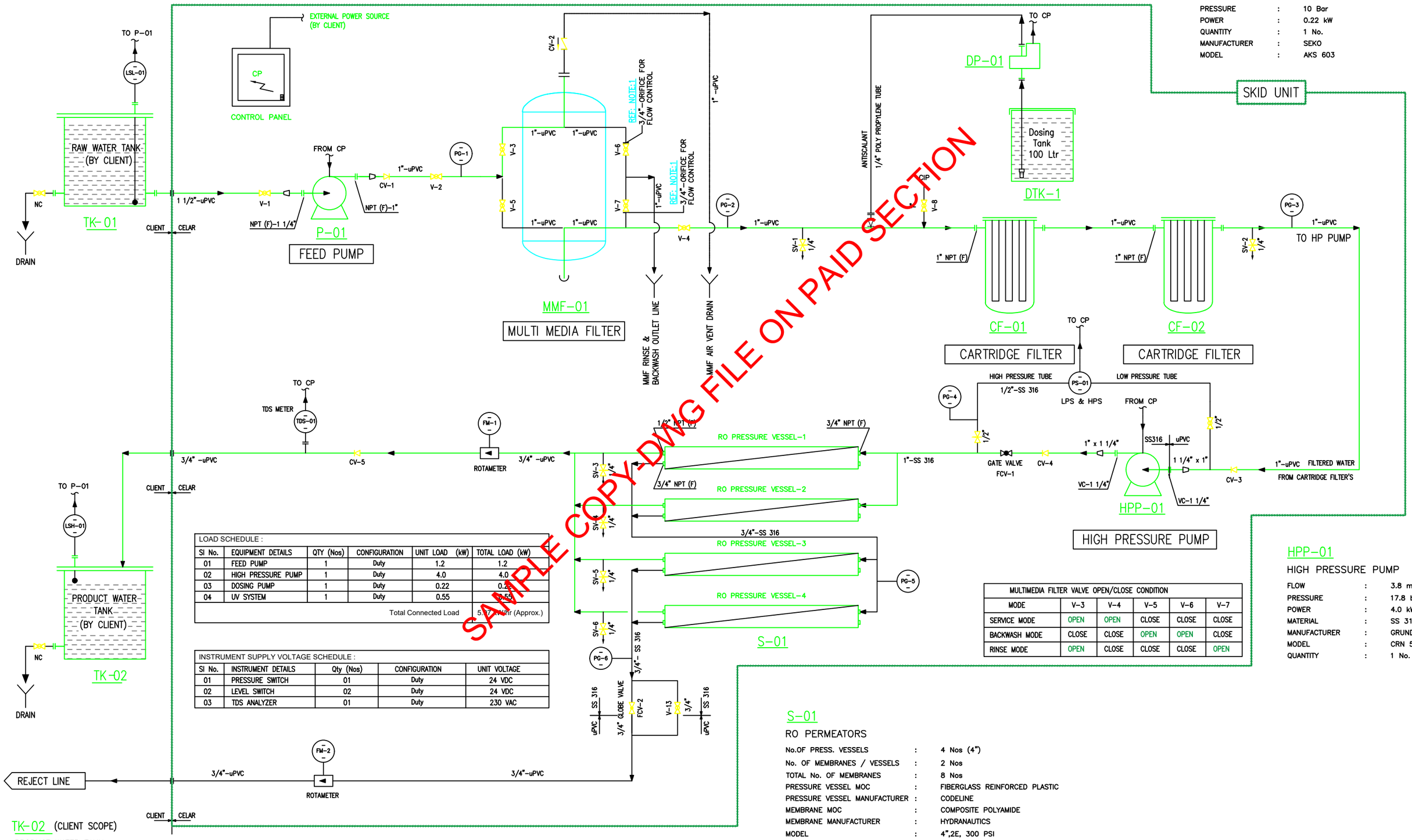
ANTISCALANT DOSING TANK

CAPACITY	:	100 Ltr
MOC	:	POLYETHYLENE
QUATITY	:	1 No.
MANUFACTURER	:	SEKO

DP-01

ANTISCALANT DOSING PUMP

FLOW	:	5 LPH
PRESSURE	:	10 Bar
POWER	:	0.22 kW
QUANTITY	:	1 No.
MANUFACTURER	:	SEKO
MODEL	:	AKS 603



LOAD SCHEDULE :

Sl No.	EQUIPMENT DETAILS	QTY (Nos)	CONFIGURATION	UNIT LOAD (kW)	TOTAL LOAD (kW)
01	FEED PUMP	1	Duty	1.2	1.2
02	HIGH PRESSURE PUMP	1	Duty	4.0	4.0
03	DOSING PUMP	1	Duty	0.22	0.22
04	UV SYSTEM	1	Duty	0.55	0.55
				Total Connected Load	5.77 kWhr (Approx.)

INSTRUMENT SUPPLY VOLTAGE SCHEDULE :

Sl No.	INSTRUMENT DETAILS	Qty (Nos)	CONFIGURATION	UNIT VOLTAGE
01	PRESSURE SWITCH	01	Duty	24 VDC
02	LEVEL SWITCH	02	Duty	24 VDC
03	TDS ANALYZER	01	Duty	230 VAC

MULTIMEDIA FILTER VALVE OPEN/CLOSE CONDITION

MODE	V-3	V-4	V-5	V-6	V-7
SERVICE MODE	OPEN	OPEN	CLOSE	CLOSE	CLOSE
BACKWASH MODE	CLOSE	CLOSE	OPEN	OPEN	CLOSE
RINSE MODE	OPEN	CLOSE	CLOSE	CLOSE	OPEN

HPP-01

HIGH PRESSURE PUMP

FLOW	:	3.8 m3/hr
PRESSURE	:	17.8 bar
POWER	:	4.0 kW
MATERIAL	:	SS 316
MANUFACTURER	:	GRUNDFOS
MODEL	:	CRN 5-29
QUANTITY	:	1 No.

S-01

RO PERMEATORS

No.OF PRESS. VESSELS	:	4 Nos (4")
No. OF MEMBRANES / VESSELS	:	2 Nos
TOTAL No. OF MEMBRANES	:	8 Nos
PRESSURE VESSEL MOC	:	FIBERGLASS REINFORCED PLASTIC
PRESSURE VESSEL MANUFACTURER	:	CODELINE
MEMBRANE MOC	:	COMPOSITE POLYAMIDE
MEMBRANE MANUFACTURER	:	HYDRANAUTICS
MODEL	:	4",2E, 300 PSI

TK-02 (CLIENT SCOPE)

PRODUCT WATER TANK

1.THE BALL VALVES SHOULD BE INSTALLED WITH AN ORIFICE ARRANGEMENT OF 3/4" TO CONTROL THE FLOW DURING BACK WASH & RINSE MODE OF MMF

SAMPLE COPY-DWG FILE ON PAID SECTION

MECHANICAL SYMBOLS

PIPE LINE/PIPING

- MAIN PROCESS LINE (ARROW INDICATES DIRECTION OF FLUID FLOW)
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER, FLUSH TOP
- ECCENTRIC REDUCER, FLUSH BOTTOM
- CLASSX CLASSY / CLASS X CLASS Y — INDICATION OF CHANGE OF PIPING CLASS

VALVES

- MANUAL BUTTERFLY VALVE
- MOTORIZED BUTTERFLY VALVE
- MANUAL BALL VALVE
- MOTORIZED BALL VALVE
- MANUAL GLOBE VALVE
- NEEDLE VALVE
- SAMPLING VALVE (PVC)
- CHECK VALVE
- PRESSURE RELIEF VALVE

GENERAL

- BELLOW (FLANGED)
- FLEXIBLE HOSE (FLANGED)
- AIR VENT
- DRAIN LINE
- TIE-IN (T XXX)
- SCOPE DEFINITION (OTHERS / PIPELINE CONTRACTOR)

EQUIPMENT

- PUMP
- AIR BLOWER
- DOSING PUMP
- PRESSURE VESSEL
- CARTIDGE FILTER
- MULTIMEDIA FILTER
- STIRRER (MIXER)
- ERT (PRESSURE BOOSTER)
- WATER HEATER
- CONTROL PANEL
- VARIABLE FREQUENCY DRIVE

INSTRUMENT SYMBOLS

- ELECTROMAGNETIC FLOW METER
- ROTAMETER
- PRESSURE GAUGE
- PRESSURE TRANSMITTER
- LEVEL SWITCH LOW
- LEVEL ALARM LOW
- LEVEL TRANSMITTER
- LEVEL SWITCH HIGH
- DIFFERENTIAL PRESSURE SWITCH
- DIFFERENTIAL PRESSURE TRANSMITTER
- HIGH PRESSURE SWITCH
- LOW PRESSURE SWITCH
- ELECTRICAL CABLE
- SOFT LINK/SYSTEM INTERNAL GENERATED SIGNAL
- INTERLOCK LOGIC FUNCTION
- LOCAL MOUNTED INSTRUMENT (BASIC SYMBOL) XX = FIRST TWO DIGITS OF UNIT NUMBER, Y = INSTRUMENT FUNCTION CODE, ZZZ= SERIAL NUMBER
- CONTROL ROOM MOUNTED INSTRUMENT
- LOCAL PANEL MOUNTED INSTRUMENT

INSTRUMENT IDENTIFICATION AND NUMBERING SYSTEM

PROPERTY MEASURED	INSTRUMENT FUNCTIONS									
DESCRIPTION	FIRST LETTER	TRANS-MITTER	INDICAT-ING	STATUS DISPLAY	RECOR-DING	CONTROLING	INTEGRATING	SWITCHING	EMERGENCY ACTUATING	ALARM
	I)	T	I	B	R	C	Q	S	Z	A
FLOW	F	FT	FI		FR	FC	FQ	FS	FZ	FA
HAND	H			HB		HC		HS	HZ	
LEVEL	L	LT	LI		LR	LC		LS	LZ	LA
PRESSURE	P	PT	PI		PR	PC		PS	PZ	PA
PRESSURE DIFFERENTIAL	PD	PDT	PDI		PDR	PDC		PDS	PDZ	PDA
QUALITY ANALYSIS OR CONCENTRATION	Q	QT	QI	QB	QR	QC		QS	QZ	QA
SPEED	S	ST	SI		SR	SC		SS	SZ	SA
TEMPERATURE	T	TT	TI		TR	TC		TS	TZ	TA
MOVEMENT DISPLACEMENT	G	GT	GI	GB	GR				GZ	
WEIGHT. MASS OR LOAD	W	WT	WI		WR	WC		WS	WZ	WA
ANY OTHER PROPERTY	X	XT	XI		XR	XC			XZ	XA
MULTI VARIABLE	U									
COMPUTING FUNCTION	Y							YS	YZ	YA

ABBREVIATIONS (INSTRUMENTS)

ESD – EMERGENCY SHUTDOWN
H – HIGH
HH – HIGH HIGH
FM – FLOW METER
FE – FLOW ELEMENT
FI – FLOW INDICATION
FIT – FLOW INDICATION TRANSMITTER
TVP – TRUE VAPOUR PRESSURE
L – LOW
OR – OVERRIDE
LL – LOW LOW
SR – SPLIT RANGE

GENERAL

CONTINUATION ARROWS :

1) LEFT SIDE OF SHEET:
FROM EQUIPMENT ON PREVIOUS SHEET — SHEET nr.
TO EQUIPMENT ON PREVIOS SHEET — SHEET nr.

2) RIGHT SIDE OF SHEET :
TO EQUIPMENT ON NEXT SHEET — SHEET nr.
FROM EQUIPMENT ON NEXT SHEET — SHEET nr.

REVISION TRIANGLE (A)

PIPING IDENTIFICATION

LINE NUMBER 2"– P 15 003–600CS3

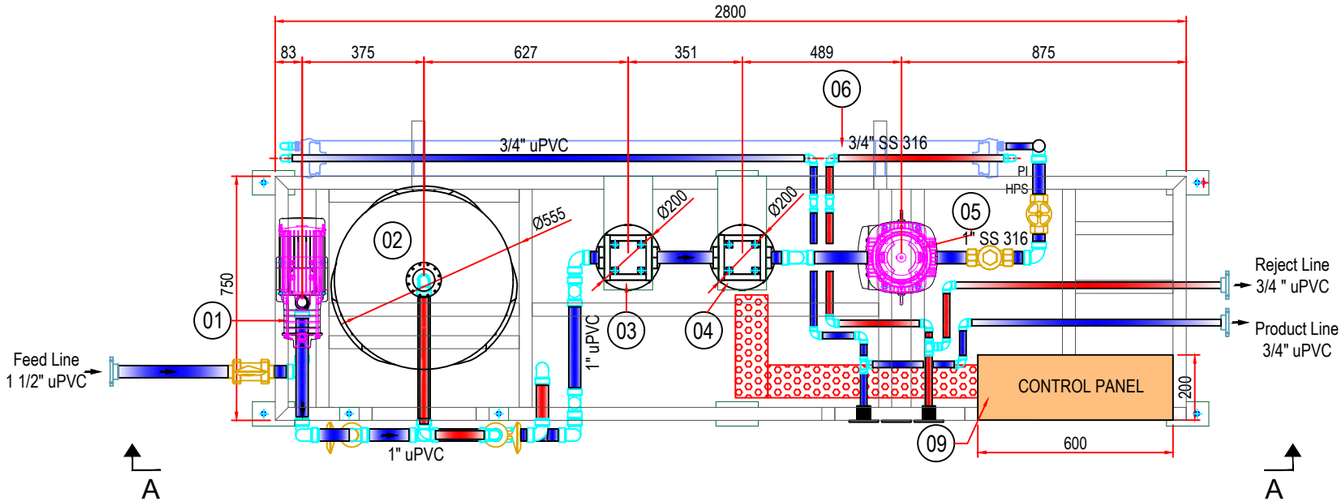
- PIPING CLASS/MATERIAL
- LINE SUB–NUMBER
- FIRST TWO DIGITS OF PROCESS UNIT 200
- SERVICE INDICATION
- NOMINAL PIPE SIZE

ABBREVIATION (GENERAL)

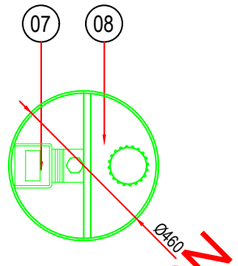
A/G – ABOVE GROUND
B/G – BELOW GROUND
CC – CORROSION COUPON
CI – CHEMICAL INJECTION
CK – CASTELLOC KEYED VALVE
D – DRAIN
EL – ELEVATION
FB – FULL BORE
FO – FLUSHING OUT
GO – GEAR OPERATED
HC – HOSE CONNECTION
IH – INSPECTION HOLE
LC – LOCKED CLOSED
LO – LOCKED OPEN
M – MOTOR
MH – MAN HOLE
MOV – MOTOR OPERATED VALVE
NC – NORMALLY CLOSED
NNF – NORMALLY NO FLOW
NO – NORMALLY OPEN
PVV – PRESSURE VACUUM VALVE
CP – CONTROL PANEL
MMF – MULI MEDIA FILTER
ERT – ENERGY RECOVERY TURBINE
RE – REFERENCE ELECTRODE
RO – RESTRICTION ORIFICE
RV – RELIEF VALVE
SC – SAMPLE COLLECTION
SCR – SCREWED CONNECTION
SP – SET POINT
TSO – TIGHT SHUT OFF
UC – UTILITY CONNECTION
V – VENT
CS – CARBON STEEL
PE – POLY ETHYLENE
PP – POLY PROPYLENE
GRE – GLASS REINFORCED EPOXY
SS – STAINLESS STEEL
DSS – DUPLEX STAINLESS STEEL
SDSS– SUPER DUPLEX STAINLESS STEEL
CS3 – CARBON STEEL WITH 3MM CORROSION ALLOWANCE
CS1D(PE) – CARBON STEEL WITH 1MM CORROSION ALLOWANCE & POLYETHYLENE LINED

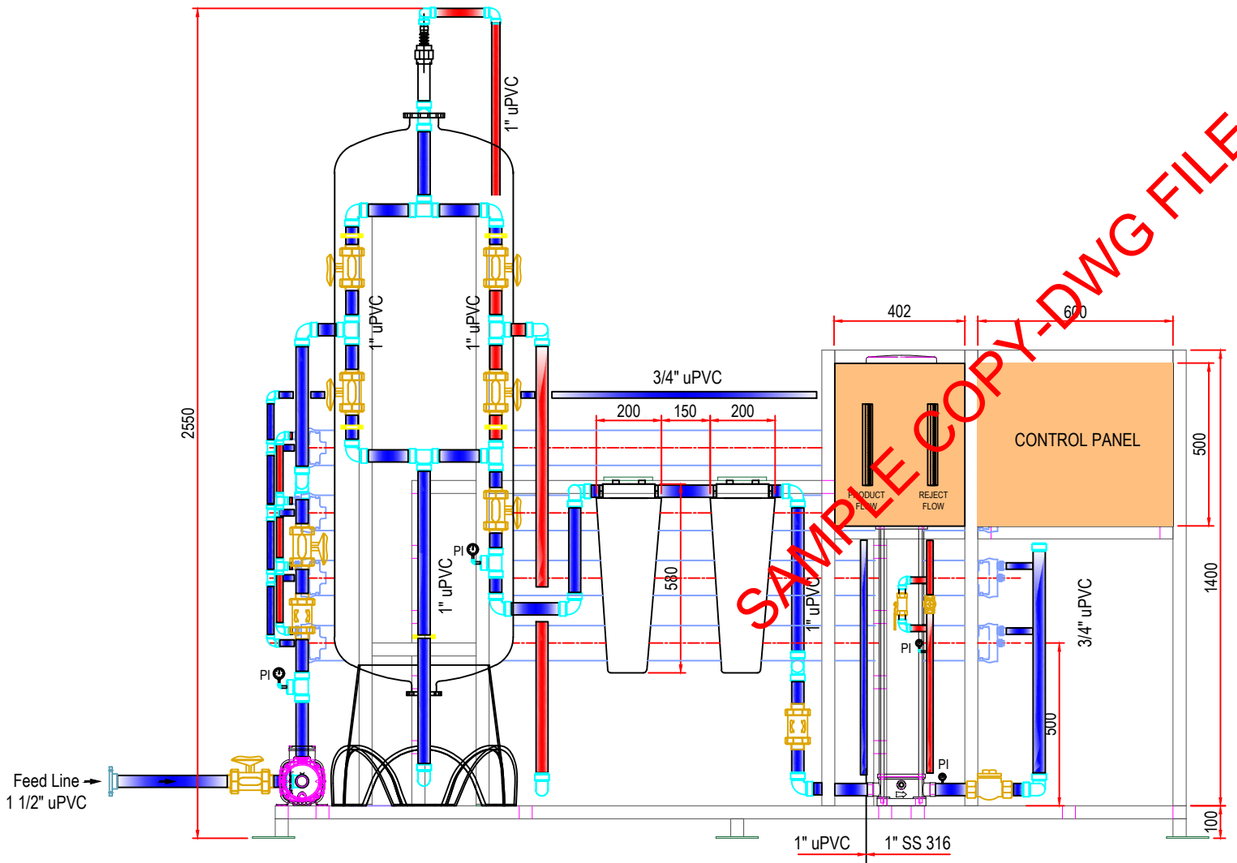
SAMPLE COPY-DWG FILE ON PAID SECTION

EQUIPMENT SCHEDULE				
Sr. No.	Equipment Details	Specification / Model No / Size	Make	Quantity (Nos)
1	Feed Water Pump	CM 5-5 / 1.2 kW	Grundfos	1
2	Multimedia Filter	21"(Dia:) x 62" (H)	Aventura /Pentair	1
3	Cartridge Filter	10 Micron, 4.5" x 20"	CCK	1
4	Cartridge Filter	5 Micron, 4.5" x 20"	CCK	1
5	High Pressure Pump	CRN 5-29 / 4 kW	Grundfos	1
6	Pressure Vessel	4" 2 Elements 300 PSI	Pentair	4
7	Dosing Pump	Tekna EVO AKS 603	Seko	1
8	Dosing Tank	100 Ltrs	Seko	1
9	Control Panel	600(L)x500(H)x200(W)mm		1

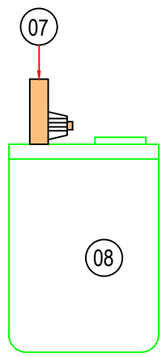


PLAN VIEW





VIEW -AA



SAMPLE COPY-DWG FILE ON PAID SECTION

LEGEND:	
	PROCESS LINE
	REJECT/DRAIN LINE
	BALL VALVE (uPVC)
	CHECK VALVE (uPVC)
	CHECK VALVE (SS)
	GLOBE VALVE (SS)
	BALL VALVE (SS)
PI	PRESSURE GAUGE
	ROTAMETER

OEM
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www.celarwater.com

JOB No. CWE/2020/ROP/2934	REV.	SHEET	SCALE	SIZE
	0	1	AS SHOWN	A1

REV	DATE	DRAWN BY	TEAML. / CHECKED	J.ENG.	DESCRIPTION	B.I. NO	PROJ. ENG. / APPROVAL	SIGNATURE
0	03-01-21	VP			ISSUED FOR APPROVAL			

PROJECT DRAWING REVISION

AREA : SOMALIA

PROJECT : BRACKISH WATER REVERSE OSMOSIS PLANT

DRWG.TYPE : EQUIPMENT LAYOUT

DESCRIPTION : 12,000 US GALLONS PER DAY (TDS OF 5000 PPM)

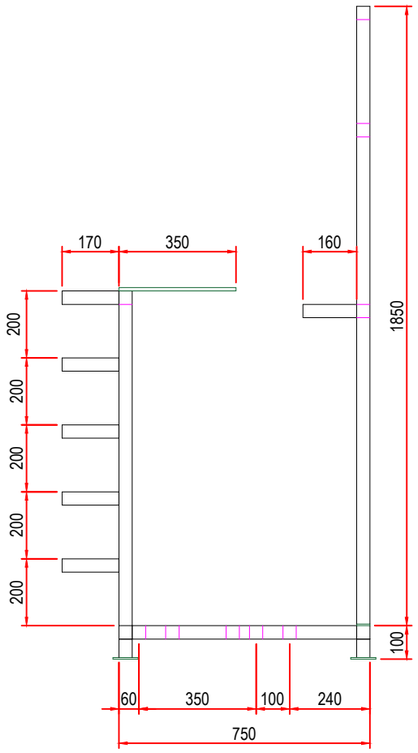
SCALE : 0 1 2 3 4 5 6

CAD DRAWIN

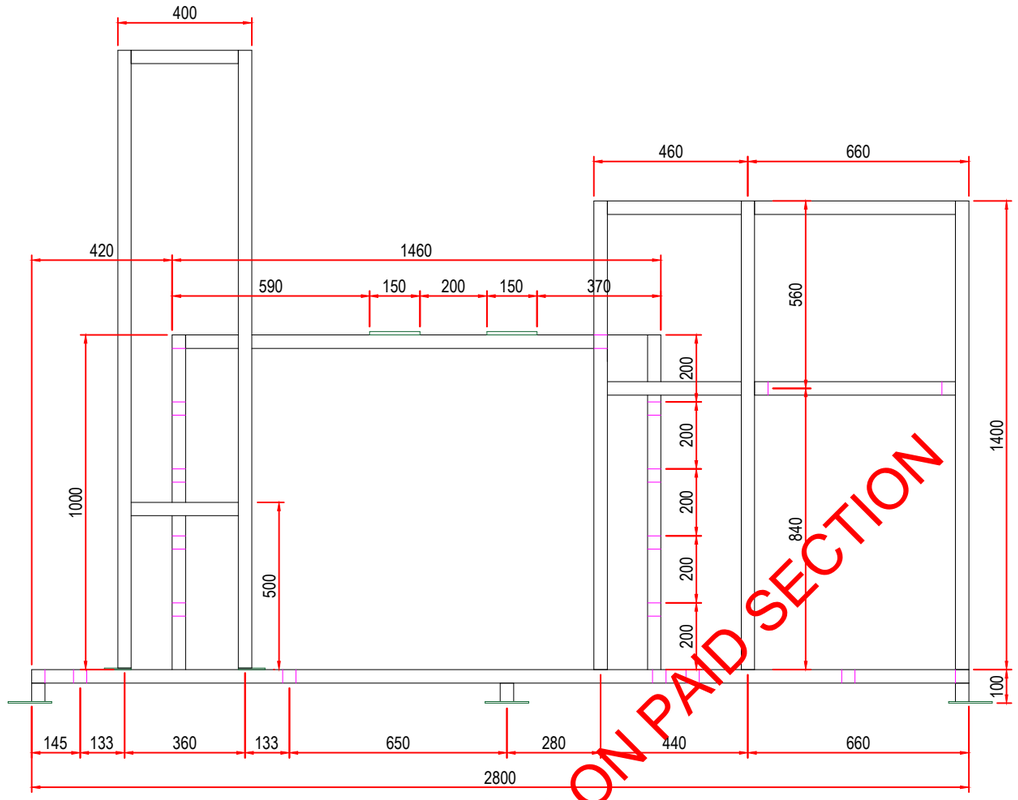
Al Nour Group General Trading

1.ALL DIMENSTIONS ARE IN MM UNLESS OTHERWISE SPECIFIED
1.ALL AIR VENTS SHALL BE CONNECTED TO THE DRAIN HEADER

NOTES | REFERENCE DRAWINGS | MASTER DRAWING REVISION



VIEW -CC



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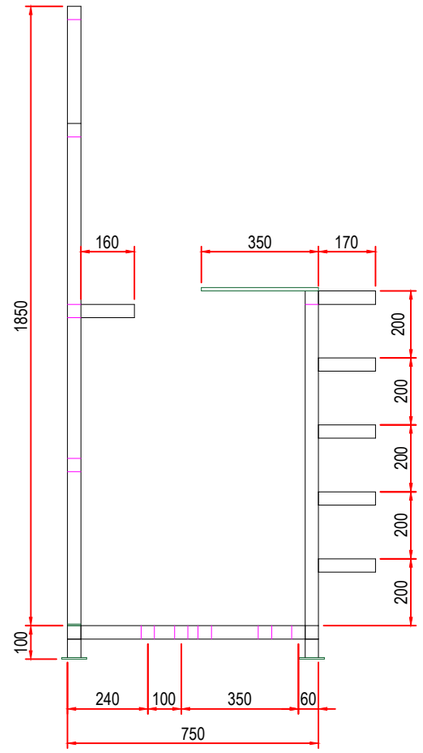
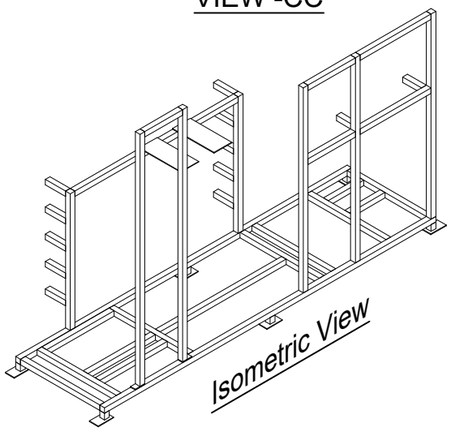
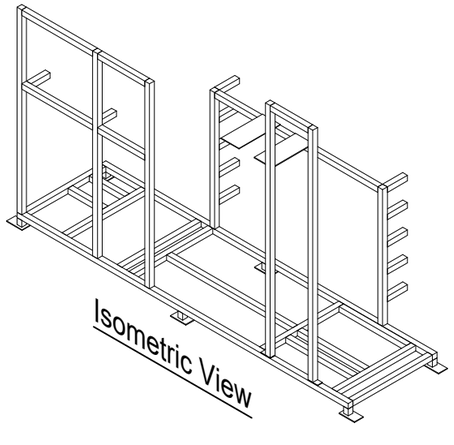
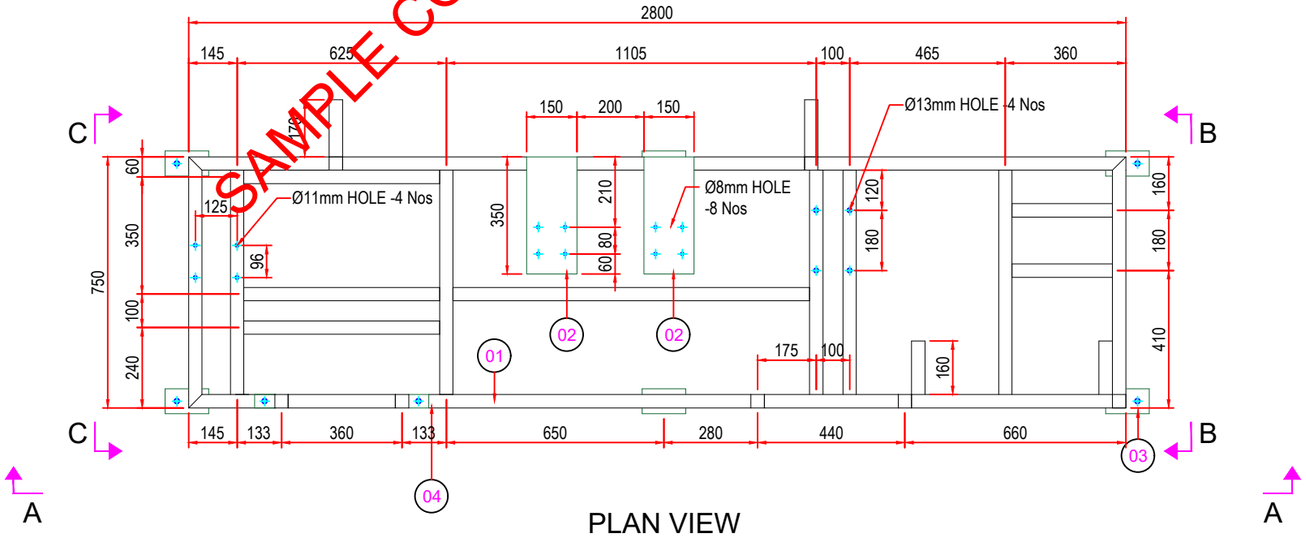


VIEW -BB







PLAN VIEW

Bill of Material			
Sl No.	Description	Material	Qty
01	Box Section (40x40x5mm)	MSEP	33 Mtr
02	Base Plate (350x150x10mm)	MSEP	2 Nos
03	Base Plate (130x75x6mm)	MSEP	6 Nos
04	Base Plate (100x40x6mm)	MSEP	2 Nos

OEM

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JOB No. CWE/2020/ROP/2934	REV.	SHEET	SCALE	SIZE
	0	1	AS SHOWN	A1

REV	DATE	DRAWN BY	TEAML. / CHECKED	J.ENG.	DESCRIPTION	B.J. NO	PROJ. ENG. / APPROVAL	SIGNATURE
0	03-01-21	VP			ISSUED FOR APPROVAL			

PROJECT DRAWING REVISION

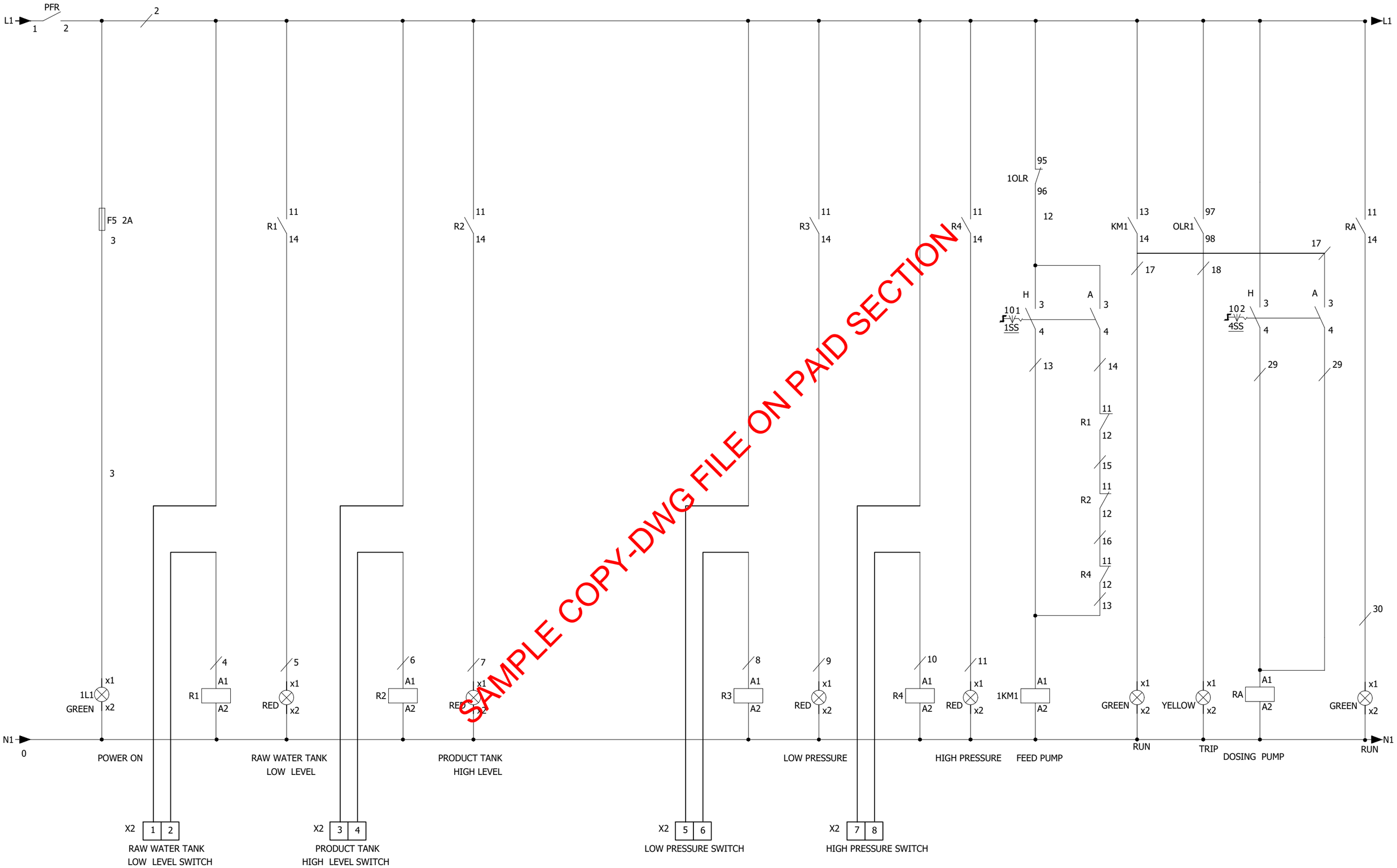
AREA : SOMALIA

PROJECT : BRACKISH WATER REVERSE OSMOSIS PLANT

SCALE : 0 1 2 3 4 5 6 7

CAD DRAWING

SAMPLE COPY-DWG FILE ON PAID SECTION



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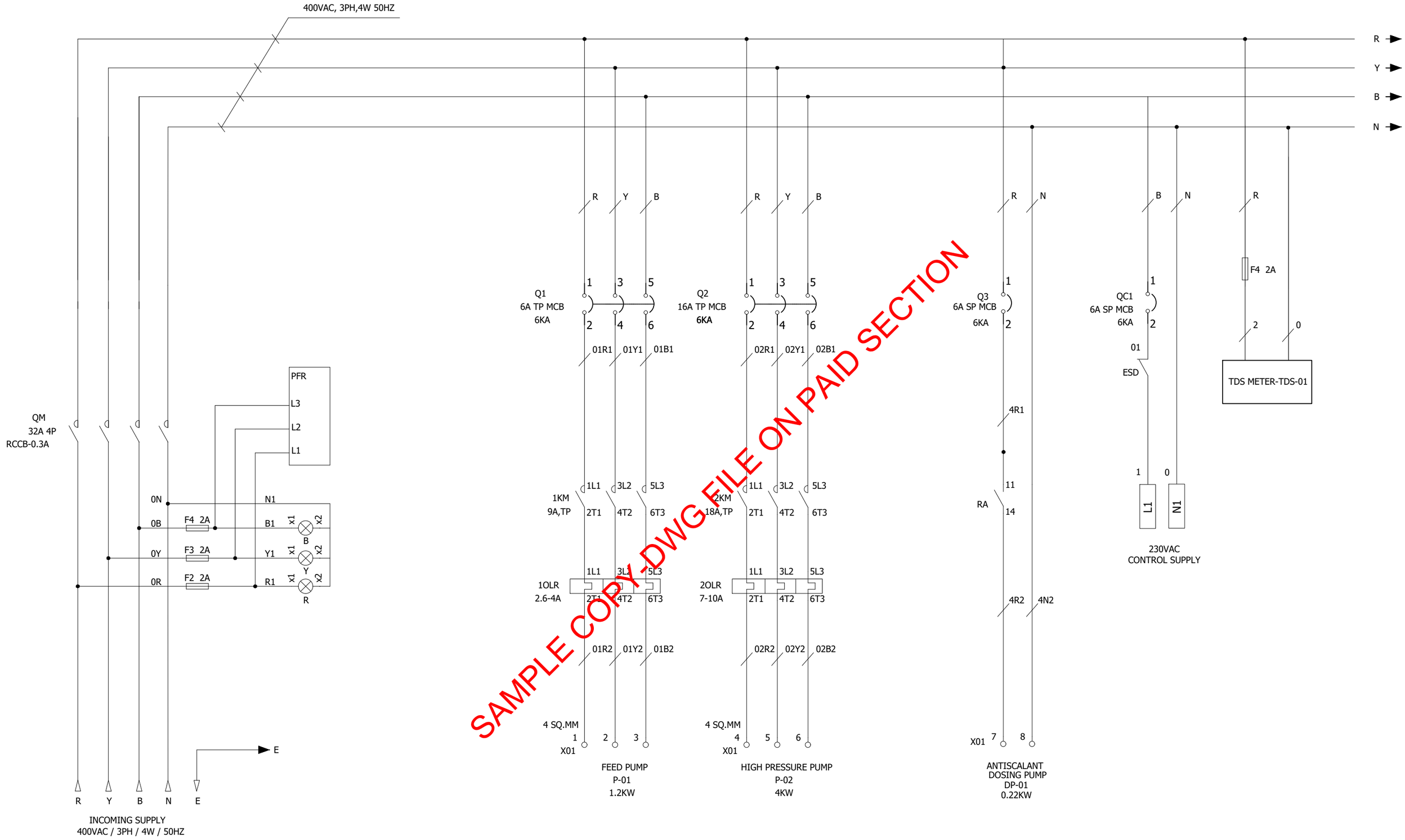

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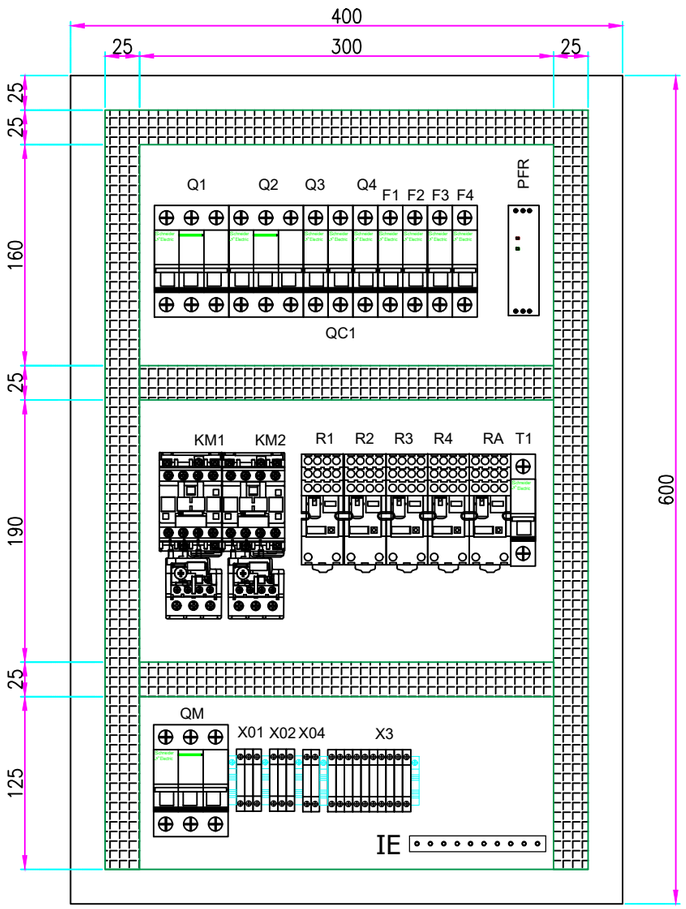

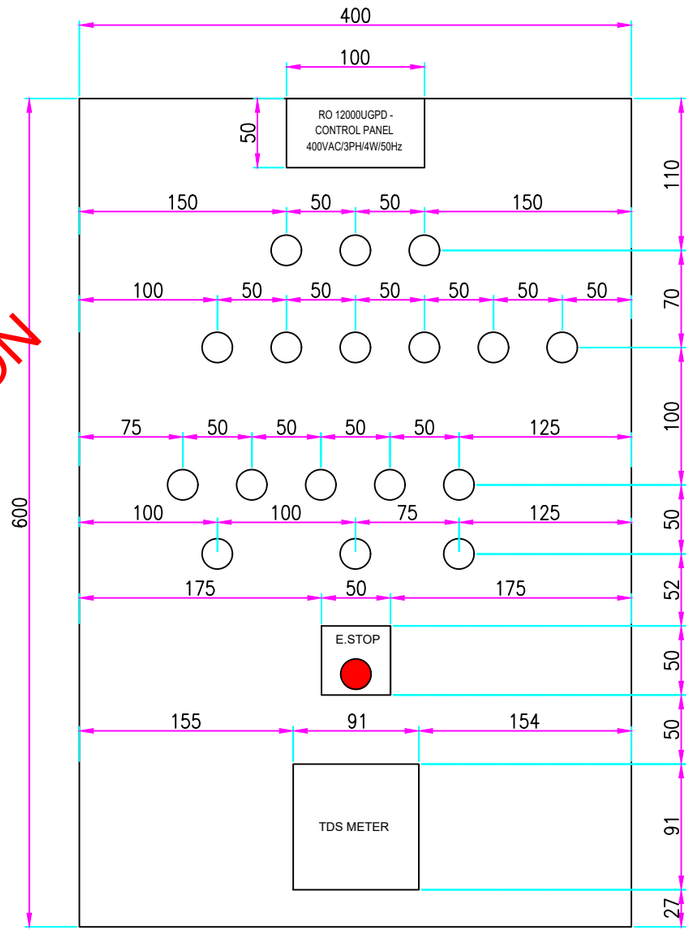

SAMPLE COPY-DWG FILE ON PAID SECTION