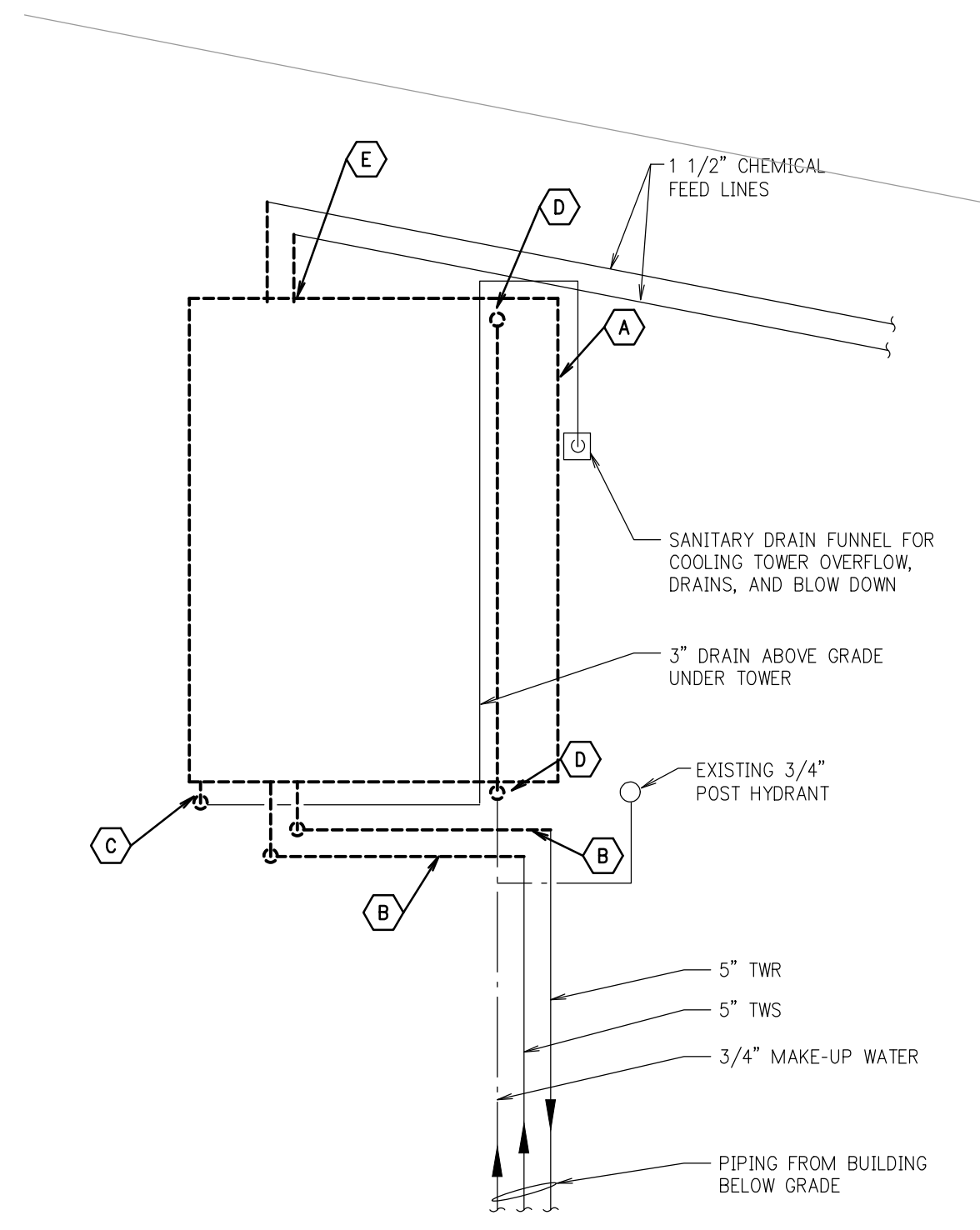


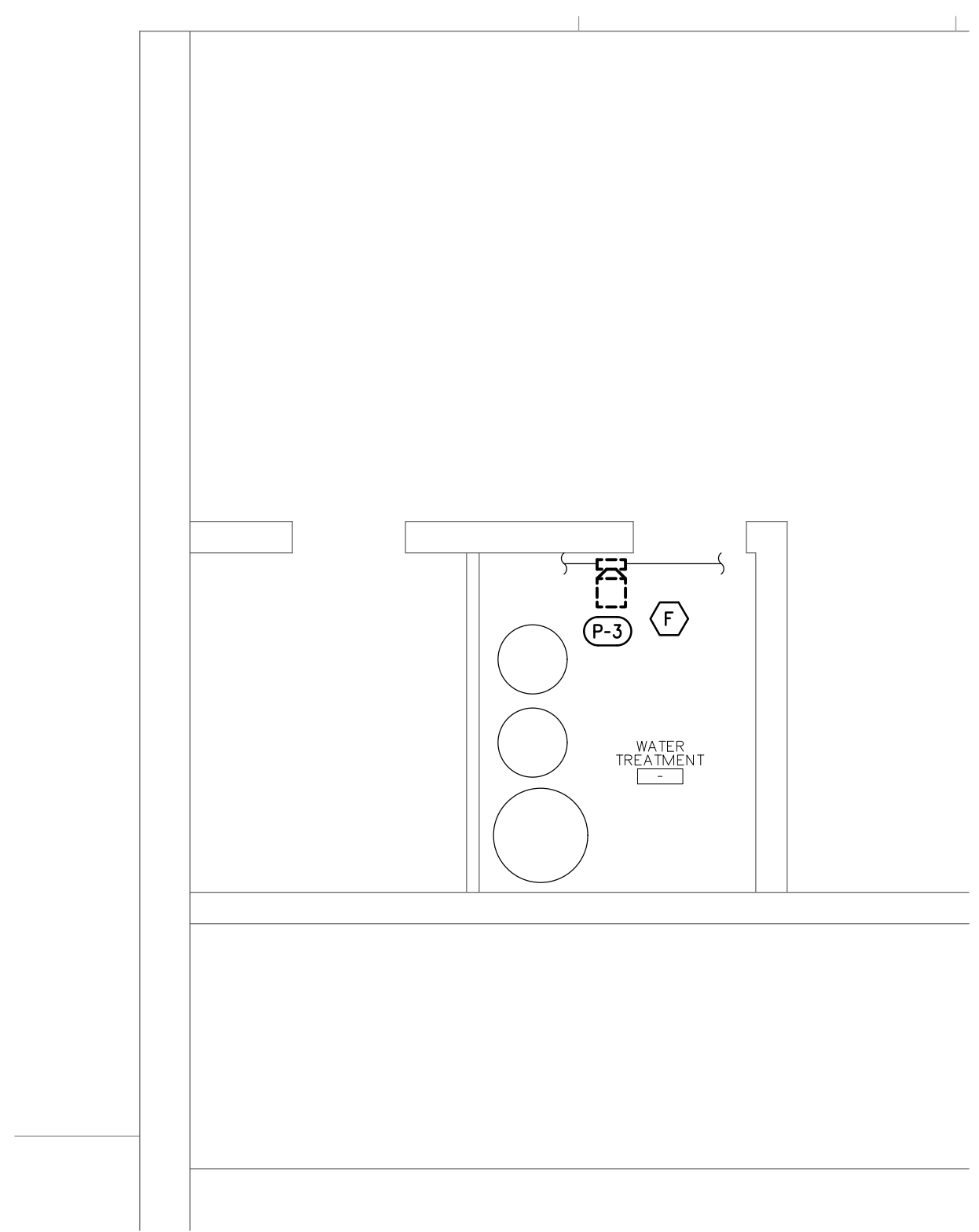
**LEGEND**

- BREAK IN PIPE
- DIRECTION OF FLOW IN PIPE (GATE) SHUT-OFF VALVE
- PIPE DROP
- SUCTION DIFFUSER
- NEW WORK
- EXISTING ITEMS
- EXISTING ITEMS TO BE REMOVED
- CONNECT TO EXISTING



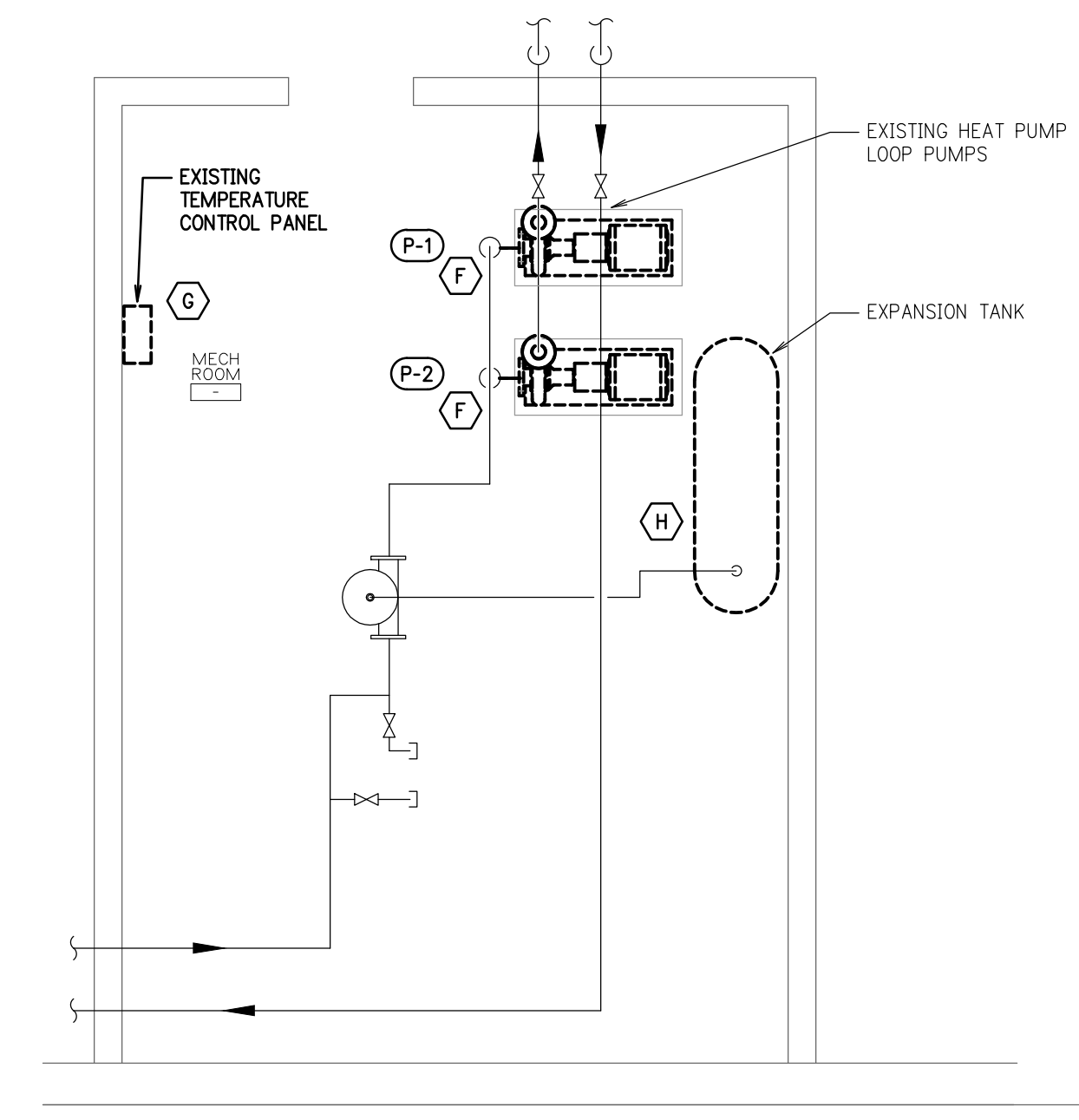
**PARTIAL SITE PLAN  
HVAC DEMOLITION**  
SCALE: 1/4"=1'-0"

- PLAN NOTES:**
- A. REMOVE EXISTING COOLING TOWER, SUPPORT, AND ASSOCIATED CONTROLS.
  - B. DISCONNECT EXISTING TOWER WATER PIPING FROM EXISTING TOWER. REMOVE PIPING BACK TO ELBOW.
  - C. DISCONNECT EXISTING DRAIN CONNECTION FROM EXISTING TOWER. REMOVE BACK TO POINT SHOWN.
  - D. DISCONNECT EXISTING WATER MAKE-UP PIPING FROM EXISTING TOWER. REMOVE PIPING BACK TO POINT SHOWN.
  - E. DISCONNECT EXISTING CHEMICAL FEED PIPING FROM EXISTING TOWER, REMOVE PIPING BACK TO POINT SHOWN.



**PARTIAL LOWER LEVEL PLAN  
HVAC DEMOLITION**  
SCALE: 1/4"=1'-0"

- PLAN NOTES:**
- F. DISCONNECT WATER PIPING AND ASSOCIATED CONTROLS FROM EXISTING PUMPS. PIPING TO REMAIN FOR FUTURE CONNECTION.
  - G. REMOVE EXISTING TCC PANEL AND PREP FOR NEW PANEL TO GO IN SAME LOCATION.

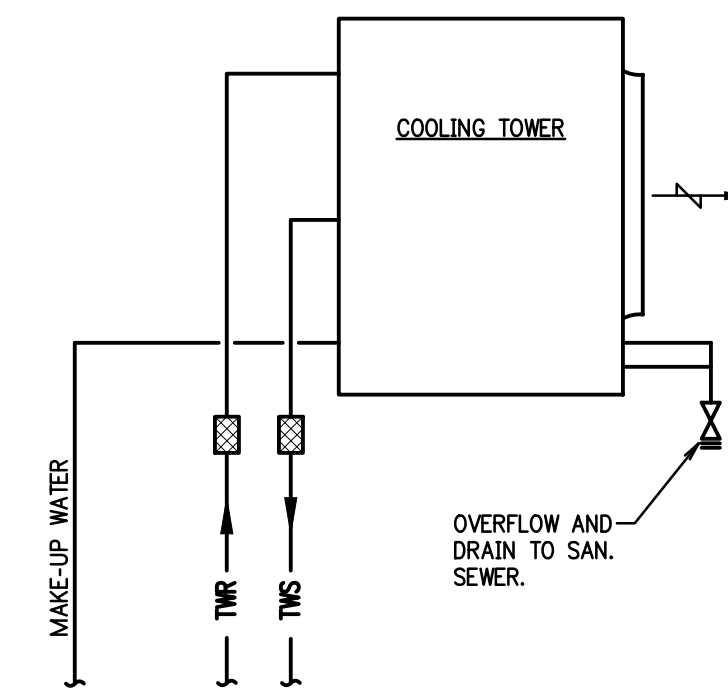


**PARTIAL LOWER LEVEL PLAN  
HVAC DEMOLITION**  
SCALE: 1/4"=1'-0"

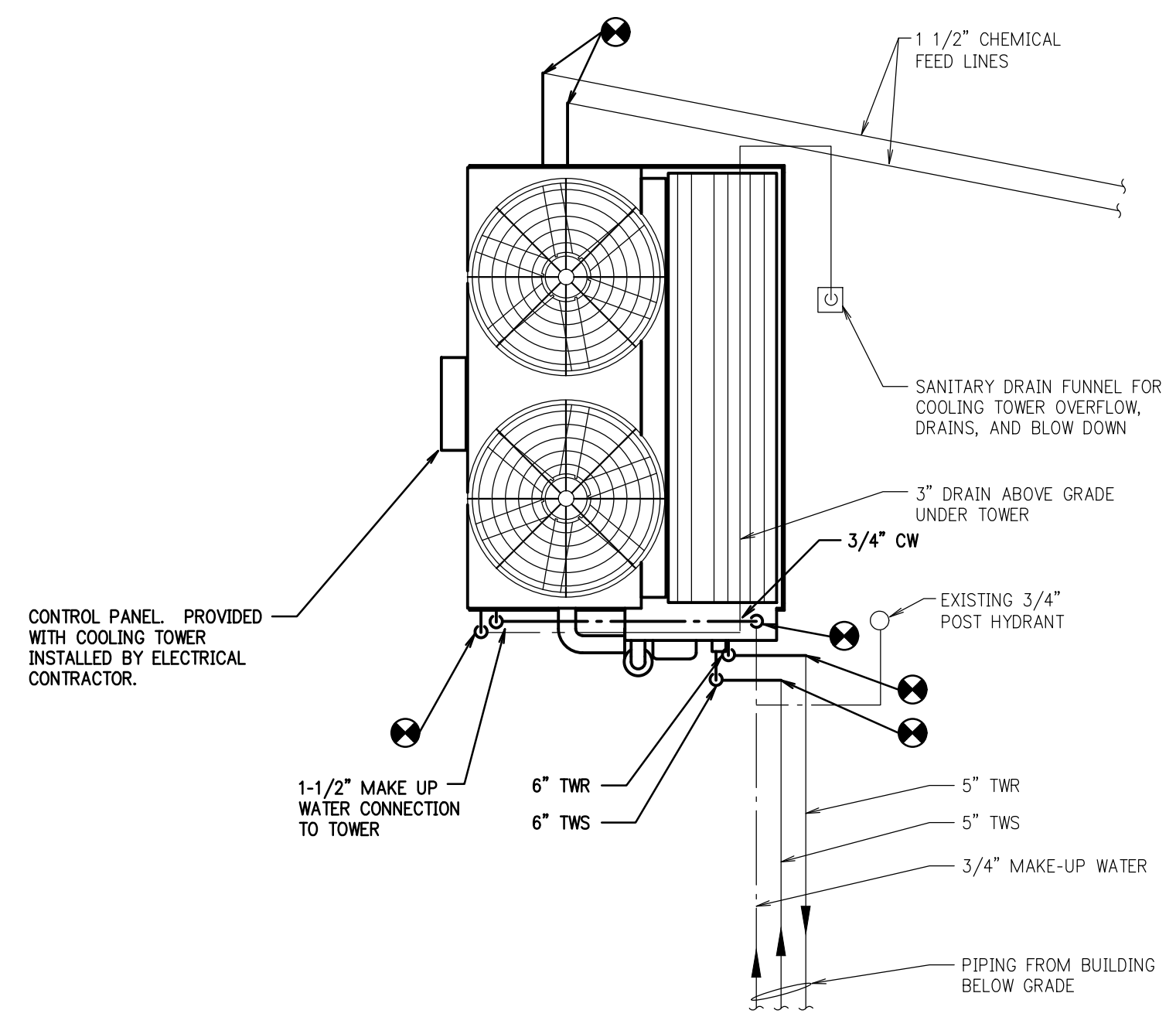
OTTAWA COUNTY COURTHOUSE							ISSUE
COOLING TOWER REPLACEMENT							REV No
315 Madison St. Port Clinton, Ohio 43452							DATE
DEMOLITION AND HVAC PLANS							BID
 Mechanical   Electrical   Plumbing   Technology   Safety 6693 N. Main Street Suite 200 Sylvania, Ohio 43560 (419) 884-4303 / F (419) 884-2009 / F jdrm.com							REV No
JOB NO.: JD21103 DR. BY: CAH OK BY: DCH APP. BY: DCH SCALE: AS NOTED DATE: OCT 2021							DATE
SHEET <b>M-1</b>							DATE

**LEGEND**

- BREAK IN PIPE
- DIRECTION OF FLOW IN PIPE (GATE) SHUT-OFF VALVE
- PIPE DROP
- SUCTION DIFFUSER
- NEW WORK
- EXISTING ITEMS
- EXISTING ITEMS TO BE REMOVED
- CONNECT TO EXISTING

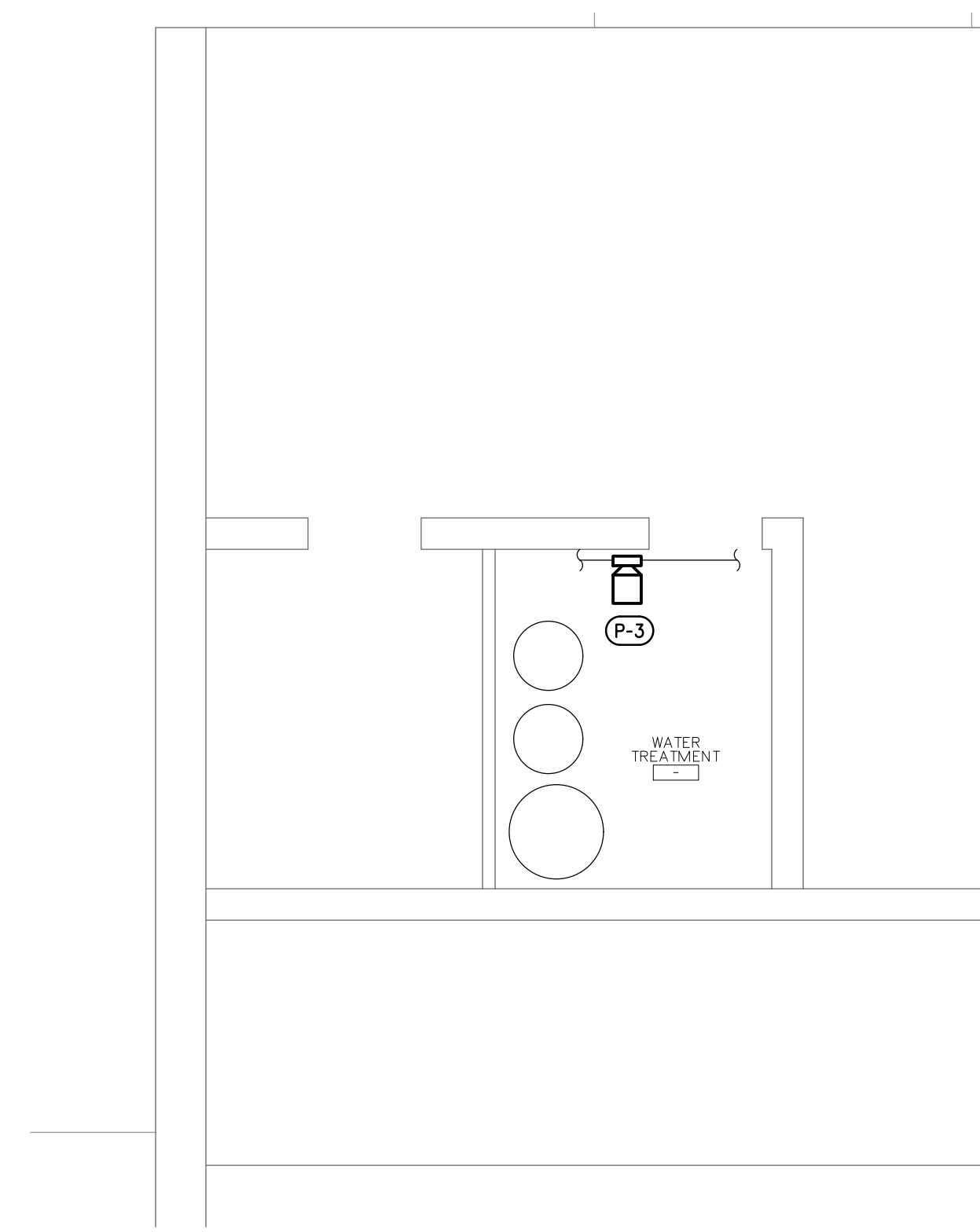


**COOLING TOWER DETAIL**  
SCALE: NONE

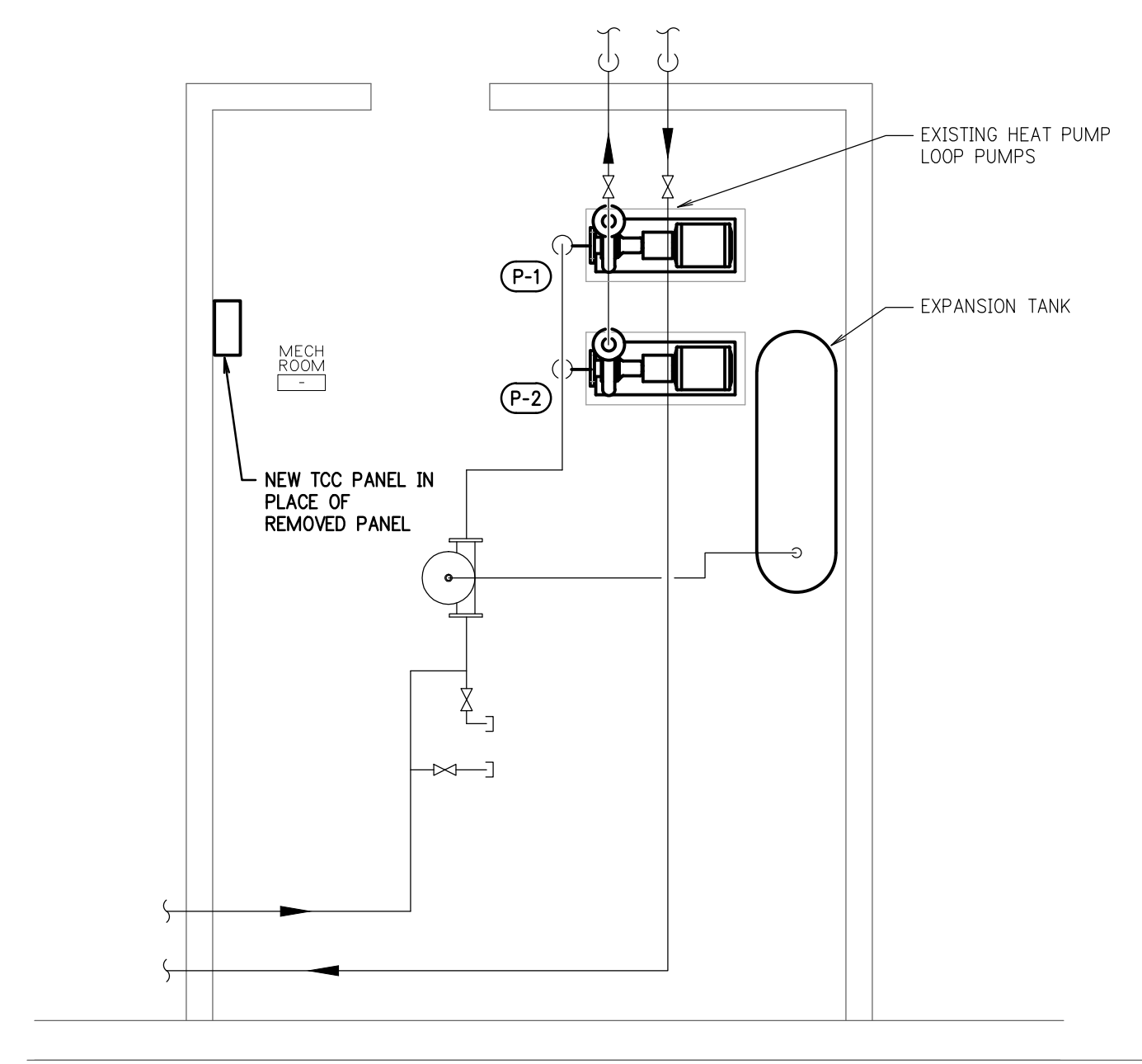


**PARTIAL SITE PLAN - HVAC**  
SCALE: 1/4"=1'-0"

- PLAN NOTES:**
- RE-INSTALL EXISTING ELECTRICAL HEAT TRACE AFTER PIPING HAS BEEN REINSTALLED.



**PARTIAL LOWER LEVEL PLAN - HVAC**  
SCALE: 1/4"=1'-0"



**PARTIAL LOWER LEVEL PLAN - HVAC**  
SCALE: 1/4"=1'-0"

- PLAN NOTES:**
- INSTALL NEW PUMPS P-1 & P-2 ON EXISTING HOUSEKEEPING PADS.
  - CONNECT EXISTING WATER PIPING TO NEW INSTALLED PUMPS.
  - INSTALL NEW TCC PANEL AND EXTEND BUS FROM CORRIDOR AS REQUIRED.
  - INSTALL NEW EXPANSION TANK AND RECONNECT TO EXISTING HW PIPING.

PUMPS										
SCHEDULE BASED ON BELL & GOSSETT										
MARK	SERVICE	OPERATION	GPM PER PUMP	FEET HEAD W.C.	HP	RPM	STYLE	MODEL	POWER	REMARKS
P-1	WATER	SINGLE	440	150	30	1750	BASE MOUNTED	e-1510 3GB	480/3/60	-
P-2	WATER	SINGLE STAND-BY	440	150	30	1750	BASE MOUNTED	e-1510 3GB	480/3/60	-
P-3	COOLING TOWER SUMP CIRCULATOR	SINGLE	20	24	0.75	1200	IN-LINE	80 1.5x1.5-7C	208/3/60	-

COOLING TOWERS												
SCHEDULE BASED ON BALTIMORE AIR COIL												
MARK	MODEL	NOMINAL CAPACITY TONS	WATER FLOW GPM	EWT / LWT °F	WET BULB °F	ELECTRICAL					REMARKS	
						FAN HP	VFD ON FAN	STARTER	VOLTAGE	MFR. TO PROVIDE FUSED DISCONNECT SWITCH		
CT-1	FXV-0812A-1220	109	465	103/90	77	10	-	-	460/3/60	-		

CT-1 SHALL HAVE A SHORT CIRCUIT RATING OF \_\_\_\_KAIC

OTTAWA COUNTY COURTHOUSE  
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 engineering@jdrm.com | jdrm.com

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OK BY: DCH	DATE: OCT 2021	

**M-2**



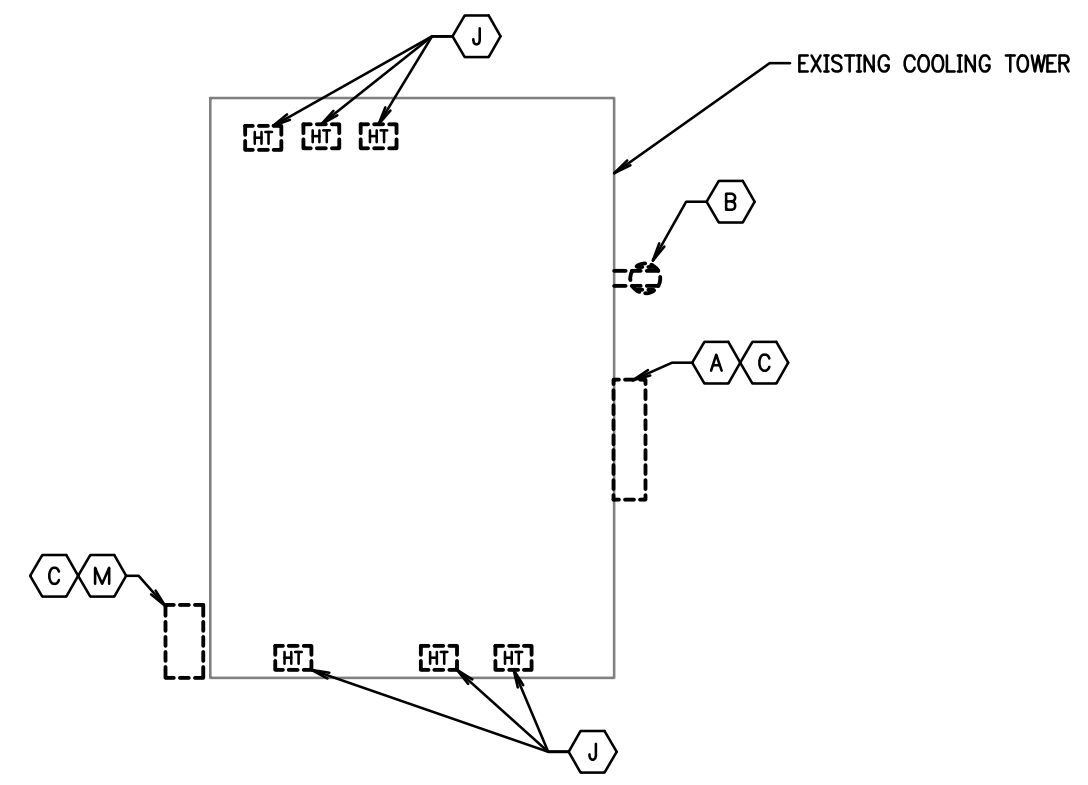
**ELECTRICAL SPECIFICATIONS:**

- ALL WORK SHALL CONFORM TO THE 2017 N.E.C., NATIONAL, STATE AND LOCAL CODES WHICH APPLY.
- ALL MATERIAL AND EQUIPMENT SHALL CONFORM TO U.L. AND NEMA STANDARDS WHICH APPLY.
- THIS CONTRACTOR SHALL PAY ALL FEES AND OBTAIN ALL PERMITS REQUIRED FOR THE EXECUTION OF HIS WORK. HE SHALL ALSO PROVIDE PROOF OF FINAL APPROVAL BY THE AUTHORITY HAVING JURISDICTION BEFORE FINAL PAYMENT IS MADE.
- SUBMIT ELECTRONIC COPIES OF DETAILED SHOP DRAWINGS OF ALL ITEMS OF EQUIPMENT FURNISHED UNDER THIS CONTRACT IN A TIMELY MANNER FOR APPROVAL, BEFORE MANUFACTURE OF THE EQUIPMENT OR ITS INCORPORATION IN THE WORK.
- CONDUCTORS:
  - MINIMUM WIRE SIZE SHALL BE #12 UNLESS NOTED OTHERWISE.
  - CONDUCTORS SMALLER THAN #2 AWG SHALL BE "THHN/THWN". CONDUCTORS #2 AWG AND LARGER SHALL BE "XHHW" UNLESS NOTED OTHERWISE.
  - CONDUCTORS SHALL BE AS MANUFACTURED BY AETNA, AMERICAN INSULATED, ENCORE, ESSEX, PARANITE, PIRELLI OR SOUTHWIRE.
- CONDUITS:
  - INTERIOR CONDUIT SHALL BE ELECTRICAL METALLIC TUBING (EMT) UNLESS NOTED OTHERWISE.
  - FLEXIBLE METAL CONDUIT SHALL BE USED FOR "MAKE UP" CONNECTIONS TO ROTATING MACHINERY (24" MAXIMUM LENGTH), EQUIPMENT OR FLUSH LIGHT FIXTURES.
  - CONDUIT CONNECTORS SHALL BE STEEL SETSCREW OR COMPRESSION. FLEXIBLE METALLIC COUPLINGS AND CONNECTORS SHALL BE MALLEABLE IRON OR STAMPED STEEL FITTINGS.
- DISCONNECT SWITCHES SHALL BE SQUARE D "HD" OR EQUAL BY GENERAL ELECTRIC, SIEMENS OR CUTLER-HAMMER.
- FUSES SHALL BE AS FOLLOWS:
  - CLASS "J"
  - 0 TO 200-AMPS DUAL ELEMENT, TIME DELAY CLASS J; BUSSMANN LPJ-SP, MERSEN AJT OR LITTELFUSE JTB-1D.
  - 225 TO 600-AMPS DUAL ELEMENT, TIME DELAY, CLASS RK-1; BUSSMANN LPN-LPS, MERSEN A2D-R A6D-R OR LITTELFUSE LLN-RK/LLS-RK.
  - ABOVE 600-AMPS TIME DELAY, CLASS L; BUSSMANN KRP-C, MERSEN A4BQ, 601 TO 2000-AMPS, AND A4B7 OVER 2000-AMPS OR LITTELFUSE KLP-C.
- WIRING DEVICES:
  - SWITCHES SHALL BE HEAVY DUTY INDUSTRIAL SPECIFICATION GRADE WITH SOLID BRASS CONSTRUCTION, 120/277V-20A RATING, HUBBELL HBL1221GRV, COOPER 2221GY, LEVITON 1221-2G7 OR PASS & SEYMOUR PS20AC1-GRY (SINGLE POLE DEVICES INDICATED).
  - GFI DUPLEX RECEPTACLES SHALL 120V-20AMP RATED.
  - PLATES SHALL BE GRAY THERMOPLASTIC; HUBBELL P1 SERIES OR APPROVED EQUAL BY LISTED MANUFACTURERS. DEVICE COLOR AND PLATE COLOR SHALL BE SELECTED BY THE ARCHITECT/OWNER.

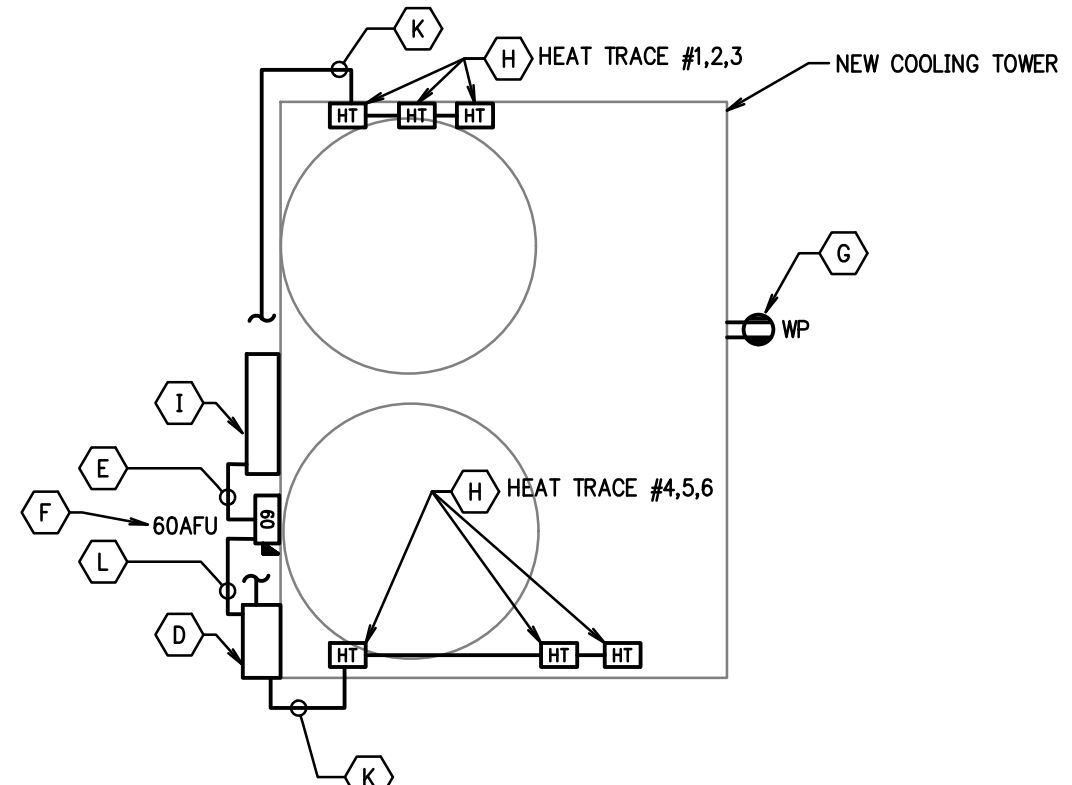
- NAMEPLATES SHALL BE INSTALLED ON ALL OF THE FOLLOWING EQUIPMENT TYPES: PANELBOARDS, MOTOR STARTERS, CONTROL PANELS, CONTROL DEVICES, TELEPHONE CABINETS, EMERGENCY SYSTEM EQUIPMENT, TRANSFORMERS, CURRENT TRANSFORMER (CT) CABINET, ETC. NAMEPLATE FOR CT CABINET SHALL READ "CT CABINET AND METER ARE NOT A DISCONNECTING MEANS." NAMEPLATES SHALL BE LAMINATED PHENOLIC, WHITE WITH BLACK CORE.
- PROVIDE TYPED PANEL SCHEDULES FOR ALL PANELBOARDS DESCRIBING LOCATION OF DEVICE SERVED. PROVIDE PHENOLIC NAMEPLATES FOR EACH SWITCHBOARD DISCONNECT SWITCH OR CIRCUIT BREAKER.
- PROVIDE AN ARC FLASH HAZARD LABEL FOR ALL ELECTRICAL DISTRIBUTION EQUIPMENT, INCLUDING BUT NOT LIMITED TO SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKETS, ENCLOSURES, DISCONNECTS, AND MOTOR CONTROL CENTERS. LABELING SHALL MEET FLASH PROTECTION REQUIREMENTS OF NFPA AND NEC (110.16). ARC FLASH HAZARD LABELS SHALL BE PERMANENTLY ADHERED. THE LABELS SHALL BE 3.50" X 5.00" SELF-ADHESIVE PLASTIC; BRADY CAT #99452. THE HAZARD LABEL SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL INSTALL THE LABEL ON A 1/8" CLEAR PLASTIC BACK PLATE WHERE PERMANENT ADHESION CAN NOT BE MAINTAINED. THIS PLASTIC BACK PLATE TAG ASSEMBLY SHALL BE SECURED TO THE ELECTRICAL EQUIPMENT WITH POP RIVETS.

**ELECTRICAL GENERAL NOTES:**

- IT IS STRONGLY RECOMMENDED THAT ALL BIDDERS VISIT AND EXAMINE THE SITE. NO ADDITIONAL COMPENSATION WILL BE AWARDED FOR ANY DEVIATIONS OR DISCREPANCIES TO THESE PLANS. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS UNDER WHICH WORK MUST BE PERFORMED AND CHECK ALL PRESENT ELEVATIONS. THE CONTRACTOR SHALL REPORT ANY MAJOR DISCREPANCIES TO THE ARCHITECT. FAILURE TO DO SO SHALL BE DEEMED AS ACCEPTANCE OF EXISTING CONDITIONS.
- ANY OTHER RELOCATIONS, ALTERATIONS AND/OR EXTENSIONS OF ELECTRICAL ITEMS DUE TO REMODELING (THOUGH NOT SPECIFICALLY SHOWN) SHALL BE INCLUDED TO PROVIDE A COMPLETE AND WORKING INSTALLATION.
- THE DRAWINGS INDICATE MAJOR ITEMS TO BE REMOVED SUCH AS PANELS, COMMUNICATIONS SYSTEM TERMINAL BOXES, MAJOR FEEDERS, ETC. THE DRAWINGS DO NOT DETAIL REMOVALS FOR MINOR DEVICES, LIGHTING FIXTURES, BRANCH CIRCUITS, ETC., UNLESS SPECIFICALLY INDICATED FOR REUSE ELSEWHERE. IT IS INTENDED THAT ALL ITEMS NOT SHOWN TO BE REUSED ON THE NEW FLOOR PLANS BE REMOVED BACK TO SOURCE AND CONTINUITY OF CIRCUITRY TO ADJACENT AREAS BE PROVIDED FOR.
- ALL REMOVED ITEMS SHALL REMAIN THE PROPERTY OF THE OWNER UNLESS DIRECTED OTHERWISE BY THE OWNER.
- ALL WORK REQUIRING A POWER OUTAGE SHALL BE COORDINATED WITH THE OWNER AND SCHEDULED AT SUCH A TIME AS TO MINIMIZE DISRUPTION. THE CONTRACTOR SHALL SCHEDULE FULL WORK CREWS FOR AS LONG AS REQUIRED TO MINIMIZE THE SHUTDOWN PERIOD.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING AND PATCHING FOR INSTALLATION OF ALL ELECTRICAL WORK. ALL CONDUIT SHALL BE RUN CONCEALED IN WALLS AND CEILINGS, WIREMOLD OR EXPOSED CONDUITS ARE NOT ACCEPTABLE UNLESS SPECIFICALLY NOTED ON THE DRAWINGS. ELECTRICAL CONTRACTOR TO PROVIDE ACCESS PANELS IN WALLS AND CEILINGS AS REQUIRED. MATCH ALL EXISTING CONDITIONS.
- OPENINGS AROUND CONDUITS OR IN SLEEVES FOR CONDUITS PENETRATING FIRE-RATED FLOOR SLABS, WALLS, PARTITIONS, CEILINGS OR SMOKE PARTITIONS, SHALL BE SEALED AT BOTH SIDES OF THE PENETRATION. INSULATION SHALL NOT EXTEND THROUGH SLEEVES. PACK OPENINGS WITH CALCIUM SILICATE BLOCK, DOW CORNING 3-6548 RTV SILICON FOAM, 3M CP25 CAULK, OR 303 PUTTY FIRE BARRIER SYSTEM, OR MATERIAL HAVING THE SAME FIRE-RATING AS THE FLOOR OR WALL PENETRATED. FIBERGLASS IS NOT ACCEPTABLE.
- ELECTRICAL CONTRACTOR TO PROVIDE AN INSTALLATION SCHEDULE DETAILING MAJOR DATES OF INSTALLATION FOR ITEMS SUCH AS TRANSFORMERS, MAIN DISTRIBUTION PANELS, SHUT DOWN TIMES, SERVICE SWITCHOVER, ETC. THE SCHEDULE SHALL BE APPROVED BY THE OWNER PRIOR TO ANY SHUT DOWN TIMES.

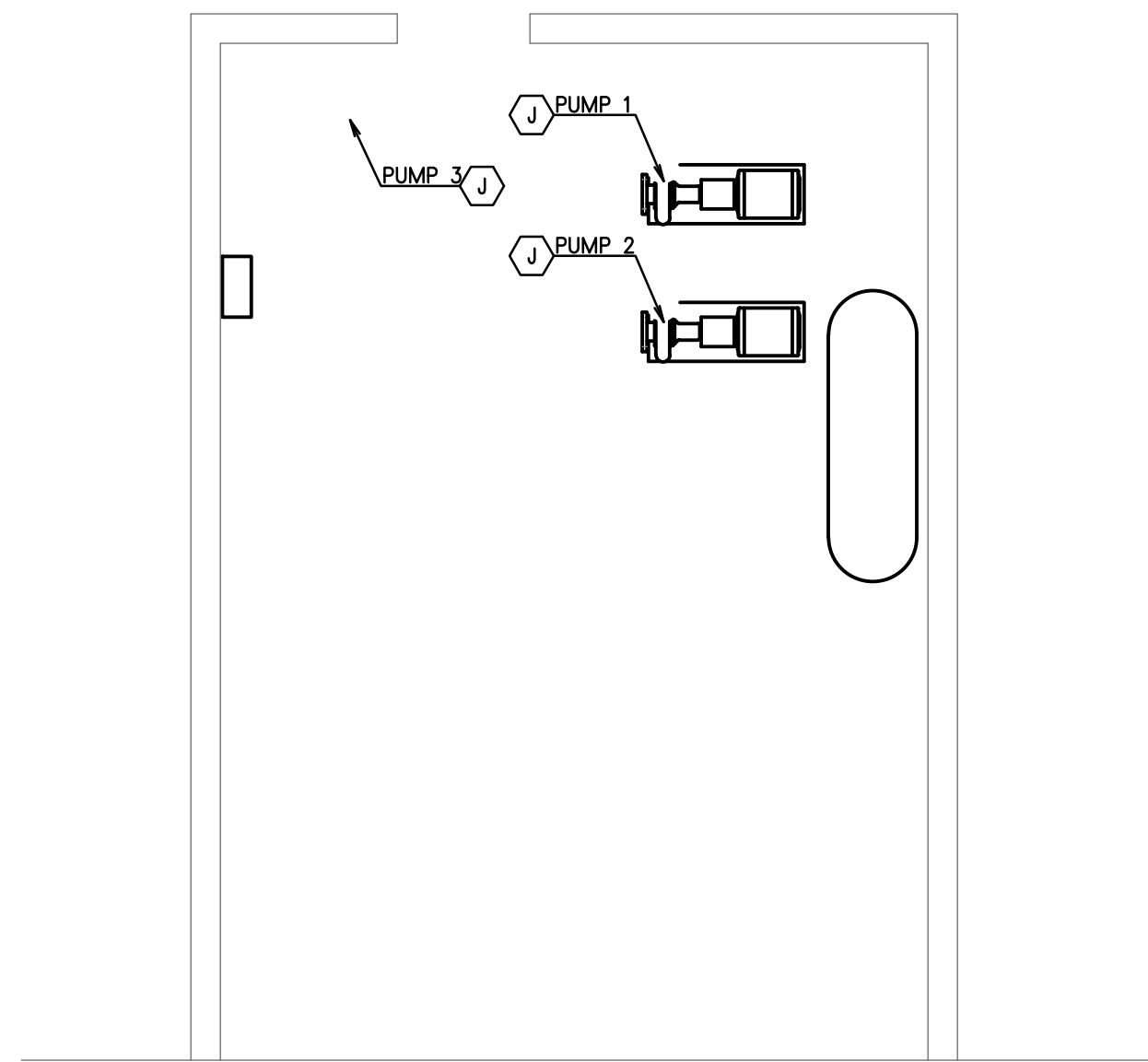


**PLAN - DEMOLITION ELECTRICAL**  
SCALE: 1/4"=1'-0"



**PLAN - ELECTRICAL**  
SCALE: 1/4"=1'-0"

LEGEND	
	NEMA 3R HEAVY DUTY SAFETY DISCONNECT, SIZE AS NOTED.
F.B.O.	FURNISHED BY OTHERS, INSTALLED AND/OR WIRED BY ELECTRICAL CONTRACTOR
MOD	MODIFICATION. ITEM MANUFACTURER PART NUMBER DOES NOT DESCRIBE ALL OPTIONS OR REQUIREMENTS. REFER TO ITEM DESCRIPTION AND/OR SPECIFICATIONS FOR EXACT REQUIREMENTS.
	EXISTING ITEM TO BE DISCONNECTED AND REMOVED
W.P.	ITEM TO BE WEATHERPROOF
	WEATHER PROOF GFCI RECEPTACLE 120V 20AMP RATED WITH TAYMAC IN USE COVER AND BELL BOX.
	HEAT TRACE, 10 WATTS/FOOT SELF REGULATING WITH POWER AND END TERMINATION KIT THERMON BSX SERIES, CONFIRM VOLTAGE WITH EXISTING HEAT TRACE CIRCUIT.



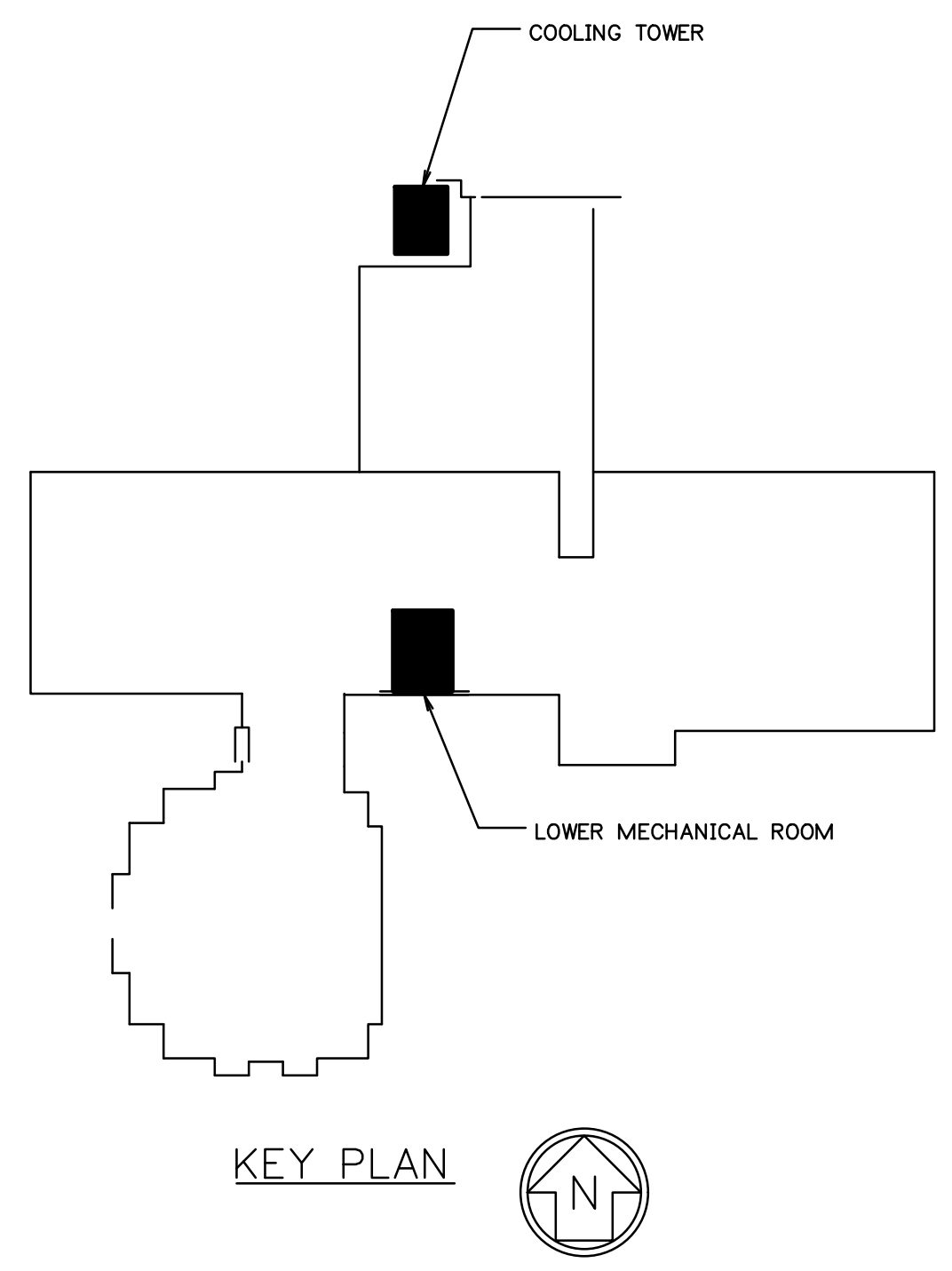
**LOWER LEVEL MECHANICAL ROOM ELECTRICAL**  
SCALE: 1/4"=1'-0"

**PLAN NOTES:**

- DISCONNECT EXISTING COOLING TOWER, REMOVE EXISTING CONTROL PANEL. PRIOR TO REMOVING CONTROL PANEL MARK AND IDENTIFY ALL CONDUCTORS. COORDINATE WITH MECHANICAL CONTRACTOR.
- DISCONNECT EXISTING 120V RECEPTACLE. 120V CIRCUIT TO REMAIN.
- EXISTING CONDUCTORS TO BE REUSED. PROVIDE PROTECTION OF CONDUCTORS DURING REMOVAL OF COOLING TOWER.
- PROVIDE NEMA 3R SPLCE BOX, 24"x24"x8" SCREW COVER.
- PROVIDE 1" SEALTIGHT CONNECTION WITH (4#6 XHHW CU, 1#6 XHHW-CU) TO COOLING TOWER CONTROL PANEL. ALL CONDUCTORS TO BE COPPER.
- PROVIDE NEW FUSES AND NEW DISCONNECT.
- PROVIDE NEW WEATHER PROOF GFI RECEPTACLE WITH A IN USE COVER. CONNECT RECEPTACLE TO EXISTING 20A1P 120V CIRCUIT.
- PROVIDE NEW HEAT TRACE ON PIPING AT SIX LOCATIONS. HEAT-TRACE TO BE SELF REGULATING. CONNECT HEAT TRACE TO EXISTING HEAT TRACE CIRCUIT. EACH RUN OF HEAT TRACE TO COVER 15 LINEAR FEET OF PIPE. APPROXIMATELY 90 FEET OF TOTAL HEAT TRACE.
- PROVIDE GALVANIZED UNISTRUT RACK AT COOLING TOWER TO MOUNT CONTROL PANEL. CONTROL PANEL IS FURNISHED BY OTHERS AND TO BE MOUNTED BY THE ELECTRICAL CONTRACTOR. ASSUME SIZE OF CONTROL PANEL TO BE (30" WIDE X 50" H X 12"D).
- DISCONNECT EXISTING HEAT TRACE. HEAT TRACE CIRCUIT CONDUCTORS TO BE REUSED.
- EXTEND EXISTING HEAT TRACE CIRCUIT TO NEW HEAT TRACE, (3#8, 1#8 GRD-1" C).
- SPLICE TO EXISTING CONDUCTORS WITH (4#6 XHHW CU, 1#6 XHHW-CU-1" C) AND EXTEND NEW CONDUCTORS TO LINE SIDE OF DISCONNECT. ALL CONDUCTORS TO BE COPPER.
- EXISTING PULL BOX TO BE REMOVED. EXISTING CIRCUITS TO REMAIN.
- ELECTRICAL SHALL DISCONNECT AND RECONNECT EXISTING CONNECTION TO MOTOR. CHECK ROTATION PRIOR TO DISCONNECTIONS.

WIRE SIZING TABLE		
FOR 120V-20A BRANCH CIRCUITS ONLY, UNLESS OTHERWISE NOTED		
IF DISTANCE A+B IN FEET IS: (SEE DIAGRAM AT RIGHT)	USE COPPER WIRE IN METALLIC CONDUIT, AWG SIZE AS FOLLOWS ON ENTIRE CIRCUIT AND SIZE CONDUIT ACCORDINGLY:	
0' to 100'	#12 (MIN.)	
100' to 175'	#10	
175' to 300'	#8	
300' to 450'	#6 (MAX.)	
FOR 277V-20A BRANCH CIRCUITS ONLY, UNLESS OTHERWISE NOTED		
IF DISTANCE A+B IN FEET IS: (SEE DIAGRAM AT RIGHT)	USE COPPER WIRE IN METALLIC CONDUIT, AWG SIZE AS FOLLOWS ON ENTIRE CIRCUIT AND SIZE CONDUIT ACCORDINGLY:	
0' to 250'	#12 (MIN.)	
250' to 400'	#10	
400' to 700'	#8	
700' to 1000'	#6 (MAX.)	

THESE TABLES ARE BASED ON AN EVENLY DISTRIBUTED LOAD ALLOWING A 3% VOLTAGE DROP AT LAST OUTLET; APPLY ACCORDINGLY.



**KEY PLAN**

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JOB NO.: JD21103	DR. BY: WPL	DATE: OCT 2021
APP. BY: DTK	SCALE: AS NOTED	DATE: OCT 2021
ISSUE	REV No	DATE
ISSUE	BID	02/18/22