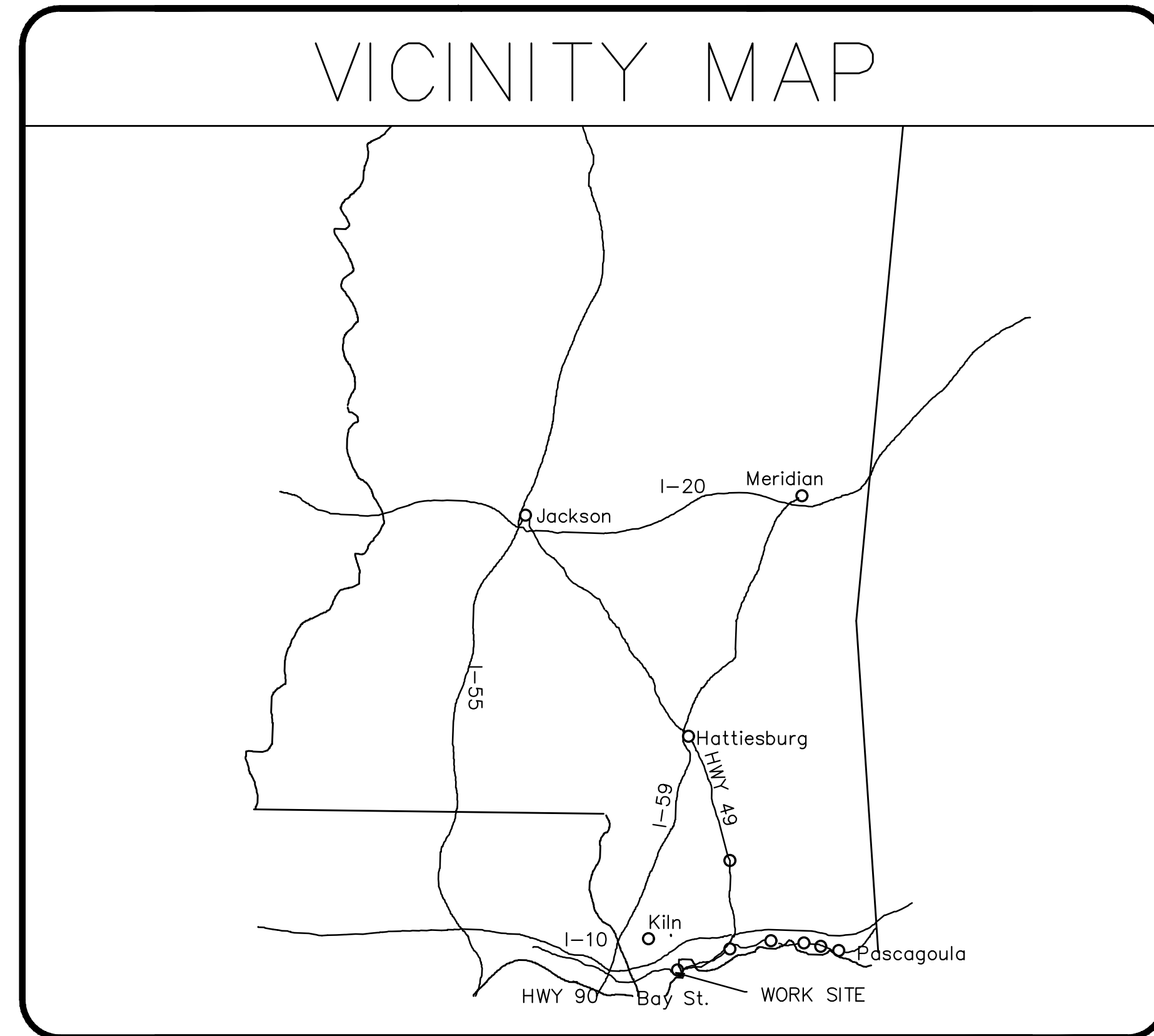


PROJECT: ADD COOLING TOWER – CENTRAL FIRE STATION

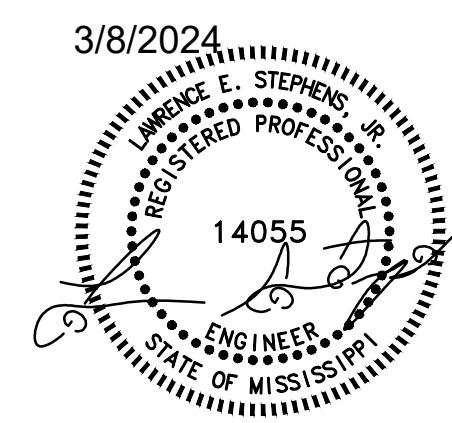
CITY OF BAY ST. LOUIS
BAY ST. LOUIS, MISSISSIPPI

DATE: 02/03/2019



DRAWING INDEX

Sheet No.	Description
T-1	TITLE SHEET
M001	SCHEDULES, NOTES, ABBREVIATIONS
M100	SITE DEMOLITION AND EXIST UTILITIES
M200	DEMOLITION AND SITE PREP
M300	TOWER STRUCTURE LAYOUT
M400	SITE PIPING PLAN
M500	DETAILS
E100	ELECTRICAL PLAN



925 Tommy Munro Dr., Ste B
Biloxi, MS 39532
228-863-0728
FAX: 228-865-9618



ABBREVIATIONS	
CFM	CUBIC FEET PER MINUTE
Ø	DIAMETER
RAG	RETURN AIR GRILLE
WG	WALL GRILLE
DG	DOOR GRILLE
CG	CEILING GRILLE
CD	CEILING DIFFUSER
RD	RETURN DIFFUSER
LD	LINEAR DIFFUSER
OSA	OUTSIDE AIR
BD	MANUAL BALANCE DAMPER
MD	MOTORIZED BALANCE DAMPER
AFD	AUTOMATIC FIRE DAMPER
F/SD	FIRE/SMOKE DAMPER
F	FURNACE
EH	ELECTRIC HEATER
DH	DUCT HEATER
UH	UNIT HEATER
CU	CONDENSING UNIT
HP	HEAT PUMP UNIT

ABBREVIATIONS	
CFM	CUBIC FEET PER MINUTE
CC	COOLING COIL
FC	FAN COIL
AHU	AIR HANDLING UNIT
CH	CHILLER
B	BOILER
EF	EXHAUST FAN
GV	GRAVITY VENTILATOR
P-	PUMP
VFD	VARIABLE FREQUENCY DRIVE
EXIST.	EXISTING
AFF	ABOVE FINISHED FLOOR
TYP.	TYPICAL
REQ'D	REQUIRED
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
AFF	ABOVE FINISH FLOOR
SR	SUPPLY REGISTER

GENERAL NOTES	
1. ALL PENETRATIONS TO BE SLEEVED AND CAULKED	
2. TEST AND BALANCE TO BE PERFORMED ON ALL SYSTEMS	
3. INSTALL CONCRETE PAD UNDER ALL EQUIPMENT. PAD TO EXCEED UNIT DIMENSIONS BY 6" WITH TURNDOWN EDGES	
4. ALL EQUIPMENT TO BE INSTALLED PER MANUFACTURER RECOMMENDATIONS	

PROJECT NOTES:

GENERAL:
 THE INTENT OF THE PROJECT IS TO INSTALL A FLUID COOLER (CLOSED LOOP) THAT WILL REPLACE THE GROUND SOURCE WELL SYSTEM TO ACT AS A HEAT REJECTION DEVICE. A BOILER WILL BE ADDED TO PROVIDE A HEAT SOURCE FOR THE LOOP AS THE UNITS ARE HEATING THE ROOMS. THE EXISTING COOLING PIPING THAT SERVICES THE GROUND LOOPS WILL BE REDIRECTED OUTSIDE TO THE NEW FLUID COOLER. THE NATURAL GAS SYSTEM SHALL BE EXTENDED TO THE LOOP BOILER. THE EXISTING WATER SHALL BE DIRECTED TO THE TOWER MAKEUP SYSTEM, AND THE TOWER DRAIN WILL BE DIRECTED TO THE EXISTING SANITARY SEWER. CONTROLS SHALL STAGE A 3 WAY VALVE TO BYPASS THE TOWER DURING COLD WEATHER AND ALLOW BYPASSING THE TOWER DURING HEATING. ALL WORK SHALL BE COORDINATED WITH THE OWNER.

WORK NOTES:

- WHEN SHUTTING DOWN WATER OR GAS FOR THE TIE IN WORK THE CONTRACTOR SHALL GIVE 24 HOUR NOTICE AND WORK WITH FIRE DEPARTMENT TO MINIMIZE DISRUPTIONS OF SERVICES. NO WORK SHALL OCCUR UNLESS COORDINATED.
- THE EXISTING DIRT AND GRASS SHALL BE CUT BACK AND ORGANIC FROM BELOW THE TOWER PAD. A CLAY SANDY SOIL SHALL BE BROUGHT IN AND COMPACTED AFTER THE PILES BASE FOUNDATIONS ARE FORMED AND PLACED. THE GRADE WILL BE EQUALIZED AFTER FORMING UP THE EQUIPMENT PAD FOR THE BOILER AND CHEMICAL TREATMENT SYSTEM.
- THE CHEMICAL TREATMENT SYSTEM SHALL BE CONNECTED TO PIPING WITH THE MECHANICAL CONTRACTOR PROVIDING VALVED CONNECTIONS TO THE PIPING WHERE DESIGNATED BY THE CHEMICAL TREATMENT PROVIDER.
- ALL EXTERIOR GAS PIPING SHALL BE PAINTED YELLOW.
- ALL OF THE EXTERIOR BOILER PIPING, EXPOSED CONDENSER PIPING, AND THE MAKEUP WATER PIPING SHALL BE INSULATED WITH 1" ARMAFLEX AND COVERED WITH ALUMINUM JACKET.
- DEBRIS - REMOVE ALL DEBRIS DAILY. KEEP A NEAT AND CLEAN AREA FOR SAFETY. PICK THE SHORTEST HAUL ROUTES AND USE FLOOR PROTECTION WITH PLYWOOD, ROSEN PAPER, OR OTHER FLOOR PROTECTION. PROVIDE COVERS FOR DOORS NOT TO DAMAGE HARDWARE OR SCRATCH PAINT. DUMPSTER LOCATIONS AND PARKING WILL BE ADDRESSED IN PRE-CONSTRUCTION MEETING AND DUMPSTER WILL BE LOCATED TO NOT BLOCK PEDESTRIAN PATHWAYS BUT BE AS NEAR AS POSSIBLE TO SUPPORT CONTRACTOR WORK.
- WHERE THE SOD BEHIND THE SPACE IS DAMAGED FROM EQUIPMENT, REGRADE AND USE SOD PIECES TO REPAIR.
- GAS METER AND REGULATOR SUPPLIED BY THE CITY FOR YOU TO INSTALL
- PERMITS ARE REQUIRED, HOWEVER, COST WILL BE WAIVED.

CLOSED LOOP COOLING TOWER SCHEDULE												
MARK	GPM TONS	TYPE	GPM	EWT	LWT	OUTSIDE WB-F	FAN MOTOR		PUMP MOTOR		ACCESSORIES	MFR. & MODEL
							HP	VOLTAGE	HP	VOLTAGE		
CT-1	49(APPROX)	FLUID COOLER CLOSED LOOP	105	100	86	80	5	460-3PH	3	460-3PH	1,2,3,4	EVAPCO ESW4-9-33G6-LP

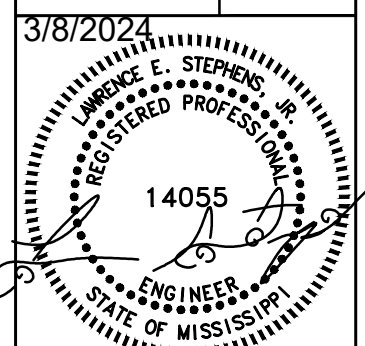
ACCESSORIES: 1. 5 KW AUX BASIN HEATER - 460-3PH, 2. FAN MOTOR HEATERS, 3. HEATER CONTROL PANEL 4. SS UPPER AND BASIN, 5. DAVIT 6. CONTROLS FOR PUMP AND FAN OPERATION 7. VIBRATION SWITCH 8. LADDER AND PLATFORM, 9. LADDER EXTENSION, 10. VFD
 NOTE: FIBERGLASS SIDES AND COLD WATER BASIN ALLOWED, USE ALL SS FASTENERS HOWEVER.
 MFRS: EVAPCO, MARLEY, BAC, REYMSA

BOILER SCHEDULE	
MARK	WH-1
LOCATION	EXTERIOR EQUIP PAD
MOUNTING	CONCRETE PAD
TYPE	NAT GAS CONDENSING
INPUT BTUH	750,000
MIN EFF @ OUTPUT	83
OUTPUT (HIGH FIRE) BTUH	650,000
LEAVING WATER F	105
ENTERING WATER F	75
GPM	42
MAX WPD (FT WG)	6.9
RUNOUT PIPE SIZE	2"
GAS CONN PIPE SIZE	1 1/4"
MAX GAS PRESS	14
ELECTRICAL	115
FLA	6
MCA	8
MCCP	15
NOTES	INJECTOR PUMP, BOILER PUMP, LOW TEMP RUN PROTECTION SYSTEM - MUST BE EQUIPPED WITH LOW TEMP RUN SET UP - NOT JUST ON START UP - LOOP TEMP WILL BE APPROX 85F AT ALL TIMES. PROVIDE ALL NECESSARY PUMPS, VALVES, CONTROLS WITH UTILITIES.
MFR/MDL	RAYPAK-754-A, LOCHINVAAR, PATTERSON OR EQUAL

925 TOMMY MUNRO DR., SUITE B
 BILOXI, MISSISSIPPI 39532
 228.377.3346 OFFICE
 228.377.3346 FAX
 LES@STEPHENSMECHENG.COM



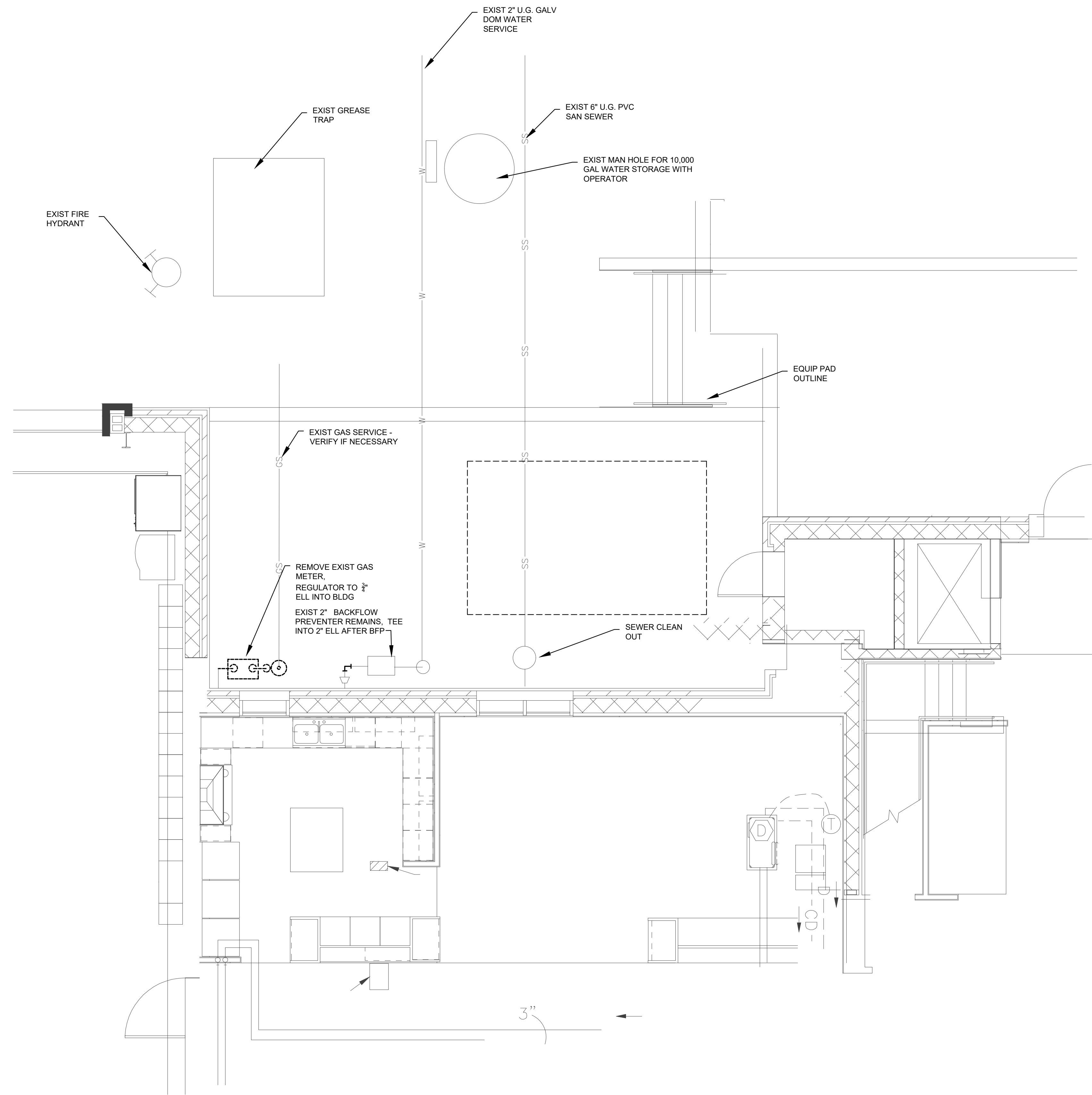
21052
 CITY OF BAY ST. LOUIS
 BAY ST. LOUIS, MISSISSIPPI
 ADD COOLING TOWER - CENTRAL FIRE HOUSE
 NOTES, ABBREVIATIONS, SCHEDULES



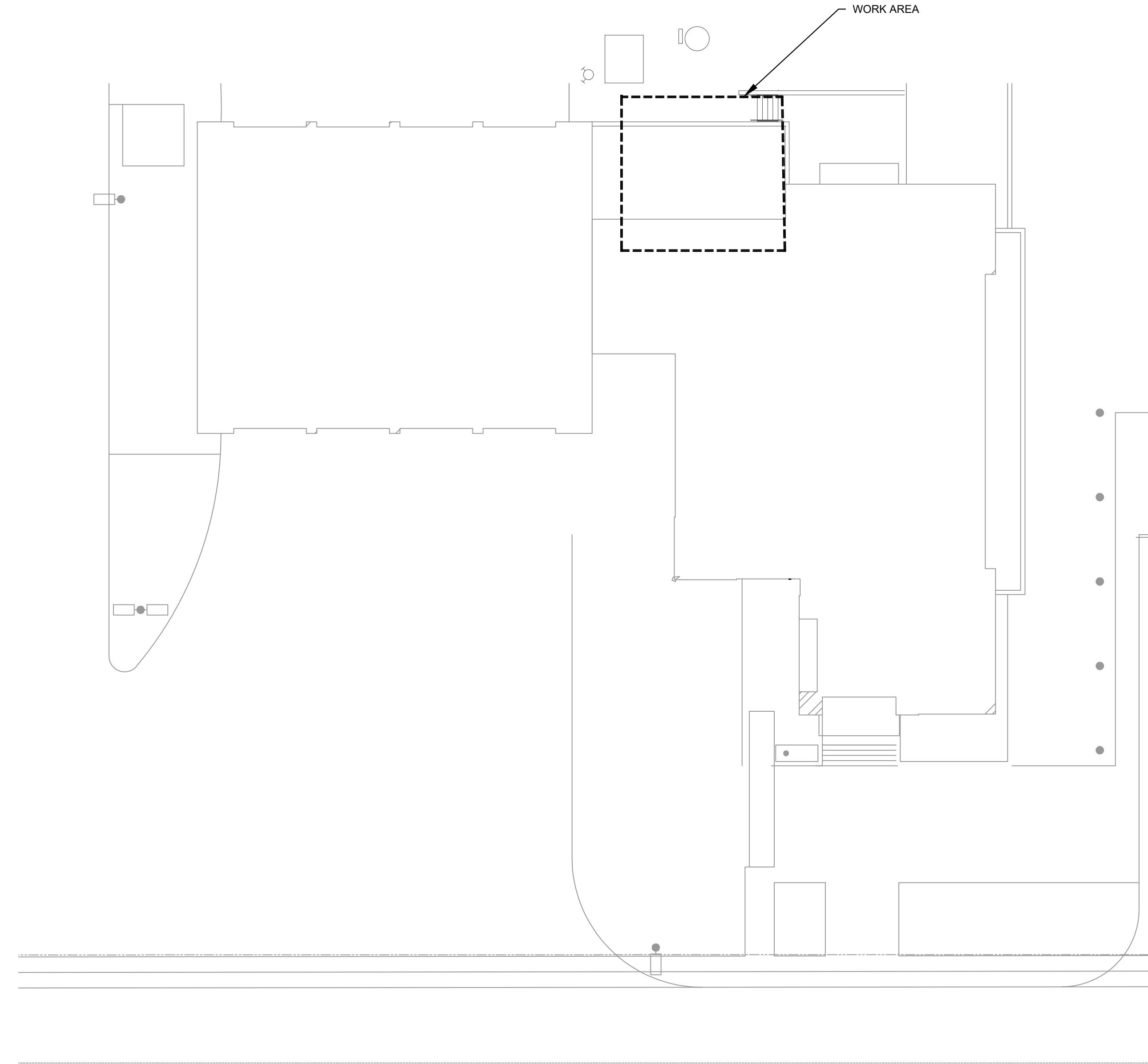
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JOB NO.	DATE	DRAWN BY:	DESIGNED BY:	CHECKED BY:

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M-001

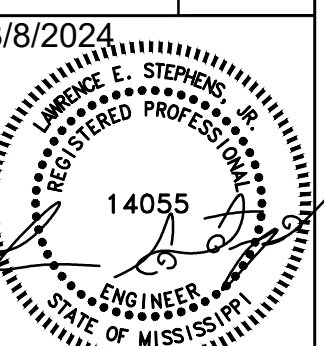
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1 | WORK AREA EXISTING UTILITIES & DEMOLITION
1/4" = 1'-0"

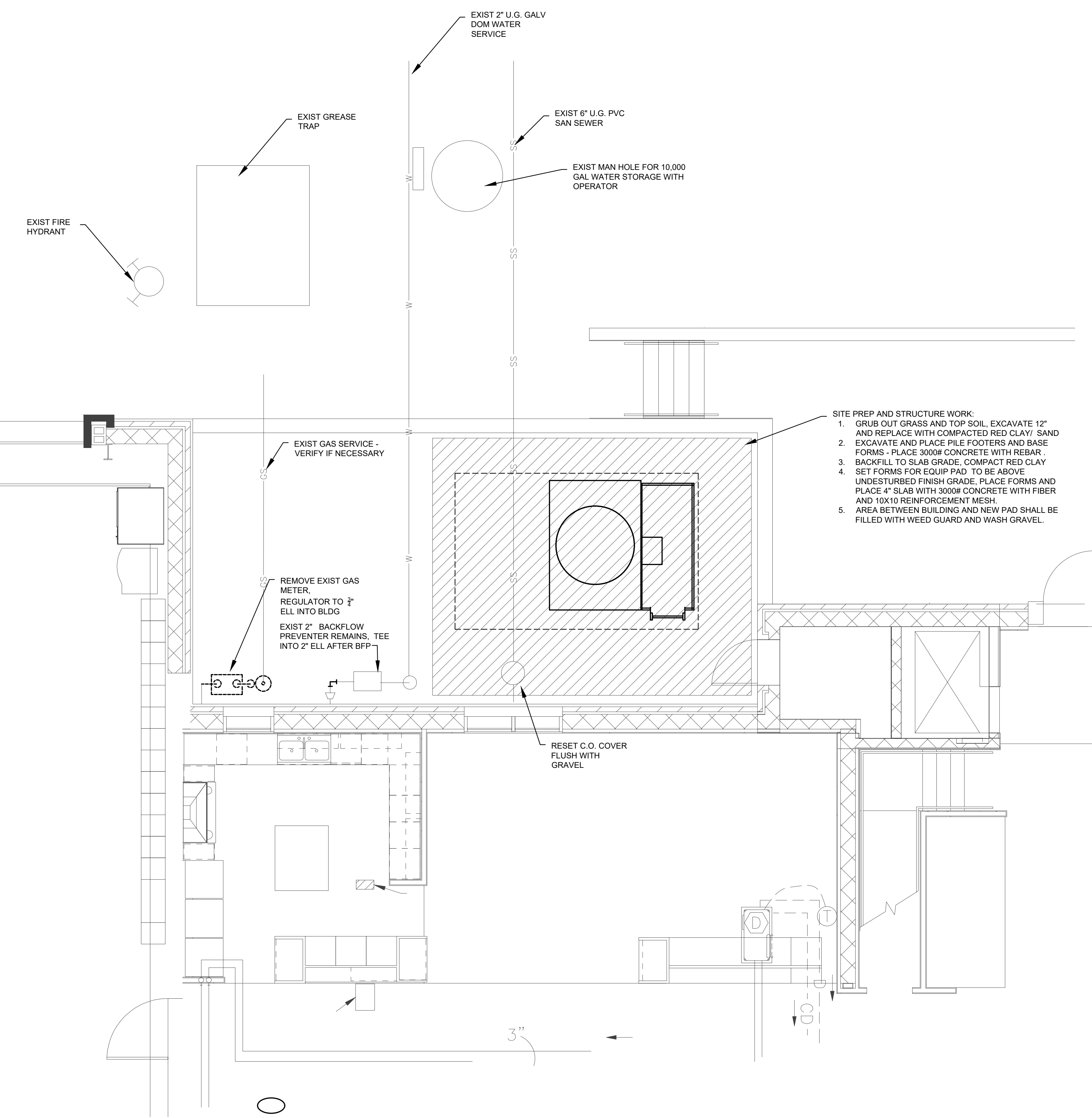


2 | KEY PLAN
NTS

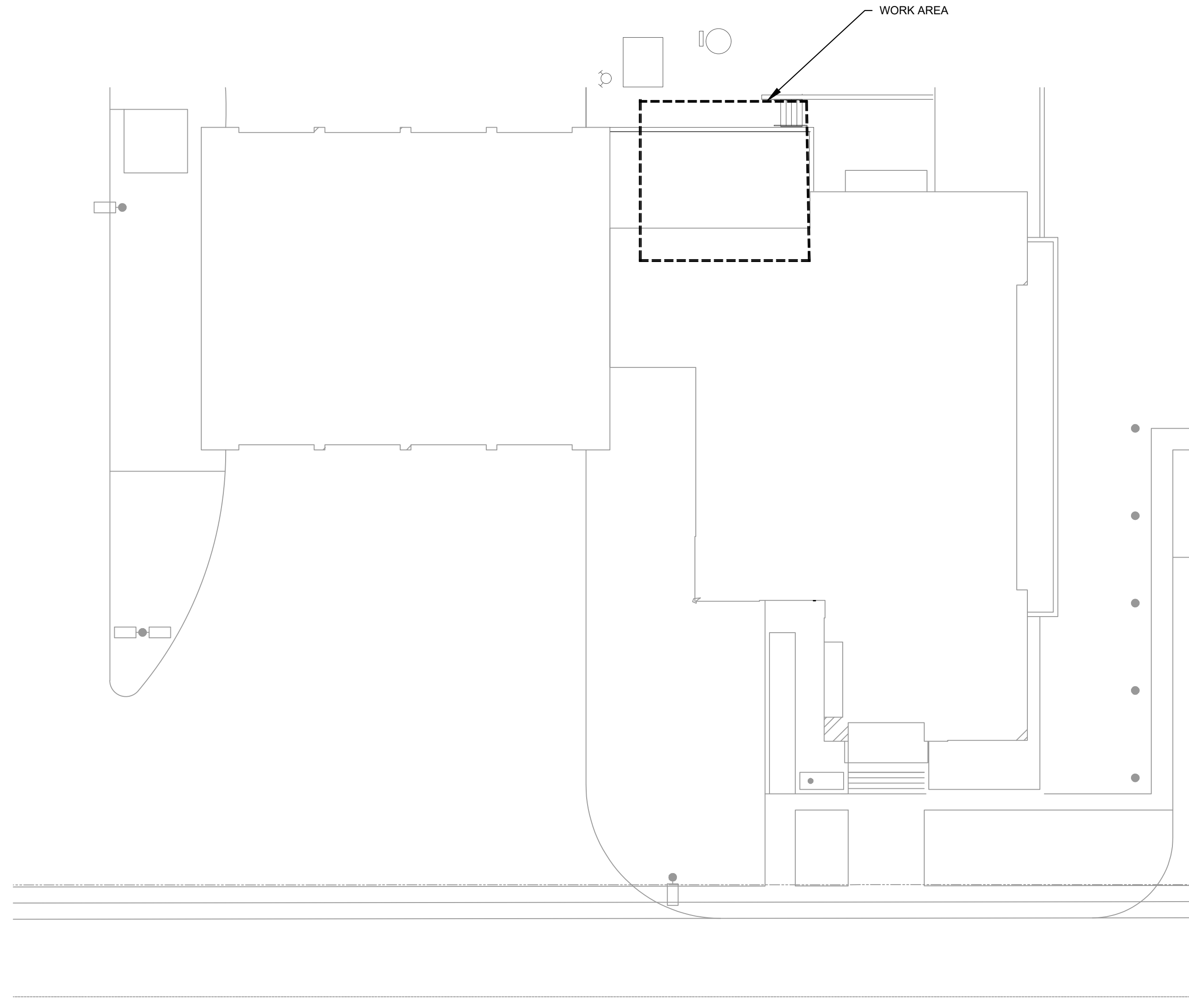


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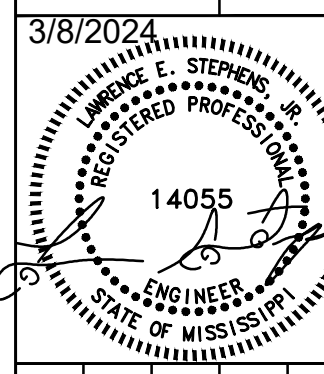
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SHEET COUNT	X OF X



1 | DEMOLITION AND SITE PREP
1/4" = 1'-0"



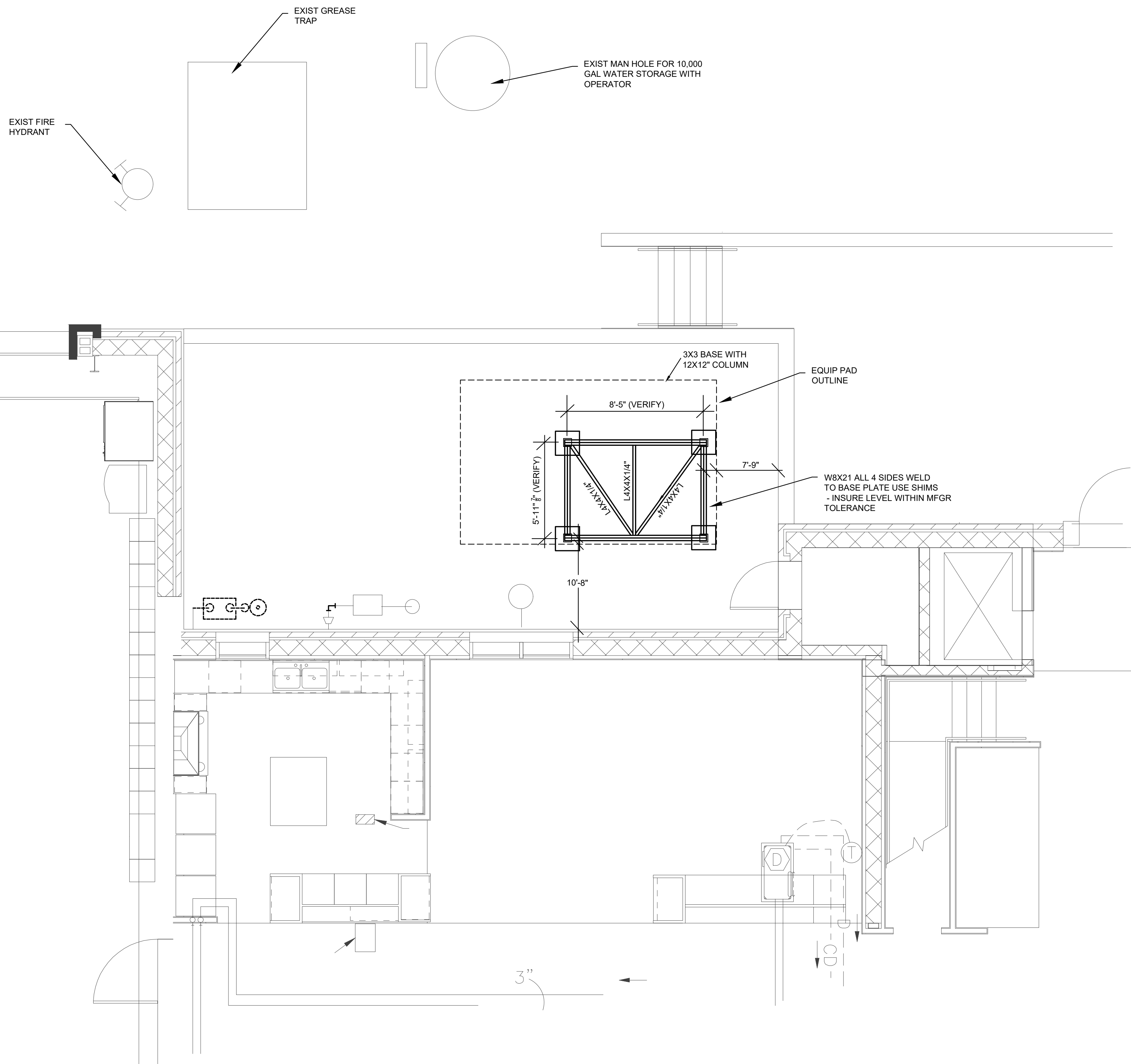
2 | KEY PLAN
NTS



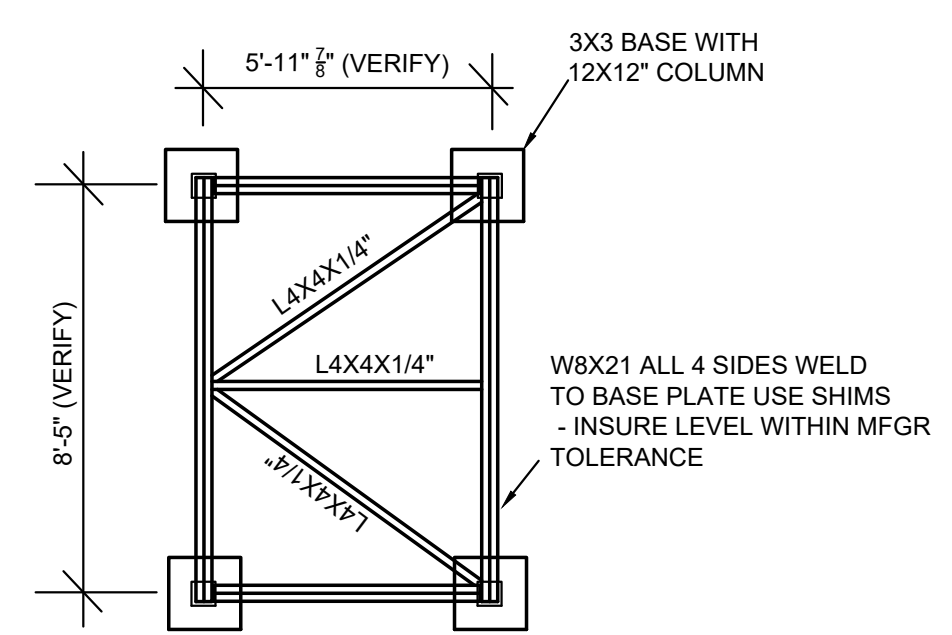
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DATE:	2-8-2024	DESIGNED BY:	LES	CHECKED BY:	LES
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M-200

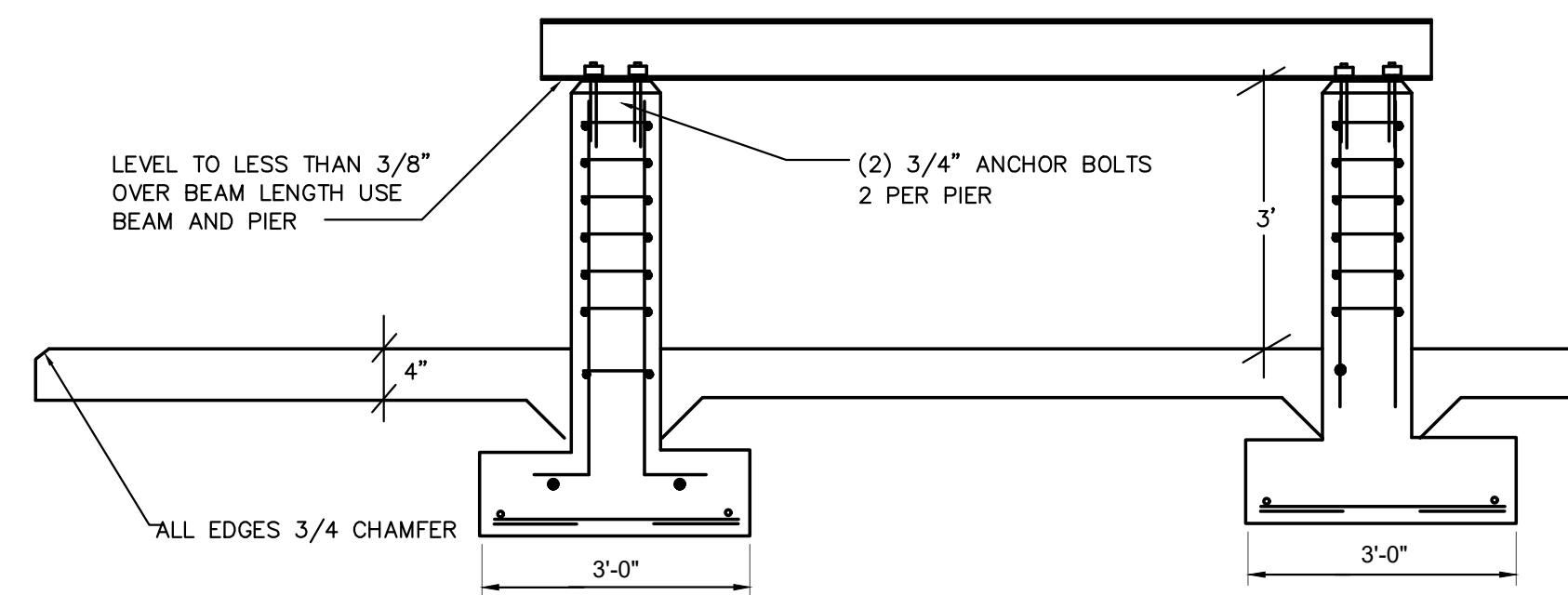
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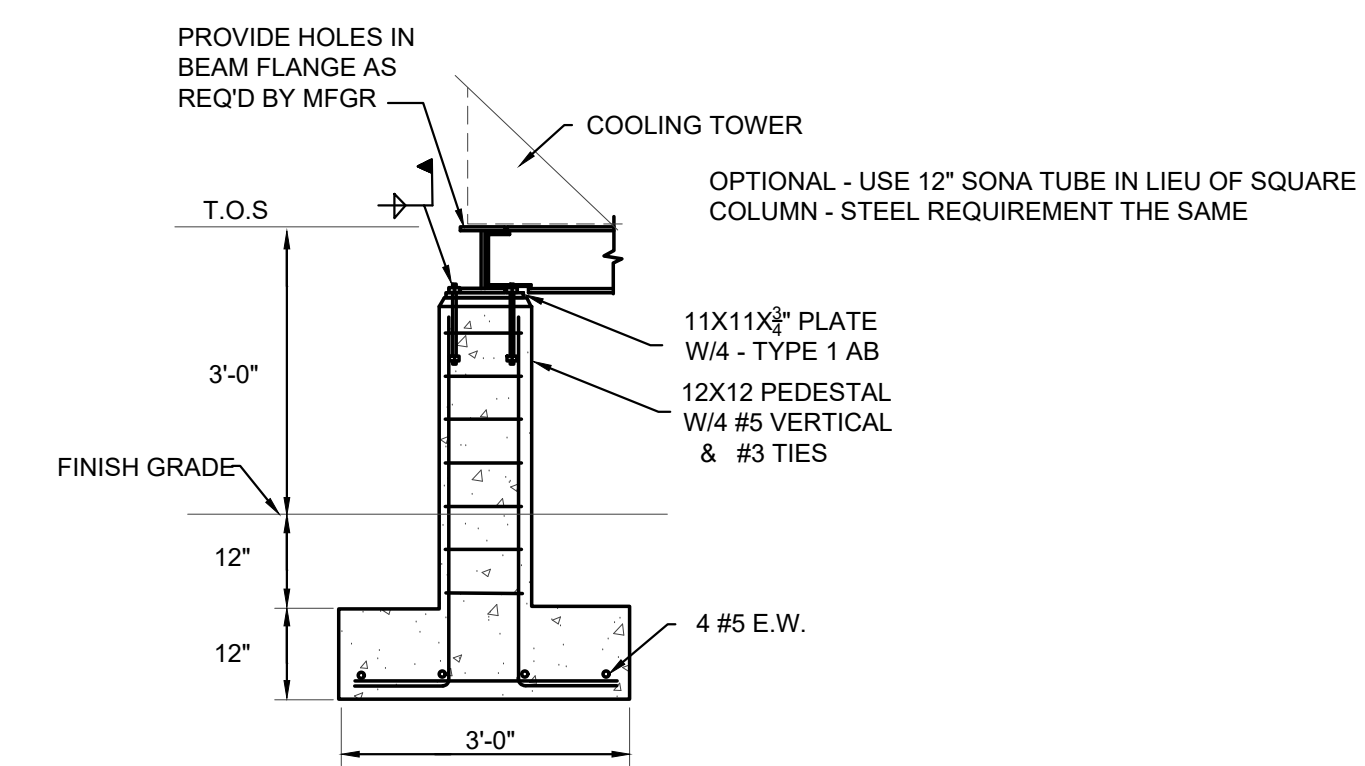
1 TOWER STRUCTURE LAY OUT
1/4" = 1'-0"



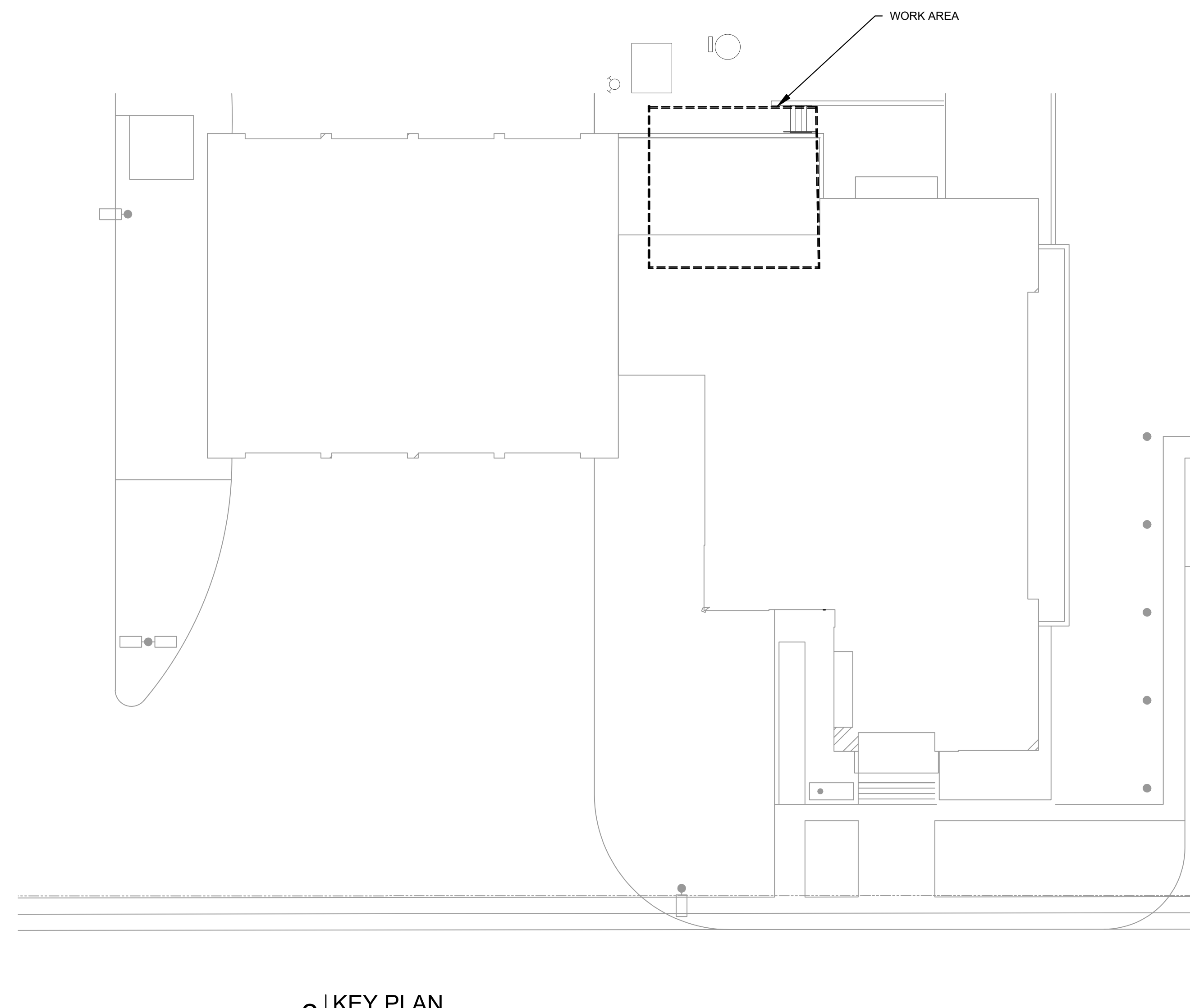
2 STRUCTURAL STEEL SCHEMATIC
NTS



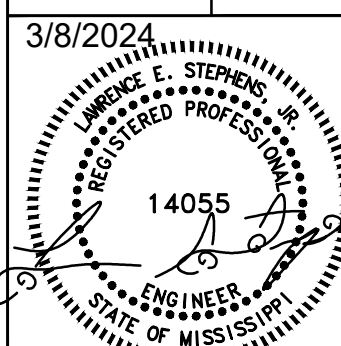
3 EQUIPMENT PAD SCHEMATIC
NTS



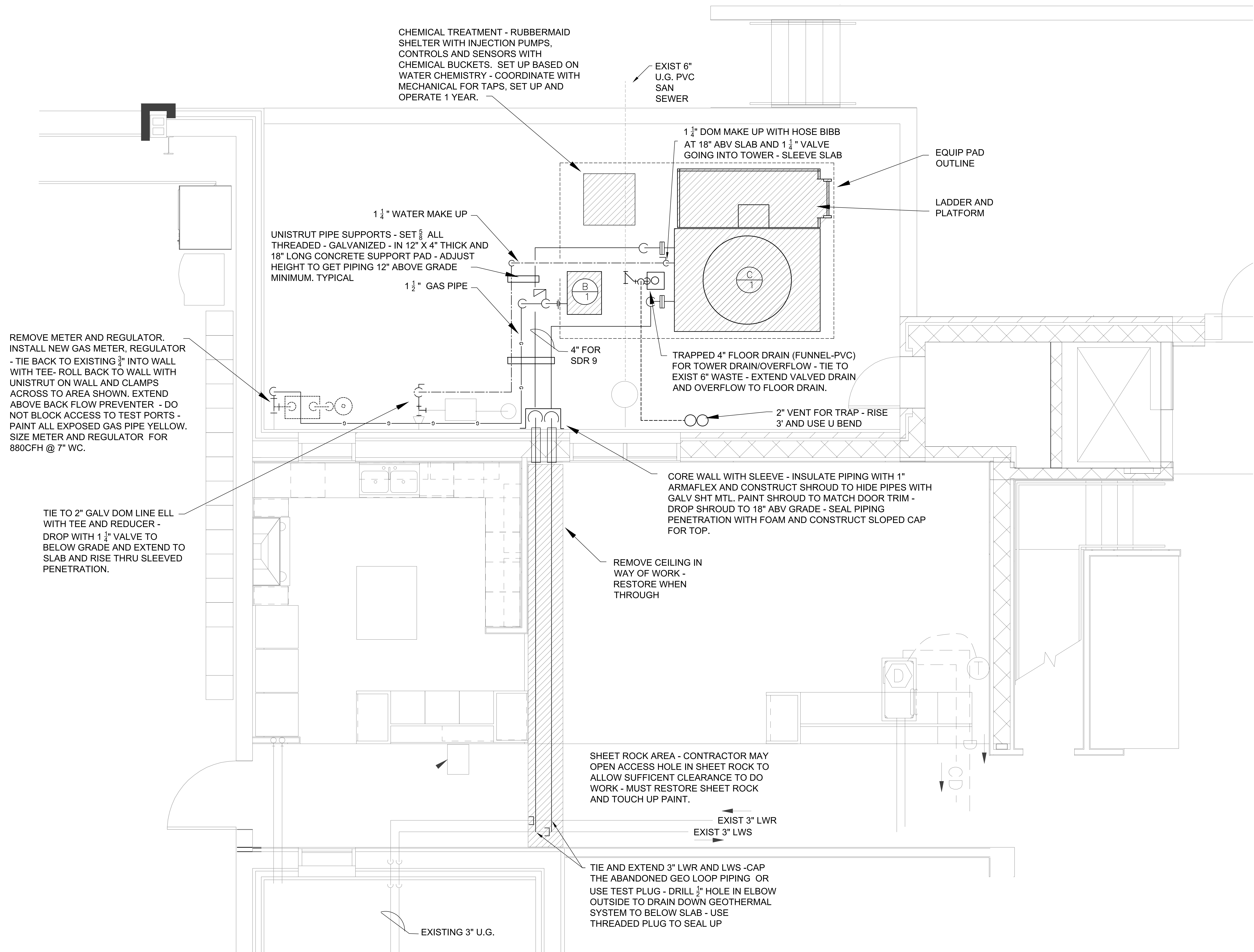
4 CONCRETE PILE SCHEMATIC
NTS



2 KEY PLAN
NTS



JOB NO. 23056	DATE 2-8-2024	DRAWN BY LES	DESIGNED BY LES	CHECKED BY LES
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CHEMICAL TREATMENT - RUBBERMAID SHELTER WITH INJECTION PUMPS, CONTROLS AND SENSORS WITH CHEMICAL BUCKETS. SET UP BASED ON WATER CHEMISTRY - COORDINATE WITH MECHANICAL FOR TAPS, SET UP AND OPERATE 1 YEAR.

EXIST 6" U.G. PVC SAN SEWER

1 1/4" DOM MAKE UP WITH HOSE BIBB AT 18" ABV SLAB AND 1 1/4" VALVE GOING INTO TOWER - SLEEVE SLAB

EQUIP PAD OUTLINE

LADDER AND PLATFORM

1 1/4" WATER MAKE UP
UNISTRUT PIPE SUPPORTS - SET 8/8 ALL THREADED - GALVANIZED - IN 12" X 4" THICK AND 18" LONG CONCRETE SUPPORT PAD - ADJUST HEIGHT TO GET PIPING 12" ABOVE GRADE MINIMUM. TYPICAL

1 1/2" GAS PIPE

4" FOR SDR 9

TRAPPED 4" FLOOR DRAIN (FUNNEL-PVC) FOR TOWER DRAIN/OVERFLOW - TIE TO EXIST 6" WASTE - EXTEND VALVED DRAIN AND OVERFLOW TO FLOOR DRAIN.

2" VENT FOR TRAP - RISE 3' AND USE U BEND

REMOVE METER AND REGULATOR. INSTALL NEW GAS METER, REGULATOR - TIE BACK TO EXISTING 3/4" INTO WALL WITH TEE- ROLL BACK TO WALL WITH UNISTRUT ON WALL AND CLAMPS ACROSS TO AREA SHOWN. EXTEND ABOVE BACK FLOW PREVENTER - DO NOT BLOCK ACCESS TO TEST PORTS - PAINT ALL EXPOSED GAS PIPE YELLOW. SIZE METER AND REGULATOR FOR 880CFH @ 7" WC.

TIE TO 2" GALV DOM LINE ELL WITH TEE AND REDUCER - DROP WITH 1 1/4" VALVE TO BELOW GRADE AND EXTEND TO SLAB AND RISE THRU SLEEVED PENETRATION.

CORE WALL WITH SLEEVE - INSULATE PIPING WITH 1" ARMAFLEX AND CONSTRUCT SHROUD TO HIDE PIPES WITH GALV SHT MTL. PAINT SHROUD TO MATCH DOOR TRIM - DROP SHROUD TO 18" ABV GRADE - SEAL PIPING PENETRATION WITH FOAM AND CONSTRUCT SLOPED CAP FOR TOP.

REMOVE CEILING IN WAY OF WORK - RESTORE WHEN THROUGH

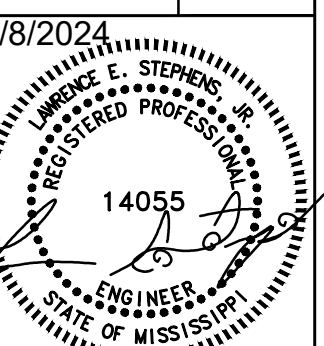
SHEET ROCK AREA - CONTRACTOR MAY OPEN ACCESS HOLE IN SHEET ROCK TO ALLOW SUFFICIENT CLEARANCE TO DO WORK - MUST RESTORE SHEET ROCK AND TOUCH UP PAINT.

EXIST 3" LWR
EXIST 3" LWS

TIE AND EXTEND 3" LWR AND LWS - CAP THE ABANDONED GEO LOOP PIPING OR USE TEST PLUG - DRILL 1/2" HOLE IN ELBOW OUTSIDE TO DRAIN DOWN GEOTHERMAL SYSTEM TO BELOW SLAB - USE THREADED PLUG TO SEAL UP

EXISTING 3" U.G.

1 | SITE PIPING PLAN
1/2" = 1'-0"



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SHEET NUMBER					

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GENERAL

ALL CONTROL POINTS LISTED ON THE CONTROL DIAGRAMS SHALL BE INSTALLED AND INTEGRATED INTO THE BAS WHETHER OR NOT THEY ARE SPECIFICALLY DETAILED IN THE SEQUENCE OF OPERATION. CONTROL POINTS NOT USED TO IMPLEMENT THE SEQUENCE SHALL BE USED FOR MONITORING PURPOSES. DRAWINGS MAY NOT SHOW ALL NECESSARY CONTROL POINTS TO IMPLEMENT THE SEQUENCE OF OPERATION. THE CONTROLS CONTRACTOR SHALL PROVIDE ALL NECESSARY POINTS WHETHER OR NOT SHOWN ON THE CONTRACT DOCUMENTS.

LOOP PUMP CONTROL P-1 P-2 P-3

EACH PUMP SHALL BE EQUIPPED WITH A STARTER. UPON A CALL FOR HEATING OR COOLING FROM ANY WATER SOURCE HEAT PUMP IN THE LOOP, THAT LOOP PUMP SHALL START. A CURRENT SWITCH SHALL BE USED TO VERIFY PUMP IS RUNNING UPON AN ENABLE SIGNAL. IF CURRENT SWITCH DOES NOT MAKE UPON PUMP ENABLE, AN ALARM SHALL BE SENT TO THE BMS.

P-4

THE BOILER SHALL HAVE IT'S OWN OPERATIONAL CONTROLLER THAT COMMUNICATES WITH THE BAS. THE BAS SHALL MONITOR/CONTROL ALL AVAILABLE POINTS FROM THE FACTORY CONTROLLER.

AN INTERNAL, FACTORY MOUNTED FLOW SWITCH SHALL BE INSTALLED AT THE BOILER. A FACTORY SUPPLIED LEAVING WATER TEMPERATURE SENSOR SHALL BE INSTALLED DOWNSTREAM OF THE BOILER.

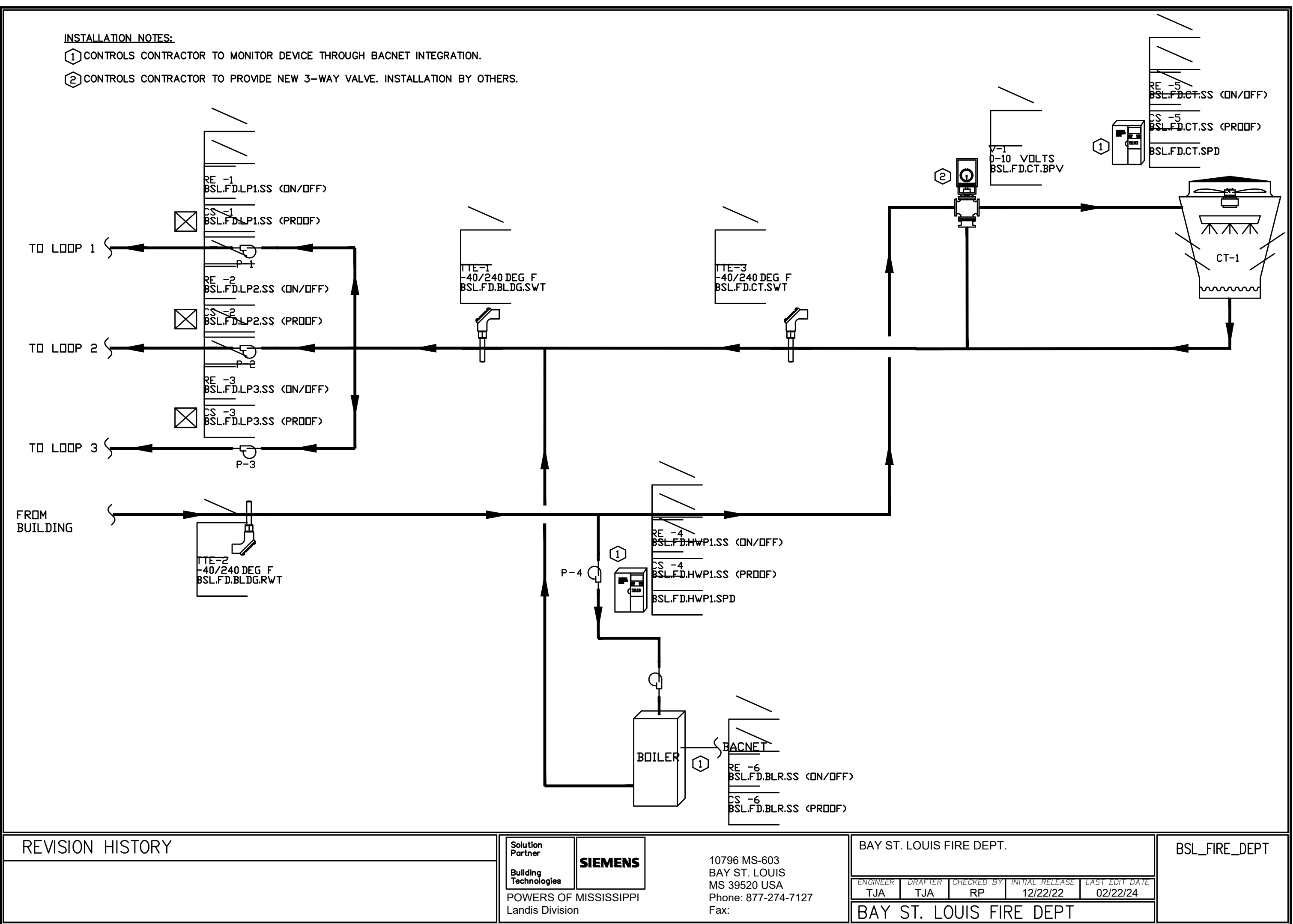
UPON A CALL FOR HEATING, WHEN FLOW IS PROVEN AT IT'S FLOW SWITCH, THE BOILER SHALL START. THE BOILER SHALL OPERATE TO MAINTAIN 155°F LEAVING WATER TEMPERATURE. P-4 SHALL TURN ON AND MODULATE FLOW TO MAINTAIN LEAVING WATER TEMPERATURE. IF THE BOILER FAILS TO START UPON SIGNAL, A BOILER ALARM CONDITION SHALL BE SIGNALLED AT THE BAS INTERFACE. WHEN THERE IS NO CALL FOR HEATING IN THE SYSTEM, THE BOILER SHALL BE OFF.

AUTOMATIC DIFFERENTIAL PRESSURE BYPASS VALVES

WHEN THE BUILDING RETURN WATER TEMPERATURE FALLS BELOW 65 DEG (ADJ), THE 3-WAY BYPASS VALVE SHALL MODULATE TO BYPASS THE WATER AROUND THE COOLING TOWER.

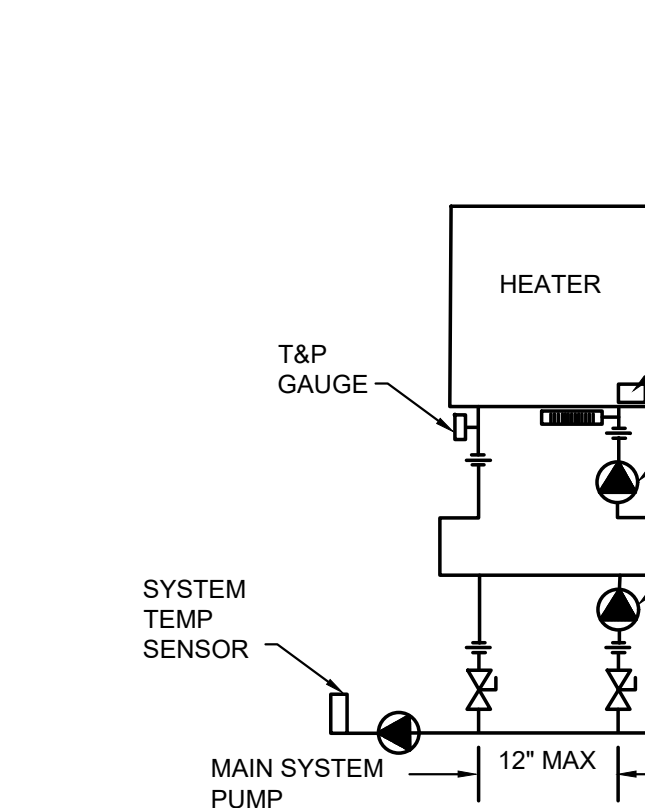
CT-1

THE COOLING TOWER FAN SHALL BE EQUIPPED WITH A VFD. WHEN ANY LOOP PUMP IS ON AND THE BUILDING RETURN WATER SUPPLY TEMPERATURE IS ABOVE 90°F, THE COOLING TOWER FAN SHALL BE ON.



REVISION HISTORY		SOLUTION PARTNER		BAY ST. LOUIS FIRE DEPT.		BSL_FIRE_DEPT	
1		SIEMENS	10796 MS-603	TJA	TJA	12/22/22	02/22/24
		Building Technologies	BAY ST. LOUIS	RP	RP		
		POWERS OF MISSISSIPPI	MS 38520 USA	BAY ST. LOUIS FIRE DEPT			
		Landis Division	Phone: 877-274-7127				
			Fax:				

1 | CONTROL SEQUENCE NTS

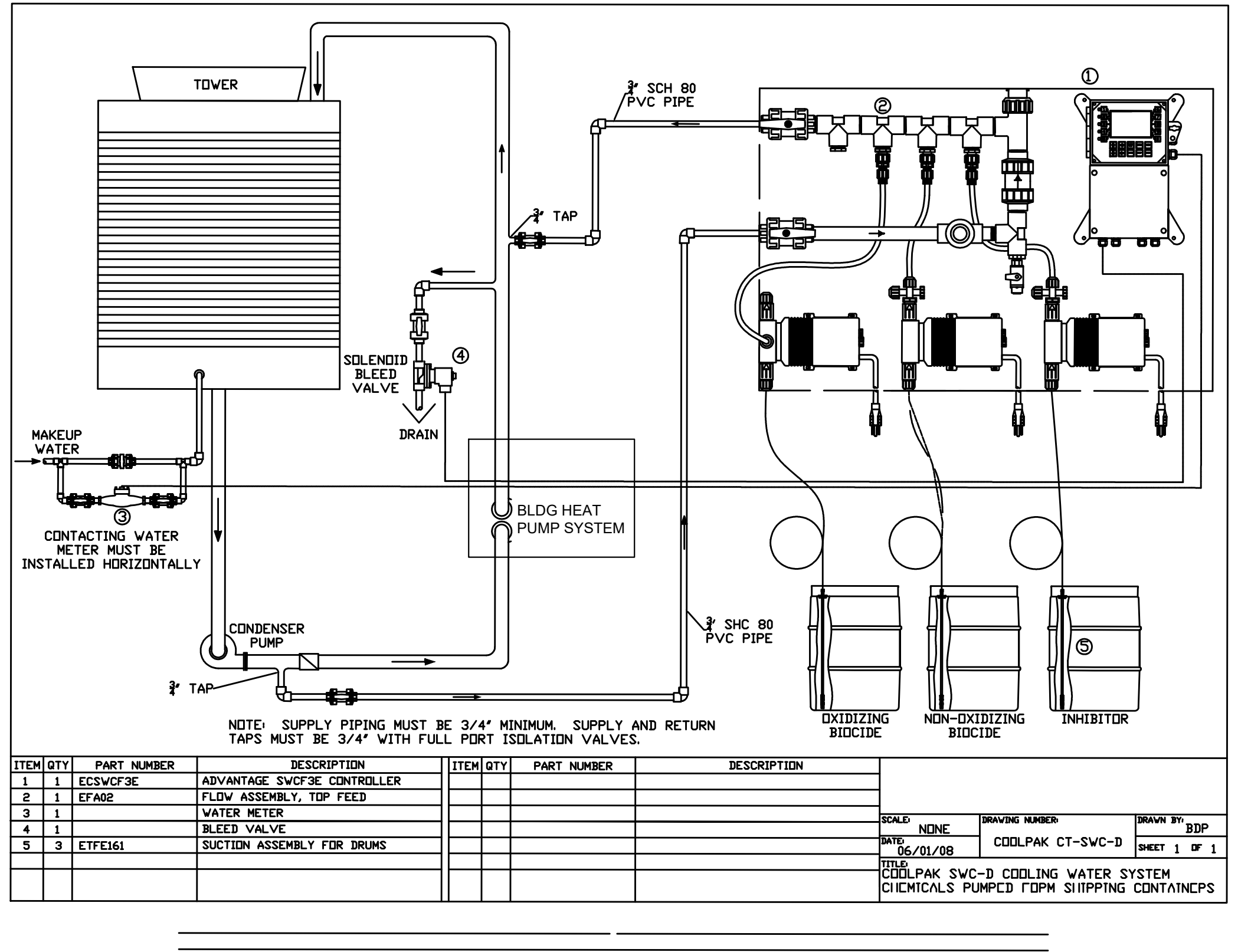


2 | BOILER PIPING SCHEMATIC NTS

- CONTROLS:**
- PROVIDE CONTROLLER TO REGULATE WATER TEMPERATURE - PROVIDE SENSOR IN CWS LINE TO DETERMINE OUTGOING TEMPERATURE FROM PLANT.
 - IN NORMAL OPERATING CONDITIONS THE 3 WAY BYPASS WILL BE OPEN TO THE TOWER.
 - THE MAIN LOOP PUMPS WILL ALWAYS BE FLOWING AND ARE CONTROLLED VIA THE TRANE CONTROLLER IN THE 2ND FLOOR MECHANICAL ROOM. THIS FUNCTION IS INDEPENDENT OF THE PLANT.
 - COOLING: IF WATER TEMPERATURE EXCEEDS SETPOINT (85F ADJ) BY 2F THEN THE TOWER WILL HAVE A FACTORY CONTROLLER TO START THE SPRAY PUMP AND CYCLE TO COOL THE CONDENSER WATER. IF THE CONDENSER WATER EXCEEDS THE SETPOINT BY 4F THEN THE TOWER FAN SHALL BE CYCLED TO BRING THE WATER TO SETPOINT.
 - HEATING: IF THE WATER TEMPERATURE FALLS BELOW 66F (ADJ) THEN THE BOILER CONTROLS WILL BE ENABLED. THE 3 WAY VALVE SHALL BE OPENED TO BYPASS CLOSING OFF WATER TO THE TOWER. THE BOILER CONTROLS WILL START THE BOILER LOOP PUMP AND ALSO THE INJECTION PUMP. THIS IS REQUIRED TO MANAGE CONTINUOUS CONDENSATION OF THE BURNER APPARATUS. THE BOILER CONTROLS WILL MANAGE WATER FLOW FROM THE BLDG LOOP INTO THE BOILER LOOP VIA THE INJECTION PUMP UNTIL THE BLDG LOOP IS BROUGHT TO 66F (ADJ). THE BOILER WILL REMAIN CYCLING AND BYPASS OPEN TO BOILER UNTIL THE BLDG LOOP IS BROUGHT TO 66F WHERE THE BOILER CONTROLS WILL CYCLE OFF. AT THAT POINT THE BYPASS WILL OPEN TO THE TOWER.
 - DEADBAND: THE TOWER WILL BE FLOWING THROUGH BYPASS WHEN NEITHER HEATING OR COOLING IS REQUIRED DUE TO NATURAL CONVECTION OF HEAT FROM THE TOWER COILS. THE DEADBAND IS PREMISED ON BEING BETWEEN 68F AN 86F.
 - FREEZE: IF THE OUTDOOR TEMPERATURE APPROACHES 34F THEN THE BOILER WILL BE OPERATING AND THE BYPASS VALVE WILL OPEN 5% TO THE TOWER TO MAINTAIN FLOW THROUGH THE COILS.
 - MFGRS: POWERS, TRANE, SIEMENS

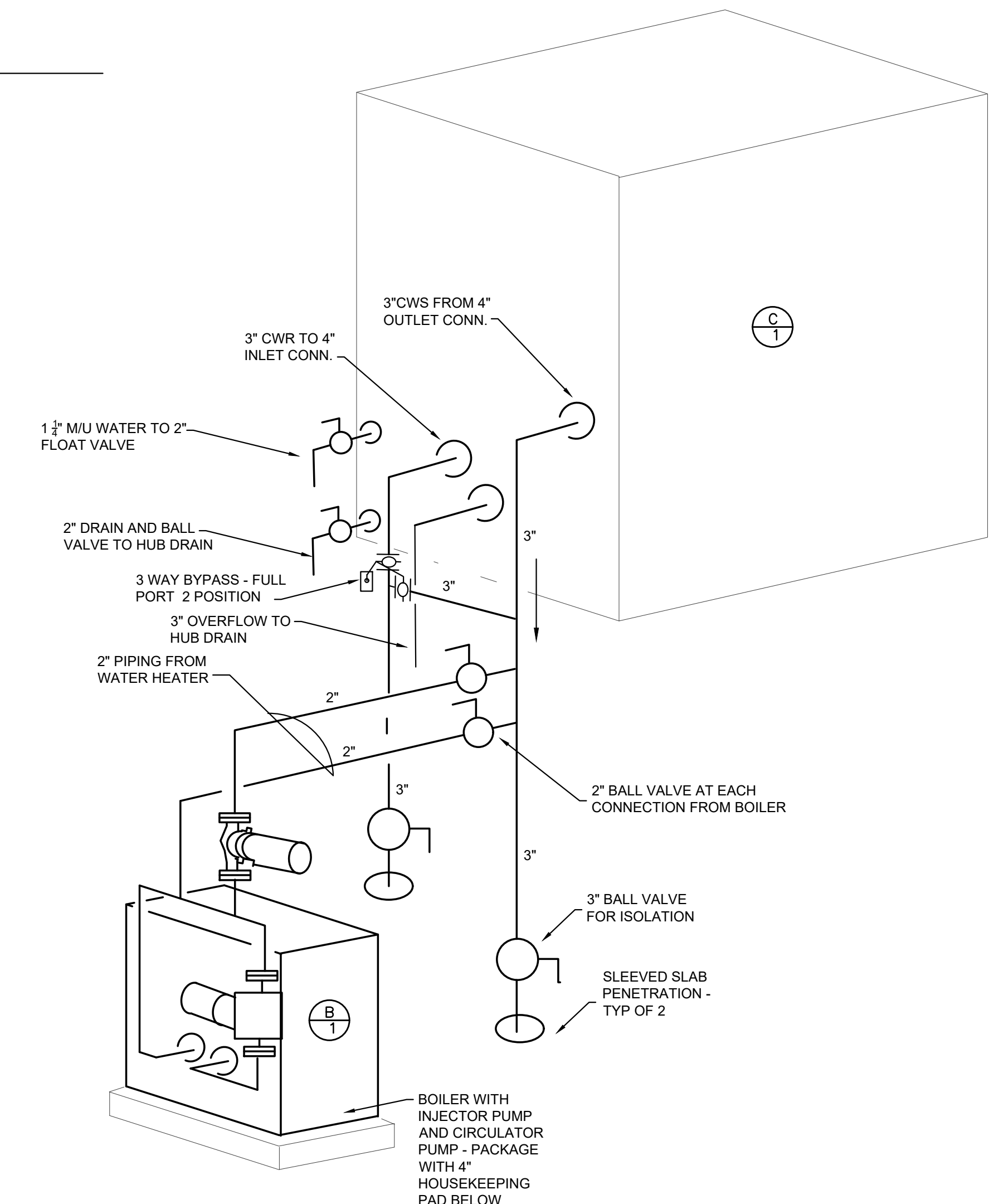
3 | CONTROL NOTES NTS

4 | CONTROLS DIAGRAM NTS



5 | CHEMICAL TREATMENT - TOWER NTS

CHEM AQUA OR APPROVED EQUAL

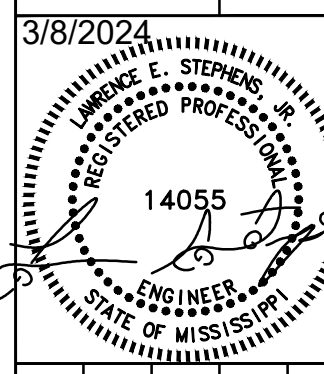


6 | WATER HEATER PIPING - SCHEMATIC NTS

925 TOMMY MUNRO DR., SUITE B
BILOXI, MISSISSIPPI 38532
228-336-1111
207-3346-6444
LES@STEPHENSMECHANICAL.COM



21052
CITY OF BAY ST. LOUIS
BAY ST. LOUIS, MISSISSIPPI
ADD COOLING TOWER - CENTRAL FIRE HOUSE
DETAILS

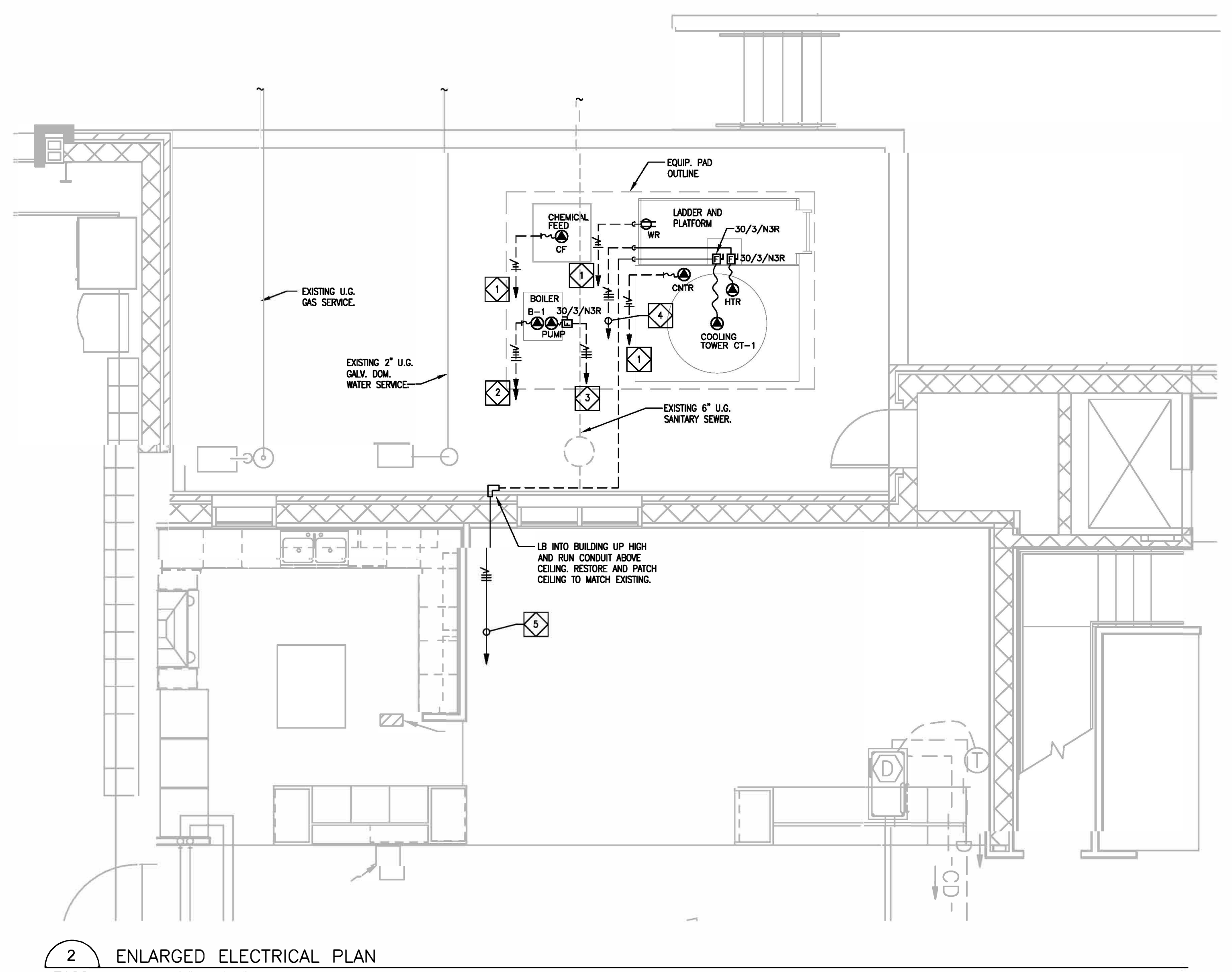


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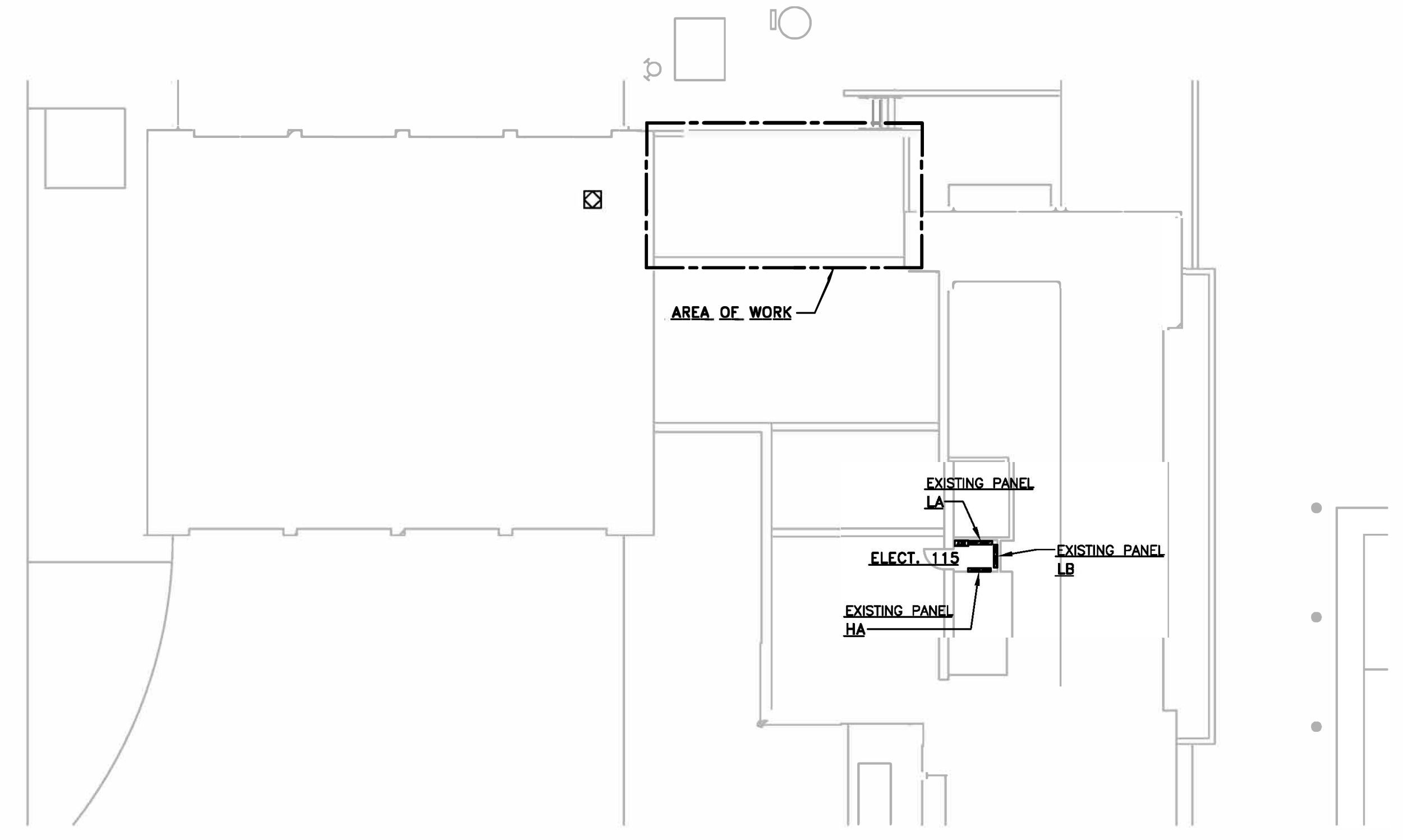
ELECTRICAL LEGEND	
SWITCHGEAR	CONDUIT AND WIRE
FUSED SAFETY SWITCH NEMA 3R AT WET LOCATIONS	FLEXIBLE CONDUIT, SEALTITE AT WET LOCATIONS
EXISTING PANELBOARD TO REMAIN	CONDUIT CONCEALED IN WALL OR ABOVE CEILING
JUNCTION BOX	CONDUIT BELOW FLOOR OR CONCEALED IN WALL
SPECIAL ELECTRICAL CONNECTION	CONDUIT EXPOSED
BOILER ELECTRICAL CONNECTION	CIRCUIT CONDUCTORS IN CONDUIT
COOLING TOWER ELECTRICAL CONNECTION	MULTIPLE CIRCUIT CONDUCTORS IN CONDUIT WITH NEUTRALS
CONTROL CIRCUIT ELECTRICAL CONNECTION	GROUND CONDUCTORS IN CONDUIT
PUMP ELECTRICAL CONNECTION	CONDUIT UP
CHEMICAL FEED ELECTRICAL CONNECTION	CONDUIT DOWN
HEATER ELECTRICAL CONNECTION	CIRCUIT HOMERUN TO PANEL BOARD. XX-XX DENOTES PANEL NAME AND CIRCUIT NUMBER
DEVICES	
GFI WEATHER RESISTANT DUPLEX RECEPTACLE - 20A, 120V WITH IN-USE WEATHERPROOF COVER	CONTINUATION OF CONDUIT RUN

- ELECTRICAL GENERAL NOTES AND SPECS**
- CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING WORK. NO ADDITIONAL SCOPE WILL BE AUTHORIZED DUE TO LACKING OF UNDERSTANDING ON EXISTING CONDITIONS.
 - ALL ELECTRICAL WORK TO CONFORM TO STATE, LOCAL, INTERNATIONAL, BUILDING CODE, AND NATIONAL ELECTRICAL CODES.
 - WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY AND INSTALLED IN A PROFESSIONAL MANNER. ANY WORK THAT IS DETERMINED TO BE SUB-STANDARD BY THE OWNER OR THE ENGINEER SHALL BE REDONE AT THE CONTRACTOR'S EXPENSE.
 - ELECTRICAL DRAWINGS SHOW GENERAL WORK TO BE PERFORMED. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL ELECTRICAL SYSTEMS TO PROVIDE A COMPLETE PACKAGE AS INDICATED BY THE CONTRACT DOCUMENTS. THE DOCUMENTS ARE INTENDED TO PROVIDE AN OUTLINE FOR THE REQUIRED INSTALLATIONS. THE CONTRACTOR SHALL ULTIMATELY PROVIDE A COMPLETE AND OPERATIONAL SYSTEM AT THE CONCLUSION OF THE PROJECT.
 - DETAILS ARE PROVIDED AS THEY RELATE TO THE INSTALLATION. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS COMPONENTS, PARTS, MATERIALS, FASTENERS, SPICES, AND ANY OTHER INCIDENTAL ITEMS NECESSARY TO PROVIDE A COMPLETE INSTALLATION.
 - FOR PURPOSES OF CLARITY AND LEGIBILITY, DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND THE SIZE AND LOCATION OF EQUIPMENT IS INDICATED TO SCALE. WHENEVER POSSIBLE, VERIFY CONDITIONS, DIMENSIONS, INDICATED EQUIPMENT SIZES, AND MANUFACTURER'S DATA AND INFORMATION AS NECESSARY TO INSTALL THE WORK OF THIS DIVISION.
 - CONTRACTOR SHALL PROVIDE AND PAY FOR ALL PERMITTING AND INSPECTIONS REQUIRED BY THE LOCAL AUTHORITY.
 - PROVIDE 1 YEAR WARRANTY, RECORD DRAWINGS, AND OPERATION/MAINTENANCE MANUALS ON ALL ELECTRICAL EQUIPMENT. DURING THE WARRANTY PERIOD, THE CONTRACTOR SHALL REPLACE OR REPAIR ANY DEFECTIVE COMPONENTS RELATED TO THEIR WORK AT NO COSTS TO THE OWNER, ARCHITECT, OR ENGINEER.
 - ALL RECEPTACLES, DEVICES, SHALL BE SPECIFICATION/COMMERCIAL GRADE, UL LISTED, WITH NEMA CONFIGURATION AS NOTED IN SCHEDULE OR AS REQUIRED FOR EQUIPMENT CONNECTION. RECEPTACLES WITHIN 6 FEET OF WATER FOUNTAINS, COUNTER TOPS, OR ANY SOURCES OF WATER SHALL BE GFCI TYPE. EXTERIOR RECEPTACLES SHALL BE GFCI TYPE WITH WEATHERPROOF, IN-USE COVER.
 - ALL INTERIOR CONDUITS CONCEALED IN WALLS, ABOVE CEILINGS, OR IN EXPOSED STRUCTURE SHALL BE CHT WITH COMPRESSION STEEL FITTINGS FOR CONDUITS SMALLER THAN 2". CONDUITS 2" AND ABOVE SHALL HAVE STEEL SET-SCREW FITTINGS. ALL EXPOSED CONDUITS SHALL BE GALVANIZED RIGID TO 10 FEET ABOVE FINISHED FLOOR WHEN INSTALLED IN AREAS SUSCEPTIBLE TO DAMAGE.
 - CONDUITS IN SLAB OR BELOW GRADE SHALL BE SCH. 40 PWC OR AS NOTED ON DRAWINGS. 90'S SHALL BE GALVANIZED RIGID COATED WITH EPOXY ASPHALT PAINT.
 - ALL CONDUITS SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. DO NOT INSTALL CONDUITS AT "ANGLED" / "STRAIGHT-RUN" BETWEEN ROOMS. CONDUITS SHALL FOLLOW MECHANICAL PIPING. SHWCUT AND PATCH AS REQUIRED.
 - ALL WIRING SHALL BE COPPER.
 - ALL WIRING SHALL BE #12 AWG MINIMUM THRU/THIN, UNLESS NOTED OTHERWISE.
 - GROUNDING SHALL BE INSTALLED PER N.E.C. SECTION 250.
 - ALL ELECTRICAL DISCONNECTS SHALL BE HEAVY DUTY AND RATED FOR VOLTAGE AND AMPACITY OF EQUIPMENT BEING SERVED, UNLESS NOTED OTHERWISE. PROVIDE FUSES BASED ON EQUIPMENT RATINGS WHERE NOTED.
 - PROVIDE IDENTIFICATION PLATES OF PLASTIC STOCK TO ACCURATELY DESCRIBE FUNCTION, VOLTAGE AND PHASE OF IDENTIFIED EQUIPMENT. AT SWITCHES, STARTERS, CABINETS, EQUIPMENT, PLATES SHALL INDICATE EQUIPMENT DESIGNATION AND PANEL/CIRCUIT DESIGNATION.
 - VERIFY ALL DIMENSIONS AND CLEARANCES WITH ARCHITECT AND OWNER.
 - SEAL ALL WALL PENETRATIONS WITH AN APPROVED CAULK COMPOUND EQUAL TO 3M FIRE BARRIER CAULK.
 - COORDINATE PHASING OF WORK WITH ARCHITECTURAL DRAWINGS AND OTHER TRADES / DISCIPLINES FOR ELECTRICAL INSTALLATIONS.
 - NOTIFY THE ENGINEER IMMEDIATELY OF ANY PLAN DISCREPANCIES PRIOR TO PROCEEDING WITH ROUGH-IN OR TRIM OUT.

- SPECIFIC ELECTRICAL NOTES:**
- 2-#12, 1-#12G IN 1/2". EXTEND TO EXISTING PANEL "LB". INSTALL (1) NEW 20A/1-POLE BREAKER.
 - 4-#10, 1-#10G IN 3/4". EXTEND TO EXISTING PANEL "LB". INSTALL (2) NEW 20A/1-POLE BREAKERS FOR BOILER CIRCUITS.
 - 3-#12, 1-#12G IN 3/4". EXTEND TO EXISTING PANEL "LB". INSTALL (1) NEW 20A/3-POLE BREAKER FOR BOILER INJECTOR PUMP.
 - 3-#12, 1-#12G IN 3/4". EXTEND TO EXISTING PANEL "HA". INSTALL (1) NEW 1 5A/3-POLE BREAKER FOR HEATER.
 - 3-#10, 1-#10G IN 3/4". EXTEND TO EXISTING PANEL "HA". INSTALL (1) NEW 30A/3-POLE BREAKER FOR COOLING TOWER.



2 ENLARGED ELECTRICAL PLAN
E100 SCALE: 1/4" = 1'-0"



1 REFERENCE PLAN
E100 SCALE: 1/16" = 1'-0"



STEPHENS
MECHANICAL ENGINEERING LLC.

21052
CITY OF BAY ST. LOUIS
BAY ST. LOUIS, MISSISSIPPI
ADD COOLING TOWER - CENTRAL FIRE HOUSE
EXISTING UTILITIES AND DEMOLITION

JOB NO. 23026	DATE: 2-8-2024	DRAWN BY: WH	DESIGNED BY: GFW	CHECKED BY: GFW
SHEET NUMBER				
E100				
SHEET COUNT				
1 OF 1				

CATEGORY: P. WIRING
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF MISSISSIPPI
 No. 10812
 02/08/14