

# MYRTLE BEACH SURFACE WATER TREATMENT PLANT OZONE SYSTEM MODIFICATIONS

B&V PROJECT NO. 185210 JANUARY 2016



**Black & Veatch Corporation** Columbia, South Carolina

# WATER & SEWER AUTHORITY





THIS CONSTRUCTION SET HAS BEEN CONFORMED TO INCLUDE ADDENDA ITEMS ISSUED PRIOR THE BID. USER ACKNOWLEDGES THAT, SHOULD THERE BE ANY DISCREPANCY BETWEEN THIS SET AND THE SET ISSUED FOR BIDDING, THE SET ISSUED FOR BIDDING AND THE ORIGINAL ADDENDA SHALL GOVERN

		DRAWING LIST
GENER	PAL	
SHEET NO.	DRAWING NO.	DESCRIPTION
-	-	COVER SHEET
1	G-01	DRAWING INDEX AND CIVIL NOTES
2	G-02	LEGEND
3	G-03	ABBREVIATIONS
4	G-04	OVERALL SITE PLAN
5	G-05	LOX STORAGE AREA
0	G-06	YARD DETAILS, EROSION CONTROL DETAILS, AND NOTES
<u>STRUC</u>	TURAL	
SHEET NO.	DRAWING NO.	DESCRIPTION
7	S-01	MISCELLANEOUS DETAILS AND NOTES
MECHA	NICAL	
SHEET NO.	DRAWING NO.	DESCRIPTION
8	M-01	OZONE GENERATION BUILDING - DEMOLITION
9	M-02	OZONE CONTACTOR AND DESTRUCT - DEMOLITION PLAN
10	M-03	OZONE GENERATION BUILDING - PLAN AND SECTION
11	<i>M-04</i>	OZONE CONTACTOR AND DESTRUCT - PLAN AND SECTIONS
12	<i>M-05</i>	MISCELLANEOUS DETAILS
13	M-06	MISCELLANEOUS DETAILS
<u>P&amp;ID</u>	AND INSTRUMEN	DESCRIPTION
14	I-01	P&ID LEGEND AND ABBREVIATIONS (1 OF 3)
15	1-02	P&ID LEGEND AND ABBREVIATIONS (2 OF 3)
16	1-03	P&ID LEGEND AND ABBREVIATIONS (3 OF 3)
17	1-03A I-04	P&ID LIQUID OXYGEN SYSTEM
18	1-04 T-05	P&ID GASEOUS UXYGEN VALVE TRAIN
19	1-UD T 06	P&ID NITRUGEN BUUST SYSTEM
2U 01	1-00 T 07	POID EXISTING OZONE CONTACT DAGIN
21 22	1-07 T_08	FRID EXISTING UZUNE GUNTAGT BASIN DRID OZONE DESTDUCT SVSTEM
23	T - 00 T - 00	FAID VLUNE DESTRUCT STSTEM
20	T - 10	I GLU WIALING ALA DLUWERS D&TD INSTRIMENTATION DETATIS
25	<u>I</u> -11	P&ID INSTRUMENTATION DETAILS
26	I - 12	SCADA NETWORK BLOCK DIAGRAM
<u>ELEC</u> T		
SHEET NO.	RICAL	
	RICAL DRAWING NO.	DESCRIPTION
27	RICAL DRAWING NO. E-01	DESCRIPTION LEGEND AND ABBREVIATIONS
27 28	TRICAL DRAWING NO. E-01 E-02	DESCRIPTION LEGEND AND ABBREVIATIONS SITE PLAN
27 28 29	TRICAL DRAWING NO. E-01 E-02 E-03	DESCRIPTION LEGEND AND ABBREVIATIONS SITE PLAN LOX STORAGE AREA PLAN
27 28 29 30	<u>RICAL</u> DRAWING NO. E-01 E-02 E-03 E-04	DESCRIPTION LEGEND AND ABBREVIATIONS SITE PLAN LOX STORAGE AREA PLAN OZONE GENERATION BUILDING PLAN
27 28 29 30 31	<u>RICAL</u> DRAWING NO. E-01 E-02 E-03 E-04 E-05	DESCRIPTION LEGEND AND ABBREVIATIONS SITE PLAN LOX STORAGE AREA PLAN OZONE GENERATION BUILDING PLAN OZONE CONTACTOR AND DESTRUCT PLAN
27 28 29 30 31 32	<u>RICAL</u> DRAWING NO. E-01 E-02 E-03 E-04 E-05 E-06	DESCRIPTION LEGEND AND ABBREVIATIONS SITE PLAN LOX STORAGE AREA PLAN OZONE GENERATION BUILDING PLAN OZONE CONTACTOR AND DESTRUCT PLAN ONE-LINE DIAGRAM EXISTING MCC-03
27 28 29 30 31 32 33	<u>RICAL</u> DRAWING NO. E-01 E-02 E-03 E-04 E-05 E-06 E-07	DESCRIPTION LEGEND AND ABBREVIATIONS SITE PLAN LOX STORAGE AREA PLAN OZONE GENERATION BUILDING PLAN OZONE CONTACTOR AND DESTRUCT PLAN ONE-LINE DIAGRAM EXISTING MCC-03 ONE-LINE DIAGRAMS CONTROL PANELS

# GENERAL CIVIL NOTES

- 1. SURVEY WAS PERFORMED BY CRESCENT MOON SURVEYING, OCTOBER 2014. .
- 2. HORIZONTAL CONTROL: COORDINATES ARE IN THE SC STATE PLANE COORDINATE SYSTEM BASED ON NAD 1983 USGS DATUM. VERTICAL CONTROL: ELEVATIONS ARE BASED ON NAVD 29 USGS DATUM.
- 3. WHERE POSSIBLE, LOCATIONS OF EXISTING YARD PIPING AND UTILITIES WERE TAKEN FROM FIELD LOCATION AT VALVES AND STRUCTURES. ALL OTHER LOCATIONS OF EXISTING YARD PIPING AND UTILITIES WERE TAKEN FROM RECORD CONSTRUCTION DRAWINGS. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING PIPING AND UTILITIES AS NECESSARY PRIOR TO CONSTRUCTION. EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. THE LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF SUBSURFACE FACILITIES MAY NOT BE INDICATED. OVERHEAD UTILITIES ARE NOT INDICATED IN ARCHITECTURAL ELEVATIONS, PROFILE OR SECTION DRAWINGS.
- 4. NEW PERMANENT BENCHMARKS SHALL BE INSTALLED TO REPLACE DEMOLISHED BENCHMARKS OR THOSE REQUIRING RELOCATION BECAUSE OF CONSTRUCTION OR EXCAVATION.
- 5. BORING B-1 IS REFERENCED IN THE REPORT OF GEOTECHNICAL EXPLORATION BY S&ME, JUNE 9, 2015. THE LOCATION OF TEST HOLES INDICATED ON THE DRAWINGS IS APPROXIMATE. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR ACTUAL TEST HOLE LOCATIONS AND THE FINDINGS OF THE GEOTECHNICAL INVESTIGATIONS.
- 6. CONTRACTOR'S STAGING, PARKING AND MATERIAL STORAGE SHALL BE LIMITED TO THE SPACE DESIGNATED ON THE DRAWINGS. PROVIDING ADDITIONAL STORAGE OR PARKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 7. CONTRACTOR SHALL MAINTAIN EXISTING FENCING AND/OR INSTALL NEW CHAIN LINK FENCING IN ORDER TO COMPLETELY SECURE THE SITE, TO THE SATISFACTION OF THE OWNER, AT THE CLOSE OF EACH WORKING DAY.
- 8. FOR ALL SITE GRADING, SMOOTH PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE. PARABOLIC ROUNDING SHALL APPLY TO ALL CUT AND FILL SECTIONS.
- 9. EXISTING AND NEW CONTOURS ARE SHOWN AT 1 FOOT INTERVALS.
- 10. "SCREENED" (LIGHT) DELINEATION INDICATED ON THE DRAWINGS DENOTES EXISTING FACILITIES. "SCREENED" INFORMATION WAS TAKEN FROM EXISTING CONSTRUCTION DRAWINGS AND DATA, IS FOR REFERENCE ONLY, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE ORDERING OF MATERIALS AND BEGINNING OF CONSTRUCTION. "BOLD" DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
- 11. CONTRACTOR SHALL INSTALL ALL PIPELINES, PAVING, WALKWAYS, AND CURB AND GUTTER AT A UNIFORM GRADE BETWEEN ELEVATIONS DEPICTED ON THE DRAWINGS.
- 12. FINISHED GRADE ELEVATION AT THE BUILDING FACE, WHERE NOT ADJACENT TO PAVEMENT, SHALL BE APPROXIMATELY 6 INCHES BELOW FINISHED FLOOR ELEVATION UNLESS OTHERWISE NOTED. FINISHED GRADE ELEVATION ADJACENT TO BASINS SHALL BE APPROXIMATE AS INDICATED BY CONTOURS, OR AS REQUIRED TO MEET STAIR LANDINGS.
- 13. THE CONTRACTOR'S OPERATIONS SHALL CONFORM TO THE RULES AND REGULATIONS OF THE STATE CONTRUCTION SAFETY ORDERS PERTAINING TO EXCAVATION AND TRENCHING.
- 14. CONTRACTOR SHALL FIELD VERIFY PRECISE LOCATION, ELEVATION, AND ARRANGEMENT OF CONNECTIONS OF NEW PIPELINES WITH EXISTING PIPELINES BASED ON FIELD CONDITIONS, INCLUDING EXPOSING EXISTING PIPING PRIOR TO FABRICATING NEW PIPING. CONTRACTOR SHALL PROVIDE FITTINGS, ADAPTERS, SOLID SLEEVE CLOSURES, AND HARNESSED MECHANICAL COUPLINGS; ROTATE FITTINGS; DEFLECT JOINTS; AND MODIFY EXISTING PIPING AS APPLCIABLE AND AS REQUIRED TO MAKE CONNECTIONS, INCLUDING ADJUSTMENTS FOR ANY OFFSETS IN CENTERLINE ELEVATIONS BETWEEN PIPELINES. CONTRACTOR SHALL PROVIDE TEMPORARY PLUG WITH FACTORY OUTLET SIZED AS REQUIRED FOR CONTRACTOR'S TESTING AND DISINFECTION WORK BEFORE MAKING CONNECTION, WHEN APPLICABLE. CONTRACTOR SHALL COORDINATE MAKING EACH CONNECTION WITH THE OWNER.
- 15. LIMITS OF CLEARING NOT SHOWN. CONTRACTOR SHALL LIMIT CLEARING OPERATIONS TO WITHIN 5 FEET OF NEW GRADE TYING TO EXISTING GRADE OR PERIMETER FENCING, WHICHEVER IS GREATER.
- 16. CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS TO THE OPERATIONS BUILDING FROM THE EXISTING PARKING AREA VIA THE FRONT DOOR AND/OR THE SIDE DOOR THROUGHOUT CONSTRUCTION.
- 17. CONTRACTOR SHALL PROVIDE TEMPORARY PIPING FOR EXISTING LINES DURING CONSTRUCTION TO MAINTAIN PLANT OPERATIONS.
- 18. CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING TREES, SHRUBS, AND PLANTS UNLESS OTHERWISE NOTED.
- 19. RESTRAINED JOINTS SHALL BE PROVIDED FOR ALL BURIED PIPING AS INDICATED ON THE DRAWINGS AND/OR AS SCHEDULED IN THE SPECIFICATIONS.
- 20. ALL DIP SHALL BE PROTECTED WITH A MINIMUM OF ONE WRAP OF POLYETHYLENE ENCASEMENT. LOCATIONS WHERE DIP IS TO BE DOUBLE WRAPPED WITH POLYETHYLENE ENCASEMENT ARE SPECIFIED AND INDICATED ON THE DRAWINGS.
- 21. MINIMUM COVER SHALL BE 36 INCHES FOR ALL WATER PIPES, UNLESS OTHERWISE INDICATED.
- 22. HIGH POINTS IN THE PIPELINE WILL NOT BE PERMITTED EXCEPT AT LOCATIONS OF AIR VALVES AS INDICATED ON THE DRAWINGS. PROFILE REQUIREMENTS SHALL BE REVIEWED WITH THE ENGINEER PRIOR TO PREPARING LAYING SCHEDULES AND PERFORMING FIELD STAKING.





# GENERAL LEGEND

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( PV-10)

\_\_\_\_EQUIP CALLOUT

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NOTE: UNLESS OTHERWISE INDICATED, SYMBOLS USED FOR MATERIALS IN THIS LEGEND ARE FOR SECTION VIEWS.



BUILDINGS, STRUCTURES EXISTING BUILDINGS, STRUCTURES PREVIOUSLY DEMOLISHED BUILDINGS, STRUCTURES FUTURE BUILDINGS, STRUCTURES CLOTHES LINE SWING SET FENCE FENCE, WOOD RAILROAD, EACH TRACK CENTERLINE SECTION NUMBER OR DETAIL LETTER DRAWING NUMBER ON WHICH SECTION OR DETAIL APPEARS; OR WHERE SECTION IS CUT OR DETAIL IS NOTED WALL ELEVATION ABBREVIATION DOOR, WINDOW AND LOUVER SCHEDUL SCHEDULE NUMBER - ROOM NUMBER AREA DESIGNATION EQUIPMENT IDENTIFICATION CODE - EQUIPMENT NUMBER EQUIPMENT IDENTIFICATION CODE - EQUIPMENT NUMBER EQUIPMENT REPRESENTATION WITH CALLOUT MATERIALS LEGEN EARTH OR GRADE GRANULAR FILL (CRUSHED ROCK OR GRAV ROCK NEW CONCRETE EXISTING CONCRETE, PRECAST OR PRESTRESSED CONCRETE BRICK, FACE BRICK, COMMON CONCRETE MASONRY UNITS (CMU) CUT STONE OR SAND FILL, GROUT, MORT WOOD, SHEATHING, PANELING, DECKING, WOOD, STUDS, BEAMS, JOISTS, ETC. RIPRAP (PLAN AND SECTION VIEWS) CHECKERED PLATE (PLAN VIEW) STEEL (FOR 1"SCALE & LARGER) STEEL OR ALUMINUM (FOR 3/4" SCALE BAR GRATING (LINES IN DIRECTION OF BAR GRATING (SECTION VIEW) ALUMINUM INSULATION (BATT) ASPHALT

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SWAMP

# PIPING SYSTEMS

	NEW PIPING	CL <sub>2</sub> (L)	CHLORINE LIQUID
	EXISTING PIPING	CNWR	CONDENSER WATER RETURN
		CNWS	CONDENSER WATER SUPPLY
——————————————————————————————————————	AIR (COMPRESSED)	CO <sub>2</sub> (G)	CARBON DIOXIDE GAS
ALS	ALUMINUM SULFATE - (ALUM)	CO <sub>2</sub> (S)	CARBON DIOXIDE SOLUTION
Ar	ARGON	<i>CW</i>	WATER, COLD
AW	ACID WASTE	DW	DISTILLED WATER
AWV	ACID WASTE VENT	—— FeCl <sub>3</sub> ——	FERRIC CHLORIDE
<i>c</i>	CARBON SLURRY	— Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> —	FERRIC SULFATE
CA	CITRIC ACID	——— FPWS ———	FIRE PROTECTION WATER SYSTEM
CAI	COMPRESSED AIR	——— FOR ———	FUEL OIL RETURN
CEF	CLARIFIER EFFLUENT	—— FOS ——	FUEL OIL SUPPLY
CHN	LIME	——— FW ———	FILTERED WATER
CDR	CONDENSATE RETURN	—— FPWS ———	FIRE PROTECTION WATER SYSTEM
C2H2	ACETYLENE	G	GAS, NATURAL
——————————————————————————————————————	CHILLED WATER RETURN	——— Н ———	HYDROGEN
——————————————————————————————————————	CHILLED WATER SUPPLY	——— Не ———	HELIUM
CIP	CLEAN IN PLACE	—— HFS ——	HYDROFLUOSILICIC ACID (FLUORIDE

CHLORINE LIQUID	——————————————————————————————————————	HEATING SYSTEM WA
CONDENSER WATER RETURN	——————————————————————————————————————	HEATING SYSTEM WA
CONDENSER WATER SUPPLY	——————————————————————————————————————	WATER, HOT
CARBON DIOXIDE GAS	———— HWC ————	HOT WATER CIRCULA
CARBON DIOXIDE SOLUTION	IA	INSTRUMENT AIR
WATER, COLD	—— KMn0 <sub>4</sub> ——	POTASSIUM PERMANG
DISTILLED WATER	LIME	LIME
FERRIC CHLORIDE	—— МЕМ ———	MEMBRANE FEED
FERRIC SULFATE	N_2	NITROGEN
FIRE PROTECTION WATER SYSTEM	— Na <sub>2</sub> CO <sub>3</sub> —	SODA ASH
FUEL OIL RETURN	NaF	SODIUM FLUORIDE (
FUEL OIL SUPPLY	NOCL	SODIUM HYPOCHLORI
FILTERED WATER	NAOH	SODIUM HYDROXIDE
FIRE PROTECTION WATER SYSTEM	—Na <sub>2</sub> SiF <sub>6</sub> —	SODIUM SILICOFLUO
GAS, NATURAL	—— NH <sub>3</sub> ——	AMMONIA GAS
HYDROGEN	—— NH <sub>4</sub> OH ——	AMMONIA SOLUTION
HELIUM	NMN	SODIUM PERMANGANA
HYDROFLUOSILICIC ACID (FLUORIDE)	NHS	SODIUM BISULFITE

# PIPING ACCESSORIES LEGEND

JLE REFERENCE		BLIND FLANGE		TEE LINE DOWN	S	—— DUP
		CAP OR PLUG	+®+	TEE LINE UP		EXP
	O <sup>co</sup>	CLEANOUT		TRAP	F	FIL
	+ +	CROSS		UNION		FLE
	<u></u> }	DIAPHRAGM SEAL		WALL SLEEVE		HOS
	<del>_</del> _	ELBOW		WYE	C <sup></sup>	INJ
<u>)</u>	C+	ELBOW DOWN		WYE STRAINER		ORI
	+•	LINE TURNING UP		WYE STRAINER WITH BLOWOFF	$\overline{\Delta}$	PIP
IVEL)		HOSE CONNECTION		AUTOMATIC DRAIN TRAP		PIP
		HOSE FAUCET OR WALL HYDRANT		BACKFLOW PREVENTER		—— PIP
		HOSE FAUCET OR WALL HYDRANT W/VACUUM BREAKER	-6-	CENTRIFUGE		PRO
	_Q	QUICK COUPLING	$\vee$ $\vee$ $\vee$ $\vee$	CHANNEL DIFFUSER		<b>→</b> <i>PUM</i>
	D	REDUCER		COMPRESSOR OR BLOWER	Ą	SCR
	Ū	RUPTURE DISK	Y	DRAIN OR BELL-UP		POS
	<del>+</del>	TEE		DRIP TRAP	(\$)	SED
TAR, AND PLASTER		VALV	E AND GATE	LEGEND	S	STR
, ETC.		PLUG VALVE. ECCENTRIC		PIIMP CONTROL VALVE	<u>,</u>	
		,			¥	SAFETY RELIE
		PLUG VALVE, NON-ECCENTRIC	—N	BACKWATER VALVE	©	TELESCOPING
	\ <b>x</b>	BUTTERFLY VALVE		PRESSURE REDUCING VALVE		
		GATE VALVE OR SHUTOFF VALVE		PRESSURE REGULATING VALVE (SUSTAINING	)) ()	PRESSURE REL
	——O-——-	BALL VALVE	Υ	PRESSURE RELIEF/VACUUM BREAKER		PINCH VALVE
& SMALLER)		GLOBE VALVE		THERMAL SHUTOFF VALVE		SLUICE GATE
<sup>E</sup> SPAN) (PLAN VIEW)	────────	CHECK VALVE		EXPLOSION RELIEF VALVE		SLIDE GATE
	¥	4 WAY VALVE		HOSE FAUCET OR WALL HYDRANT		
		ANGLE VALVE		HOSE FAUCET OR WALL HYDRANT W/VACUUM BREAKER		DEMOLISH AND
	——————————————————————————————————————	CHLORINE INSTITUTE VALVE	KK	BACKFLOW PREVENTER		ABANDON IN-F
		DIAPHRAGM VALVE		BYPASS RELIEF VALVE		

			APP	
			. Š	
WATER RETURN	NPW		<u>.</u>	dwg
WATEN SOFFET	——— PAC ——		ž	1918.
ULATING	——— PCL ——	POLYALUMINUM CHLORIDE		vg DA_CO Jwg H. dwg
	——— РНО ———	PHOSPHATE		994. di 
ANGANATE	——— PS ——	POLYMER SOLUTION	SUE	F1: D8( F2: BV F3: B0/ F4: SC/
	———— PW ———	POTABLE WATER	OF IS	XRE XRE XRE XRE
	RES		CORD	
	RF		ND RE	:06 AI
E (FLUORIDE)	SAM		SNO	ings 8:34: PM ER:100
ORITE	SD	STORM DRAIN	REVISI	<i>Draw</i> 2016 52:17 WG VE
DE (CAUSTIC)	—— SET —	SETTLED WATER		neral 1/15/ 6 12: D
LUORIDE (FLOURIDE)	SPD	SUMP PUMP DISCHARGE		- Ge 1930, 8/201
ON	SPN		ш	7 - G Ng KEL08 D:1/1 WADMI
ANATE	т тw		DAT	M:301 WOPLLAB AVED: LOTTE SER: P
ΤΕ	V	VENT		
	W	WATER (UNDERGROUND)	E	NG STATIS
			ARO	DEOL SOL
			H H H H	Rec.
DUPLEX STRAINER		SUCTION DIFFUSER		PAULINI
EXPANSION COMPENSATOR	<u></u> 0	SURGE CHAMBER		mmm.
FTI TER	Ą	VENT		
	(?)			uo
FLEXIBLE CONNECTION		INDICATOR		orati
HOSE RACK	<u> </u>	SIGHT FLOW INDICATOR	ר   אל	<b>Corp</b> h carolir
INJECTOR, EDUCTOR		TEMPERATURE INDICATOR		<b>Batch</b> ia, Soutl
ORIFICE PLATE	Р	THERMOMETER	SLA	Columb
PIPE ANCHOR	—()	ELECTROMAGNETIC/ULTRASONIC FLOWMETER		Black
PIPE DIFFUSER		FLUME		
PIPE GUIDE		PITOT TUBE		
PROGRESSIVE CAVITY PUMP		ROTAMETER		
PUMP		TURBINE OR PROPELLOR FLOWMETER	NO <sup>-</sup>	
SCREENED VENT		VENTURI	SSA TP ATI	
POSITIVE DISPLACEMENT BLOWER		WEIR	SW7 SW7	
SEDIMENT TRAP		HOSE BRACKET	AND	AL VD
STRAINER		HOSE REEL		ENER
			S TEI	L GI
LIEF VALVE	OPERA	IOR LEGEND	N N N N N N N N N N N N N N N N N N N	
NG VALVE	M	MOTORIZED OPERATOR	ir M IE	
RELIEF VALVE		ELECTRIC OPERATOR	) J	
VE	P	PNEUMATIC OPERATOR		
ΤΕ	S	SOLENOID OPERATOR		
E	$\sim$	FLOAT	DESIGNED: DEF DETAILED: CMM	- /
E WEIR	$\widehat{\mathbf{T}}$	DIAPHRAGM	APPROVED: PHH	1
	P	AIR/OIL TANDEM		2 1
		RIACK & VEATCH		
HIND DISPUSE THIS IS A G SHEET. SOME	ENERAL CIVIL AND M ABBREVIATIONS AND	MECHANICAL LEGEND SYMBOLS MAY NOT	PROJE	CT NO.
N-PLACE BE USED ON	IHIS PROJECT.	OF AUTHONIUM	185	210
		. annummer	G -	UZ Eet
			2 0	F 34

A AB	ACID, AMBER INDICATING LIGHT,AMP ANCHOR BOLT	D DBL	DOOR DOUBLE
ABS	ACID BATH SINK	DC	DIRECT CURRENT
A/C	ALTERNATING CORRENT AIR COMPRESSOR, AIR CONDITIONER, (ING)	DEB	DEGREE
ACC ACP	AIR-COOLED CONDENSER ASBESTOS CEMENT PIPE	DE I DF	DETAIL DRINKING FOUNTAIN, DUCT FAN
ACST AD	ACOUSTIC, (AL ACCESS DOOR, AREA DRAIN, AIR DAMPER, ANODE	DH DT	DOOR HEIGHT DROP INLET, DUCTILE IRON
ADD	ADDITIONAL	DIA	DIAMETER
ADH ADJ	ADHESIVE ADJUSTABLE, ADJACENT	DIFF DIM	DIFFOSER
ADMIN AF	ADMINISTRATION AIR FLOW. AIR FILTER	DIP DISCH	DUCTILE IRON PIPE DISCHARGE
AFD	ADJUSTABLE FREQUENCY DRIVE	DISP	DISPENSER
AFF AH	ABOVE FINISH FLOOR AHEAD	DIV	DIVISION
AHU AL	AIR HANDLING UNIT ACTIVE LEAF	DL DM	DEAD LOAD DAMPER MOTOR
ALT	ALTERNATE, (IVE)	DMJ DN	DOUBLE MECHANICAL JOINT
AM	AMMETER	DO	DOWN OPENING, DISSOLVED OXYGEN
AMP AMST	AQUA AMMONIA METERING PUMP AQUA AMMONIA STORAGE TANK	DPDT DR	DOUBLE POLE DOUBLE THROW DRAIN
ANOD AOF	ANODIZED OIL REMOVAL FILTER	DRN DS	DRAIN DOWNSPOUT, DOOR SIZE
AP APPR	ACCESS PANEL	DT DV	DISTRIBUTÍON TRANSFORMER
APPROX	APPROXIMATE, (LY)	DWG(S)	DRAWING(S)
AR ARCH	ARCHITECTURAL	DWL(S)	DOWEL(S)
ARV AS	AIR RELIEF VALVE AMMETER SWITCH	E EA	EAST, ELECTRICAL EACH
ASSY	ASSEMBLY	EAT	ENTERING AIR TEMPERATURE
AUX	AUXILIARY	ECC	ECCENTRIC
AVRV AVS	AIR VACUUM RELIEF VALVE AUTOMATIC VALVE STATION	ECC RED EEW	ECCENTRIC REDUCER EMERGENCY EYEWASH
AWB AWG	AIR WASH BLOWER AMERICAN WIRE GAGE	EF EFF	EACH FACE, EXHAUST FAN EFFLUENT
B	BEAM	EG	ENGINE GENERATOR
B TO B BA	BACK TO BACK BEARING AREA	EJ EL	ELEVATION
BAL	BALANCE	ELB ELEC	ELBOW ELECTRIC, (AL)
BC	BEGIN CURVE	ELEV EMER	ELEVATOR
BD BEJ	BOARD BRICK EXPANSION JOINT	EMH	ELECTRIC MONORAIL HOIST
BF BEV	BLIND FLANGE BUTTERELY VALVE	ENCL	ENCASEMENT
BHP	BRAKE HORSEPOWER	ENT EOL	ENTRANCE END OF LINE
BLTOM	BREAKER	EPV FO	ECCENTIC PLUG VALVE
BLDG BLK	BUILDING BLOCK	EQUIP	EQUIPMENT
BLR BM	BOILER BENCHMARK	EUH	ELECTRIC UNIT HEATER
BMP	BEST MANAGEMENT PRACTICE	EV EW	EVAPORATOR EACH WAY
BOT	BOTTOM	EW FWFF	EMERGENCY EYEWASH FACH WAY FACH FACE
BP BPMK NO	BACK PRESSURE BASEPLATE MARK NUMBER	EXCH	EXCHANGER
BRG BRK	BEARING BRICK	EXIST	EXHAUST EXISTING
BS	BOTH SIDES	EXP EXP JT	EXPANSION, EXPOSED EXPANSION JOINT
BSMT	BASEMENT	EXT	EXTENSION, EXTERIOR, EXTERNAL
BTUH BTUH	BRITISH THERMAL UNIT BRITISH THERMAL UNIT-HOUR	F	FAN
BU BUR	BELL-UP BUILT UP ROOFING	FB	FACE BRICK
BV BVC	BALL VALVE BEGIN VERTICAL CURVE	FC FCA	FLEXIBLE CONNECTION, FLOW CONTROL FLANGED COUPLING ADAPTER
C	COUNTER	FD FDMH	FLOOR DRAIN, FIRE DAMPER FLOOD DRAIN MANHOLE
C TO C	CENTER TO CENTER	FDN EDT	FOUNDATION
CCP	CONCRETE CULVERT PIPE	FE	FIRE EXTINGUISHER, FLOW ELEMENT
CD	CEUSED CIRCUIT TELEVISION SECURITY SYSTEM CEILING DIFFUSER, CONTROL DAMPER	FH	FIRE EXTINGUISHER CABINET FLAT HEAD, FIRE HYDRANT
CDT C/EJ	CAUSTIC DAY TANK CONTRACTION/EXPANSION JOINT	FHMS FIG	FLAT HEAD MACHINE SCREW FIGURE
ĊFM ĊEMH	CUBIC FEET PER MINUTE	FIN FIN GR	FINISH EINISH GRADE
C&G	CURB AND GUTTER	FL	FLOOR, FLOW LINE
CGD T CGMP	COAGULANT DAY TANK COAGULANT METERING PUMP	FLEX FLG	FLEXIBLE FLANGE, FLASHING
CGST CGTP	COAGULANT STORAGE TANK COAGULANT TRANSFER PUMP	FLOC FM	FLOCCULATION FORCE MAIN
CH	CHAIN HOIST	FMP	FLUORIDE METERING PUMP
CI	CAST IRON	FO	FUEL OIL
CIMH CIMHS	CAST IRON MANHOLE CAST IRON MANHOLE STEPS	FOB FOM	FLAT ON BOTTOM FACE OF MASONRY
CIP CISP	CAST IRON PIPE CAST IRON SOIL PIPE	FOS FOT	FACE OF STUDS FLAT ON TOP
CJ	CONTROL JOINT	FPAT	FILTER-AID POLYMER AGING TANK
CL	CLASS	FPMP	FILTER-AID POLYMER METERING PUMP
CLG CLO	CLOSET	FPST FRP	FILTER-AID POLYMER STORAGE TANK FIBERGLASS REINFORCED PLASTIC
CLR CMP	CLEAR, (ANCE) CORRUGATED METAL PIPE. CAUSTIC METERING PUMP	FS FST	FAR SIDE, FLOOR SLEEVE, FLOAT SWITCH FLUORIDE STORAGE TANK
CMU	CONCRETE MASONRY UNIT	FT	FOOT
COL	COLUMN	FTH	FIN TUBE HEATER
COMB COMB SWR	COMBINATION COMBINED SEWER	FTP FURN	FLUORIDE TRANSFER PUMP FURNISH, FURNISHED
COMP CONC	COMPRESSOR, (ED) CONCRETE	FV FW	FLAP VALVE EINISHED WATER
CONN	CONNECTION	FWD	FORWARD
CONST	CONTINUOUS, CONTINUATION, CONTROL	FWP	FINISHED WATER PUMP
CONTR COR	CONTRACTOR CORNER	G GA	GAS GAUGE
CORR CP	CORRIDOR, CORRUGATED CONTROL PANEL	GAL GAL V	GALLON GALVANIZED
CPAT	COAGULANT AID POLYMER AGING TANK	GC/MS	GAS CHROMATOGRAPH/MASS SPECTROMETER
CPLG	COUPLING	GEN	GAS DETECTOR GENERAL, GENERATOR
CPMP CPST	COAGLUANI-AID POLYMER METERING PUMP COAGULANT-AID POLYMER STORAGE TANK	GL V GM	GLOBE VALVE GAS METER
CPT CRS	CONTROL POWER TRANSFORMER COURSES. (ING)	GOX	GASEOUS OXYGEN GALLONS PER MINUTE
CS CSK	CONTROL SWITCH, CONTROL STATION, CUP SINK	GR	GRADE
CSP	CHEMICAL SUMP PUMP	GUH GV	GAS UNIT HEATER GATE VALVE
CST CT	CAUSTIC STORAGE TANK CERAMIC TILE, CYCLE TIMER	GWB GYP	GYPSUM WALLBOARD GYPSUM
CT CTP	CURRENT TRANSFORMER CAUSTIC TRANSFER PUMP		
CTR(S) CU	CENTER(S) CUBIC, AIR-COOLED CONDENSER		
CU YD	CUBIC YARD		
CW	COLD WATER		
CWP	COLD WATER PUMP		

UD	u c c d t d d
HC	HOLLOW CORE, HEATING COIL
HE	HEADER HEAT EXCHANGER
HF	HOSE FAUCET
HGT	HYDROFLUOSILICIC ACID HEIGHT
HH HLS	HANDHOLE HIGH LEVEL SWITCH
HMC HMD	HARNESSED MECHANICAL COUPLING HOLLOW METAL DOOR
HMJ HORIZ	HARNESSED MECHANICAL JOINT HORIZONTAL
HP HR	HIGH POINT, HORSEPOWER HOUR, HANDRAIL
HS HV	HIGH STRENGTH HOSE VALVE
HVAC HW	HEATING,VENTILATING AND AIR CONDITIONING HOT WATER
HWP HWY	HOT WATER PUMP HIGHWAY
I	
ID IF	INSIDE DIAMETER/DIMENSION INSIDE FACE
I/I IN	INCHES
INC	INCLUDING
INCR INST	INCREASE INSTRUMENT, (ATION)
INSUL INT	INSULATE, (ED), (ING) INTERIOR, INTERNAL
INV IP	INVERI IRON PIPE
IPS	IRON PIPE SIZE
JAN JB	JUNCTION BOX
JT	JOINT
K KTT	KIPS
KO	KITCHEN KNOCK OUT KITCHEN SINK
KVA	KILOVOLT AMPERE
KW KWH	KILOVOLT AMILENE KILOWATT HOUR
L	LOUVER
LAB LAM	LABORATORY LAMINATE(D)
LAT LAT	LEAVING ÀIR TEMPERATURE LATERAL
LAV LB(S)	LAVATORY POUNDS
LG`´ LH	LENGTH, LONG LEFT HAND
LIN LL	LINEAL, LINEAR LIVE LOAD
LO LOX	LOUVER OPENING LIQUID OXYGEN
LS LT	LEVEL SWITCH LEFT, LAB TABLE, LEVEL TRANSMITTER
MA	MILLIAMPERE
MACH MAINT	MACHINE MAINTENANCE
MAN MAS	MANUAL MASONRY
MAU MAX	MAKEUP AIR UNIT MAXIMUM
MB MC	MACHINE BOLT MECHANICAL COUPLING
MCC MCLU	MOTOR CONTROL CENTER MOTOR CONTROL LINE UP
MECH	
MED	MECHANICAL MEDIUM
MED MET MEZ	MECHANICAL MEDIUM METAL MEZZANINE
MED MET MEZ MFM MFR(S)	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S)
MED MET MEZ MFM MFR(S) MG MGD	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY
MED MET MEZ MFM MFR(S) MG MGD MH MIN MIN	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT
MED MET MEZ MFM MFR(S) MG MGD MH MIN MIN MISC MJ MJRG MJTR	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJTR MO MOCP MDD	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL DOOE DECK
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJRR MJRR MJRR MJRR MJRR MJR MJR MJR MJ	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJTR MO MOCP MRD MSL MSL MSL MTD MTL	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJTR MO MJTR MO MOCP MRD MSL MSL MTD MTL MTR	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL MOTOR
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJTR MO MOCP MRD MSL MSL MSL MTD MSL MTD MTL MTR	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJRG MJTR MO MOCP MRD MSL MSL MTD MSL MTD MSL MTD MTL MTL MTR	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH NOT APPLICABLE NORMALLY CLOSED
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJTR MO MOCP MRD MS MSL MTD MSL MTD MSL MTD MTL MTR N N/A NC NEUT NF	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH NOR APPLICABLE NORMALLY CLOSED NEUTRAL NEAR FACE
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJRG MJRG MJRG MJR MJR MJR MJR MJR MJR MS MSL MTD MS MSL MTD MTL MTR MTL MTR N N/A NC NEUT NF NO NO (S)	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH NOT APPLICABLE NORMALLY CLOSED NEUTRAL NEAR FACE NORMALLY OPEN NUMBER(S)
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MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJRG MJTR MO MOCP MRD MS MSL MTD MTL MTD MTL MTD MTL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MTL MTR NO NO(S) NOM NORM NPT NPW NS NTS OC OD	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH NOT APPLICABLE NORMALLY CLOSED NEUTRAL NEAR FACE NORMALLY OPEN NUMBER(S) NOMINAL NORMAL NATIONAL PIPE THREAD NONPOTABLE WATER NEAR SIDE NOT TO SCALE ON CENTER, ODOR CONTROL OUTSIDE DIAMETER
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MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJTR MO MOCP MRD MS MSL MTD MTL MTD MTL MTD MTL MTR N N N/A NC NEUT NF NO NO.(S) NOM NORM NPT NPW NS NTS OC OD OF OH OHD OL	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH NOT APPLICABLE NORMALLY CLOSED NEUTRAL NETAL NORMAL NATIONAL PIPE THREAD NOMINAL NORMAL NATIONAL PIPE THREAD NONPABLE WATER NEAR SIDE NOT TO SCALE ON CENTER, ODOR CONTROL OUTSIDE DIAMETER OUTSIDE DIAMETER OUTSIDE FACE, OVERFLOW OVERHEAD DOOR OVERHEAD DOOR
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJTR MO MOCP MRD MS MSL MTD MTL MTD MTL MTR N N N N N N N N N N N N N N N N N N N	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH NOT APPLICABLE NORMALLY OPEN NUMBER(S) NOMINAL NATIONAL PIPE THREAD NORY NORTH NATIONAL PIPE THREAD NONPOTABLE WATER NEAR SIDE NOT TO SCALE ON CENTER, ODOR CONTROL OUTSIDE DIAMETER OUTSIDE DIAMETER OUTSIDE DIAMETER NUTSIDE FACE, OVERFLOW OVERHEAD DOOR OVERHEAD DOOR OVERLOAD OPENNING
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJRG MJRG MJRG MJRG MJR MJRG MJR MTD MTL MTR MS MSL MTD MTL MTR MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MS MSL MS MSL MS MSL MS MSL MS MSL MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MS MSL MTD MTL MTR MO MS MSL MTD MTL MTR MO MO CP MRD MS MSL MTD MTL MTR MO MO CP MRD MS MSL MTD MTL MTD MTL MTD MTL MTD MS MSL MTD MTL MTR MO O D O D O D O D O D O D O D O D O D	MECHANICAL MEDIUM METAL MEZZANINE MAGNETIC FLOWMETER MAGNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS MILLION GALLONS MILLION GALLONS MILLION GALLONS MILLION GALLONS MILLION GALLONS MILLION GALLONS MILLION GALLONS MILLION GALLONS MECHANICAL JOINT MECHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASORRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL MEAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH NOT APPLICABLE NORMALLY OPEN NUMBER(S) NOMINAL NATIONAL PIPE THREAD NORYAL NATIONAL PIPE THREAD NONPOTABLE WATER NEAR SIDE NOT TO SCALE ON CENTER, ODOR CONTROL OUTSIDE DIAMETER OUTSIDE DIAMETER OUTSIDE FACE, OVERFLOW OVERHEAD DOOR OVERHEAD DOOR OVERLOAD OPENING
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJTR MO MOCP MRD MS MSL MTD MS MSL MTD MS MSL MTD MTL MTR NN NA NC NEUT NF NO NO. (S) NOM NORM NPT NPW NS NTS OC OD OF OH OHD OL OPER OPNG OPP OSL OSL OSL OSS	MECHANICAL MEDIUM METAL METAL MEZANINE MAQNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MINIMUM, MINUTE MACHANICAL JOINT RETAINER GLAND MECHANICAL JOINT WITH TIE ROD MACHANICAL JOINT WITH TIE ROD MACHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MAAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH NOT APPLICABLE NORMALLY CLOSED NEUTRAL NEAR FACE NORMALLY OPEN NUMBER(S) NOMINAL NORMAL NATIONAL PIPE THREAD NOMPALS NOT TO SCALE ON CENTER, ODOR CONTROL OUTSIDE DIAMETER NOT TO SCALE ON CENTER, ODOR CONTROL OVERHEAD DOOR OVERHEAD DOOR OVERHEAD DOOR OVERHEAD DOOR OVERHEAD DOOR OVERHEAD DOOR OVERHEAD DOOR OVERLOAD OPENING OPPOSITE OUTSTANDING LEG OZONE SYSTEM SUPPLIER
MED MET MEZ MFM MFR(S) MG MGD MH MIN MISC MJ MJRG MJTR MO MOCP MRD MS MSL MTD MS MSL MTD MTL MTR MS MSL MTD MTL MTR NN NA NC NEUT NF NO NO. (S) NOM NORM NPT NPW NS NTS OC OD OF OH OHD OL OPER OPNG OPP OSL OSS OZ OZS OZS	MECHANICAL MEDIUM METAL MEZZANINE MAQNETIC FLOWMETER MANUFACTURER(S) MILLION GALLONS PER DAY MANHOLE MINIMUM, MINUTE MISCELLANEOUS MECHANICAL JOINT MECHANICAL JOINT WITH MECHANICAL JOINT WITH TIE ROD MASONRY OPENING, MOTOR OPERATED MASTER OZONE CONTROL PANEL METAL ROOF DECK MACHINE SCREW MEAN SEA LEVEL MOUNTED MATERIAL MOTOR NORTH NOT APPLICABLE NORMALLY CLOSED NEUTRAL NEAR FACE NORMALLY OPEN NUMBER(S) NOMINAL NORNAL NATIONAL PIPE THREAD NORPOTABLE WATER NEAR SIDE NOT TO SCALE ON CENTER, ODOR CONTROL OUTSIDE DIAMETER OUTSIDE FACE, OVERFLOW OVERHEAD DOOR OVERHEAD SYSTEM SUPPLIER

PAC PC PCC PCCP POWDER ACTIVATED CARBON POINT OF CURVE POINT OF COMPOUND CURVATURE PRESTRESSED CONCRETE CYLINDER PIPE PD PLAN DIMENSION ΡE PLAIN END PRESSURE GAUGE PG PH PIPE HANGER, PENTHOUSE PHOS PHOSPHORIC PI PIVC POINT OF INTERSECTION POINT OF INTERSECTION ON VERTICAL CURVE PL PLC PLATE PROGRAMMABLE LOGIC CONTROL PLYWD PLYWOOD PANEL(S) PNL(S) POLY POT PP POLYMER POINT ON TANGENT POWER POLE POTASSIUM PERMANGANATE METERING PUMP PPMP POTASSIUM PERMANGANATE MIXING TANK PPMT РРТМ POTASSIUM PERMANGANATE TANK MIXER PR PAIR PROJ PROJECTION PRESSURE REDUCING STATION PRS PRV POWER ROOF VENTILATOR, PRESSURE REDUCING VALVE PS PSF PSI PSU PT PV PIPE SUPPORT POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH POWER SUPPLY UNIT POINT, POINT OF TANGENCY PLUG VALVE PVC POLYVINYL CHLORIDE, POINT ON VERTICAL CURVE PVCP POLYVINYL CHLORIDE PIPE PVMT PAVEMENT PW POTABLE WATER RADIUS, RISER RAD REFRIGÉRANT AIR DRYER RC RESIDUALS COLLECTOR RCP RCCP REINFORCED CONCRETE PIPE REINFORCED CONCRETE CYLINDER PIPE RCHEP REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE RD ROOF DRAIN, ROAD RDL ROOF DRAIN LEADER RECEP RECEPTION RECIRCULATING RECIRC RECP RED REG REF REFR REFR RECEPTACLE REDUCER, REDUCING REGULATOR, REGULATING REFERENCE REFRIGERATION, REFRIGERATOR REINFORCING REM REMOVABLE REQD REQUIRED RET RETURN REV RFG REVISION, REVISED, REVERSED ROOFING RG RETAINER GLAND ROOF HOOD, RIGHT HAND, ROUND HEAD, RED HEAD RH RHMS RHWS ROUND HEAD MACHINE SCREW ROUND HEAD WOOD SCREW RM ROOM, RAPID MIXER RO RPM ROUGH OPENING REVOLUTIONS PER MINUTE RS RT ROLLED STEEL RIGHT RTU ROOFTOP AC UNIT RV REGULATING VALVE R/WRIGHT OF WAY RAW WATER RW SOUTH, SPEAKER SAN SWR SANITÁRY SEWER SAP SAMPLE PUMP SCHED SCHEDULE SCS SD SEC STONKUS VALVE CONTROL SYSTEM STORM DRAIN, SOAP DISH SECOND SECT SECTION SER SK SERVICE SINK SF SUPPLY FAN SG SLUICE GATE, SUPPLY GRILLE SH SHEET SHDT SODIUM HYPOCHLORITE DAY TANK SHMP SODIUM HYPOCHLORITE METERING PUMP SHST SODIUM HYPOCHLORITE STORAGE TANK SHT SHEET SODIUM HYPOCHLORITE TRANSFER TANK SHTP SIL SILENCER SMD SHD SIM SMOKE DETECTOR SHOWER DOOR SIMILAR SKL SLG SKYLIGHT SLIDE GATE SM SMD SHEET METAL SMOKE DETECTOR SP SUMP PUMP SPA SPACING. SPACES SPEC(S) SPECIFICATION(S) SPLY SUPPLY SQ SR SQUARE SUPPLY REGISTER SS STAINLESS STEEL SANITARY SEWER SS SSK SERVICE SINK SSMH ST SANITARY SEWER MANHOLE SELF TAPPING, STORAGE TANK ST SWR STORM SEWER STA STATION STD STANDARD STL STOR STEEL STORAGE STR STRUCTURAL SUP SUPPLY SUSP SUSPENDED SV SHUTOFF VALVE, SOLENOID VALVE SW SWITCH SWBD SWITCHBOARD SWGR SWITCHGEAR SWS SEAL WATER SOLENOID SYM SYS SYMMETRICAL SYSTEM

R

T T TAN TB T&B TBC TBE TBM TC TC TC TCP TEL	THERMOSTAT, TREAD, TOTALIZER TRANSFORMER, TELEPHONE, TOP TANGENT TERMINAL BOX TOP AND BOTTOM TRAVELING BRIDGE CRANE THREAD BOTH ENDS TEMPORARY BENCHMARK TOWEL CABINET, TOP OF CURB TERMINAL CABINET TEMPERATURE CONTROL PANEL TELESCOPING	NO. BY CK	
TEMP TERM T&G TH THK THR TI TI TIR	TEMPERATURE, TEMPORARY TERMINAL TONGUE & GROOVE TEST HOLE THICK, THICKNESS THRESHOLD TOTALIZING INDICATOR, TEMPERATURE INDICATOR TOTALIZING INDICATING RECORDER	CORD OF ISSUE	XREF1: XREF2: XREF3: XREF4:
TOF TOG TOM TOS TOW TP TRANS TS TS TV TW TWR TYP	TOP OF FOOTING TOP OF GRATING TOP OF GRATING TOP OF MASONRY TOP OF STEEL, TOP OF SLAB TOP OF WALL TWISTED PAIR COUPLE, TOWEL PIN TRANSFORMER, TRANSMITTER, TRANSFER TEMPERATURE SWITCH TELEVISION TEMPERED WATER TEMPERED WATER RETURN TYPICAL	REVISIONS AND RE	DWG VER:
UDM UGND UH UNO UPS UR USGS	ULTRASONIC DENSITY METER UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY URINAL UNITED STATES GEOLOGICAL SURVEY	DATE	PW: PW FILE: SAVED: PLOTTED: USER:
V VAC VAT VB VC VCD VCD VCP VERT VF VIB	VALVE, VOLT, VENT VACUUM VINYL ASBESTOS TILE VACUUM BREAKER VERTICAL CURVE, VICTAULIC COUPLING VERTICAL CONTROL DAMPER VITRIFIED CLAY PIPE VERTICAL VACUUM FILTER VIBRATION	No 17690 H	A HARGE STORES
VM VNR VV W/ WB WC WD WF WH WL WH WL WM WO WO W/O WO WO WN WP WR WS WSE WT WS WSE WT WS WSE WT WS WSE WT	VOLT METER VENEER VENT VALVE WEST, WIDE, WINDOW, WATT, WATER WITH WALLBOARD WATER CLOSET WOOD, WIDTH WALL FITTING WALL FITTING WALL HYDRANT WATER LEVEL WATER METER, WATTMETER WINDOW OPENING WITHOUT WOMEN WATERPROOF, WORKING POINT WASTE RECEPTACLE WATERSTOP WATER SURFACE ELEVATION WEIGHT WETWELL WELDED WIRE FABRIC WASH WATER SUPPLY PUMP WASH WATER STORAGE TANK	BLACK & VEATCH	Black & Veatch Corporation Columbia, South Carolina
x YH ZODT ZOST ZOTP & @ [ : # %	WASH WATER STORAGE TANK BY,TIMES YARD HYDRANT ZINC ORTHOPHOSPHATE DAY TANK ZINC ORTHOPHOSPHATE METERING PUMP ZINC ORTHOPHOSPHATE STORAGE TANK ZINC ORTHOPHOSPHATE TRANSFER PUMP AND AT CENTERLINE DEFLECTION ANGLE NUMBER PER CENT	GRAND STRAND W&SA MYRTLE BEACH SWTP OZONE SYSTEM MODIFICATIONS	GENERAL ABBREVIATIONS
	BLACK & VEATCH CORPORATION No. CO1918	DESIGNED: DEF DETAILED: CMM CHECKED: JVG APPROVED: PHH DATE: 1/1 0 1/2 IF THIS BAR DOES 1" THEN DRAWING SCA	5/2016 2 1 5 NOT MEASURE 5 IS NOT TO FULL LE
		185. <b>G -</b>	210 03 FT

3 OF 34





				)EF					
		TESI		CMW DEF D					
$\Lambda$	<u>1.</u>	GRADE SURFACE INSIDE FENCED AREA SHALL BE		-	ž				
	2.	CONCRETE. FENCED AREA IS APPROXIMATELY 37' WIDE BY 40'							
	3.	PROVIDE FOUNDATION AND EQUIPMENT PADS FOR TANKS AND VAPORIZERS IN ACCORDANCE WITH DETAILS PREPARED BY OXYGEN SYSTEM SUPPLER (02SS). ANCHOR BOLTS SHALL BE EMBEDDED IN EQUIPMENT PADS IN ACCORDANCE WITH DESIGN DETAILS PREPARED BY 02SS. SEE SHEET S-01 FOR ADDITIONAL DETAILS.		UBMITTAL	D RECORD OF ISSUE		XREF1: XRFF2:	XREF3:	XREF4:
	4.	LOX STORAGE AREA EARTHWORK, FENCE, GATES, EQUIPMENT FOUNDATIONS AND PADS, SIDEWALK, CONCRETE TRUCK UNLOADING AREA, AND GUARDPOSTS TO BE SUPPLIED AND INSTALLED BY CONTRACTOR. TOP OF LOX AREA SIDEWALK AND EQUIPMENT PADS WITHIN LOX AREA TO BE EL 22.50. UNLESS OTHERWISE INDICATED LOX TANKS, VAPORIZERS, VALVES, PIPING, INSTRUMENTATION, AND APPURTENANCES TO BE PROVIDED AND INSTALLED BY OXYGEN SYSTEM SUPPLIER (02SS)		6 REVISED PER PRAXAIR S	KEVISIONS AN				DWG VER:
	5.	ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK IF		/27/201	DAIE		W FILE: AVFD:	LOTTED:	SER:
		PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY, OR INCORRECTLY CONSTRUCTED, THE CONTRACTOR MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS.	AWING WAS	. HARGETTE A 9	R IN THE STATE	-, NO. <u>17690</u> PI	<u>ARY 15, 2016</u>	<u>;</u> ] <u>द</u>	ň
	6.	PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASS IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE	THIS DR	CH PAUL H		OF SC	ON JANU		
		FILTERED TO REMOVE ANY SEDIMENTS BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.	3	EAT	t dittel		ration		
	7.	ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED.			a <b>WORIG</b> of		aten Corpor L. South Carolina		
	8.	THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. MUD/SOIL SHALL BE REMOVED FROM PAVEMENT DAILY, AS REQUIRED.	1 	BLAC	Building		<b>SIACK &amp; VO</b>		
	9.	CONTRACTOR TO INSTALL 3" GOX LINE BENEATH WALL AND STUB UP 2'-0" ABOVE GRADE INSIDE LOX STORAGE AREA. PROVIDE INSULATING FLANGE AT CONNECTION TO LOX SUPPLIER PIPING. O2SS WILL TIE INTO 3" GOX LINE WITH PIPING INSIDE LOX STORAGE AREA.		It					
	10.	AT EXISTING ASPHALT DRIVE CROSSING, PROVIDE 4' OF MINIMUM COVER WITH PIPE ENCASEMENT CONCRETE AND CUT/PATCH ASPHALT DRIVE.		S					
	11.	PROVIDE INSULATING FLANGE AT BUILDING CONNECTION.	5	I ON					
	12.	REMOVE EXISTING ASPHALT IN THIS AREA PRIOR TO CONSTRUCTING CONCRETE TRUCK UNLOADING PAD.	18S/ 17P	CATI					
<u> </u>	13.	EXISTING PLANT DRIVE TO MATCH TOP OF CONCRETE ELEVATION OF TRUCK UNLOADING AREA.	D N N S M	IFI(				AREA	
	14.	APPROXIMATE LOCATION OF ELECTRICAL STUB-UP FOR VAPORIZER SWITCHING VALVE ASSEMBLY PER PRAXAIR SUBMITTAL. VERIFY EXACT LOCATION WITH PRAXAIR.	RAN	MOD			ERAL	AGE	
<u>/1</u>	15.	APPROXIMATE LOCATION OF PRESSURE REGULATOR VALVE ASSEMBLY PER PRAXAIR SUBMITTAL.	STI BI	EΜ			GEN	STOR	
	16.	LOCATION OF UTILITY STUB-UP FOR RTU TRACKER PANEL. VERIFY FINAL LOCATION WITH PRAXAIR. UTILITY STUB-UP AND SERVICE TO BE PROVIDED BY GRAND STRAND WATER & SEWER AUTHORITY.	AND IYRTLI	SVST				ГОХ	
$\Lambda$	17.	PROVIDE SLIDING GATE IN LIEU OF DOUBLE SWING GATE.	GR	DNE					
	18.	EXTEND EQUIPMENT PADS 1 FT ON THE NORTH, EAST, AND WEST SIDE OF THE LOX AREA. INSTALL FENCE ON EQUIPMENT PAD AND SIDEWALK IN LIEU OF PROVIDING CONCRETE CURB. THICKEN SIDEWALK AS REQUIRED TO INSTALL FENCE POSTS.		020					
			DESIGNED: DETAILED:	C C	EF MW	, TLP	(		
		INTH CARO	CHECKED: APPROVED	: F	VG HH				
		BLACK & VEATCH	DATE: 0	1	/1: 1/2	5/2(	)16 1		
		No. CO1918	IF THIS BA 1" THEN DF	R DO AWIN	ES IG I CAI	NOT S NO	ME/ DT T	ASUF O FU	RΕ ILL
)'		OF AUTHORITIES	P	ROJI 18	EC 52	т N 10	0. )		
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				S⊦ 5 (	IEI DF	⊧Τ ∶3	4		

![](_page_6_Figure_0.jpeg)

![](_page_6_Figure_8.jpeg)

# **GENERAL NOTES:**

- . CONSTRUCT THIS PROJECT IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AND ALL OTHER APPLICABLE BUILDING CODES HAVING JURISDICTION.
- VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE PROJECT SITE PRIOR TO STARTING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR EXISTING CONDITIONS THAT ARE NOT CONSISTENT WITH THE DRAWINGS.
- 3. COORDINATE ALL WORK WITH THE SPECIFICATIONS AND DRAWINGS OF OTHER TRADES. NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES, INCONSISTENCIES OR CONFLICTS PRIOR TO STARTING FABRICATION OR CONSTRUCTION OF THE WORK.
- 4. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS AND APPROVED SHOP DRAWINGS FOR SIZES AND LOCATIONS OF OPENINGS, INSERTS, SLEEVES, CHASES, SLAB DEPRESSIONS, EMBEDDED ITEMS, ATTACHMENT OF FINISHES, AND OTHER NON-STRUCTURAL ITEMS. REFER TO ELECTRICAL AND MECHANICAL PLANS FOR SIZE AND LOCATION OF ALL OPENINGS FOR DUCTS, PIPING, CONDUITS, ETC. NOT SHOWN.
- 5. IN CASE OF CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- MEANS, METHODS, TECHNIQUES, PROCEDURES, SEQUENCES OF CONSTRUCTION, JOBSITE SAFETY, AND SUPERVISION OF THE WORK ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 7. PROVIDE AND INSTALL ALL TEMPORARY BRACING, SHORING, ETC. REQUIRED FOR SUPPORT AND STABILITY OF THE STRUCTURE UNTIL ALL STRUCTURAL WORK IS COMPLETE. THE DESIGN, ERECTION, INSTALLATION, ADEQUACY, AND SAFETY OF TEMPORARY SUPPORT DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- B. DO NOT APPLY ANY CONSTRUCTION LOADS ON THE STRUCTURE THAT EXCEED THE SAFE LOAD CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. NOTIFY STRUCTURAL ENGINEER OF ANY UNUSUAL OR EXCESSIVE LOADS OCCURRING DURING CONSTRUCTION. DO NOT APPLY CONSTRUCTION LOADS UNTIL STRUCTURAL COMPONENTS ARE PROPERLY CONNECTED AND ALL NECESSARY TEMPORARY BRACING IS IN PLACE.
- 9. WORK NOT INDICATED ON THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT AT SIMILAR LOCATIONS SHALL BE REPEATED. UNLESS NOTED OTHERWISE, ALL SECTIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE TYPICAL AT SIMILAR LOCATIONS AND CONDITIONS.
- 10. WHERE DIMENSIONS OF EXISTING STRUCTURES ARE INDICATED, THEY ARE APROXIMATE AND FOR INFORMATION ONLY. FIELD VERIFY DIMENSIONS, SIZES, AND LOCATIONS OF PERTINANT EXISTING STRUCTURES PRIOR TO STARTING CONSTRUCTION.

# FOUNDATIONS AND GEOTECHNICAL:

- 1. THE FOUNDATION DESIGN IS BASED ON AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF **2000 PSF**.
- 2. THE CONTRACTOR SHALL ENGAGE A GEOTECHNICAL ENGINEER/ TESTING COMPANY TO VERIFY ADEQUATE FOUNDATION AND SLAB SUPPORT.
- ALL FOOTINGS SHALL BEAR ON UNDISTURBED RESIDUAL SOIL OR PROPERLY COMPACTED STRUCTURAL FILL.
- FOOTINGS SHALL EXTEND DOWN TO A LOWER ELEVATION THAN INDICATED ON THE DRAWINGS IF NECESSARY TO REACH ADEQUATE BEARING MATERIAL.
- 5. SLOPE SIDES OF EXCAVATIONS, OR SHORE, SHEET, AND BRACE SIDE SLOPES TO ENSURE SLOPE STABILITY AND SAFETY. ADEQUATELY PROTECT ALL EXCAVATION SLOPES.
- STRIP AND REMOVE ALL TOPSOIL AND ORGANIC MATERIAL TO A MINIMUM
   4" DEPTH. STOCKPILE TOPSOIL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS OR AS DIRECTED BY THE ARCHITECT.
- 7. REMOVE ALL MATERIAL CONTAINING ROOTS, DEBRIS OR OTHER DELETERIOUS MATERIAL FROM THE SITE.
- 3. AFTER STRIPPING TOPSOIL, PROOFROLL THE BUILDING SITE WITH A LOADED DUMP TRUCK OF NOT LESS THAN 20 TONS, MAKING AT LEAST TWO PASSES IN EACH PERPENDICULAR DIRECTION. LOCATE AND REMOVE ANY SOFT AREAS, AND REPLACE WITH PROPERLY COMPACTED SUITABLE MATERIAL.
- PLACE ALL FILL MATERIAL IN LIFTS NOT EXCEEDING 8" IN DEPTH, AND COMPACT TO THE FOLLOWING STANDARD PROCTOR DENSITIES IN ACCORDANCE WITH ASTM-D698:

## UNDER BUILDING FOUNDATIONS: 98% UNDER SLABS ON GRADE: 98% OTHER AREAS OUTSIDE BLDG. FOOTPRINT: 95%

- 10. ALL FILL MATERIAL UNDER FOUNDATIONS AND SLABS SHALL BE SUITABLE GRANULAR MATERIAL AS APPROVED BY THE GEOTECHNICAL ENGINEER. SUITABLE ON SITE MATERIAL MAY BE USED AS BACKFILL IF APPROVED BY THE GEOTECHNICAL ENGINEER. SLOPE FILL MATERIAL FOR ADEQUATE DRAINAGE.
- 11. TEST ALL FILL FOR COMPACTION WITH ONE TEST PER EVERY 2500 SQUARE FEET OF FILL PER FOOT OF DEPTH. TEST LOCATIONS SHALL BE LOCATED RANDOMLY AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER.
- 12. PROVIDE ADEQUATE DRAINAGE OR DEWATERING TO ALLOW PROPER FINISHING OF EXCAVATIONS AND TO KEEP WATER FROM COLLECTING IN THE BOTTOM OF EXCAVATIONS. FOUNDATIONS SHALL BE PLACED IN THE DRY. DO NOT PLACE FOOTINGS IN WATER.
- 13. REMOVE WATER SOFTENED SOILS FROM FOOTING EXCAVATIONS AND REPLACE WITH COMPACTED FILL, GRAVEL, FLOWABLE FILL, OR CONCRETE, AS APPROVED BY THE ENGINEER, PRIOR TO PLACING CONCRETE.
- 14. FOUNDATION EXCAVATIONS AND BUILDING PADS SHALL BE INSPECTED BY A GEOTECHNICAL ENGINEER. PROVIDE NOTICE AND ALLOW SUFFICIENT TIME FOR FOOTING EXCAVATIONS TO BE INSPECTED PRIOR TO PLACING FOUNDATIONS.
- 15. COMPACT SOIL WITH HAND HELD TAMPERS WITHIN 6 FEET OF BASEMENT, FOUNDATION, OR RETAINING WALLS. DO NOT OPERATE HEAVY EQUIPMENT WITHIN 6 FEET OF WALL.
- 16. PROVIDE ADEQUATE DRAINAGE BEHIND RETAINING WALLS AND BASEMENT WALLS TO PREVENT BUILD UP OF HYDROSTATIC PRESSURE.
- 17. REFER TO GEOTECHNICAL REPORT BY S&ME, INC. DATED JUNE 9, 2015 FOR OTHER GEOTECHNICAL REQUIREMENTS AND RECOMMENDATIONS.

# CONCRETE:

- ALL CONCRETE AND REBAR AND THEIR INSTALLATION SHALL COMPLY WITH THE STANDARDS OF ACI-318, ACI-350, AND ACI-301 LATEST EDITIONS.
- 2. SUBMITALS:

REINFORCING STEEL SHOP DRAWINGS PREPARED IN ACCORDANCE WITH THE ACI DETAILING MANUAL. CONCRETE MIX DESIGNS FOR EACH DIFFERENT CONCRETE MIX PREPARED IN COMPLIANCE WITH ACI 318 ARTICLE 5.3 OR 5.4. MANUFACTURER'S INFORMATION ON CONCRETE ADMIXTURES AND OTHER PROPRIETARY MATERIALS

3. CONCRETE TESTING:

MAKE ONE SET OF FOUR TEST CYLINDERS FOR EACH 50 CUBIC YARDS, OR PORTION THEREOF, OF CONCRETE PLACED. A QUALIFIED TESTING LAB SHALL PERFORM ALL TESTING. FOR EACH SET OF CYLINDERS, BREAK 1 CYLINDER AT 7 DAYS, 2 CYLINDERS AT 28 DAYS, AND HOLD 1 RESERVE CYLINDER.

- 4. REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
- 5. THE 28 DAY MINIMUM COMPRESSIVE STRENGTH OF CONCRETE SHALL BE AS FOLLOWS:

CONCRETE FILL & TOPPINGS	3000 PSI
PIPE ENCASEMENT	3000 PSI
ALL OTHER STRUCT. CONC.	4500 PSI

6. CONCRETE MIXES SHALL BE DESIGNED IN ACCORDANCE WITH ACI 301 AND THE FOLLOWING:

	MAX W/C	RATIO SL	UMP
4500 PS	SI 0.4	5 3"	TO 5"
3000 PS		3 3"	TO 5"

CONCRETE SHALL BE READY MIXED IN ACCORDANCE WITH ASTM C-94. SUBMIT CONCRETE MIX DESIGNS TO THE ENGINEER FOR APPROVAL.

7. CONCRETE MATERIALS SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:

PORTLAND CEMENT: FLY ASH:	ASTM C-150 TYPE I OR II ASTM C-618
AGGREGATE (NORMAL WT.):	ASTM $C-33$
ADMIXTURES:	ASTM C-494, C-260, C98 & C-1017

- 8. FLY ASH SHALL BE NOT MORE THAN 25% OF TOTAL CEMENTITIOUS MATERIALS. DO NOT USE ADMIXTURES CONTAINING CALCIUM CHLORIDE.
- 9. CONCRETE DENSITIES SHALL BE AS FOLLOWS:

NORMAL WEIGHT CONCRETE: 145 PCF

- 10. PROVIDE 5% AIR ENTRAINMENT FOR ALL CONCRETE EXPOSED TO WEATHER OR EXTERIOR CONDITIONS, UNLESS NOTED OTHERWISE.
- 11. NO WATER SHALL BE ADDED TO THE CONCRETE AT THE SITE UNLESS APPROVED BY THE ARCHITECT OR STRUCTURAL ENGINEER.
- 12. REINFORCEMENT SHALL BE ADEQUATELY SUPPORTED AND TIED IN PLACE PRIOR TO CONCRETE PLACEMENT. PROVIDE ANY STANDEES, CHAIRS, BOLSTERS, CARRYING BARS, OR ADDITIONAL BARS AS MAY BE NECESSARY TO ADEQUATELY SUPPORT THE REINFORCEMENT IN ITS PROPER POSITION.
- 13. SUPPORT ALL SLAB REINFORCING ON CONTINUOUS CHAIRS. REINFORCING FOR SLABS ON GRADE MAY BE SUPPORTED ON CONCRETE BRICK.
- 14. UNLESS NOTED OTHERWISE ON THE DRAWINGS, REINFORCING STEEL SHALL HAVE A MINIMUM CONCRETE COVER AS FOLLOWS:

CONCRETE CAST AGAINST EARTH: 3"

CONCRETE EXPOSED TO EARTH, WATER, OR WEATHER:

#5 BARS OR SMALLER: 1-1/2"
#6 BARS AND LARGER: 2"

CONCRETE NOT EXPOSED TO EARTH, WATER, OR WEATHER:

SLABS, SHELLS, WALLS, AND JOISTS: 3/4" BEAMS AND COLUMNS: 1-1/2"

- 15. UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL REINFORCING SPLICES SHALL BE ACI CLASS B TENSION LAPS FOR TOP BARS OR OTHER BARS AS APPLICABLE. TOP BARS ARE TO BE ANY BAR PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS PLACED IN THE MEMBER BELOW THE BAR, EXCEPT THAT HORIZONTAL BARS IN WALLS NEED NOT BE CONSIDERED AS TOP BARS. THE LAP LENGTH SHALL BE DETERMINED BY THE SIZE OF THE LARGER BAR PLACED.
- 16. LAP WELDED WIRE FABRIC A MINIMUM OF 9".
- 17. ALL REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS UNLESS NOTED OTHERWISE.
- 18. PROVIDE, CONSTRUCT AND ERECT ALL FORMWORK AND SHORING IN ACCORDANCE WITH ACI 347.
- 19. WHERE NEW CONCRETE IS CAST AGAINST EXISTING CONCRETE, CLEAN AND ROUGHEN THE ADJOINING SURFACE OF THE EXISTING CONCRETE PRIOR TO PLACING NEW CONCRETE AGAINST IT.
- 20. IN HOT WEATHER, PLACE CONCRETE IN ACCORDANCE WITH THE PROVISIONS OF ACI 305. IN COLD WEATHER PLACE CONCRETE ACCORDING TO ACI 306.
- 21. CONTINUOUSLY CURE CONCRETE FOR NOT LESS THAN 7 DAYS AFTER PLACEMENT BY MEANS OF A CONTINUOUS WET CURE, OR USE OF A SUITABLE CURING COMPOUND.
- 22. FINISH CONCRETE SURFACES IN ACCORDANCE WITH ACI 301 AND THE SPECIFICATIONS.
- 23. PROVIDE 3/4" CHAMFER AT ALL EXPOSED EDGES OF CONCRETE WORK UNLESS NOTED OTHERWISE.

![](_page_7_Figure_67.jpeg)

![](_page_8_Figure_0.jpeg)

![](_page_8_Figure_2.jpeg)

![](_page_9_Figure_0.jpeg)

![](_page_9_Picture_2.jpeg)

SHEET 9 OF 34

![](_page_10_Figure_0.jpeg)

![](_page_11_Figure_0.jpeg)

![](_page_12_Figure_0.jpeg)

![](_page_12_Figure_2.jpeg)

- 1. CORE DRILL SMOOTH WALL OPENING, COORDINATE CORE DIAMETER AS REQUIRED WITH MODULAR CASING SEAL MANUFACTURER. MAXIMUM CORE DIAMETER SHALL BE 16". 2. WHEN SOIL MAY BE PRESENT, USE TWO SETS OF CASING SEALS. ONE AT EACH FACE OF WALL.
- 3. TO MINIMIZE SLEEVE SIZE FOR DIP, PROVIDE A SCREW-ON FLANGE, GROOVED COUPLING, OR MECHANICAL COUPLING WITH ANCHOR STUDS ON ONE SIDE OF OPENING. 4. FOR BURIED PIPING, CONTRACTOR SHALL PROVIDE AN ADDITIONAL FIELD JOINT AS CLOSE AS

![](_page_12_Figure_7.jpeg)

![](_page_12_Figure_8.jpeg)

![](_page_12_Figure_14.jpeg)

12 OF 34

![](_page_12_Figure_17.jpeg)

OZONE	E COI	VTACTOR	CHAM
DIFFL	JSER	LAYOUT	(TYP
NO SCAL	E		

![](_page_13_Figure_0.jpeg)

 $\Lambda$  <u>NOTES:</u>

- LOCATIONS.

	PLUMBING FIXTURE SCHEDULE												
SYMBOL	FIXTURE	C	ONNECTION	S	SPECIFICATIONS								
STMDOL	TIXTORE	CW HW WASTE											
P-1	P-1 EMERGENCY SHOWER & EYEWASH 1 1/4" EMERGENCY SHOWER/EYE/FACE WASH COMBINATION. FROST PROOF TO -30°F., PEDESTAL MOUNT 120 VOLT, 9001 EMERGENCY ALARM SYSTEM, HAWS MODEL 8317 CTFPB.												

	ELECTRIC WATER HEATER SCHEDULE											
BOL	MANUFACTURER	MODEL NO.	TYPE	CAPACITY GALLONS	NO. OF HTG. ELEMENTS	CURRENT CHAR.	TOTAL K.W.	G.P.H. @ 100° RISE	BRONZE BODY CIRCULATOR MODEL	AMTROL EXPANSION TANK MODEL NUMBER	REMARKS	
VH-1	A. O. SMITH	DSE-80	COMMERCIAL	80	2	208-3-60	9.0	37	LAING E3	ST-25V	FULL 5 YEAR WARRANTY	

	MANUFACTURER       MODEL NO.       CURRENT CHAR.       TYPE POWER CONNECTION       MATERIAL       REMARKS         LAING       E3       120–1–60       PLUG       LEAD FREE BRASS       WITH BALL VALVE, CHECK VALVE, ADJUSTABLE SPEED, & THERMOSTAT					
BOL	MANUFACTURER	MODEL NO.	CURRENT CHAR.	TYPE POWER CONNECTION	MATERIAL	REMARKS
-1	LAING	E3	120-1-60	PLUG	LEAD FREE BRASS	WITH BALL VALVE, CHECK VALVE, ADJUSTABLE SPEED, & THERMOSTAT

1. DETAIL SHOWN IS TYPICAL FOR SIX (6) SAMPLE LOCATION. 2. THE SAMPLE PUMP RETURN PIPING IS TYPICAL FOR TWO (2) OF THE SAMPLE

3. VERIFY EXACT SAMPLE LOCATIONS WITH ENGINEER PRIOR TO INSTALLATION. 4. PROVIDE 1" 316 SS FOR THE DISSOLVED OZONE ANALYZER INSTALLATION IN LIEU OF THE 1" PVC INDICATED IN THE DETAIL. 5. FOOT VALVE INDICATED SHALL BE SCREENED 316 SS.

			A DEF	NO. BY CK API					
				OF ISSUE	sbu	XREF1:	XREF2:	XREF3:	XREF4:
			BID ADDENDA REVISIONS	REVISIONS AND RECORD	- M - Mechanical Process Drawi	16. dwg	095, 5/16/2016 5:20:47 PM	51095, 5/16/2016 5:35:33 PM	95 DWG VER: 1001
			5/16/16	DATE	50.3030	0-W	SAVED : FRA51	PLOTTED: FRA	USER: FRA510
		THIS DRAWING WAS	ORIGINALLY SEALED BY	LICENSED PROFESSIONAL	ENGINEER IN THE STATE	0F 30 , NO. 17030 10011100 15 2016	ON CONTRACTOR ON CONTRACTOR		
				Building a world of difference:		Block & Vootsh Powartish	DIACK & VEALCH OUT DUTALION		
VUSIN UNVALU UNVAU	ALAND ULAND WQJA	MYRTLE BEACH SWTP	DZONF SYSTEM MODIFICATIONS			MECHANICAL		INTOCELLANEOUD DE LAILO	
DE DE CHI DA	SIGI TAII ECKI PROV TE : II EASU	NED LED ED: VED VED URE NOT	: : : : : : : : : : :	PHH TLK JVG PHH 1/1 1/ BAF THE FU	5/2 2 2 2 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1	DES DRAI SCA	3 1 NO NIN LE	T G 1	
		r	<u>18</u> <u>18</u> M S	- (	21 0 E1	<u>0</u> 6			

![](_page_13_Picture_15.jpeg)

	MECHANICAL EQUI	PMENT SYMBOLS	PUMP & BLOWER SYMBOLS	WATER PROCESS SYMBOLS	И АРР
LOCATION CODE - DENOTES ASSOCIATED SYSTEM STREAM PROCESS UNIT NUMBER - DENOTES ASSOCIATED EQUIPMENT ABBREVIATION EQUIPMENT NUMBER - UNIQUE ALPHA-NUMERIC IDENTIFIER	VAPORIZER: WATER BATH	HEAT EXCHANGER: TYPE 1 HEAT EXCHANGER: TYPE 2	CENTRIFUGAL PUMP OR OTHER TYPE NOT SPECIFIED CENTRIFUGAL BLOW	ER GRAVITY FILTER DAF	NO. BY C
LLL - PPPP - A###	VAPORIZER: AMBIENT	HEAT EXCHANGER: FINNED TUBE HEAT EXCHANGER: SHELL & TUBE	CENTRIIFUGAL     POSITIVE       PUMP     DISPLACEMENT BL       SCREW (LIFT) PUMP     COMPRESSOR:       RECIPROCATING	WER RECTANGULAR SEDIMENTATION BASIN	4. dwg E - PHH. dwg SC_COA_C019
EQUIPMENT IDENTIFICATION DESCRIPTION	PARTICULATE FILTER	HEAT EXCHANGER: PLATE & FRAME	ROTARY PUMP	RECTANGULAR SEDIMENTATION	DF ISSUE XREF1: D80 XREF2: SCP XREF3: BV_ XRFF4.
PIPE SIZE - INCHES UNLESS OTHERWISE NOTED PROCESS CODE - DENOTES ASSOCIATED PROCESS STREAM MATERIAL CODE - DENOTES ASSOCIATED MATERIAL ABBREVIATION	AIR STRIPPER OR PACKED TOWER	HEAT EXCHANGER: SPIRAL	PROGRESSING CAVITY PUMP COMPRESSOR: LIQUID RING POSITIVE DISPLACEMENT	CIRCULAR SEDIMENTATION BASIN	ASIN DA PM ASIN
	MIXER	HEAT EXCHANGER: TUBE-IN-TUBE	PUMP PLUNGER PUMP	OZONE GENERATOR WITH OZONE SUPPLY	NUL REVISIONS A WUL
SSS - PPP - MTL	AIR FILTER	BOILER	VERTICAL PUMP	OZONE GENERATOR	TOR ATES 18/2016 7:( 18/2016 7:(
LINE SYMBOLS	WATER FILTER:	PACKAGED AIR COMPRESSOR SYSTEM		PRESSURE FILTER- VERTICAL	DATE DATE BUN:3080 - J PLOTTED: 1/ PLOTTED: 1/ DSER: PWADM
MAJOR PROCESS PIPING OR FLOW CHANNEL SECONDARY PROCESS PIPING MISCELLANEOUS DIDING	CARTRIDGE TYPE WATER FILTER:	COOLING TOWER	SUMP PUMP	PRESSURE FILTER- HORIZONTAL	
SCREENED LINE DENOTES EXISTING PIPE OR EQUIPMENT DASHED LINE DENOTES FUTURE PIPE DASHED LINE DENOTES FUTURE PIPE	FLOCCULATION MIXER	STATIC MIXER	CENTRIFUGAL FAN	CONTINUOUS UPFLOW FILTER	TH CAR
AND EQUIPMENT ELECTRIC SIGNAL HYDRAULIC SIGNAL AND EQUIPMENT B PI-45 PROCESS LINE GOING TO ANOTHER SHEET	COMPRESSOR	WATER HEATER		CONTINUOUS UPFLOW FILTER	
MATCH SHEET NO. IDENTIFIER MATCH LINE NO. MATCH LINE NO. MATCH LINE NO. PROCESS LINE COMING FROM ANOTHER SHEET	M VALVE: MATERIAL HANDLING ROTARY	SILENCER	BELL MOUNTED PL	M SCUM COLLECTOR BLACK & VEATCH CORPORATION No. C01918	ation
INTERNAL SYSTEM SIGNAL LINK (SOFTWARE OR DATA LINK)  PROCESS LINES CROSSING	了	<ul> <li>SWIVEL</li> <li>DAMPER</li> <li>DAMPER: PARALLEL BLADE</li> </ul>	GAS TURBINE ENGINE	THE OF AUTHORITIES OF AUTHORITIES	vorld of Larolina
(NOT CONNECTED) PRIMARY ELEMENT & FITTING SYMBOLS PRIMARY FLOW	FI FMENT:	DAMPER: OPPOSITE BLADE	VALVE & GATE SYMBOLS	MATERIAL HANDLING FOUTPMENT SYMBOLS	LACK ilding a v olumbia, sou
DIAPHRAGM SEAL     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal     Image: Diaphragm Seal       Image: Diaphragm Seal	ULTRASONIC    UNION INCENTRIC    HOSE CONNECTION	GATE: SLU=SLUICE	VALVE & GATE STMBOLS VALVE: PRESSURE REDUCING VALVE: AI		
PRIMARY FLOW ELEMENT:       PRIMARY FLOW ELEMENT:       PRIMARY FLOW ELEMENT:       III       FLANGE         PRIMARY FLOW       PRIMARY FLOW ELEMENT:       PRIMARY FLOW ELEMENT:       III       FLANGE         PRIMARY FLOW       PRIMARY FLOW       PRIMARY FLOW       PRIMARY FLOW       PRIMARY FLOW         PRIMARY FLOW       PRIMARY FLOW       PRIMARY FLOW       PRIMARY FLOW       PRIMARY FLOW	-UP	VALVE: GATE OR OTHER IN-LINE TYPE NOT OTHERWISE IDENTIFIE	E VALVE: PRESSURE SUSTAINING VALVE: AIF	RELEASE BIN - CL BIN: LIVE BOTTOM	OSED
Image: Turbine or propeller-type     WEIR     Image: Turbine or propeller-type       Image: Turbine or propeller-type     WEIR     Image: Turbine or propeller-type       Image: Turbine or propeller-type     WEIR     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type       Image: Turbine or propeller-type     Image: Turbine or propeller-type     Image: Turbine or propeller-type	NECTION	WORKS ASSCIATION	(SELF ACTUATING TYPE) VALVE: THER VALVE: MUL		:
Image: Construction     Image: Construct	VENT - SCREENED	VALVE: BUTTERFLY, DAMPER OR LOUVER: IND=INDUSTRIAL, AWWA=AMERICAN WATER WORKS ASSOCIATION,	Image: Self actuating type)     Image: Value: Slegender       Image: Value: Value: Kni       Image: Value: Value: Kni       Image: Value: Value: Value: Kni       Image: Value: Value: Value: Kni	EVE BIN: SLIDING FRAME CONVEYOR EE GATE SCREEN: SINGLE CONVEYOR	, A SI
PRIMARY FLOW ELEMENT:       FE       PRIMARY ELEMENT:       T       TRAP         TE       TEMPERATURE ELEMENT       FE       PRIMARY ELEMENT:       FLAME CHECK         TE       TEMPERATURE ELEMENT       FLAME CHECK       FLAME CHECK	SIGHTGLASS	VALVE: PLUG	VALVE: VACUUM RELIEF	REVENTER VIBRATORY CONVEYOR BELT CONVEYOR BELT CONVEYOR BELT CONVEYOR CONVEYOR BELT	W&S SWTP SWTP =ICA1
	R MOISTURE SEPARATOR	VALVE: THREE WAY VALVE: FOUR WAY	VALVE: PRESSURE RELIEF A VALVE: PRESSURE/VACUUM DEL TEE	GRINDER	AND AND AND AND AND AND AND AND AND AND
LE ELECTRODE TYPE LEVEL SWITCH LE RADAR LEVEL SENSOR	P EXPANSION LOOP		VALVE: FOUR FUNCTION     VACUUM BRE       VALVE: ANGLE     EXPLOSION	AKER H PISTON C PUMP: SI BELIEE PELLETIZER H PISTON C	AKE AKE AKE
CHEMICAL FEED EQUIPMENT SYMBOLS		VALVE: CHLORINE WITH YOKE	VALVE: SET STOP		
TANK     CALIBRATION     GAS       DIFFUSER:     COLUMN     FEEDER	TE TYPE E SLAKER COMBINATION	VALVE: DIAPHRAGMVALVE: VPORT BALL	VALVE: PINCH VALVE: TEL	ESCOPING HOPPER HOPPER MIXER: F	
EXPANSION TANK     EXPANSION TANK       INJECTOR     OR FUNNEL       RUPTURE DISK     WEIGH   EVAPORATOR EVAPORATOR	YMER FOUNTAIN IVATION MBER	H HW HANDWHEEL M STANDARD ELECTRIC	S SOLENOID DIAPHRAGM VALVE SPRING	LOADED HORIZONTAL BAR SCREEN DUST HOP	
PULSATION     SCALE       DAMPNER     DRIP LEG HEATER         DRY CHEMICAL       FEEDER         PIP	ELINE FUSER DIFFUSER - PLAN	N CHAINWHEEL M NETWORKED	P/O AIR-OIL QUICK OPENING VALVE QUICK CLOSING	<i>GENERAL NOTES</i> 1. IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED	ON DESIGNED: SLS DETAILED: DRS
INDUCTION UNIT     SCALE     TON CONTAINER       CHLORINE CYLINDER     SCALE     POLYMER	YMER ECTION RING	$\begin{array}{c} & & \\ R & H \\ L & LEVER \end{array} \qquad \begin{array}{c} E/H \\ HYDRAULIC \end{array}$	P     PNEUMATIC ACTUATOR     VALVE       DA     DOUBLE ACTING     VALVE       VALVE     VALVE     THE FOLLOWING       VALVE     VALVE     DESIGNATION	INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-S5 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS. S MAY BE ACENT TO SOME 2 SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MODE OF EARLY	D. 1     DHECKED:     JVG       MADE     APPROVED:     PHH       DATE:     1/15/2016       0     1/2
VAPOR SUPERHEATER PRESSUBF ACT CHA	IVATION   • À SHOWER MBER SUSPENDED WEIGH	M     SMALL MOTOR     M     PROGRAMMABL       ER     SM     ACTUATOR     P	E P PNEUMATIC ACTUATOR SC SPRING CLOSE FLOAT OPERATED NC NORMALLY NO NORMALLY	TE SYMBOLS. CLOSED OPEN 3. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
BUILDING COIL AUTOMATIC FEEDER DIF					FRUJEUT NU.
SPECTACLE, BLIND SPECTACLE, BLIND SPECTACLE, BLIND EDU	FUSER DRIDGE WEIGHER	P PNEUMATIC H HYDRAULIC ACTUATOR	P       PNEUMATIC ACTUATOR       FC FAILS CL         SO       SPRING OPEN       FO FAILS OP         SO       SPRING OPEN       FIP FAILS I	INSED N N I LAST POSITION 4. PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS ONLY AND MAY D FROM LEGENDS FOR OTHER SHEETS.	185210 I - 01

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# INSTRUMENT TAG NUMBERS MEANINGS OF IDENTIFICATION LETTERS

01	FIRST	LETTER	S	UCCEEDING LETTER	S
LETTER	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
В	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
С	CONDUCTIVITY (ELECTRICAL)			CONTROL	CLOSED
D	ENERGY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS		
н	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
К	TIME OR TIME-SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
М	MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
0	USER'S CHOICE		ORIFICE (RESTRICTION)		OPEN
Р	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE OR TOTALIZE	INTEGRATE OR TOTALIZE		
R	RADIATION		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
Т	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE			RELAY OR COMPUTE	
Z	POSITION, DIMENSION			DRIVE, ACTUATOR OR FINAL CTRL ELEMENT	

# GENERAL NOTES

- 1. IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
- 2. SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM P&ID DRAWINGS.
- 3. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT. PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS.
- 4. PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.

# PIPELINE MATERIAL CODE ABBREVIATIONS

РССР	SECTION 02612,	PRESTRESSED CONCRETE CYLINDER PIPE
CBWS	SECTION 02614,	CONCRETE BAR-WRAPPED, STEEL CYLINDER PIPE
LHCPP	SECTION 02616,	LOW HEAD CONCRETE PRESSURE PIPE
RCP	SECTION 02618,	CONCRETE PIPE
PVC	SECTION 15061,	POLYVINYL CHLORIDE PIPE
DIP	SECTION 15061,	DUCTILE IRON PIPE
SP	SECTION 15062,	STEEL PIPE
LWS-XX	SECTION 15063,	LIGHT WALL STEEL PIPE
SS-XX1	SECTION 15064,	STAINLESS STEEL PIPE, TUBING, AND ACCESSORIES
CSG-XX	SECTION 15065,	MISCELLANEOUS STEEL PIPE, TUBING, AND ACCESSORIES
CS-XX	SECTION 15065,	MISCELLANEOUS STEEL PIPE, TUBING, AND ACCESSORIES
FRPE-XX	SECTION 15066,	FIBERGLASS REINFORCED PLASTIC PIPE (EXHAUST AIR SERVICE)
FRP-XX	SECTION 15067,	MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PVC-XX	SECTION 15067,	MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
CPVC-XX	SECTION 15067,	MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PE-XX	SECTION 15067,	MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PP-XX	SECTION 15067,	MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PVDF-XX	SECTION 15067,	MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
RPT-XX	SECTION 15067,	MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
CI-XX	SECTION 15069,	CAST IRON SOIL PIPE AND ACCESSORIES
CU-XX	SECTION 15070,	COPPER TUBING AND ACCESSORIES
BR-XX	SECTION 15060,	MISCELLANEOUS PIPING AND PIPE ASSEMBLY
HS-XX	SECTION 15060,	MISCELLANEOUS PIPING AND PIPE ASSEMBLY
TG-XX	SECTION 15060,	MISCELLANEOUS PIPING AND PIPE ASSEMBLY
CRP - XX	SECTION 15060,	MISCELLANEOUS PIPING AND PIPE ASSEMBLY
7. XX=	numbers 01-20	

![](_page_15_Figure_11.jpeg)

# FUNCTION DESIGNATIONS AND ABBREVIATIONS

<u></u>	STRUMENT DESIGNATIONS	HAND	SWITCH
К - К	GAIN OR ATTENUATE (INPUT:OUTPUT) GAIN AND REVERSE	HOA LR OC	HAI LOO OPI
Σ	ADD OR SUM (ADD AND SUBTRACT)	00 1 OP	ON
Δ	SUBTRACT (DIFFERENCE)	00A	ON
	EXTRACT SQUARE	OCR	OPI
•	RUUT	OOR	ON
•	DIVIDE	FR	FOI
F(X)	CHARACTERIZE SIGNAL		
>	HIGH-SELECT	TRANSDUCER	& CON
<	LOW-SELECT	E	VOLTA
×	MULTIPLY	FSK H	FREQUE
ſ	INTEGRATE (TIME INTEGRAL)	Ĩ	CURRE
СН <sub>4</sub>	METHANE	P PD	PNEUM/ PULSE
CL2	CHLORINE RESIDUAL	R R	RESIS
С0 <sub>2</sub>	CARBON DIOXIDE	EXAM	PLE: I/F
DO	DISSOLVED OXYGEN		
DP	DEW POINT	POWER	SUPPLY
LEL	LOWER EXPLOSIVE LIMIT	AS	AIR S
MCC	MOTOR CONTROL CENTER	ES	ELECT
	MIXED I TOUOR SUSPENDED SOLTAS	GS	GAS S
MLSS	MIXED LIQUON SUSPENDED SULIDS	HS	HYDRA
02	OXYGEN (PURITY)	NS SS	STEAN
рн	pH CELL	WS	WATEP
TURB	TURBIDITY		
0 <sub>3</sub>	OZONE GAS	AS /	DOWE USED TO H

DO<sub>3</sub> DISSOLVED OZONE

![](_page_15_Figure_16.jpeg)

	SYSTEM CODE ABBREVIATIONS								PROCESS CODE ABBRE	VIATIONS		
	ACETIC ACID	ACE	FLOCCULATION	FLC	RESIDUALS	RES	ACETIC ACID	ACE X	FLOCCULATION	FLC X	RESIDUALS	RES X
	ACETYLENE	ACT	GASEOUS OXYGEN	GOX	RETURN ACTIVATED SLUDGE	RAS	ACETYLENE	ACT X	GASEOUS OXYGEN	GOXX	RETURN ACTIVATED SLUDGE	RASX
	ACTIVATED CARBON - GRANULAR	GAC	GASOLINE	GSL	REVERSE OSMOSIS	ROS	ACTIVATED CARBON - GRANULAR	GAC X	GASOLINE	GSL <sup>_</sup> X	REVERSE OSMOSIS	ROSX
	AERATION AIR/PROCESS AIR	AIR	GREASE	GRS	SCREENINGS	SCR	AERATION AIR/PROCESS AIR	AIR X	GREASE	GRS <sup>-</sup> X	SCREENINGS	SCRX
	AERATION SYSTEM	AER	GRIT	GRT	SECONDARY CLARIFICATION	SCL	AERATION SYSTEM	AER X	GRIT	GRT <sup>¯</sup> X	SECONDARY CLARIFICATION	SCLX
	AIR WASH	ARW	HELIUM	HEL	SECONDARY SCUM	SSC	AIR WASH	ARW X	HELIUM	HEL X	SECONDARY SCUM	ssc <sup>-</sup> x
	ALUMINUM SULFATE	ALS	HYDRAULIC FLUID	HFL	SEPTAGE	SEP	ALUMINUM SULFATE	ALS X	HYDRAULIC FLUID	HFLX	SEPTAGE	SEP <sup>-</sup> X
	AMMONIUM SULFATE	NS04	HYDROCHLORIC ACID	HCL	SETTLED WATER	SET	AMMONIUM SULFATE	NS04 X	HYDROCHLORIC ACID	HCL X	SETTLED WATER	SET <sup>¯</sup> X
	ANHYDROUS AMMONIA	NH3	HYDROFLUOSILIC ACID (FLUOP	RIDHEAS	SEWAGE	SEW	ANHYDROUS AMMONIA	NH3 X	HYDROFLUOSILIC ACID (FLUC	RIDHEASX	SEWAGE	SEW X
	ANTI-SEALANT	AS	HYDROGEN	ΗÝD	SODA ASH	NAC	ANTI - SEALANT	AS X	HYDROGEN	ΗΎD Χ	SODA ASH	NACX
	AQUA AMMONIA	NHOH	HYDROGEN PEROXIDE	PER	SODIUM ALUMINATE	NAL	AQUA AMMONIA	инон х	HYDROGEN PEROXIDE	PERX	SODIUM ALUMINATE	NALX
	ARGON	ARG	INCINERATION	INC	SODIUM ALUMINATE	NAM	ARGON	ARG X	INCINERATION	INC X	SODIUM ALUMINATE	NAM X
	ASH	ASH	INFLUENT PUMPING	INFP	SODIUM BICARBONATE	NBC	ASH	ASH X	INFLUENT PUMPING	INFP X	SODIUM BICARBONATE	NBC X
	BACKWASH - MEMBRANE/FILTER	RW/H	INTAKE	TNT	SODTUM BISULFITE	NHS	BACKWASH - MEMBRANE/ETLTER	BWH Y	INTAKE		SODTUM BISULFITE	NHS X
	BALLASTED FLOCCULATION	ΒΔΙ	LAGOON STORAGE	LAG	SODTUM CHLOBIDE	NCI	BALLASTED FLOCCULATION	BAL X	LAGOON STORAGE	I AG X	SODIUM CHIORIDE	NCI X
Substration         Line	BIOSOLIDS	BIO	LAND APPLICATION	LAP	SODIUM CHLORITE	NCL 2	BIOSOLIDS		LAND APPLICATION		SODIUM CHLORITE	NCI 2 X
	BIOTOWER	BIU	ITME - HYDRATED	CAH	SODTUM FLUORIDE	NAF	BIOTOWER		LIME - HYDRATED	CAHX	SODTUM FLUORTDE	NAF X
	BLENDED SI UDGE	BIS	I IME - QUICKI IME	CAO	SODIUM HEXAMETAPHOSPHATE	NAX	BLENDED SLUDGE		I TME - QUICKI TME		SODIUM HEXAMETAPHOSPHATE	NAX X
MAXE         MOV         LIQUE DESCRIPTION         LIQUE DESCRIPTION         MOL         MAXE         MOL         MAXE         MOL         MAXE         MOL         MAXE         MOL         MOL         MAXE         MOL         MAXE         MOL         MOL         MAXE         MOL         MOL         MAXE	BNR	DLS	I THE STARTI TZATION	I TM	SODIUM HYDROXIDE	NAOH	BNB		LIME STARTI TZATION		SODIUM HYDROXIDE	NACH X
Call Carl Amongo Carl Tell         Call Carl Amongo Carl Tell <th< td=""><td>BRINE</td><td></td><td>LIME ON BIELE, TION</td><td></td><td>SODIUM HYPOCHLOBITE</td><td>NOCI</td><td>BRINE</td><td></td><td>LIME OF BIELE, TION</td><td></td><td>SODIUM HYPOCHLORITE</td><td>NOCIX</td></th<>	BRINE		LIME ON BIELE, TION		SODIUM HYPOCHLOBITE	NOCI	BRINE		LIME OF BIELE, TION		SODIUM HYPOCHLORITE	NOCIX
			LP GAS OR PROPANE GAS	LPG	SODIUM STITCOFLUORIDE	NASE	CALCTUM HYPOCHLOBITE		LP GAS OR PROPANE GAS	L PG X	SODIUM STITCOELUORIDE	NASE X
Display         Display <t< td=""><td>CALCTUM THIOSULEATE</td><td>CAUL</td><td>MAGNESTUM HYDROXIDE</td><td>MGOH</td><td>STEAM</td><td>STM</td><td>CALCIUM THIOSULEATE</td><td>CAUL_X</td><td>MAGNESTIM HYDROXIDE</td><td></td><td>STEAM</td><td>STM X</td></t<>	CALCTUM THIOSULEATE	CAUL	MAGNESTUM HYDROXIDE	MGOH	STEAM	STM	CALCIUM THIOSULEATE	CAUL_X	MAGNESTIM HYDROXIDE		STEAM	STM X
DEREMINAL GLAMPY         Description         Description <thdescription< th=""></thdescription<>	CARBON DIOXIDE	CATS	MEMBRANE	MEM	STORM SEWER	STS	CARBON DIOXIDE		MEMBRANE	MEM X	STORM SEWER	STS X
Company Factor         Ords         Performance         Performance         Solid         Company Factor	CARBON SLUBBY	002	METHANE GAS	MEG	STORM WATER	STW	CARBON SLURBY		METHANE GAS	MEM_X MEG_X	STORM WATER	STW_X
CENTRAL         COL         EXAMPLE         SULVATION         REAL         SULVATION         REAL         COLONAL         COLONAL         COLONAL	CARBONIC ACID	LAS	METHANOI	MTH		502	CARBONIC ACID		METHANOI	MTH X		SO2 X
District Convector DACKNGY - Lansever for 2         Mittale Loss	CENTRATE			MXI	SULFURIC ACID	4902 H904	CENTRATE		MIXED I TOUOR		SULFURIC ACID	HS04 X
Out Datable         Data Datable         Data Data Data Data Data Data Data Data	CHEMICAL ENHANCED BACKWASH MEM		NATURAL CAS	NG	SURFACE WASH	9W	CHEMICAL ENHANCED BACKWASH MEMD		NATURAL CAS		SUBFACE WASH	SW X
OWN DRIVE         Log         MITTORY STORE         MITON         MITTORY STORE         MITON         MITTORY STORE         MITTORY         Under Transport         MITTORY         MIT			NITROCEN		TERTIARV TREATMENT	TERT	CHIORINE		NTTROCEN		TERTIARY TREATMENT	JN_X TERT Y
CITATION         CONTROL         CONTR <thcontrol< th=""> <thcontrol< th=""> <thco< td=""><td></td><td></td><td>NITROUS OYIDE</td><td></td><td>THICKENED PRIMARY SLUDGE</td><td>TDRS</td><td></td><td></td><td>NITROUS OYTOF</td><td></td><td>THICKENED PRIMARY SLUDGE</td><td>TERS Y</td></thco<></thcontrol<></thcontrol<>			NITROUS OYIDE		THICKENED PRIMARY SLUDGE	TDRS			NITROUS OYTOF		THICKENED PRIMARY SLUDGE	TERS Y
CLEW ID FLACE         OD         INCOMENTIAL         OD         INCOMENTIAL         OD         OD         INCOMENTIAL         OD         OD         INCOMENTIAL         OD         OD         OD         INCOMENTIAL         OD         OD         INCOMENTIAL         OD         OD         OD         INCOMENTIAL         OD	CITRIC ACID		ODOR CONTROL		THICKENED WASTE ACTIVATED SLUDGE	TWAS	CITRIC ACID		ODOR CONTROL		THICKENED WASTE ACTIVATED SLUDG	E TWAS Y
Opport         Description         Constraint			OTI		THICKENING	TUCK			OTI		THICKENING	
OWNERSSED ATT - INSTRUMENT         OLZ         OZA         OZA <thoza< t<="" td=""><td></td><td>C1P</td><td></td><td>FO</td><td>TREATED WATER</td><td></td><td></td><td></td><td></td><td></td><td>TREATED WATER</td><td></td></thoza<>		C1P		FO	TREATED WATER						TREATED WATER	
COMPRESSED AIR         SERVICE         Customerssed AIR         SERVICE         Customerssed AIR         SERVICE         Customerssed AIR         CustomersseA	COMPRESSED ATR - INSTRUMENT	CUA			TRICKLING ETLIER	TE	COMPRESSED ATR - INSTRUMENT		070NE		TRICKLING ETLIER	
CODPERT SULFATE         COD         CODPERT SULFATE         CONTROL CONTROL         COD	COMPRESSED AIR - INSTRUMENT	CAI	OZONE DESTRUCT						OZONE DESTRUCT			
CONDUCTION         CONT         PHOSPHONIC ACTO         POAL         WASH INTER         WW           CONDUCTION LINUILITION         DCT         PHOSPHONIC ACTO         POAL         WASH INTER         WR           DERINDATION         DCT         POLVALUKINUS CHURDIDE         POL         WASTE ACTIVATED SLUDGE         WR           DERINDATION         DCT         POLVALUKINUS CHURDIDE         POL         WASTE ACTIVATE DISLOGUE         WR           DERINDATION         DCT         POLVALUKINUS CHURDIDE         POL         WASTE ACTIVATE DISLOGUE         WR           DESTACTIVATE CARBON         PAL         WASTE ACTIVATE DISLOGUE         WR         WASTE ACTIVATE CARBON         PAL         WASTE MASH MATER         WR         WASTE ACTIVATE CARBON         PAL         WASTE ACTIVATE CARBON         PAL         WASTE ACTIVATE CARBON         PAL         WR         WASTE ACTIVATE CARBON         PAL         WASTE ACTIVATE CARBON         PAL         WASTE ACTIVATE CARBON         PAL         WASTE	COMPRESSED AIR - SERVICE	CMS	DUOSDUATE				COMPRESSED AIR - SERVICE					
DECREMENTION     DA     POLYALUMINUK OLORIDE     POL     WASTE MASK WASK     WASTE     POL     WASTE MASK WASK     WASTE     WASTE <td< td=""><td>COPPOSION INHIBITOR</td><td>01</td><td></td><td>FFF POA</td><td>WACOUM WACH WATER</td><td></td><td></td><td></td><td>PHOSPHATE DUOSPHODIC ACID</td><td>POA Y</td><td>WACUUM WACU WATED</td><td></td></td<>	COPPOSION INHIBITOR	01		FFF POA	WACOUM WACH WATER				PHOSPHATE DUOSPHODIC ACID	POA Y	WACUUM WACU WATED	
Determent     Dut_     POLY NUMBER     POLY NUMER     POLY NUMER     POLY NUMER					WASH WATEN WASTE ACTIVATED SLUDGE	WAS					WASH WATEN WASTE ACTIVATED SLUDGE	
Description     Desc	DECHEORINATION	DCL			WASTE WASH WATED		DECHEDRINATION				WASTE WASH WATED	
DIESEL FUEL     PROMPERED ACTIVATE CARBON     PAC     WATER - OOLING		DET	FOLTMEN DOTASSTUM DEDMANGANATE	FULI	WASTE WASTI WATER		DETENGENT		FOLTMEN DOTASSTUM DEDMANGANATE	FULI_X	WASTE WASTI WATER WATER CONDENSATE	
UNDESTER 0ASPLGPDGPLG </td <td></td> <td>DWI</td> <td>POTASSION FLAMANGANAIL</td> <td></td> <td>WATER CONDENSATE</td> <td></td> <td></td> <td></td> <td>POTASSION FERMANGANATE</td> <td></td> <td>WATER COOLING</td> <td></td>		DWI	POTASSION FLAMANGANAIL		WATER CONDENSATE				POTASSION FERMANGANATE		WATER COOLING	
Dies Ten das MIXING DAG PRESEDIMENTATION PAO WATER LINE DATEN DATE	DIESEL FUEL	FUE	POWDERED ACTIVATE CARDON	FAC DAD	WATER - COULING		DIESEL FUEL	FUE_X	POWDERED ACTIVATE CARDON		WATER - COOLING WATER DISTULED WATER	
DIGESTER SLUDGE DATA PRILARY CLARIFGATION PROVENTIAL PR	DIGESTER GAS MIVING	DGG			WATER - DISTILLED WATER		DIGESTER GAS MIXING	DGG_X			WATER - DISTILLED WATER	
DIGSTICS JOBST SUBSTANT SUBSTANT SUBSTANT OF ALL ALL ALL ALL ALL ALL ALL ALL ALL AL	DIGESTER SLUDGE	DGM	PRESEDIMENTATION						PRESEDIMENTATION			
DIDESTION - ARCARDIC DIGA PRIMARY SLUDGE PRS WATER - GOUVATED OLW DIDESTION - ARCARDIC DIGA PRIMARY SLUDGE PRS WATER - SEAL OWNED OLW A DIDESTION - ANALERDIC DIG PRIMARY SLUDGE PRS WATER - SEAL AST DIDESTION - ANALERDIC DIG PRIMARY SLUDGE PRS WATER - SEAL AST DISSOLVED AIR FLOTATION DAF RAW WATER PUMPING WWP WATER - WATER HEATING HW DISSOLVED AIR FLOTATION DAF RAW WATER MUPING WWP WATER - WATER HEATING HW DISSOLVED AIR FLOTATION DAF RAW WATER MUPING WWP WATER FLEATING HW DATER VERTICE PUMPING RWP WATER STORAGE RWS WATER NON-POTABLE NPW DRAINAGE DRA RAW WATER STORAGE RWS WATER NON-POTABLE NPW EFFLUENT PUMPING EFP RECIRCULATED SLUDGE RCS WATER NON-POTABLE NPW ENGINE EXHAUST EXH RECLAIMED WATER RCS WATER NON-POTABLE NPW ENGINE EXHAUST EXH RECLAIMED WATER RCS WATER NON-POTABLE NPW ENGINE EXHAUST EXH RECLAIMED WATER RCS WATER NON-POTABLE PW ENGINE EXHAUST EXH RECLAIMED WATER RCS WATER POTABLE PW ENGINE EXHAUST EXH RECLAIMED WATER RCS WATER NON-POTABLE PW FERRIC CHLORIDE FEC WET WEATHER RCS WATER NON-POTABLE PW FERRIC SULFATE FFLUENT PUMPING HWF X WATER POTABLE PW X FERRIC SULFATE FFLUENT PUMPING HT RCS WATER POTABLE PW X FERRIC SULFATE FFLUENT PUMPING HT RCS WATER POTABLE PW X FERRIC SULFATE FFLUENT PUMPING HT RCS WATER POTABLE PW X FERRIC SULFATE FFLUENT PUMPING HT RCS WATER POTABLE PW X FERRIC SULFATE FFLUENT RCS X WATER POTABLE PW X FERRIC SULFATE FFLUENT PUMPING HT RCS WATER RCS WATER RCS X WATER POTABLE PW X FERRIC SULFATE FFLUENT PUMPING HT RCS WATER RCS X WATER POTABLE PW X FERRIC SULFATE FFLUENT PUMPING HT RCS WATER RCS X WATER POTABLE PC X FERRICS SULFATE FFLUENT FFLUENT WATER FFLUENT WATER FFLUENT WATER FFLUENT WATER FFLUENT WATER FFLUENT FFLUENT WATER FFLUENT FFLUENT WATER FFLUENT WATER FFLUENT WATER FFLUENT FFLUENT WATER FFLUENT FFLUENT FFLUENT FFLUENT FFLUENT FFLUENT CONTINCE FFLUENT FFLUENT FFLUENT FFLUENT FFLUENT FFLUENT FFL		DGS	PRIMARY CLARIFICATION		WATER - INTIGATION			DGS_X	PRIMARY CLARIFICATION			
DistributionDigPhilmant studdeDigPhilmant studdePhilmant studePhilmant studeP	DIGESTION - AERODIC	DGA	PRIMARI SCUM DRIMARY SLUDCE	PSC	WATER - UZUNATED			DGA_X	PRIMARY SLUDGE		WATER - OZONATED	
DISIN'ELION CONTACT BASIN D.D.B PAR WAS ENVIRED FUMPING WIF WATCH FUMPING WIF WATCH TO ENTITE ATTEND WIF WATCH TO ENTITE ATTEND WATCH TO ENTITED WATCH TO ENTITE ATTEND WATCH TO ENTITIES ATTENDED	DIGESTION - ANAEROBIC	DIG	PRIMARY SLUDGE	PRS MMD	WATER - SEAL WATER WATER WEATING	SW I	DIGESTION - ANAEROBIC DISINGGOTION CONTACT DASIN	DIG_X	PRIMARY SLUDGE		WATER - SEAL WATER WATER UEATING	
DISSOLVED AIR FLOTATION DAP RAW WATER TOMATES TOTAGE RWS WATER NON-POTABLE DEIN DRAINAGE DRAINAGE DRAW WATER STOTAGE RWS WATER NON-POTABLE NPW EPRLIVENT PUMPING EFP RECIRCULATED SLUDGE RCS WATER PLANT EFFLUENT PEW ENGINE EXHAUST EXH RECLARUMED WATER RCS WATER PLANT EFFLUENT PEW EQUALIZATION BASIN EOB REFRIGERANT REF WATER RCS WATER PLANT EFFLUENT PW X EQUALIZATION BASIN EOB REFRIGERANT REF WATER RAW RW FERRIC CULORIDE FEC FERRIC SULFATE FES FERRIC SULFATE FES FERRIC SULFATE FES FERRIC SULFATE FES FERRICS SULFATE FRS FERRICS FOR FRS FERRICS	DISINFECTION CONTACT BASIN	DCB	RAW WASTEWATER PUMPING		WATER - WATER HEATING		DISINFECTION CONTACT BASIN	DCB_X	RAW WASTEWATER PUMPING		WATER - WATER HEATING	
DHALIARGEDHNHAW WATER STORAGEHNSWATER HOW-POTABLENPWDFFLUENT PUMPINGEFF RESIDULATED SLUDGERCSWATER HOW-POTABLENPW XEFFLUENT PUMPINGEFF XRELOCULATED SLUDGERCSWATER POTABLEPWENGINE EXHAUSTEXHRECLAIMED WATERRCWWATER POTABLEPW XEQUALIZATION BASINEQBREFRIGERANTREFWATER PANRW XEVENTION BASINEQBREFRIGERANTREFWATER RAWRW XEVENTION BASINEQBREFRIGERANTREFWATER NAWRW XFERRIC CHLORIDEFECWET WEATHER TREATMENTWUTKET WEATHER TREATMENTWUT XFERRIC SULFATEFESZINC ORTHOPHOSPHATEZOPFERRIC SULFATEFES XZINC ORTHOPHOSPHATEZOP_XFERROUS CHLORIDEFRCFERROUS CHLORIDEFRCFERROUS CHLORIDEFRC XXPROCESS CODE SUFFIX USED TOFUTRATIONFLTFLTFUTRATIONFLTFUTRATIONFUTRATIONFUTRATIONFUTRATIONFUTRATIONOR CL2_S FOR CHLORINE SOLUTION)FUTRATIONFLTFUTRATIONFUTRATIONFUT SUCATEOR CL2_S FOR CHLORINE SOLUTION)	DISSULVED AIR FLUIATION	DAF	RAW WATER PUMPING	RWP	WATER DEIONIZED		DISSOLVED AIR FLUTATION	DAF_X	RAW WATER PUMPING		WATER DEIONIZED	
EPF LOEM PUNDEFPHE CLACUAL US SLODGEHCS_XWATER PLANT EFFLOENTPEWENGINE EXHAUSTEXHRELATINED WATERRCS_XWATER PCANE EFFLOENTPEW_XENGINE EXHAUSTEXHRECLATINED WATERRCS_XWATER PCANE EFFLOENTPEW_XEUGALIZATION BASINEQBREFRIGERANTREFWATER RAWRWEQUALIZATION BASINEQB_XREFRIGERANTREF_XWATER RAWRW_XFERRIC CHLORIDEFECWET WEATHER TREATMENTWVTFERRIC CHLORIDEFECXVITE WEATHER TREATMENTWVT_XFERRIC SULFATEFESZINC ORTHOPHOSPHATEZOPFERRIC SULFATEFEC_XZINC ORTHOPHOSPHATEZOP_XFERROUS SULFATEFRCFERROUS SULFATEFEC_XXY PROCESS CODE SUFFIX USED TOFERROUS SULFATEFRCFERROUS SULFATEFRC_XXY PROCESS STREAMFLITRATIONFLFLFLITRATIONFL_X(I.E. CL2_G FOR CHLORINE SOLUTION)OR CL2_S FOR CHLORINE SOLUTION)OR CL2_S FOR CHLORINE SOLUTION)OR CL2_S FOR CHLORINE SOLUTION)		DRN	RAW WATER STURAGE	RWS	WATER NON-PUTABLE		DRAINAGE	DRN_X	RAW WATER STURAGE		WATER NUN-PUTABLE	
ENGINE EXTRACTEXHHECLAIMED WATERHOWWATER POTABLEPWEQUALIZATION BASINEQBREFRIGERANTREFWATER POTABLEPWEQUALIZATION BASINEQBREFRIGERANTREF_WATER POTABLEPWFERRIC CHLORIDEFECWET WEATHER THEATMENTWUTFERRIC CHLORIDEFEC_FERRIC SULFATEFESZINC ORTHOPHOSPHATEZOPFERRIC SULFATEFERRICS CULCATEFES_FERROUS CHLORIDEFCFERROUS SULFATEFERROUS SULFATEFRC_XZINC ORTHOPHOSPHATEZOP_XFERROUS SULFATEFRSFERROUS SULFATEFRS_XX = PROCESS CODE SUFFIX USED TOFILTRATIONFLTFLTFURTHER SPECIFY A PROCESS STREAMFILTRATIONFLT_X(I.E. CL2_G FOR CHLORINE GASOR CL2_S FOR CHLORINE SOLUTION)		EFP	RECIRCULATED SLUDGE	RUS	WATER PLANT EFFLUENT	PEW	EFFLUENT PUMPING	EFP_X	RECIRCULATED SLUDGE		WATER PLANT EFFLUENT	PEW_X
EUGLIZATION BASINEOBHEFHIGEHANTHEFWATCH HAWHWFERRIC CHLORIDEFCFERRIC SULFATEFESFERRIC SULFATEFESFERRIC SULFATEFESFERROUS CHLORIDEFCFERROUS CHLORIDEFCFERROUS SULFATEFESFERROUS SULFATEFESFERROUS SULFATEFRCFERROUS SULFATEFRSFILTRATIONFLFUTHER SPECIFY A PROCESS STREAMOR CL2_S FOR CHLORINE SOLUTION)	ENGINE EXHAUST	EXH	RECLAIMED WATER	RCW	WATER POTABLE	PW	ENGINE EXHAUST	EXH_X	RECLAIMED WATER		WATER PUTABLE	PW_X
FERRIC CALUATEFECWell Weather TheatmentWWIFERRIC CALUATEFECFERRIC SULFATEFERFERROUS CHLORIDEFECFERROUS CHLORIDEFECFERROUS SULFATEFRSFERROUS SULFATEFRS_XFILTRATIONFLTGR CL2_S FOR CHLORINE GASOR CL2_S FOR CHLORINE SOLUTION)	EQUALIZATION BASIN	EQB	REFRIGERANT	REF	WATER RAW	RW	EQUALIZATION BASIN	EQB_X	REFRIGERANT	REF_X	WAIER RAW	RW_X
FERRIC SULFATEFESZINC ON THOPHOSPHATEZOPFERROUS CHLORIDEFRCFERROUS SULFATEFRCFERROUS SULFATEFRSFERROUS SULFATEFRSFILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XCILTRATIONFLT_XFILTRATIONFLT_X	FERRIC CHLORIDE	FEC			WEI WEATHER TREATMENT	WW I	FERRIC CHLORIDE	FEC_X			WEI WEATHER TREATMENT	WWI_X
FERMOUS CHLORIDEFRC_XFERROUS SULFATEFRS_XFERROUS SULFATEFRS_XFILTRATIONFLT_XFILTRATIONFLT_XOR CL2_S FOR CHLORINE SOLUTION)	FERRIC SULFATE	FES			ZINC ORTHOPHOSPHATE	20P	FERRIC SULFATE	FES_X			ZINC URTHUPHUSPHATE	20P_X
FERROUS SULFATEFRS_XX = PROCESS CODE SUFFIX USED TOFILTRATIONFLTFILTRATIONFLT_XFURTHER SPECIFY A PROCESS STREAM(I.E. CL2_G FOR CHLORINE GASOR CL2_S FOR CHLORINE SOLUTION)	FERROUS CHLORIDE	FRC					FERROUS CHLORIDE	FRC_X				-
FILTRATION FLT_X FURTHER SPECIFY A PROCESS STREAM (I.E. CL2_G FOR CHLORINE GAS OR CL2_S FOR CHLORINE SOLUTION)	FERROUS SULFATE	FRS					FERROUS SULFATE	FRS_X			X = PROCESS CODE SUFFIX USED TO	
(I.E. CL2_G FOR CHLORINE GAS OR CL2_S FOR CHLORINE SOLUTION)	FILIKAIION	FLT					FILIKAIION	FLT_X			FURTHER SPECIFY A PROCESS ST	KEAM
OR CL2_S FOR CHLORINE SOLUTION)											(I.E. CL2_G FOR CHLORINE GAS	
											UR CLZ_S FUR CHLURINE SOLUII	UN)

				TUNCTION CODE ADDREVIATI	0/13				
ACTIVATION CHAMBER	ACMB	DEWATERING SCREW	DWS	HOIST, CHAIN	HSC	RESERVOIR	RSV	VACUUM BREAK	VB
ADJUSTABLE FREQUENCY DRIVE	AFD	DIAPHRAGM SEAL	DPS	HOIST, WIRE ROPE	HSE	RESIDUAL COLLECIOR	RCO	VACUUM REGULATOR	VRG
AERATOR, COARSE BUBBLE DIFFUSED	ACD	DIFFUSER, CHANNEL	DIF	HYDRANT, FIRE	HYDF	ROTAMETER	RM	VALVE, AIR RELEASE	AVR
AERATOR, FINE PORE DIFFUSED	AEFD	DIFFUSER BANK	DFB	HYDRANT, WALL	HYDW	RUPTURE DISK	RD	VALVE, AIR-VACUUM	AVRV
AERATOR, FLOATING SURFACE	AFS	DIFFUSER, PIPELINE	DIP	HYDROCYCLONE	HYC	SAMPLER	SAMP	VALVE, ANGLE	VAG
AERATOR, SURFACE	AES	DIFFUSER, TANK	DIR	INJECTOR, CHEMICAL	INJ	SCALE	SCL	VALVE, AWWA BALL	VBM
AFTERCOOLER	AFC	DIGESTER, AEROBIC	DGE	LIME SLAKER	LS	SCALE, WEIGHT	SC	VALVE, AWWA BUTTERFLY	VBF
AIR DRYER	AD	DIGESTER, ANAEROBIC PRIMARY	DGAP	MEMBRANE	MFM	SCREEN, HORIZONTAL	SCRHT	VALVE, BACKFLOW PREVENTER	VBFP
AIR FILTER	AF	DIGESTER, ANAEROBIC SECONDARY	DGAS	MEMBRANE, MICROFILTRATION	MBMF	SCREEN, INLINE SLUDGE	SCRI	VALVE, BALL MISCELLANEOUS	VBM
AIR RECEIVER OR REGULATOR	AR	DISINFECTION UNIT, UV	DSUV	MEMBRANE, NANOFILTRATION	MBNF	SCREEN, MANUAL OR MECH CLEANED BAR	SCRA	VALVE, CHECK	VCK
AIR SEPARATOR	AS	DISSOLVED AIR FLOTATION THICKENER	DAF	MEMBRANE, REVERSE OSMOSIS	MBRO	SCREEN, STEP	SCRS	VALVE, CONE	VCN
AIR STRIPPER	AST	DUST COLLECTOR	DUC	MEMBRANE, ULTRAFILTRATION	MBUF	SCREEN, TRAVELLING WATER	SCT	VALVE, DIAPHRAGM OPERATED	VDG
BACKFLOW PREVENTER	BFP	EDUCTOR	EDC	MIXER, CARBON	MXC	SCREEN, VIBRATORY	SCR	VALVE, DOUBLE DISC GATE	VGD
BASIN. AERATION	BSNA	ELECTRICAL EQUIPMENT. GENERAL	EQPE	MIXER. FLOCCULATION	FLM	SCRUBBER	SCU	VALVE. ECCENTRIC PLUG	VPL
BASIN. ANOXIC/OXIC	BSNX	EMERGENCY EYE WASH FOUNTAIN	EWSH	MIXER. IN-LINE	MXI	SCUM COLLECTOR	SMC	VALVE. EXPLOSION RELIEF	VER
BASIN. BNR	BNR	EMERGENCY SHOWER	ESHR	MIXER, PUGMILL	MXPG	SCUM WEIR - ROTATING	SCW	VALVE, FOUR WAY	VFW
BASIN, CHLOBINE CONTACT	BSNC	EMERGENCY SHOWER & EYEWASH	FMFW	MIXER, RAPID	MXR	SEPARATOR, MOISTURE OR CYCLONE	SEP	VALVE, GATE	VG
BASIN OXIC	BSNO	FOUTPMENT BUILDING SERVICES	FOPB	MIXER STATIC	MXS	SIGHT GLASS - TALL	SGT	VALVE GENERAL OR UNSPECIETED	V
BASIN BECTANGIILAR SEDIMENTATION	RRSN	FOUTPMENT GENERAL OR UNSPECTATED	FOPT	MIXER SUBMERSTRIE PROP OR RIENDER	MXP	SIGHT GAUGE	SG	VALVE GLOBE	VGI
REIT ETITER PRESS	REPS	EVAPORATOR	EV	MILETN MONSTER		STIENCER	50 STI	VALVE INDUSTRIAL RUTTERELV	VBT
BIN (STORAGE - ALL TYPES)	B			OVERELOW ROOF DRAIN			SIC	VALVE, INDOSTITAL DOTTETTET	VKG
DIN (STONAGE - ALL TITLS)				OZONE DESTRUCT UNIT		SLUDGE COLLECTOR, CINCOLAN		VALVE MATEDIAL HANDLING DOTADY	
		FAN, AXIAL FLOW	ΓΑΛ ΓΛΝ			SLUDGE COLLECTOR, CRUSS		VALVE, MATERIAL HANDLING HUTART	
DLOWER, CENTRIFUGAL		FAN, CENTRIFUGAL	FAN	OZONE GENERATOR	DGEN	SLUDGE COLLECTOR, FLOC-CLARIFYING	SFC	VALVE, MOD	
BLUWER, PUSITIVE DISPLACEMENT	BL	FENCE STIRRER	FS1	UZUNE POWER SUPPLY UNIT	PSU	SLUDGE COLLECTOR, SEC CLARIFIERS	363	VALVE, NEEDLE	
BUILER	BLR	FILTER GAS PARTICULATE	FISP	PACKAGED PLANT	PP	SLUDGE COLLECTOR, SULIDS CONTACT	SSC	VALVE, PILOT	PTV
BULLDUZER	BDZ	FILTER, CARTRIDGE TYPE	FLC	PARTICLE COUNTER	PCN	SLUDGE COLLECTOR, STRAIGHT LINE	SLCS	VALVE, PINCH	VPN
CALIBRATION COLUMN	CCLM	FILTER, UNDERDRAINS OR PRESSURE	FLI	PELLETIZER	PLI	SLUDGE GRINDER, INLINE OR CHANNEL	GRD	VALVE, PISTON OPERATED	VPO
CENTRIFUGE	CFG	FILTER. SURFACE WASH EQUIPMENT	FSW	PENSTOCK	PS	SOLIDS BLENDER-INLINE	SBL	VALVE, PLUG	VPL
CHEMICAL FEEDER	CHF	<i>FITTING, MISCELLANEOUS</i>	FTTNG	PIPE	PIPE	STRAINER	STR	VALVE, PRESSURE REDUCING	VPC
CHLORINE GAS SCRUBBER	CGS	FLAME ARRESTER	FAR	PLATE SETTLER	PSE	STRAINER BASKET TYPE	STRB	<i>VALVE, PRESSURE SUSTAINING</i>	VPC
CLARIFIER, PRIMARY	PCLR	FLAME CHECK	FC	POLYMER INJECTOR RING	INJ	STRAINER Y TYPE	STRY	VALVE, PRESSURE RELIEF	VSP
CLARIFIER, SECONDARY	SCLR	FLOCCULATOR, HORIZONTAL	FLCH	PRESSURE BUILDING COIL	PBC	SURGE CHAMBER	SRCH	VALVE, PRESSURE/VACUUM RELIEF	VSPV
CLASSIFIER, GRIT	CGR	FLOCCULATOR, VERTICAL	FLCV	PULSATION DAMPNER	PD	TANK, ABOVE GROUND STORAGE	TSA	VALVE, PROCESS	VP
CLEARWELL	CW	FLOOR DRAIN	FD	PUMP, AIR DIAPHRAGM	PAD	TANK, AMMONIA STORAGE	TCN	VALVE, RESILIENT SEATED GATE	VGR
COMPRESSOR	CMP	FLOW SPLITTER	FS	PUMP, CENTRIFUGAL	PCL	TANK, CRYOGENIC STORAGE	TCR	VALVE, SAFETY	VS
COMPRESSOR, LIQUID RING	CMB	FLUME, PARSHALL	FE	PUMP, DIAPHRAGM METERING	PDM	TANK, DOUBLE WALL	DWT	VALVE, SLEEVE	VSLV
COMPRESSOR, ROTARY SCREW	CMR	FOAM SEPARATOR	FMSP	PUMP. HEATING WATER	PHW	TANK. ELEVATED STORAGE	TSE	VALVE. SOLENOID	VSL
COMPRESSOR, STEAM	CMPS	FORKLIFT	FL	PUMP. HORIZONTAL END SUCTION	PHE	TANK. EXPANSION	ТХ	VALVE. TELESCOPING	VTV
CONTAINER. PROCESS	CTR	GAS FEEDER	CHF	PUMP. HORIZONTAL SPLIT CASE	PSC	TANK. FRP CHEMICAL STORAGE	TNK	VALVE, THERMAL SHUTOFF	VTS
CONVEYOR. BELT	COB	GAS FLARE	GF	PUMP. PERISTALTIC	PPS	TANK. GENERAL OR UNSPECIFIED	TNK	VALVE, THREE WAY	VTW
CONVEYOR SCREW	COS	GAS WATER HEATER	GWH	PLIMP PLLINGER	PPI	TANK METHANOI	TCP	VALVE VACUUM BREAKER	VVB
COVER ALLIMINUM DOME BASIN	CEA	GATE FLAP	GEI	PUMP PROGRESSING CAVITY	PPC	TANK SAMPLER	SMPT	VALVE, VACUUM BELTEE	VSV
COVER FIXED DIGESTER	CED	GATE SLIDE	65D	PUMP SCREW ENCLOSED	PSF	TANK, CHIORINE CONTACTOR		VALVE, V-PORT BALL	VVP
COVED ELOATING DIGESTED		CATE SUUTCE	680	DUMD SODEW ODEN		TANK ELAT TOD STEEL WATED		VADADIZED	
COVER, FLOATING DIGESTER		CATE WEID	630	DUMP SUDMEDSTDIE	F SE DCI	TANK, FLAT TOF STEEL WATER		VESSEL BOOT	VAL
COVER, GAS HOLDER	DCG	GATE, WEIR	G		PCL	TRAP, DRIP		VESSEL, BUUT	VSLD
OUVER, WEWDRANE		COAVITY DELT THICKENED		FUMF, SUDMERSIDLE UNUFFER		INAR, SEUIMENI TRUCK	INTO TNV	WEIN, UIPULEIII WEIN, DECTANCULAD	
	CRN	GRAVITY BELT THICKENER	GBT	PUMP, SUBMERSIBLE SUMP	PSS	THUCK	IRK	WEIR, RECTANGULAR	WR
CHANE, GANIRY	CKG	GRAVITY THICKENER	GVI	PUMP, SUMP	PSP		IB TDC	WEIK, V-NUICH	WV
CHANE, JIB	CHJ	GRINDER PULVERIZER	GKD	PUMP, PUSITIVE DISPLACEMENT,	Р	IURBINE COMPRESSOR	IBC	WELL, HURIZUNIAL COLLECTOR	WLHC
CRANE, PORTABLE GANTRY	CRP	GRIT BASIN, VORTEX TYPE	GRB	ROTARY, DRUM OR BELL MOUNTED		TURBINE ENGINE	TBG	WELL, VERTICAL	WL V
CRANE, TRAVELLING BRIDGE	CRT	GRIT SCREW CONCENTRATOR	GRV	PUMP, VERTICAL DIFFUSION VANE	PVD	UNINTERRUPTABLE POWER SUPPLY	UPS		
CYLINDER, CHLORINE	CYL	HEAT EXCHANGER	HEX	PUMP, VERTICAL END SUCTION	PVE	UV REACTOR	UVE		
CVITNDER GAS	CYG	HOIST	HST	PUMP, VERTICAL WET PIT	PVW	UV REACTOR, HORIZONTAL OR VERTICAL	livi		

# FUNCTION CODE ABBREVIATIONS

BLACK & VEATCH CORPORATION No. CO1918

				F ISSUE NO. BY CK APP		(REF1: D8094 . dwg	(REF2: SCPE - PHH . dwg	(REF3: <i>BV_SC_C0A_C01918.dwg</i>	(REF4:
				REVISIONS AND RECORD OI	- PID Drawings	×	178, 6/19/2015 3:05:26 PM	3/2016 7:08:25 AM	V DWG VER: 1001 X
	HITTING CARONING	LOU SON ESSINA A		C No. 17690 D DATE	12 2010 2 E BUN:3080 - I	TANOS ASSACE PROBLIDENCE	HARGEN SAVED: HER651	PLOTTED: 1/18	USER: PWADMIN
			E BLACK & VEATCH	Building a world of difference		Black & Veatch Corporation	Columbia, South Carolina		
	AUANU UNANA	MYRTLE BEACH SWTP	DZONF SYSTEM MODIFICATIONS			P&ID	LEGEND & ABBREVIATIONS	SHEET 3 OF 3	
DE DE CH AP DA	SIGI TAIL ECK PRC TE: THI	NED ED: VEC VEC	: ): IR D	SLS DRS JVG PHH 1/1 1/2 OEs VING	5/2 2 3 NC	016 01 M		SUR FU	
		P	18 18 18 18 18 5	JEC 352 - (		ло. 0 3			

![](_page_17_Figure_0.jpeg)

![](_page_18_Figure_0.jpeg)

![](_page_19_Figure_0.jpeg)

![](_page_20_Figure_0.jpeg)

![](_page_21_Figure_0.jpeg)

FD7000\_PW

![](_page_22_Figure_0.jpeg)

![](_page_23_Figure_0.jpeg)

![](_page_24_Figure_0.jpeg)

- 1. ALL PRESSURE GAUGE FITTINGS AND NIPPLES TO BE TYPE 304 SST.
- 2. INSTALL PRESSURE GAUGE W/ 90° ELBOW WITH SIDE MOUNT UNLESS OTHERWISE SHOWN ON THE PLANS.

# MATERIALS LIST

- (1)PRESSURE GAUGES SHALL BE TYPE 7
- UNLESS OTHERWISE NOTED ON THE DRAWINGS
- (2) 1/2" TYPE 32R BALL VALVE
- (3) 1/2" TYPE 316 SST TEE
- (4) 1/2" 90° TYPE 316 SST ELBOW
- (5) 1/2" TYPE 316 SST PIPING AND FITTINGS
- (6) 3/4" OUTLET W/ INSULATED UNION
- (7)3/4" x 1/2" BUSHING
- (8) TYPE 304 SS SNUBBER

![](_page_24_Picture_13.jpeg)

![](_page_24_Figure_14.jpeg)

![](_page_24_Figure_18.jpeg)

![](_page_25_Figure_0.jpeg)

![](_page_25_Figure_2.jpeg)

![](_page_25_Figure_3.jpeg)

![](_page_25_Figure_4.jpeg)

![](_page_25_Figure_5.jpeg)

![](_page_25_Figure_7.jpeg)

![](_page_25_Figure_9.jpeg)

AMBIENT OXYGEN ANALYZER L NO SCALE

INSTALLATION DETAIL NO SCALE

TYPICAL FOR: AE 6207B UNLESS OTHERWISE INDICATED ON ELECTRICAL PLANS

![](_page_25_Picture_13.jpeg)

XREF4:					
DWG VER:					
USER: KEL 08930					
GRAND STRAND W&SA MYRTLE BEACH SWTP DZONE SYSTEM MODIFICATIONS P&ID INSTRUMENTATION DETAILS					
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE PROJECT NO. 185210					

![](_page_26_Figure_0.jpeg)

![](_page_26_Figure_2.jpeg)

![](_page_26_Picture_3.jpeg)

ONE-LINE D	)IAGRAM LEGEND					SCH	FMATIC SYMBOL	S		
						<u> </u>		<u> </u>		
		ANSFORM LTAGE,	MER WITH PRIMARY AND SECO AND KVA RATING AS NOTED	ONDARY		۲	WIRE CONNECTION F	POINT		TP
150 2.4KVD-	00KVA 480Y/277						EXTERNAL CONNECT.	ION POIN	IT	olo
30, 20 <u>22:</u>	60HZ 3#8,#10G,2" CII 1#1	RCUIT I 10 BARE	NO.22 WITH #8 INSULATED ( GROUND WIRE ALL IN 2" (	CONDUCTO CONDUIT	- NRS, TO	1⊢	NORMALLY OPEN CO	VTACT		v 0€
	20	HP MOT	TOR	50112017	-	₩	NORMALLY CLOSED (	CONTACT		∆v
A	UXILIARY ITEMS ONE AY NOT BE PAG	E-LINE CKAGE l	SHOWING POWER AND CONTRO INIT, AS FOR EXAMPLE A S	OL TO A TEAM	(		STARTER, CONTACTO	OR OR RE	LAY COIL	<u>م</u> ربر
	HOWN GEN OMPLETELY IMF	VERATOF PLY THA	R OR AN AIR HANDLING UNI AT ANY AND ALL ASSOCIATED	T, SHALL D EQUIP-	<u> </u>	-	NORMALLY OPEN PUS	SH BUTTC	0N	°T°
15		QUIRED	BY THE EQUIPMENT FURNIS	WIRED A HED.	ა ი	مل	NORMALLY CLOSED I	PUSH BUT	TON	Г ~~0
	INC BE	DICATES ROUTEL	S THAT ALL OR PART OF CI D IN DUCT BANK OR UNDERGI	RCUIT MA ROUND.	γ	0	MAINTAINED PUSH I	BUTTON		
		OUND AN	NIZE SHOWN ON ONE-LINE IS ND/OR INSIDE OF STRUCTUR SCHEDULE AND SECTIONS N	S ABOVE E. SEE FOR COND	ל ענד	₽ <u>+</u>	NORMALLY CLOSED (	GEARED L	IMIT SWITCH	oTo
		ZE OF L GH VOLI	INDERGROUND PORTION OF C.	IRCUIT.		φŀ ~	NORMALLY OPEN GEA	ARED LIM	IIT SWITCH	$\sim$
			IRCUIT BREAKER		ý	$\mathcal{I}$	INDICATING LIGHT			010
	3P-20 LOV	N VOLTA POLE, 2	AGE AIR CIRCUIT BREAKER, 20 AMPERE		Π		FUSE			Y
	-  <sup>S4</sup> sız	ZE 4 CC	OMBINATION MAGNETIC MOTO	R STARTE	r b	$\mathcal{S}$	POTENTIOMETER			$\stackrel{\circ}{\rightarrowtail}$
		N VOLTA	AGE DRAWOUT AIR CIRCUIT I	BREAKER	+	(-	CAPACITOR			To
					-		DIODE			•
		GH VOLT	AGE DRAWOUT CONTACTOR		~	∽~	RESISTOR			
		SE AND	DISCONNECT SWITCH			m	CONTROL POWER TRANSFORMER			~~~
		ZE 2 CO VERSINO	DMBINATION MAGNETIC MOTO G OR 2 SPEED	R STARTE	R, ò	~	SWITCH			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
_		7E 1 C(	MRTNATION			ns 	- MANUAL STARTER			29
-		DUCED \	OLTAGE STARTER		) آب		OVERLOAD			0
	$\neg \neg \vdash poi$	TENTIAL	TRANSFORMER		C		ELECTRODE			20
					۵. (	$\mathcal{H}$	FLOAT SWITCH (CLOSING ON BISI	NG LEVEL	)	
	-TTT- CUF	KRENI I	KANSFURMER		0-	ľ	FLOAT SWITCH		· /	24
CONDUIT &	WIRING INSTAL	LATIO	N LEGEND		( م	C \o	(UPENING UN RISII	NG LEVEL	.)	of o
	CONDUIT	EXPOSI	ED		2	5	(CLOSING ON RISI	NG PRESS	SURE)	⊥ MISC
	CONDUIT	CONCE	ALED		4	ACCE	ESS CONTROL/CC	TV SYN	IBOLS	(SD)
——О	CONDUIT	TURNII	NG UP. CONDUIT TURNING D	OWN.	BMS	S	BALANCED MAGNETIC	SWITCH		
	CONDUIT	PLUGGI	ED FLUSH. CONDUIT CAPPED		CRS	S	CARD READING SENS	OR		(T)
	TYPICAL PANEL L L2-5 (MINIMU	FOR H 2 & CO M NO	OME RUN TO BE ROUTED TO NNECTED TO CIRCUIT #5 12 AWG CONDUCTORS AND 37	LIGHIING 4" CONDU		]	ELECTRIC STRIKE			J
À	ζ LIGHTIN	G FIXT	URE. REFER TO NUMBER OR	LETTER		<u>ז</u>	PASSIVE INFRARED	MOTION L	DETECTOR	Ø
		URE SCI CENT E	YEDULE TXTURE REFER TO NUMBER	OR LETTE		-J ]	ELECTROMECHANICAL	LUCK		$\overline{(0)}$
	IN FIXTO	URE SCI	HEDULE.		ML	]	MAGNETIC LOCK	1101		
$\Psi^{LF}$	21-3 LIGHTIN	G PANEL	LP1, CIRCUIT 3		REX	-	REQUEST TO EXIST	DEVICE		_ 
(A) L	P2-2 (NON-SW)	G FIXI G PANE ITCHED	URE POWERED FROM L LP2, CIRCUIT 2		DA		DURESS ALARM			
LPA-4	A LIGHTIN	G FIXT	, URE POWERED FROM		$\square$	)	PTZ = PAN. TILT.	ZOOM		
11	LIGHTIN VIA SWI	G PANEI TCH A	L LPA, CIRCUIT 4,			$\Im_{x}$	SECURITY CAMERA			
——— E	UNDERGRO	ound Co Cal Duo	ONCRETE ENCASED CT BANK				F = FIXED CAMERA			
	UNDERGRO	OUND CO UTED BE	DNCRETE ENCASED ELECTRIC, ENEATH SLAB-ON-GRADE	4 <i>L</i>						
EE	DIRECT	BURIED	CONDUIT							D
	GROUND	CONDUC	TOR							P
	M ELECTRIC	C MANHC	DLE							
	H ELECTRIC	C HANDH	IOLE							
			SWI	TCH &	OUTLET	r sy	'MBOLS			
S sin	IGLE POLE SWITCH	Spl	SWITCH WITH PILOT LIGHT	$\Rightarrow$	DUPLEX	RECE	PTACLE 120 VOLT		120 VOLT DU RECEPTACLE	PLEX (UPS)
S2 TWO	) POLE SWITCH	Ѕко	KEY OPERATED SWITCH	$\ominus$	SIMPLEX	REC	EPTACLE	$\bigcirc$	DUPLEX FLOO	R OUTLET
Sз тня	REE-WAY SWITCH	Sxp	EXPLOSION PROOF SWITCH	€	RANGE R	ECEP	TACLE	-	TELEPHONE O	UTLET
S4 FOU	IR-WAY SWITCH	Sdm	DIMMER SWITCH THREE-WAY SWITCH	$\Theta$	TWISTLO	CK R	ECEPTACLE		TELEPHONE F	LOOR OUTLE
SM <sup>C1</sup> CON	MENTARY SWITCH ITROLLING CONTACTOR	S3A	CONTROLLING LIGHTS WITH "A" DESIGNATION	- () 20	208V, 1	ØRE	CEPTACLE, TYPICAL		COAXIAL CAB	LE OUTLET
C1		Swp	WEATHERPROOF SWITCH	- 30	AMPERE	RATI	NG NOTED	UX		

# PRESSURE SWITCH (OPENING ON RISING PRESSURE) VACUUM SWITCH (CLOSING ON INCREASING VACUUM) VACUUM SWITCH OPENING ON INCREASING VACUUM) TEMPERATURE SWITCH (CLOSING ON RISING TEMPERATURE) TEMPERATURE SWITCH (OPENING ON RISING TEMPERATURE) FLOW ACTUATED SWITCH (CLOSING ON INCREASE IN FLOW) FLOW ACTUATED SWITCH (OPENING ON INCREASE IN FLOW) ON TIME DELAY CONTACT (NORMALLY OPEN, WHEN THE COIL IS ENERGIZED THE CONTACT WILL CLOSE AFTER A TIME DELAY) ON TIME DELAY CONTACT (NORMALLY CLOSED, WHEN THE COIL IS ENGERGIZED THE CONTACT WILL OPEN AFTER A TIME DELAY) OFF TIME DELAY CONTACT (NORMALLY OPEN, WHEN THE COIL IS DE-ENERGIZED THE CONTACT WILL OPEN AFTER A TIME DELAY) OFF TIME DELAY CONTACT (NORMALLY CLOSED. WHEN THE COIL IS DE-ENERGIZED THE CONTACT WILL CLOSE AFTER A TIME DELAY) TORQUE SWITCH (NORMALLY OPEN) TORQUE SWITCH (NORMALLY CLOSED) LIMIT SWITCH (NORMALLY OPEN) LIMIT SWITCH (NORMALLY OPEN, HELD CLOSED) LIMIT SWITCH (NORMALLY CLOSED) LIMIT SWITCH (NORMALLY CLOSED, HELD OPEN) DIFFERENTIAL PRESSURE SWITCH (NORMALLY OPEN, CLOSING ON INCREASING DIFF.) DIFFERENTIAL PRESSURE SWITCH (NORMALLY CLOSED, OPENING ON INCREASING DIFF.) ELLANEOUS SYMBOLS SMOKE DETECTOR HORN THERMOSTAT JUNCTION BOX GROUND ROD GROUND ROD WITH TEST WELL GROUND CONNECTION DISCONNECT SWITCH COMBINATION STARTER POWER PANEL LIGHTING PANEL MISCELLANEOUS PANEL LIGHTING CONTACTOR DOOR SWITCH PHOTOCELL MANUAL MOTOR SWITCH (3 DENOTES 3-POLE) EXIT SIGN

EMERGENCY EXIT COMBO REMOTE HEAD CONTROL STATION

480V, 3Ø WELDING RECEPTACLE, TYPICAL AMPERE RATING NOTED

# ABBREVIATIONS

A	AMBER, AMPERE, ALARM
AC	ALTERNATING CURRENT
ACB	AIR CIRCUIT BREAKER
AF	AMPERE FRAME
	AD. HISTARI E ERECHENCY DRIVE
AW	
ANN	ANNUNCIATUR
AR	ALARM RELAY
AS	AMMETER SWITCH
AT	AMPERE TRIP
AWG	AMERICAN WIRE GAGE
<b>D</b> O	
BC	BATTERY CHARGER
BR	BRAKE
BT	BEARING TEMPERATURE
С	CLOSE, COUNTER OR CONTACTOR
CAP	CAPACITOR
CP	
CB"A"	
	CIRCUIT BREAKER AUXILIARY CONTACT
	(UPEN WHEN BREAKER IS UPEN UR IRIPPED
	CLUSED WHEN BREAKER IS CLUSED)
CB"B"	CIRCUIT BREAKER AUXILIARY CONTACT
	(CLOSED WHEN BREAKER IS OPEN OR TRIPPED
	OPEN WHEN BREAKER IS CLOSED)
СЛ	CONTROL DAMPER
CT	
CKI	
UL2	CHLUKINE
COS	CABLE OPERATED SWITCH
СР	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CURRENT OR CONTROL RELAY
CS	CONTROL STATION
ст СТ	CVCLE TIMED OD CHIDDENIT TOANGEODWED
010	OVOLE TIMED OLUTOU
	CYCLE TIMER CLUTCH
CTM	CYCLE IIMER MOTOR
2/C	2 CONDUCTOR
4"C	4" CONDUIT
50	
DC	
DI	DOOR INTERLOCK
DM	DAMPER MOTOR OR DEMAND METER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DPR	DIFFERENTIAL PRESSURE REGULATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
	DISCONNECT SWITCH
DVLS	DISCHARGE VALVE LIMIT SWITCH
E	ELECTRIC OPERATOR FOR
	CONTROL DAMPER OR VALVE
EC	EMPTY CONDUIT
EL	ELEVATION OR EMERGENCY LIGHT
FMH	FLECTRICAL MANHOLE
FR	
ES	
E3	
EIM	ELAPSED TIME METER
EX	EXISTING
F	FORWARD
, FS	FLOW SWITCH
13	TEOW SWITCH
G	GREEN OR GROUND
GEN	GENERATUR
GF1	GROUND FAULT INTERRUPTER
GLS	GEARED LIMIT SWITCH
#8G	#8 GROUND WIRE
П	
HC	
ΗΗ	HANDHOLE
HMT	HIGH MOTOR TEMPERATURE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
НЖСО	HIGH WATER CUTOFF
H7	HERTZ (CYCLE)
ΠĽ	
I/O	INPUT/OUTPUT
INST	INSTANTANEOUS
J	JUNCTION BOX
JB	JUNCTION BOX
02	
17	
K	KEY INIERLOCK
KCMIL	THOUSAND CIRCULAR MIL
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVAR
KW	KILOWATT
KWH	KILOWATT HOUR
1	LOW, LEVEL
LAN	LUUAL AREA NEIWUKK
	LIGHTING CONTACTOR
LUA	LUCAL - UFF - AUTO
LOR	LOCAL-OFF-REMOTE
LP	LIGHTING PANEL
LS	LIMIT OR LEVEL SWITCH

M MA MCB MCC MCLU MD MFM MFR MFR MH MFR MH MOV MPR MSH MSH MTS MV MVA	MAGNETIC MOTOR STARTER MILLIAMPERE MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER MOTOR CONTROL LINEUP MOISTURE DETECTOR MAGNETIC FLOW METER MANUFACTURER MANUFACTURER MANHOLE OR MOUNTING HEIGHT MOTOR OPERATED VALVE MOTOR PROTECTION RELAY MANUAL MOTOR STARTER MOTOR SPACE HEATER MANUAL TRANSFER SWITCH MILLIVOLT MEGA VOLT AMPERE
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
0	OPEN
OCB	OIL CIRCUIT BREAKER
OL	OVERLOAD
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
P PCS PF PH PLC PP PRS PS PT 2P	PRIMARY PLANT CONTROL SYSTEM PUSH BUTTON OR PULL BOX POWER FACTOR METER PHASE, CHEMICAL TERM PROGRAMMABLE LOGIC CONTROLLER POWER PANEL PROXIMITY SWITCH PRESSURE SWITCH POTENTIAL TRANSFORMER, PROGRAM TIMER 2 POLE
R	RED, RAISE, RELAY OR REVERSE
RECP	RECEPTACLE
RES	RESISTOR
RT	REPEATING TIMER
RTD	RESISTANCE TYPE TEMP DETECTOR
RTU	REMOTE TERMINAL UNIT
RVSS	REDUCED VOLTAGE SOLID STATE START
S2 SCADA SN SO SP SPDT SPST SSS SUPV SV SWB SWB SWGR	SIZE 2 STARTER SUPERVISORY CONTROL AND DATA ACQUISITION SPACE HEATER SOLID NEUTRAL SOLENOID OILER SINGLE POLE SINGLE POLE DOUBLE THROW SINGLE POLE SINGLE THROW SELECTOR SWITCH SOLID STATE STARTER SUPERVISORY CONTROL SOLENOID VALVE SWITCHBOARD SWITCHGEAR
T	THERMOSTAT, TIMER, OR TOTALIZER
TACH	TACHOMETER
TB	TERMINAL BLOCK
TC	TIMER CLUTCH
TD	TIME DELAY RELAY
TEMP	TEMPERATURE
TM	TIMER MOTOR
TQ	TORQUE
TS	TEMPERATURE SWITCH
TTB	TELEPHONE TERMINAL BOX
TX	TRANSFORMER
UV	UNDER VOLTAGE
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERE
VAR	VARMETER
VLS	VALVE LIMIT SWITCH
VM	VOLTMETER
VPI	VALVE POSITION INDICATOR
VS	VOLTMETER SWITCH
W	WHITE OR WATTS
WH	WATTHOUR METER
WM	WATT METER
WP	WEATHERPROOF
WPI	WEATHERPROOF IN-USE
X	AUXILIARY KELAY
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

YELLOW γ

FΤ

![](_page_27_Figure_10.jpeg)

![](_page_28_Figure_0.jpeg)

![](_page_29_Figure_0.jpeg)

![](_page_30_Figure_0.jpeg)

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	<u> </u>	
	SSUE	F1: F2: F3:
	RD OF I	XREI XREI XREI XREI XREI
	VD RECO	5 PM :48 PM
EXISTING MCC-03 (SEE ONE-LINE	A SNOI	6:55:1 6:55:1 15 3:29
DIAGRAM DWG E05)	REVIS	4/2015 5/22/2015 DWG VE
		95, 6/2 1095, 6
		: FRA510: ED: FRA5
-EXISTING MCC-03A	DAT	SAVED : PLOTTE USER : H
- NOTE 3 7	ESSION CAROL	7/2016
- OZONE MASTER	HINDS OF OF	HIS NUMBER
PANEL "MCP" (NOTE 4)		mmin B
ESTOP1	<b>H</b>	
		ation
-OZONE MASTER CONTROL PANEL "MCP"		<b>Orpol</b>
(NOTE 4)		south 0
		& Vea Columbia
-APPROXIMATE		Black
NEW PLANT PLC (BY		
OWNER).		_
	NS	
	A P ION	16
	V&S SWT CAT	LDIN
		BUI
	ANI	ICA ION N
	M N M N	ECTR RAT. PLA
<u>NOTES:</u>	) S E STE	ELL
1. SEE DRAWING E01 FOR ELECTRICAL LEGEND AND ABBREVIATIONS AND GENERAL REQUIREMENTS.	ANL SY:	NE 0
2. EQUIPMENT ON SKID IS PRE-WIRED. SEE ONE-LINE DIAGRAMS FOR EXTERNAL CONNECTIONS.	GR/ NYI	0Z0
3. INSTALL BREAKERS IN EXISTING G.E. A SERIES PANELBOARD AS NOTED BELOW:	0Z0	
1-20/1 FOR LOCAL LOX TRACKER PANEL		
2-30/1 FOR CONTACT BASIN SAMPLE PUMPS		
1-40/3 FOR TEPID WATER OTROLATION POMP 1-20/1 FOR EYEWASH STATION AT LOX AREA	DESIGNED: ATH DETAILED: HNW	
4. CONNECT TO EXISTING 120V CIRCUIT.	APPROVED: ATH APPROVED: PHH DATE: 1/15/201	6
THE CAROLANIA	0 1	
HOWARD ENGINEERING	IF THIS BA MEASURE 1" TH NOT TO FL	H DUES NOT EN DRAWING IS ULL SCALE
MARIETTA, SOUTH CAROLINA	PROJEC 185	210
	E -	04
	2015	:E1

![](_page_31_Figure_0.jpeg)

# NOTES:

- 1. SEE DRAWING E01 FOR ELECTRICAL LEGEND AND ABBREVIATIONS AND GENERAL REQUIREMENTS.
- 2. SEE P&ID FOR SKID MOUNTED AND PRE-WIRED DEVICES.
- 3. MAIN ANALOG JUNCTION BOX. ROUTE ALL SHIELDED CABLES FROM BASIN TO/FROM MCP THRU THIS BOX.
- 4. MAIN DIGITAL JUNCTION BOX. ROUTE ALL DIGITAL (#14) CONDUCTORS FROM BASIN TO/FROM MCP THROUGH THIS BOX.
- 5. BLOWER CONTROL PANEL FURNISHED BY EQUIPMENT SUPPLIER.
- COMBINATION STARTER BY CONTRACTOR (NEMA SZ. 2 WITH CPT. PROVIDE 480V, 6. 1Ø TO BLOWER CONTROL PANEL) SEE SCHEMATIC THIS SHEET.
- 7. PROVIDE EQUIPMENT RACK FOR PANELS. LOCATE AS DIRECTED BY OWNER TO ALLOW ACCESS TO BLOWER.
- 8. BY CONTRACTOR
- 9. MAIN 120V JUNCTION BOX FOR INSTRUMENTS POWERED FROM OZONE MASTER CONTROL PANEL.
- 10. 120V JUNCTION BOX POWERED FROM 120V G.E. PANELBOARD IN OZONE GENERATION BUILDING.
- 11. FIELD LOCATE FOR SAMPLE PUMPS.
- 12. PROVIDE NEW CONDUIT FRAMING SYSTEM IN THIS AREA TO SUPPORT NEW CONDUIT AND BOXES.
- 13. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAKING ALL CONNECTIONS TO THE OWNER-PURCHASED OZONE SYSTEM. THE CONNECTIONS AND EQUIPMENT LOCATIONS WERE BASED ON THE BEST INFORMATION AT THE TIME OF DESIGN. FURNISH ALL CONDUIT AND WIRING NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.

![](_page_31_Figure_16.jpeg)

![](_page_31_Figure_17.jpeg)

![](_page_32_Figure_0.jpeg)

![](_page_33_Figure_0.jpeg)

![](_page_34_Figure_0.jpeg)