

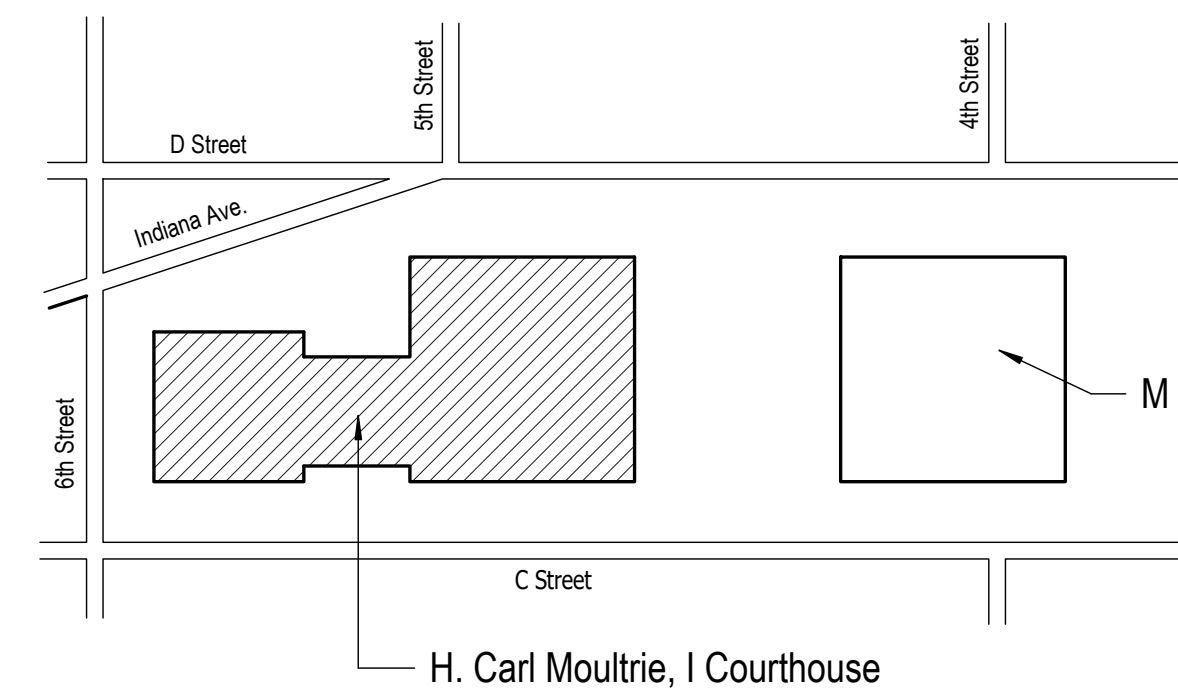
H. Carl Moultrie I Courthouse

Mechanical Room 1000 Heating and Chilled Water Upgrade

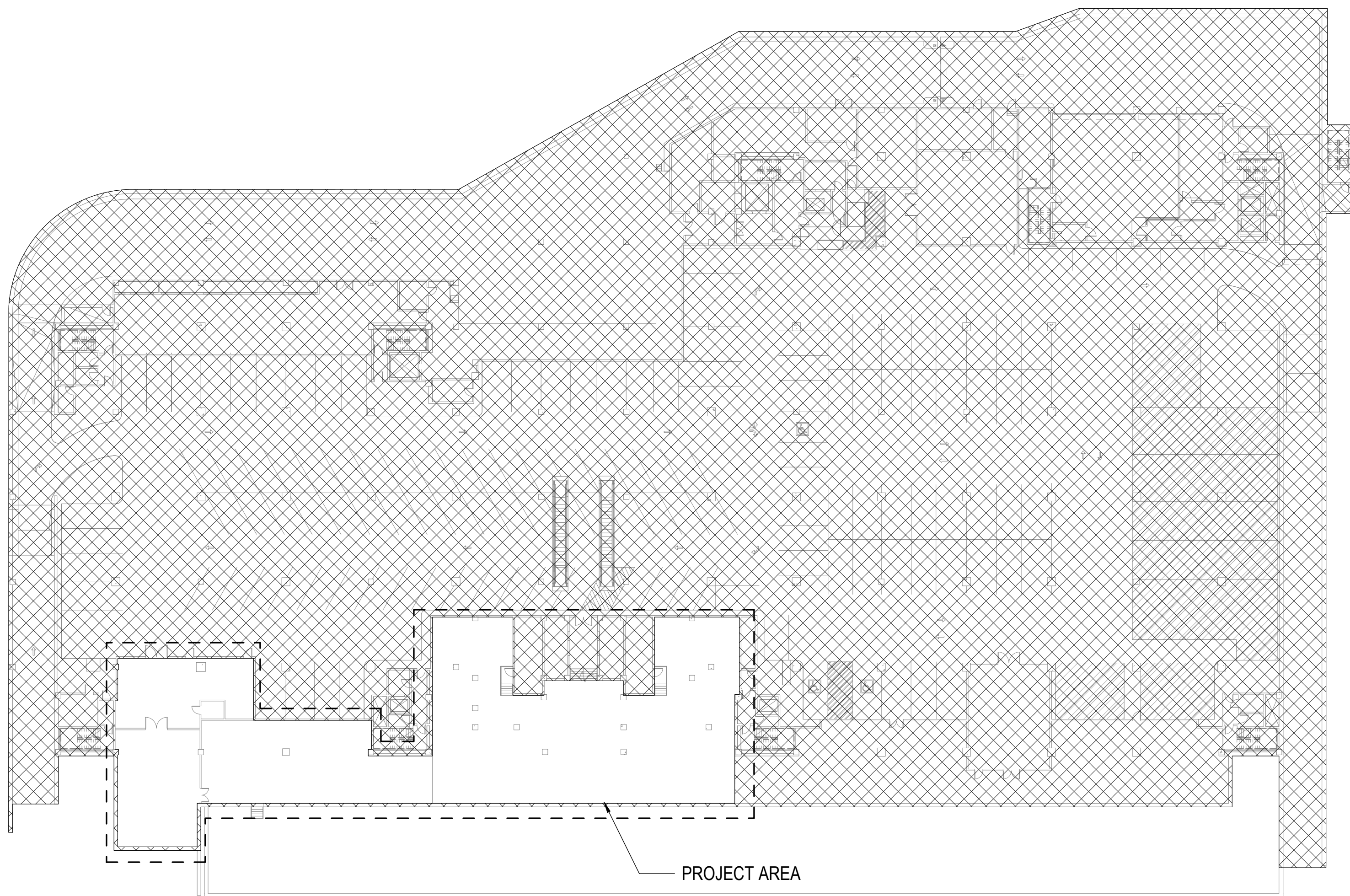
SHEET LIST	
SHEET NUMBER	SHEET NAME
GENERAL	
G0.0	COVER SHEET
G0.1	BASEMENT LEVEL PHASE 1 & 2 PLAN
G0.2	BASEMENT LEVEL PHASE 3 & 4 PLAN
STRUCTURAL	
S0.1	STRUCTURAL GENERAL NOTES
S2.1	SECTIONS AND DETAILS
MECHANICAL	
M0.1	MECHANICAL ABBREVIATIONS AND SYMBOLS
MD3.1	PHASE 1 BASEMENT LEVEL MECHANICAL DEMOLITION PLAN
MD3.2	PHASE 2 BASEMENT LEVEL MECHANICAL DEMOLITION PLAN
MD3.3	PHASE 3 BASEMENT LEVEL MECHANICAL DEMOLITION PLAN
MD3.4	PHASE 4 BASEMENT LEVEL MECHANICAL DEMOLITION PLAN
MD4.1.1	PHASE 1 ENLARGED HEATING DEMO MECHANICAL PLAN
MD4.1.2	PHASE 2 ENLARGED HEATING DEMO MECHANICAL PLAN
MD4.1.3	PHASE 3 ENLARGED HEATING DEMO MECHANICAL PLAN
MD4.1.4	PHASE 4 ENLARGED HEATING DEMO MECHANICAL PLAN
MD4.2.1	PHASE 1 ENLARGED COOLING DEMO MECHANICAL PLAN
MD4.2.2	PHASE 2 ENLARGED COOLING DEMO MECHANICAL PLAN
MD4.2.3	PHASE 3 ENLARGED COOLING DEMO MECHANICAL PLAN
MD4.2.4	PHASE 4 ENLARGED COOLING DEMO MECHANICAL PLAN
MD5.0.1	PHASE 1 DEMO STEAM PIPING DIAGRAM
MD5.0.2	PHASE 2 DEMO STEAM PIPING DIAGRAM
MD5.0.3	PHASE 3 DEMO STEAM PIPING DIAGRAM
MD5.0.4	PHASE 4 DEMO STEAM PIPING DIAGRAM
MD5.1.1	PHASE 1 DEMO HEATING HOT WATER PIPING DIAGRAM
MD5.1.2	PHASE 2 DEMO HEATING HOT WATER PIPING DIAGRAM
MD5.1.3	PHASE 3 DEMO HEATING HOT WATER PIPING DIAGRAM
MD5.1.4	PHASE 4 DEMO HEATING HOT WATER PIPING DIAGRAM
MD5.2.1	PHASE 1 DEMO CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
MD5.2.2	PHASE 2 DEMO CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
MD5.2.3	PHASE 3 DEMO CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
MD5.2.4	PHASE 4 DEMO CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
M3.1	PHASE 1 BASEMENT LEVEL NEW HVAC PIPING PLAN
M3.2	PHASE 2 BASEMENT LEVEL NEW HVAC PIPING PLAN
M3.3	PHASE 3 BASEMENT LEVEL NEW HVAC PIPING PLAN
M3.4	PHASE 4 BASEMENT LEVEL NEW HVAC PIPING PLAN
M4.1.1	PHASE 1 ENLARGED HEATING NEW MECHANICAL PLANS
M4.1.2	PHASE 2 ENLARGED HEATING NEW MECHANICAL PLANS
M4.1.3	PHASE 3 ENLARGED HEATING NEW MECHANICAL PLANS
M4.1.4	PHASE 4 ENLARGED HEATING NEW MECHANICAL PLANS
M4.1.5	PHASE 4 HEATING HOT WATER 3D VIEWS
M4.1.6	PHASE 4 PRESSURE REDUCING STATION 3D VIEWS
M4.2.1	PHASE 1 ENLARGED COOLING NEW MECHANICAL PLAN
M4.2.2	PHASE 2 ENLARGED COOLING NEW MECHANICAL PLAN
M4.2.3	PHASE 3 ENLARGED COOLING NEW MECHANICAL PLAN
M4.2.4	PHASE 4 ENLARGED COOLING NEW MECHANICAL PLAN
M4.2.5	PHASE 4 CHILLED WATER 3D AND SECTION VIEWS
M5.0.0	EXISTING STEAM PIPING DIAGRAM
M5.0.1	PHASE 1 STEAM PIPING DIAGRAM
M5.0.2	PHASE 2 STEAM PIPING DIAGRAM
M5.0.3	PHASE 3 STEAM PIPING DIAGRAM
M5.0.4	PHASE 4 STEAM PIPING DIAGRAM
M5.0.5	FINAL NEW STEAM PIPING DIAGRAM
M5.1.1	PHASE 1 NEW HEATING HOT WATER PIPING DIAGRAM
M5.1.2	PHASE 2 NEW HEATING HOT WATER PIPING DIAGRAM
M5.1.3	PHASE 3 NEW HEATING HOT WATER PIPING DIAGRAM
M5.1.4	PHASE 4 NEW HEATING HOT WATER PIPING DIAGRAM
M5.2.1	PHASE 1 NEW CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
M5.2.2	PHASE 2 NEW CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
M5.2.3	PHASE 3 NEW CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
M5.2.4	PHASE 4 NEW CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
M6.1	MECHANICAL DETAILS - STEAM
M6.2	MECHANICAL DETAILS - MISC.
M7.1	MECHANICAL SCHEDULES
M7.2	MECHANICAL SCHEDULES
M8.0	MECHANICAL CONTROLS - LEGEND
M8.1	MECHANICAL CONTROLS - REHEAT HEATING HOT WATER SYSTEM
M8.2	MECHANICAL CONTROLS - PERIMETER HEATING HOT WATER SYSTEM
M8.3	MECHANICAL CONTROLS - STEAM
M8.4	MECHANICAL CONTROLS - CONDENSER WATER SYSTEM
M8.5	MECHANICAL CONTROLS - CHILLED WATER SYSTEM
M8.6	MECHANICAL CONTROLS - CHILLED AND CONDENSER WATER SYSTEM SEQUENCE OF OPERATIONS
ELECTRICAL	
E0.1	ELECTRICAL ABBREVIATIONS AND SYMBOLS
E0.2	ELECTRICAL SCHEDULES
ED2.1	PHASE 1 BASEMENT LEVEL ELECTRICAL DEMOLITION PLAN
ED2.2	PHASE 2 BASEMENT LEVEL ELECTRICAL DEMOLITION PLAN
ED2.3	PHASE 3 BASEMENT LEVEL ELECTRICAL DEMOLITION PLAN
ED2.4	PHASE 4 BASEMENT LEVEL ELECTRICAL DEMOLITION PLAN
E2.1	PHASE 1 BASEMENT LEVEL ELECTRICAL POWER PLAN
E2.2	PHASE 2 BASEMENT LEVEL ELECTRICAL POWER PLAN
E2.3	PHASE 3 BASEMENT LEVEL ELECTRICAL POWER PLAN
E2.4	PHASE 4 BASEMENT LEVEL ELECTRICAL POWER PLAN
E5.0	ELECTRICAL ONE-LINES & DETAILS
E7.0	ELECTRICAL MECHANICAL EQUIPMENT
E7.1	PANELBOARD SCHEDULES
E7.2	PANELBOARD SCHEDULES

Grand total: 84

VICINITY MAP



PROJECT AREA PLAN



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WASHINGTON DC 20001

CPFMD Reference Number: 0012-01-101-7

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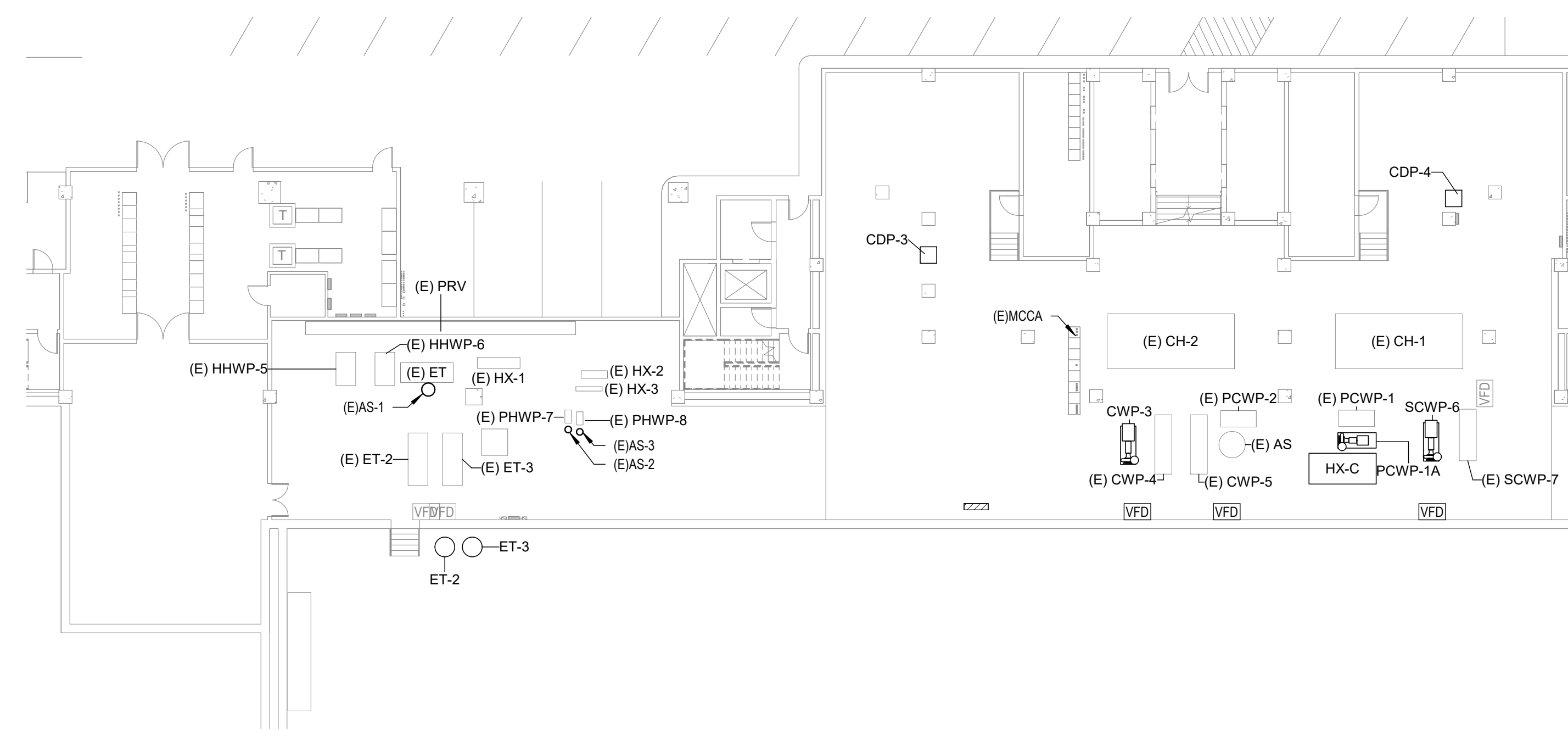
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VOLUME I OF I

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100% CONSTRUCTION DOCUMENTS

ISSUE DATE:
07/17/2020

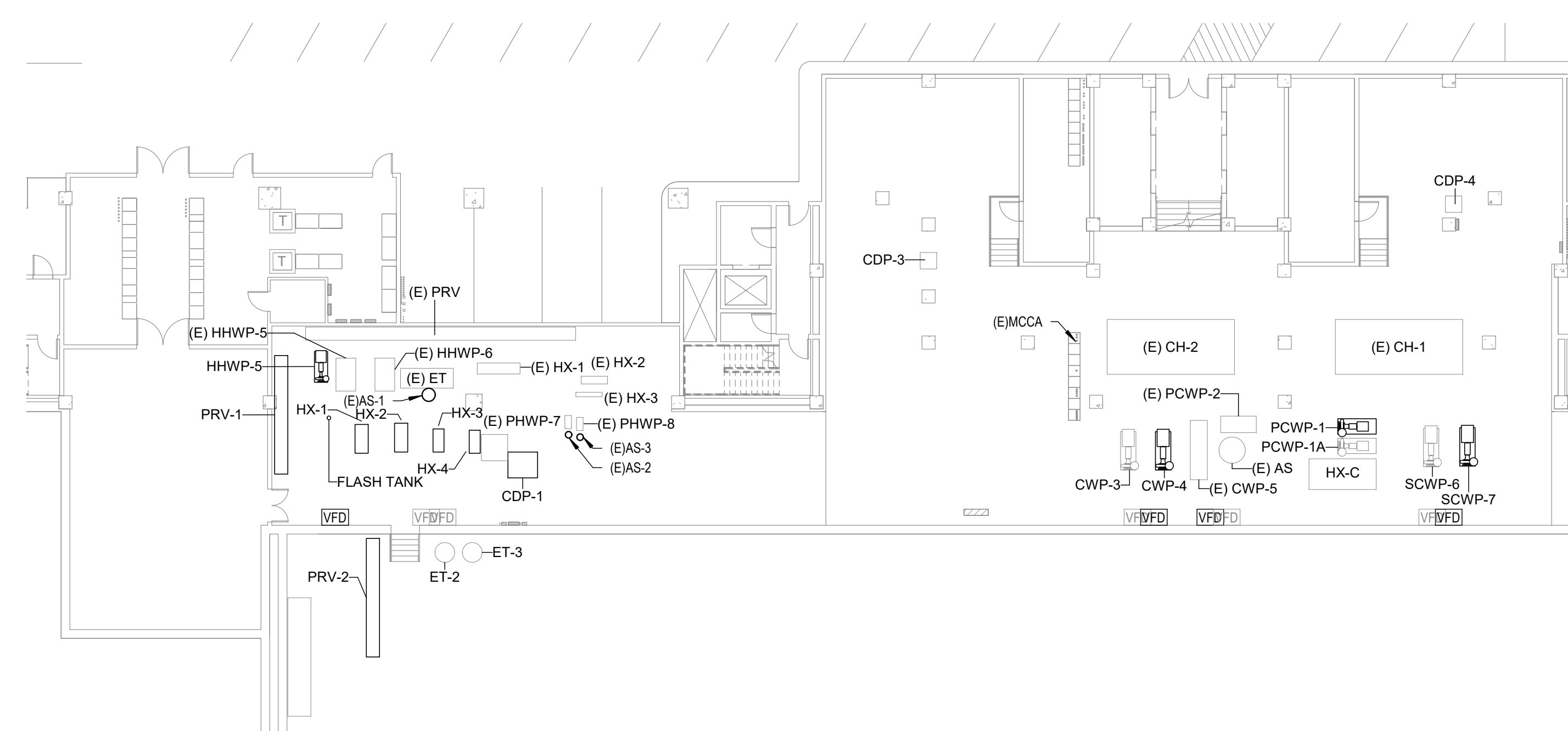
NEW



3 PHASE 1 BASEMENT LEVEL MECHANICAL NEW WORK PLAN
SCALE: 1/16" = 1'-0"

1. INSTALL NEW ET-2.3
2. INSTALL NEW CHWP-1A
3. INSTALL NEW CWP-3
4. INSTALL NEW SCWP-6
5. INSTALL NEW HX-C
6. INSTALL NEW CDP-3.4

NEW



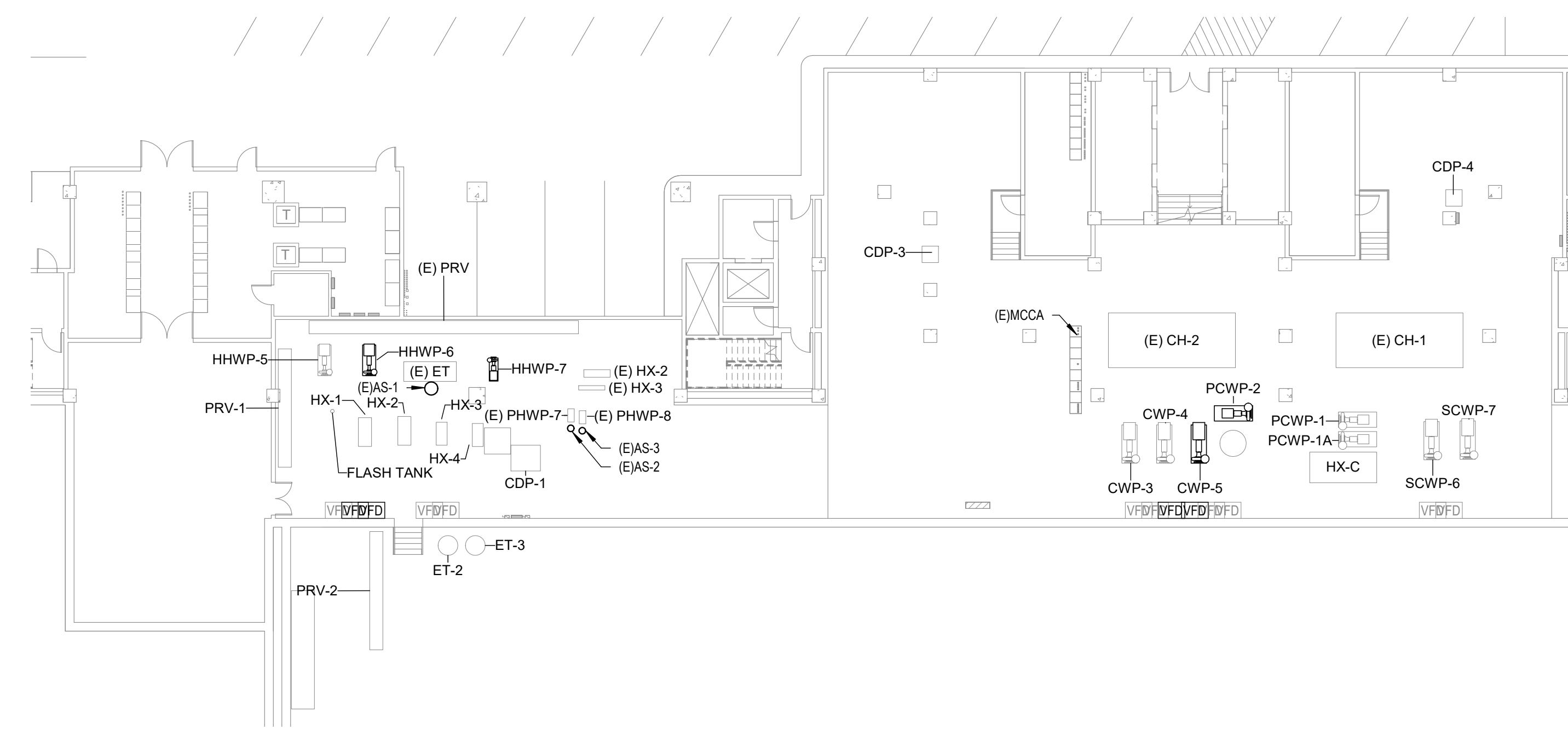
4 PHASE 2 BASEMENT LEVEL MECHANICAL NEW WORK PLAN

SCALE: 1/16" = 1'-0"

1. INSTALL NEW CWP-4
2. INSTALL NEW HHWP-5A
3. INSTALL NEW PCWP-1
4. INSTALL NEW SCWP-7
5. INSTALL NEW PRT STATION & ASSOCIATED PIPING
6. INSTALL NEW HX-12.3.4
7. INSTALL NEW CDP-1.2
8. INSTALL NEW FLASH TANK



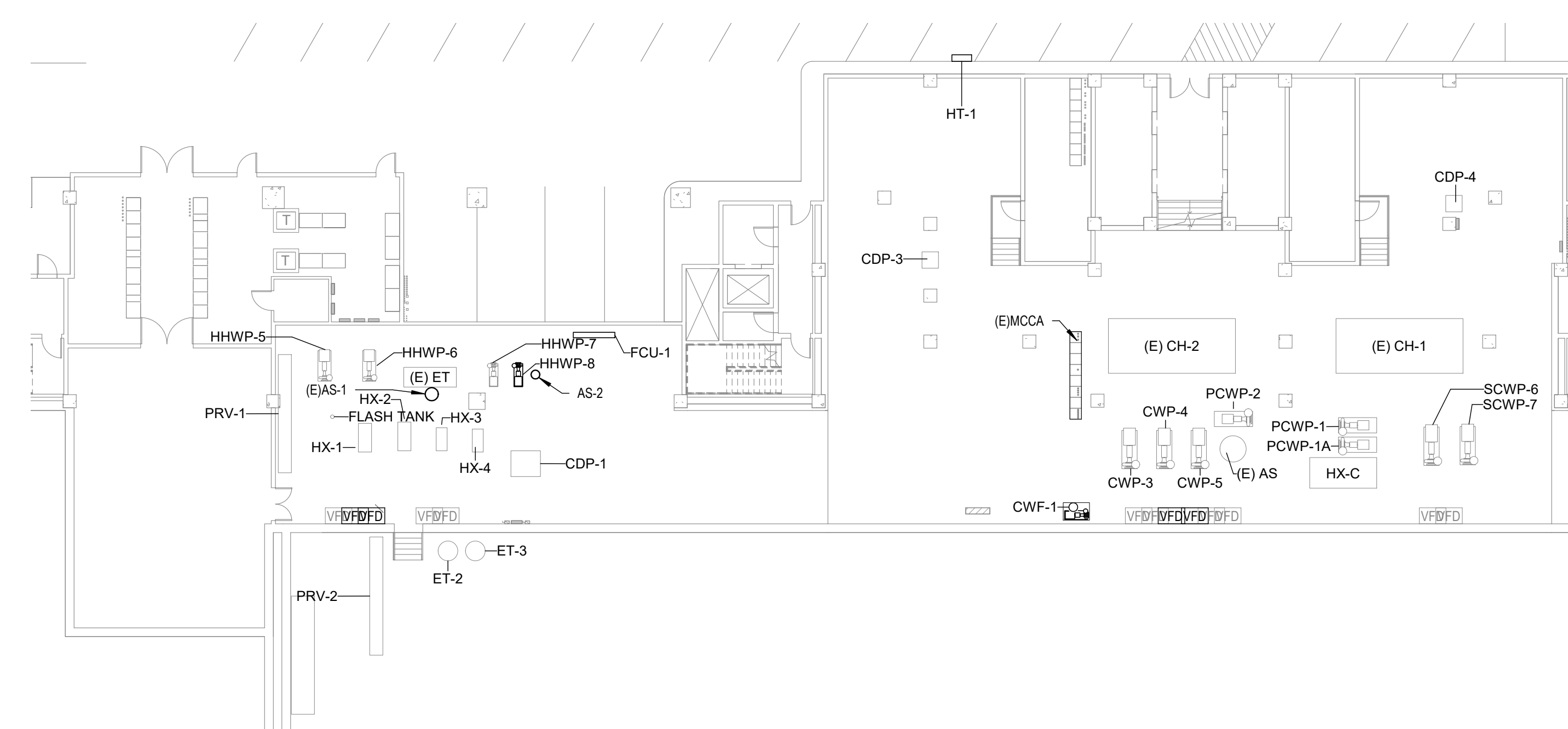
NEW



3 PHASE 3 BASEMENT LEVEL MECHANICAL NEW WORK PLAN
SCALE: 1/16" = 1'-0"

1. INSTALL NEW CWP-5
2. INSTALL NEW PCWP-2
3. INSTALL NEW HHWP-6
4. INSTALL NEW HHWP-7

NEW



4 PHASE 4 BASEMENT LEVEL MECHANICAL NEW WORK PLAN
SCALE: 1/16" = 1'-0"

1. INSTALL NEW HHWP-8
2. INSTALL NEW CWF-1
3. INSTALL NEW FCU-1
4. INSTALL NEW HT-1
5. INSTALL NEW AS-2



Plot Date:



THICKNESS	REINFORCEMENT
≤ 3"	WWR 6x6 - W2.9xW2.9
≤ 4"	WWR 6x6 - W4.0xW4.0
≤ 6"	#4 @ 12" TOP EACH WAY
≤ 12"	#4 @ 12" TOP & BOTTOM EACH WAY



TYPICAL EQUIPMENT PAD DEMOLITION DETAIL

$$1'' = 1' - 0''$$

1 TYPICAL DETAIL OF CONCRETE FILL HOUSEKEEPING PAD/MECH PAD

① NOT TO SCALE



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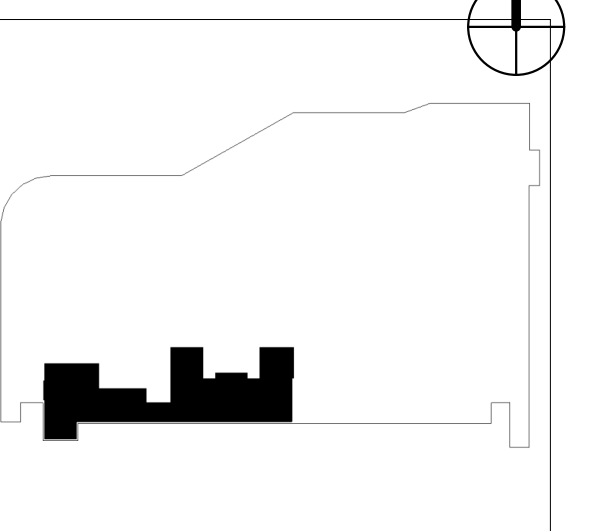
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SEALS AND SIGNATURES



Matthew D. Loeffler

KEYPLAN



SHEET TITLE

SECTIONS AND DETAILS

Project Number

PROJECT NUMBER

62.1

SHEET NUMBER

MECHANICAL ABBREVIATIONS		MECHANICAL FLOOR PLAN SYMBOLS		MECHANICAL GENERAL NOTES	
<p>A AIR CONDITIONING</p> <p>ACB ACTIVE CHILLED BEAM</p> <p>ACC AIR COOLED CHILLER</p> <p>ACCU AIR COOLED CONDENSING UNIT</p> <p>ACFM ABSOLUTE CUBIC FEET PER MINUTE</p> <p>ACU AIR CONDITIONING UNIT</p> <p>AD ACCESS DOOR</p> <p>AFF ABOVE FINISHED FLOOR</p> <p>AFM AIRFLOW MEASURING DEVICE</p> <p>AFMS AIRFLOW MEASURING STATION</p> <p>AHU AIR HANDLING UNIT</p> <p>AMB AMBIENT</p> <p>AP ACCESS PANEL</p> <p>APPROX APPROXIMATE</p> <p>AS AIR SEPARATOR</p> <p>B BOILER</p> <p>BHP BRAKE HORSEPOWER</p> <p>BOD BOTTOM OF DUCT</p> <p>BOP BOTTOM OF PIPE</p> <p>BTU(H) BRITISH THERMAL UNIT (PER HOUR)</p> <p>C CAPACITY</p> <p>CC COOLING COIL</p> <p>CDR CONDENSER</p> <p>CFH CUBIC FEET PER HOUR</p> <p>CFM CUBIC FEET PER MINUTE</p> <p>CH CHILLER</p> <p>CI CAST IRON</p> <p>COMP COMPRESSOR</p> <p>COND CONDENSATE</p> <p>CONT CONTINUATION</p> <p>CP CONDENSATE PUMP</p> <p>CS CLEAN STEAM</p> <p>CT COOLING TOWER</p> <p>CJ CABINET UNIT HEATER</p> <p>CV CONSTANT VOLUME CONTROL VALVE</p> <p>CW COLD WATER</p> <p>D DRIP & TRAP</p> <p>DB DECIBELS</p> <p>D&A DECIBELS (A-WEIGHTED SCALE)</p> <p>D&T DRY BULB TEMPERATURE °F</p> <p>DDC DIRECT DIGITAL CONTROL</p> <p>DA DIAMETER</p> <p>DN DOWN</p> <p>DP DIFFERENTIAL PRESSURE</p> <p>DPS DIFFERENTIAL PRESSURE SENSOR</p> <p>DPT DEW POINT TEMPERATURE °F</p> <p>DWG DRAWING</p> <p>DX DIRECT EXPANSION</p> <p>E EXISTING</p> <p>(E) EACH/EXHAUST AIR</p> <p>EA ENTERING AIR TEMPERATURE</p> <p>EER ENERGY EFFICIENCY RATIO</p> <p>EF EXHAUST FAN</p> <p>EFF EFFICIENCY</p> <p>EG ETHYLENE GLYCOL WATER SOLUTION</p> <p>EL ELEVATION</p> <p>ELEC ELECTRICAL</p> <p>ENT ENTERING</p> <p>EQ EQUIVALENT</p> <p>ERU ENERGY RECOVERY UNIT</p> <p>ESP EXTERNAL STATIC PRESSURE</p> <p>ET EXPANSION TANK</p> <p>EV EXHAUST VALVE</p> <p>EWC ELECTRIC WATER COOLER</p> <p>EWT ENTERING WATER TEMPERATURE</p> <p>EXH EXHAUST</p> <p>EXP EXPANSION</p> <p>EXT EXTERNAL</p> <p>F FAHRENHEIT</p> <p>FAHRENHEIT</p> <p>FOU FAN COIL UNIT</p> <p>FD FIRE DAMPER</p> <p>FH FUME HOOD</p> <p>FLA FULL LOAD AMPERES</p> <p>FLEX FLEXIBLE CONNECTION</p> <p>FLR FLOOR</p> <p>FM FLOW METER</p> <p>FS FEET PER MINUTE</p> <p>FPM FEET PER MINUTE</p> <p>FS FLOW SWITCH</p> <p>FSD FIRE & SMOKE DAMPER</p> <p>FT FEET & FOOT</p> <p>FTR FIN TUBE RADIATION</p> <p>G GLYCOL</p> <p>GAL GALLONS</p> <p>GPH GALLONS PER HOUR</p> <p>GPM GALLONS PER MINUTE</p> <p>GR GRAINS</p> <p>H HEIGHT</p> <p>HB HOSE BIBB</p> <p>HC HEATING COIL</p> <p>HEX HEAT EXCHANGER</p> <p>HG MERCURY</p> <p>HO HUB OUTLET</p> <p>HP HORSE POWER</p> <p>HR HOUR</p> <p>HUM HUMIDIFIER</p> <p>HZ HERTZ</p> <p>I INSIDE DIAMETER</p> <p>IE INVERT ELEVATION</p> <p>IFB INTEGRAL FACE AND BY-PASS</p> <p>IN INCHES</p> <p>IPLV INTEGRATED PART LOAD VALUE</p> <p>K KILOWATTS</p> <p>KWH KILOWATT HOURS</p> <p>L LENGTH</p> <p>LAT LEAVING AIR TEMPERATURE</p> <p>LBS POUNDS</p> <p>LBSHR POUNDS PER HOUR</p> <p>LEF LAB EXHAUST FAN</p> <p>LP LOW POINT</p> <p>LRA LOCKED ROTOR AMPERES</p> <p>LVG LEAVING</p> <p>LWT LEAVING WATER TEMPERATURE</p> <p>M MAXIMUM</p> <p>MAH 1000 BTU/H</p> <p>MCA MAXIMUM CURRENT AMPACITY</p> <p>MCC MOTOR CONTROL CENTER</p> <p>MD MOTORIZED DAMPER</p> <p>MECH MECHANICAL</p> <p>MER MECHANICAL EQUIPMENT ROOM</p> <p>MIN MINIMUM</p> <p>MISC MISCELLANEOUS</p> <p>MOTC MAXIMUM OVER CURRENT PROTECTION</p> <p>MTG MOUNTING</p> <p>N NEW LOCATION OF RELOCATED MATERIAL OR EQUIPMENT</p> <p>(NR) NORMALLY CLOSED</p> <p>N.O. NORMALLY OPEN</p> <p>NC NOISE CRITERIA</p> <p>NIC NOT IN CONTRACT</p> <p>NO NUMBER</p> <p>NOM NOMINAL</p> <p>NON NON STANDARD PART LOAD VALUE</p> <p>NPSH NET POSITIVE SUCTION HEAD</p> <p>NTS NOT TO SCALE</p> <p>O OUTSIDE AIR</p> <p>OA OUTSIDE AIR DAMPER</p> <p>OD OUTSIDE DIAMETER</p> <p>OPR OPERATING</p> <p>OV OUTLET VELOCITY</p> <p>P PUMP</p> <p>PCB PASSIVE CHILLED BEAM</p> <p>PD PRESSURE DROP (FEET OF WATER)</p> <p>PG PROPYLENE GLYCOL WATER SOLUTION</p> <p>PH PHASE</p> <p>PRESS PRESSURE</p> <p>PRV PRESSURE REGULATING VALVE</p> <p>PSI POUNDS PER SQUARE INCH</p> <p>PSIG POUNDS PER SQUARE INCH - GAUGE</p> <p>QTY QUANTITY</p> <p>R RELOCATED MATERIAL OR EQUIPMENT</p> <p>(RL) RELOCATED MATERIAL OR EQUIPMENT</p> <p>RA RETURN/RELIEF AIR</p> <p>RC ROOF CONDUCTOR</p> <p>RE REFERENCE</p> <p>RET RETURN</p> <p>RF RETURN FAN</p> <p>RH RELATIVE HUMIDITY</p> <p>RHC REHEAT COIL</p> <p>RLA RUNNING LOAD AMPS</p> <p>RPM REVOLUTIONS PER MINUTE</p> <p>RTU ROOFTOP UNIT</p> <p>S SUPPLY AIR</p> <p>SA SHOCK ABSORBER</p> <p>SA SOUND ATTENUATOR</p> <p>SAN SANITARY WASTE</p> <p>SCFM STANDARD CUBIC FEET PER MINUTE</p> <p>SD SMOKE DAMPER/SMOKE DETECTOR</p> <p>SD SMOKE DAMPER</p> <p>SEER SEASONAL ENERGY EFFICIENCY RATIO</p> <p>SENS SENSIBLE</p> <p>SF SQUARE FEET</p> <p>SG SPECIFIC GRAVITY</p> <p>SL SOUND LINING</p> <p>SP STATIC PRESSURE (INCHES OF WATER)</p> <p>SPD SPEED</p> <p>SPL SOUND POWER LEVEL</p> <p>SPS STATIC PRESSURE SENSOR</p> <p>SS STAINLESS STEEL</p> <p>STM STEAM</p> <p>SV SUPPLY VALVE</p> <p>T TEMPERATURE</p> <p>TAB TESTING, ADJUSTING AND BALANCING</p> <p>TEF TOILET EXHAUST FAN</p> <p>TOD TOP OF DUCT</p> <p>TOP TOP OF PIPE</p> <p>TP TOTAL PRESSURE</p> <p>TYP TYPICAL</p> <p>U UNIT HEATER</p> <p>UH UNLESS OTHERWISE NOTED</p> <p>V VOLTAGE/VENT</p> <p>V VACUUM</p> <p>VAV VARIABLE AIR VOLUME</p> <p>VEL VELOCITY</p> <p>VFD VARIABLE FREQUENCY DRIVE</p> <p>VFB VERTICAL INTEGRAL FACE AND BYPASS</p> <p>VTR VENT THRU ROOF</p> <p>W WATTS/WIDTH</p> <p>W WITH</p> <p>WO WITHOUT</p> <p>WB WET BULB TEMPERATURE</p> <p>WG WATER GAUGE</p> <p>WMS WIRE MESH SCREEN</p>		<p>ISOLATION VALVE</p> <p>THROTTLING VALVE</p> <p>ANGLE VALVE</p> <p>CHECK VALVE</p> <p>2-WAY PNEUMATIC CONTROL VALVE</p> <p>3-WAY PNEUMATIC CONTROL VALVE</p> <p>2-WAY ELECTRIC CONTROL VALVE</p> <p>3-WAY ELECTRIC CONTROL VALVE</p> <p>SOLENOID VALVE</p> <p>AUTOMATIC FLOW CONTROL VALVE</p> <p>PLUG VALVE (ISOLATION OR THROTTLING)</p> <p>SELF ACTUATING TYPE DIFFERENTIAL PRESSURE CONTROL VALVE (DPCV)</p> <p>AUTOMATIC DPCV</p> <p>PRESSURE REGULATING VALVE, FLANGED</p> <p>PRESSURE REGULATING VALVE, THREADED</p> <p>PRESSURE REDUCING VALVE</p> <p>FLOW INDICATING BALANCE VALVE</p> <p>SAFETY RELIEF VALVE</p> <p>AIR SEPARATOR</p> <p>BASKET STRAINER</p> <p>STRAINER</p> <p>MECHANICAL EXPANSION JOINT</p> <p>FLEXIBLE CONNECTION</p> <p>ORIFICE PLATE</p> <p>REDUCER - CONCENTRIC</p> <p>REDUCER - ECCENTRIC</p> <p>PIPE UNION</p> <p>PIPE ANCHOR</p> <p>ALIGNMENT GUIDE</p> <p>PRESSURE GAUGE WITH COCK</p> <p>THERMOMETER</p> <p>QUICK COUPLING</p> <p>CAP OR PLUG</p> <p>ELBOW - TURNED UP/RISER CONNECTION</p> <p>ELBOW - TURNED DOWN</p> <p>TEE OUTLET - DOWN</p> <p>TEE OUTLET - UP</p> <p>CONNECT OUT OF TOP</p> <p>DROP OR RISE</p> <p>DIRECTION OF FLOW</p> <p>DIRECTION OF PIPE PITCH</p> <p>REDUCED PRESSURE BACKFLOW PREVENTER</p> <p>MANUAL AIR VENT WITH VALVE</p> <p>AUTOMATIC AIR VENT</p> <p>FLOW METER</p> <p>INDICATES RECTANGULAR DUCT WITH DUCT SIZE 18 INCHES WIDE (IN PLANE OF DRAWING) AND 6 INCHES DEEP. SIZE PERTAINS TO THE ENTIRE RUN OF DUCT UNLESS OTHERWISE NOTED.</p> <p>INDICATES FLAT OVAL DUCT WITH DUCT SIZE 18 INCHES WIDE (IN PLANE OF DRAWING) AND 6 INCHES DEEP. SIZE PERTAINS TO THE ENTIRE RUN OF DUCT UNLESS OTHERWISE NOTED.</p> <p>INDICATES ROUND DUCT WITH DUCT SIZE OF 18 INCHES IN DIAMETER. SIZE PERTAINS TO THE ENTIRE RUN OF DUCT (FROM DUCT ORIGIN AT TAP TO END OF DUCT) UNLESS OTHERWISE NOTED.</p>	<p>ROOM THERMOSTAT/SENSOR</p> <p>DUCT MOUNTED THERMOSTAT/SENSOR</p> <p>CARBON DIOXIDE SENSOR</p> <p>CARBON MONOXIDE SENSOR</p> <p>HUMIDITY SENSOR/HUMIDISTAT</p> <p>SMOKE DETECTOR</p> <p>FLOW SWITCH</p> <p>STATIC PRESSURE SENSOR</p> <p>HOSE CONNECTION</p> <p>STEAM TRAP</p> <p>TEST PORT (PRESSURE / TEMPERATURE)</p> <p>FLEXIBLE DUCT OF SIZE AS SHOWN</p> <p>FLEXIBLE DUCT CONNECTION</p> <p>AUTOMATIC DAMPER (MOTORIZED)</p> <p>VOLUME DAMPER (MANUAL)</p> <p>FIRE DAMPER</p> <p>SMOKE DAMPER</p> <p>COMBINATION FIRE & SMOKE DAMPER</p> <p>RFI SHIELD DAMPER</p> <p>SECURITY BARS</p> <p>DIRECTION OF FLOW</p> <p>ACOUSTICALLY LINED DUCT</p> <p>HUMIDIFIER</p> <p>VERTICAL DUCT RISE</p> <p>VERTICAL DUCT DROP</p>	<p>SUPPLY</p> <p>RETURN</p> <p>EXHAUST</p> <p>SIDE WALL SUPPLY DIFFUSER</p> <p>SIDE WALL RETURN or EXHAUST GRILLER/REGISTER</p> <p>LINEAR DIFFUSER & PLENUM</p> <p>MATERIAL OR EQUIPMENT EXISTING TO REMAIN</p> <p>MATERIAL OR EQUIPMENT TO BE DEMOLISHED</p> <p>DUCT RISE (R) OR DROP (D) IN DIRECTION OF AIRFLOW 45° OFFSETS</p> <p>UNIT HEATER</p> <p>CIRCULATING/SUPPLY/EXHAUST FAN</p> <p>RETURN OR EXHAUST AIRFLOW</p> <p>SUPPLY OR OUTSIDE AIRFLOW</p> <p>POINT OF CONNECTION</p> <p>POINT OF DISCONNECT</p> <p>PUMP</p> <p>FAN</p>	<p>A. INSTALL ALL WORK IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE 2015 AND THE REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION.</p> <p>B. TO OBTAIN ALL CONSTRUCTION INFORMATION, ALL SPECIFICATION AND DRAWINGS (E.G. ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION) MUST BE USED.</p> <p>C. BRING TO THE ATTENTION OF THE ARCHITECT/ENGINEER ANY INFORMATIONAL CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS. THE CONTRACTOR(S) SHALL NOT PROCEED WITH ANY WORK, EXCEPT AT ITS OWN RISK, UNTIL ALL CONFLICTS ARE RESOLVED AND THE CLARIFYING INFORMATION IS ISSUED TO THE CONTRACTOR(S) BY THE ARCHITECT/ENGINEER.</p> <p>D. PROVIDE OFFSETS AND TRANSITIONS IN DUCTWORK AND PIPING AS REQUIRED TO AVOID INTERFERENCE AT NO ADDITIONAL COST TO THE OWNER. THOUGH SOME OFFSETS & TRANSITIONS ARE SHOWN IN PIPING & SHEET METAL TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING & SHEET METAL OFFSETS & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE MECHANICAL WORK WITHIN ITSELF & WITH THE WORK OF ALL TRADES TO PROVIDE COMPLETE & OPERABLE SYSTEMS WITHOUT INTERFERENCES.</p> <p>E. INSTALL</p>

- A. SEE 00.1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT CONDITIONS. UNLIMITED SITE SURVEYING, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL OBTAIN ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.
- E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
- F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.
- G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



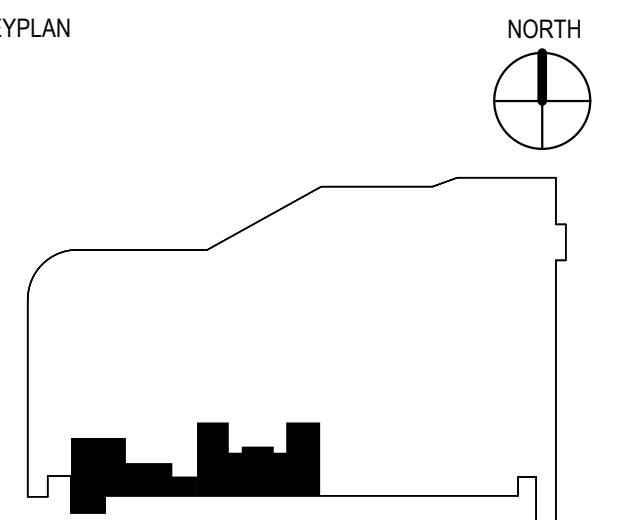
SMITHGROUP

HORTON TOMASETTI
STRUCTURAL
1000 L ST NW #600
WASHINGTON, DC 20036
202.580.6300

MD016	TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
MD017	TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

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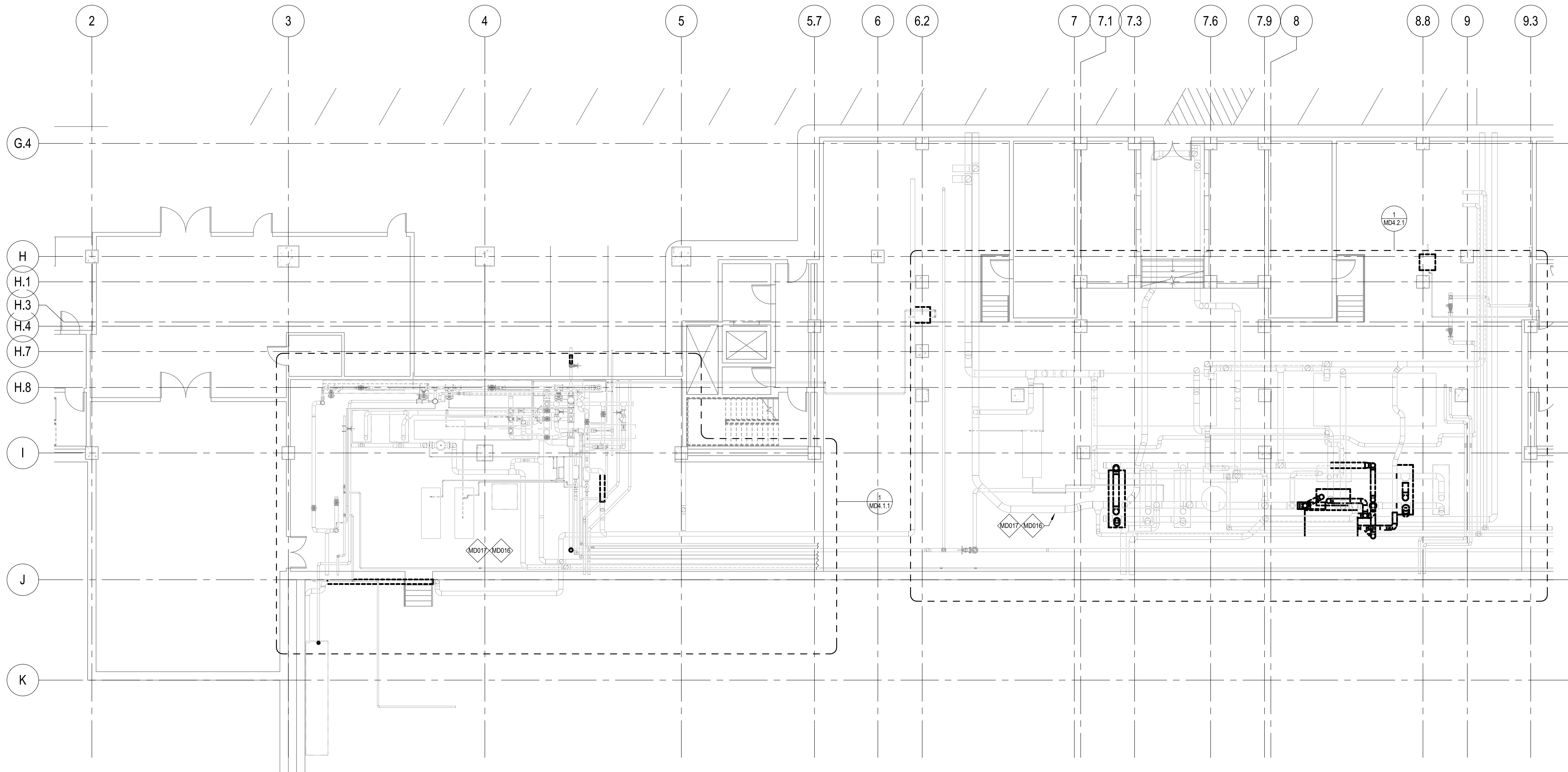
SEALS AND SIGNATURES



PROJECT NUMBER.

MD3.1

SHEET NUMBER



Author

7/17/2020 6:01:16 PM

Plot Date:

1 PHASE 1 BASEMENT LEVEL MECHANICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

- A. SEE I.01 FOR MECHANICAL LEGEND, ABBREVIATIONS AND SYMBOLS.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT CONDITIONS. THE UNITED STATES SURVEYING CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR ALL EQUIPMENT.
- E. REMOVE AND MEASURE EXISTING STEAM HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
- F. TEST AND MEASURE THE EXISTING STEAM HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.
- G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OR RECORD FOR NEW MEASURING RECORDS BASED ON THE WORK DESCRIBED ABOVE.



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MD016	TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
MD017	TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

SEALS AND SIGNATURES

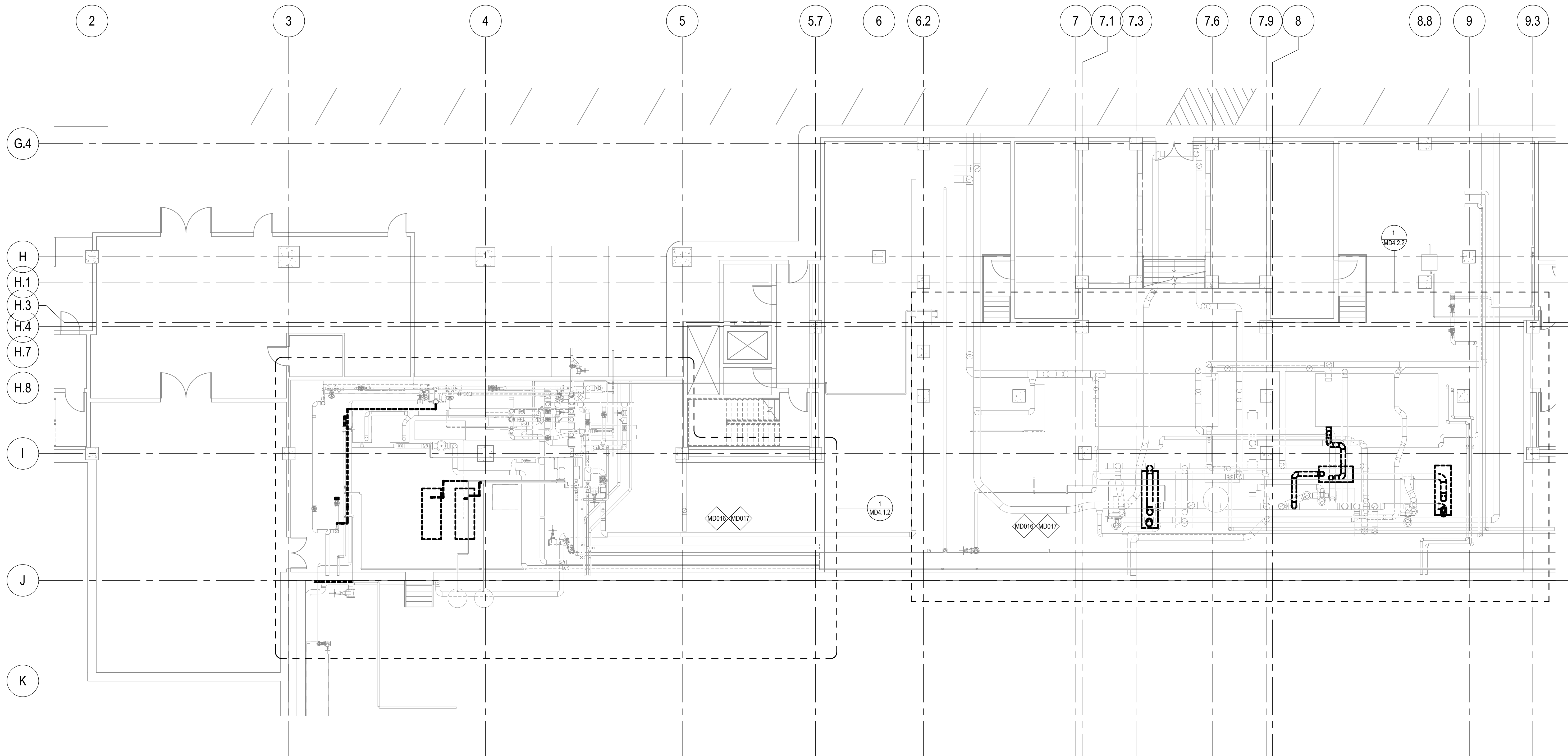
RTH



PROJECT NUMBER

MD3.2

SHEET NUMBER



Author

7/17/2020 6:01:30 PM

Plot Date:

1 PHASE 2 BASEMENT LEVEL MECHANICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

A. SEE 00.1 FOR MECHANICAL, LEGAL, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL DISCONNECT ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



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MD016	TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
MD017	TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

SEALS AND SIGNATURES

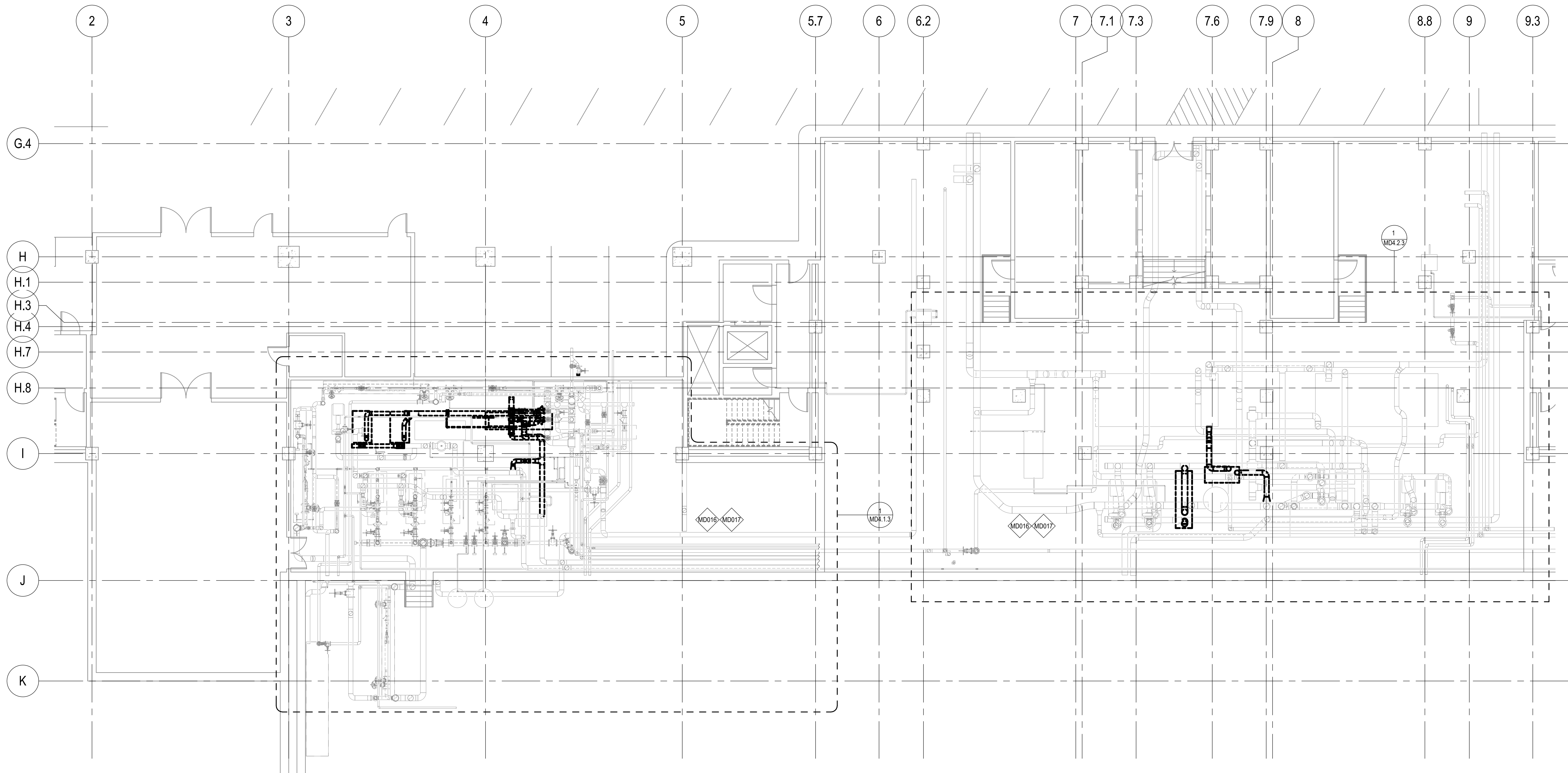
NORTH



PROJECT NUMBER

MD3.3

SHEET NUMBER



Author

7/17/2020 6:02:04 PM

Plot Date:

1 PHASE 3 BASEMENT LEVEL MECHANICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

A. SEE 00.1 FOR MECHANICAL, LEGAL, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



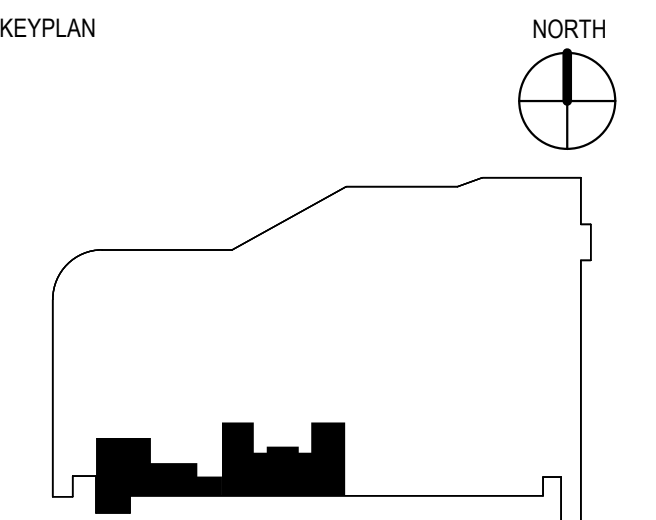
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2000 L ST NW #600
WASHINGTON, DC 20036
202.580.6300

MD016	TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
MD017	TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

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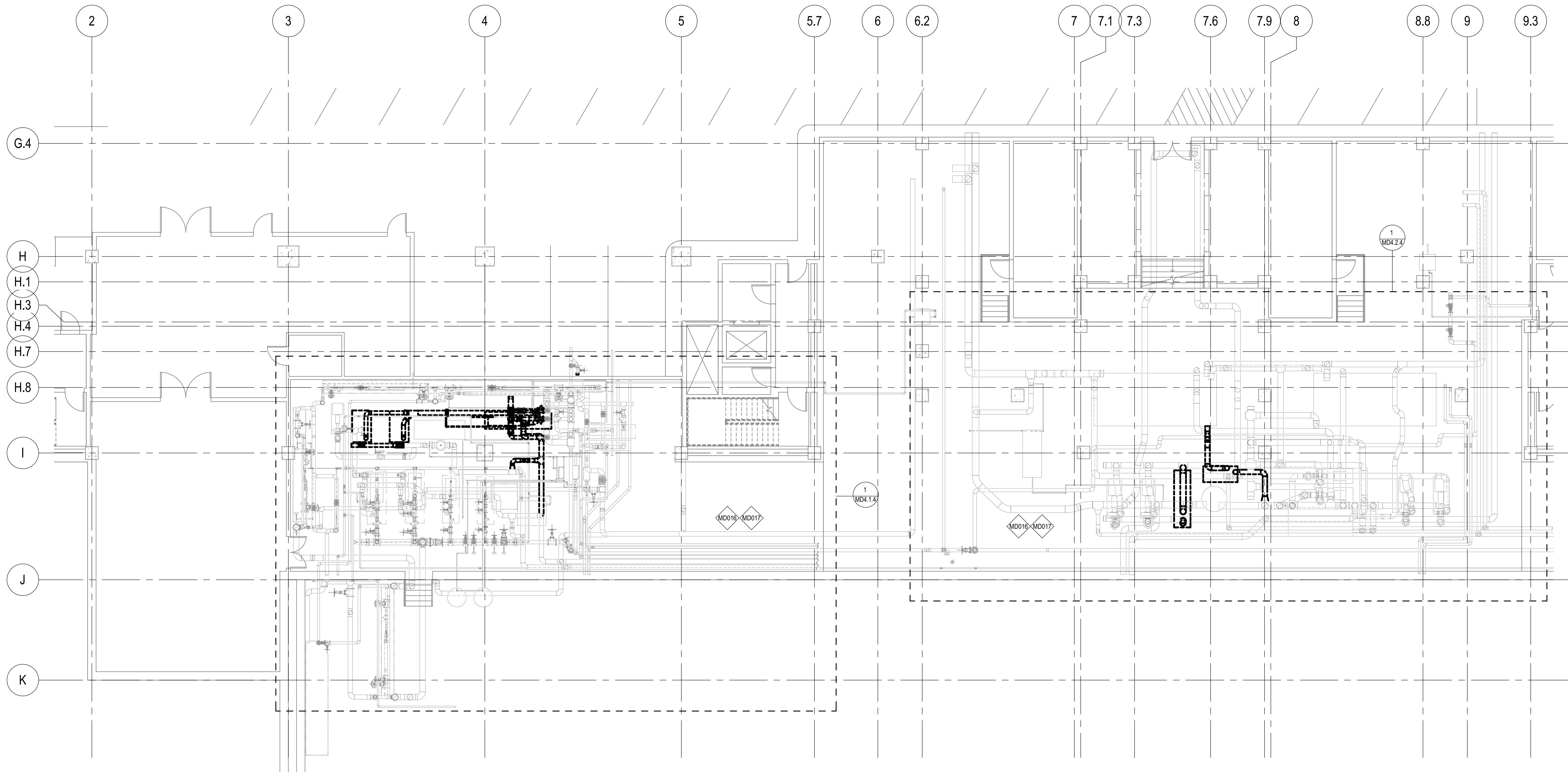
SEALS AND SIGNATURES



PROJECT NUMBER.

MD3.4

SHEET NUMBER



Author

7/17/2020 6:02:34 PM

Plot Date:

1 PHASE 3 BASEMENT LEVEL MECHANICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

A. SEE 001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT CONDITIONS. UNLESS LIMITED SITE SURVEYING, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



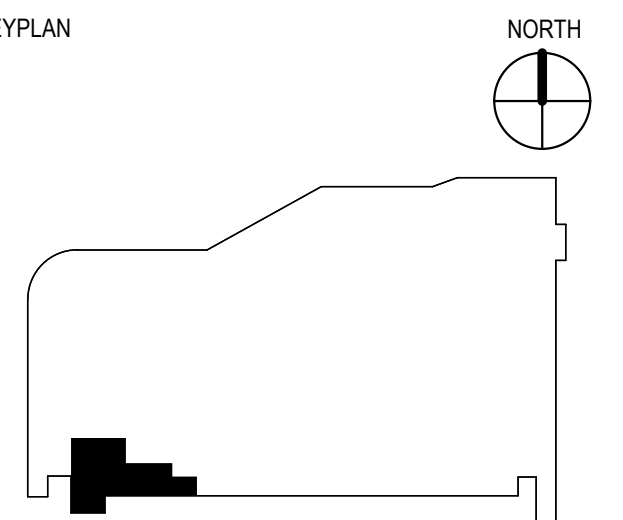
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202.580.6300

MD004	DISCONNECT AND REMOVE EXISTING 4" MPS PIPE AS INDICATED. SEE SHEET MD5.0.1 FOR ADDITIONAL INFORMATION.
MD005	DISCONNECT AND REMOVE EXISTING 8" VENT PIPE AS INDICATED. SEE SHEET MD5.0.1 FOR ADDITIONAL INFORMATION.
MD006	DISCONNECT AND REMOVE EXISTING 6" LPS PIPE AS INDICATED. SEE SHEET MD5.0.1 FOR ADDITIONAL INFORMATION.
MD007	DISCONNECT AND REMOVE EXISTING 4" LPS PIPE AS INDICATED. SEE SHEET MD5.0.1 FOR ADDITIONAL INFORMATION.

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SEALS AND SIGNATURES

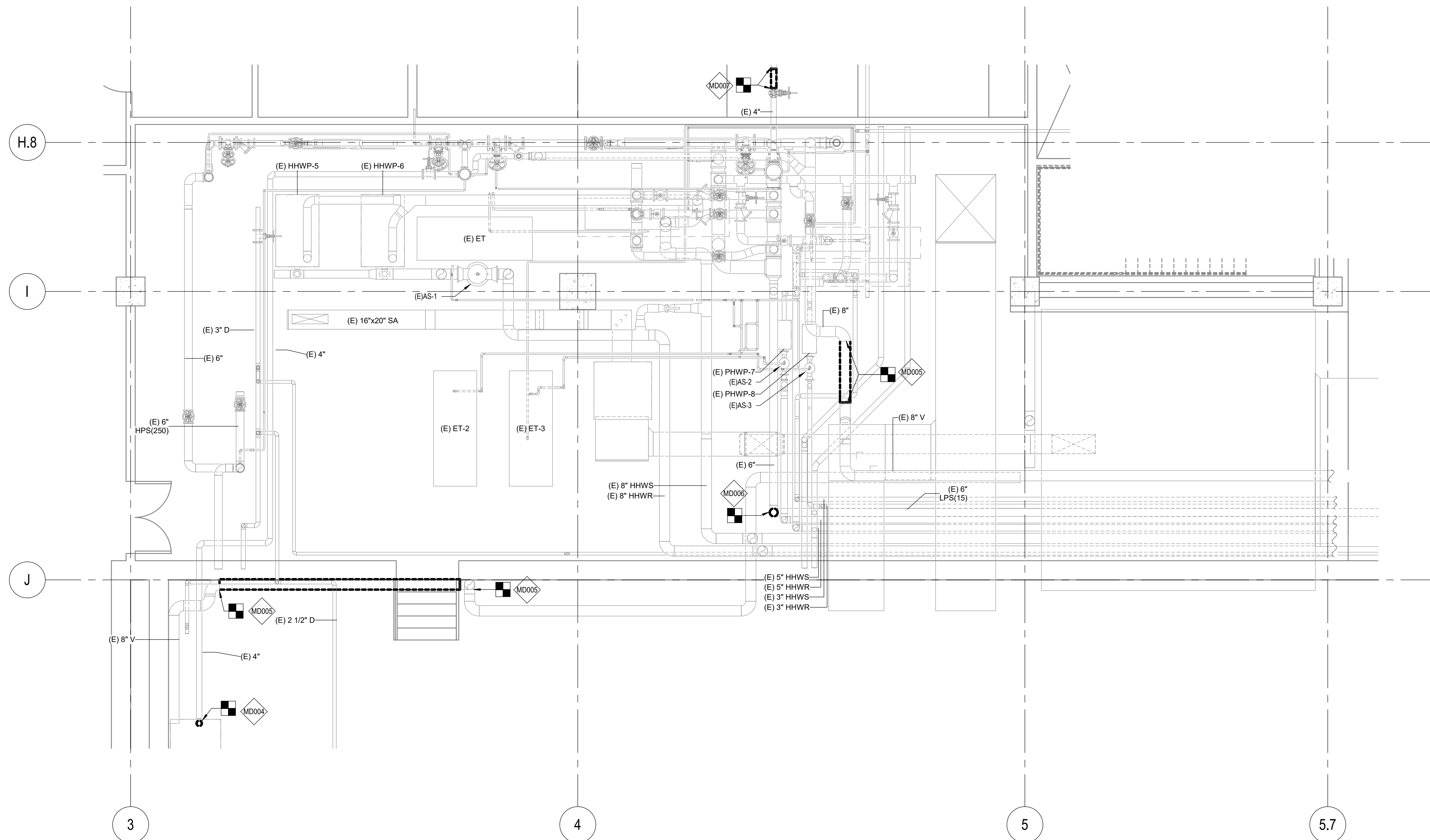


SHEET TITLE

PROJECT NUMBER

MD4.1.1

SHEET NUMBER



- A. SEE 0.01 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT CONDITIONS. UNLIMITED SITE SURVEYING, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND DRAINING OF SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR ALL EQUIPMENT.
- E. REMOVE AND MORE EXISTING STEAM HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
- F. REMOVE AND MORE EXISTING CHILLED WATER HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.
- G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER FOR REVIEW AND RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



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MD002	DISCONNECT AND REMOVE EXISTING EXPANSION TANK AND ASSOCIATED PIPING UP TO POINT OF DISCONNECTION.
MD008	DISCONNECT AND REMOVE EXISTING 2-1/2" CONDENSATE PIPE AS INDICATED. SEE SHEET MDS.0.2 FOR ADDITIONAL INFORMATION.
MD009	DISCONNECT AND REMOVE EXISTING CONDENSATE MAIN END CAP AS INDICATED. SEE SHEET MDS.0.2 FOR ADDITIONAL INFORMATION.
MD010	DISCONNECT AND REMOVE EXISTING HPR PIPE AS INDICATED. SEE SHEET MDS.0.2 FOR ADDITIONAL INFORMATION.
MD011	DISCONNECT AND REMOVE EXISTING HPS END CAP AS INDICATED. SEE SHEET MDS.0.2 FOR ADDITIONAL INFORMATION.

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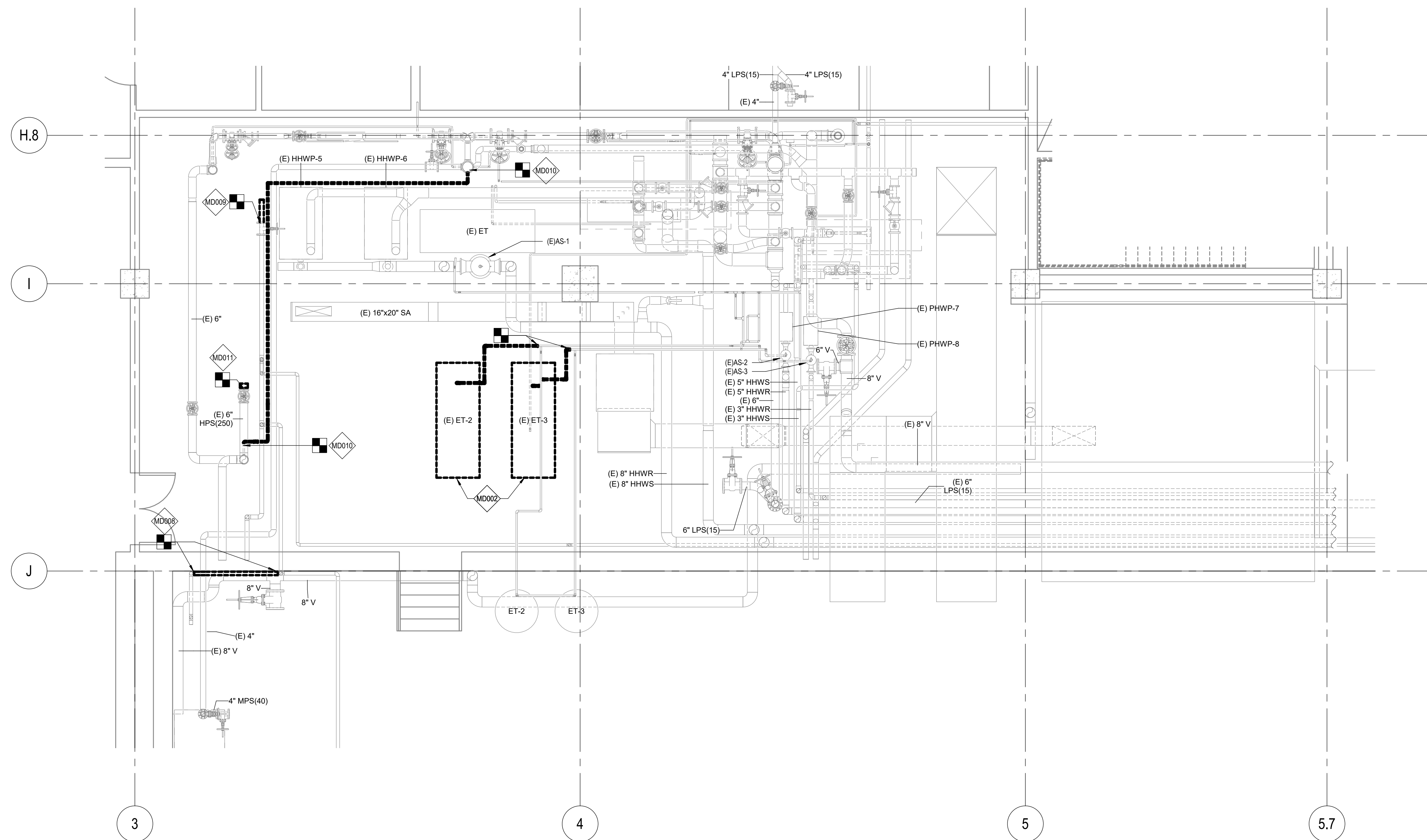
SEALS AND SIGNATURES

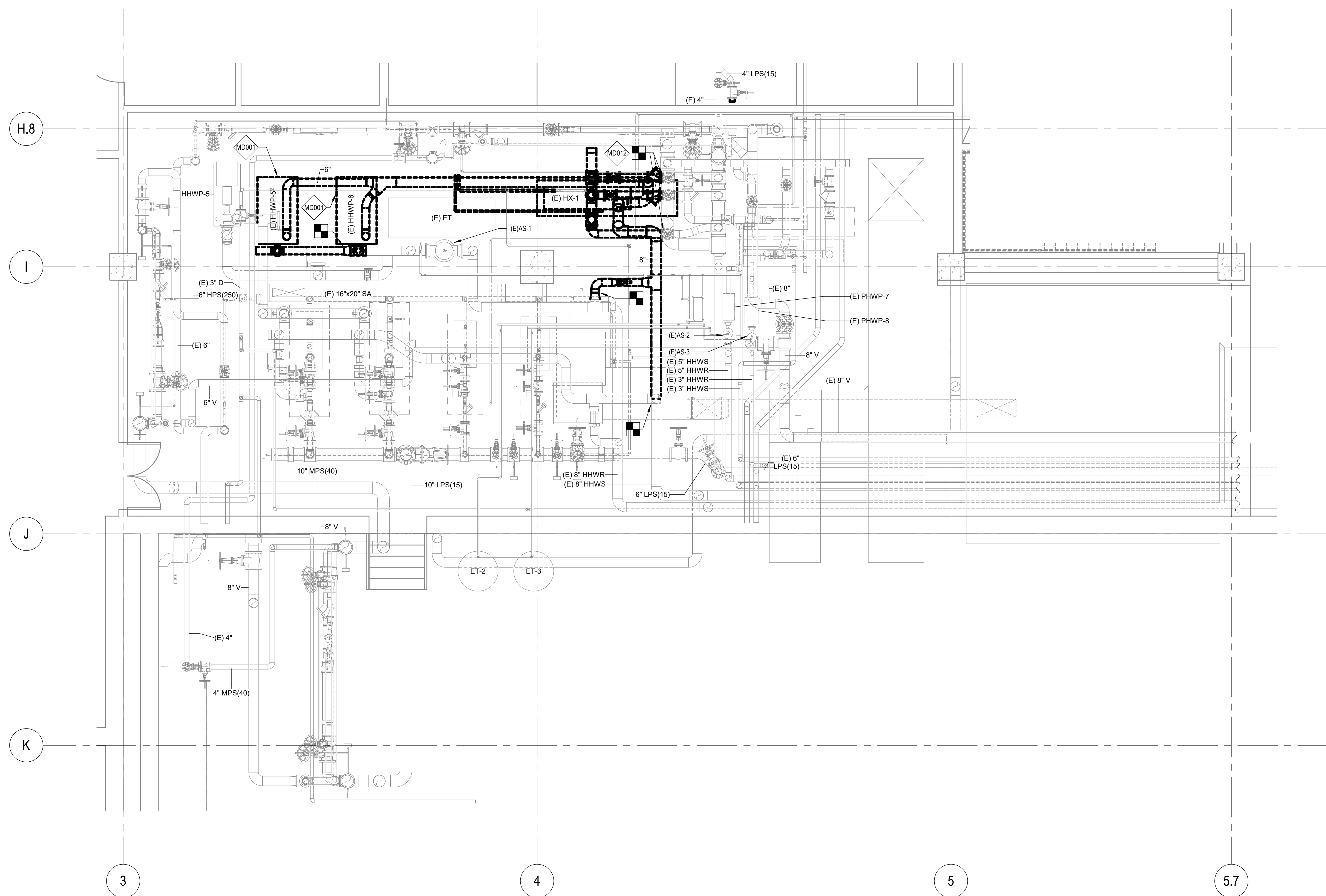


PROJECT NUMBER

MD4.1.2

SHEET NUMBER





GENERAL SHEET NOTES

- A. SEE I.M.1 FOR UNITED STATES, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT RECORDS. FOR LIMITED SITE SURVEYING, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR ALL EQUIPMENT.
- E. REMOVE AND REINSTALL EXISTING STEAM HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
- F. TEST AND MEASURE THE EXISTING STEAM HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.
- G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OR RECORD FOR NEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



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SUITE 100
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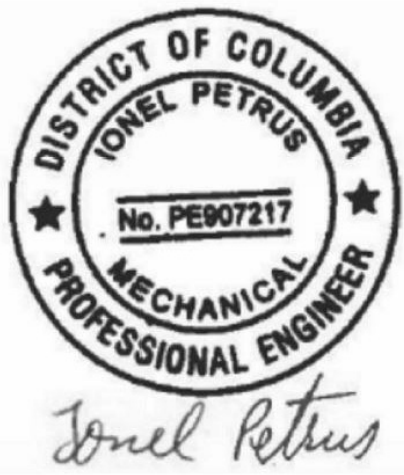
THORNTON TOMASETTI
STRUCTURAL
2000 L ST NW #600
WASHINGTON, DC 20036
202.580.6300

○ SHEET KEYNOTES

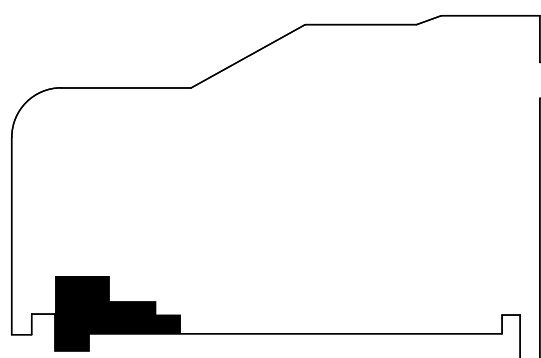
- | | |
|-------|--|
| MD001 | DISCONNECT AND REMOVE EXISTING PUMP AND ASSOCIATED PIPING UP TO POINT OF DISCONNECTION. |
| MD012 | DISCONNECT AND REMOVE EXISTING HX-1 AND ASSOCIATED PIPING. CLOSE ASSOCIATED ISOLATION VALES. SEE SHEET MD5.0.3 FOR ADDITIONAL INFORMATION. |

[illegible]

SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

PHASE 3 ENLARGED HEATING DEMO MECHANICAL PLAN

PROJECT NUMBER

MD4.1.3

SHEET NUMBER

A. SEE M-1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND DRAINING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR ALL EQUIPMENT.

E. REMOVE AND MEASURE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. REMOVE AND MEASURE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL OF RECORDS FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



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MD001	DISCONNECT AND REMOVE EXISTING PUMP AND ASSOCIATED PIPING UP TO POINT OF DISCONNECTION.
MD003	DISCONNECT AND REMOVE AIR SEPARATOR AND ASSOCIATED PIPING UP TO THE POINT OF DISCONNECTION.
MD013	DISCONNECT AND REMOVE EQUIPMENT AND ASSOCIATED PIPING FOR EXISTING HX-12.3 AND EXISTING PRESSURE REDUCING STATIONS. CLOSE ASSOCIATED ISOLATION VALVES. SEE SHEET MD5.0.4 FOR ADDITIONAL INFORMATION.
MD014	DISCONNECT AND REMOVE EXISTING 4" LPS AS INDICATED. SEE SHEET MD5.0.4 FOR ADDITIONAL INFORMATION.
MD015	DISCONNECT AND REMOVE EXISTING 2-1/2" CONDENSATE AS INDICATED. SEE SHEET MD5.0.4 FOR ADDITIONAL INFORMATION.

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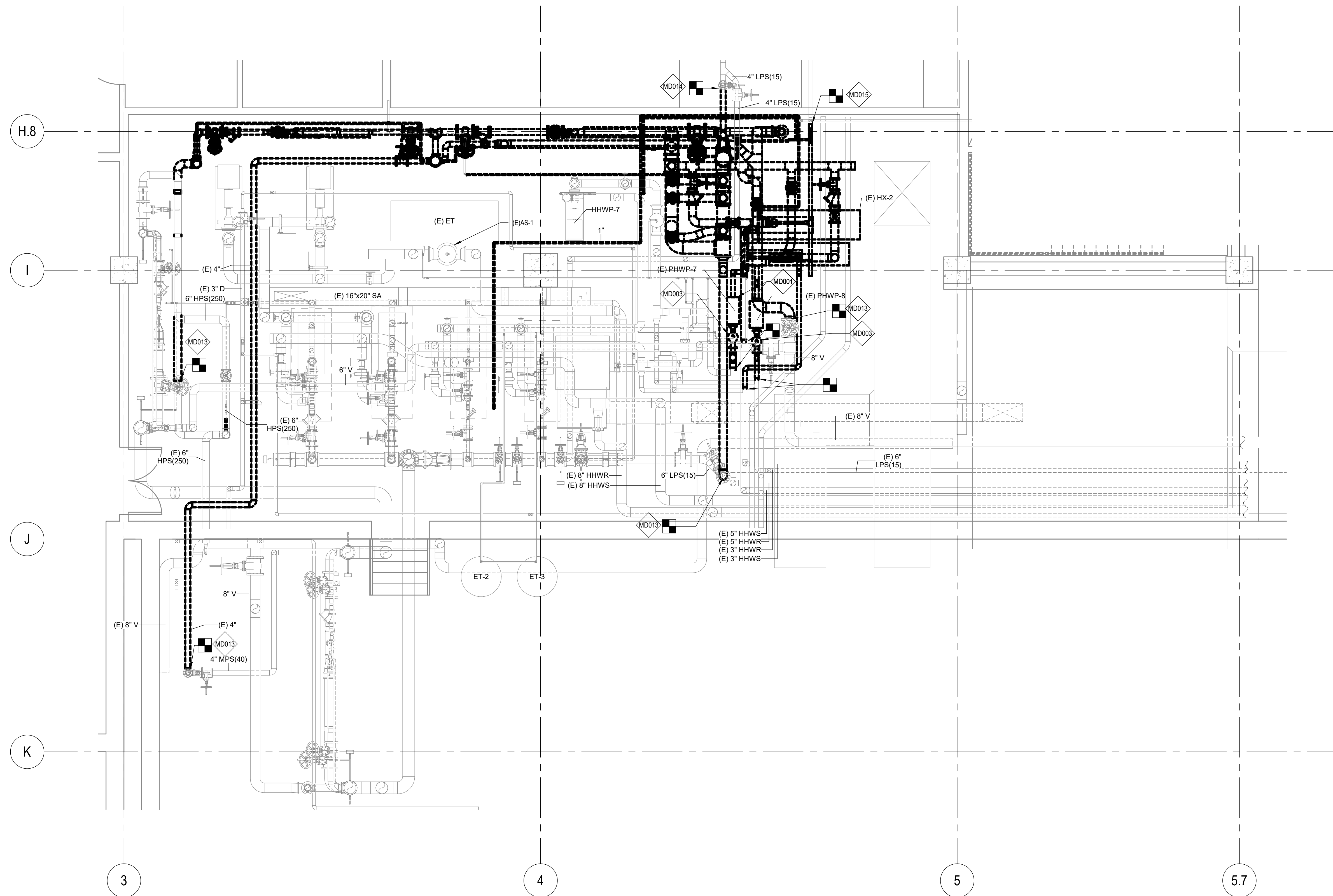
SEALS AND SIGNATURES



PROJECT NUMBER

MD4.1.4

SHEET NUMBER



A. SEE 001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT CONDITIONS. UNLESS LIMITED SITE SURVEYING, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL OBTAIN ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



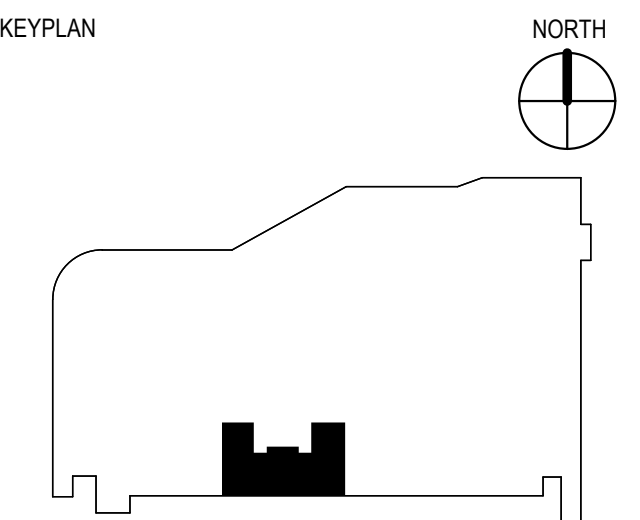
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202.580.6300

MD001	DISCONNECT AND REMOVE EXISTING PUMP AND ASSOCIATED PIPING UP TO POINT OF DISCONNECTION.
MD018	DISCONNECT AND REMOVE EXISTING HEAT EXCHANGER AND ASSOCIATED PIPING UP TO POINT OF DISCONNECTION.

[illegible]

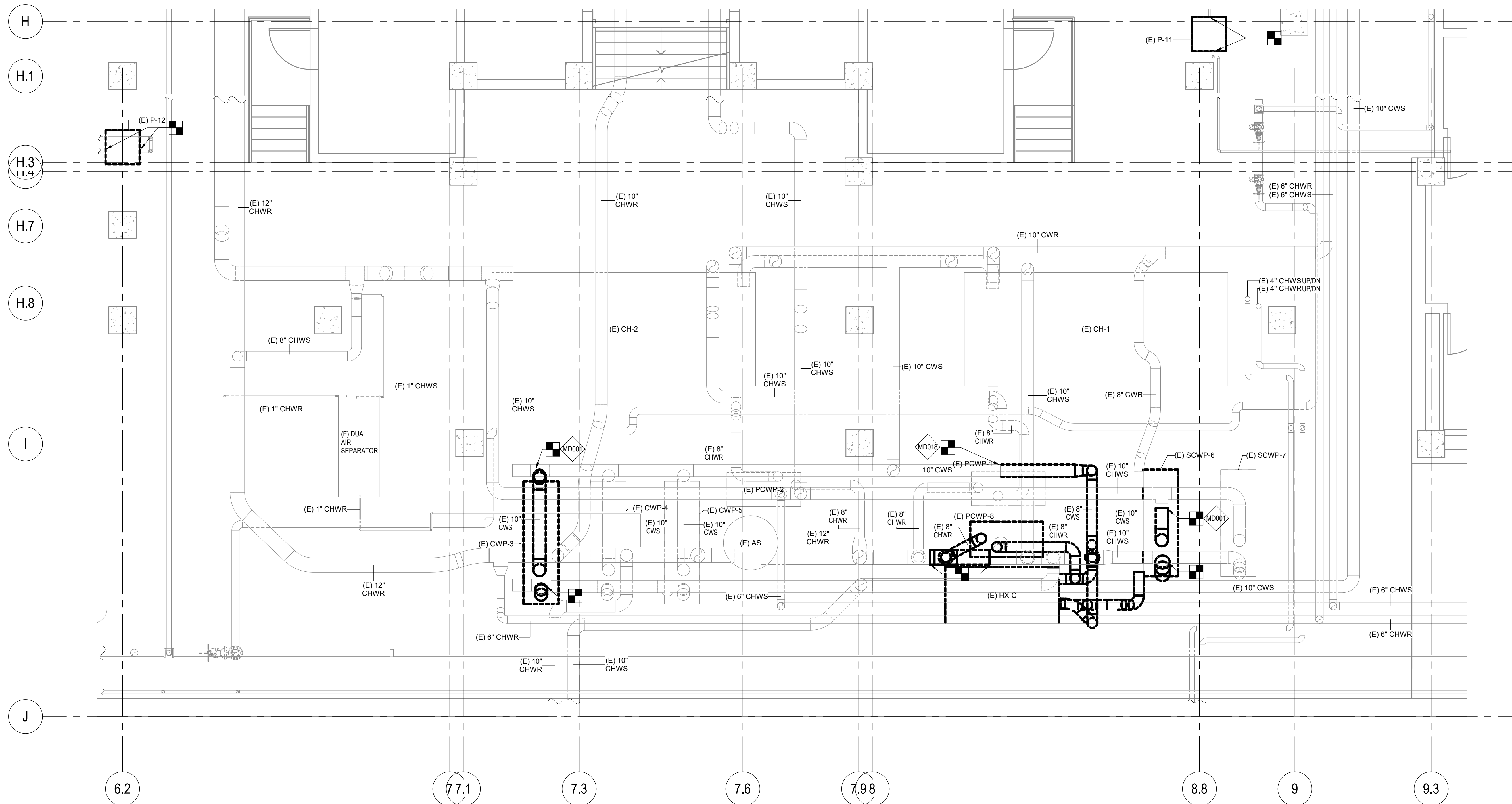
SEALS AND SIGNATURES



PROJECT NUMBER

MD4.2.1

SHEET NUMBER



GENERAL SHEET NOTES

- A. SEE M-1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWNS AND PHASINGS OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR ALL EQUIPMENT.
- E. TEST AND MEASURE THE EXISTING STEAM HEATING HOT WATER, CHILLED WATER AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
- F. TEST AND MEASURE THE EXISTING STEAM HEATING HOT WATER, CHILLED WATER AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.
- G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK SUBJECT TO THE OWNER'S REVIEW AND APPROVAL OF RECORD FOR REVIEW TESTING RESULTS BASED ON THE WORK DESCRIBED ABOVE.



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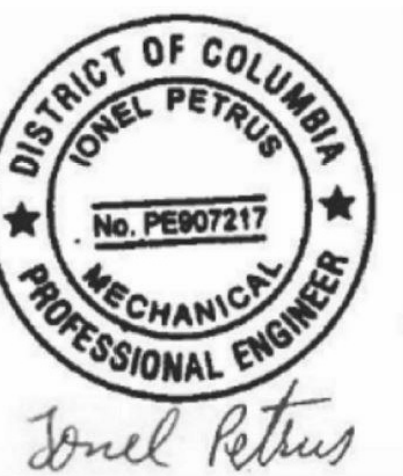
THORNTON TOMASETTI
STRUCTURAL
2000 L ST NW #600
WASHINGTON, DC 20036
202.580.6300

○ SHEET KEYNOTES

MD001	DISCONNECT AND REMOVE EXISTING PUMP AND ASSOCIATED PIPING UP TO POINT OF DISCONNECTION.
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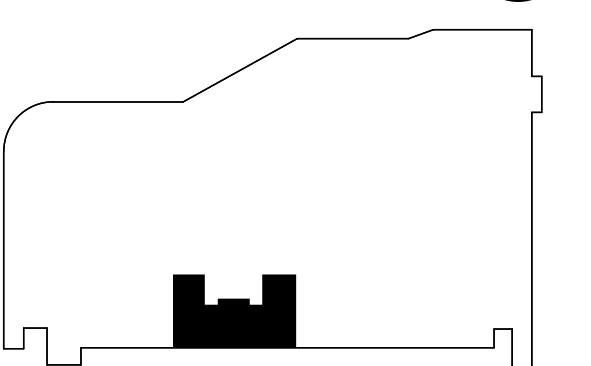
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SEALS AND SIGNATURES



KEYPLAN

NORTH



SHEET TITLE

PHASE 2 ENLARGED COOLING DEMO MECHANICAL PLAN

PROJECT NUMBER

MD4.2.2

SHEET NUMBER

A. SEE 10.1 FOR MECHANICAL, LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL PROVIDE ALL SHUTDOWN AND TIE-IN OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING RESULTS BASED ON THE WORK DESCRIBED ABOVE.



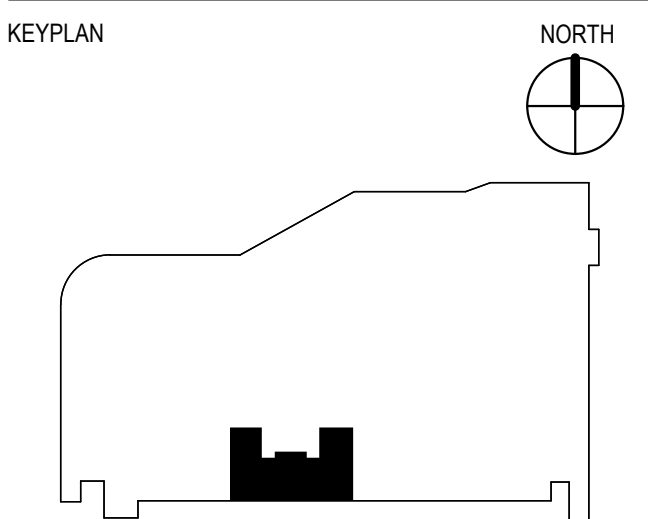
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MD001 DISCONNECT AND REMOVE EXISTING PUMP AND ASSOCIATED PIPING UP TO POINT OF DISCONNECTION.

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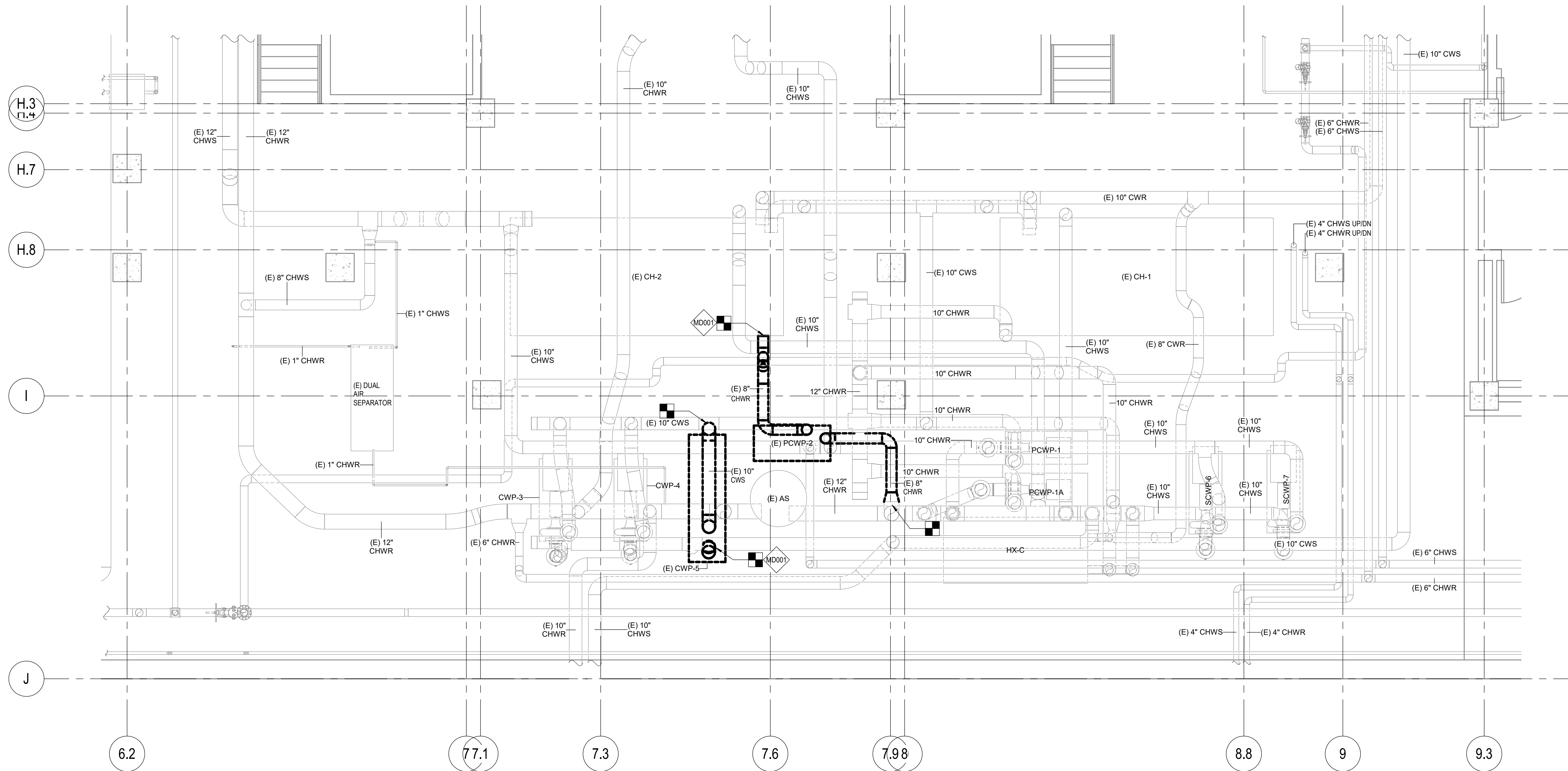
SEALS AND SIGNATURES



PROJECT NUMBER.

MD4.2.3

SHEET NUMBER



A. SEE 10.1 FOR MECHANICAL, LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL PROVIDE ALL SHUTDOWN AND TIE-IN OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING RESULTS BASED ON THE WORK DESCRIBED ABOVE.

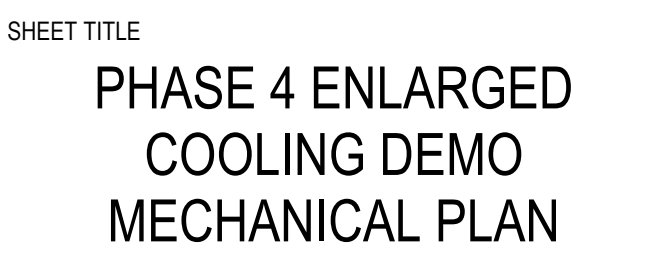


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WASHINGTON, DC 20036
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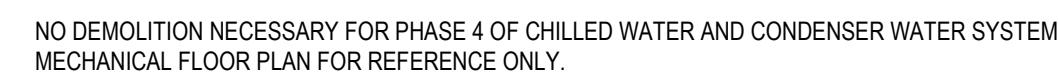
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KEYPLAN NORTH

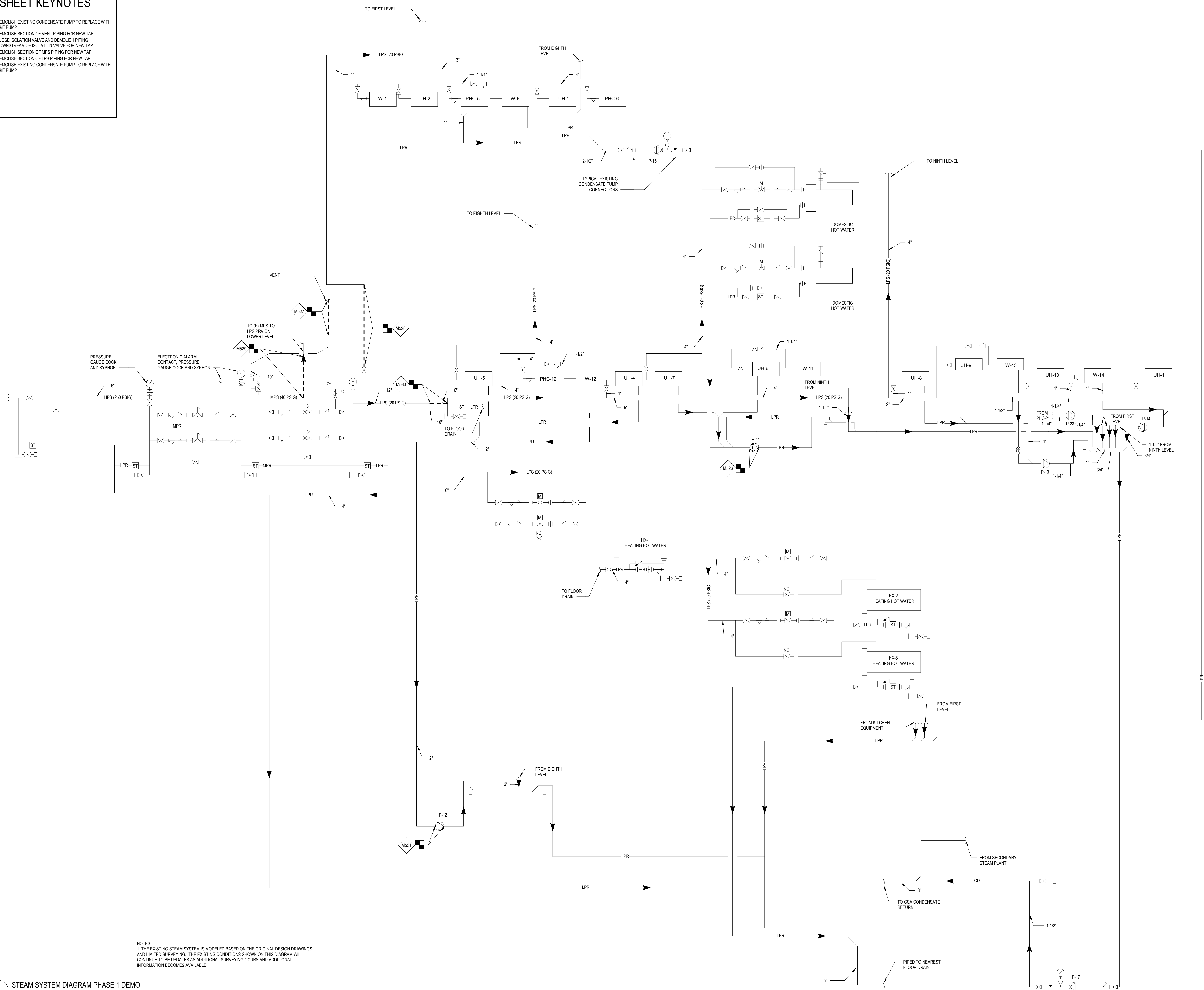


MD4.2.4

SHEET NUMBER



MS26	DEMOLISH EXISTING CONDENSATE PUMP TO REPLACE WITH LIKE PUMP
MS27	DEMOLISH SECTION OF VENT PIPING FOR NEW TAP
MS28	CLOSE ISOLATION VALVE AND DEMOLISH PIPING DOWNSTREAM OF ISOLATION VALVE FOR NEW TAP
MS29	DEMOLISH SECTION OF MPS PIPING FOR NEW TAP
MS30	DEMOLISH SECTION OF LPS PIPING FOR NEW TAP
MS31	DEMOLISH EXISTING CONDENSATE PUMP TO REPLACE WITH LIKE PUMP



NOTES:
1. THE EXISTING STEAM SYSTEM IS MODELED BASED ON THE ORIGINAL DESIGN DRAWINGS AND LIMITED SURVEYING. THE EXISTING CONDITIONS SHOWN ON THIS DIAGRAM WILL CONTINUE TO BE UPDATES AS ADDITIONAL SURVEYING OCCURS AND ADDITIONAL INFORMATION BECOMES AVAILABLE

1 STEAM SYSTEM DIAGRAM PHASE 1 DEMO
SCALE: NOT TO SCALE



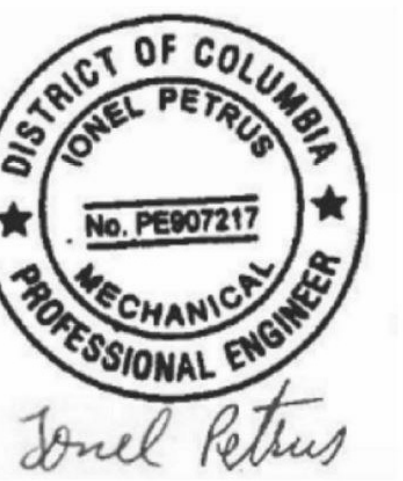
H. CARL MOULTRIE | COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
WATER UPGRADE
500 INDIANA AVENUE N.W.
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SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

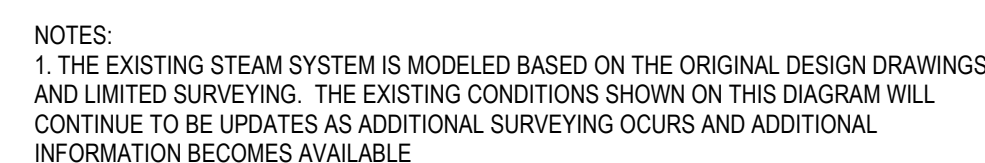
PHASE 1 DEMO STEAM PIPING DIAGRAM

PROJECT NUMBER

MD5.0.1

SHEET NUMBER

M532	DEMOLISH EXISTING HPR LINE FROM HPS HEADEND
M533	REMOVE EXISTING CONDESATE MAIN END CAP



1 STEAM SYSTEM DIAGRAM - PHASE 2 DEMO
SCALE: NOT TO SCALE



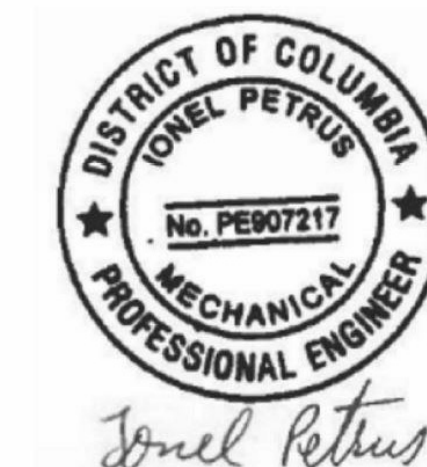
H. CARL MOULTRIE I COURTHOUSE
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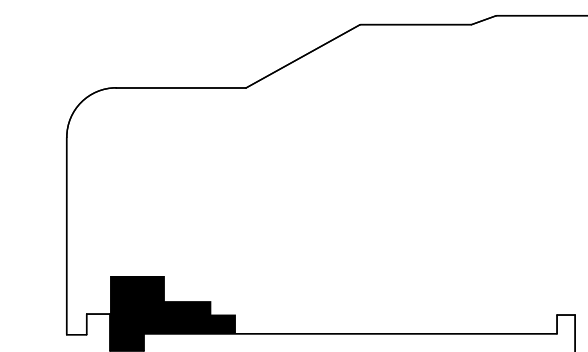
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SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

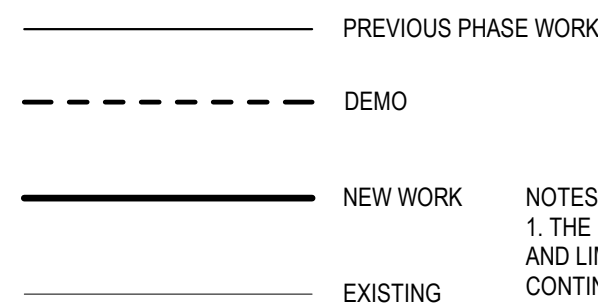
PHASE 2 DEMO STEAM PIPING DIAGRAM

PROJECT NUMBER

MD5.0.2

SHEET NUMBER

M534 CLOSE HX-1 ISOLATION VALES AND DEMOLISH ALL ASSOCIATED PIPING DOWNSTREAM OF ISOLATION VALVES



NOTES:
1. THE EXISTING STEAM SYSTEM IS MODELED BASED ON THE ORIGINAL DESIGN DRAWINGS AND LIMITED SURVEYING. THE EXISTING CONDITIONS SHOWN ON THIS DIAGRAM WILL CONTINUE TO BE UPDATES AS ADDITIONAL SURVEYING OCCURS AND ADDITIONAL INFORMATION BECOMES AVAILABLE

STEAM SYSTEM DIAGRAM - PHASE 3 DEMO
SCALE: NOT TO SCALE



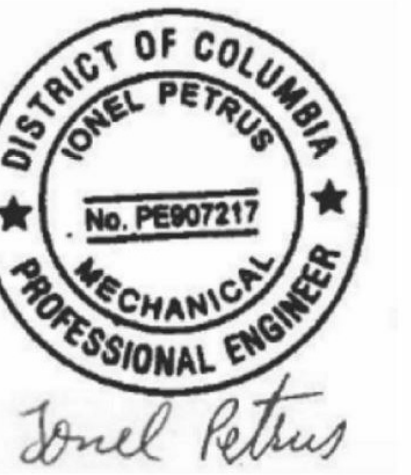
H. CARL MOULTRIE | COURTHOUSE
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SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

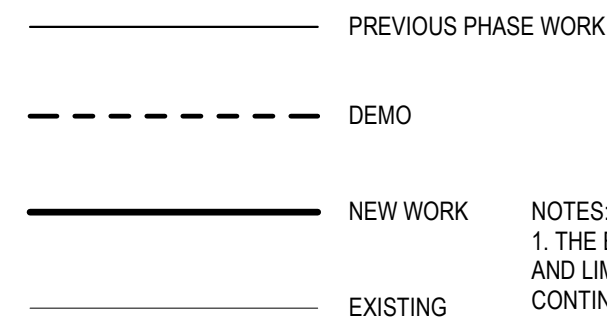
PHASE 3 DEMO STEAM PIPING DIAGRAM

PROJECT NUMBER

MD5.0.3

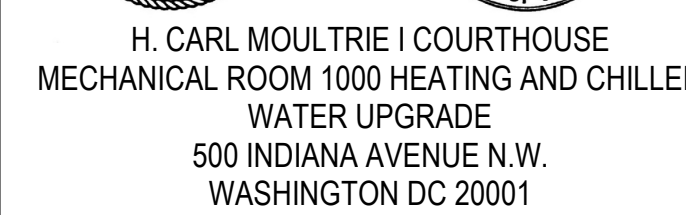
SHEET NUMBER

M535	CLOSE AND CAP ISOLATION VALVE. DEMOLISH ALL PIPING AND EQUIPMENT ASSOCIATE WITH HX-1,2,3 AND EXISTING PRESSURE REDUCING STATIONS.
M536	CLOSE ISOLATION AND DEMOLISH EXISTING PIPING UPSTREAM OF ISOLATION VALVE
M537	CLOSE ISOLATION AND DEMOLISH EXISTING PIPING UPSTREAM OF ISOLATION VALVE
M538	CLOSE AND CAP ISOLATION VALVE. DEMOLISH ALL PIPING AND EQUIPMENT ASSOCIATE WITH HX-1,2,3 AND EXISTING PRESSURE REDUCING STATIONS.
M539	DEMOLISH EXISTING CONDENSATE PIPING TO FLOOR DRAIN



NOTES:
1. THE EXISTING STEAM SYSTEM IS MODELED BASED ON THE ORIGINAL DESIGN DRAWINGS AND LIMITED SURVEYING. THE EXISTING CONDITIONS SHOWN ON THIS DIAGRAM WILL CONTINUE TO BE UPDATES AS ADDITIONAL SURVEYING OCCURS AND ADDITIONAL INFORMATION BECOMES AVAILABLE

1 STEAM SYSTEM DIAGRAM - PHASE 4 DEMO
SCALE: NOT TO SCALE

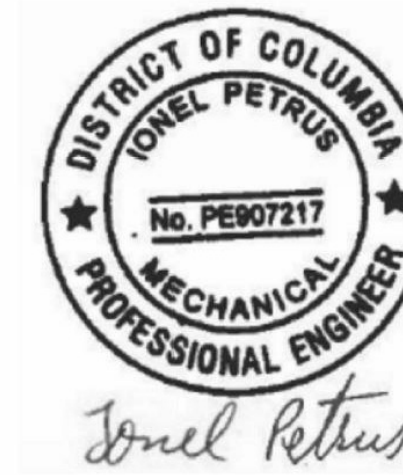


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SEALS AND SIGNATURES



KEYPLAN



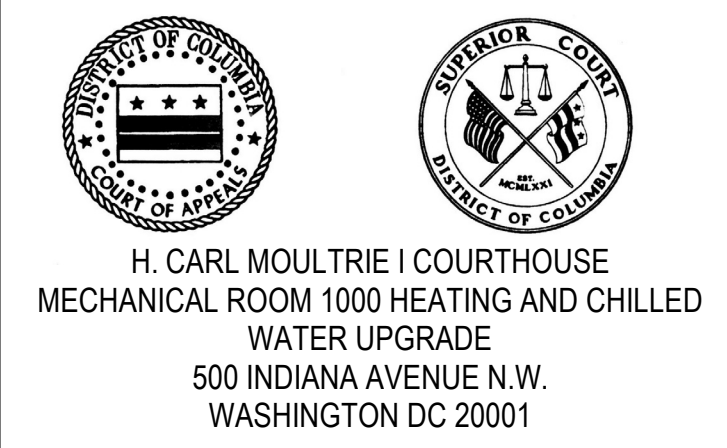
SHEET TITLE

PHASE 4 DEMO STEAM PIPING DIAGRAM

PROJECT NUMBER

MD5.0.4

SHEET NUMBER

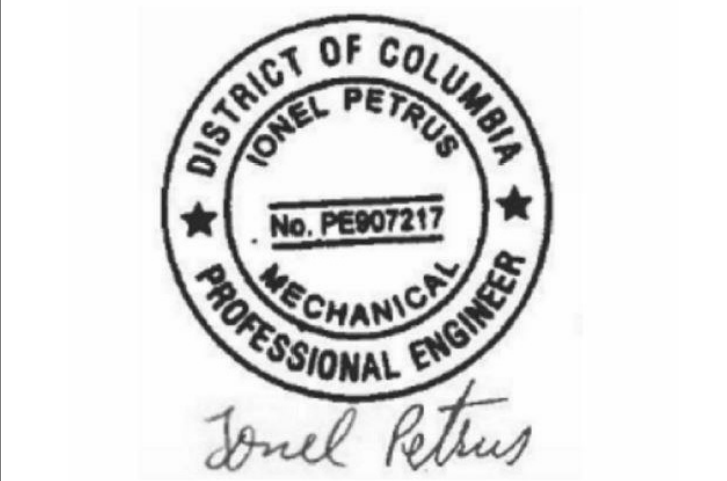


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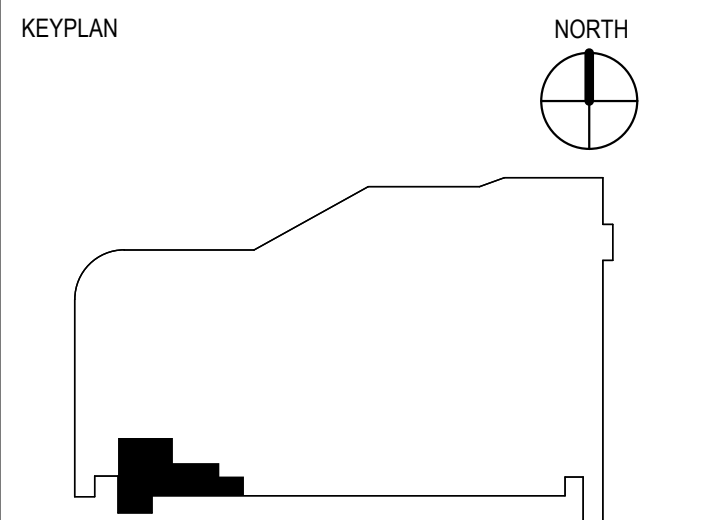
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SEALS AND SIGNATURES



KEYPLAN NORTH



SHEET TITLE

PHASE 2 DEMO HEATING
HOT WATER PIPING
DIAGRAM

PROJECT NUMBER _____

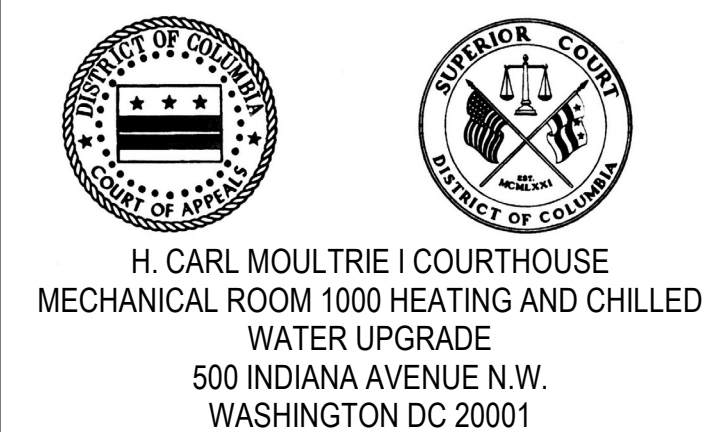
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Plot Date: 7/17/2020 6:04:30 PM
Author

○ SHEET KEYNOTES

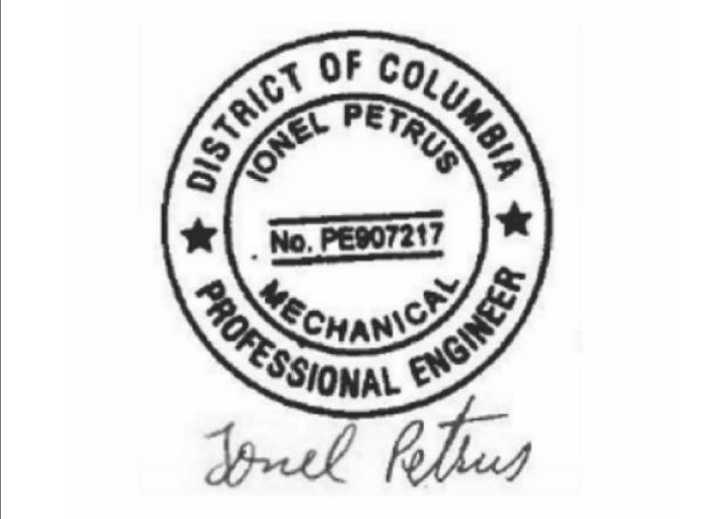
M510 DISCONNECT AND REMOVE EXISTING EXPANSION TANK AND ASSOCIATED PIPING ACCESSORIES. SEE MD4.1.2 FOR ADDITIONAL INFORMATION.

1 HEATING HOT WATER SYSTEM PIPING DIAGRAM - PHASE 2 DEMO
SCALE: 12" = 1'-0"



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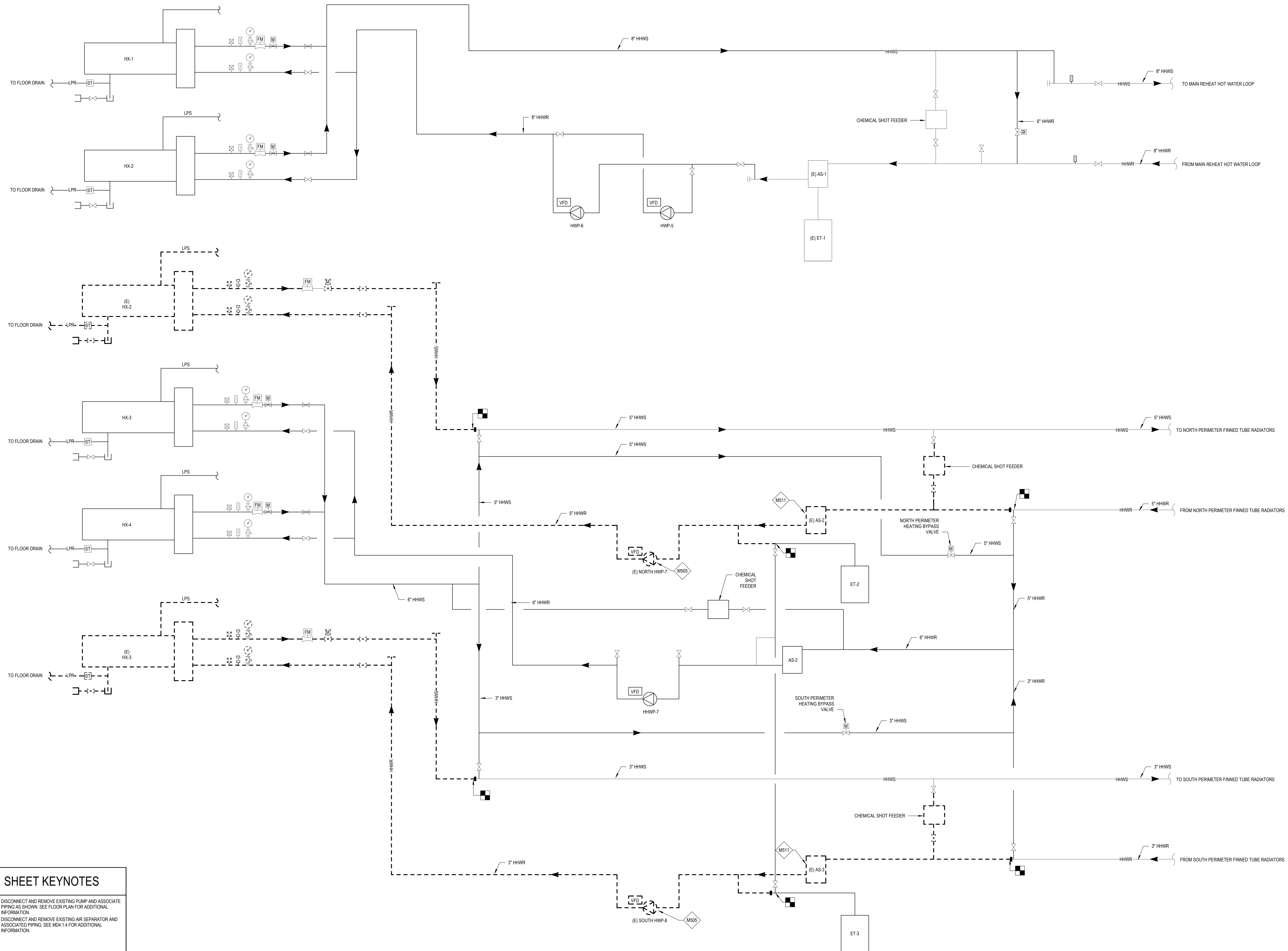
SEALS AND SIGNATURES

PROJECT NUMBER _____

MD5.1.3

Print Date: 7/17/2020 6:04:31 PM

1 HEATING HOT WATER SYSTEM PIPING DIAGRAM - PHASE 3 DEMO
SCALE: 12" = 1'-0"



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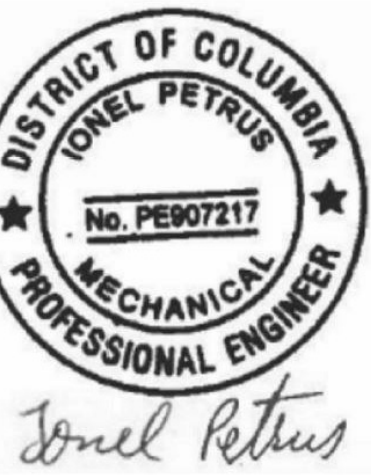
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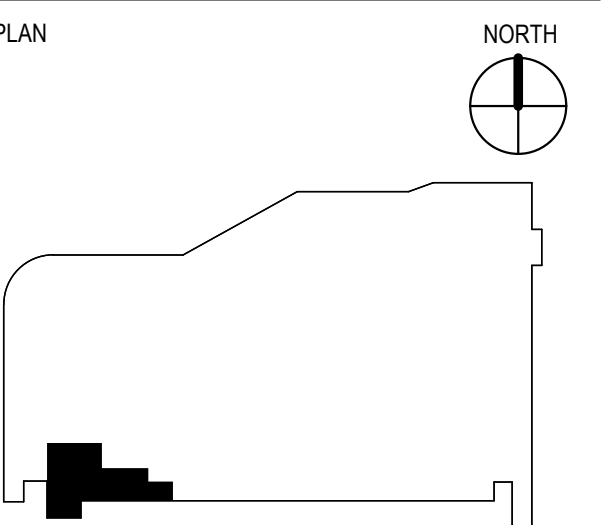
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SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

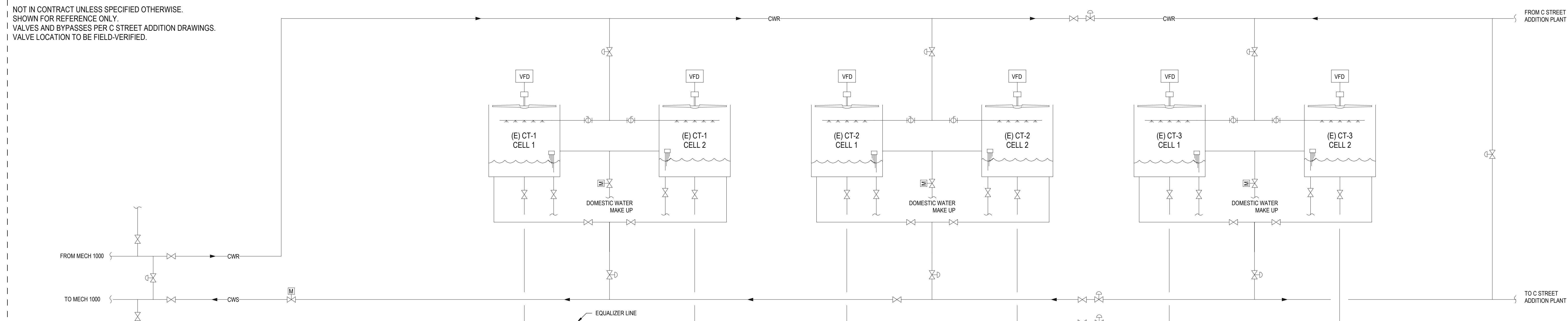
PHASE 4 DEMO HEATING HOT WATER PIPING DIAGRAM

PROJECT NUMBER

MD5.1.4

SHEET NUMBER

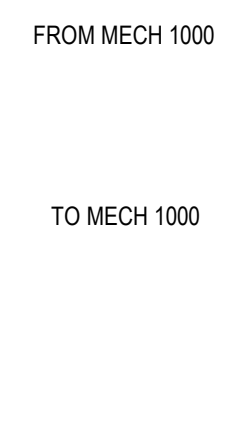
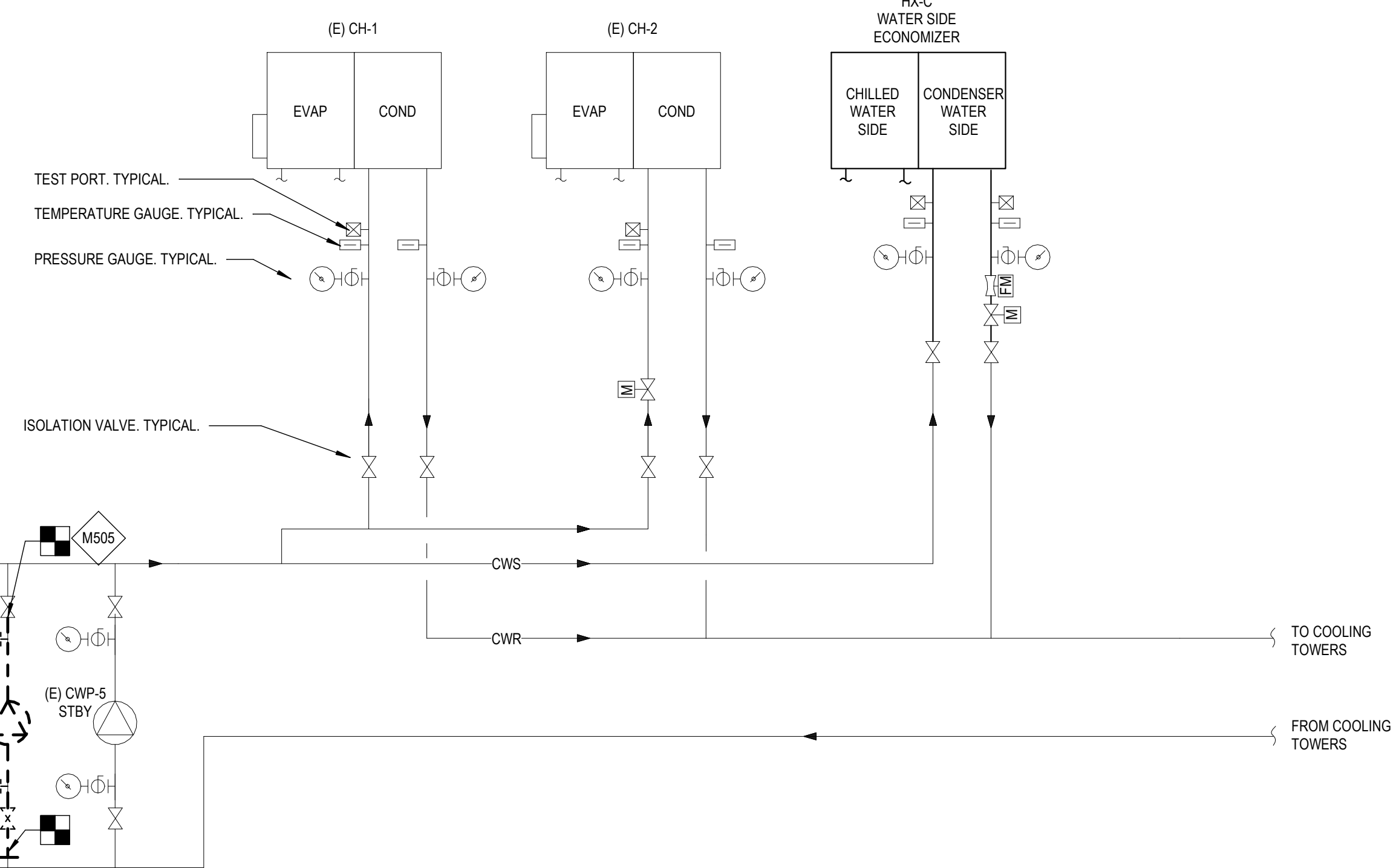
M505	DISCONNECT AND REMOVE EXISTING PUMP AND ASSOCIATE PIPING AS SHOWN. SEE FLOOR PLAN FOR ADDITIONAL INFORMATION.
M506	DISCONNECT AND REMOVE HEAT EXCHANGER AND ASSOCIATE PIPING AS SHOWN. SEE FLOOR PLAN FOR ADDITIONAL INFORMATION.



SCALE: 6" = 1'-0"



M505 DISCONNECT AND REMOVE EXISTING PUMP AND ASSOCIATE PIPING AS SHOWN. SEE FLOOR PLAN FOR ADDITIONAL INFORMATION.

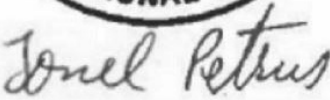


PHASE 2 DEMO CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
SCALE: 6" = 1'-0"

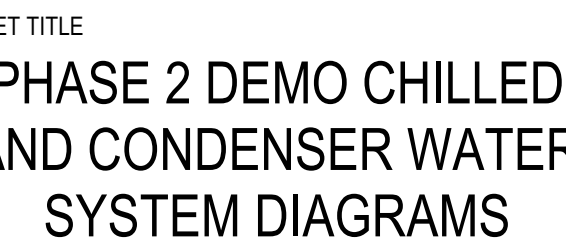


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SEALS AND SIGNATURES

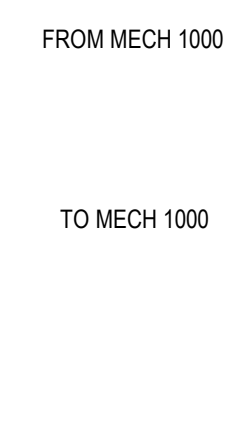
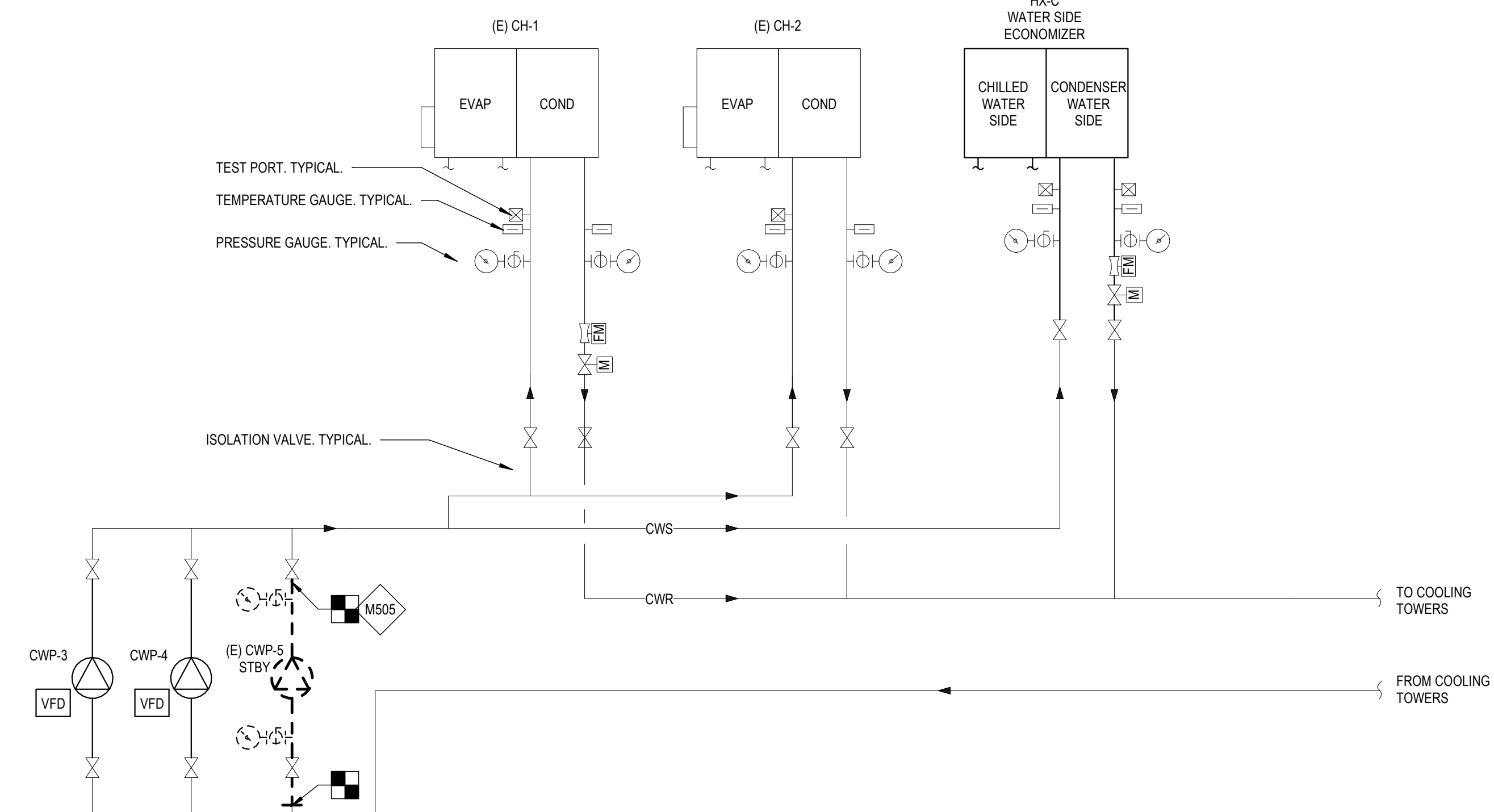
NORTH



MD5.2.2

SHEET NUMBER

M505 DISCONNECT AND REMOVE EXISTING PUMP AND ASSOCIATE PIPING AS SHOWN. SEE FLOOR PLAN FOR ADDITIONAL INFORMATION.



NOT IN CONTRACT UNLESS SPECIFIED OTHERWISE.
SHOWN FOR REFERENCE ONLY.
VALVES AND BYPASSES PER C STREET ADDITION DRAWINGS.
VALVE LOCATION TO BE FIELD-VERIFIED.

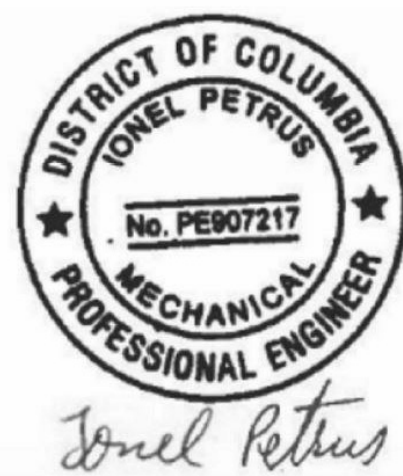
H. CARL MOULTRIE I COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
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500 INDIANA AVENUE N.W.
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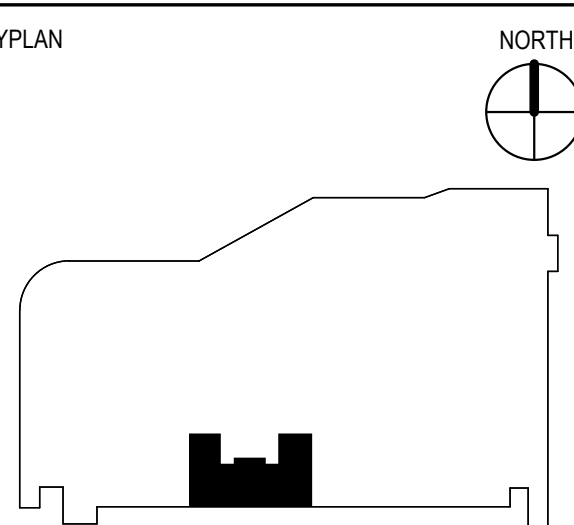
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SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

PHASE 3 DEMO CHILLED
AND CONDENSER WATER
SYSTEM DIAGRAMS

PROJECT NUMBER

MD5.2.3

SHEET NUMBER

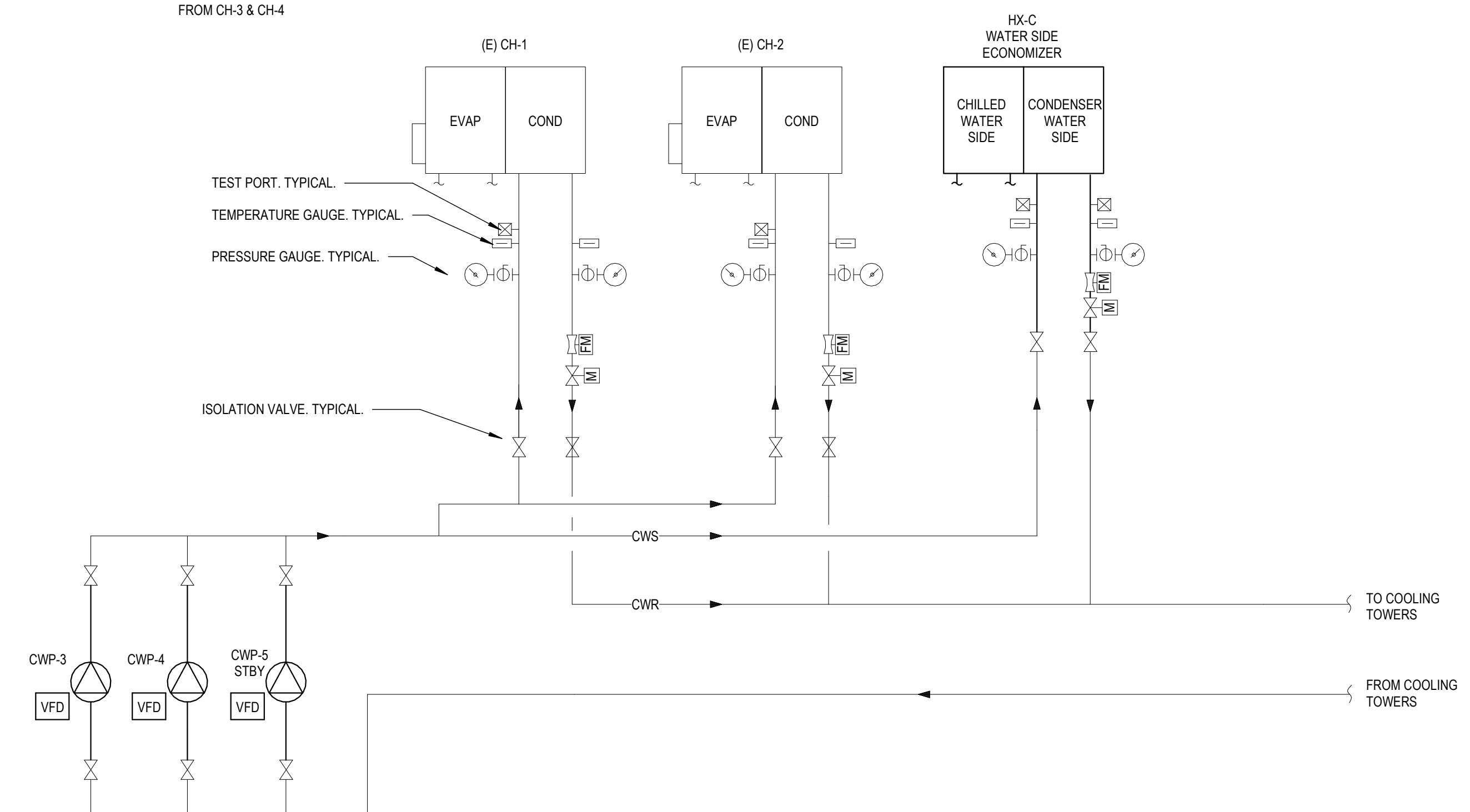
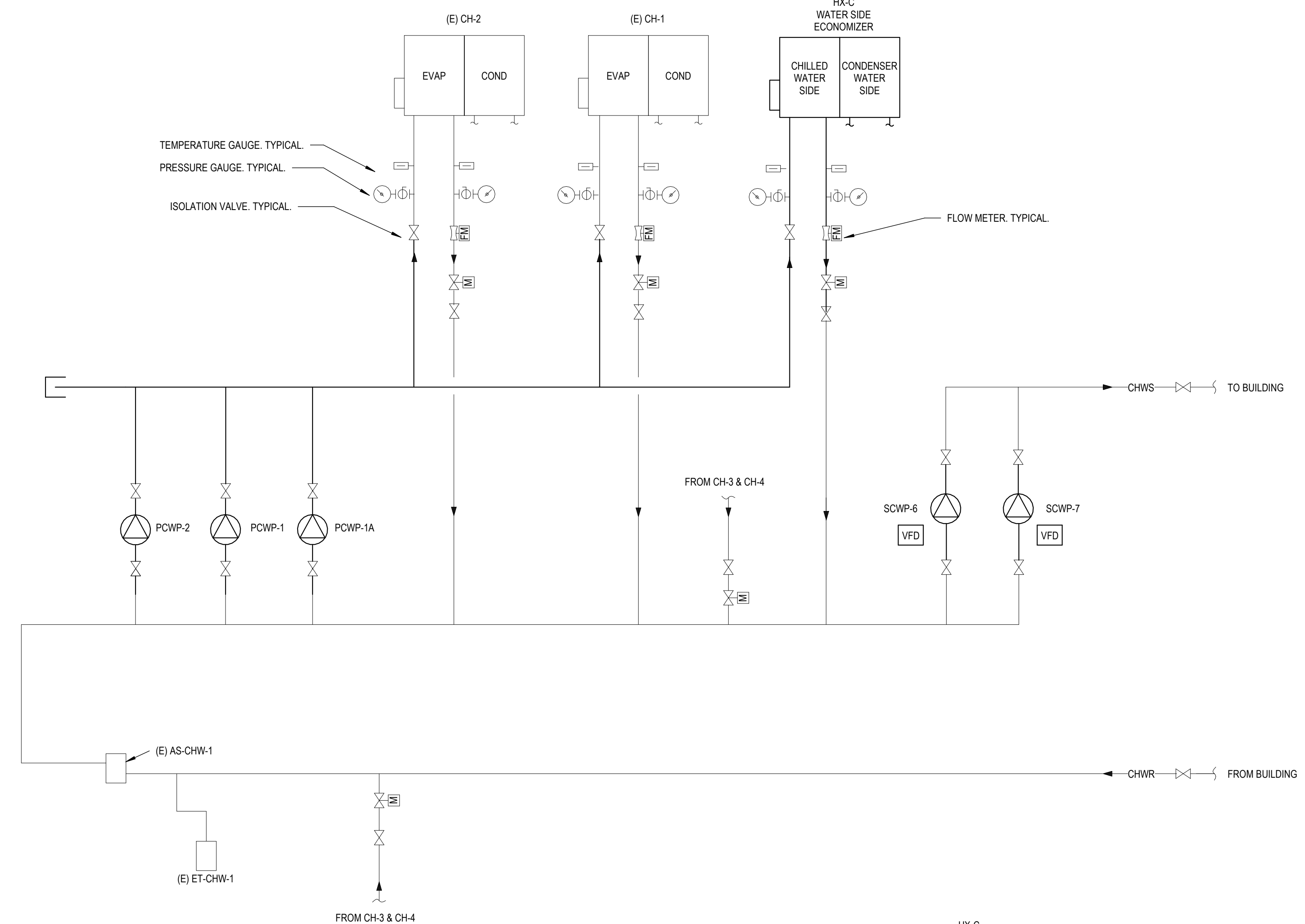
Plot Date:

1 PHASE 3 DEMO CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
SCALE: 6" = 1'-0"

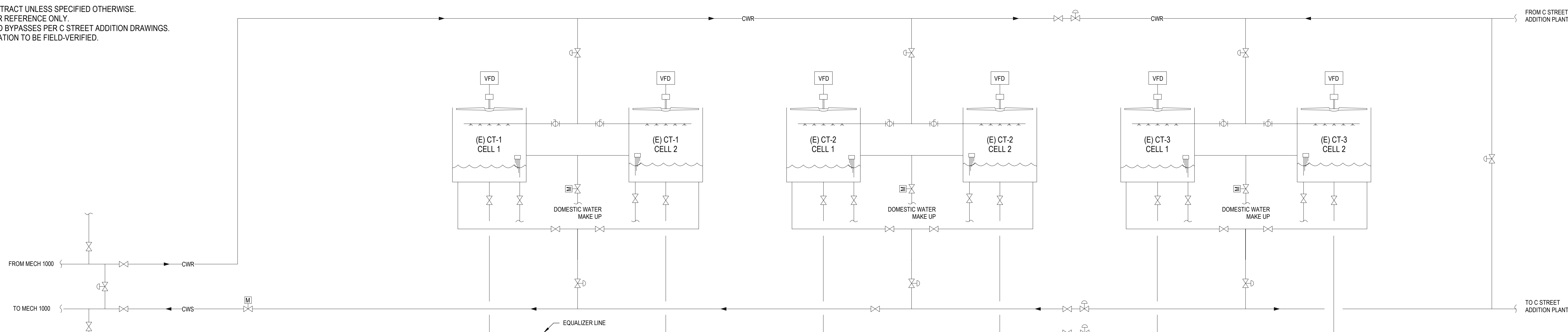
SCALE: 6" = 1'-0"

○ SHEET KEYNOTES

NO DEMOLITION FOR CHILLED AND CONDENSER WATER SYSTEM FOR PHASE 4
BELOW SYSTEM DIAGRAM IS SHOWN FOR REFERENCE ONLY.



NOT IN CONTRACT UNLESS SPECIFIED OTHERWISE.
SHOWN FOR REFERENCE ONLY.
VALVES AND BYPASSES PER C STREET ADDITION DRAWINGS.
VALVE LOCATION TO BE FIELD-VERIFIED.



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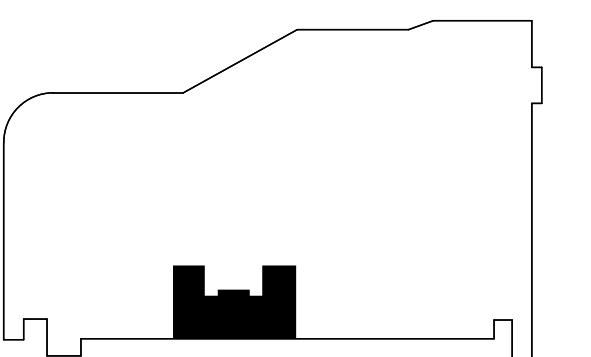
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SEALS AND SIGNATURES



Colonel Petrus

KEYPLAN



SHEET TITLE

PHASE 4 DEMO CHILLED
AND CONDENSER WATER
SYSTEM DIAGRAMS

PROJECT NUMBER

MD5.2.4

SHEET NUMBER

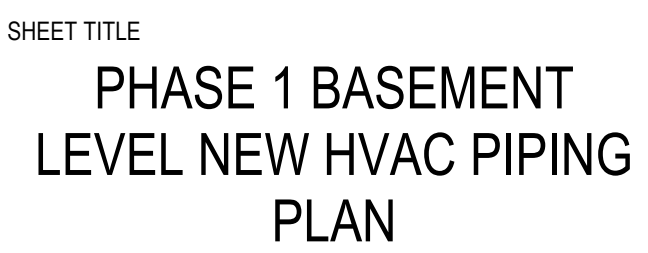
- A. SEE MO.1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. PROVIDE 4" CONCRETE PADS TO ALL NEW FLOOR MOUNTED PUMPS AND EXPANSION TANKS.



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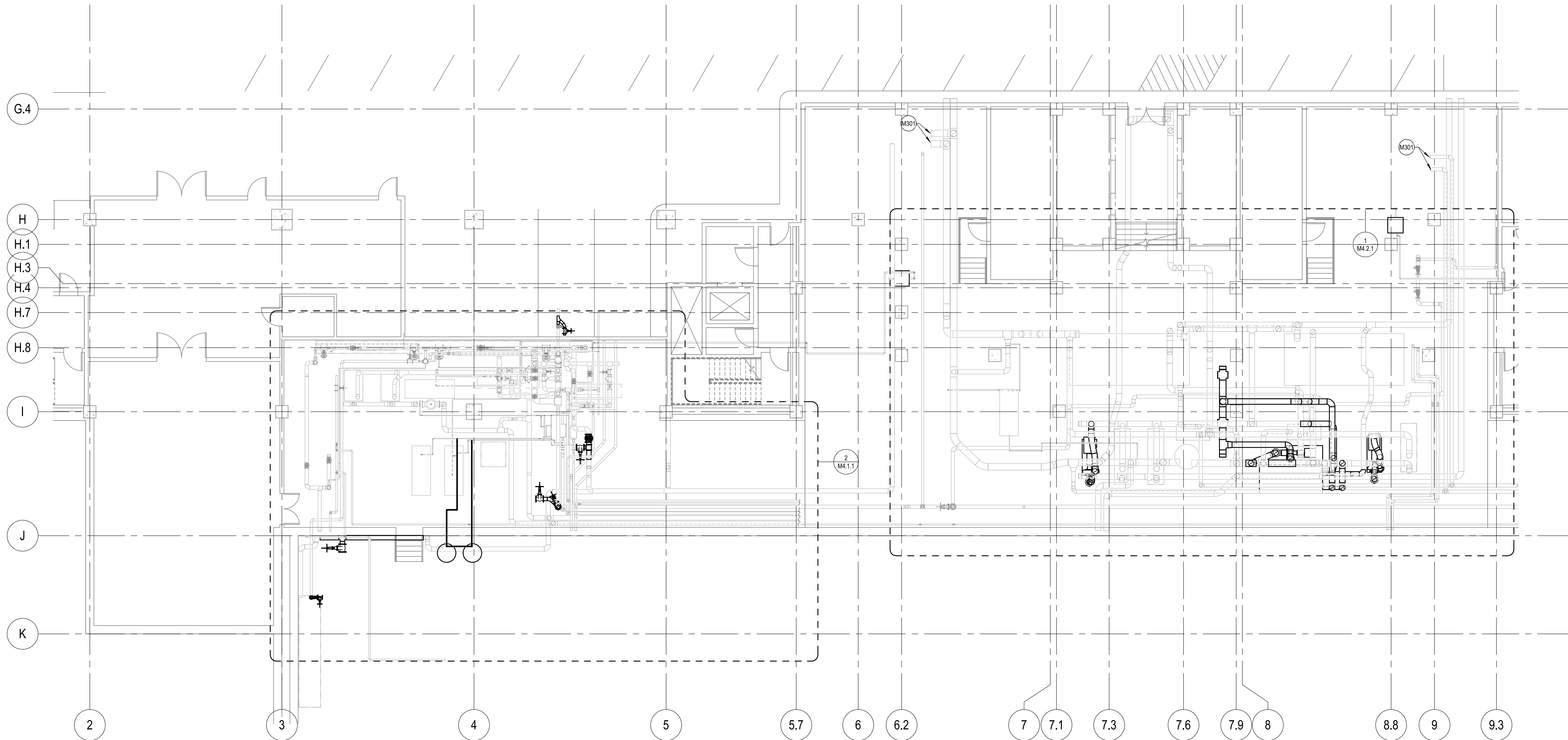
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M301 CHWS/R CONNECTION AND TERMINATION IS APPROXIMATE TO (E) AHU.

SEALS AND SIGNATURES

M3.1

SHEET NUMBER



Plot Date:

1 PHASE 1 BASEMENT LEVEL NEW HVAC PIPING PLAN
SCALE: 1/8" = 1'-0"

- A. SEE M01 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. PROVIDE 4" CONCRETE PADS TO ALL NEW FLOOR MOUNTED PUMPS AND EXPANSION TANKS.



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M301 CHWS/R CONNECTION AND TERMINATION IS APPROXIMATE TO (E) AHU.

SEALS AND SIGNATURES

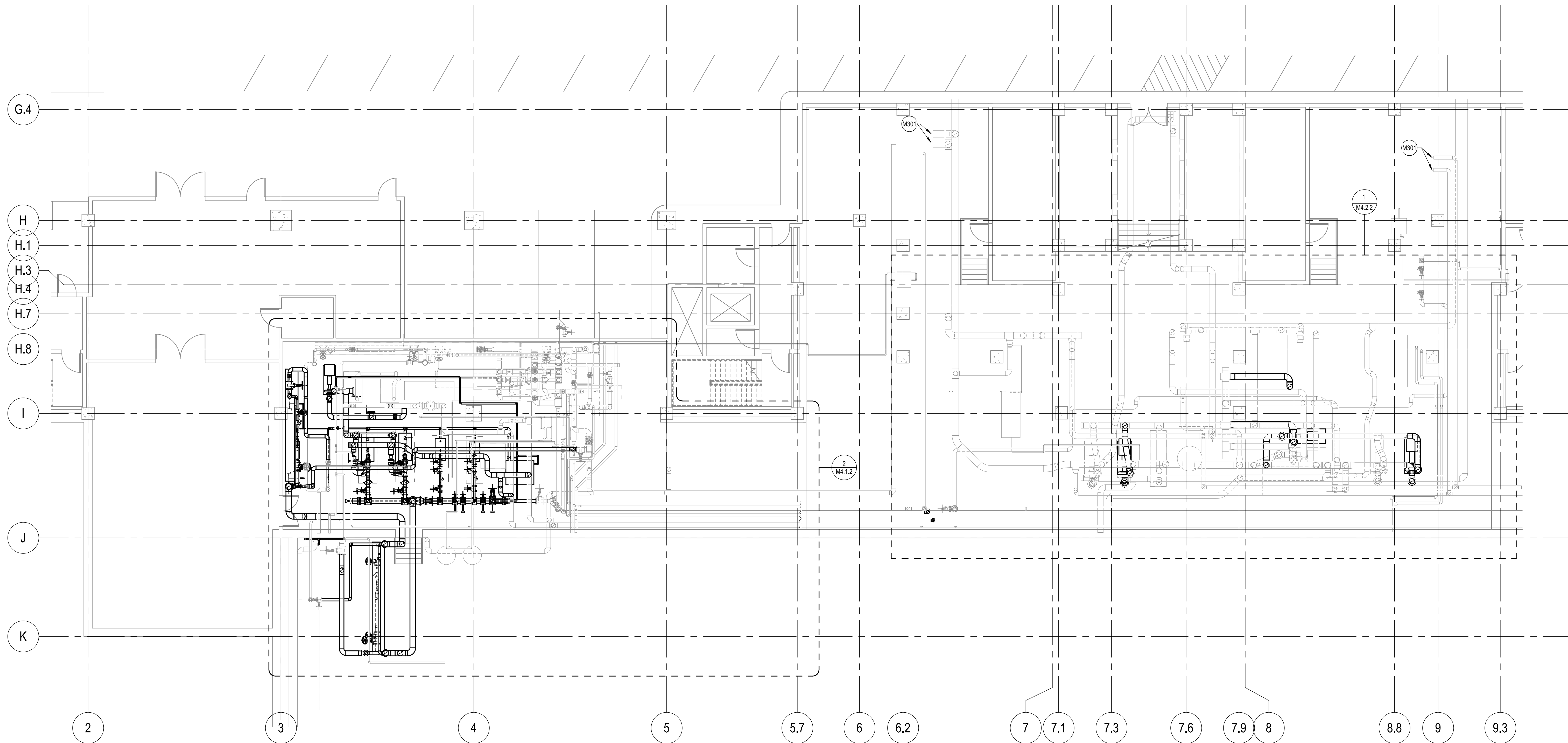
NORTH



PROJECT NUMBER

M3.2

SHEET NUMBER



1 PHASE 2 BASEMENT LEVEL NEW HVAC PIPING PLAN
SCALE: 1/8" = 1'-0"

Plot Date:

- A. SEE M.O.1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. PROVIDE 4" CONCRETE PADS TO ALL NEW FLOOR MOUNTED PUMPS AND EXPANSION TANKS.



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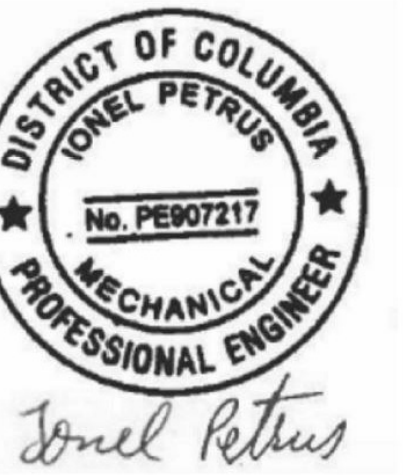
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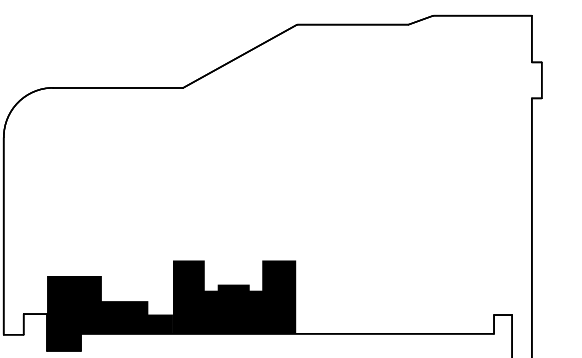
M301 CHWS/R CONNECTION AND TERMINATION IS APPROXIMATE TO (E) AHU.

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SEALS AND SIGNATURES



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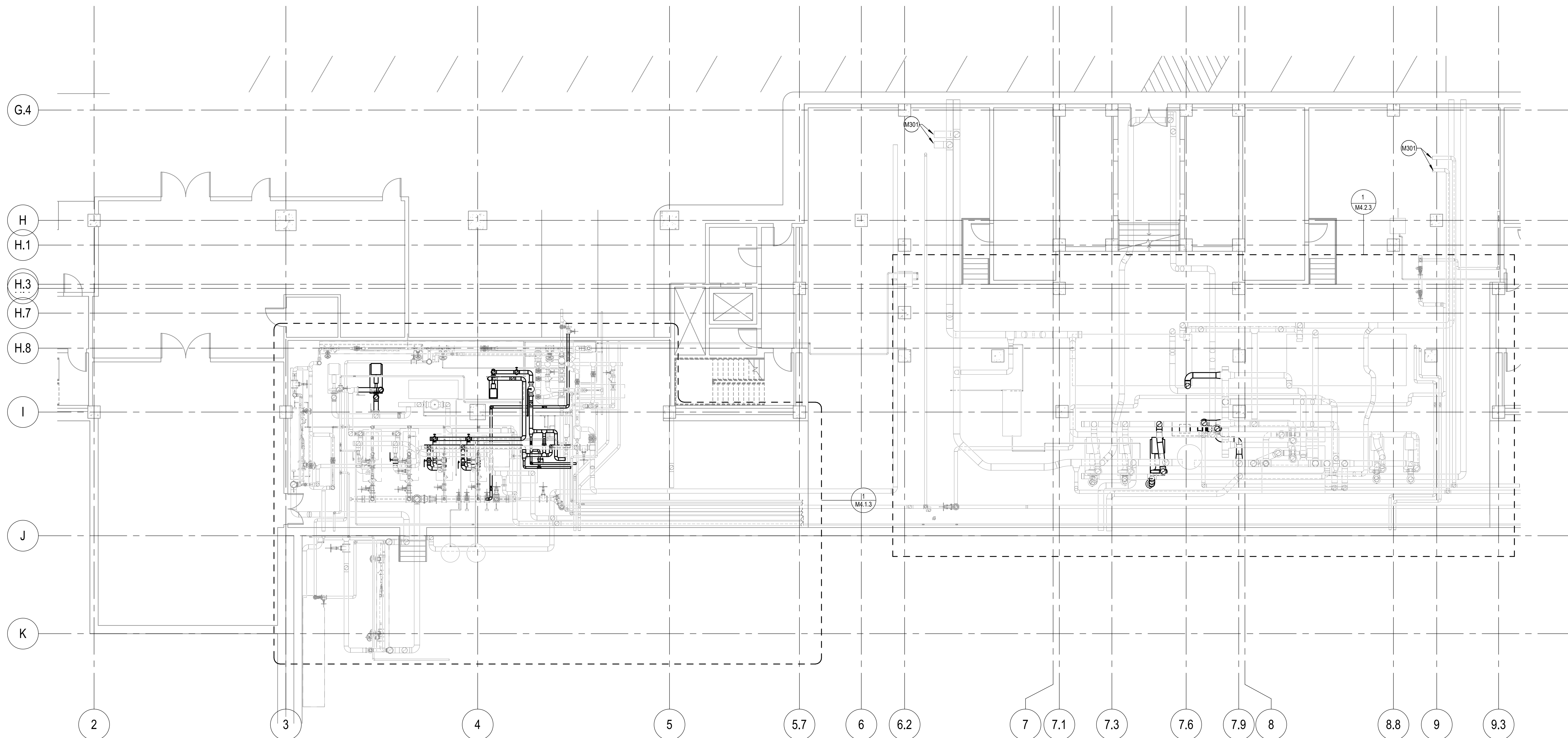
SHEET TITLE

PHASE 3 BASEMENT
LEVEL NEW HVAC PIPING
PLAN

PROJECT NUMBER

M3.3

SHEET NUMBER



1 PHASE 3 BASEMENT LEVEL NEW HVAC PIPING PLAN
SCALE: 1/8" = 1'-0"

Author

7/17/2020 5:57:15 PM

Plot Date:

- A. SEE M.O.1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. PROVIDE 4" CONCRETE PADS TO ALL NEW FLOOR MOUNTED PUMPS AND EXPANSION TANKS.



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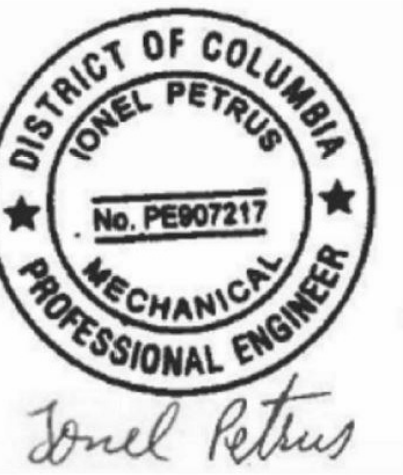
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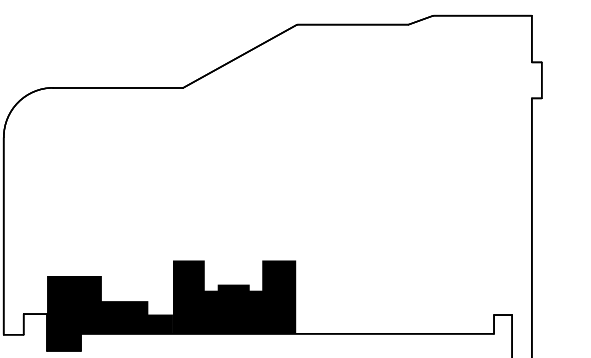
M301	CHWS/R CONNECTION AND TERMINATION IS APPROXIMATE TO (E) AHU.
M329	COORDINATE FINAL LOCATION OF HEAT TRACE CONTROL WITH OWNER.

[illegible]

SEALS AND SIGNATURES



KEYPLAN



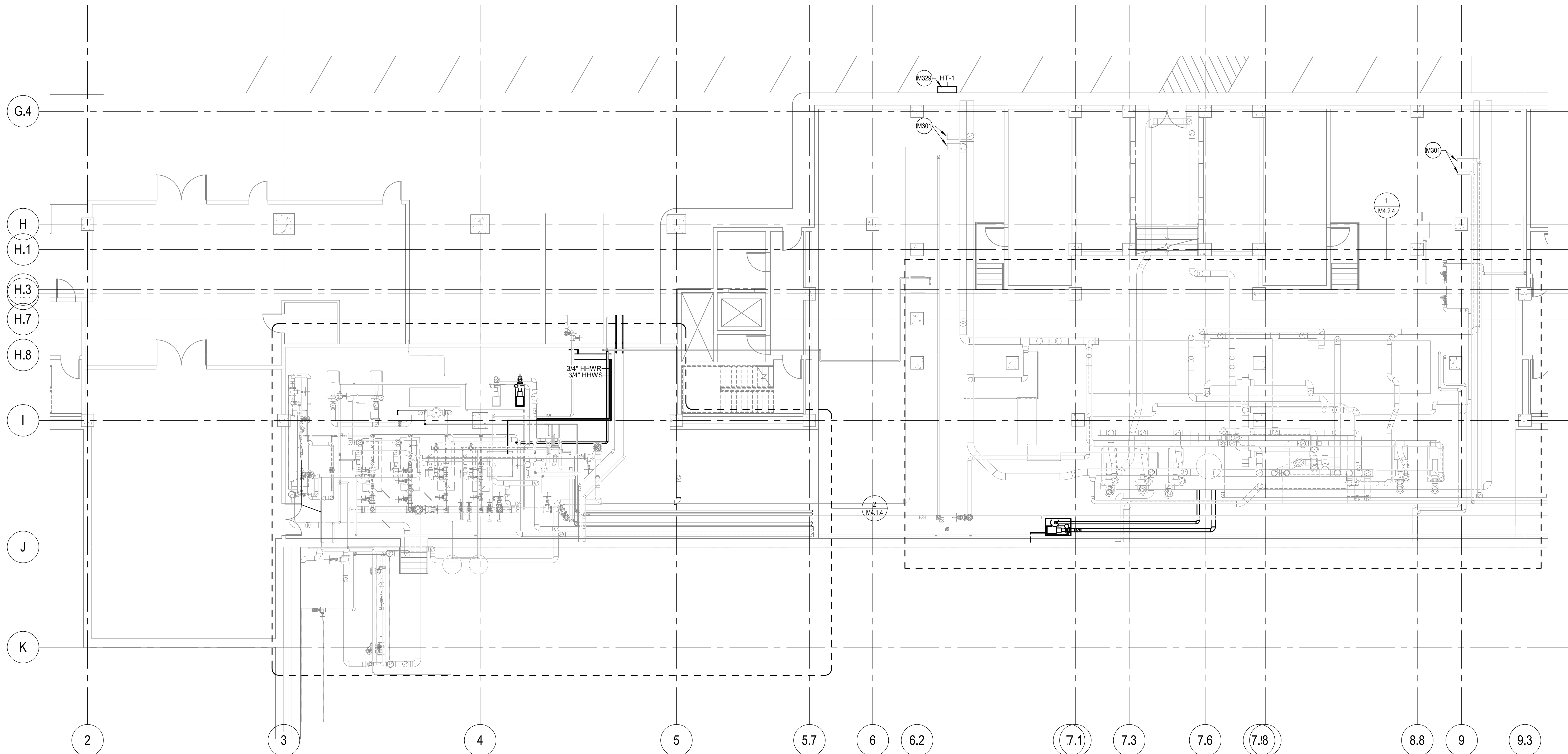
SHEET TITLE

PHASE 4 BASEMENT LEVEL NEW HVAC PIPING PLAN

PROJECT NUMBER

M3.4

SHEET NUMBER



1 PHASE 4 BASEMENT LEVEL NEW HVAC PIPING PLAN
SCALE: 1/8" = 1'-0"

Author

7/17/2020 5:57:39 PM

Plot Date:

- A. SEE I0.1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR ALL EQUIPMENT.
- E. REMOVE AND REPAIR EXISTING STEAM HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
- F. REMOVE AND REPAIR EXISTING CHILLED WATER HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.
- G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE DESIGNER A SUMMARY SHEET OR RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



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M302 ROUTE AND CONNECT NEW HWHR PIPING FROM EXPANSION TANK TO EXISTING 1" HWHR PIPING.

M305 PROVIDE AND INSTALL NEW EXPANSION TANK. SEE SCHEDULE AND SHEET ME 2 FOR ADDITIONAL INFORMATION. PROVIDE 1" ADDITIONAL PHASES, E2 AND E3 SHALL SEPARATE PERMITTER HEATING HOT WATER LOOPS. IN LATER PHASES, THE EXISTING LOOPS WILL BE COMBINED INTO A SINGLE HEATING HOT WATER LOOP. PROVIDE A BRASSER CONNECTING THE E2 AND E3 WITH AN ISOLATION VALVE SUCH THAT THE ISOLATION VALVE CAN BE OPENED TO FORM ONE COMMON SYSTEM IN THE FUTURE PHASE.

M308 CONNECT NEW 4" LPS PIPE WITH TAP TO EXISTING 4" LPS PIPE. SEE SHEET MS0.1 FOR ADDITIONAL INFORMATION.

M309 CONNECT NEW 8" VENT PIPE WITH ISOLATION VALVES AND TAP TO EXISTING 8" VENT PIPE. SEE SHEET MS0.1 FOR ADDITIONAL INFORMATION.

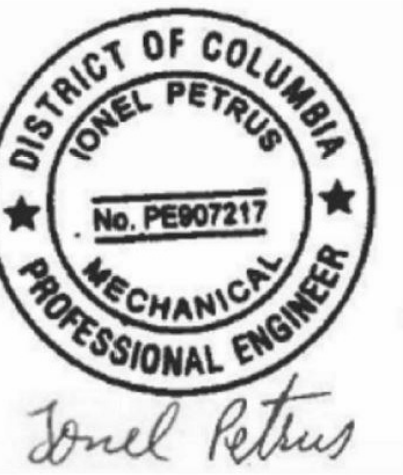
M310 CONNECT NEW 6" LPS PIPE WITH ISOLATIONS VALVES AND TAP TO EXISTING 6" LPS PIPE. SEE SHEET MS0.1 FOR ADDITIONAL INFORMATION.

M311 CONNECT NEW 8" VENT PIPE WITH TAP TO EXISTING 8" VENT PIPE. SEE SHEET MS0.1 FOR ADDITIONAL INFORMATION.

M312 CONNECT NEW 4" MPS PIPE WITH ISOLATION VALVES AND TAP TO EXISTING 4" MPS PIPE. SEE SHEET MS0.1 FOR ADDITIONAL INFORMATION.

[illegible]

SEALS AND SIGNATURES



KEYPLAN



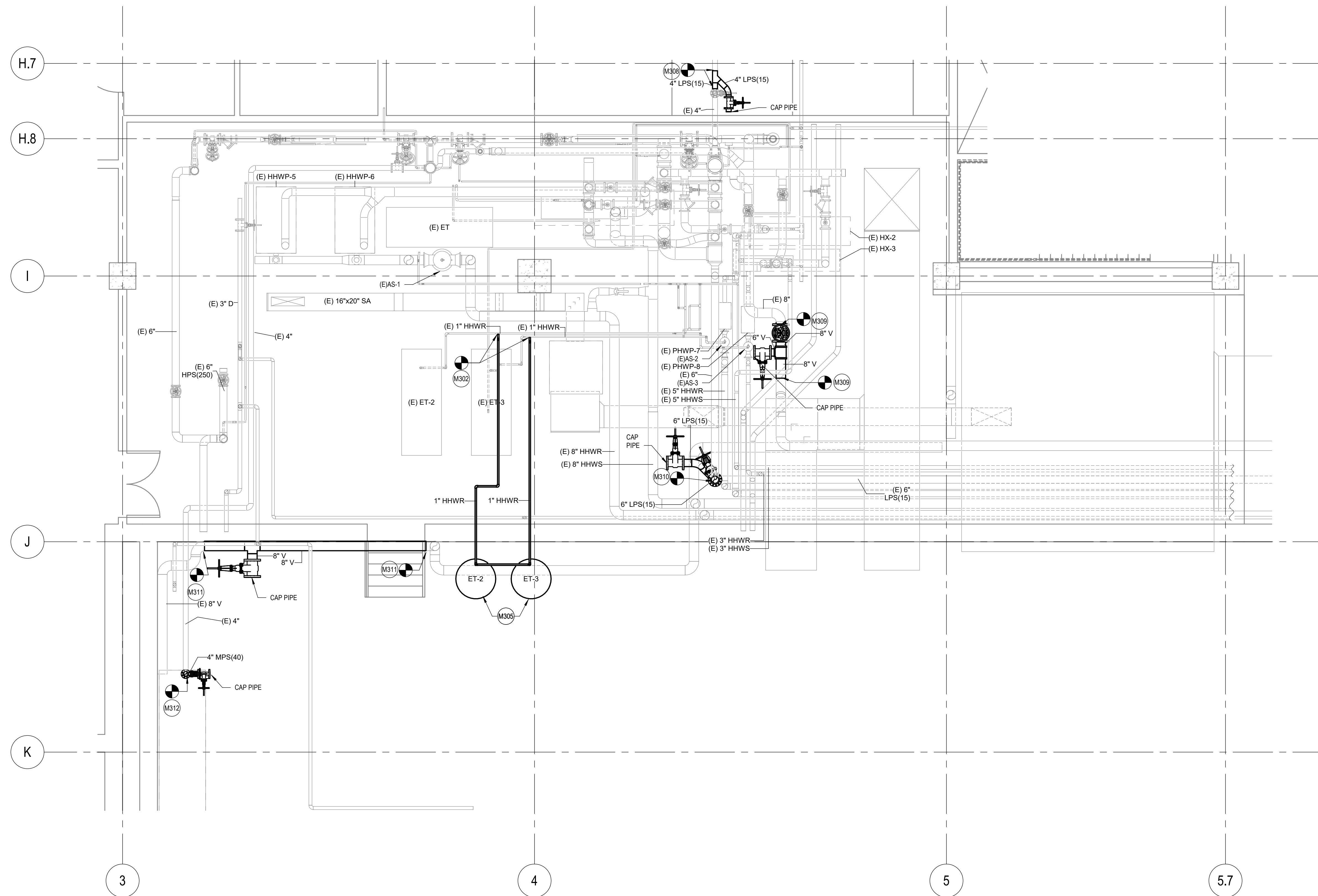
SHEET TITLE

PHASE 1 ENLARGED HEATING NEW MECHANICAL PLANS

PROJECT NUMBER

M4.1.1

SHEET NUMBER



A. SEE 10.1 FOR MECHANICAL, LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL PROVIDE ALL SHUTDOWN AND TIE-IN OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING RESULTS BASED ON THE WORK DESCRIBED ABOVE.



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M304 PROVIDE NEW HEATING HOT WATER BYPASS CONNECTION AS SHOWN. SEE M5.13 SCHEDULE FOR ADDITIONAL INFORMATION.

M306 PROVIDE AND INSTALL NEW PIPING AND ASSOCIATED PIPING ACCESSORIES. SEE SCHEDULE FOR ADDITIONAL INFORMATION.

M314 CONNECT NEW 1" MPS PIPING FROM NEW 1" HSI ISOLATION VALVE AND BRANCH. SEE SHEET M5.0.2 FOR ADDITIONAL INFORMATION.

M315 CONNECT NEW 1" VENT FROM NEW PPS TO NEW ISOLATION VALVE. OPEN ISOLATION VALVE. SEE SHEET M5.0.2 FOR ADDITIONAL INFORMATION.

M316 CONNECT NEW 1" PPS PIPING FROM NEW 1" PPS HEADER TO NEW ISOLATION VALVE. OPEN ISOLATION VALVE. SEE SHEET M5.0.2 FOR ADDITIONAL INFORMATION.

M317 CONNECT NEW 1" VENT FROM NEW PPS TO NEW ISOLATION VALVE. OPEN ISOLATION VALVE. SEE SHEET M5.0.2 FOR ADDITIONAL INFORMATION.

M318 CONNECT NEW 1/2" PIPING WITH TAP FOR NEW CONDENSATE PUMP. SEE SHEET M5.0.2 FOR ADDITIONAL INFORMATION.

M319 CONNECT NEW 1" MPS PIPING FROM NEW PPS TO NEW ISOLATION VALVE. OPEN ISOLATION VALVE. SEE SHEET M5.0.2 FOR ADDITIONAL INFORMATION.

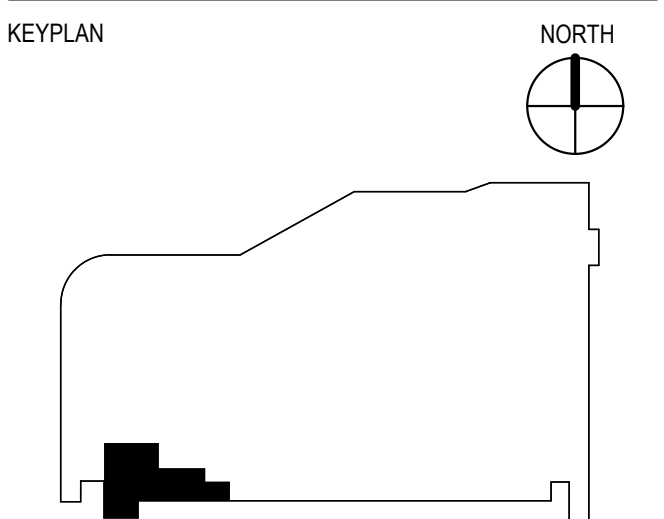
M327 ALL VALVES, STRAINERS, AND ALL OTHER PIPING APPURTENANCES USED IN THE CONSTRUCTION OF THE SYSTEM REQUIRE REDUCING STANDARDS BE EXISTING OF A MINIMUM SVP OF 300 PSIG.

M330 CONNECT NEW 1" HWHR TO EXISTING 1" HWHR AT THE POINT OF CONNECTION.

M331 CONNECT NEW 1" HWHR TO EXISTING 1" HWHR HEADER AT THE POINT OF CONNECTION. SEE SHEET M5.15 AND M5.12 FOR ADDITIONAL INFORMATION.

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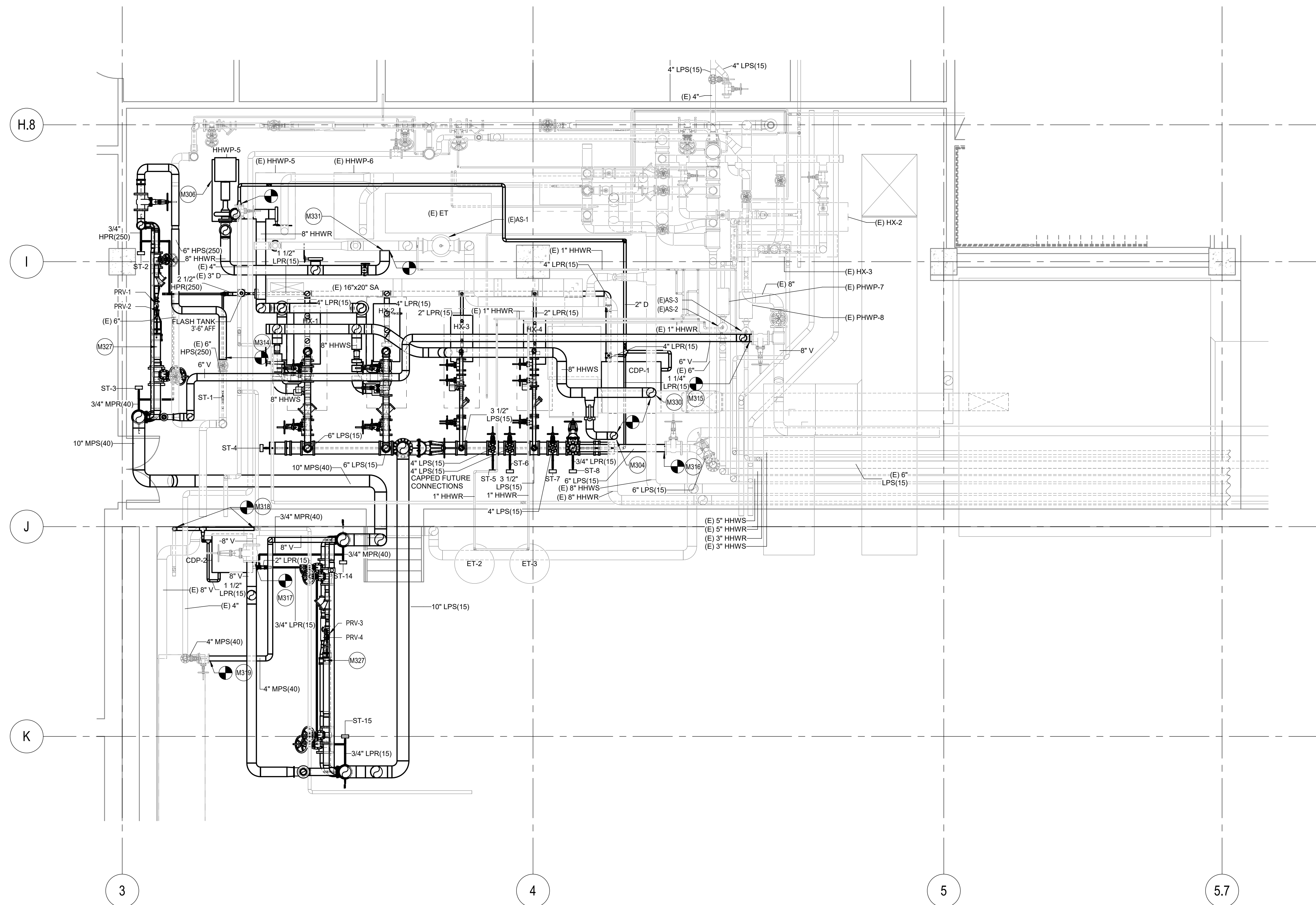
SEALS AND SIGNATURES



PROJECT NUMBER

M4.1.2

SHEET NUMBER



- A. SEE I0.1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT CONDITIONS. LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR ALL EQUIPMENT.
- E. DEMO AND REPAIR EXISTING STEAM HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
- F. DEMO AND REPAIR EXISTING CHILLED WATER HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.
- G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE DESIGNER A SUMMARY SHEET OR RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



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M303 CONNECT NEW 3" HWHSR PIPING TO EXISTING 3" HWHSR PIPING AT THE POINT OF CONNECTION. SEE SHEET M5.14 FOR ADDITIONAL INFORMATION.

M304 PROVIDE NEW HEATING HOT WATER BYPASS CONNECTION AS SHOWN. SEE M5.13 SHEET FOR ADDITIONAL INFORMATION.

M306 PROVIDE AND INSTALL NEW PUMP AND ASSOCIATED PIPING ACCESSORIES. SEE SCHEDULE FOR ADDITIONAL INFORMATION.

M307 PROVIDE AND INSTALL NEW AIR SEPARATOR AND ASSOCIATED PIPING. SEE SHEET M6.2 AND SCHEDULE FOR ADDITIONAL INFORMATION.

M308 CONNECT NEW 1" LPS PIPING TO EXISTING 1" LPS HEADER TO NEW ISOLATION VALVE. OPEN ISOLATION VALVE. SEE SHEET M6.3 FOR ADDITIONAL INFORMATION.

M325 CONNECT NEW 5" HWHSR TO EXISTING 5" HWHSR AT THE POINT OF CONNECTION. SEE SHEET M5.15 FOR ADDITIONAL INFORMATION.

M326 VALVES, STRAINERS AND OTHER PIPING APPLICANCES USED IN THE CONSTRUCTION OF THE STEAM PRESSURE REDUCING STATIONS SHALL BE RATED AT A MINIMUM SPG OF 300 PSI.

SEALS AND SIGNATURES

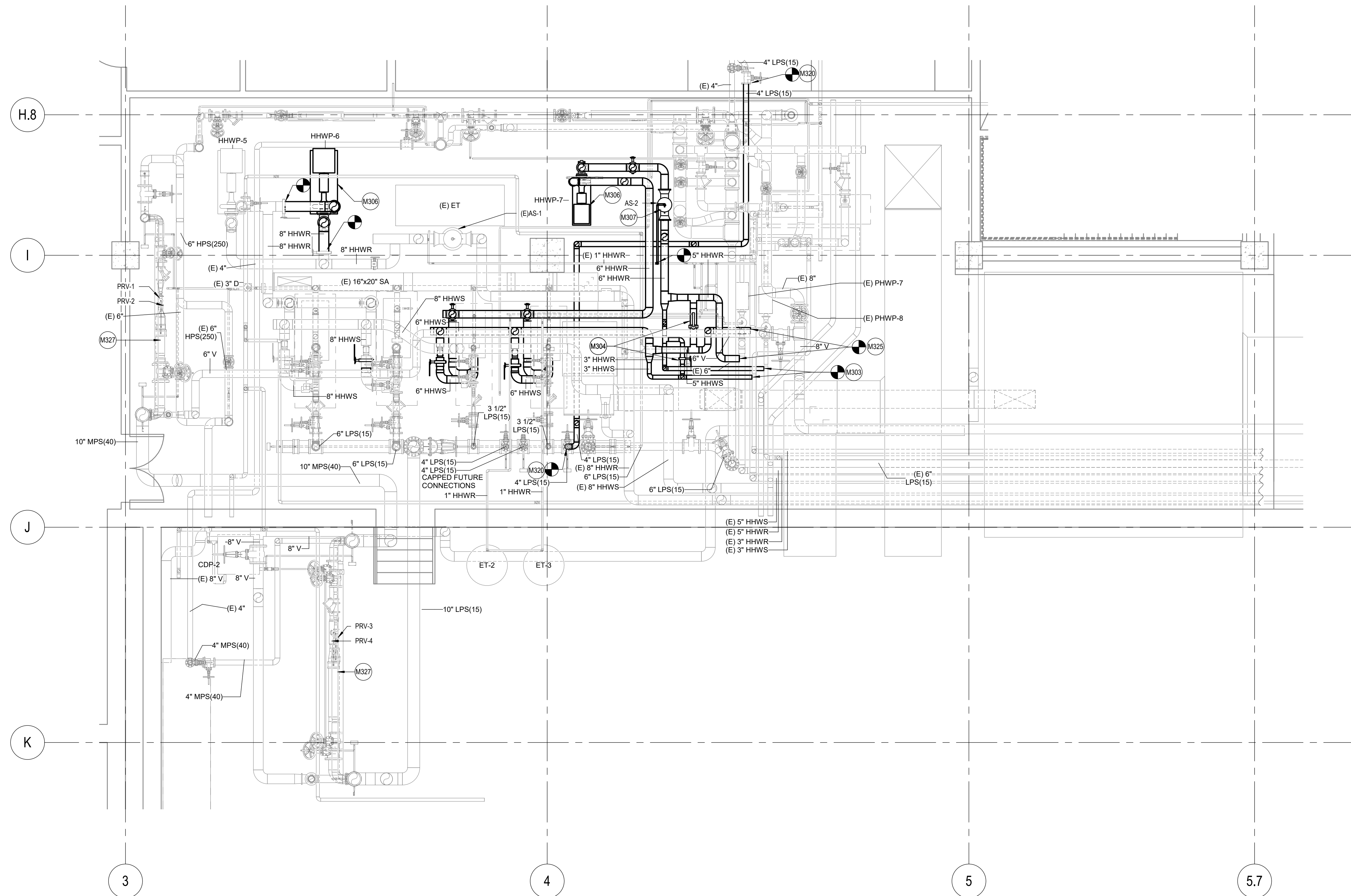
NORTH



PROJECT NUMBER

M4.1.3

SHEET NUMBER



A. SEE I.M.O. FOR MECHANICAL, LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL PROVIDE ALL SHUTDOWN AND TIE-IN OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.

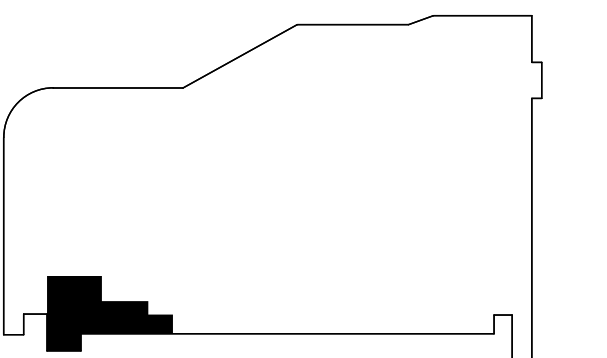


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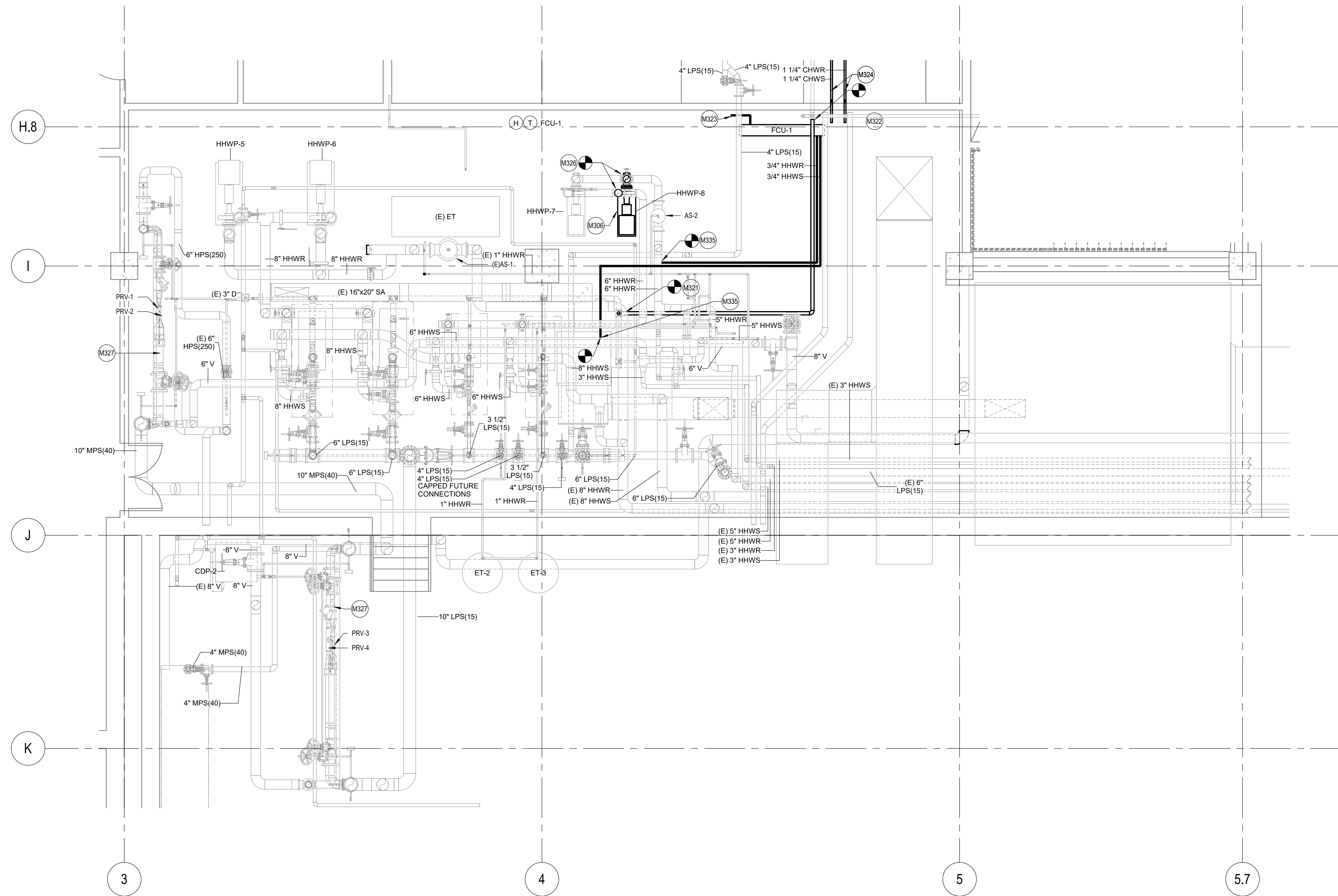
SEALS AND SIGNATURES



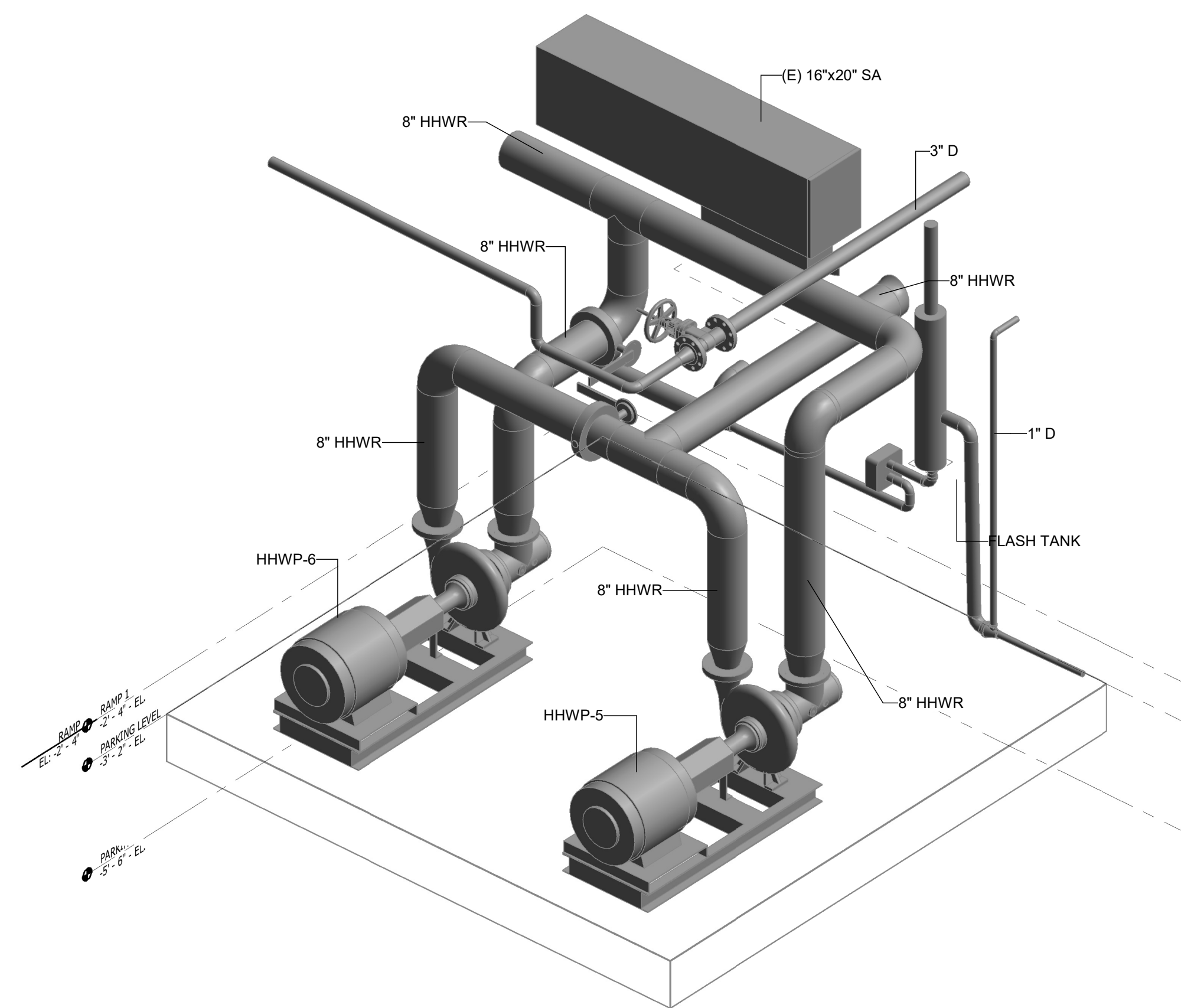
PROJECT NUMBER

M4.1.4

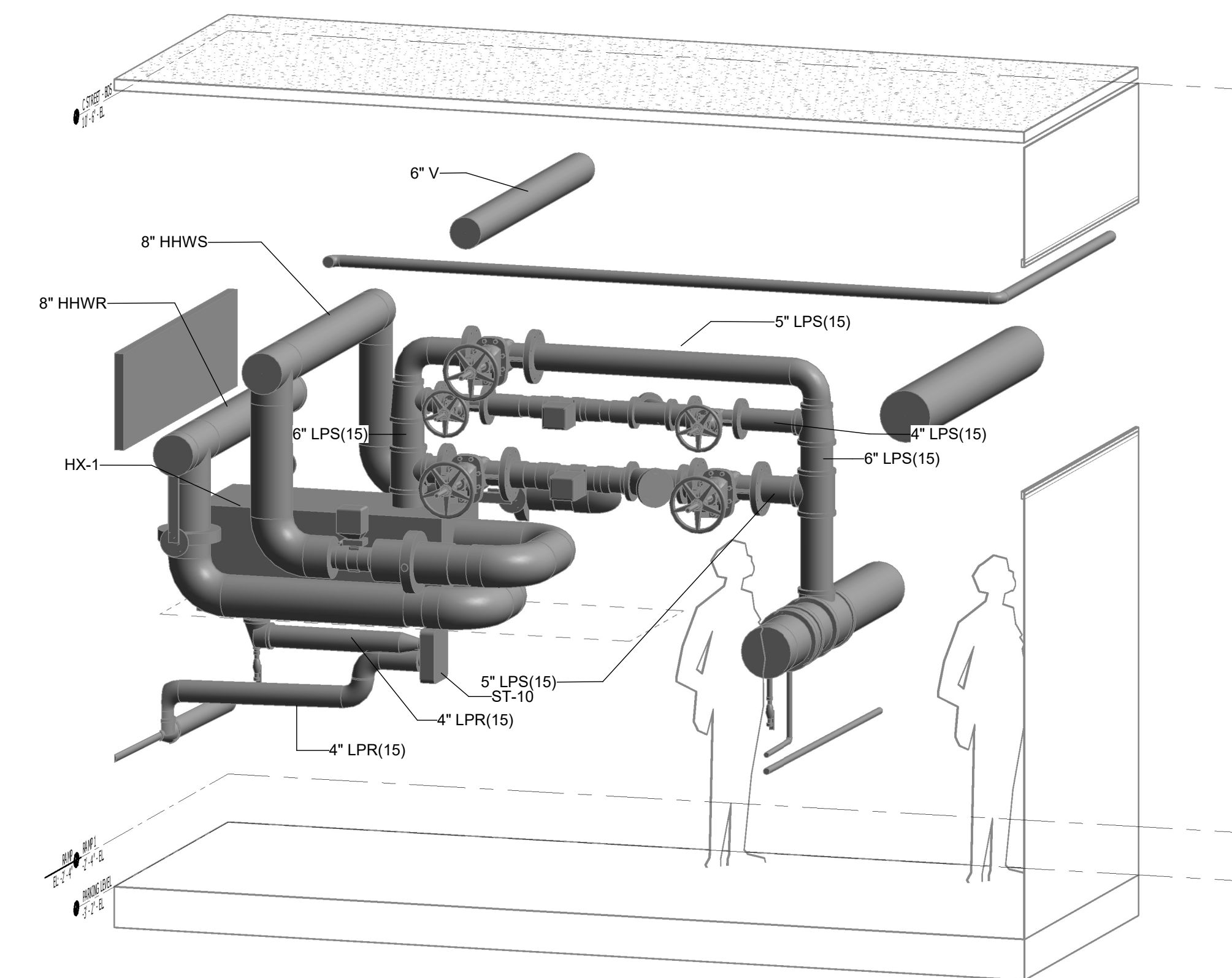
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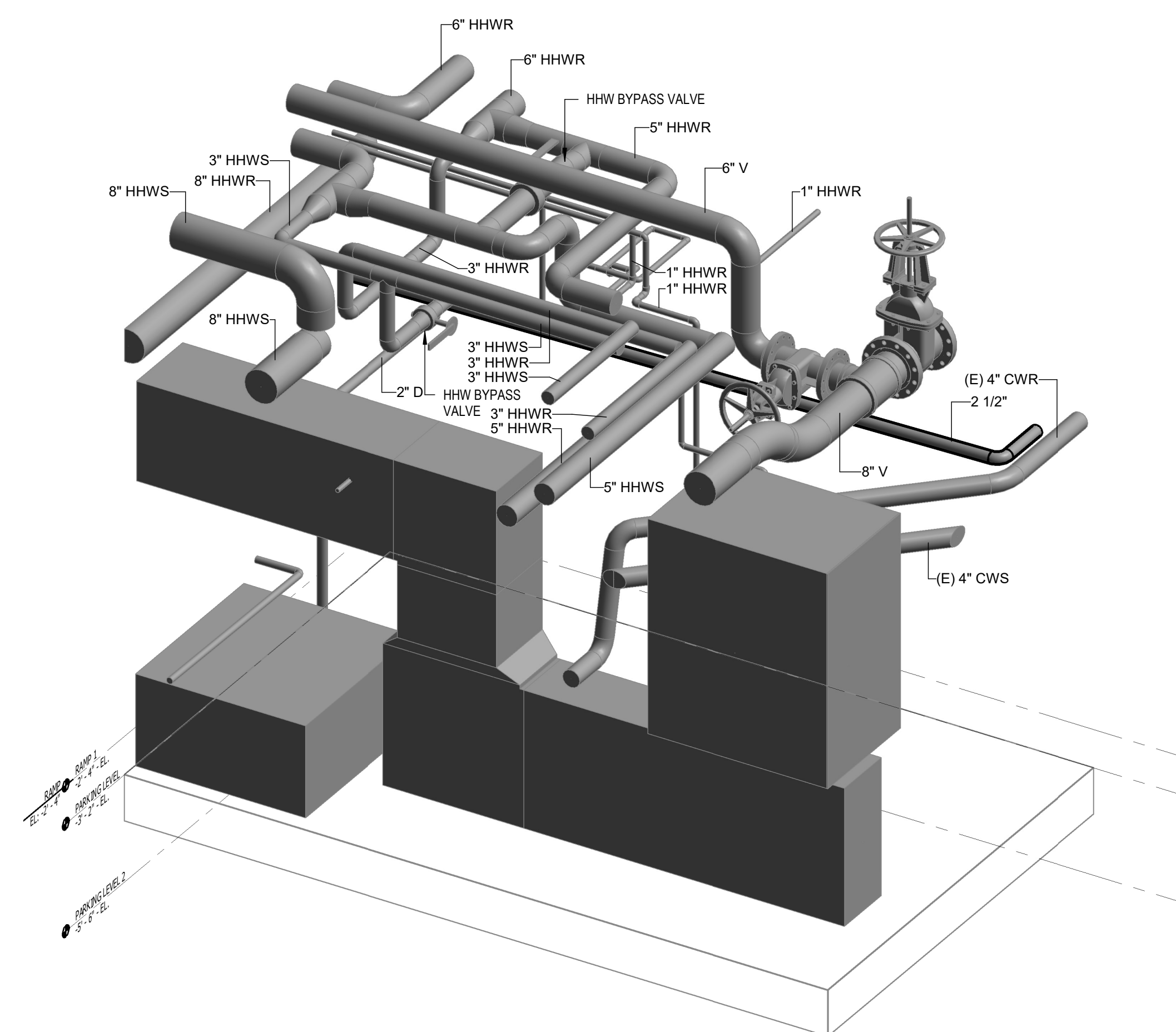
M306	PROVIDE AND INSTALL NEW PUMP AND ASSOCIATED PIPING ACCESSORIES. SEE SHEET 34 FOR ADDITIONAL INFORMATION.
M321	CONNECT NEW 2" / 12" CONDENSATE PIPING TO NEW CONDENSATE HEADER. SEE SHEET M5.04 FOR ADDITIONAL INFORMATION.
M322	CONNECT NEW 2" / 12" CONDENSATE PIPING TO EXISTING 2" / 12" CONDENSATE PIPING. SEE SHEET M5.04 FOR ADDITIONAL INFORMATION.
M323	ROUTE 3/4" CONDENSATE PIPING TO NEAREST FLOOR DRAIN.
M324	ROUTE 6" / 4" CHWSPR PIPING TO CHWSPR MAIN IN PARKING GARAGE. ALL PIPING AND ACCESSORIES IN PARKING GARAGE SHALL BE VISIBLE. PROVIDE AN ELECTRIC HEAT TRACE UNDER INSULATION. SEE SHEET M2.0 FOR MORE INFORMATION.
M326	CONNECT NEW 6" / 8" CHWSPR FROM PUMP TO ISOLATION VALVE. SEE SHEETS M4.04 FOR ADDITIONAL INFORMATION.
M327	ALL VALVES, STRAINERS, AND ALL OTHER ACCESSORIES APPROPRIATE TO THE PROPOSED CONSTRUCTION OF THE STATION. PRESSURE REDUCING STATIONS SHALL BE RATED OF A MINIMUM SWP OF 30 PSIG.
M328	CONNECT 3/4" CHWSPR FROM FLOW METER TO 6" CHWSPR AT THE POINT OF CONNECTION.



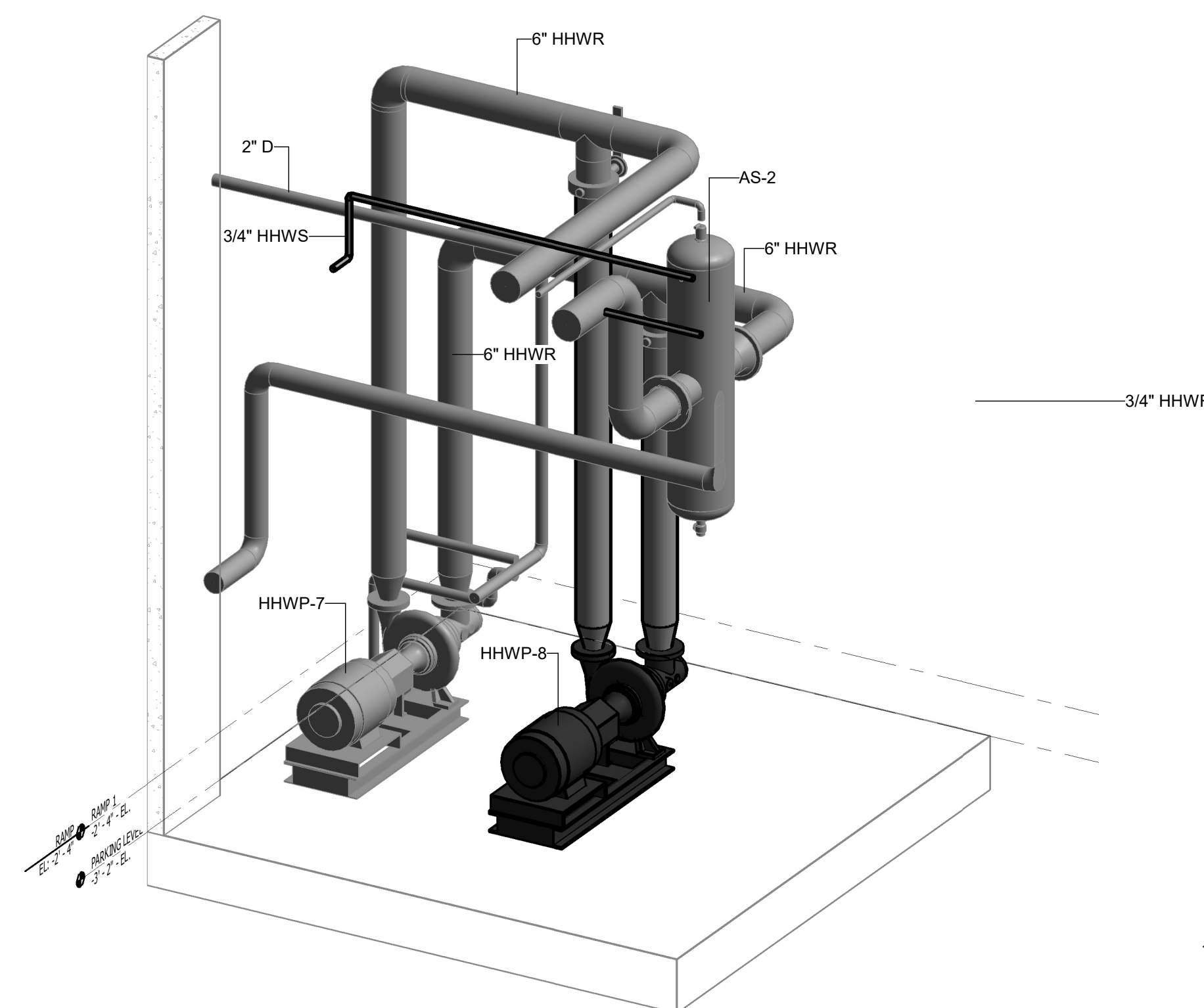
3 NEW HEATING HOT WATER PUMPS 3D VIEW
SCALE:



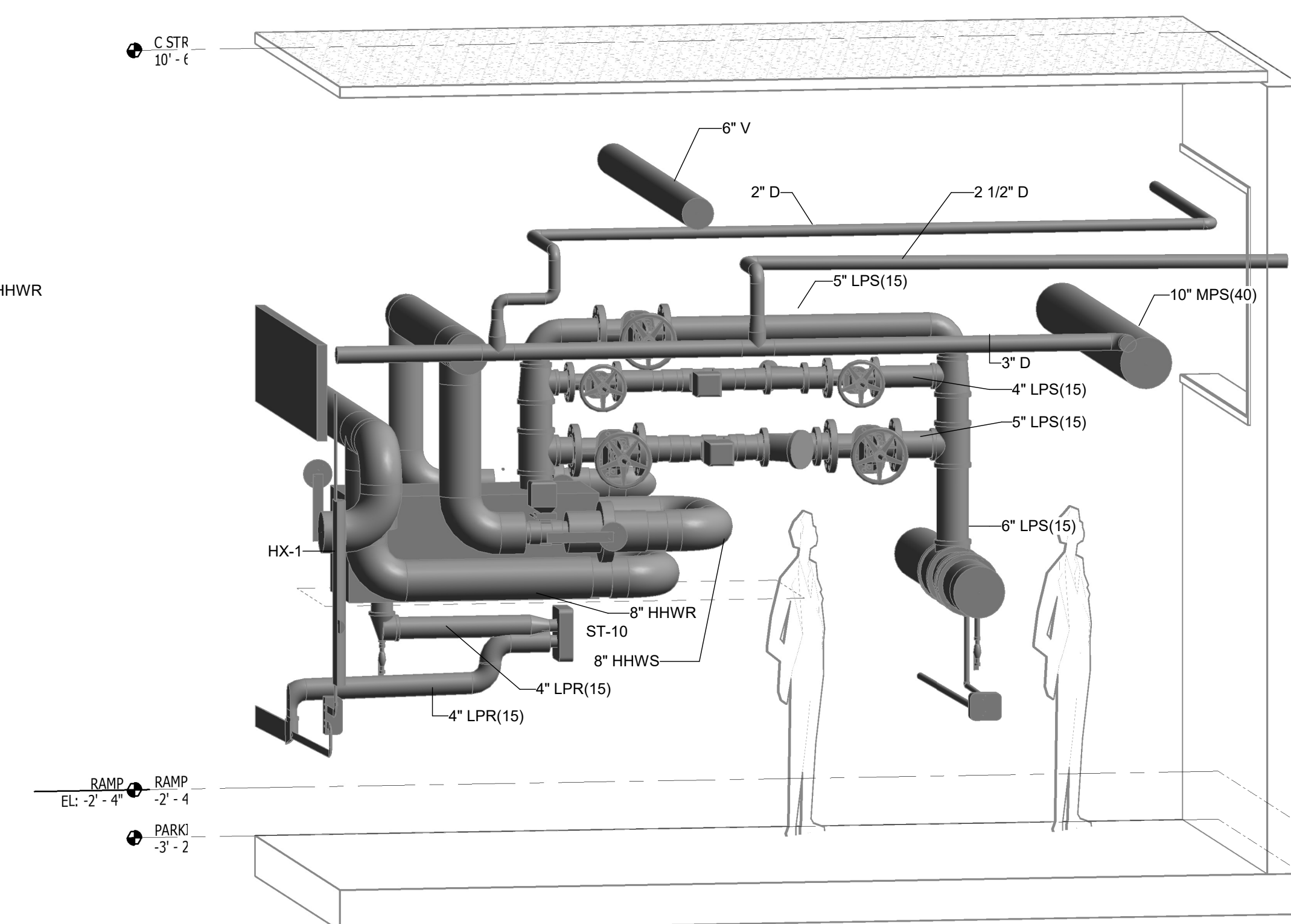
1 NEW HEAT EXCHANGER PIPING 3D VIEW 1
SCALE:



5 NEW HEATING HOT WATER PIPING 3D VIEWS
SCALE:



4 NEW PERIMETER HEATING HOT WATER PUMPS 3D VIEW
SCALE:



2 NEW HEAT EXCHANGER PIPING 3D VIEW 2
SCALE:



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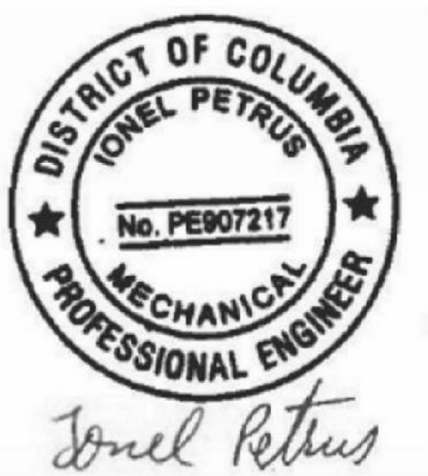
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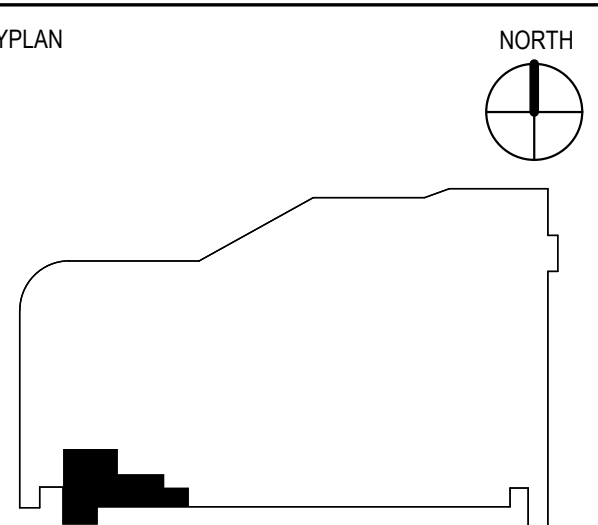
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SEALS AND SIGNATURES



KEYPLAN



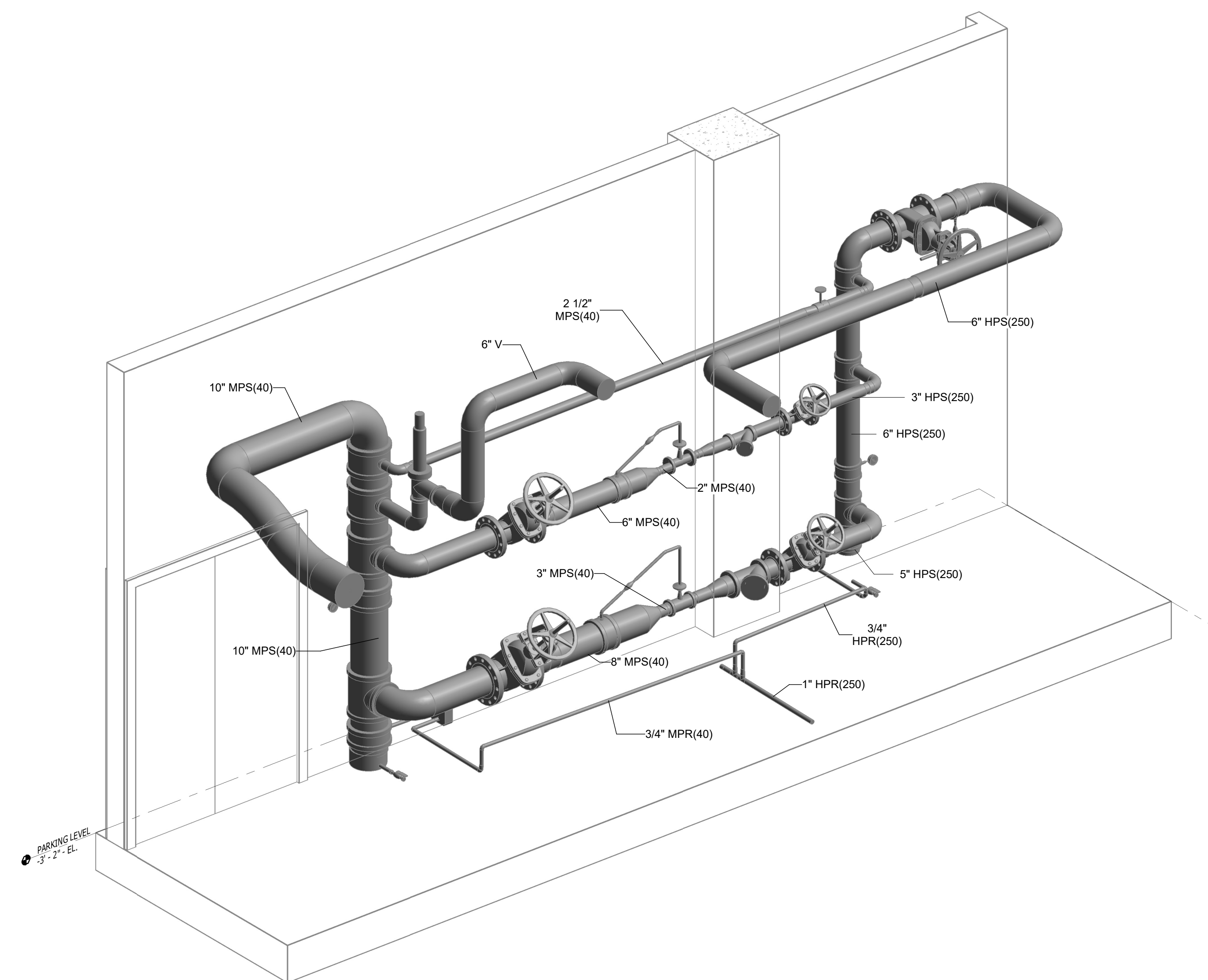
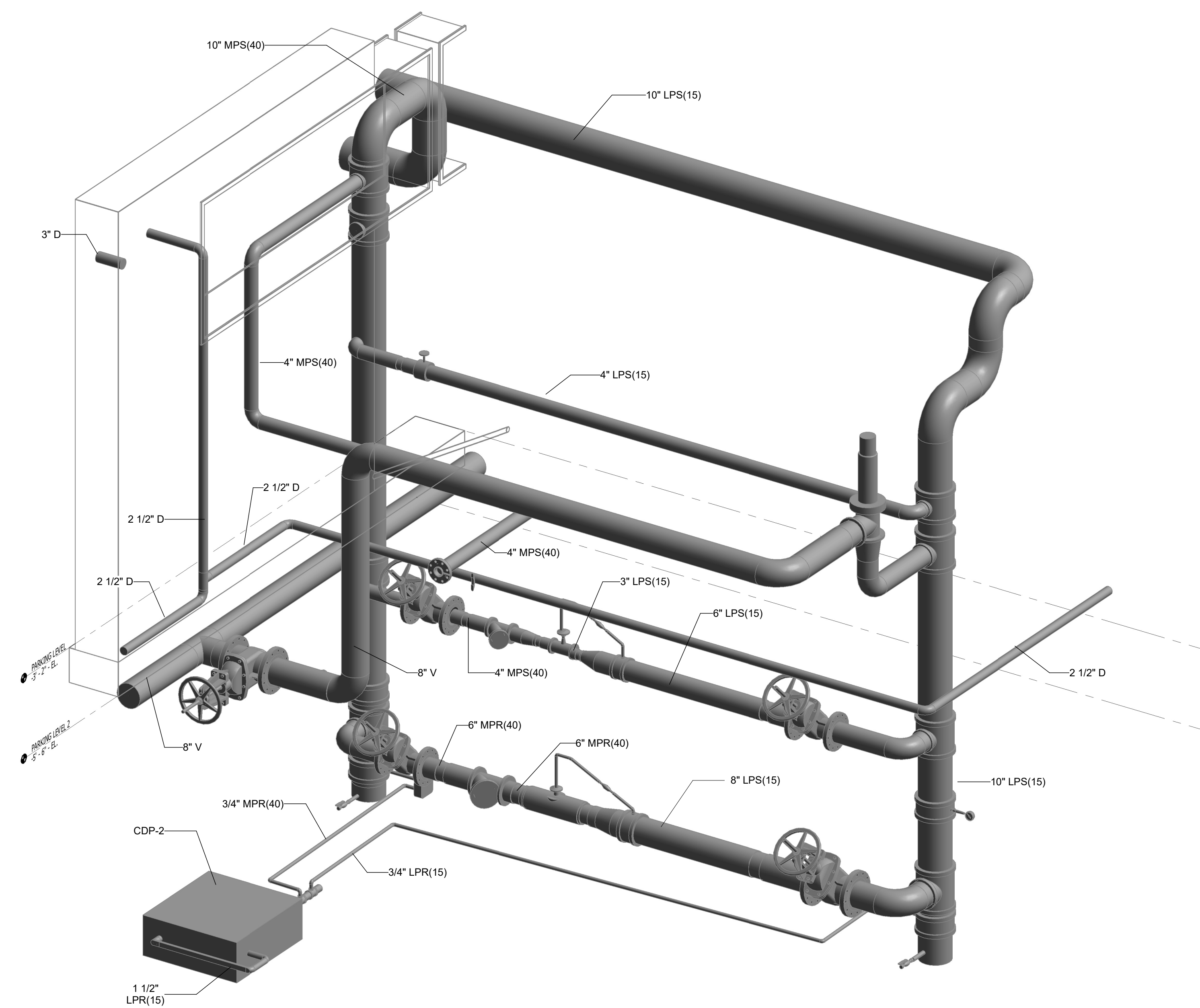
SHEET TITLE

PHASE 4 HEATING HOT
WATER 3D VIEWS

PROJECT NUMBER

M4.1.5

SHEET NUMBER



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MECHANICAL ROOM 1000 HEATING AND CHILLED
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500 INDIANA AVENUE N.W.
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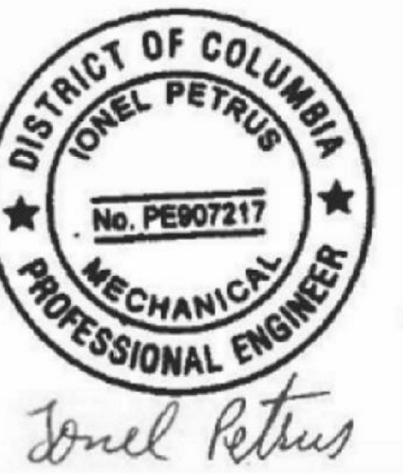
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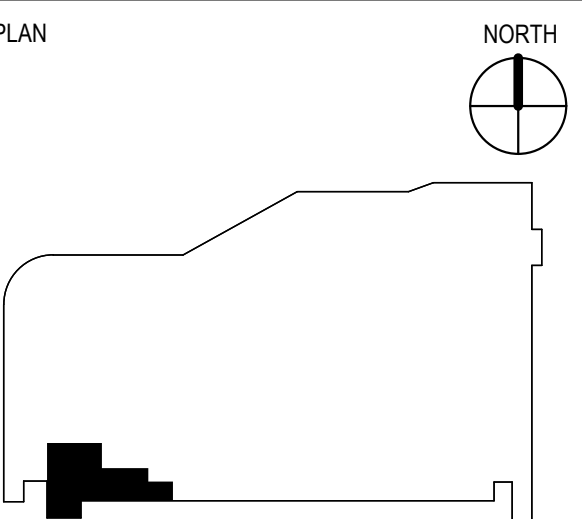
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[illegible]

SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

PHASE 4 PRESSURE
REDUCING STATION 3D
VIEWS

PROJECT NUMBER

M4.1.6

SHEET NUMBER

A. SEE 101.0 FOR MECHANICAL, LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT DRAWINGS AND LIMITED SITE SURVEYING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL PROVIDE ALL SHUTDOWN AND TIE-IN OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING RESULTS BASED ON THE WORK DESCRIBED ABOVE.



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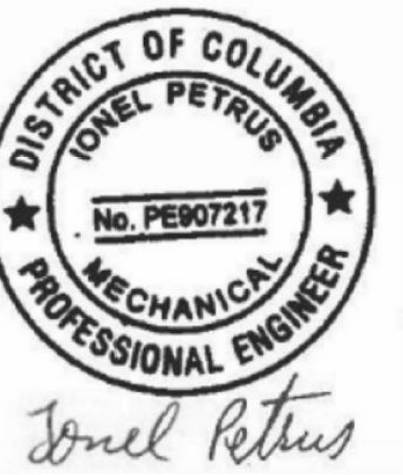
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M332 CONNECT NEW PUMP TO EXISTING PIPING AT THE POINT OF CONNECTION. SEE SYSTEM DIAGRAM(S) M5 FOR ADDITIONAL INFORMATION.

M333 CONNECT NEW HX TO EXISTING PIPING AT THE POINT OF CONNECTION. SEE SYSTEM DIAGRAM(S) M5 FOR ADDITIONAL INFORMATION.

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SEALS AND SIGNATURES



KEYPLAN



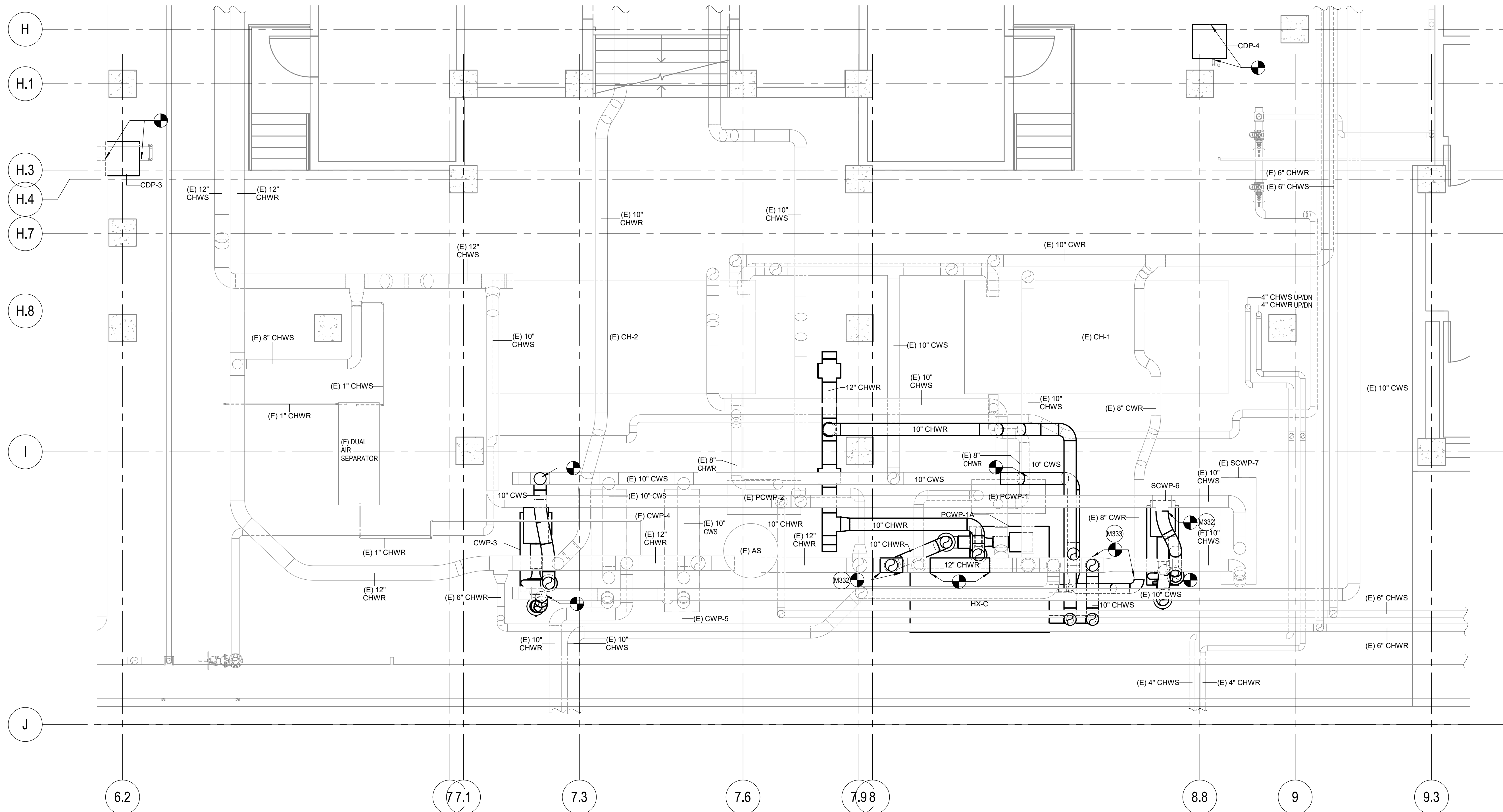
SHEET TITLE

PHASE 1 ENLARGED COOLING NEW MECHANICAL PLAN

PROJECT NUMBER

M4.2.1

SHEET NUMBER



A. SEE 00.1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT CONDITIONS. UNLESS LIMITED SITE SURVEYING, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL COORDINATE ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

G. PRIOR TO COMMENCING ANY NEW WORK OR ANY DEMOLITION WORK, SUBMIT TO THE OWNER AND THE ENGINEER OF RECORD FOR REVIEW TESTING REPORTS BASED ON THE WORK DESCRIBED ABOVE.



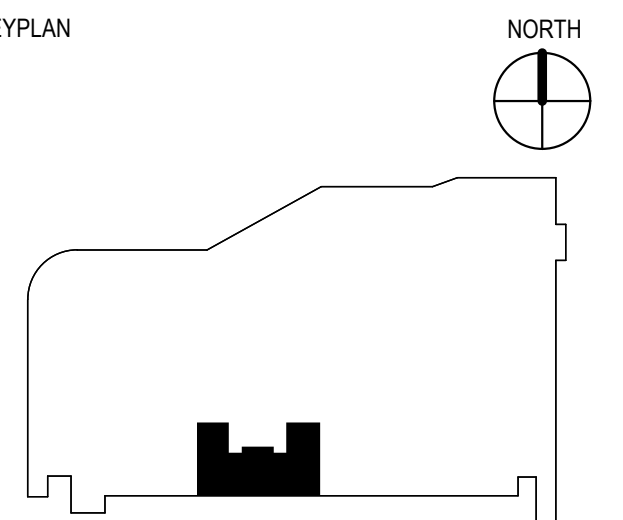
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M332	CONNECT NEW PUMP TO EXISTING PIPING AT THE POINT OF CONNECTION. SEE SYSTEM DIAGRAM(S) M5 FOR ADDITIONAL INFORMATION.
M334	CONNECT CHILLER TO NEW PIPING HEADER. SEE SYSTEM DIAGRAM(S) M5 FOR ADDITIONAL INFORMATION.

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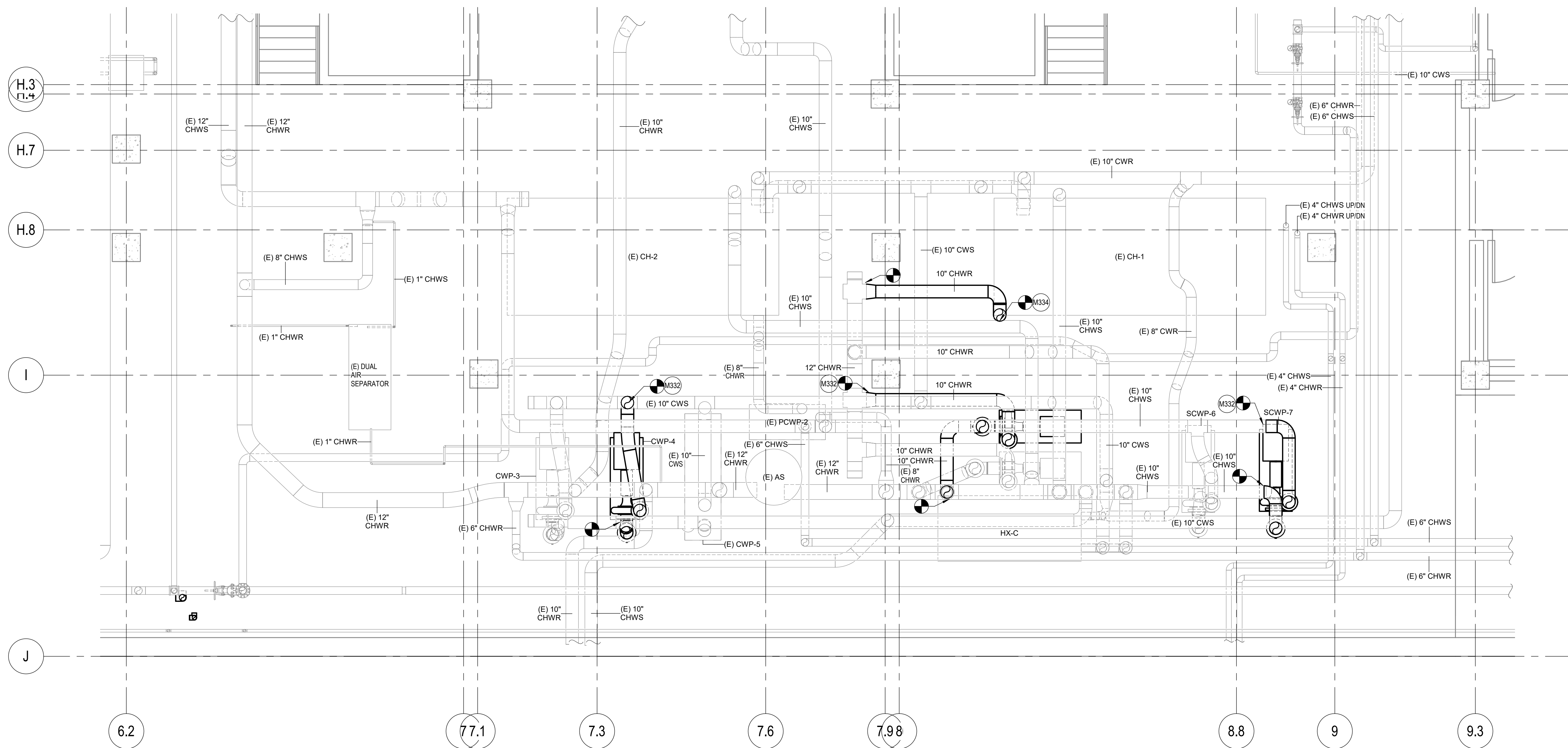
SEALS AND SIGNATURES



PROJECT NUMBER.

M4.2.2

SHEET NUMBER



A. SEE 00.1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.

B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT CONDITIONS. UNLESS LIMITED SITE SURVEYING, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.

C. CONTRACTOR SHALL OBTAIN ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.

D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.

E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.

F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.

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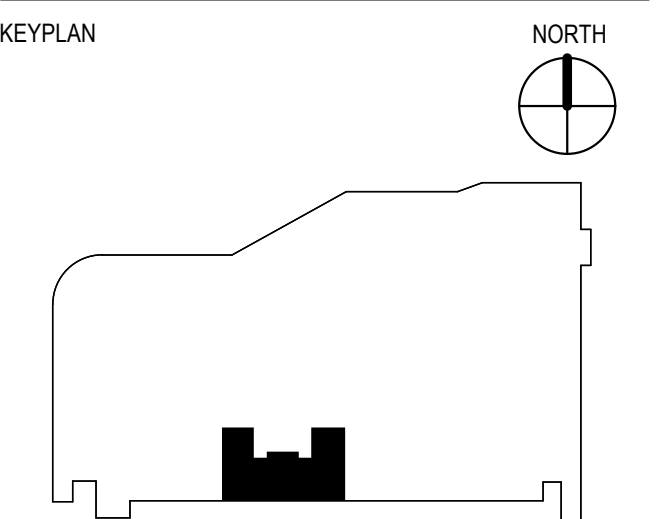
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M332 CONNECT NEW PUMP TO EXISTING PIPING AT THE POINT OF CONNECTION. SEE SYSTEM DIAGRAM(S) M5 FOR ADDITIONAL INFORMATION.

M334 CONNECT CHILLER TO NEW PIPING HEADER. SEE SYSTEM DIAGRAM(S) M5 FOR ADDITIONAL INFORMATION.

[illegible]

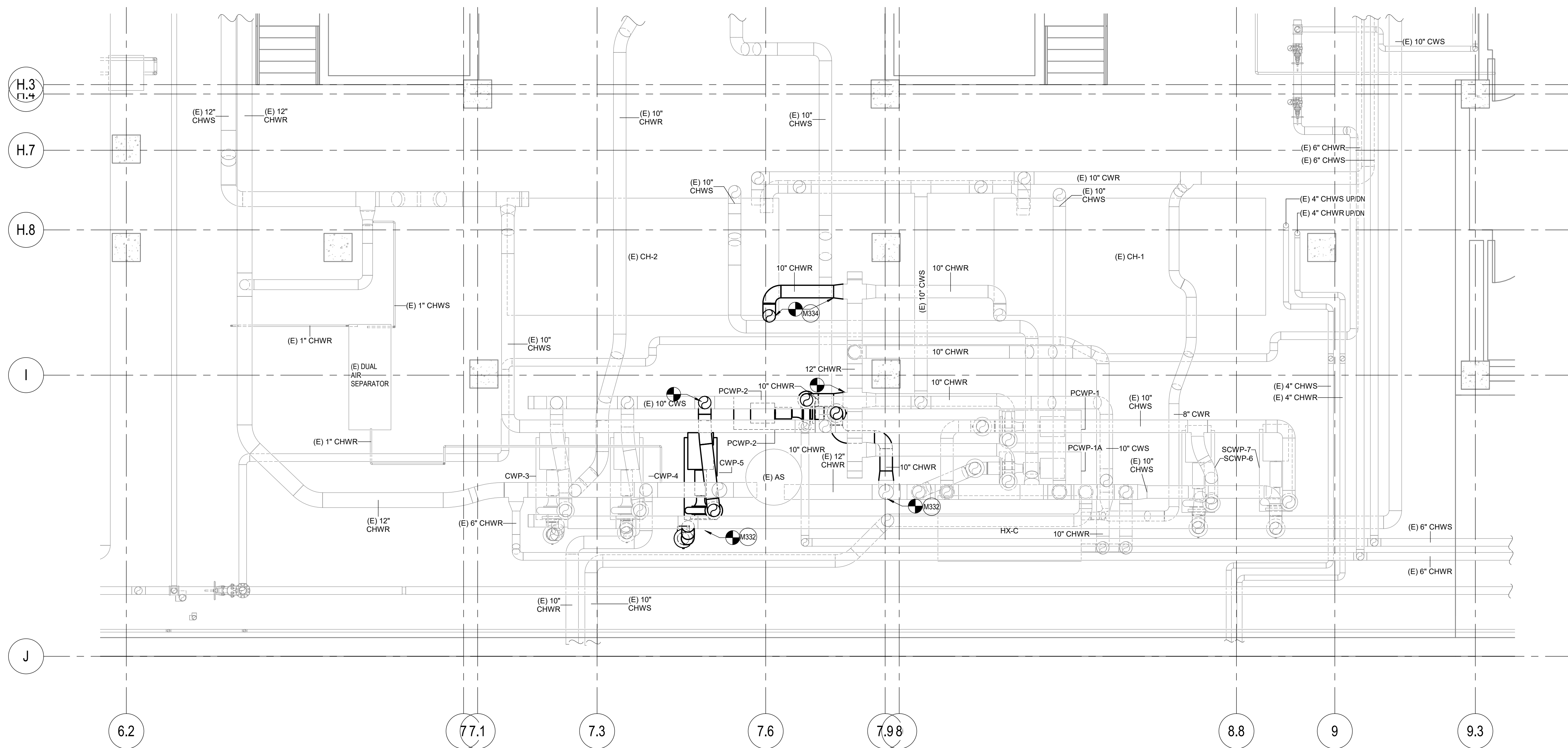
SEALS AND SIGNATURES



PROJECT NUMBER.

M4.2.3

SHEET NUMBER



- A. SEE 00.1 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- B. EXISTING CONDITIONS SHOWN ARE BASED ON AS-BUILT SURVEYING. UNLIMITED SITE SURVEYING, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DUCTWORK, PIPING AND EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
- C. CONTRACTOR SHALL OBTAIN ALL SHUTDOWN AND PHASING OF THE SYSTEM WITH THE OWNER PRIOR TO BEGINNING WORK.
- D. DEMO EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.
- E. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM FLOW PRIOR TO ANY DEMOLITION WORK.
- F. TEST AND MEASURE THE EXISTING STEAM, HEATING HOT WATER, CHILLED WATER, AND CONDENSER WATER SYSTEM PRESSURE PRIOR TO ANY DEMOLITION WORK.
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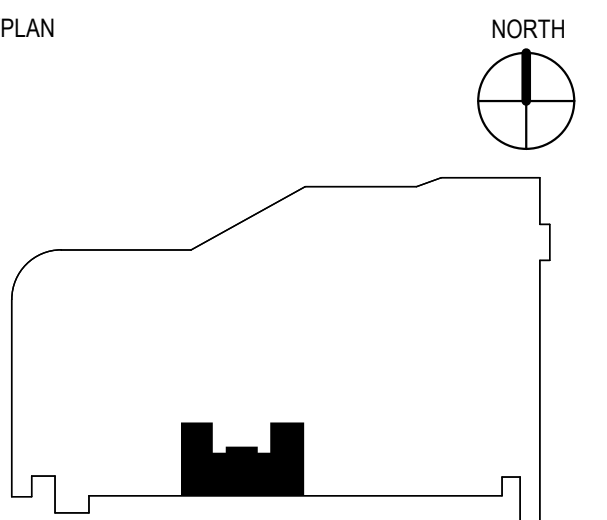
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M323	ROUTE 3/4" CONDENSATE PIPING TO NEAREST FLOOR DRAIN.
M328	PROVIDE NEW CONDENSATE FILTRATION SYSTEM. SEE SPECIFICATION SECTION 232116 FOR ADDITIONAL INFORMATION

[illegible]

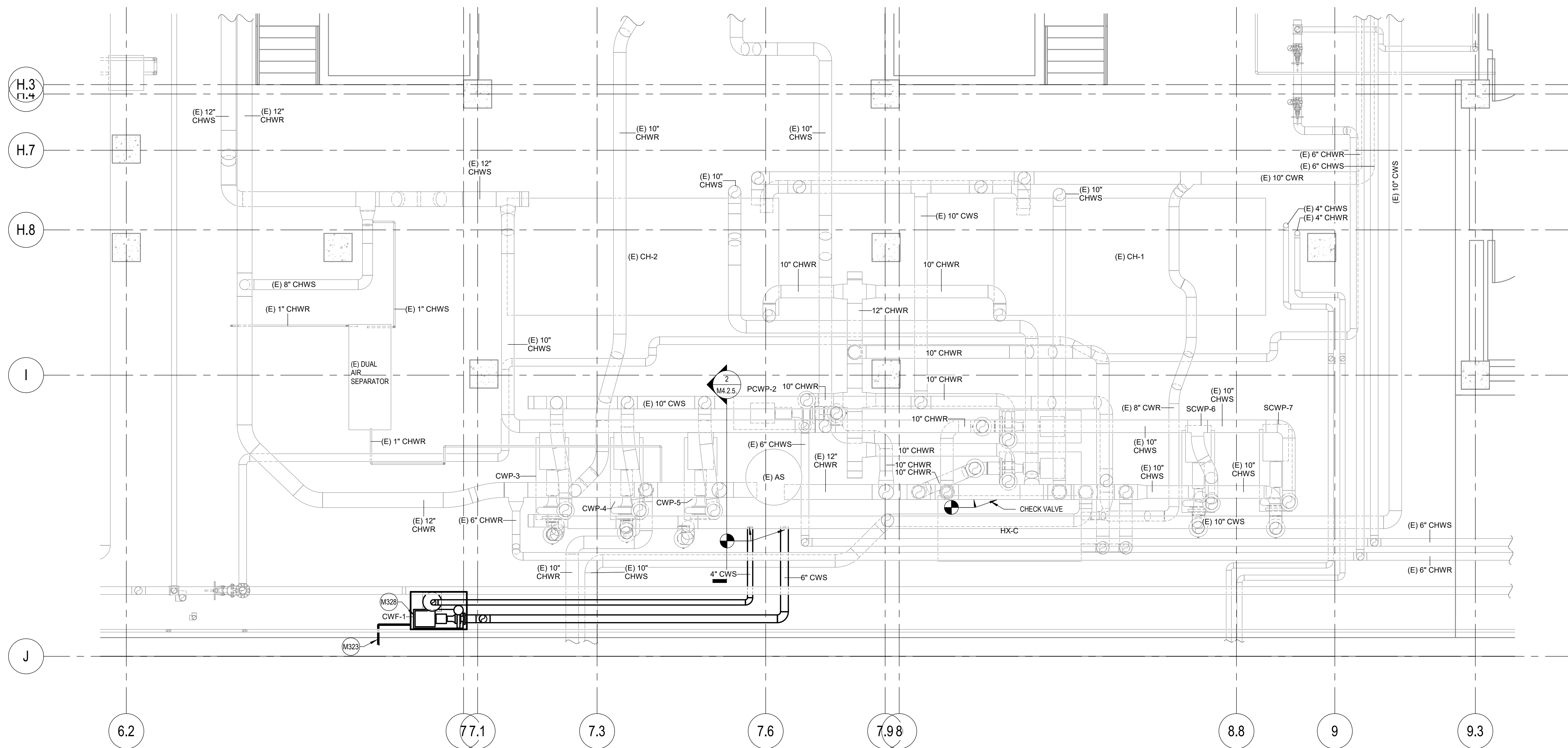
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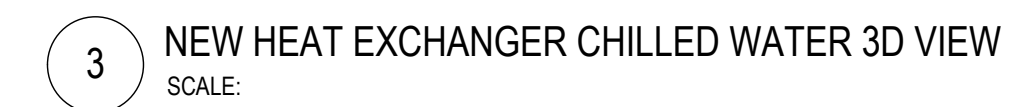
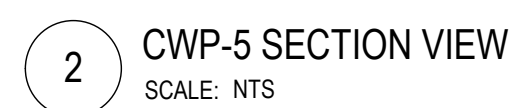


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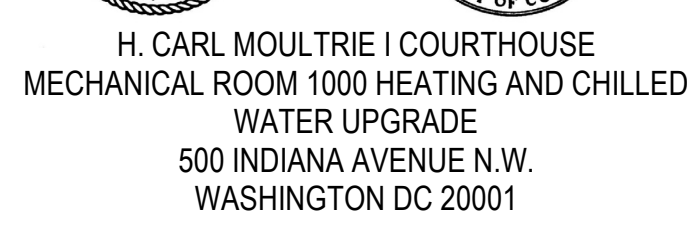
M4.2.4

SHEET NUMBER





NOTE: CONDENSER WATER SYSTEM (BOTH EXISTING AND NEW) IS NOT SHOWN IN VIEW FOR CLARITY. EXISTING 18"x12" SA DUCTWORK SHOWN FOR SPATIAL CONTEXT BUT HAS BEEN OMITTED IN FLOOR PLANS.

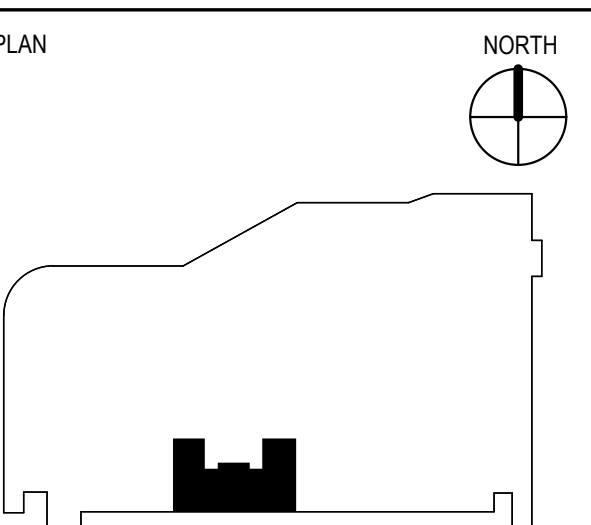


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[illegible]

SEALS AND SIGNATURES



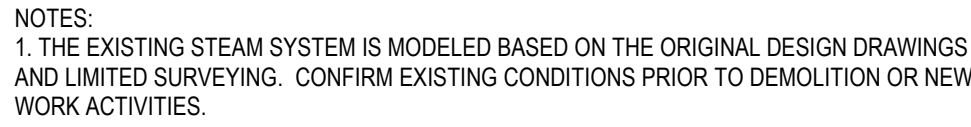
SHEET TITLE

PHASE 4 CHILLED WATER
3D AND SECTION VIEWS

PROJECT NUMBER

M4.2.5.

SHEET NUMBER



NOTES:
1. THE EXISTING STEAM SYSTEM IS MODELED BASED ON THE ORIGINAL DESIGN DRAWINGS AND LIMITED SURVEYING. CONFIRM EXISTING CONDITIONS PRIOR TO DEMOLITION OR NEW WORK ACTIVITIES.

H. CARL MOULTRIE | COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
WATER UPGRADE
500 INDIANA AVENUE N.W.
WASHINGTON DC 20001

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SUITE 100
WASHINGTON, DC 20006
202.842.2100
www.smithgroup.com

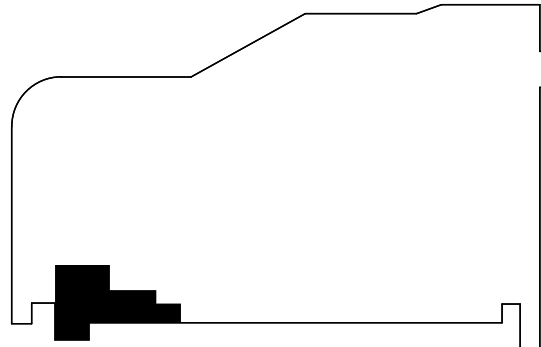
HORTON TOMASETTI
STRUCTURAL
100 L ST NW #600
WASHINGTON, DC 20036
2.580.6300

[illegible]

SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

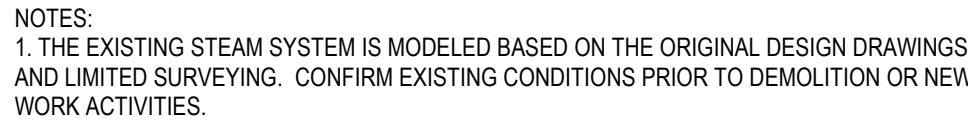
EXISTING STEAM PIPING
DIAGRAM

PROJECT NUMBER

M5.0.0

SHEET NUMBER

M521	INSTALL NEW TAP WITH ISOLATION VALVE AND CAPPED FOR FUTURE PHASE CONNECTION
M522	INSTALL NEW CONDENSATE PUMP TO EXISTING PIPING



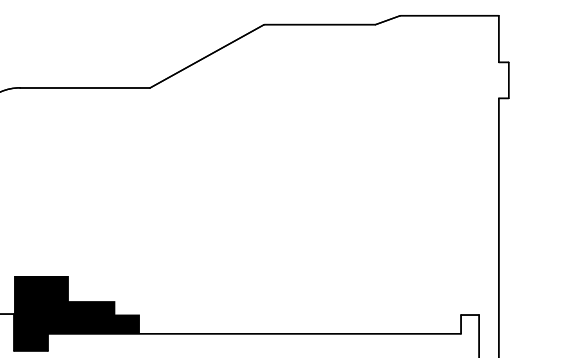
H. CARL MOULTRIE | COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
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SEALS AND SIGNATURES



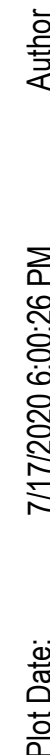
PHASE 1 STEAM PIPING
DIAGRAM

PROJECT NUMBER

SHEET NUMBER

M5.0.1

M516	CONNECT NEW 6" LPS LINE FROM NEW LPS HEADER AND OPEN ISOLATION VALVE
M517	CONNECT NEW 6" VENT AND OPEN ISOLATION VALVE
M518	CONNECT NEW MPS LINE AND OPEN ISOLATION VALVE
M519	CONNECT NEW HPS LINE TO EXISTING HPS BRANCH. OPEN ISOLATION VALVE.
M520	CONNECT NEW CONDENSATE PUMP DISCHARGE TO EXISTING CONDENSATE RETURN ISOLATION VALVE AND OPEN ISOLATION VALVE.



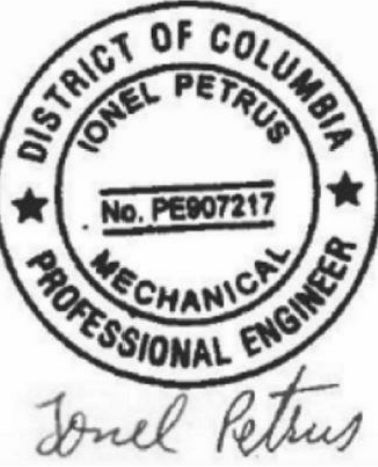
H. CARL MOULTRIE | COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
WATER UPGRADE
500 INDIANA AVENUE N.W.
WASHINGTON DC 20001

1700 NEW YORK AVENUE NW
SUITE 100
WASHINGTON, DC 20006
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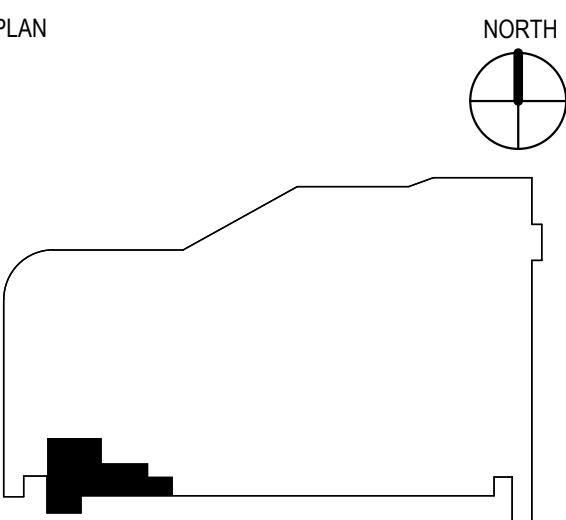
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WASHINGTON, DC 20036
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[illegible]

SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

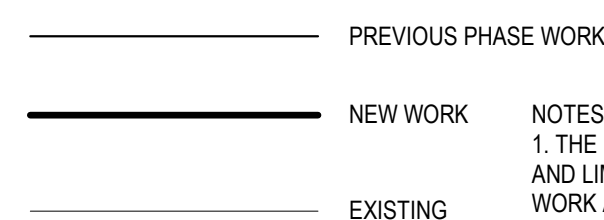
PHASE 2 STEAM PIPING DIAGRAM

PROJECT NUMBER

M5.0.2

SHEET NUMBER

M523	CONNECT NEW LPS LINE FROM LPS HEADER AND OPEN ISOLATION VALVE
M524	CONNECT NEW LPS LINE FROM LPS HEADER.



NOTES:
1. THE EXISTING STEAM SYSTEM IS MODELED BASED ON THE ORIGINAL DESIGN DRAWINGS AND LIMITED SURVEYING. CONFIRM EXISTING CONDITIONS PRIOR TO DEMOLITION OR NEW WORK ACTIVITIES.



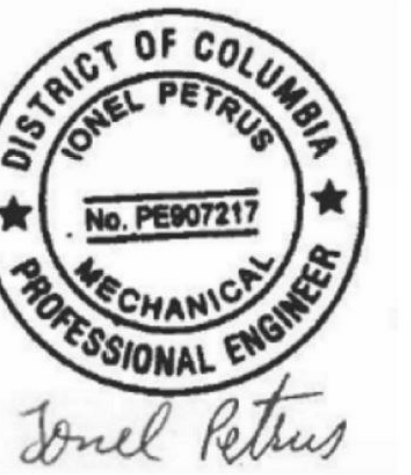
H. CARL MOULTRIE | COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
WATER UPGRADE
500 INDIANA AVENUE N.W.
WASHINGTON DC 20001

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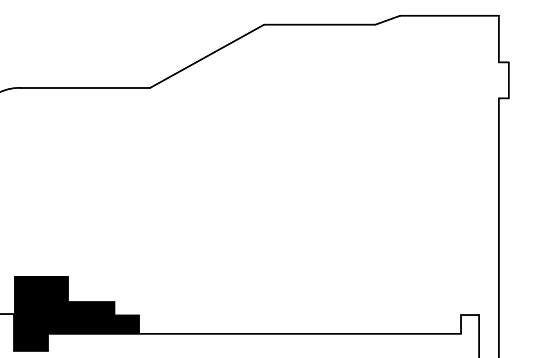
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[illegible]

SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

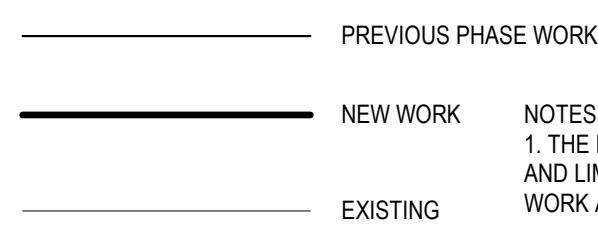
PHASE 3 STEAM PIPING
DIAGRAM

PROJECT NUMBER

M5.0.3

SHEET NUMBER

M525 CONNECT EXISTING CONDENSATE TO NEW CONDENSATE
HEADER



NOTES:
1. THE EXISTING STEAM SYSTEM IS MODELED BASED ON THE ORIGINAL DESIGN DRAWINGS AND LIMITED SURVEYING. CONFIRM EXISTING CONDITIONS PRIOR TO DEMOLITION OR NEW WORK ACTIVITIES.

PHASE 4 STEAM PIPING DIAGRAM
SCALE: NOT TO SCALE



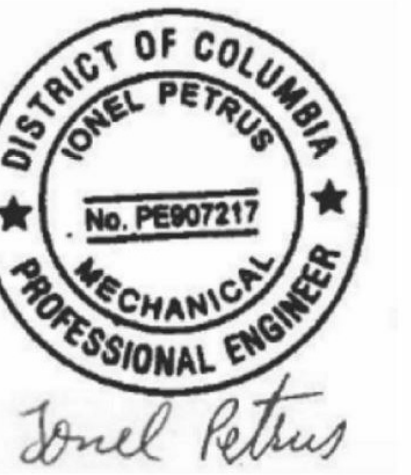
H. CARL MOULTRIE | COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
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500 INDIANA AVENUE N.W.
WASHINGTON DC 20001

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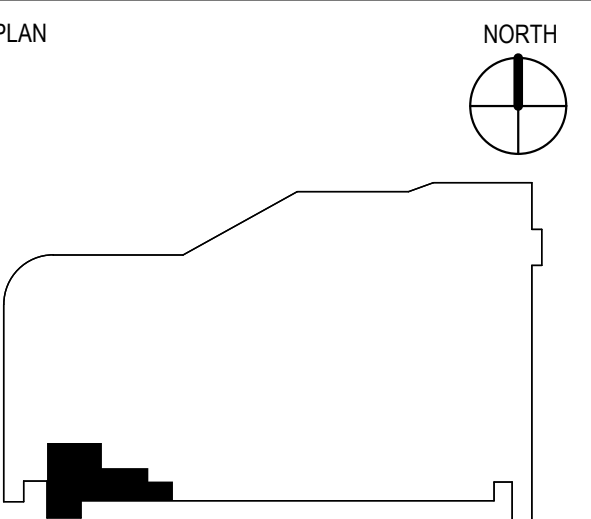
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[illegible]

SEALS AND SIGNATURES



KEYPLAN



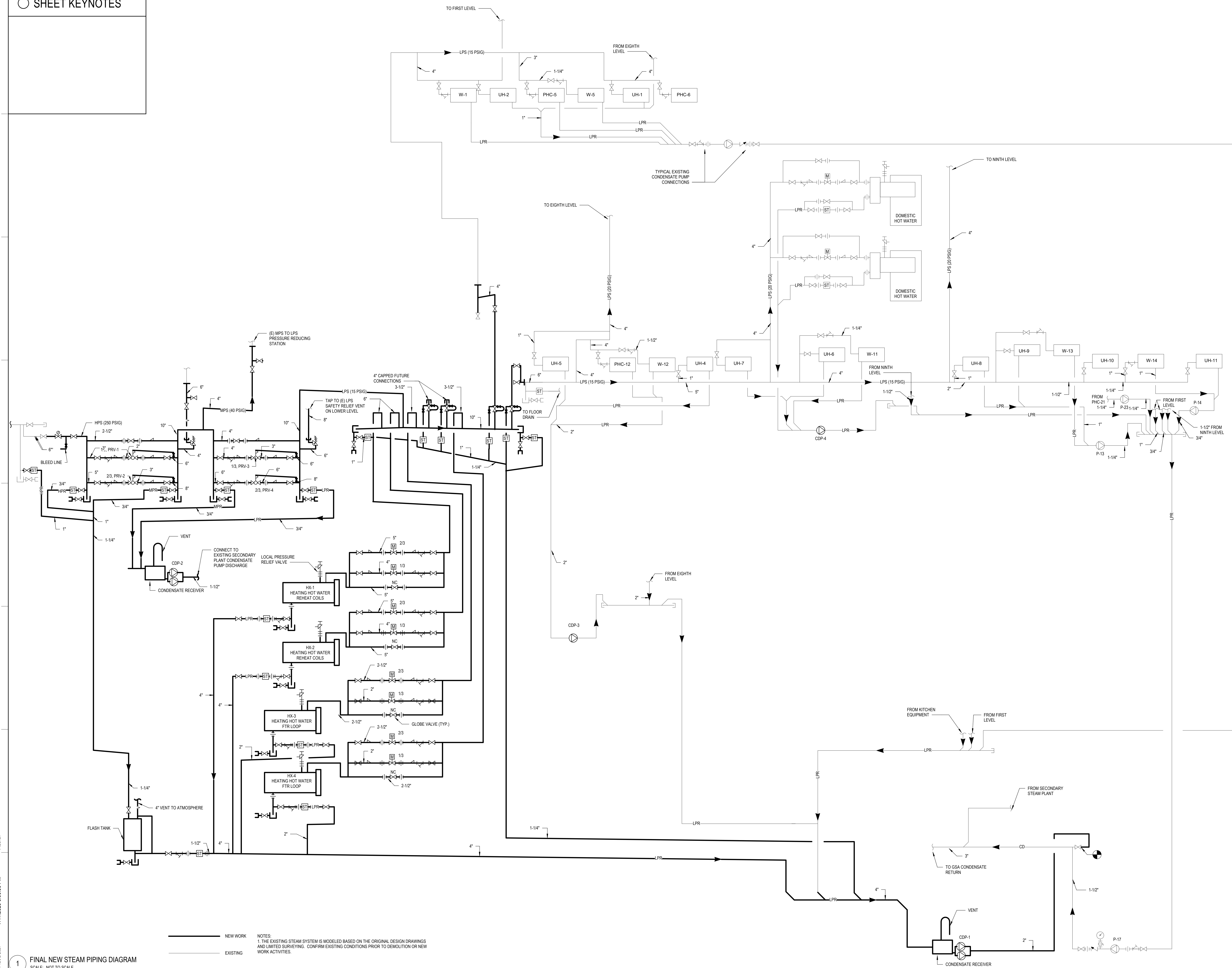
SHEET TITLE

PHASE 4 STEAM PIPING
DIAGRAM

PROJECT NUMBER

M5.0.4

SHEET NUMBER



H. CARL MOULTRIE I COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
WATER UPGRADE
500 INDIANA AVENUE N.W.
WASHINGTON DC 20001

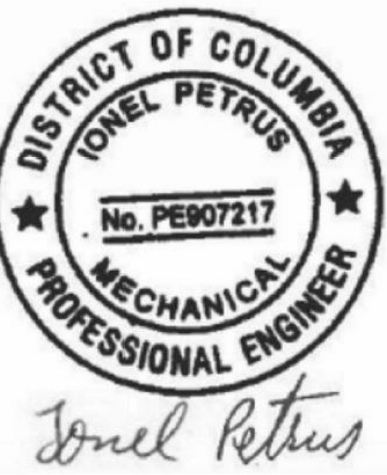
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SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

FINAL NEW STEAM PIPING DIAGRAM

PROJECT NUMBER

M5.0.5

SHEET NUMBER



H. CARL MOULTRIE I COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
WATER UPGRADE
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WASHINGTON DC 20001

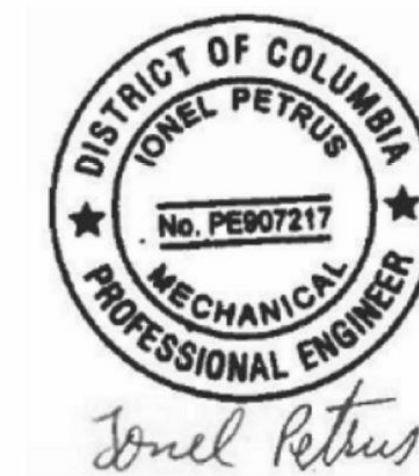
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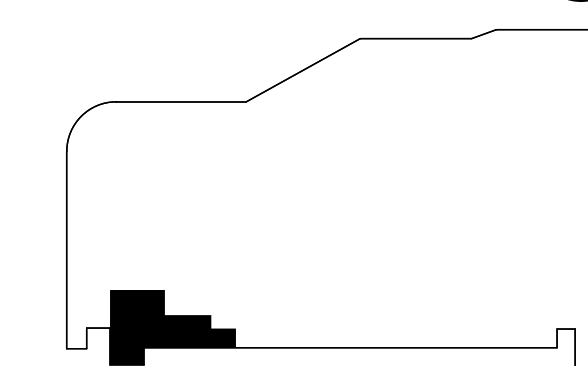
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SEALS AND SIGNATURES



KEYPLAN



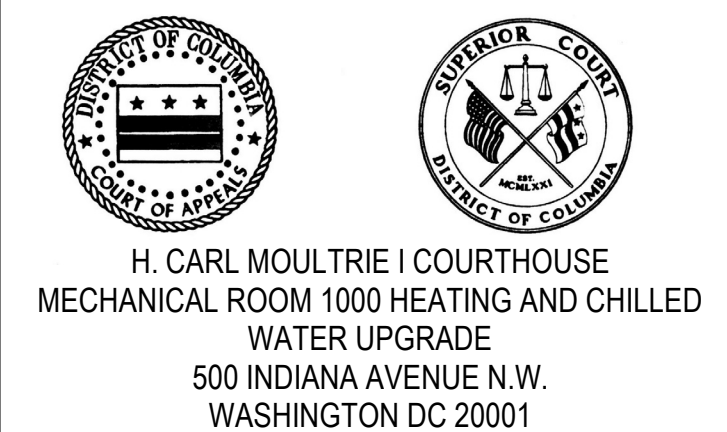
SHEET TITLE

PHASE 1 NEW HEATING HOT WATER PIPING DIAGRAM

PROJECT NUMBER

M5.1.1

SHEET NUMBER

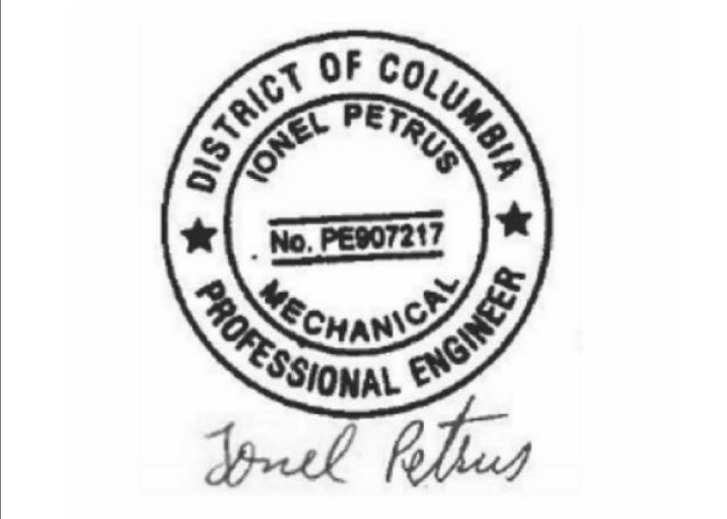


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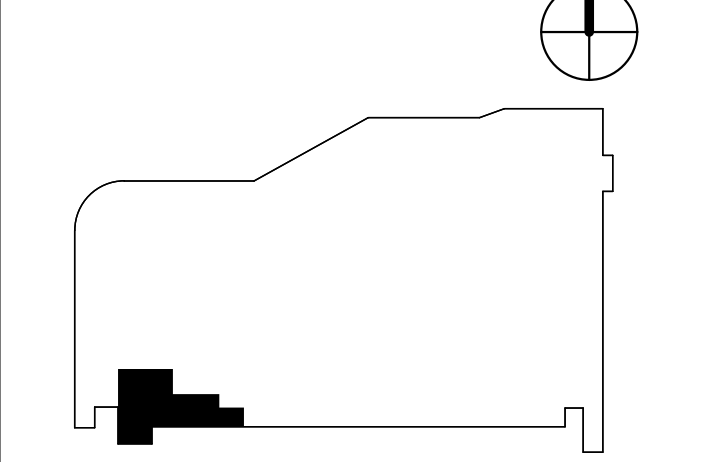
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STRUCTURAL
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WASHINGTON, DC 20036
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SEALS AND SIGNATURES



KEYPLAN NORTH




SHEET TITLE

PHASE 2 NEW HEATING
HOT WATER PIPING
DIAGRAM

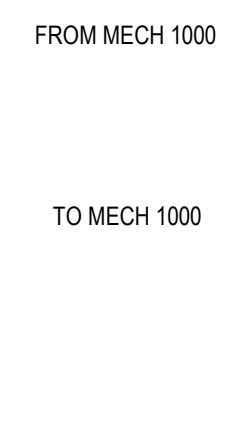
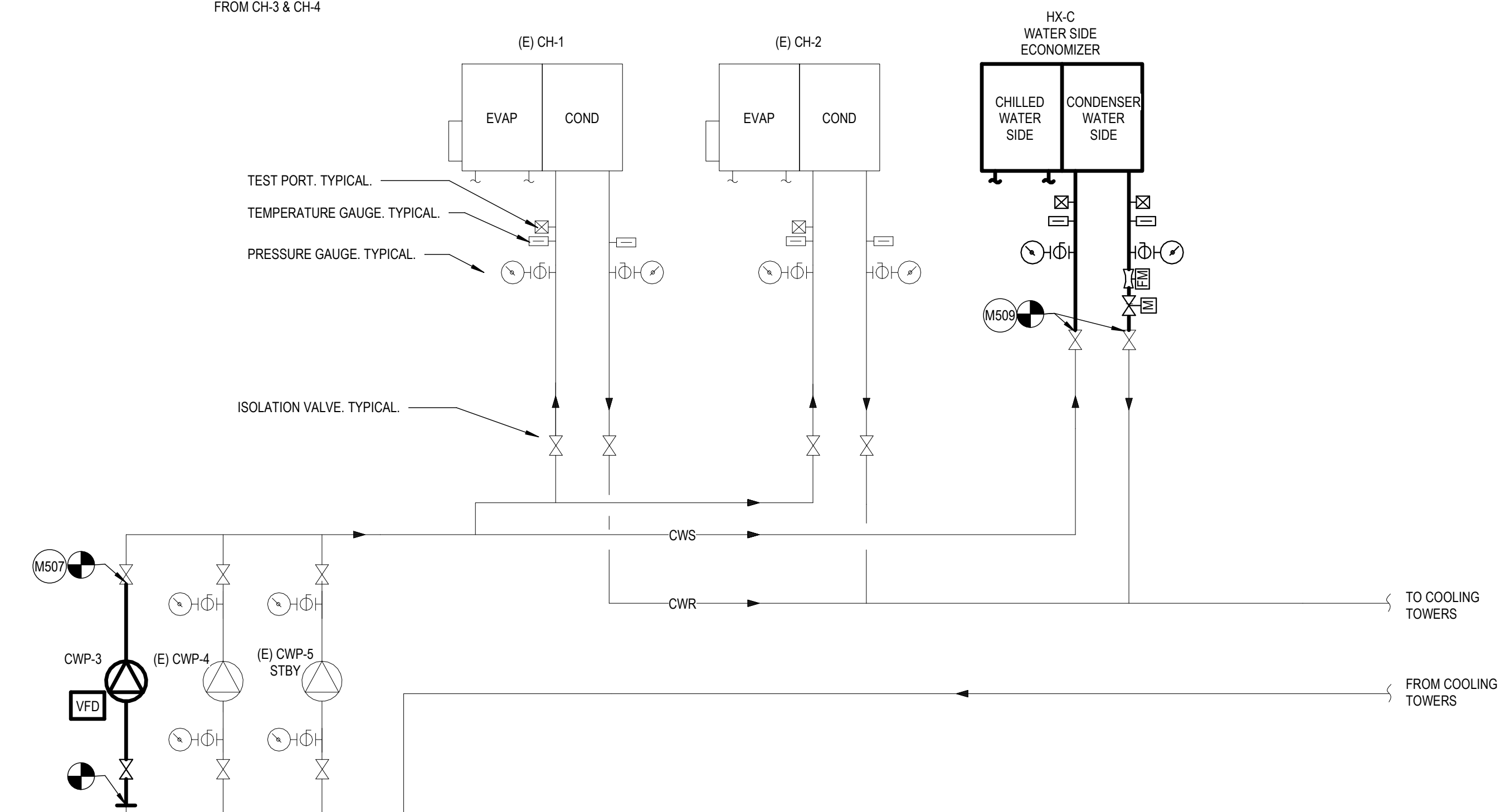
PROJECT NUMBER _____

SHEET NUMBER _____

Author	<div data-bbox="118 1774 347 1780">  SHEET KEYNOTES </div>				
PM	<div data-bbox="118 1780 347 1791"> <table> <tr> <td data-bbox="118 1780 151 1791">M507</td><td data-bbox="151 1780 347 1791">PROVIDE NEW PUMP AND ASSOCIATED PIPING ACCESSORIES. SEE PUMP DETAIL ON M6.2 FOR ADDITIONAL INFORMATION.</td></tr> <tr> <td data-bbox="118 1785 151 1791">M513</td><td data-bbox="151 1785 347 1791">CONNECT NEW HHWS/R TO EXISTING HHWS/R. SEE FLOOR PLAN FOR ADDITIONAL INFORMATION.</td></tr> </table> </div>	M507	PROVIDE NEW PUMP AND ASSOCIATED PIPING ACCESSORIES. SEE PUMP DETAIL ON M6.2 FOR ADDITIONAL INFORMATION.	M513	CONNECT NEW HHWS/R TO EXISTING HHWS/R. SEE FLOOR PLAN FOR ADDITIONAL INFORMATION.
M507	PROVIDE NEW PUMP AND ASSOCIATED PIPING ACCESSORIES. SEE PUMP DETAIL ON M6.2 FOR ADDITIONAL INFORMATION.				
M513	CONNECT NEW HHWS/R TO EXISTING HHWS/R. SEE FLOOR PLAN FOR ADDITIONAL INFORMATION.				

1 HEATING HOT WATER SYSTEM PIPING DIAGRAM - PHASE 2 NEW
SCALE: 1/2" = 1'-0"

M507	PROVIDE NEW PUMP AND ASSOCIATED PIPING ACCESSORIES. SEE PUMP DETAIL ON M6.2 FOR ADDITIONAL INFORMATION.
M509	PROVIDE NEW HEAT EXCHANGER AND ASSOCIATED PIPING ACCESSORIES. SEE DETAIL AND CONTROLS FOR ADDITIONAL INFORMATION.



NOT IN CONTRACT UNLESS SPECIFIED OTHERWISE.
SHOWN FOR REFERENCE ONLY.
VALVES AND BYPASSES PER C STREET ADDITION DRAWINGS.
VALVE LOCATION TO BE FIELD-VERIFIED.

Plot Date: 7/17/2020 6:00:36 PM Author

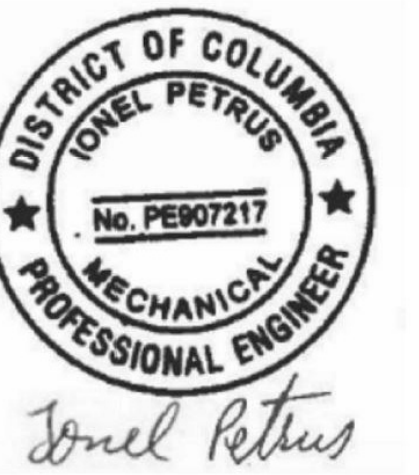
1 PHASE 1 NEW CHILLED AND CONDENSER WATER SYSTEM DIAGRAMS
SCALE: 6" = 1'-0"



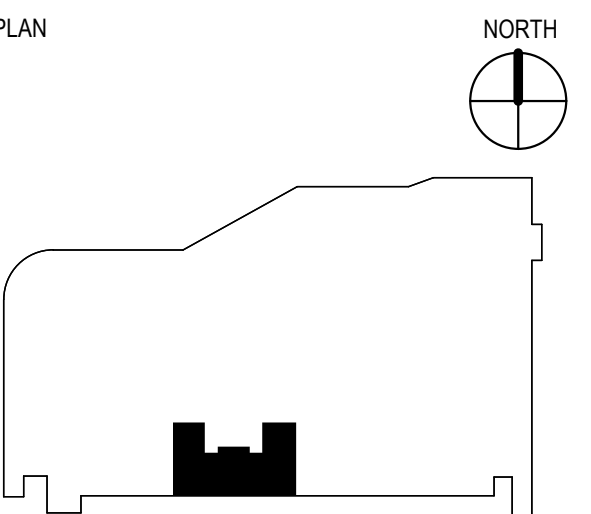
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WASHINGTON, DC 20036
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SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

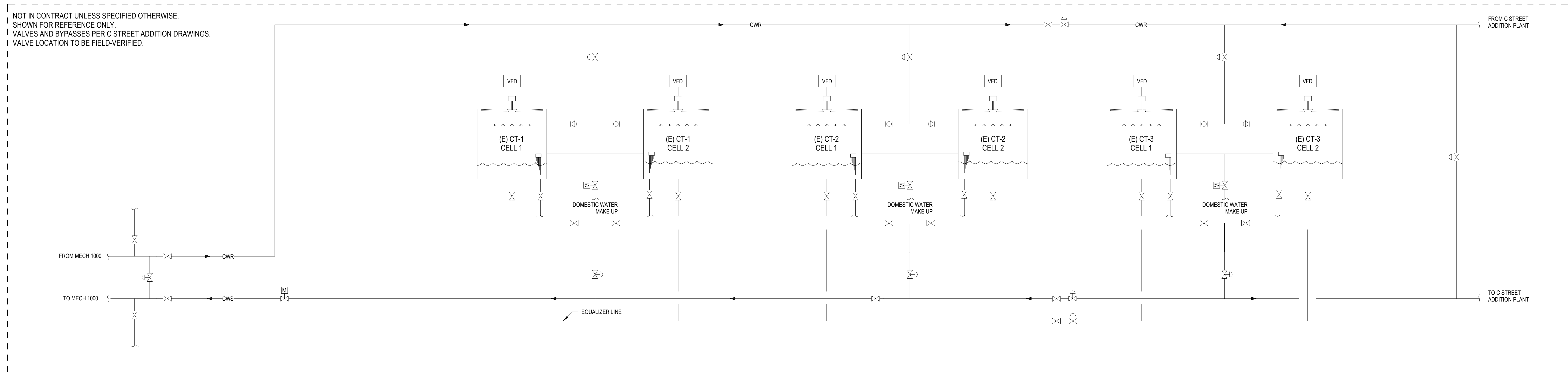
PHASE 1 NEW CHILLED
AND CONDENSER WATER
SYSTEM DIAGRAMS

PROJECT NUMBER

M5.2.1

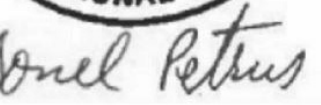
SHEET NUMBER

M507	PROVIDE NEW PUMP AND ASSOCIATED PIPING ACCESSORIES. SEE PUMP DETAIL ON M6.2 FOR ADDITIONAL INFORMATION.
M508	PROVIDE NEW FLOW METER AND MOTORIZED VALVE AS SHOWN. SEE DETAIL AND CONTROLS FOR ADDITIONAL INFORMATION.

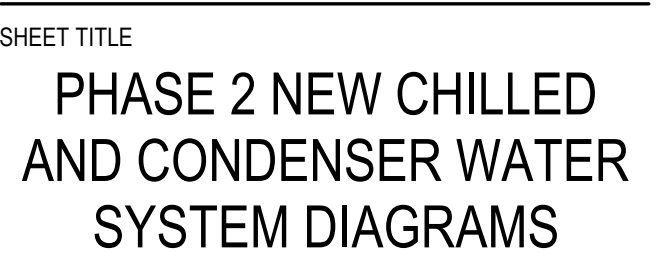


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SEALS AND SIGNATURES

NORTH

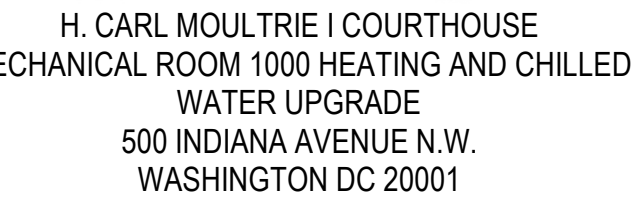
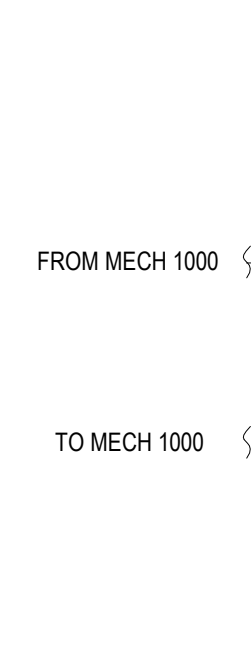
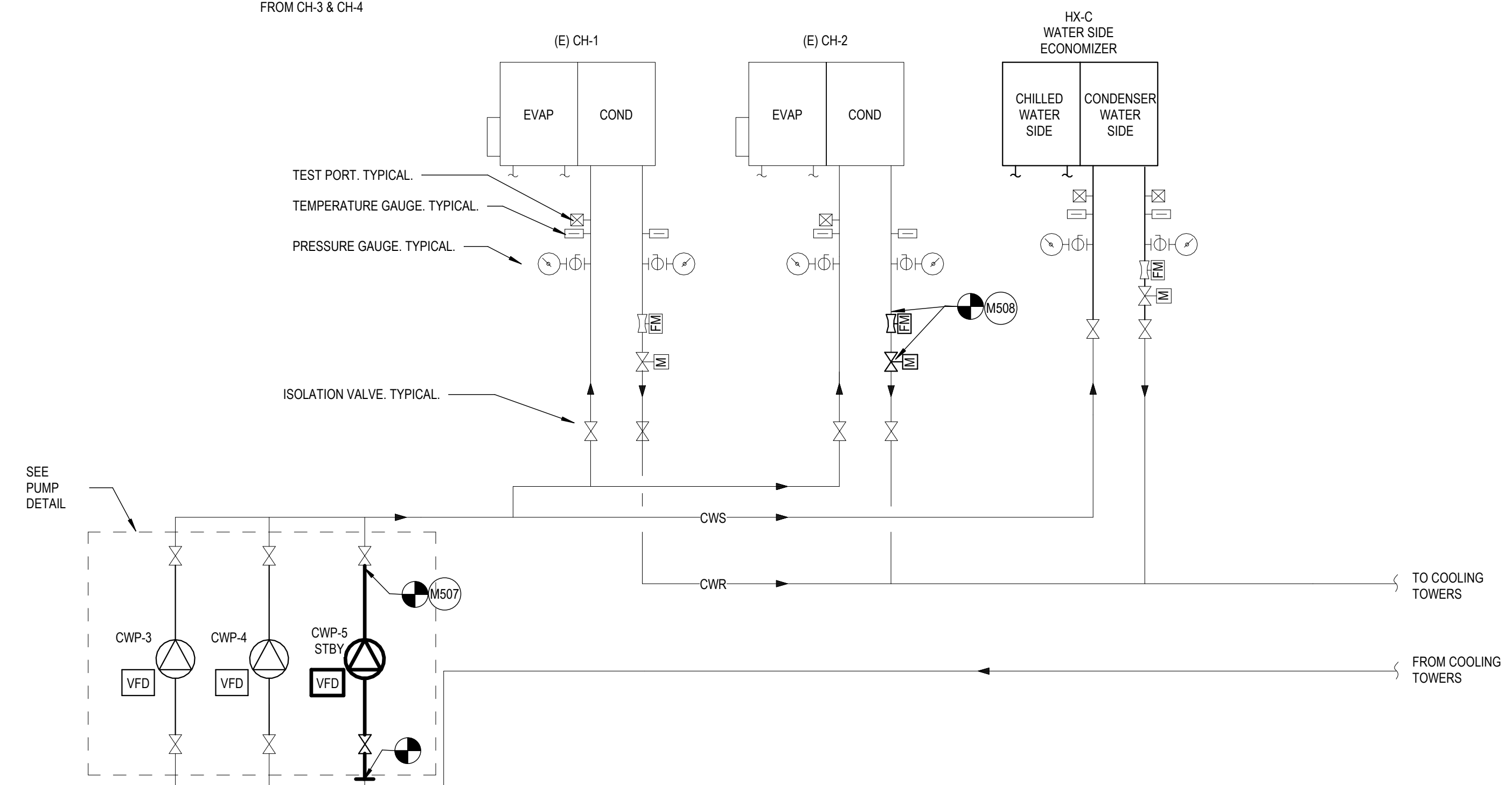


PROJECT NUMBER

M5.2.2

SHEET NUMBER

M507	PROVIDE NEW PUMP AND ASSOCIATED PIPING ACCESSORIES. SEE PUMP DETAIL ON M6.2 FOR ADDITIONAL INFORMATION.
M508	PROVIDE NEW FLOW METER AND MOTORIZED VALVE AS SHOWN. SEE DETAIL AND CONTROLS FOR ADDITIONAL INFORMATION.

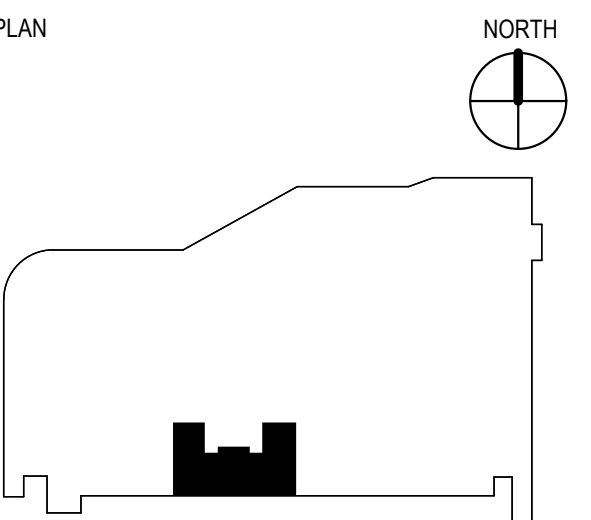


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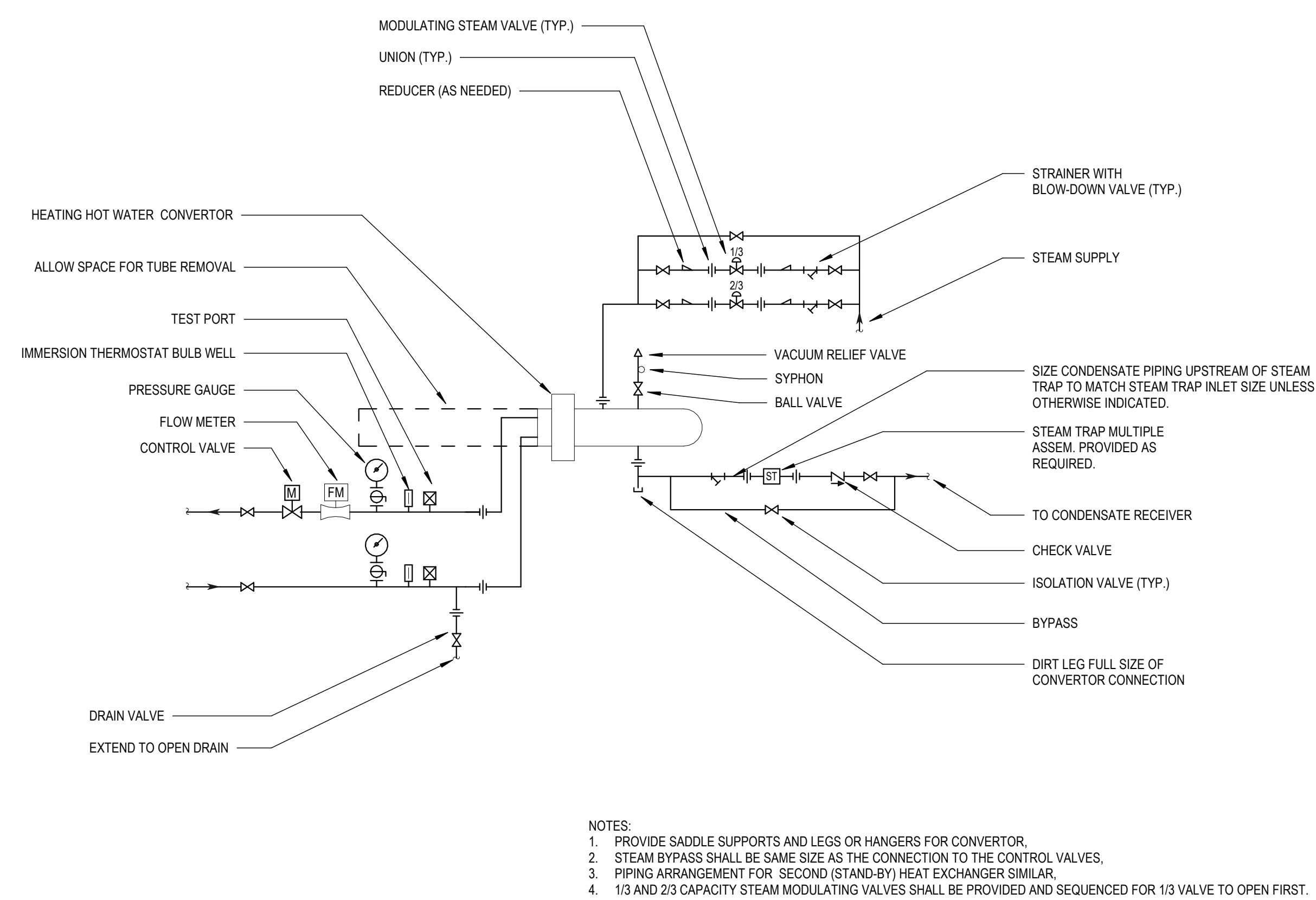
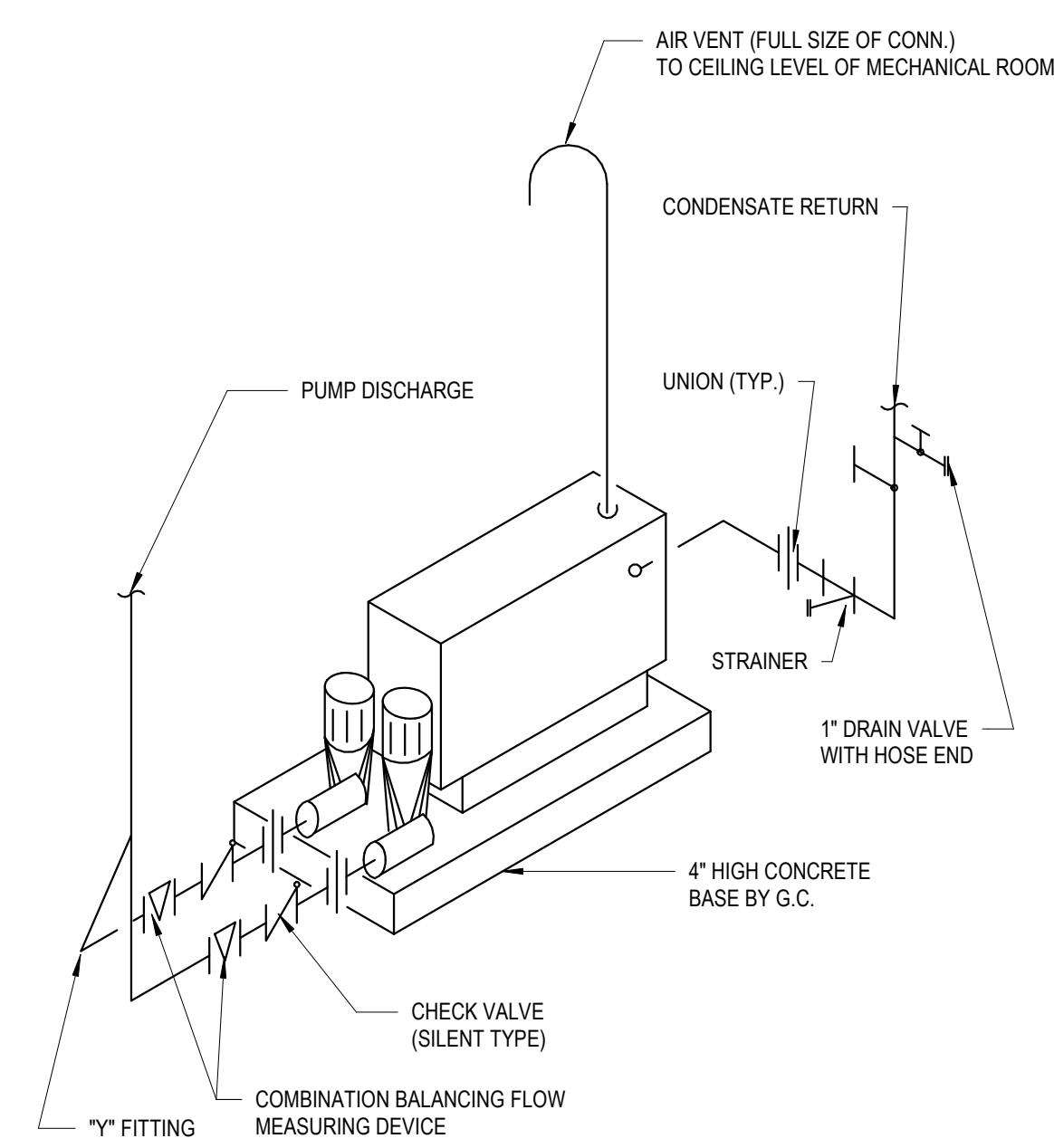
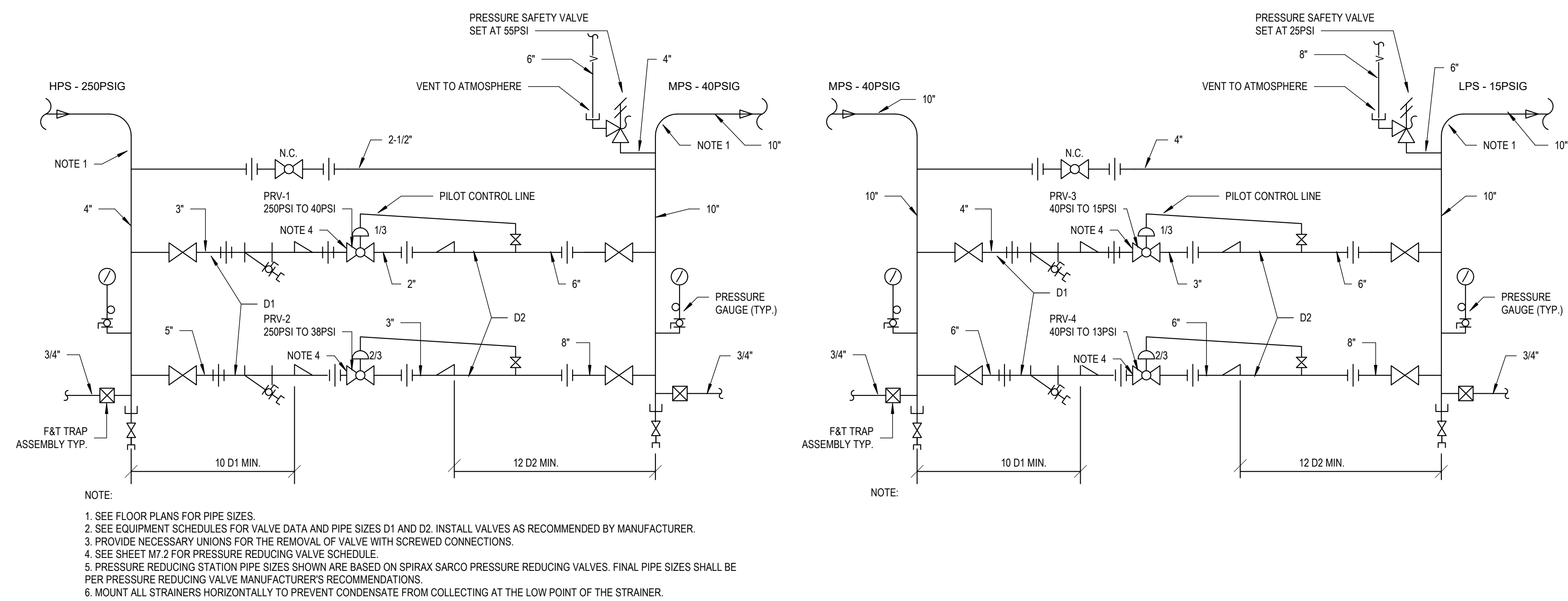
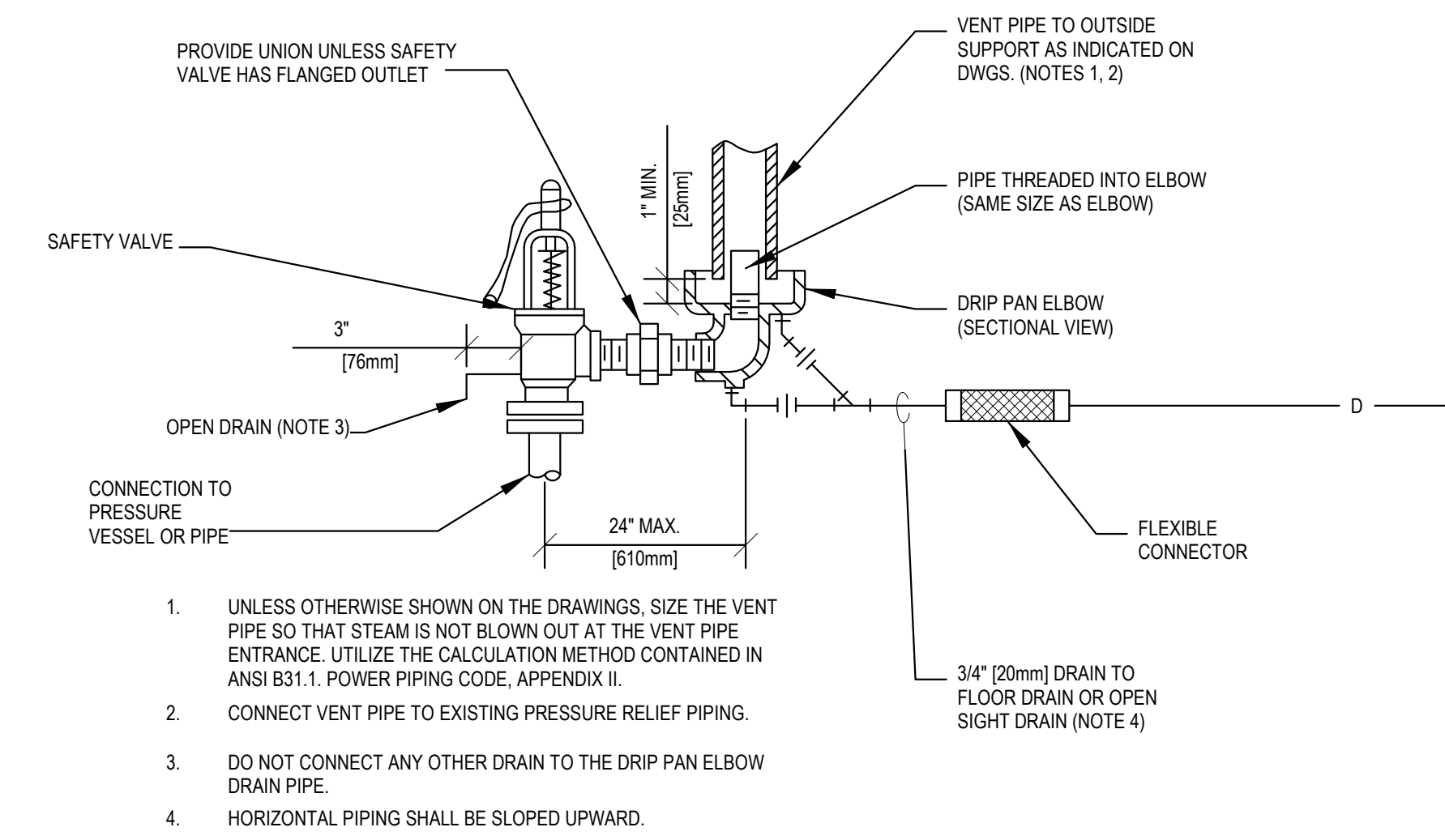
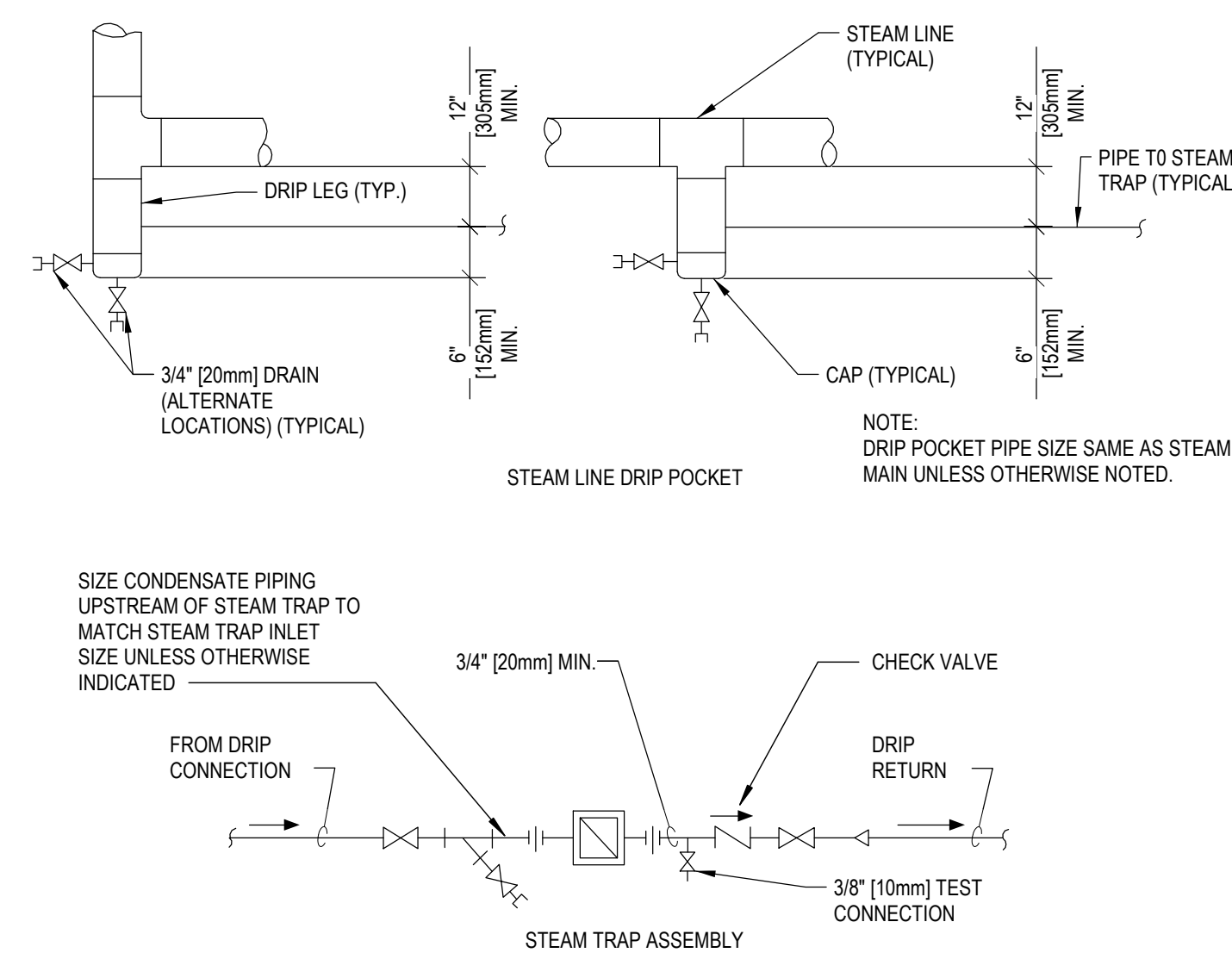
SHEET TITLE

PHASE 3 NEW CHILLED
AND CONDENSER WATER
SYSTEM DIAGRAMS

PROJECT NUMBER

SHEET NUMBER

M5.2.3



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500 INDIANA AVENUE N.W.
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SEALS AND SIGNATURES



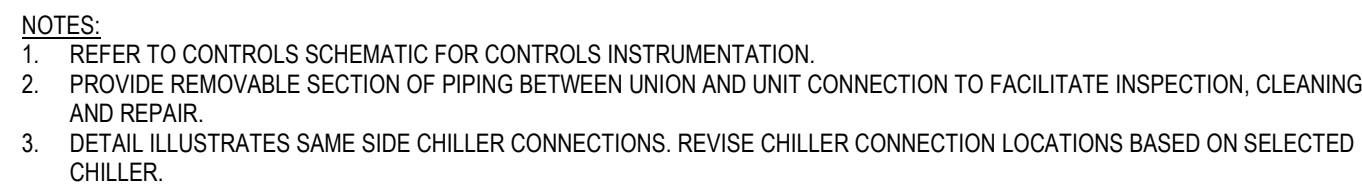
SHEET TITLE

MECHANICAL DETAILS -
STEAM

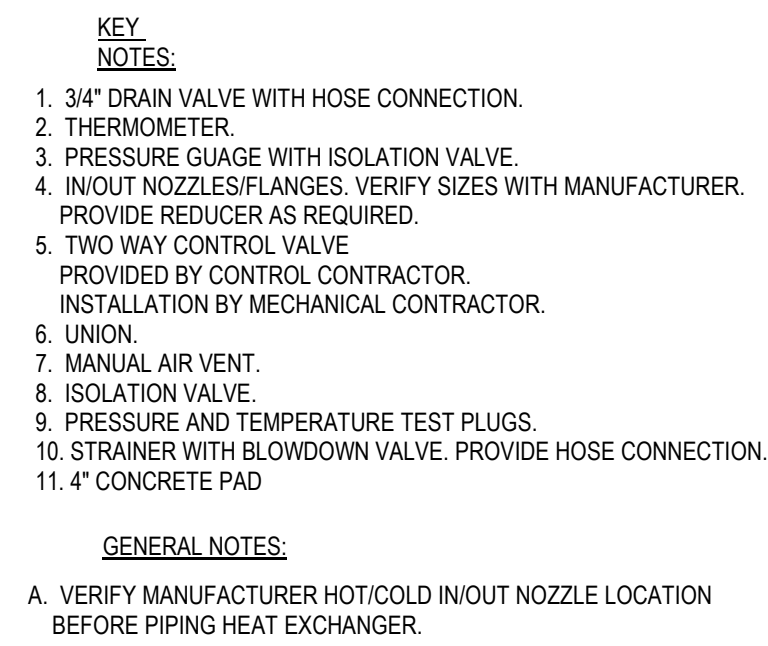
PROJECT NUMBER

M6.1

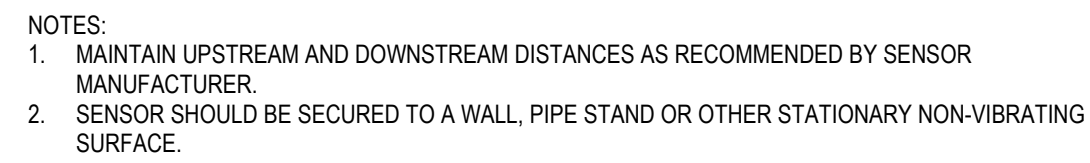
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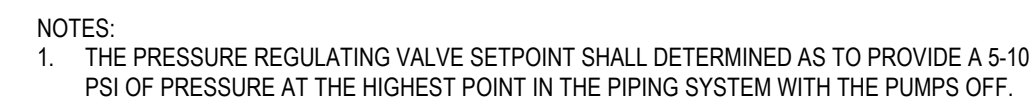
1 CONNECTION TO CHILLER CONDENSER AND EVAPORATOR
SCALE: NOT TO SCALE



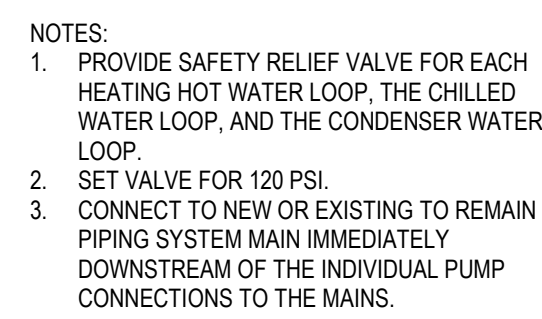
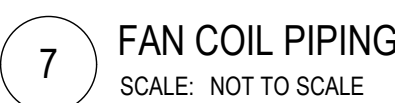
2 PLATE AND FRAME HEAT EXCHANGER PIPING DIAGRAM
SCALE: NOT TO SCALE



4 DIFFERENTIAL PRESSURE SENSOR
SCALE: NOT TO SCALE



6 BLADDER EXPANSION TANK AND AIR SEPARATOR - VERTICAL TANK
SCALE: NOT TO SCALE

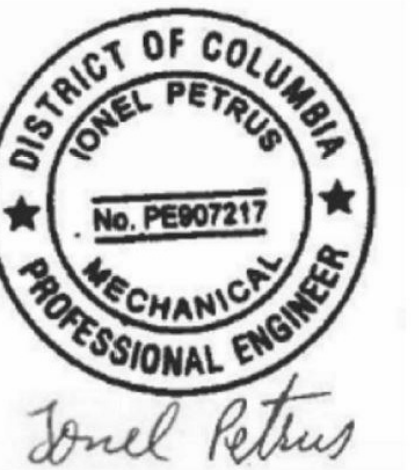


8 PIPING SYSTEM SAFETY RELIEF VALVES
SCALE: NOT TO SCALE

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[illegible]

SEALS AND SIGNATURES



SHEET TITLE

MECHANICAL DETAILS -
MISC.

PROJECT NUMBER

SHEET NUMBER

M6.2

E) PUMP SCHEDULE - FOR REFERENCE ONLY							
TAG	SYSTEM	FLOW [GPM]	DISCHARGE HEAD [FT]	MOTOR DATA			REMARKS
				HP	VOLTAGE [V]	PHASE	
(E) CWP-3	CONDENSER	2700	130	125	460	3	
(E) CWP-4	CONDENSER	2700	130	125	460	3	
(E) CWP-5	CONDENSER	2700	130	125	460	3	
(E) HHWP-5	HEATING HOT WATER	600	120	30	460	3	
(E) HHWP-6	HEATING HOT WATER	600	120	30	460	3	
(E) P-11	CONDENSATE	3	0.25	0	0	0	
(E) P-12	CONDENSATE	6	15	0.25	120	1	
(E) PCWP-1	CHILLED WATER	1350	20	10	460	3	
(E) PCWP-2	CHILLED WATER	1350	20	10	460	3	
(E) PCWP-8	CHILLED WATER HX	900	30	10	460	3	
(E) PHWP-7	HEATING HOT WATER	600	120	30	460	3	
(E) PHWP-8	HEATING HOT WATER	600	120	30	460	3	
(E) SCWP-6	CHILLED WATER SECONDARY LOOP	3200	100	100	460	3	
(E) SCWP-7	CHILLED WATER SECONDARY LOOP	3200	100	100	460	3	

(E) HEAT EXCHANGER SCHEDULE (WATER TO WATER) - FOR REFERENCE ONLY																	
TAG	SYSTEM	TYPE	CAPACITY [BTU/H]	MIN HEATING SURFACE [SF]	HOT SIDE DATA				COLD SIDE DATA				OPERATING WEIGHT [LBS]	BASIS OF DESIGN		REMARKS	
					EWT [F]	LWT [F]	FLOW [GPM]	MAX PD [PSI]	EWT [F]	LWT [F]	FLOW [GPM]	MAX PD [PSI]		MANUFACTURER	MODEL		
(E) HX-C	CHILLED WATER	PLATE AND FRAME		0	0	0	0	150.00	0	0	0	150.00	0		SUPERHANGER	UPX	

(E) SHELL & TUBE HEAT EXCHANGER SCHEDULE (STEAM TO WATER) - FOR REFERENCE ONLY																
TAG	SYSTEM	LOCATION	TYPE	CAPACITY [BTU/H]	TUBE SIDE DATA						SHELL SIDE DATA		OPERATING WEIGHT [LBS]	BASIS OF DESIGN		REMARKS
					EWT [F]	LWT [F]	FLOW [GPM]	MAX PD [PSI]	NUMBER OF PASSES	FOULING FACTOR	STEAM FLOW (LBS/HR)	STEAM PRESSURE (PSIG)		MANUFACTURER	MODEL	
(E) HX-1	HEATING HOT WATER	MECHANICAL ROOM	SHELL AND TUBE	0	135	145	1200	3.00	2	0.0005	6500	15	0.00 lb			
(E) HX-2	HEATING HOT WATER	MECHANICAL ROOM	SHELL AND TUBE	0	155	160	290	1.00	2	0.0005	850	15	0.00 lb			
(E) HX-3	HEATING HOT WATER	MECHANICAL ROOM	SHELL AND TUBE	0	155	160	190	2.00	2	0.0005	350	15	0.00 lb			

(E) CHILLER SCHEDULE - FOR REFERENCE ONLY																	
TAG	TYPE	NOMINAL CAPACITY TONS	EVAPORATOR SIDE DATA					CONDENSER SIDE DATA					ELECTRICAL DATA		BASIS OF DESIGN		REMARKS
			EWT [°F]	LWT [°F]	FLOW [GPM]	FOULING FACTOR	MAX PD	EWT [°F]	LWT [°F]	FLOW [GPM]	FOULING FACTOR	MAX PD [FT]	VOLTAGE [V]	PHASE	MANUFACTURER	MODEL	
(E) CH-1	CENTRIFUGAL WATER CHILLER	900	58	42	1350	0.0001	6.68	85	94	2700	0.00025	18.92	480	3	TRANE	CV4F 1070	
(E) CH-2	CENTRIFUGAL WATER CHILLER	900	58	42	1350	0.0001	6.68	85	94	2700	0.00025	18.92	480	3	TRANE	CV4F 1070	

PUMP SCHEDULE														
TAG	SYSTEM	FLOW [GPM]	HEAD [FT]	PIPE CONNECTIONS		IMPELLER SIZE	MOTOR DATA			PHASE	OPERATING WEIGHT [LBS]	BASIS OF DESIGN		REMARKS
				SUCTION	DISCHARGE		HP	RPM	VOLTAGE			MANUFACTURER	MODEL	
CWF-1	CONDENSER FILTRATION SYSTEM	525	0.00	6"	4"	0"	15	1750	460	3	1080.00	LAKOS	HTX-0285-TC	
CWF-3	CONDENSER WATER	2700	160.00	10"	8"	13 3/8"	150	1800	460	3	2570.00	BELL AND GOSSETT	E-1510	
CWF-4	CONDENSER WATER	2700	160.00	10"	8"	13 3/8"	150	1800	460	3	2570.00	BELL AND GOSSETT	E-1510	
CWF-5	CONDENSER WATER	2700	160.00	10"	8"	13 3/8"	150	1800	460	3	2570.00	BELL AND GOSSETT	E-1510	
HHW-5	REHEAT HEATING HOT WATER	1200	165.00	6"	5"	13 1/2"	60	1750	460	3	1444.00	BELL AND GOSSETT	E-1510	
HHW-6	REHEAT HEATING HOT WATER	1200	165.00	6"	5"	13 1/2"	60	1750	460	3	1444.00	BELL AND GOSSETT	E-1510	
HHW-7	PERIMETER HEATING HOT WATER	500	100.00	3"	2"	11"	15	1750	460	3	762.00	BELL AND GOSSETT	E-1510	
HHW-8	PERIMETER HEATING HOT WATER	500	100.00	3"	2"	11"	15	1750	460	3	762.00	BELL AND GOSSETT	E-1510	
PCWP-1	PRIMARY CHILLED WATER	1600	60.00	8"	6"	9"	30	1200	460	3	1185.00	BELL AND GOSSETT	E-1510	
PCWP-1A	PRIMARY CHILLED WATER	1600	60.00	8"	6"	9"	30	1200	460	3	1185.00	BELL AND GOSSETT	E-1510	
PCWP-2	PRIMARY CHILLED WATER	1600	60.00	8"	6"	9"	30	1200	460	3	1185.00	BELL AND GOSSETT	E-1510	
SCWP-6	SECONDARY CHILLED WATER	3200	130.00	10"	8"	13 3/8"	125	1800	460	3	1962.00	BELL AND GOSSETT	E-1510	
SCWP-7	SECONDARY CHILLED WATER	3200	130.00	10"	8"	13 3/8"	125	1800	460	3	1962.00	BELL AND GOSSETT	E-1510	

PLATE AND FRAME HEAT EXCHANGER SCHEDULE (WATER TO WATER)																
TAG	SYSTEM	TYPE	CAPACITY [BTU/HR]	MIN HEATING SURFACE[SF]	HOT SIDE DATA				COLD SIDE DATA				BASIS OF DESIGN			REMARKS
					EWT [°F]	FLOW [GPM]	MAX PD [PSI]	EWT [°F]	FLOW [GPM]	MAX PD [PSI]	OPERATING TEMPERATURE [LB]	MANUFACTURER	MODEL			
HK-C	CHILLED WATER	PLATE AND FRAME	8027275	3130	55	45	1600	6.86	42	50	1950	10.59	7185	DANFOSS	PHE	ALL PIPE CONNECTIONS 6"

TAG	SYSTEM	LOCATION	TYPE	CAPACITY [BTU/H]	TUBE SIDE DATA					SHELL SIDE DATA			MAX LENGTH	OPERATING WEIGHT [LBS]	BASIS OF DESIGN		REMARKS
					EWT [°F]	LWT [°F]	FLOW [GPM]	MAX PD [PSI]	NUMBER OF PASSES	FOULING FACTOR	STEAM FLOW [LBS/HR]	STEAM PRESSURE [PSIG]			MANUFACTURER	MODEL	
HX-1	HEATING HOT WATER	MECHANICAL ROOM	SHELL AND TUBE	600000	135	145	1200	3.00	2	0.0005	6500	10	4" x 1/2"	1451	BELL AND GOSSETT	QSU	
HX-2	HEATING HOT WATER	MECHANICAL ROOM	SHELL AND TUBE	600000	135	145	1200	3.00	2	0.0005	6500	10	4" x 1/2"	1451	BELL AND GOSSETT	QSU	
HX-3	HEATING HOT WATER	MECHANICAL ROOM	SHELL AND TUBE	120000	155	160	480	3.00	2	0.0005	1200	10	2" x 1/2"	781	BELL AND GOSSETT	QSU	
HX-4	HEATING HOT WATER	MECHANICAL ROOM	SHELL AND TUBE	120000	155	160	480	3.00	2	0.0005	1200	10	3" x 6"	781	BELL AND GOSSETT	QSU	

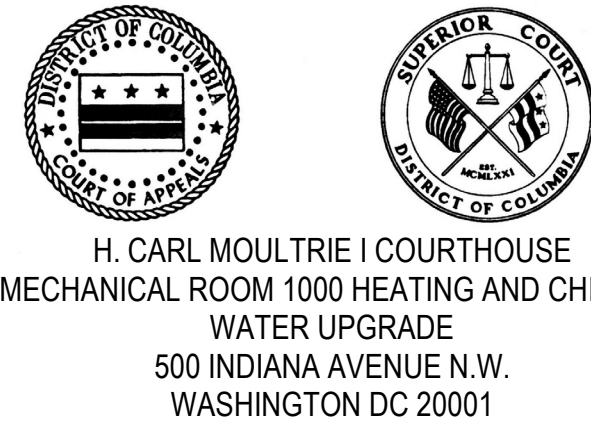
NOTE: LOW PRESSURE STEAM SYSTEM PRESSURE IS 15 PSI. HEAT EXCHANGER STEAM PRESSURE ASSUMES 5 PSI PRESSURE DROP THROUGH THE CONTROL VALVE(S).

EXPANSION TANK SCHEDULE											
TAG	SYSTEM	LOCATION	TYPE	TEMPERATURE		TANK VOLUME [GAL]	MIN ACCEPTANCE VOLUME [GAL]	OPERATING WEIGHT [LBS]	BASIS OF DESIGN		REMARKS
				MIN [°F]	MAX [°F]				MANUFACTURER	MODEL	
ET-2	PERIMETER HEATING HOT WATER	MECHANICAL ROOM	VERTICAL BLADDER	40	160	422.0	422.0	4665.00	BELL AND GOSSETT	B-1600	
ET-3	PERIMETER HEATING HOT WATER	MECHANICAL ROOM	VERTICAL BLADDER	40	160	422.0	422.0	4665.00	BELL AND GOSSETT	B-1600	

EXISTING CHILLER SCHEDULE - RE-RATED PERFORMANCE																					
TAG	TYPE	NOMINAL CAPACITY TONS	EVAPORATOR SIDE DATA					CONDENSER SIDE DATA					ELECTRICAL DATA				OPERATING WEIGHT [LBS]	BASIS OF DESIGN			
			EWT [°F]	LWT [°F]	GPM [GPM]	NUMBER OF PASSES	SCALE FACTOR	MAX PD [PSI]	EWT [°F]	LWT [°F]	FLOW [GPM]	SCALE FACTOR	MAX PD [PSI]	VOLTAGE [V]	PHASE	MCA [A]		MOCP [A]	STARTER TYPE	MANUFACTURER	MODEL
(E) CH-1	CENTRIFUGAL WATER CHILLER	900	58	42	1350	0	0.0001	2.90	85	94	2700	0.00025	8.20	480	3	0	0	0.00 lb	TRANE	CWHF1070	RE-RATED VALUES
(E) CH-2	CENTRIFUGAL WATER CHILLER	900	58	42	1350	0	0.0001	2.90	85	94	2700	0.00025	8.20	480	3	0	0	0.00 lb	TRANE	CWHF1070	RE-RATED VALUES

AIR SEPARATOR SCHEDULE										
TAG	SYSTEM	LOCATION	TYPE	CONNECTION SIZE	FLOW [GPM]	MAX WATER PD (FT)	OPERATING WEIGHT [LBS]	BASIS OF DESIGN		REMARKS
								MANUFACTURER	MODEL	
AS-2	PERIMETER HEATING HOT WATER	MECHANICAL ROOM	IN-LINE	6"	500	2.00	260.00	SPROTHERM	VOT-600	

STEAM CONDENSATE PUMP SCHEDULE													
TAG	SYSTEM	FLOW (GPM)	DISCHARGE HEAD (FT)	PIPE CONNECTIONS		MOTOR DATA			OPERATING WEIGHT (LBS)	BASIS OF DESIGN		REMARKS	
				SUCTION	DISCHARGE	HP	RPM	VOLTAGE		PHASE	MANUFACTURER		MODEL
COP-1	CONDENSATE	46	46.00	4"	1 1/2"	0.75	3500	120	1	0.00	BELL AND GOSSETT	52CB46-20	DUPLEX PUMPS AND 120 GAL RECEIVER TANK
COP-2	CONDENSATE	9	70.00	2"	1 1/2"	0.75	3500	120	1	0.00	BELL AND GOSSETT	23CB9-20	DUPLEX PUMPS AND 23 GAL RECEIVER TANK
COP-3	CONDENSATE	9	34.00	2"	1 1/2"	0.33	3500	120	1	0.00	BELL AND GOSSETT	23CB9-15	DUPLEX PUMPS AND 23 GAL RECEIVER TANK
COP-4	CONDENSATE	9	46.00	2"	1 1/2"	0.33	3500	120	1	0.00	BELL AND GOSSETT	23CB9-20	DUPLEX PUMPS AND 23 GAL RECEIVER TANK



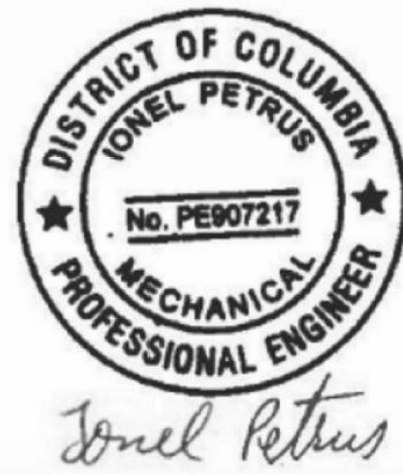
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SEALS AND SIGNATURES



SHEET TITLE

MECHANICAL SCHEDULES

PROJECT NUMBER

M7.1

SHEET NUMBER

STEAM PRESSURE REDUCING VALVE SCHEDULE

TAG	PRESSURE (PSIG)		MINIMUM CAPACITY (LSBHR)	TYPE	MAX ALLOWABLE MINIMUM STRAIGHT LENGTH OF PIPE UPSTREAM	MAX ALLOWABLE MINIMUM STRAIGHT LENGTH OF PIPE DOWNSTREAM	MAXIMUM DB AT 3' IN ANY DIRECTION	MANUFACTURER	MODEL	NOTES
	IN	OUT								
PRV-1	250	40	6700	PILOT-OPERATED, DIAPHRAGM	30'	120'	85	SPRAX SARCO	25P	1
PRV-2	250	38	13300	PILOT-OPERATED, DIAPHRAGM	50'	120'	85	SPRAX SARCO	25P	1
PRV-3	40	15	5000	PILOT-OPERATED, DIAPHRAGM	40'	90'	85	SPRAX SARCO	25P	1
PRV-4	40	13	10000	PILOT-OPERATED, DIAPHRAGM	60'	120'	85	SPRAX SARCO	25P	

NOTES:
1. PROVIDE NOISE SILENCER AND ACOUSTICAL BLANKET AS REQUIRED TO MEET SCHEDULED NOISE CRITERION

STEAM TRAP SCHEDULE

TAG	LOAD SERVED	TYPE	OPERATING LOAD (LB/HR)	LOAD (LB/HR) SAFETY FACTOR	LOAD FOR ST SIZING (LB/HR)	STEAM PRESSURE (PSIG)	CONDENSATE BACKPRESSURE (PSIG)	REMARKS
ST-1	HPS HEADER	THERMODYNAMIC	200	3	600	250	0	
ST-2	HPS PRS	F&T	100	3	300	250	0.9	
ST-3	MPS PRS	MPS PRS	100	3	300	40	0.9	
ST-4	LPS HEADER	F&T	75	3	225	15	0	
ST-5	FUTURE CONNECTION TAP	F&T	50	3	150	15	0	
ST-6	FUTURE CONNECTION TAP	F&T	50	3	150	15	0	
ST-7	NORTH GARAGE TAP	F&T	50	3	150	15	0	
ST-8	LPS MAIN TAP	F&T	50	3	150	15	0	
ST-9	LPS HEADER	F&T	75	3	225	15	0	
ST-10	HX-1	F&T	6500	2	1300	15	0	
ST-11	HX-2	F&T	6500	2	1300	15	0	
ST-12	HX-3	F&T	1200	2	2400	15	0	
ST-13	HX-4	F&T	1200	2	2400	15	0	
ST-14	MPS PRS	F&T	75	3	225	40	0	
ST-15	LPS PRS	F&T	75	3	225	15	0	
ST-16	FLASH TANK	F&T	200	3	600	15	0	

FAN COIL SCHEDULE

		AIRFLOW	MOTOR DATA			COOLING COIL DATA								HEATING COIL DATA						OPERATING WEIGHT	BASIS OF DESIGN			
TAG	TYPE		HP	VOLTAGE	PHASE	TOTAL CAPACITY [MBH]	SENSIBLE CAPACITY [MBH]	EAT DB [°F]	LAT DB [°F]	EWT [°F]	LWT [°F]	FLOW [GPM]	MAX PD [FT]	TOTAL CAPACITY [MBH]	EAT	LAT	EWT	LWT	FLOW		MAX PD [FT]	MANUFACTURER	MODEL	REMARKS
FCU-1	VERTICAL CABINET	920 CFM	0.13	208V	1	57	33	95	55	42	58	7.1	15.50	28	45	78	160	130	2	1.72	218.00	TRANE	FCBB	PROVIDE 4" CONCRETE PAD AND THERMOSTAT AT AIR DISCHARGE

HEAT TRACE SCHEDULE

TAG	LOCATION	WATTS/LINEAR FOOT	BASIS OF DESIGN		TYPE	VOLTAGE	PHASE	REMARKS
			MANUFACTURER	MODEL				
HT-1	PARKING GARAGE	8	CHROMALOX	ITC2 CONTROLLER, SRL8 CABLE	SELF-REGULATING, LOW TEMPERATURE	208 V	1	

NOTES:

1. COORDINATE FINAL LOCATION PER SITE CONDITIONS ON FIELD.
2. PROVIDE 1 CONTROL PANEL FOR 2 CIRCUITS TO BE SIZED BY VENDOR.
3. PROVIDE LINE VOLTAGE THERMOSTAT FOR ON/OFF CONTROL OF HEAT TRACE BASED ON A SETPOINT OF 42 DEG F. MOUNT THE THERMOSTAT INSIDE THE PARKING GARAGE NEAR THE HEAT TRACE INSIDE A TAMPER-PROOF THERMOSTAT ENCLOSURE.

H. CARL MOULTRIE I COURTHOUSE
MECHANICAL ROOM 1000 HEATING AND CHILLED
WATER UPGRADE
500 INDIANA AVENUE N.W.
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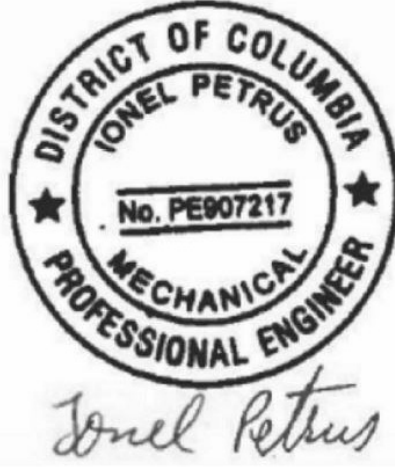
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SEALS AND SIGNATURES



SHEET TITLE

MECHANICAL SCHEDULES

PROJECT NUMBER

M7.2

SHEET NUMBER

CONTROL ABBREVIATIONS				CONTROL SYMBOLS				BMS POINT FUNCTION DESCRIPTIONS			
#	K			SENSING COMPONENTS	CONTROL COMPONENTS		CONTROL ELECTRICAL COMPONENTS	HVAC CONTROLS - BMS POINT FUNCTION SCHEDULE			
2-D 3-D	TWO-DIMENSIONAL THREE-DIMENSIONAL	KW	KILOWATTS								
A		L									
AAC AFMS AHU AI ALT AO AR ASC AX	ADVANCED APPLICATION CONTROLLER AIRFLOW MEASURING STATION AIR HANDLING UNIT ANALOG INPUT ALTERNATOR ANALOG OUTPUT ADDRESSIBLE RELAY (FIRE ALARM) APPLICATION SPECIFIC CONTROLLER AUXILIARY CONTACT	LO LL LV	LOW LOW LEVEL LEVEL								
B		M									
BC BD BMS	BOILER BUILDING CONTROLLER BACKDRAFT DAMPER BUILDING MANAGEMENT SYSTEM	MAX MAT MIN MS	MAXIMUM MIXED AIR TEMPERATURE MINIMUM MOTOR STARTER								
C		N									
CB CBCHW CCHW CC CCDT CH CHW CHWR CHWS CI CO CO2 CSR CR CT CWR CWS	CHILLED BEAM CHILLED BEAM CHILLED WATER CHILLED BEAM HOT WATER COOLING COIL COOLING COIL DISCHARGE TEMPERATURE CHILLER CHILLED WATER CHILLED WATER RETURN CHILLED WATER SUPPLY CURRENT INPUT CARBON MONOXIDE CARBON DIOXIDE CURRENT SWITCH OR CURRENT SENSING RELAY CONTROL RELAY COOLING TOWER CONDENSER WATER CONDENSER WATER RETURN CONDENSER WATER SUPPLY	OA OAH OAT OWS	OUTDOOR AIR OUTDOOR AIR HUMIDITY OUTDOOR AIR TEMPERATURE OPERATOR WORK STATION								
D		P									
DDC DF DI DO DPS DPT DX	DAMPER DIRECT DIGITAL CONTROL DIESEL FUEL DIGITAL INPUT DIGITAL OUTPUT PRESSURE DIFFERENCE DIFFERENTIAL PRESSURE SWITCH DIFFERENTIAL PRESSURE SENSOR DIRECT EXPANSION	PH PHDT PMCS PPM PS PSI	PUMP PENTHOUSE PREHEAT DISCHARGE TEMPERATURE POWER MONITORING & CONTROL SYSTEM PARTS PER MILLION PRESSURE SWITCH POUNDS PER SQUARE INCH								
D		R									
DDC DF DI DO DPS DPT DX	DAMPER DIRECT DIGITAL CONTROL DIESEL FUEL DIGITAL INPUT DIGITAL OUTPUT PRESSURE DIFFERENCE DIFFERENTIAL PRESSURE SWITCH DIFFERENTIAL PRESSURE SENSOR DIRECT EXPANSION	RA RAH RAT RET RF RH RLMS RLF ROT	RETURN AIR; REFRIGERANT ALARM RETURN AIR HUMIDITY RETURN AIR TEMPERATURE RETURN RETURN FAN RELATIVE HUMIDITY REFRIGERANT LEAK MONITORING SYSTEM RELIEF ROTATION MONITORING SENSOR								
E		S									
EA ED EF EP ES	EXHAUST AIR ENABLE / DISABLE EXHAUST FAN ELECTRIC / PNEUMATIC RELAY END SWITCH	S SA SC SF SD SV SW	SOLENOID SUPPLY AIR SELF CONTAINED UNIT SMOKE DAMPER; SMOKE DETECTOR SUPPLY FAN STATIC PRESSURE START / STOP SOLENOID VALVE SWITCH								
F		T									
FA FACP FD FDAT FDSD FM FR FS FZ	DEGREES FAHRENHEIT FIRE ALARM FIRE ALARM CONTROL PANEL FIRE DAMPER FAN DISCHARGE AIR TEMPERATURE COMBINATION FIRE AND SMOKE DAMPER FLOW METER FIELD RELAY FLOW SWITCH FREEZE STAT	TEF TH	TEMPERATURE SENSOR TOILET EXHAUST FAN THERMOSTAT								
G		V									
GCF GEF GIF	GARAGE CIRCULATION FAN GARAGE EXHAUST FAN GARAGE INTAKE FAN	VAV VFD VS	VALVE VARIABLE AIR VOLUME VARIABLE FREQUENCY DRIVE VOLTAGE OUTPUT VIBRATION SWITCH								
H		W									
H HC HHW HHWR HHWS HI HL HX	HUMIDITY HEATING COIL HEATING HOT WATER HEATING HOT WATER RETURN HEATING HOT WATER SUPPLY HIGH HIGH LEVEL HEAT EXCHANGER	WC	WATER COLUMN								
				SEE CONTROL SYMBOLS, LEGENDS AND EQUIPMENT SCHEDULES FOR ADDITIONAL ABBREVIATIONS, ALL ABBREVIATIONS, SYMBOLS, AND LEGENDS SHOWN ON THIS DRAWINGS ARE NOT NECESSARILY USED.							

HVAC CONTROLS - BMS POINT FUNCTION SCHEDULE - GENERAL										
POINT NAME	TAG	POINT TYPE	FAIL MODE				SOFTWARE	ALARM LIMITS		NOTES
			FAIL ON (OPEN)	FAIL OFF (CLOSED)	LAST COMMANDED STATE	LOCAL DEFAULT		ALARM LIMITS	LOW LIMIT	
1 MOTOR SPEED (RPM)	RPM	AI								
2 OUTPUT FREQUENCY (HZ)	HZ	AI								
3 OUTPUT CURRENT (AMPS)	AMP	AI								
4 OUTPUT POWER (KW)	KW	AI								
5 FAULT ALARM	FLT	DI								
6 HAND MODE STATUS	HA	DI								
7 SPEED CONTROL	CI	AO								
8 START/STOP	SS	DO								
9 RUN STATUS	CT	AI								

POWER TO DRIVEN EQUIPMENT

ENABLE
RUN
SPEED

REFER TO SYSTEM
DIAGRAMS

NETWORK
VFD

BAKNET

HARDWIRED POINTS

RPM HZ AMP KW

1 2 3 4

VFD NOTES

A. UNLESS OTHERWISE NOTED, THIS DIAGRAM SHALL APPLY TO VFDs ON THE ENTIRE PROJECT SERVING PUMPS AND FANS WITH THE EXCEPTION OF VFDs THAT ARE INTEGRAL TO A PIECE OF EQUIPMENT SUCH AS A CHILLER COMPRESSOR VARIABLE SPEED DRIVE.

B. PROVIDE INTEGRATION VIA BAKNET IP. INTEGRATION VIA BAKNET MS/TP SHALL ONLY BE ACCEPTABLE IF BAKNET IP IS NOT AN OPTION FOR THE SELECTED VFD MANUFACTURER.

C. ALL VFDs ON THE ENTIRE PROJECT SHALL BE PROVIDED BY A SINGLE MANUFACTURER UNLESS OTHERWISE INDICATED.

D. REFER TO SPECIFIC DIAGRAMS FOR SAFETY AND RUN-ONLY REQUIREMENTS FOR EACH VFD.

E. PROVIDE A CURRENT TRANSDUCER TO MEASURE ACTUAL AMPERAGE (POINT 7). CREATE AND MAP A DIGITAL POINT TO THE INPUT OF THE CT FOR USE IN PROVIDE/CONTROLLED-ON-ALARM LOGIC. I.E. IF AMPERAGE GREATER THAN X, THE DIGITAL POINT SHALL READ ON = TRUE, AND VICE VERSA IF AMPERAGE IS LESS THAN X, THE AMPERAGE VALUE "Y" SHALL BE USER ADJUSTABLE AND DETERMINED DURING THE TESTING AND BALANCING PROCESS IN CONJUNCTION WITH THE DETERMINATION OF THE MINIMUM VFD SPEED. THE VALUE "Y" SHALL BE SET TO A VALUE BELOW THE MEASURED AMPERAGE AT THE MINIMUM VFD SPEED. REFER TO TAB SPECIFICATION FOR ADDITIONAL INFORMATION.

F. HAND-OFF-AUTO/HAND-OPERATION

1. PROVIDE HOA SETTINGS AS PART OF THE VARIABLE FREQUENCY DRIVE (VFD) THROUGH THE DRIVES KEYPAD FOR THE SUPPLY FAN.

2. WHEN IN HAND MODE, THE MOTOR CONTROLLED BY THE VFD WILL START.

3. WHEN IN OFF MODE, THE MOTOR CONTROLLED BY THE VFD WILL BE OFF.

4. WHEN IN AUTO MODE, THE MOTOR CONTROLLED BY THE VFD WILL BE STARTED AND STOPPED THROUGH THE BAS.

5. UPON ACTIVATION, SAFETIES WILL STOP THE MOTOR IN AUTO OR HAND MODES.

6. LOCAL-REMOTE SPEED CONTROL

1. LOCAL-REMOTE SETTINGS WILL BE PROVIDED AS PART OF THE VFD THROUGH THE DRIVES KEYPAD.

2. IN LOCAL MODE THE MOTOR SPEED WILL BE CONTROLLED THROUGH A MANUAL SPEED CONTROL LOCATED AT THE DRIVES CONTROL PANEL.

3. IN REMOTE MODE, THE MOTOR SPEED WILL BE CONTROLLED BY THE BAS.

GENERAL NOTES:		
1. ALL SETPOINTS SHOWN ON THE DIAGRAMS OR DESCRIBED IN THE SEQUENCE OF OPERATIONS SHALL BE OPERATOR ADJUSTABLE THROUGH THE BMS AT THE OWS. THIS APPLIES TO ALL CONTROLS SHEETS.		
2. FOR ALL DAMPER AND VALVE ACTUATORS OF WHICH THEIR POSITION IS USED IN SEQUENCES OF OPERATION: PROVIDE ACTUATOR WITH POSITION FEEDBACK ANALOG INPUT POINT. SUBSTITUTION WITH VOLTAGE OUTPUTS TO APPROXIMATE DAMPER VALVE POSITION IS NOT ACCEPTABLE.		
3. BAS: ALL RELEVANT POINTS SHALL BE CONFIGURED APPROPRIATELY TO BE LOGGED INTO UD'S EXISTING BAS LOGGING ROUTINE.		
4. THE BMS SHALL NOT ALLOW OVERLAPPING HEATING AND COOLING TEMPERATURE SETPOINTS FOR A GIVEN ZONE.		
SEQUENCES OF OPERATION		
A. GENERAL		
1. UNLESS OTHERWISE INDICATED, CONTROL LOOPS SHALL BE ENABLED AND DISABLED BASED ON THE STATUS OF THE SYSTEM BEING CONTROLLED TO PREVENT WIND-UP.		
2. WHEN A CONTROL LOOP IS ENABLED, IT AND ALL ITS CONSTITUENTS (SUCH AS THE PROPORTIONAL AND INTEGRAL TERMS) SHALL BE SET TO A NEUTRAL VALUE.		
3. A CONTROL LOOP IN NEUTRAL SHALL CORRESPOND TO A CONDITION WHICH APPLIES THE MINIMUM CONTROL EFFECT, I.E. VALVES/DAMPERS CLOSED, VFDs AT MINIMUM SPEED, ETC.		
4. THE TERM "PROVEN" (I.E. "PROVEN ON"/"PROVEN OFF") SHALL MEAN THAT THE EQUIPMENT'S STATUS POINT MATCHES THE STATE SET BY THE EQUIPMENT'S DO COMMAND POINT.		
5. THE TERM "CONTROL LOOP" OR "LOOP" IS USED GENERALLY FOR ALL CONTROL LOOPS. THESE WILL TYPICALLY BE PID LOOPS. THE FOLLOWING GUIDELINES SHALL BE FOLLOWED:		
a. USE PROPORTIONAL ONLY (P-ONLY) LOOPS FOR LIMITING LOOPS		
b. DO NOT USE THE DERIVATIVE TERM ON ANY LOOPS UNLESS FIELD TUNING IS NOT POSSIBLE WITHOUT IT.		
6. TO AVOID ABRUPT CHANGES IN EQUIPMENT OPERATION, THE OUTPUT OF EVERY CONTROL LOOP SHALL BE LIMITED TO A MAXIMUM RATE OF CHANGE OF 25% PER MINUTE UNLESS OTHERWISE NOTED.		
7. ALL SETPOINTS, TIMERS, DEADBANDS, PID GAINS, ETC. LISTED IN SEQUENCES SHALL BE CAPABLE OF BEING ADJUSTED BY THE OPERATOR THROUGH THE NORMAL BAS USER INTERFACE WHETHER INDICATED AS ADJUSTABLE IN SEQUENCES OR NOT. SOFTWARE (VIRTUAL) POINTS SHALL BE USED FOR THESE VARIABLES. FIXED SCALAR NUMBERS SHALL NOT BE EMBEDDED IN PROGRAMS EXCEPT FOR PHYSICAL CONSTANTS (E.G. CONVERSION FACTORS).		
8. VALUES FOR ALL POINTS, INCLUDING REAL (HARDWARE) POINTS USED IN CONTROL SEQUENCES SHALL BE CAPABLE OF BEING OVERRIDDEN BY THE USER (E.G. FOR TESTING AND COMMISSIONING). IF HARDWARE DESIGN PREVENTS THIS FOR HARDWARE POINTS, THEY SHALL BE EQUATED TO A SOFTWARE POINT AND THE SOFTWARE POINT SHALL BE USED IN ALL SEQUENCES. EXCEPTION: NOT REQUIRED FOR ALL ASC HARDWARE POINTS.		
9. VFD MINIMUM SPEED SETPOINTS		
a. MINIMUM SPEED SETPOINTS FOR ALL VFD-DRIVEN EQUIPMENT SHALL BE DETERMINED IN ACCORDANCE WITH THE TEST AND BALANCE SPECIFICATIONS.		
b. FOR EACH PIECE OF EQUIPMENT, THE MINIMUM SPEED SHALL BE STORED IN A SINGLE SOFTWARE POINT. THIS VALUE SHALL BE MAPPED TO THE VFD'S MINIMUM SPEED SETPOINT VIA THE DRIVES NETWORK INTERFACE. IN THE CASE OF A HARDWIRED VFD INTERFACE, THE MINIMUM SPEED SHALL BE THE LOWEST SPEED COMMAND SENT TO THE DRIVE BY THE BAS.		
c. THE MINIMUM SPEED SETPOINT SHALL BE STORED AS A POSITIVE PERCENTAGE OF FULL RANGE. I.E. 0% SPEED SHALL CORRESPOND TO FULLY STOPPED EQUIPMENT, AND THE MINIMUM SPEED SHALL BE A VALUE GREATER THAN 0%.		

ISSUED FOR

REV

DATE

100% CONSTRUCTION DOCUMENTS

100% DESIGN DRAFT

07/17/2020

07/13/2020

SEALS AND SIGNATURES

DISTRICT OF COLUMBIA

CONEL PETRUS

No. PE07217

MECHANICAL

PROFESSIONAL ENGINEER

Jonel Petrus

SHEET TITLE

MECHANICAL CONTROLS - LEGEND

PROJECT NUMBER

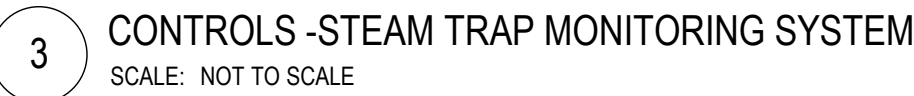
M8.0

SHEET NUMBER



HEATING HOT WATER SYSTEM COMMON

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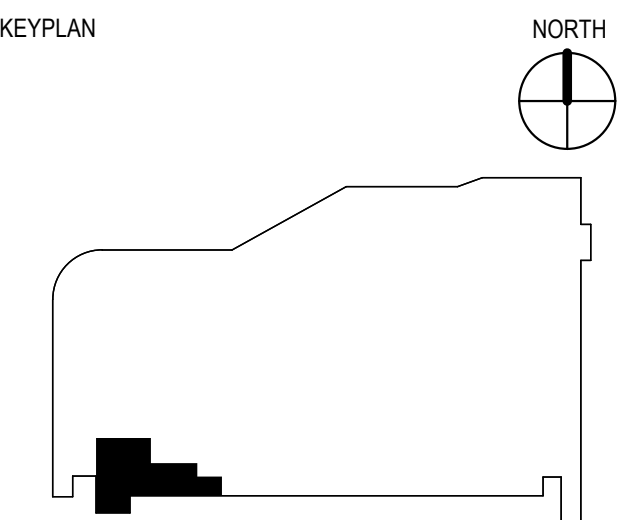


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SEALS AND SIGNATURES



SHEET TITLE

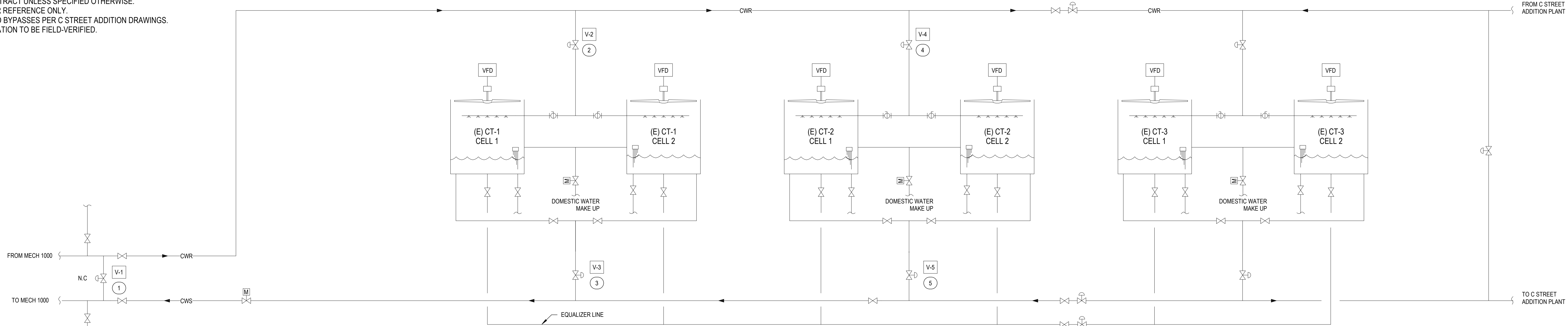
MECHANICAL CONTROLS -
STEAM

PROJECT NUMBER

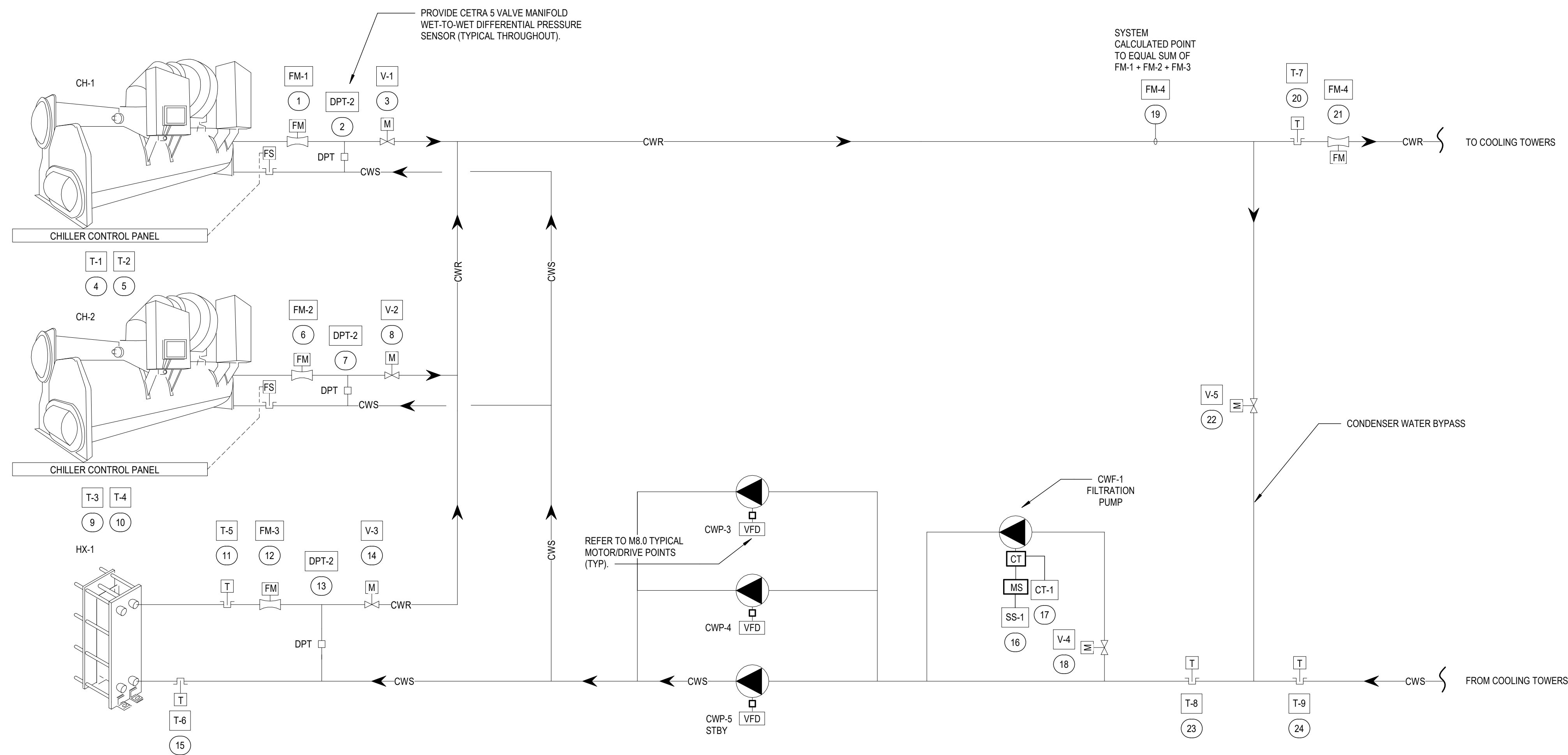
M8.3

SHEET NUMBER

NOT IN CONTRACT UNLESS SPECIFIED OTHERWISE.
SHOWN FOR REFERENCE ONLY.
VALVES AND BYPASSES PER C STREET ADDITION DRAWINGS.
VALVE LOCATION TO BE FIELD-VERIFIED.



1 MECHANICAL CONTROLS - PENTHOUSE CONDENSER WATER DIAGRAM
SCALE: NONE



2 CONDENSER WATER SYSTEM B1 LEVEL - CONTROL DIAGRAM
SCALE: NONE

HVAC CONTROLS - BMS POINT FUNCTION SCHEDULE (CONDENSER WATER SYSTEM)																														
	POINT NAME	POINT TYPE	HARDWARE					SOFTWARE																	ALARM LIMITS					NOTES
			TAG	FAIL MODE				LOCAL DEFAULT	NETWORK POINT	CALCULATED POINT	MAINTENANCE ALARM	CRITICAL ALARM	24 HOUR OPERATION	PROGRAM START/STOP	OPTIMUM START	MORNING WARM/COOL	UNOCCUPIED SET POINT	DEMAND LIMIT	DIRECT DIGITAL CONTROL	SET POINT ADJUSTMENT	TOTALIZER	RUN TIME	ALARM LIMITS	SOFTWARE INTERLOCKS						
1. CH-1																														
1	CH-1 CWS FLOW	AI	FM-1																											
2	CH-1 CW DIFFERENTIAL PRESSURE	AI	DPT-2																											
3	CH-1 VALVE CONTROL	AO	V-1																											
4	CWS TEMPERATURE	AI	T-1																											
5	CWR TEMPERATURE	AI	T-2																											
2. CH-2																														
6	CH-2 CWS FLOW	AI	FM-2																											
7	CH-2 CW DIFFERENTIAL PRESSURE	AI	DPT-2																											
8	CH-2 VALVE CONTROL	AO	V-2																											
9	CWS TEMPERATURE	AI	T-3																											
10	CWR TEMPERATURE	AI	T-4																											
3. HX-1																														
11	CWR TEMPERATURE	AI	T-5																											
12	HX-1 FLOW METER	AI	FM-3																											
13	HX-1 CW DIFFERENTIAL PRESSURE	AI	DPT-2																											
14	HX-1 VALVE CONTROL	AO	V-3																											
15	CWS TEMPERATURE	AI	T-6																											
4. FILTRATION SYSTEM																														
16	CWF-1 START/STOP	AI	SS-1																											
17	CWF-1 STATUS	AI	CT-1																											
18	CWF-1 BYPASS VALVE CONTROL	AO	V-4																											
5. CW SYSTEM																														
19	SYSTEM-CALCULATED FLOW SUM	AI	FM-4																											
20	CWR TEMPERATURE TO TOWERS	AI	T-7																											
21	CWR FLOW METER	AI	FM-4																											
22	CW BYPASS (2) 2-WAY VALVES CONTROL	AO	V-5																											
23	CWS TEMPERATURE TO CHILLERS	AI	T-8																											
24	CWS TEMPERATURE FROM TOWERS	AI	T-9																											
COOLING TOWER - N.I.C																														
1	(E) CONDENSER BYPASS AT PENTHOUSE	DO	V-1																											
2	(E) CT-1 CONTROL VALVE	DO	V-2																											
3	(E) CT-1 CONTROL VALVE	DO	V-3																											
4	(E) CT-2 CONTROL VALVE	DO	V-4																											
5	(E) CT-2 CONTROL VALVE	DO	V-5																											



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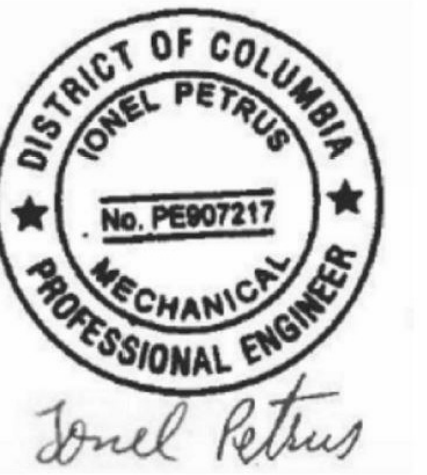
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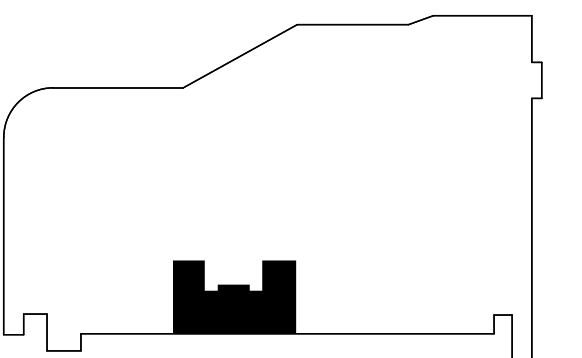
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100% DESIGN DRAFT 07/13/2020

SEALS AND SIGNATURES



KEYPLAN NORTH

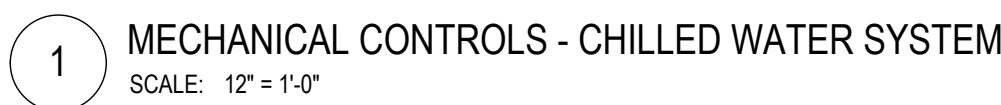


SHEET TITLE
MECHANICAL CONTROLS -
CONDENSER WATER
SYSTEM

PROJECT NUMBER

M8.4

SHEET NUMBER



WALL MOUNTED SENSORS
(SEE FLOOR PLAN)

RETURN AIR

SUPPLY AIR

ECM

SS-2

3

4

5

6

H

T

H-1

T-1



1

2

V-1

V-2

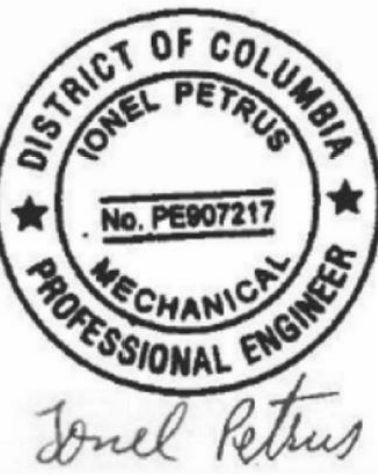
2 FAN COIL UNIT (FCU)
SCALE: NONE

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SEALS AND SIGNATURES

KEYPLAN



SHEET TITLE

**MECHANICAL CONTROLS -
CHILLED WATER SYSTEM**

PROJECT NUMBER

M8.5

SHEET NUMBER

FEEDER & BRANCH CIRCUIT SIZING SCHEDULE - NONLINEAR LOADS (NOTES 1 & 2)							
OVERCURRENT DEVICE RATING (AMPERES)	WIRE SIZE - AWG OR KCMIL		CONDUIT SIZE			NOTE	
	PHASE & NEUTRAL	E.G.	4 WIRE (2PH & 2N)	5 WIRE (NOTE-7)	6 WIRE (3PH & 3N)		
15-20	12	12	3/4"	3/4"	3/4"		
25-30	10	10	3/4"	3/4"	3/4"		
35-40	8	10	3/4"	1"	1"		
45-50	8(6)	10	3/4"(1")	1"	1 1/16"(1 1/4")		
60	6(4)	10	1"(1 1/4")	1 1/16"(1 1/4")	1 1/4"		
70	6(4)	8	1"(1 1/4")	1 1/16"(1 1/4")	1 1/4"		
80-90	4(2)	8	1 1/4"	1 1/4"(1 1/2")	1 1/4"(1 1/2")		
100	3(2)	8	1 1/4"	1 1/2"	1 1/2"		
110	2(1)	6	1 1/2"	2"	2"		
125	1(1/2)	6	1 1/2"(2")	2"	2"		
150	1/0	6	2"	2"	2"		
175	2/0	6	2"	2"	2 1/2"		
200	3/0	6	2"	2 1/2"	2 1/2"		
225	4/0	4	2 1/2"	2 1/2"	3"		
250	250	4	3"	3"	3"		
300	350	4	3"	3 1/2"	3 1/2"		
350	500	3	3 1/2"	4"	4"		
400	2-3/0	2-3	2-2"	2-2 1/2"	2-2 1/2"		
450	2-4/0	2-2	2-2 1/2"	2-2 1/2"	2-3"		
500	2-250	2-2	2-3"	2-3"	2-3"		
600	2-350	2-1	2-3"	2-3 1/2"	2-3 1/2"		
700	2-500	2-1/0	2-3 1/2"	2-4"	2-4"		
800	3-3/0	3-1/0	3-3"	3-3 1/2"	3-3 1/2"		
1000	3-4/0	3-2/0	3-3"	3-3 1/2"	3-4"		
1200	4-350	4-3/0	4-3"	4-3 1/2"	4-3 1/2"		
1600	5-400	5-4/0	5-3"	5-3 1/2"	5-4"		
2000	6-400	6-250	6-3"	6-3 1/2"	6-4"		

FEEDER & BRANCH CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE (NOTES 1 & 2)							
OVERCURRENT DEVICE RATING (AMPERES)	WIRE SIZE - AWG OR KCMIL		CONDUIT SIZE			NOTE	
	PHASE & NEUTRAL	E.G.	2 WIRE	3 WIRE	4 WIRE		
15-20	12	12	3/4"	3/4"	3/4"		
25-30	10	10	3/4"	3/4"	3/4"		
35-40	8	10	3/4"	3/4"	3/4"		
45-50	8(6)	10	3/4"	3/4"	3/4"(1")		
60	6(4)	10	3/4"(1")	3/4"(1")	1"(1 1/4")		
70	6(4)	8	3/4"(1")	3/4"(1")	1"(1 1/4")		
80-90	4(2)	8	1"	1"(1 1/4")	1 1/4"		
100	3(2)	8	1"(1 1/4")	1 1/4"	1 1/4"		
110	2(1)	6	1 1/4"	1 1/4"(1 1/2")	1 1/4"(1 1/2")		
125	1(1/2)	6	1 1/4"	1 1/2"	1 1/2"(2")		
150	1/0	6	1 1/4"	1 1/2"	2"		
175	2/0	6	1 1/2"	2"	2"		
200	3/0	6	1 1/2"	2"	2"		
225	4/0	4	2"	2"	2 1/2"		
250	250	4	2"	2 1/2"	2 1/2"		
300	350	4	2 1/2"	3"	3"		
350	500	3	3"	3"	3 1/2"		
400	2-3/0	2-3	2-2"	2-2"	2-2"		
450	2-4/0	2-2	2-2"	2-2"	2-2 1/2"		
500	2-250	2-2	2-2"	2-2 1/2"	2-2 1/2"		
600	2-350	2-1	2-2 1/2"	2-3"	2-3"		
700	2-500	2-1/0	2-3"	2-3"	2-3 1/2"		
800	3-3/0	3-1/0	3-2 1/2"	3-3"	3-3"		
1000	3-4/0	3-2/0	3-2 1/2"	3-3"	3-3"		
1200	4-350	4-3/0	4-2 1/2"	4-3"	4-3"		
1600	5-400	5-4/0	5-2 1/2"	5-3"	5-3"		
2000	6-400	6-250	6-2 1/2"	6-3"	6-3"		

DRAWING NOTES

- CIRCUIT SIZING SCHEDULES NOTES:
1. BASED ON THINWALL, 90°, 600V, INSULATED, COPPER WIRE APPLIED AT 75°F FOR TERMINATIONS RATED AT 60°C/75°C AND 75°C. FOR TERMINATIONS RATED AT 80°C PROVIDE WIRE AND CONDUIT SIZES INDICATED IN PARENTHESES.
 2. BASED ON WIRE OUTSIDE DIAMETERS AND RIGID METALLIC CONDUIT INSIDE DIAMETERS AS PROVIDED IN THE NEC. DO NOT REDUCE CONDUIT SIZE FOR NON-RIGID METALLIC APPLICATION. REFER TO NEC FOR CONDUIT TYPES MORE RESTRICTIVE THAN RIGID METALLIC.
 3. BASED ON MOTOR FULL LOAD AMPERES AS PROVIDED BY THE NEC.
 4. BASED ON MOTOR RUNNING OVERLOAD PROTECTION PROVIDED BY THERMAL OVERLOAD RELAYS.
 5. MOTOR STARTING TYPE BASED ON 480V, 3 PHASE, FULL VOLTAGE NON-REVERSING EXCEPT FOR MOTORS SIZED 75HP OR GREATER WHICH ARE BASED ON 480V, 3 PHASE, PART WINDINGS REDUCED VOLTAGE STARTING.
 6. TRANSFORMER CIRCUITS BASED ON 480V TO 208/120V, 3 PHASE, 4 WIRE, DRY TYPE.

480V., THREE PHASE CIRCUIT LENGTH TABLE																											
BREAKER AMPACITY (AMPS)	MAX. CIRCUIT LOAD (AMPS)	MAXIMUM LENGTH IN FEET																									
		NO.12	NO.10	NO.8	NO.6	NO.4	NO.2	NO.1	1/0	2/0	3/0	4/0	250	350	500	2-3/0	2-4/0	2-250	2-350	2-500	3-300	3-400	4-350	5-400	6-400	6-500	
20	16	253	403	642	1019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	24	-	269	428	679	1079	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40	32	-	-	321	509	809	1293	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
50	40	-	-	-	408	648	1034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
60	48	-	-	-	-	540	862	1083	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
70	56	-	-	-	-	-	739	928	1169	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
80	64	-	-	-	-	-	646	812	1023	1286	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
90	72	-	-	-	-	-	574	722	909	1143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
100	80	-	-	-	-	-	650	818	1029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
125	100	-	-	-	-	-	-	655	823	1043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
150	120	-	-	-	-	-	-	546	689	869	1107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
175	140	-	-	-	-	-	-	-	588	745	949	1110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
200	160	-	-	-	-	-	-	-	-	652	830	971	1360	-	-	-	-	-	-	-	-	-	-	-	-	-	
225	180	-	-	-	-	-	-	-	-	-	738	863	1209	1743	-	-	-	-	-	-	-	-	-	-	-	-	
250	200	-	-	-	-	-	-	-	-	-	-	777	1088	1569	1043	-	-	-	-	-	-	-	-	-	-	-	
300	240	-	-	-	-	-	-	-	-	-	-	907	1307	869	1107	-	-	-	-	-	-	-	-	-	-	-	
350	280	-	-	-	-	-	-	-	-	-	-	-	1120	745	949	1110	-	-	-	-	-	-	-	-	-	-	
400	320	-	-	-	-	-	-	-	-	-	-	-	652	830	971	1360	-	-	-	-	-	-	-	-	-	-	
450	360	-	-	-	-	-	-	-	-	-	-	-	-	738	863	1209	-	-	-	-	-	-	-	-	-	-	
500	400	-	-	-	-	-	-	-	-	-	-	-	-	777	1088	1569	-	-	-	-	-	-	-	-	-	-	
600	480	-	-	-	-	-	-	-	-	-	-	-	-	-	907	1307	1165	-	-	-	-	-	-	-	-	-	
700	560	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1120	999	1346	-	-	-	-	-	-	-	-	
800	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	874	1177	1360	-	-	-	-	-	-	-	
1000	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	942	1088	1569	-	-	-	-	-	-	
1200	960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	907	1307	-	-	-	-	-	-	
1600	1200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	980	1226	1307	-	
1800	1440	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1089	1177	-	
2000	1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	980	1137	-	

120V. SINGLE PHASE CIRCUIT LENGTH TABLE									
BREAKER AMPACITY (AMPS)	MAX. CIRCUIT CURRENT (AMPS)	MAX. CIRCUIT LOAD (VA)	MAXIMUM LENGTH IN FEET						
			NO.12	NO.10	NO.8	NO.6	NO.4		
20	4	480	220	349	556	882	-		
	8	960	110	174	278	441	701		
	12	1440	73	116	185	294	467		
	16	1920	55	87	139	221	350		
30	24	2880	-	58	93	147	234		
40	32	3840	-	-	70	110	175		
50	40	4800	-	-	-	88	140		
60	48	5760	-	-	-	-	117		

208V. SINGLE PHASE CIRCUIT LENGTH TABLE									
BREAKER AMPACITY (AMPS)	MAX. CIRCUIT CURRENT (AMPS)	MAX. CIRCUIT LOAD (VA)	MAXIMUM LENGTH IN FEET						
			NO.12	NO.10	NO.8	NO.6	NO.4		
20	4	832	380	605	964	-	-		
	8	1664	190	302	482	765	-		
	12	2496	127	202	321	510	810		
	16	3328	95	151	241	382	607		
30	24	4992	-	101	161	255	405		
40	32	6656	-	-	121	191	304		
50	40	8320	-	-	-	153	243		
60	48	9984	-	-	-	-	202		

208V. THREE PHASE CIRCUIT LENGTH TABLE									
BREAKER AMPACITY (AMPS)	MAX. CIRCUIT CURRENT (AMPS)	MAX. CIRCUIT LOAD (VA)	MAXIMUM LENGTH IN FEET						
			NO.12	NO.10	NO.8	NO.6	NO.4		
20	4	1440	439	698	1113	-	-	-	
	8	2880	220	349	557	883	-	-	
	12	4320	127	233	371	589	935	-	
	16	5760	95	175	278	442	701	-	
30	24	8640	-	116	186	294	468	-	
40	32	11520	-	-	139	221	351	-	
50	40	14400	-	-	-	177	281	-	
60	48	17280	-	-	-	-	234	-	

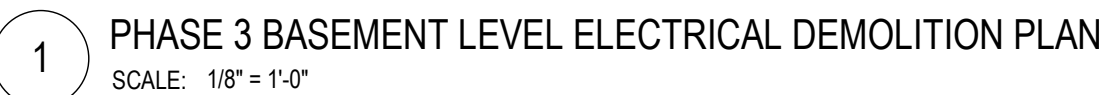


○ SHEET KEYNOTES

SEALS AND SIGNATURES

ED2.2

SHEET NUMBER



○ SHEET KEYNOTES

SEALS AND SIGNATURES

SHEET TITLE

PROJECT NUMBER

12513.000

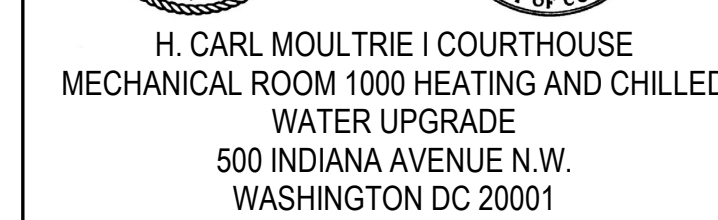
ED2.3

SHEET NUMBER



○ SHEET KEYNOTES

ED2.4



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A. SEE DRAWING E-1 FOR ABBREVIATIONS, SYMBOLS, GENERAL NOTES AND DEVICE MOUNTING HEIGHT OF WALL MOUNTED DEVICES. USE ALL MECHANICAL, ELECTRICAL, AND FIRE ALARM EQUIPMENT/DEVICES WITH AN 'E1' SUBSCRIPT ARE EXISTING TO REMAIN. MAINTAIN ALL CONDUIT, WIRING, CIRCUIT CONTINUITY, AND IDENTIFICATION. REMOVE EXISTING EQUIPMENT FOR EXISTING TO REMAIN RECEPTABLES. DEMOLISH WIRING AND MAINTAIN CONDUIT FOR REUSE WHERE FEASIBLE.

B. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING HATCH, MANTAL AND PRESERVE OUT OF SCOPE EXISTING SYSTEMS AND THEIR OPERATIONS.

C. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION OF EQUIPMENT POWER CONNECTIONS WITH EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.

D. DEVELOP AND SUBMIT EQUIPMENT SCHEDULE FOR ASSOCIATED OCCURENT DEVICES, DISCONNECT SWITCHES, STARTERS, AND WIRES.

E. FOLLOWING INSTALLATION METHODS COMPLIANT WITH UL 2196 STANDARD FOR FIRE RESISTIVE CABLING.

F. VOLTAGE DROP SHALL BE LIMITED TO LESS THAN 3% FOR ALL BRANCH CIRCUITS AND 2% FOR ALL FEEDERS.

G. THE CONTRACTOR SHALL VERIFY THE REQUIREMENT OF NEUTRAL CONDUCTOR FOR ALL EQUIPMENT AND PROVIDE NEUTRAL CONDUCTOR AS NECESSARY.

H. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING FOR ALL MECHANICAL EQUIPMENT: PROVIDE ADDITIONAL 120V CONNECTIONS REQUIRED BY MANUFACTURER.

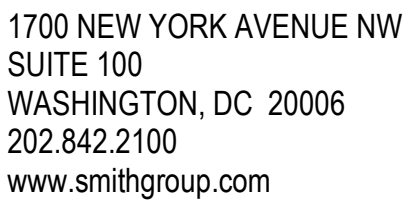
I. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING AS REQUIRED BY CONTROL VENDOR, CIRCUIT TO PANELBOARD, 'E1/UE' WITHIN THE SPACE.

J. ALL PLUMBING WALL OUTLETS TO BE COVERED WITH BLACK PLATE ALL BLACK PLATE COLORS TO MATCH WALL COLOR.

K. MAINTAIN PLATE FINISH OF MECHANICAL AND PLUMBING WALL OUTLET ASSASSINATE TO MATCH WALL COLOR. PROVIDE STARTERS, VFDs, CONTROL PANELS, AND ALL WIRING FROM VFDs AND DISCONNECTS SHOWN IN DRAWINGS TO THE EQUIPMENT AND IS TO COORDINATE WITH EQUIPMENT MANUFACTURER AND INSTALLATION INSTRUCTIONS.

L. ALL NEW MECHANICAL, ELECTRICAL, DUCTWORK, AND ANY OTHER ASSOCIATED WORK MUST MAINTAIN WORKING SPACE PER NEC 110.26 REQUIREMENTS FOR ALL SWITCHGEAR, DISTRIBUTION PANELBOARD, TRANSFORMERS, DISCONNECTS, VFDs, AND ETC. ALL DEDICATED SPACE PER NEC 110.26(E) REQUIREMENTS MUST BE MAINTAINED FOR ALL DISCONNECTS, SWITCHGEAR, PANELBOARDS, AND MOTOR CONTROL CENTERS.

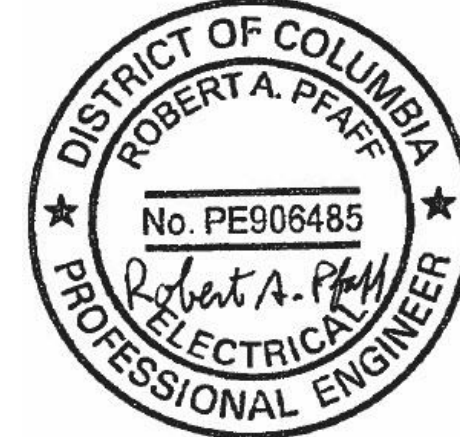
P. LIGHTING SHALL BE RELOCATED AS REQUIRED PER CONTRACT TO MEET THE REQUIREMENTS OF THE IFC FOR THE DISTRICT OF COLUMBIA COURTS 2018 DESIGN STANDARDS.



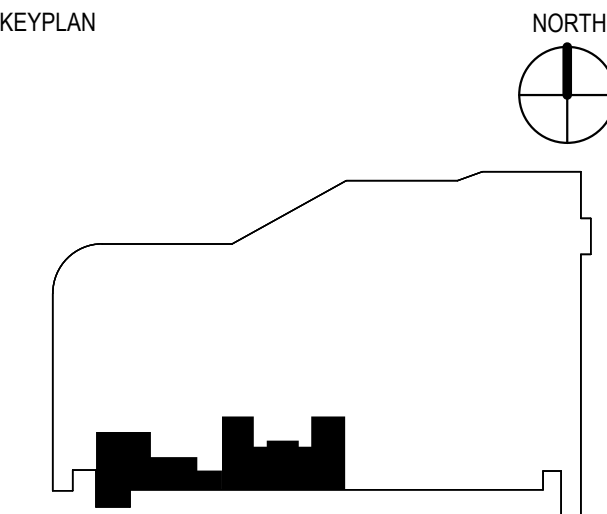
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SEALS AND SIGNATURES



KEYPLAN



SHEET TITLE

PHASE 2 BASEMENT LEVEL ELECTRICAL POWER PLAN

12513.000

PROJECT NUMBER

E2.2

SHEET NUMBER



E2.4

E208	COORDINATE ELECTRICAL CONNECTION AND OVERCURRENT CURRENT PROTECTION WITH FINAL HEAT TRACE EQUIPMENT LOCATION IN FIELD.
------	--

Plot Date:

GENERAL SHEET NOTES

- A. SEE DRAWING E0.1 FOR ABBREVIATIONS, SYMBOLS, GENERAL NOTES.
B. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION OF EQUIPMENT POWER CONNECTIONS WITH EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.
C. COORDINATE FINAL LOCATION OF MECHANICAL EQUIPMENT AND ASSOCIATED DISCONNECT SWITCHES, STARTERS, VFDS, CONTROL POWER AND OTHER POWER REQUIREMENTS WITH DIV 22 AND MECHANICAL DRAWINGS.
D. SEE MECHANICAL EQUIPMENT SCHEDULE FOR ASSOCIATED OVERCURRENT DEVICES, DISCONNECT SWITCHES, STARTERS AND WIRES.
E. FOR ALL MECHANICAL EQUIPMENT, PROVIDE ADDITIONAL 120V CONNECTIONS REQUIRED BY MANUFACTURER.
F. PROVIDE WIRING METHODS COMPLIANT WITH UL 3196 STANDARD FOR FIRE RESISTIVE CABLING.
G. VOLTAGE DROP SHALL BE LIMITED TO LESS THAN 3% FOR ALL BRANCH CIRCUITS AND 2% FOR ALL FEEDERS.
H. CONTRACTOR SHALL COORDINATE AND FIELD VERIFY REQUIREMENT OF NEUTRAL CONDUCTOR FOR ALL EQUIPMENT AND PROVIDE NEUTRAL CONDUCTOR AS NECESSARY.
I. ALL PANELBOARDS SHALL BE EQUIPPED WITH BOLT ON BREAKERS ONLY.
J. CONTRACTOR TO VERIFY EXISTING AVAILABLE CIRCUITS. COORDINATE LOCATION OF AVAILABLE CIRCUITS WITH THOSE INDICATED IN PANEL SCHEDULES.
K. REUSE EXISTING CIRCUIT BREAKERS WHEN APPLICABLE. PROVIDE NEW BREAKERS IN EXISTING SPACES. COORDINATE NEW BREAKER TYPE WITH EXISTING TO REMAIN PANEL.
L. CONTRACTOR TO METER AND VERIFY EXISTING PANEL LOADS AND AVAILABLE PANEL CAPACITY PRIOR TO ADDING CIRCUITS.
M. PROVIDE PERMANENT PANEL NAMEPLATES AND TYPED PANEL SCHEDULES AFTER ALL WORK IS COMPLETE. SCHEDULES AND NAMEPLATES MUST MATCH PANEL INFORMATION, CIRCUIT BREAKERS, AND CONNECTED LOADS.
N. ALL FINAL PANEL LOADS SHALL BE BALANCED AMONG PHASES.
O. REMOVE MOTOR CIRCUIT PROTECTORS AND STARTERS FROM THE MOTOR CONTROL CENTER WHERE NEW VFDS ARE ADDED.



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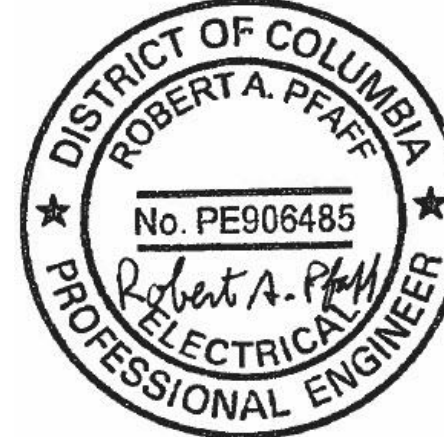
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SHEET KEYNOTES

- E501 CONNECT EXISTING 1600A FRAME AND 800A SENSOR TO NEW PANELBOARD FEEDERS. PROVIDE NEW TRIP SETTINGS PER COORDINATION STUDY AND SPECIFICATION SECTION 260573.1b. COORDINATE WITH OWNER AND LIMIT POWER INTERRUPTION TO ONE DAY.
E502 UPDATE THE EXISTING LOAD SHED SCHEME TO INCLUDE THE NEW AND REFEED MOTORS SUCH THAT THE VOLTAGE AND LOADS REMAINS WITHIN THE GENERATOR TOLERANCES DURING EMERGENCY OPERATION.

100% CONSTRUCTION DOCUMENTS 07/17/2020
100% DESIGN DRAFT 07/13/2020
PROGRESS SET 07/02/2020

SEALS AND SIGNATURES



FEEDER SCHEDULE

800 3 SETS OF 4#300CMIL + 1#10 G, (3) 3" C

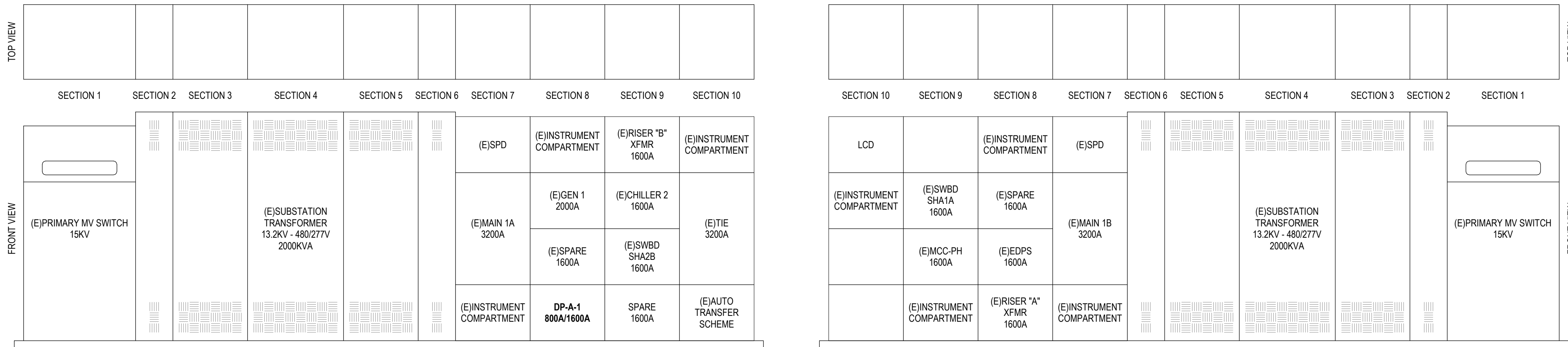
SHEET TITLE
ELECTRICAL ONE-LINES &
DETAILS

PROJECT NUMBER 12513.000

SHEET NUMBER

E5.0

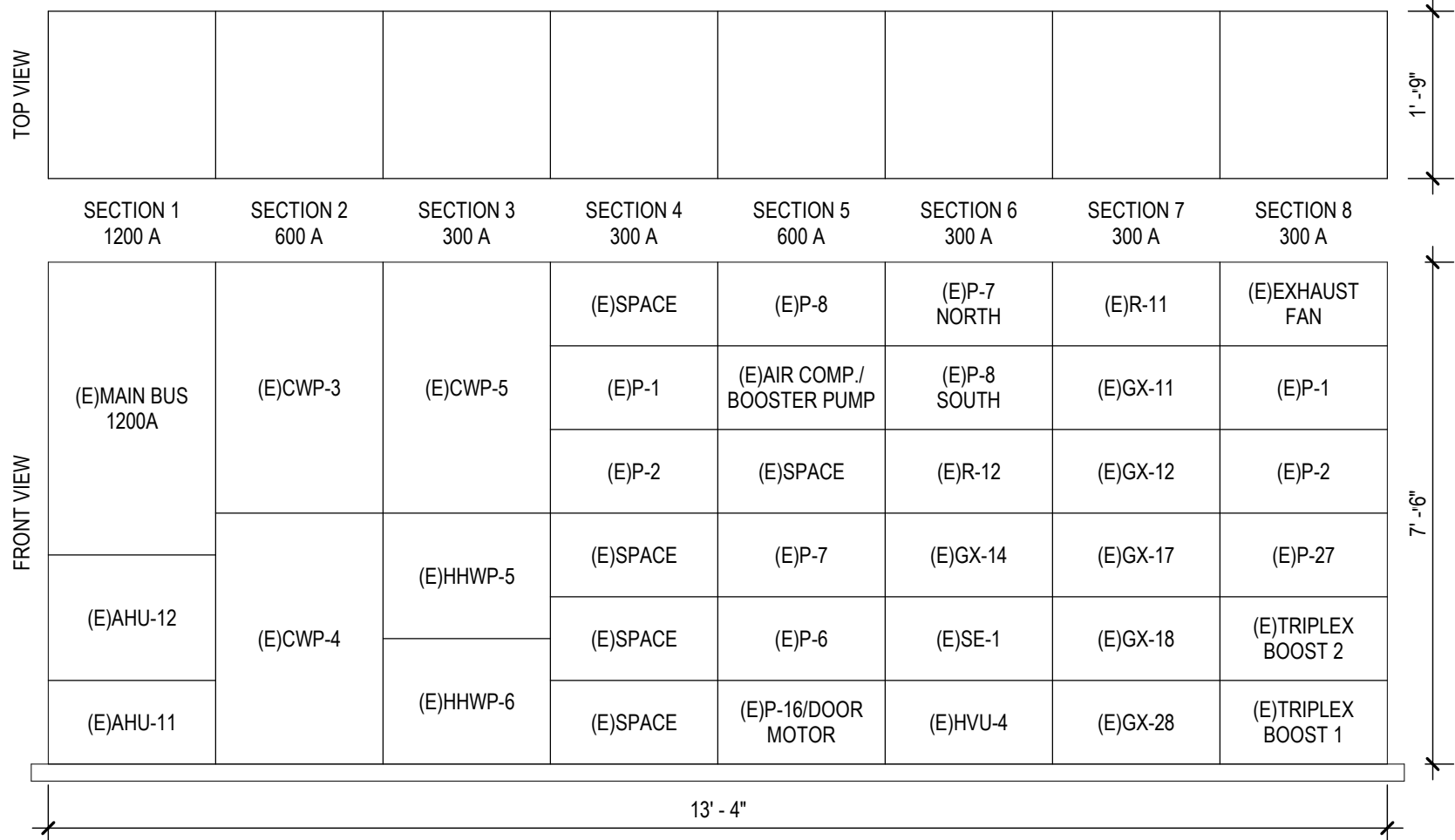
(E)1A & 1B - SQUARE D, POWER-ZONE 4, LOW VOLTAGE SWITCHGEAR
3200A, 480Y/277V, 3P, 4W, 100kA IC RATING



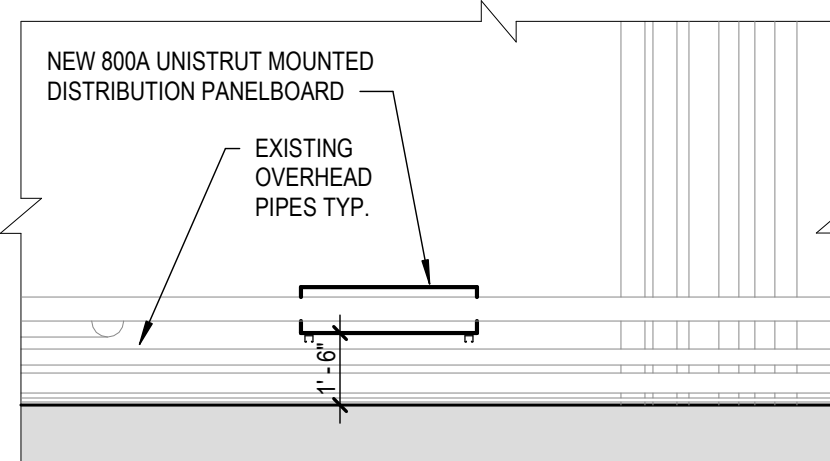
NOTES:
1. PROVIDE NEW FRAME AND PLUG AS REQUIRED.

4 EXISTING LOW VOLTAGE SWITCHGEAR 1A & 1B - PHASE 1
SCALE: NOT TO SCALE

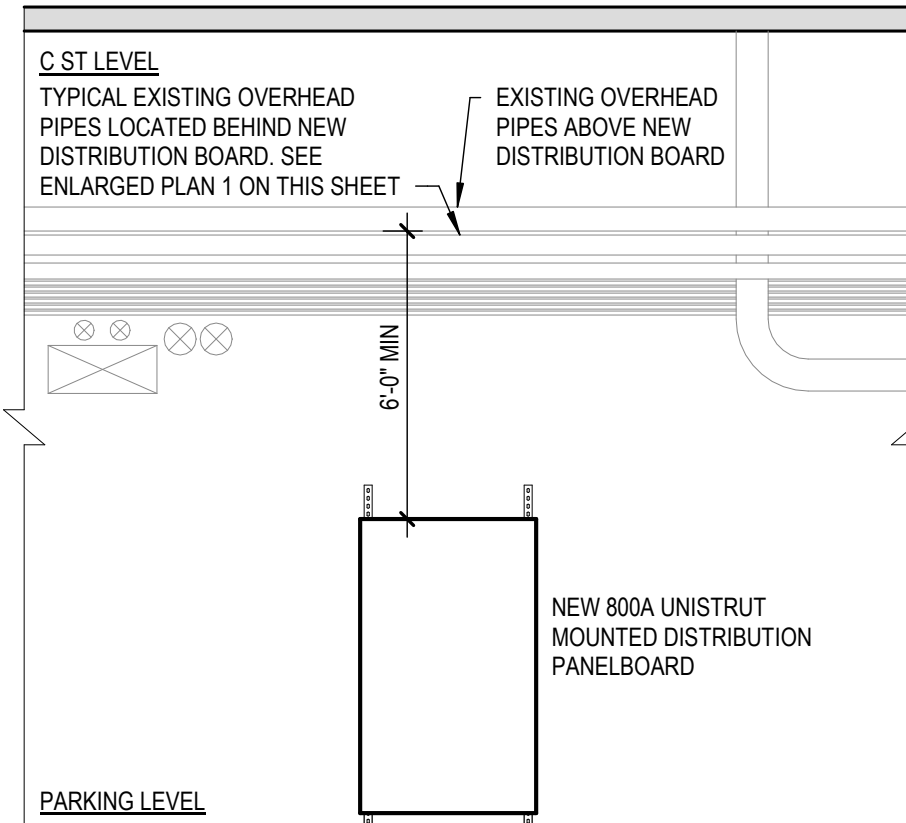
(E)MCCA - MOTOR CONTROL CENTER
1200A, 480Y/277V, 3P, 4W



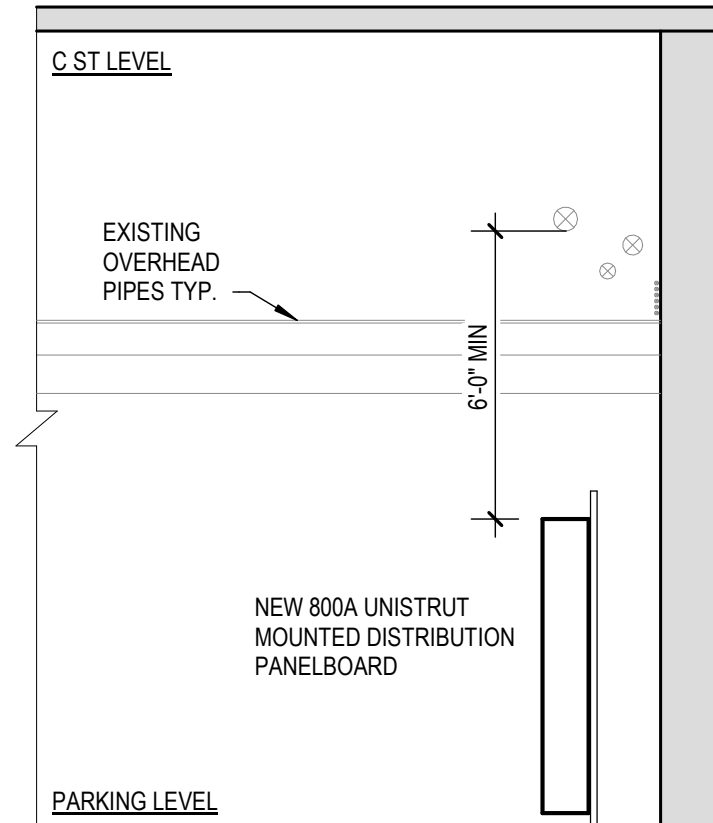
3 EXISTING MOTOR CONTROL CENTER - MCCA ELEVATION
SCALE: NOT TO SCALE



1 DP-M1 DISTRIBUTION BOARD ENLARGED PLAN
SCALE: NOT TO SCALE

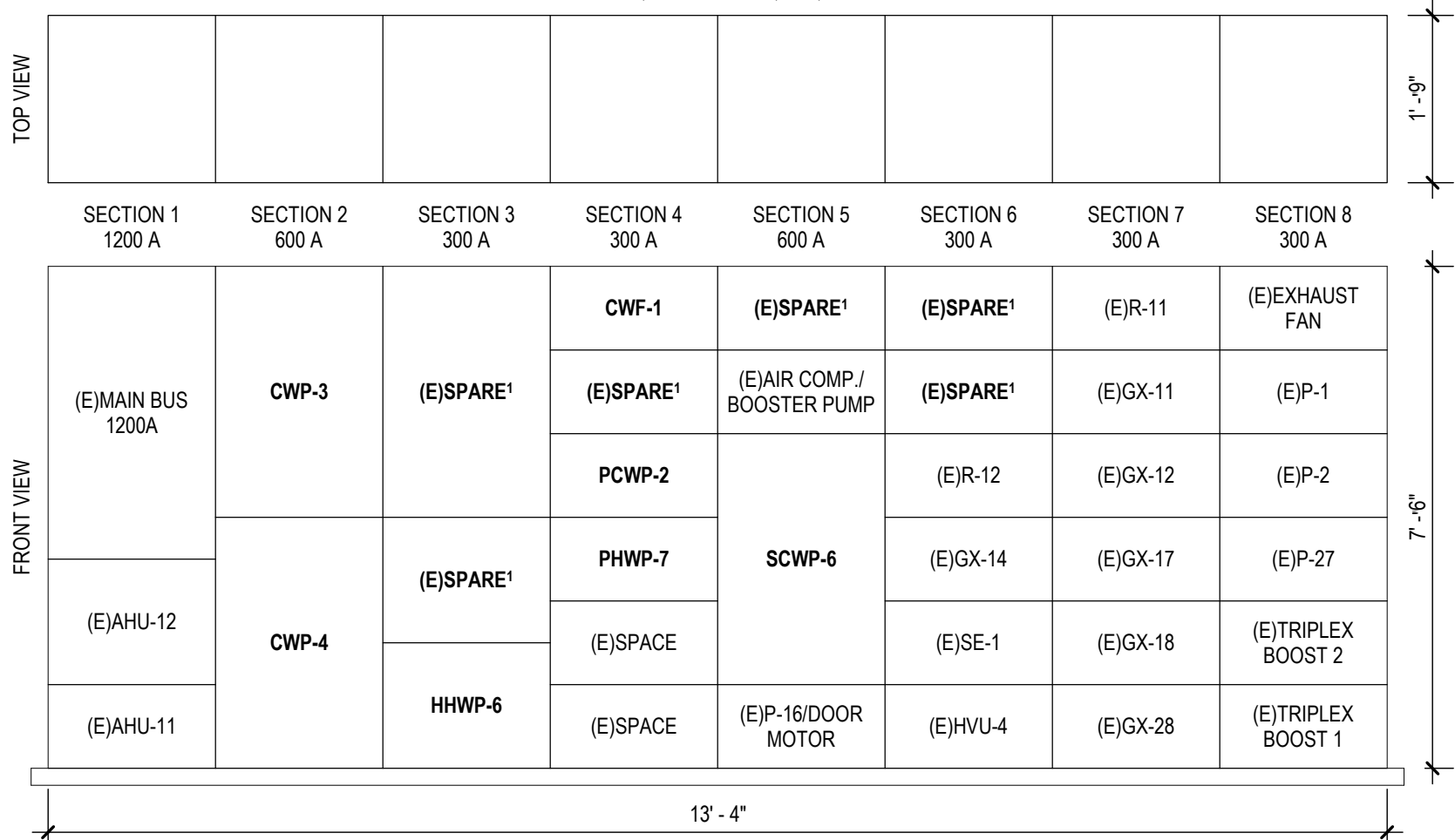


2 DP-M1 DISTRIBUTION BOARD SOUTH ELEVATION
SCALE: NOT TO SCALE



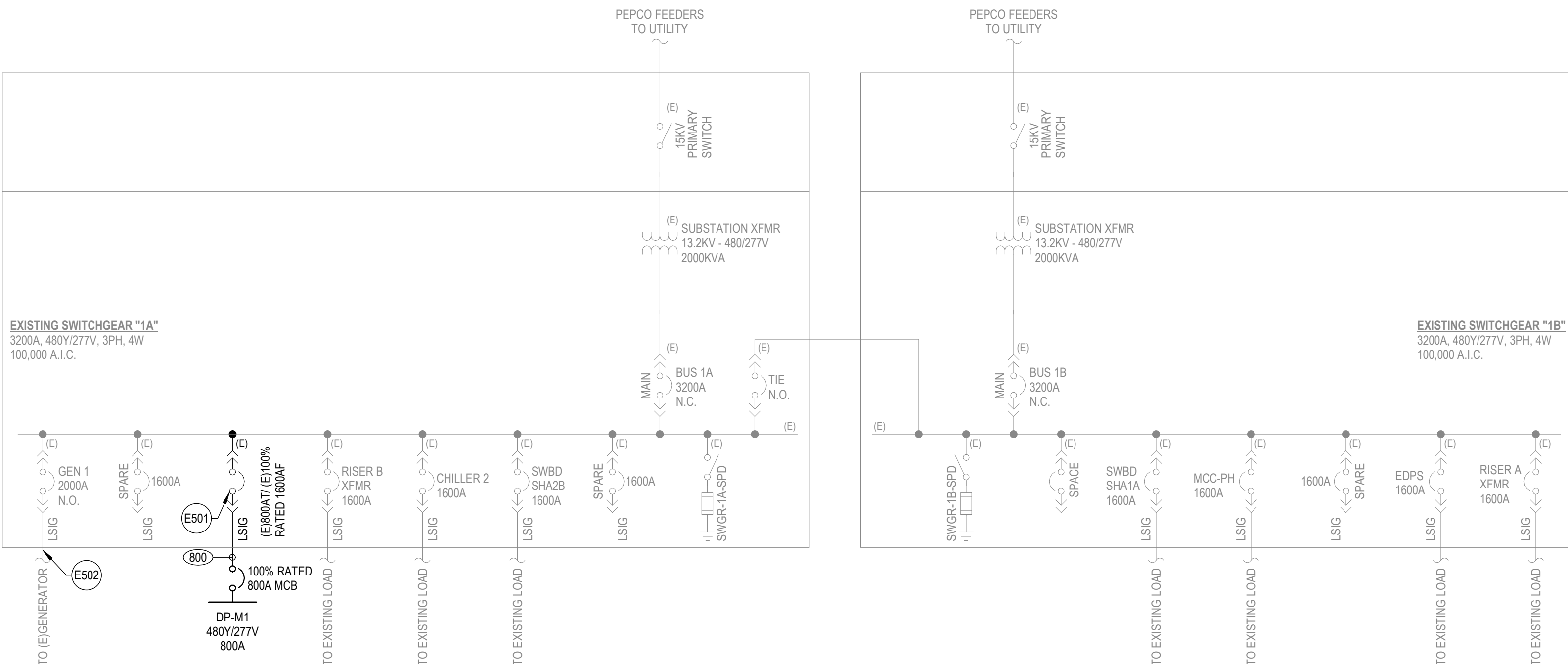
7 DP-M1 DISTRIBUTION BOARD EAST ELEVATION
SCALE: NOT TO SCALE

(E)MCCA - MOTOR CONTROL CENTER
1200A, 480Y/277V, 3P, 4W



- NOTES:
1. SPARE CIRCUIT BREAKER IS FROM EXISTING CIRCUIT BREAKERS OF DEMOLISHED EQUIPMENT.
2. PANELBOARD/MOTOR CONTROL CENTER SCHEDULE IS INCLUSIVE OF ALL DESIGN PHASES. COORDINATE WITH E2 SERIES PLANS AND E7 SERIES MECHANICAL EQUIPMENT SCHEDULE FOR CONSTRUCTION PHASING. SEE MECHANICAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS AND INFORMATION.
3. COORDINATE WITH E0 SERIES SHEET NOTES TO PROVIDE UPDATED PANELBOARD/MOTOR CONTROL CENTER SCHEDULES.

5 NEW WORK - MOTOR CONTROL CENTER - MCCA ELEVATION
SCALE: NOT TO SCALE



PARKING LEVEL - VAULT A

6 PARTIAL ELECTRICAL ONE LINE DIAGRAM - PHASE 1
SCALE: NOT TO SCALE

COORDINATE ALL FINAL LOCATIONS, LOADS, AND CONNECTION REQUIREMENTS WITH MECHANICAL DRAWINGS AND FINAL EQUIPMENT SELECTION.

CONTRACTOR TO VERIFY THAT LUGS ON ALL MECHANICAL AND ELECTRICAL EQUIPMENT CAN ACCEPT THE WIRE SIZES INDICATED ON SCHEDULE AND PLANS.

CONTRACTOR TO VERIFY WIRE SIZES WITH FINAL EQUIPMENT LOCATIONS TO ACCOUNT FOR VOLTAGE DROP ON ALL MECHANICAL EQUIPMENT.

FOR ALL MECHANICAL EQUIPMENT, PROVIDE ADDITIONAL 120V CONNECTIONS AS REQUIRED BY MANUFACTURER.

COORDINATE ALL MECHANICAL DISCONNECT, VFD, STARTER AND CONTROLLER REQUIREMENTS WITH MANUFACTURER.



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[illegible]

A circular professional engineer seal for Robert A. Pfaff, District of Columbia. The seal contains the text "DISTRICT OF COLUMBIA" at the top, "ROBERT A. PFAFF" in the center, "No. PE906485" below the name, and "ELECTRICAL ENGINEER" at the bottom. There are two stars on the left and right sides of the seal.

E7.0

SHEET NUMBER

GENERAL NOTES:
COORDINATE WITH EXISTING BAS CONTROLLED GENERATOR LOAD SHED AND LOAD ADD PRIORITIES TO ADD NEW PUMPS TO LOAD SHED/ADD PRIORITY AS APPLICABLE. ASSOCIATE NEW PUMPS WITH PRIORITY TO MATCH EXISTING TO BE DEMOLISHED LOAD SHED/ADD PRIORITIES WHERE AN EXISTING PRIORITY IS ASSIGNED.
KEYED NOTES:
*PHASING INDICATED ON SCHEDULE ONLY REFLECTS NEW WORK. REFERENCE ED2 SERIES FOR PHASING FOR DEMOLITION WORK.

Plot Date:

USE DRAWING E-10 FOR ABBREVIATIONS, SYMBOLS, GENERAL NOTES AND DEVICE MOUNTING HEIGHT OF WALL MOUNTED DEVICES.

USE DRAWING SERIES E-9 FOR POWER RINGER DIAGRAM. PROVIDE A MINIMUM OF 20% SPARE CIRCUIT BREAKERS ON EACH PANEL.

CONTRACTOR TO VERIFY EXISTING AVAILABLE CIRCUITS. COORDINATE LOCATION OF AVAILABLE CIRCUITS WITH THOSE SHOWN ON DRAWING. PROVIDE 10% SPARE CIRCUIT BREAKERS. REUSE EXISTING CIRCUIT BREAKERS WHEN APPLICABLE. PROVIDE NEW BREAKERS IN EXISTING SPACES. COORDINATE NEW BREAKERS WITH EXISTING PANELS.

CONTRACTOR TO METER AND VERIFY EXISTING PANEL LOADS AND AVAILABLE PANEL CAPACITY PRIOR TO ADDING CIRCUITS. PROVIDE 10% SPARE CIRCUIT BREAKERS. PROVIDE 10% SPARE SCHEDULES AFTER ALL WORK IS COMPLETE. SCHEDULES AND NAMESPACES MUST MATCH PANEL INFORMATION. CIRCUIT BREAKER SCHEDULES MUST BE USED FOR ALL SYSTEMS FURNITURE CONNECTIONS PER NEC.

CONTRACTOR TO PROVIDE 3 PHASE CIRCUIT FOR ALL NEW SURGE PROTECTION DEVICES. COORDINATE FINAL CIRCUIT BREAKER SIZE WITH DEVICE.

CONTRACTOR TO BE BALANCED AMONG PANELS. EQUIPMENT TAGS WITH "E" NOTATION INDICATE EXISTING TO REMAIN EQUIPMENT. EQUIPMENT TAGS WITH "R" NOTATION INDICATE REMOVE EQUIPMENT. EQUIPMENT TAGS WITH "B" OR "C" NOTATION INDICATE NEW EQUIPMENT. EQUIPMENT TAGS WITH "B" OR "C" NOTATION INDICATE NEW CIRCUITS AND CIRCUIT BREAKERS ON EXISTING PANELS. WHERE NEW PANELS ARE REQUIRED, EQUIPMENT TAGS WITH "B" OR "C" NOTATION INDICATE NEW CIRCUITS AND CIRCUIT BREAKERS ON NEW PANELS.



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SEALS AND SIGNATURES



SHEET TITLE

PANELBOARD SCHEDULES

PROJECT NUMBER

12513.000

E7.1

SHEET NUMBER

Location: ELEC RM A -FVAULT A
Supply From: (E)SLA2B
Mounting: Surface
Enclosure: Type 1

Volts: 208Y/120
Phases: 3
Wires: 4

A.I.C. Rating: EXISTING
Mains Type: MCB
Mains Rating: 225 A
MCB Rating: 225 A

CKT	Circuit Description	Trip	Poles	A (VA)	B (VA)	C (VA)	Poles	Circuit Description	CKT
1	(E)RECEPTACLE	20 A	1	900	0		1	(E)SPARE	2
2	(E)RECEPTACLE	20 A	1		540	500	1	(E)MECH CONTROLS (EMS) SUBSTATION B	4
3	(E)RECEPTACLE	20 A	1			360 720	1	(E)RECEPTACLE	6
4	(E)RECEPTACLE	20 A	1	500 180			1	(E)RECEPTACLE	8
5	(E)MECH. CONTROLS (EMS) SUBSTATION A	30 A	1		1587 667		1	(E)CHEMICAL PUMPEI/H, MECH. EUH	10
6	P-A 100-MECH RM, MECH EQ, CDP-1a	20 A	1			800 1127	1	(E)EUMP PUMP, STEM MONITOR	12
7	(E)P/PCO REVENUE METERING	20 A	1	0	0		1	(E)SPARE	14
8	(E)SPARE**	20 A	1				1	(E)SPARE	16
9	(E)CIRCULATING PUMP	20 A	1		1127 1500		1	(E)MV SWITCHGEAR BATTERY	18
10	P-A 100-MECH RM, MECH EQ, CDP-3a	15 A	1			828 403	1	(E)FAN NEXT TO STAIR #4	16
11	P-A 100-MECH RM, MECH EQ, CDP-3b	15 A	1	828 3910					20
12	(E)RECEPTACLE	20 A	1		1080 3910		3	(E)EXISTING LOADS	22
13	(E)RECEPTACLE	20 A	1			360 3910			24
14	(E)EXHAUST FAN GX-3	20 A	2	1840 6440			3	(E)PANEL LL1 S1	26
15	P-A 100-MECH RM, MECH EQ, CDP-1b	30 A	1		1840 6440				28
16	P-A 100-MECH RM, MECH EQ, CDP-2a	30 A	1	1587 828		1587 6440			30
17	P-A 100-MECH RM, MECH EQ, CDP-2b	30 A	1		1587 828		3	(E)EXISTING LOADS	32
18	P-A 100-MECH RM, MECH EQ, FCU-1	20 A	2	250 0		250 828			34
19	P-A 100-MECH RM, MECH EQ, HEAT TRACE**	20 A	2		1500 0		3	(E)SPARE	36
20									40
21									42
Total Load:				17263 VA	23106 VA	1500 0			

[illegible]

Notes:
 *SPARE CIRCUIT BREAKER IS FROM EXISTING CIRCUIT BREAKERS OF DEMOLISHED EQUIPMENT.
 **PROVIDE NEW GFPE CIRCUIT BREAKER PER NEC 427.22 FOR ALL HEAT TRACE CIRCUITS.

Location: MECHANICAL RM P-A 100
Supply From: (E)DLBB
Mounting: Surface
Enclosure: Type 1

Volts: 208Y/120
Phases: 3
Wires: 4

A.I.C. Rating: EXISTING
Mains Type: MLO
Bus Rating: 100 A

CKT	Circuit Description	Trip	Poles	A (VA)	B (VA)	C (VA)	Poles	Trip	Circuit Description	CKT
1	(E)RECEPTACLE	20 A	1	540	900			1	20 A (E)ELEV #12	2
3	(E)RECEPTACLE	20 A	1		1080	720		1	20 A (E)RECEPTACLE	4
5	(E)RECEPTACLE	20 A	1			360	180	1	20 A (E)ELEV. PIT ST. #38	6
7	(E)CHILLER #1	20 A	1	750	180			1	20 A (E)ELEV. PIT ST. #38	8
9	(E)CHILLER #2	20 A	1		750	500		1	20 A (E)CONTROL CHILLER	10
11	(E)SMOKE ZONE CONT.	20 A	1			500	828	1	20 A (E)FHH-11 ST. #8	12
13	SPACE	--	--	0	0			1	20 A (E)SPARE	14
15	SPACE	--	--		0	1127		1	20 A (E)ELEVATOR	16
17	(E)UNIT HEATER #7, 8, 9	20 A	1			800	667	1	20 A (E)AIR DRYER	18
19	(E)HOT WATER CIRC. PUMP	20 A	1	1127	0			1	20 A (E)SPARE	20
21	(E)SPARE	20 A	1		0	0		1	20 A (E)SPARE	22
23	(E)WATER HEATER	20 A	1			800	0	1	20 A (E)SPARE	24
25	(E)CIRCULATING PUMP	20 A	1	667	1587			2	30 A (E)WATER TREATMENT	26
27	(E)ELEV #12	20 A	1		900	1587				28
29	P-A 100-MECH RM, MECH EQ, CDP-4a	15 A	1			828	828	1	15 A P-A 100-MECH RM, MECH EQ, CDP-4b	30
Total Load:				5751 VA	6664 VA	5791 VA				
Total Amps:				48 A	56 A	48 A				

[illegible]

Notes:
*SPARE CIRCUIT BREAKER IS FROM EXISTING CIRCUIT BREAKERS OF DEMOLISHED EQUIPMENT.

Location: MECHANICAL RM P-A 100
Supply From: (E)SUBSTATION 1A
Mounting: Surface
Enclosure: Type 1

Volts: 480Y/277
Phases: 3
Wires: 4

A.I.C. Rating: 100,000A
Mains Type: MCB
Mains Rating: 800 A
MCB Rating: 800 A

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load	Remarks
1	CWP-5	3	600 A	450 A	143460 VA	
2	SCWP-7	3	400 A	350 A	124332 VA	
3	HHWP-5	3	225 A	175 A	61369 VA	
4	HHWP-8	3	100 A	50 A	16737 VA	
5	PCWP-1	3	100 A	100 A	31880 VA	
6	PCWP-1A	3	100 A	100 A	31880 VA	
7	SPACE	3	100 A	--	0 VA	--
8	SPACE	3	100 A	--	0 VA	--
9	SPACE	3	100 A	--	0 VA	--
10	SPACE	3	100 A	--	0 VA	--
11	SPACE	3	100 A	--	0 VA	--
12	SPACE	3	100 A	--	0 VA	--
Total Conn. Load:					409658 VA	
Total Amps:					493 A	

[illegible]

Notes:

1. COORDINATE PANELBOARD DIMENSIONS WITH SPACE AND LOCATIONS REQUIREMENTS INDICATED IN E5 SERIES DETAILS. COORDINATE WITH EXISTING CONDITIONS TO PROVIDE NE REQUIRED WORKING AND DEDICATED SPACE CLEARANCES.
2. PROVIDE 100% RATED MAIN CIRCUIT BREAKER.

Location: ELEC RM A - VAULT A
Supply From: (E)UTILITY TRANSFORMER
Mounting: EXISTING
Enclosure: EXISTING

Volts: 480Y/277
Phases: 3
Wires: 4

A.I.C. Rating: 100,000 A
Mains Type: MCB
Mains Rating: 3200 A
MCB Rating: 3200 A

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load	Remarks
1	SPACE	--	--	--	0 VA	
2	(E)MAIN 1A	3	3200 A	3200 A	0 VA	
3	SPACE	--	--	--	0 VA	
4	(E)GEN 1"	3	2000 A	2000 A	0 VA	
5	(E)SPARE	3	1600 A	800 A	0 VA	
6	DP-A-1	3	1600 A	800 A	409658 VA	
7	(E)RISR "B" XFMR	3	1600 A	800 A	1107690 VA	
8	(E)CHILLER 2	3	1600 A	1600 A	562680 VA	
9	(E)SWBD SHA2B	3	1600 A	1600 A	1083999 VA	
10	(E)SPARE	3	1600 A	0 A	0 VA	
11	SPACE	--	--	--	0 VA	
12	(E)TIE	3	3200 A	3200 A	0 VA	
13	SPACE	--	--	--	0 VA	
Total Conn. Load:					3164027 VA	
Total Amps:					3806 A	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Power	0 VA	0.00%	0 VA	
Receptacle	2191689 VA	50.23%	1100845 VA	Total Conn. Load: 3164027 VA
Mechanical Equipment	972338 VA	80.00%	777870 VA	Total Est. Demand: 1878715 VA
				Total Conn.: 3806 A
				Total Est. Demand: 2260 A

Notes:									
LOADS ARE ESTIMATED; CONTRACTOR TO CONFIRM ACTUAL LOADS. WHEN THE TIE IS CLOSED, THE LOADS SHOULD NOT EXCEED MAIN CIRCUIT BREAKER DURING NORMAL OPERATION OR GENERATOR CIRCUIT BREAKER DURING EMERGENCY OPERATION.									
*CONTRACTOR TO UPDATE SEQUENCE OF OPERATION TO ENSURE LOADS DO NOT EXCEED THE BREAKER AND GENERATOR CAPACITY. REFERENCE ELECTRICAL COMMISSIONING SPECIFICATION FOR GENERATOR TESTING INFORMATION.									

Location: ELEC RM A - VAULT A
Supply From: (E)UTILITY TRANSFORMER
Mounting: EXISTING
Enclosure: EXISTING

Volts: 480Y/277
Phases: 3
Wires: 4

A.I.C. Rating: 100,000 A
Mains Type: MCB
Mains Rating: 3200 A
MCB Rating: 3200 A

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load	Remarks
1	(E)LCD SCREEN	--	--	--	0 VA	--
2	SPACE	--	--	--	0 VA	--
3	SPACE	--	--	--	0 VA	--
4	SPACE	--	--	--	0 VA	--
5	SPACE	--	--	--	0 VA	--
6	(E)SWBD SHA1A	3	1600 A	1600 A	1013001 VA	--
7	(E)MCC-PH	3	1600 A	800 A	498240 VA	--
8	SPACE	--	--	--	0 VA	--
9	SPACE	--	--	--	0 VA	--
10	(E)SPARE	3	1600 A	0 A	0 VA	--
11	(E)EDPS	3	1600 A	800 A	157080 VA	--
12	(E)RISER "A" XFMR	3	1600 A	800 A	576923 VA	--
13	(E)SPD	--	--	--	0 VA	--
14	(E)MAIN 1B	3	3200 A	3200 A	0 VA	--
15	SPACE	--	--	--	0 VA	--

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Equipment	157090 VA	100.00%	157090 VA		
Power	0 VA	0.00%	0 VA	Total Conn. Load:	2245254 VA
Receptacle	1589924 VA	50.31%	799962 VA	Total Est. Demand:	1355644 VA
Mechanical Equipment	498240 VA	80.00%	398592 VA	Total Conn.:	2701 A
				Total Est. Demand:	1631 A

Notes:
LOADS ARE ESTIMATED; CONTRACTOR TO CONFIRM ACTUAL LOADS. WHEN THE TIE IS CLOSED, THE LOADS SHOULD NOT EXCEED MAIN CIRCUIT BREAKER DURING NORMAL OPERATION OR GENERATOR CIRCUIT BREAKER DURING EMERGENCY OPERATION.

PANELBOARD SCHEDULE OF ALL PHASES OF (E)MCCA DEMOLITION WORK

Motor Control Center : (E)MCCA

Location: MECHANICAL RM P-A 100
Supply From: (E)SUBSTATION 2B
Mounting: PAD MOUNTED
Enclosure: EXISTING

Volts: 480Y/277
Phases: 3
Wires: 4

A.I.C. Rating: EXISTING
Mains Type: MCB
Mains Rating: 1200 A
MCB Rating: 1200 A

SECTION 1

Section Bus Rating: 1200 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	NEMA Starter Size	Motor Circuit Protector Rating	Load	Remarks
1	(E)MAIN BUS	3	3' - 0"	NIS*	1200 A	0 VA	
2	(E)AHU-12	3	1' - 6"	NIS*	225 A	41445 VA	
3	(E)AHU-11	3	1' - 0"	NIS*	100 A	27059 VA	
4	--	--	--	--	--	0 VA	--
Total Conn. Load:						68544 VA	
Total Conn. Amps:						82 A	

SECTION 2

Section Bus Rating: 600 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	NEMA Starter Size	Motor Circuit Protector Rating	Load	Remarks
1	(D)CWP-3	3	3' - 0"	5	250 A	124332 VA	
2	(D)CWP-4	3	3' - 0"	--	250 A	124332 VA	
3	--	--	--	--	--	0 VA	--
4	--	--	--	--	--	0 VA	--
Total Conn. Load:						248664 VA	
Total Conn. Amps:						299 A	

SECTION 3

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	NEMA Starter Size	Motor Circuit Protector Rating	Load	Remarks
1	(D)CWP-5	3	3' - 0"	5	250 A	124332 VA	
2	(D)HWP-5	3	1' - 6"	3	100 A	31881 VA	
3	(D)HWP-6	3	1' - 6"	3	100 A	31881 VA	
4	--	--	--	--	--	0 VA	--
Total Conn. Load:						188094 VA	
Total Conn. Amps:						226 A	

SECTION 4

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	NEMA Starter Size	Motor Circuit Protector Rating	Load	Remarks
1	SPACE	--	1' - 0"	--	--	0 VA	--
2	(D)PCWP-1	3	1' - 0"	1	30 A	11157 VA	
3	(D)PCWP-2	3	1' - 0"	1	30 A	11157 VA	
4	SPACE	--	1' - 0"	--	--	0 VA	--
5	SPACE	--	1' - 0"	--	--	0 VA	--
6	SPACE	--	1' - 0"	--	--	0 VA	--
Total Conn. Load:						22314 VA	
Total Conn. Amps:						27 A	

SECTION 5

Section Bus Rating: 600 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	NEMA Starter Size	Motor Circuit Protector Rating	Load	Remarks
1	(D)CWP-8	3	1' - 0"	1	30 A	11157 VA	
2	(E)AIR COMP/BOOSTER PUMP	3	1' - 0"	NIS*	70 A	6057 VA	
3	SPACE	--	1' - 0"	--	--	0 VA	--
4	(D)CWP-7	3	1' - 0"	LOCAL VFD	150 A	98829 VA	
5	(D)CWP-6	3	1' - 0"	LOCAL VFD	150 A	98829 VA	
6	(E)P-16/DOOR MOTOR	3	1' - 0"	NIS*	30 A	3825 VA	
Total Conn. Load:						218697 VA	
Total Conn. Amps:						263 A	

SECTION 6

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	NEMA Starter Size	Motor Circuit Protector Rating	Load	Remarks
1	(D)P-7 NORTH	3	1' - 0"	1	15 A	8766 VA	
2	(D)P-8 SOUTH	3	1' - 0"	1	15 A	6057 VA	
3	(E)R-12	3	1' - 0"	NIS*	30 A	8766 VA	
4	(E)GX-14	3	1' - 0"	NIS*	20 A	2709 VA	
5	(E)SE-1	3	1' - 0"	NIS*	20 A	3825 VA	
6	(E)HVU-4	3	1' - 0"	NIS*	20 A	2709 VA	
Total Conn. Load:						32832 VA	
Total Conn. Amps:						39 A	

SECTION 7

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	NEMA Starter Size	Motor Circuit Protector Rating	Load	Remarks
1	(E)R-11	3	1' - 0"	NIS*	30 A	8766 VA	
2	(E)GX-11	3	1' - 0"	NIS*	7 A	2391 VA	
3	(E)GX-12	3	1' - 0"	NIS*	7 A	1674 VA	
4	(E)GX-17	3	1' - 0"	NIS*	20 A	2391 VA	
5	(E)GX-18	3	1' - 0"	NIS*	20 A	1674 VA	
6	(E)GX-28	3	1' - 0"	NIS*	20 A	2391 VA	
Total Conn. Load:						19287 VA	
Total Conn. Amps:						23 A	

SECTION 8

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	NEMA Starter Size	Motor Circuit Protector Rating	Load	Remarks
1	(E)EXHAUST FAN	3	1' - 0"	NIS*	20 A	6057 VA	
2	(E)P-1	3	1' - 0"	NIS*	20 A	6057 VA	
3	(E)P-2	3	1' - 0"	NIS*	20 A	6057 VA	
4	(E)P-27	3	1' - 0"	NIS*	20 A	6057 VA	
5	(E)TRIPLEX BOOST 2	3	1' - 0"	NIS*	20 A	6057 VA	
6	(E)TRIPLEX BOOST 1	3	1' - 0"	NIS*	20 A	6057 VA	
Total Conn. Load:						36342 VA	
Total Conn. Amps:						44 A	

Total MCC Conn. Load: 834774 VA

Total MCC Conn. Amps: 1004 A

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Mechanical Equipment	834774 VA	80.00%	667819 VA	
				Total Conn. Load: 834774 VA
				Total Est. Demand: 667819 VA
				Total Conn.: 1004 A
				Total Est. Demand: 803 A

Notes:

1. PANELBOARD/MOTOR CONTROL CENTER SCHEDULE IS INCLUSIVE OF ALL DEMOLITION WORK IN ALL DESIGN PHASES. COORDINATE WITH E2 SERIES PLANS AND E7 SERIES MECHANICAL EQUIPMENT SCHEDULE FOR CONSTRUCTION PHASING. SEE MECHANICAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS AND INFORMATION. COORDINATE WITH ED SERIES SHEET NOTES TO PROVIDE UPDATED PANELBOARD/MOTOR CONTROL CENTER SCHEDULES.
2. UNIT HEIGHT IS INDICATED FOR REFERENCE ONLY. PROVIDE UNIT DIMENSIONS PER MANUFACTURER RECOMMENDATION.
3. NEMA STARTER SIZE ARE EXISTING, NOT IN SCOPE, AND NOT OBSERVED ON SURVEY.

PANELBOARD SCHEDULE OF ALL PHASES OF (E)MCCA'S NEW WORK

Motor Control Center : (E)MCCA

Location: MECHANICAL RM P-A 100
Supply From: (E)SUBSTATION 2B
Mounting: PAD MOUNTED
Enclosure: EXISTING

Volts: 480Y/277
Phases: 3
Wires: 4

A.I.C. Rating: EXISTING
Mains Type: MCB
Mains Rating: 1200 A
MCB Rating: 1200 A

SECTION 1

Section Bus Rating: 1200 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	Frame Size	Trip Rating	Load	Remarks
1	(E)MAIN BUS	3	3' - 6"	1200 A	1200 A	0 VA	
2	(E)AHU-12	3	1' - 6"	225 A	100 A	41445 VA	
3	(E)AHU-11	3	1' - 0"	100 A	70 A	27059 VA	
4	--	--	--	--	--	0 VA	--
Total Conn. Load:						68544 VA	
Total Conn. Amps:						82 A	

SECTION 2

Section Bus Rating: 600 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	Frame Size	Trip Rating	Load	Remarks
1	CWP-3	3	3' - 0"	600 A	450 A	143460 VA	
2	CWP-4	3	3' - 0"	600 A	450 A	143460 VA	
3	--	--	--	--	--	0 VA	--
4	--	--	--	--	--	0 VA	--
Total Conn. Load:						286920 VA	
Total Conn. Amps:						345 A	

SECTION 3

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	Frame Size	Trip Rating	Load	Remarks
1	(E)SPARE*	3	3' - 0"	250 A	30 A	0 VA	
2	(E)SPARE*	3	1' - 6"	--	100 A	0 VA	
3	HHWP-6	3	1' - 6"	225 A	175 A	61369 VA	
4	--	--	--	--	--	0 VA	--
Total Conn. Load:						61369 VA	
Total Conn. Amps:						74 A	

SECTION 4

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	Frame Size	Trip Rating	Load	Remarks
1	CWF-1	3	1' - 0"	100 A	50 A	16737 VA	
2	(E)SPARE*	3	1' - 0"	--	30 A	0 VA	
3	PCWP-2	3	1' - 0"	150 A	100 A	31880 VA	
4	HHWP-7	3	1' - 0"	100 A	50 A	16737 VA	
5	SPACE	--	1' - 0"	--	--	0 VA	--
6	SPACE	--	1' - 0"	--	--	0 VA	--
Total Conn. Load:						65354 VA	
Total Conn. Amps:						79 A	

SECTION 5

Section Bus Rating: 600 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	Frame Size	Trip Rating	Load	Remarks
1	(E)SPARE*	3	1' - 0"	--	30 A	0 VA	
2	(E)AIR COMP/ BOOSTER PUMP	3	1' - 0"	100 A	70 A	6057 VA	
3	--	--	--	--	--	0 VA	--
4	SCWP-6	3	3' - 0"	400 A	350 A	124332 VA	
5	--	--	--	--	--	0 VA	--
6	(E)P-16/DOOR MOTOR	3	1' - 0"	100 A	30 A	3825 VA	
Total Conn. Load:						134214 VA	
Total Conn. Amps:						161 A	

SECTION 6

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	Frame Size	Trip Rating	Load	Remarks
1	(E)SPARE*	3	1' - 0"	15 A	15 A	0 VA	
2	(E)SPARE*	3	1' - 0"	--	15 A	0 VA	
3	(E)R-12	3	1' - 0"	100 A	30 A	8766 VA	
4	(E)GX-14	3	1' - 0"	100 A	20 A	2709 VA	
5	(E)SE-1	3	1' - 0"	100 A	20 A	3825 VA	
6	(E)HVU-4	3	1' - 0"	100 A	20 A	2709 VA	
Total Conn. Load:						19009 VA	
Total Conn. Amps:						22 A	

SECTION 7

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	Frame Size	Trip Rating	Load	Remarks
1	(E)R-11	3	1' - 0"	100 A	30 A	8766 VA	
2	(E)GX-11	3	1' - 0"	100 A	7 A	2391 VA	
3	(E)GX-12	3	1' - 0"	100 A	7 A	1674 VA	
4	(E)GX-17	3	1' - 0"	100 A	20 A	2391 VA	
5	(E)GX-18	3	1' - 0"	100 A	20 A	1674 VA	
6	(E)GX-28	3	1' - 0"	100 A	20 A	2391 VA	
Total Conn. Load:						19287 VA	
Total Conn. Amps:						23 A	

SECTION 8

Section Bus Rating: 300 A
Section Space Height: 6' - 0"

CKT	Circuit Description	# of Poles	Unit Height	Frame Size	Trip Rating	Load	Remarks
1	(E)EXHAUST FAN	3	1' - 0"	100 A	20 A	6057 VA	
2	(E)P-1	3	1' - 0"	100 A	20 A	6057 VA	
3	(E)P-2	3	1' - 0"	100 A	20 A	6057 VA	
4	(E)P-27	3	1' - 0"	100 A	20 A	6057 VA	
5	(E)TRIPLEX BOOST 2	3	1' - 0"	100 A	20 A	6057 VA	
6	(E)TRIPLEX BOOST 1	3	1' - 0"	100 A	20 A	6057 VA	
Total Conn. Load:						36342 VA	
Total Conn. Amps:						44 A	

Total MCC Conn. Load: 690039 VA

Total MCC Conn. Amps: 830 A

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Power	0 VA	0.00%	0 VA	
Mechanical Equipment	690039 VA	80.00%	552031 VA	
				Total Conn. Load: 690039 VA
				Total Est. Demand: 552031 VA
				Total Conn.: 830 A
				Total Est. Demand: 664 A

Notes:

1. PANELBOARD/MOTOR CONTROL CENTER SCHEDULE IS INCLUSIVE OF ALL DESIGN PHASES. COORDINATE WITH E2 SERIES PLANS AND E7 SERIES MECHANICAL EQUI