

PIPING SYMBOLS

INSTRUMENTATION SYMBOLS

MECHANICAL EQUIPMENT SYMBOLS		PIPE LINE DEVICE SYMBOLS		VALVE & ACTUATOR SYMBOLS		PRIMARY ELEMENT SYMBOLS		FUNCTION IDENTIFICATION						
								MEASURED OR INITIATING VARIABLE	FIRST LETTER(S)	MODIFIER	READOUT OR PASSIVE FUNCTION	SUCCESSING LETTERS	OUTPUT FUNCTION	MODIFIER
	CENTRIFUGAL PUMP (PCN)		INJECTOR		SLUICE GATE (CSL) OR DAMPER		ORIFICE PLATE	A	ANALYSIS		ALARM			
	GRINDER PUMP		INDUCTOR		GATE VALVE (GVT)		VENTURI OR FLOW TUBE	B	BURNER (FLAME)					
	PROGRESSIVE CAVITY PUMP (PPC)		CARTRIDGE FILTER/SEPARATOR		GLOBE VALVE (VGL)		AVERAGING PITOT TUBE	C	CONDUCTIVITY	DIFFERENTIAL	PRIMARY ELEMENT			CLOSED
	LIQUID RING BLOWER OR COMPRESSOR		CAP OR PLUG		PLUG VALVE (VPL)		PROPELLER OR TURBINE METER	D	DENSITY		GLASS			
	SILENCER		PORT CONNECTION		BALL VALVE (VBL)		POSITIVE DISPLACEMENT FLOW METER	E	POTENTIAL (ELEC)		INDICATE			HIGH
	MIXER (MIX)		BLIND FLANGE		BUTTERFLY VALVE (VBF)		MAGNETIC FLOW ELEMENT	F	FLOW RATE	RATIO	PILOT LIGHT			LOW
	HEAT EXCHANGER		STRAINER		CHECK VALVE (VCK)		FLUME	G	FIRE, SMOKE		ORIFICE			MIDDLE
	HEATING COIL		REDUCER OR INCREASER		BALL CHECK VALVE		WEIR	H	HAND		RECORD			OPEN
	COOLING COIL		BACK FLOW PREVENTER		PINCH VALVE (VFN)		FLOW METER (HYDRONIC)	I	CURRENT (ELEC)	SCAN	TEST CONNECTION			
	INTAKE FILTER		CALIBRATION TUBE		DIAPHRAGM VALVE (VDI)		VARIABLE AREA FLOW METER (ROTAMETER)	J	POWER	TIME RATE CHANGE	UNCLASSIFIED			
	TANK (TNK)		STEAM TRAP WITH BY-PASS		NEEDLE VALVE (VND)		RUPTURE DISC	K	TIME	MOMENTARY	MULTIFUNCTION			
	VARIABLE SPEED DRIVE - DC (VFD) VARIABLE FREQUENCY DRIVE - AC		PULSATION DAMPENER		PRESSURE RELIEF VALVE (VRF)		FLOW STRAIGHTENING VALVE	L	LEVEL	INTEGRATE	MULTIFUNCTION			
	GENERATOR		PIPE FLANGE CONNECTION TO TANK		VACUUM RELIEF VALVE (VRF)		DIAPHRAGM CHEMICAL SEAL	M	MOISTURE	SAFETY	WELL			
	GRINDER		FLEXIBLE COUPLING		FLOAT VALVE		ANNULAR CHEMICAL SEAL	N	EQUIPMENT STATUS		UNCLASSIFIED			
	MOTOR (MOT)		EXPANSION JOINT		PRESSURE REDUCING VALVE		TEMPERATURE WELL	O	OXYGEN		RELAY, COMPUTE			
	SUBMERSED PUMP		HEAT TRACING		BACK PRESSURE SUSTAINING VALVE		DISPLACER FLOAT SWITCH	P	PRESSURE		MISC. ACTUATOR			
	BLOWER/FAN (CENTRIFUGAL) (PBL)		SPRAY NOZZLE		VALVE WITH HAND OPERATOR		GUIDED FLOAT SWITCH	Q	QUANTITY					
	ROTARY LOBE BLOWER		SIGHT GLASS		SOLENOID OPERATED VALVE (VOS)		PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	R	RADIATION					
			EQUIPMENT DRAIN		ELECTRICAL MOTOR OPERATED VALVE		AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	S	SPEED, FREQUENCY					
			MISCELLANEOUS		DIAPHRAGM OPERATED VALVE		AAA - FUNCTION	T	TEMPERATURE					
			EQUIPMENT NUMBER AREA DESIGNATION		PISTON OPERATED VALVE		BBB - SYSTEM	U	TEMPERATURE MULTIVARIABLE					
			EQUIPMENT ABBREVIATIONS		FLOW BALANCING VALVE (HYDRONIC)		CCC - LOOP NUMBER	V	VIBRATION					
					THREE-WAY VALVE		DDD - DESCRIPTION	W	WEIGHT, FORCE					

ABBREVIATIONS

PROCESS & SIGNAL LINE SYMBOLS

LINE	DESCRIPTION
	MAIN PROCESS FLOW (WITH TYPICAL DIRECTION OF FLOW SHOWN)
	SECONDARY PROCESS FLOW
	INSTRUMENT SUPPLY, PROCESS TAPS, TERTIARY PROCESS FLOW
	ELECTRIC SIGNAL (ANALOG)
	ELECTRIC SIGNAL (DISCRETE)
	PNEUMATIC SIGNAL
	ELECTROMAGNETIC OR SONIC SIGNAL
	SOFTWARE OR DATA LINK
	MECHANICAL LINK
	HYDRAULIC
	ELECTRIC POWER SUPPLY 120VAC, 60HZ - OR AS NOTED
	AIR SUPPLY LINE (INSTRUMENT)
	UNGUIDED AIR FLOW
	CONTINUED ON DRAWING XXXX RELEVANT DATA X

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GENERAL NOTES

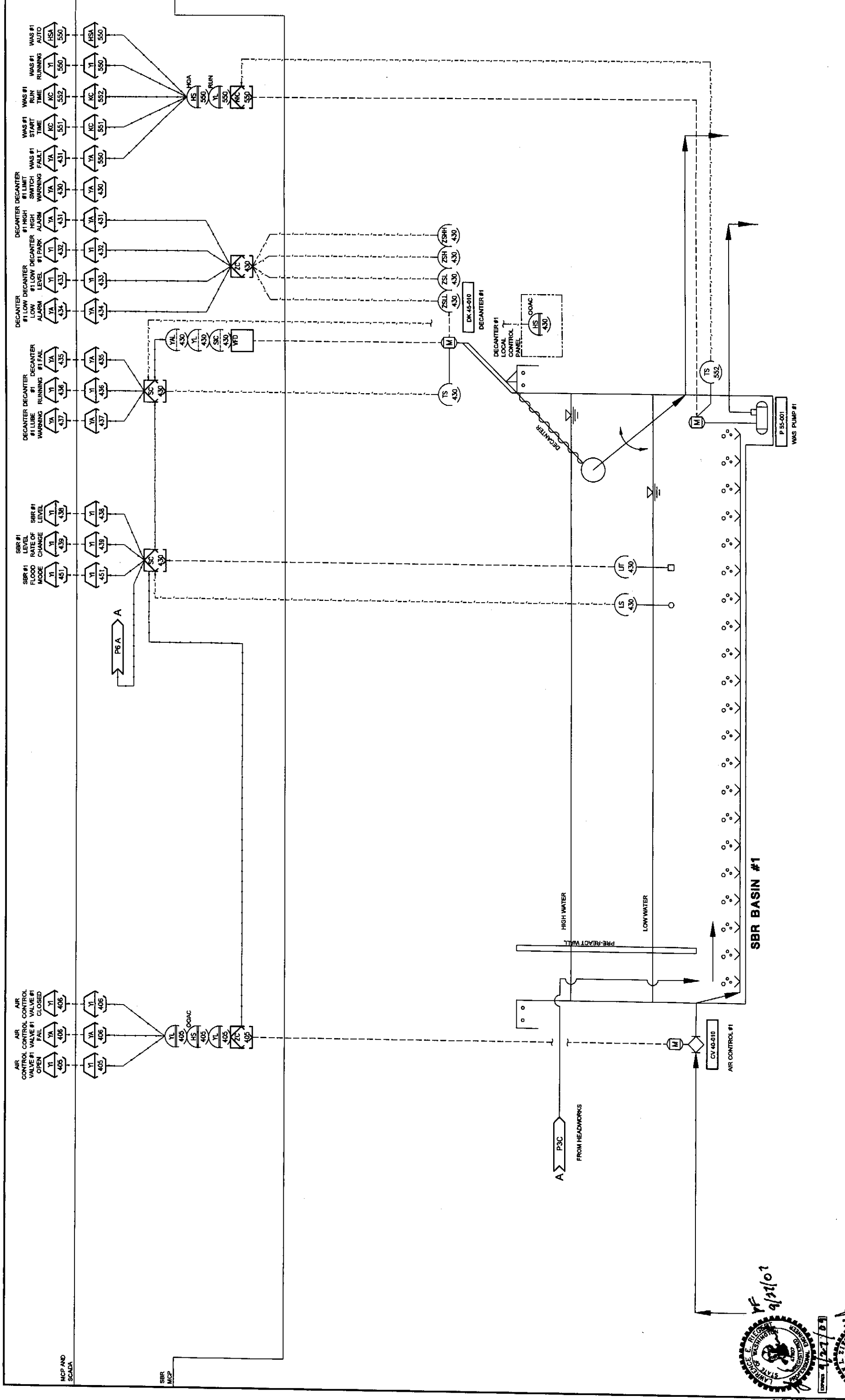
SYMBOLS & ABBREVIATIONS

**HAMMOND COLLIER
WADE LIVINGSTONE**

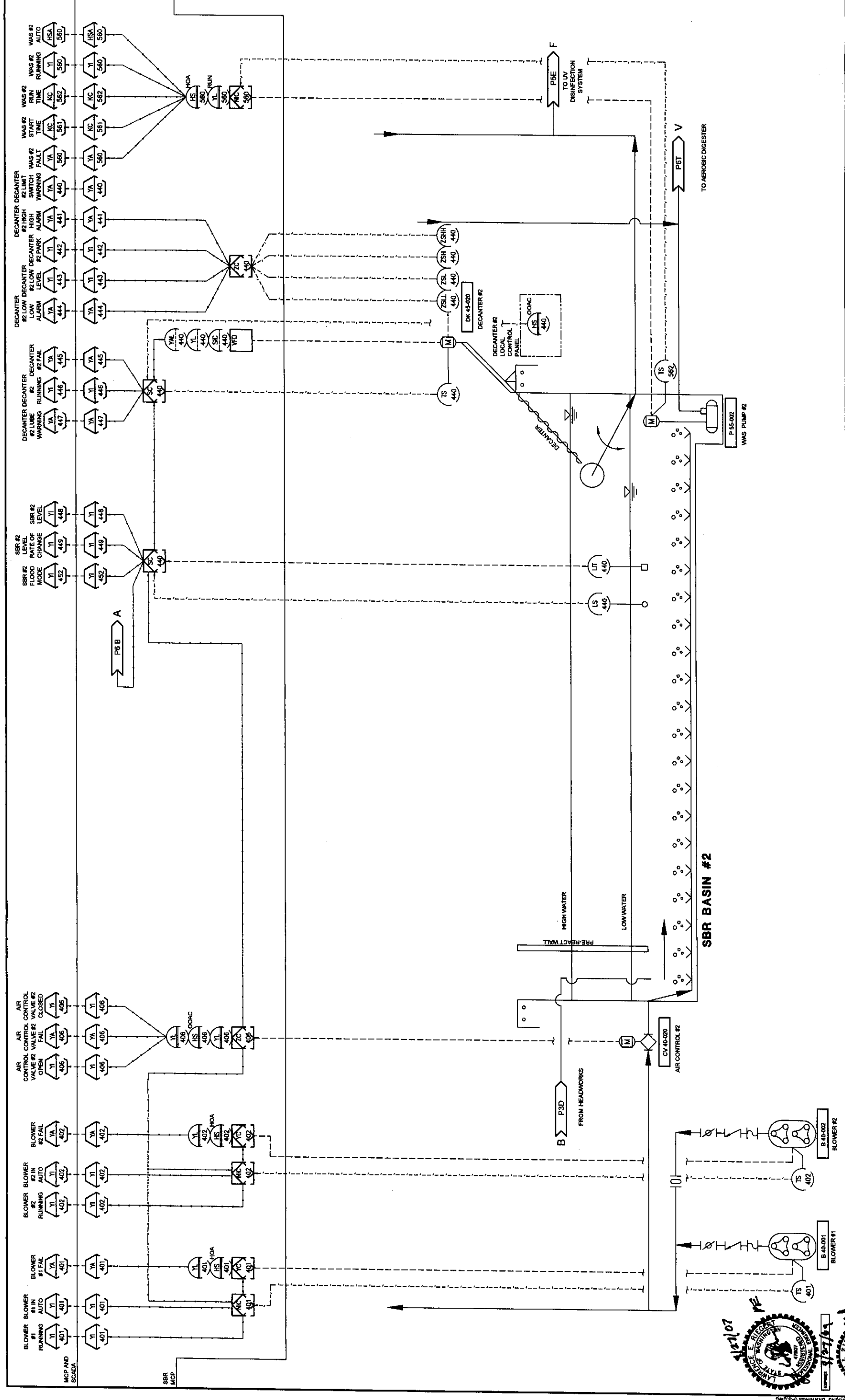
SEATTLE (206) 632-2664
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 LAKEMOOD (253) 472-1992

**CITY OF ENTIAI
2007 WASTEWATER TREATMENT
FACILITIES IMPROVEMENTS**

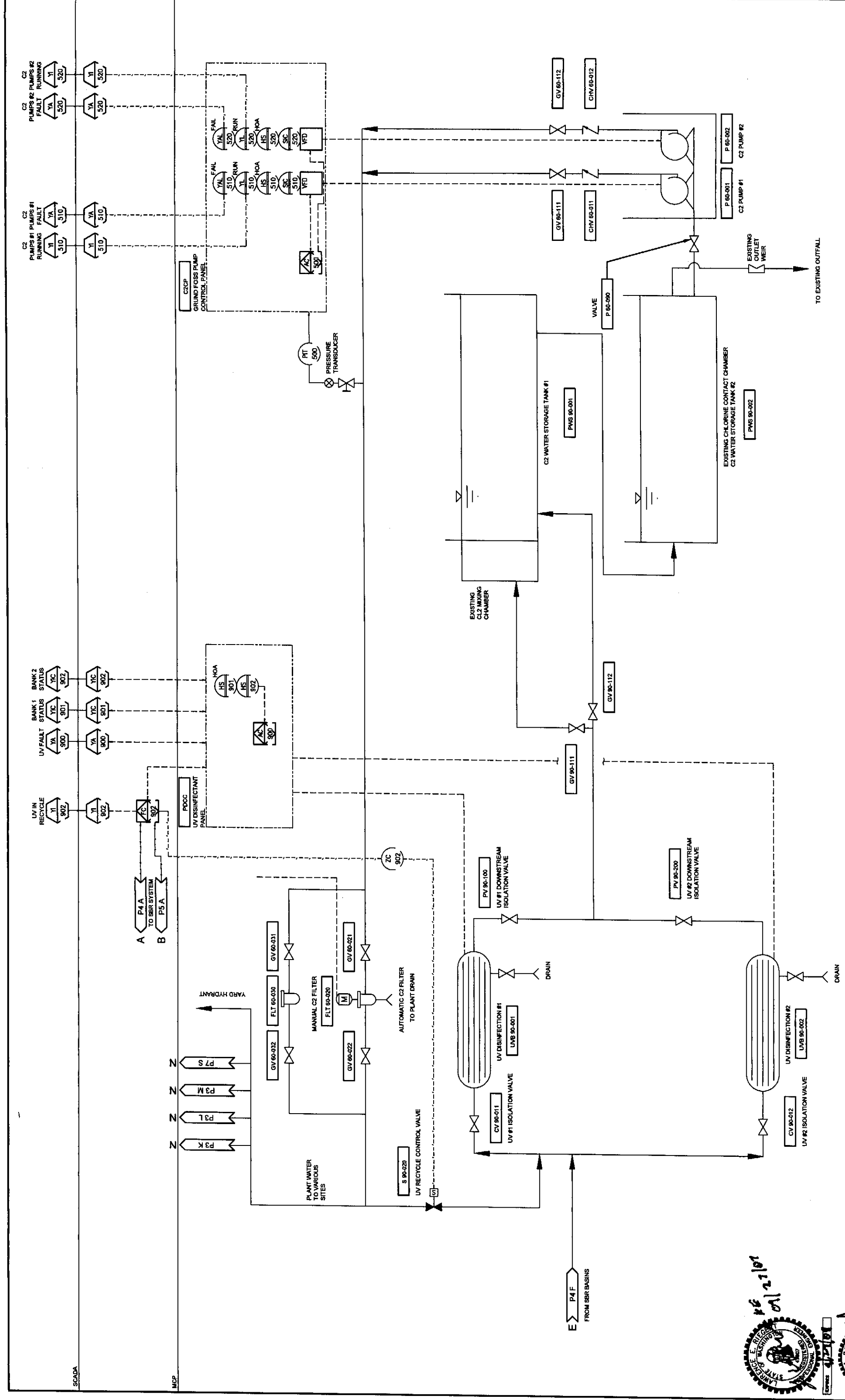
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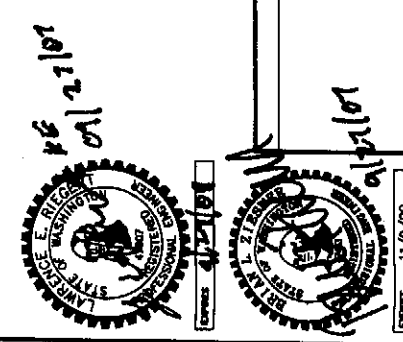
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HAMMOND COLLIER WADE LIVINGSTONE				
CITY OF ENTIAI 2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS SBR PROCESS DIAGRAM - BASIN #1			JOB NO. 052304-03 DRAWING NO. P4 SHEET OF	

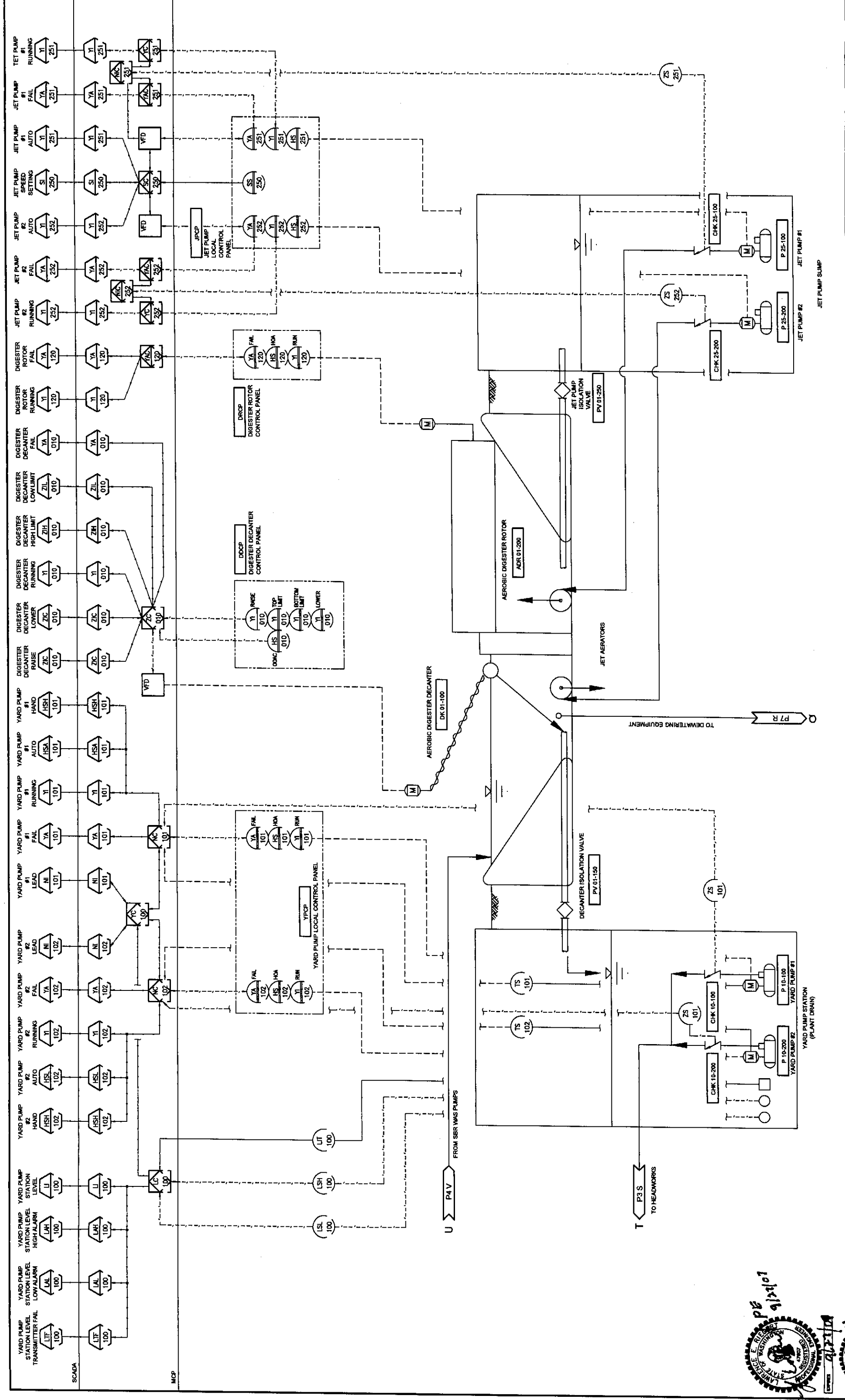


HAMMOND COLLIER WADE LIVINGSTONE		CITY OF ENTIAI 2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS		JOB NO. 052304-03
SEATTLE (206) 632-2664 WENATCHEE (509) 662-1762 OMAHA (509) 826-3861 LAKEWOOD (253) 472-1992		SBR PROCESS DIAGRAM - BASIN #2		DRAWING NO. P5
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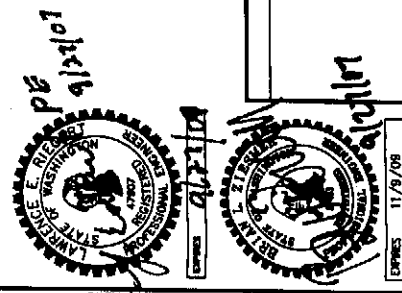


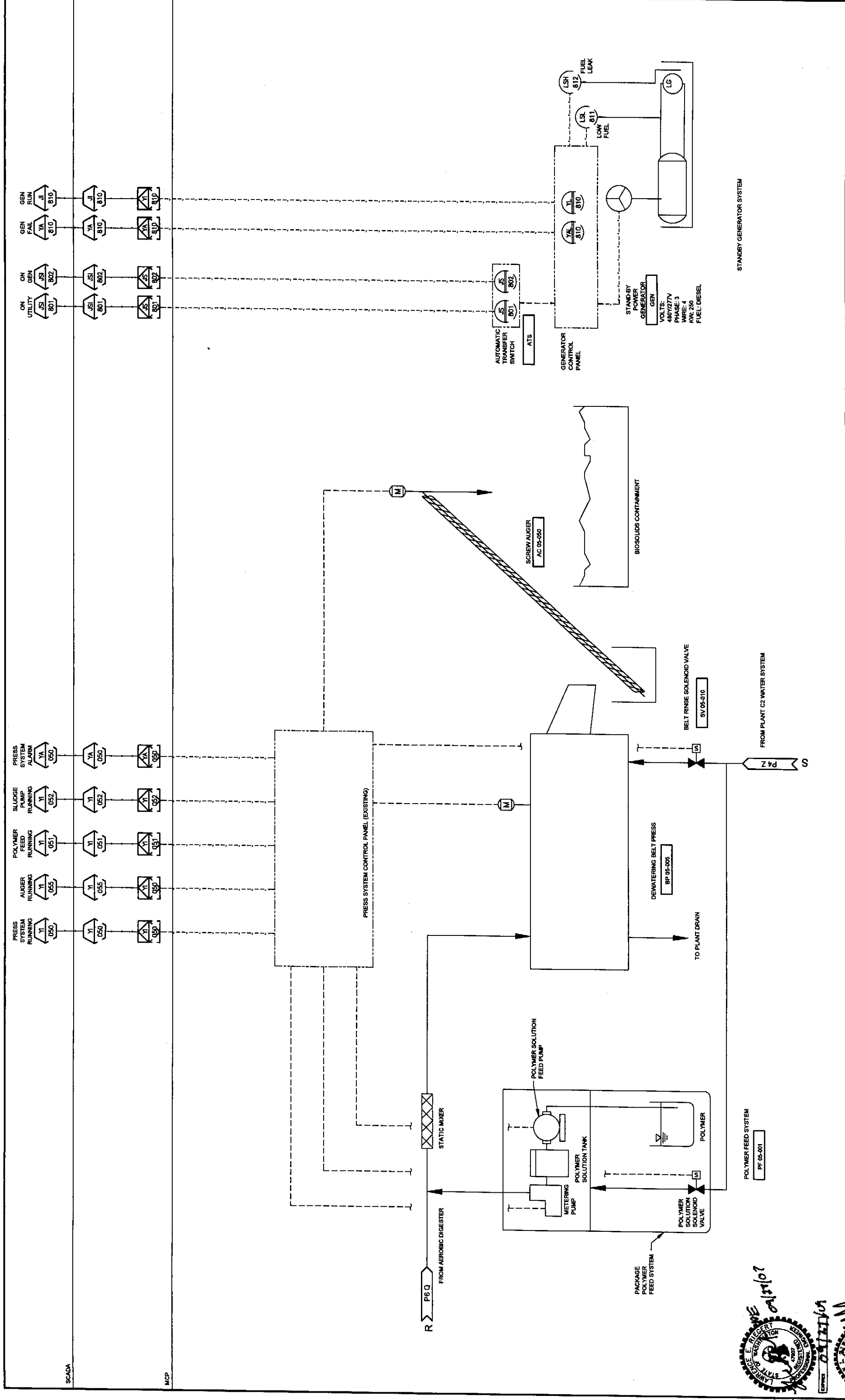
	HAMMOND COLLIER WADE LIVINGSTONE	OMAHA (509) 826-5861 WENATCHEE (509) 662-1762 SEATTLE (206) 632-2664 LAKENWOOD (253) 472-1992	CITY OF ENTIAI 2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS UV AND PLANT WATER PROCESS DIAGRAM
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SCADA MCP		PRESS SYSTEM RUNNING YI 050 ALGUR RUNNING YI 055 POLYMER FEED RUNNING YI 051 SLUDGE PUMP RUNNING YI 052 PRESS SYSTEM ALARM YI 050	ON UTILITY JSI 801 ON GEN JSI 802 GEN FAIL YA 810 GEN RUN JI 810
PRESS SYSTEM CONTROL PANEL (EXISTING)		AUTOMATIC TRANSFER SWITCH ATS	
FROM AEROBIC DIGESTER P6.Q		GENERATOR CONTROL PANEL STANDBY POWER GENERATOR VOLTS: 480V/277V PHASE: 3 WIRE: 4 KW: 250 FUEL: DIESEL	
POLYMER FEED SYSTEM PF 05-001		BIOSOLIDS CONTAINMENT SCREW AUGER AC 05-050	
TO PLANT DRAIN		BELT RINSE SOLENOID VALVE SV 05-010	
FROM PLANT C2 WATER SYSTEM P4.Z		DEWATERING BELT PRESS BP 05-005	

JOB NO. 052304-03
 DRAWING NO. P8
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CITY OF ENTIAI
 2007 WASTEWATER TREATMENT
 FACILITIES IMPROVEMENTS
 BIOSOLIDS MANAGEMENT PROCESS DIAGRAM

HAMMOND COLLIER
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DESIGNED BY BZ/LR
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