ELECTRICAL NOTES:

GENERAL NOTES:

1. THE FOLLOWING COMPONENT IDENTIFICATION SHALL BE USED AS APPROPRIATE:
   - 1.1. (F) FIELD MOUNTED NOT AT STARTER OR OTHER CONTROL PANELS.
   - 1.2. (S) STARTER PANEL MOUNTED.
   - 1.3. (TCP) AT TEMPERATURE CONTROL PANEL.
   - 1.4. (MCP) AT MAIN CONTROL PANEL.
2. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN LIGHT LINE WEIGHTS ON THE DRAWINGS ARE FUTURE. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN HEAVY LINE WEIGHTS ARE NEW TO THIS CONTRACT UNLESS OTHERWISE NOTED.
3. FOR ITEMS INDICATED AS 'FIELD LOCATE' CHECK DRAWINGS OF OTHER TRADES (IN PARTICULAR PROCESS PIPING AND STRUCTURAL) FOR INTERFERENCES AND FOR LOCATIONS OF MOUNTING FLANGES, CONNECTION POINTS, ETC.
4. INSTALL A SINGLE CONDUCTOR INSULATED (RHW, THHN OR XHHW) COPPER GROUND WIRE IN EACH CONDUIT, SIZE AS SHOWN ON DRAWINGS OR AS A MINIMUM PER THE NATIONAL ELECTRICAL CODE. THIS GROUND WIRE SHALL BE CONNECTED AT EACH END TO THE EQUIPMENT GROUND. CONDUIT SHALL BE 3/4" MINIMUM.
5. WIRE NUMBERS (1,3 & 5) ETC. SHALL BE PREFIXED WITH STARTER TAG NUMBERS. THE WIRE NUMBER AFTER THE PREFIX, MAY BE THE MANUFACTURERS WIRE NUMBERING SYSTEM. WIRE MARKERS MAY BE USED AT EACH WIRE TERMINATION POINT.
6. PROVIDE SIGNAGE/PLACARD/TAGS AS INDICATED ON THE DRAWINGS DETAILS.
7. OUTSIDE EQUIPMENT MUST BE RATED FOR -40 TO 150 DEG F.
8. CONDUIT FILL MUST MEET NFPA REQUIREMENTS. (WHERE NFPA IS SILENT CONDUIT FILL MUST NOT EXCEED 40%)
   - 8.1. INSTRUMENT SIGNAL CONDUIT: SHIELDED SIGNAL WIRES FOR 4-20 MA TYPE INSTRUMENTS OR THERMOCOUPLE WIRES ASSIGNED TO THE SAME CONTROL PANEL MAY BE RUN IN THE SAME CONDUIT. NO OTHER WIRES WILL BE PERMITTED IN AN INSTRUMENT SIGNAL/2-WIRE CONDUIT.
   - 8.2. CONTROL CIRCUIT CONDUIT (120VAC). 120VAC CONTROL CIRCUIT WIRES USED FOR DISCRETE PLC INPUT OR MCC CONTROL ASSIGNED TO THE SAME CONTROL PANEL/MCC MAY BE RUN IN THE SAME CONDUIT. NO OTHER WIRES WILL BE PERMITTED IN THE CONTROL CIRCUIT CONDUIT.
   - 8.3. CONTROL CIRCUIT CONDUIT (24VDC). 24VDC CONTROL CIRCUIT WIRES USED FOR DISCRETE PLC INPUT OR MCC CONTROL ASSIGNED TO THE SAME CONTROL PANEL/MCC MAY BE RUN IN THE SAME CONDUIT. NO OTHER WIRES WILL BE PERMITTED IN THE CONTROL CIRCUIT CONDUIT.
   - 8.4. COMMUNICATION CONDUIT (ETHERNET). COMMUNICATION WIRE USED FOR ETHERNET, FIBER OPTIC, OR MODBUS MAY BE RUN IN THE SAME CONDUIT. NO OTHER WIRES WILL BE PERMITTED IN THE COMMUNICATION CONDUIT (ETHERNET).
   - 8.5. COMMUNICATION CONDUIT (FIELD BUS). FIELD BUS WIRE USED FOR CONTROLNET OR DEVICENET MAY BE RUN IN THE SAME CONDUIT. NO OTHER WIRES WILL BE PERMITTED IN THE COMMUNICATION CONDUIT (FIELD BUS).
9. EQUIPMENT SHOWN INSIDE SHALL BE RATED NEMA 12 AND EQUIPMENT SHOWN OUTSIDE SHALL BE RATED NEMA 4X, UNLESS OTHERWISE INDICATED.
10. MINIMUM CONTROL WIRE SIZE SHALL BE EITHER #14 AWG OR 2/C#18SH AND MINIMUM POWER WIRE SIZE SHALL BE #12 AWG.
11. MINIMUM CONDUIT SIZE SHALL BE 3/4".
12. PROVIDE INSULATED CONDUCTOR (RHW) FOR EXTERIOR WORK AND (THHN) FOR INTERIOR WORK

ABBREVIATIONS:

Ø	PHASE
A	AMPERE(S)
A/C	AIR CONDITIONING
AI	ANALOG INPUT
ALT	ALTERNATE
AO	ANALOG OUTPUT
ARV	AIR RELEASE VALVE
ASB	ALARM SILENCE BUTTON
AWG	AMERICAN WIRE GAUGE
BFV	BUTTERFLY VALVE
C	CONDUIT
CAT	CATEGORY
CB	CIRCUIT BREAKER
CLAR	CLARIFIER
CMR	CAMERA
CP	CONTROL PANEL
CR	CONTROL RELAY
CSF	CARBON STORAGE & FEED
CT	CURRENT TRANSFORMER
DB	DUCTBANK
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT
DWG	DRAWING
EFF	EFFLUENT
EM	EMERGENCY
ENET	ETHERNET
ETI	ELAPSED TIME INDICATOR
FACP	FIRE ALARM CONTROL PANEL
FB	FUSE BLOCK / FEEDER BREAKER
FIT	FLOW INDICATING TRANSMITTER
FO	FIBER OPTIC
FOC	FIBER OPTIC CONVERTER
FOPP	FIBER OPTIC PATCH PANEL
FVNR	FULL VOLTAGE NON-REVERSING
FWP	FINISHED WATER PUMP
G / GND	GROUND
GA	GAUGE
GAL	GALLON(S)
GALV	GALVANIZED
GEN	GENERATOR
GFCI/GFI	GROUND FAULT CIRCUIT INTERRUPTER
HOA	HAND-OFF-AUTO
HORIZ	HORIZONTAL
HP	HORSEPOWER
HSP	HIGH SERVICE PUMP (FINISHED WATER)
HTR	HEATER
HTS-X	HEAT TRACE SYSTEM
HZ	HERTZ
I/O	INPUT/OUTPUT
INC	IN-USE COVER
IWH	EYE WASH HEATER
KVA	KILO-VOLT-AMPS
LC-X	LIGHTING CONTROL PANEL
LP-XX	LOW VOLTAGE 120/208V PANEL
LCP	LOCAL CONTROL PANEL (I/O)
M	MOTOR
MA	MILLIAMP
MB	MAIN BREAKER
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
MH	MAN HOLE
MIN	MINIMUM
MLO	MAIN LUG ONLY
MM	MULTI-MODE
MP	METERED PUMP
MS	MOTOR STARTER
MTR	MASTER
N	NEUTRAL
NO.	NUMBER
O.C.	ON CENTER
OL	OVERLOAD
ORP	OXIDATION REDUCTION POTENTIAL
P	POLE
P.B.	PUSHBUTTON
PDB	POWER DISTRIBUTION BLOCK
PDIT	PRESSURE DIFFERENTIAL CURRENT TRANSMITTER
PEP	PRE-ENGINEERED PANEL
PLC	PROGRAMMABLE LOGIC CONTROLLER
PM	PHASE MONITOR
PP-XX	POWER PANEL
PVC	POLYVINYL CHLORIDE
RAD	RADIANT
RCP	REMOTE CONTROL PANEL (R I/O)
RL	RUNNING LIGHT
RPM	ROTATIONS PER MINUTE
RTD	RESISTANCE TEMPERATURE DETECTOR
RW/RWI	RAW WATER/RAW WATER INTAKE
RWP	RAW WATER PUMP
SCHED	SCHEDULE
SEL	SELECTOR
SH	SHIELDED
SKD	SKID
SS	STAINLESS STEEL
SPD	SURGE PROTECTIVE DEVICE
STA	STATION
T	THERMOSTAT
TB-X	TIE BREAKER
TNK	TANK
TRN	TRAIN
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP.	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTAGE
VA	VOLT AMPS
VAC	VOLTAGE ALTERNATING CURRENT
VDC	VOLTAGE DIRECT CURRENT
VDS	VIDEO DISPLAY STATION
VERT	VERTICLE
VFD	VARIABLE FREQUENCY DRIVE
W	WATT / WITH
W/	WITH
WP	WEATHERPROOF
WTP	WATER TREATMENT PLANT
WTP-AC-	ACCESS CONTROL PANEL
WTP-PP-	PATCH PANEL/NETWORK PANEL
XFMR	TRANSFORMER

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BID SET

ALABAMA LICENSED No. 21838 PROFESSIONAL ENGINEER DANIEL ANDREW BURGESS

MARK	DATE	DESCRIPTION	BY

HUNTSVILLE UTILITIES
SOUTHEAST WATER TREATMENT PLANT

ELECTRICAL NOTES AND ABBREVIATIONS

Project No.:	200-11740-10003
Designed By:	TAC
Drawn By:	TAC
Checked By:	DAB

E-0002

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Bar Measures 1 inch

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