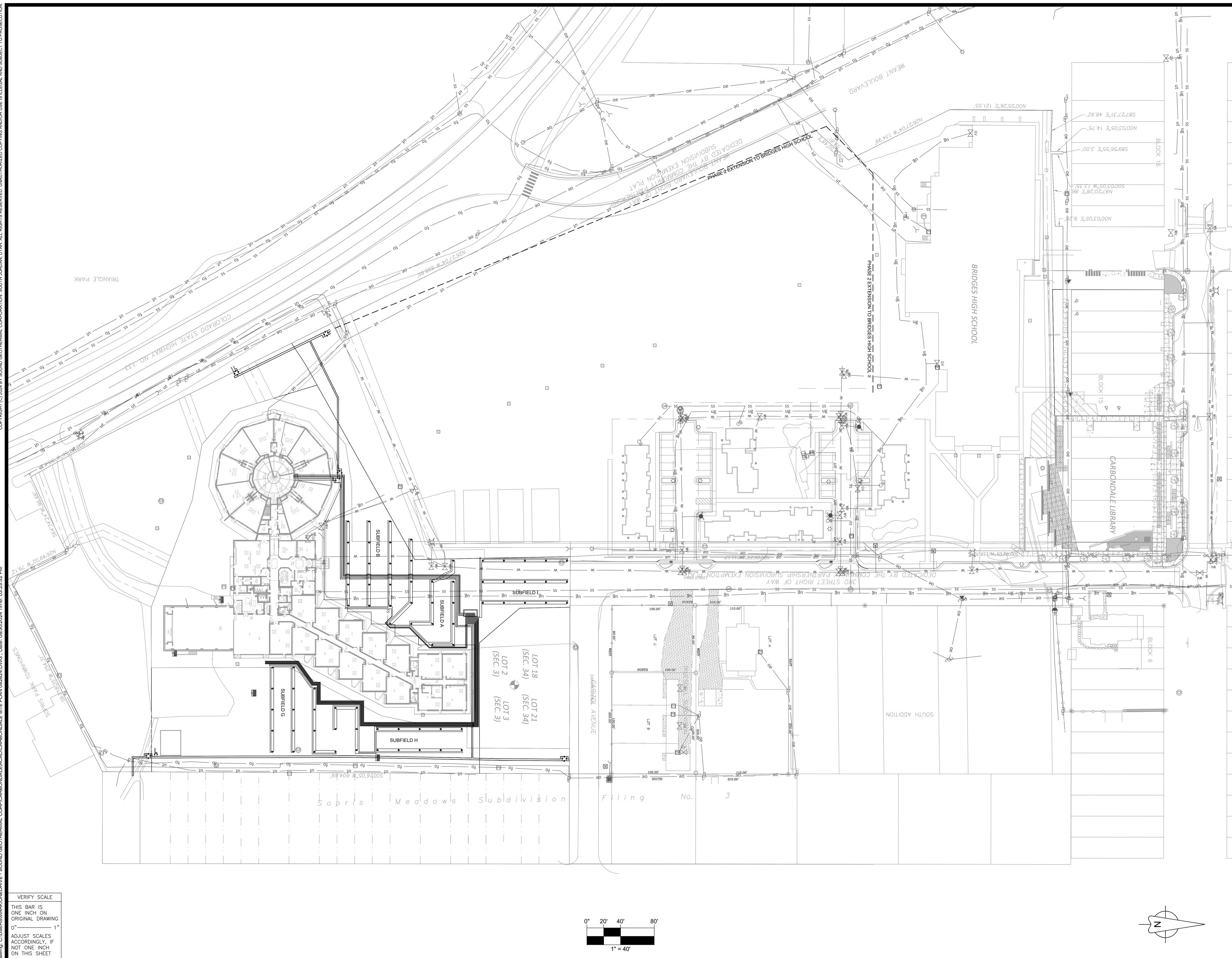
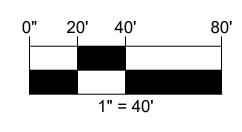
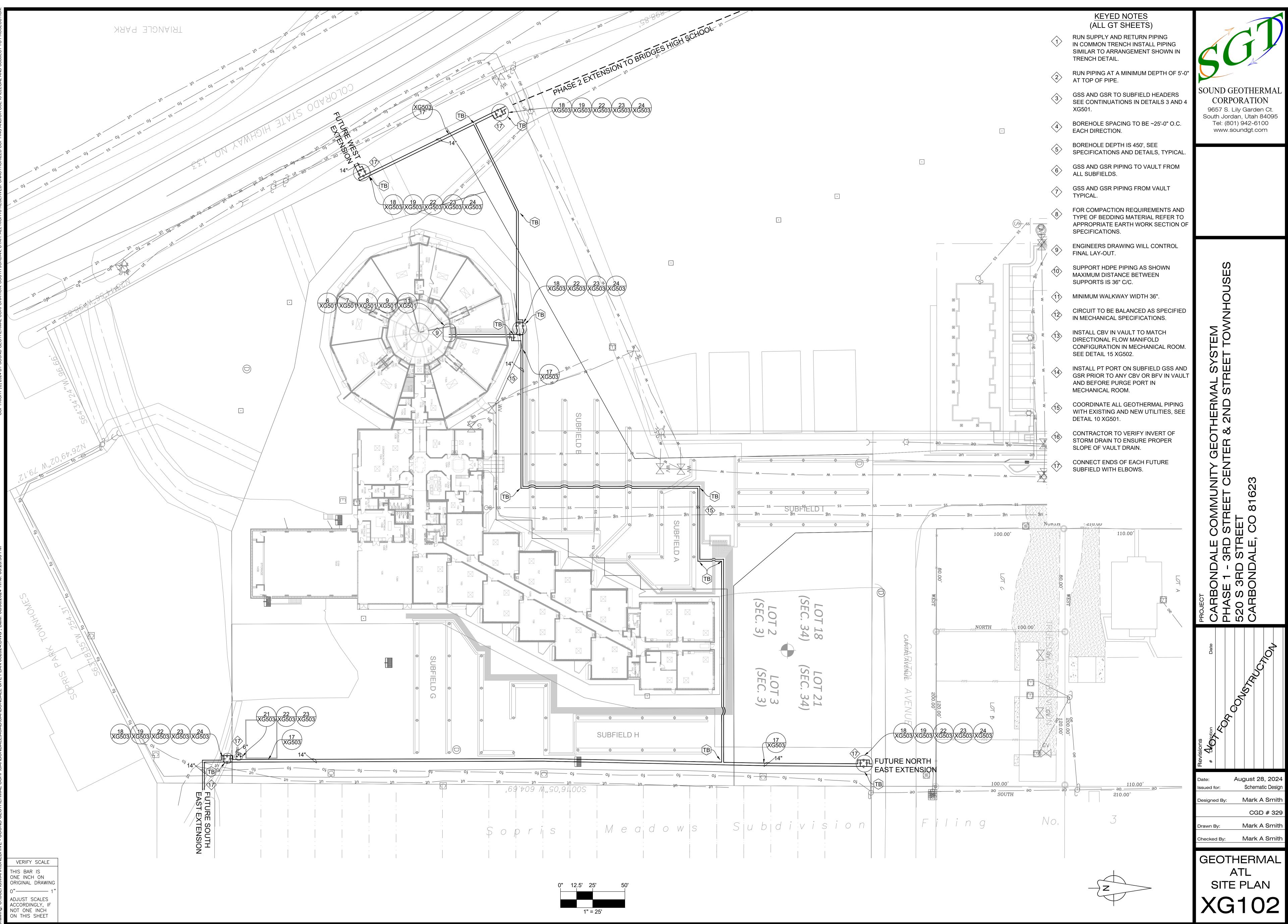
Appendix B: Detailed Design Plan

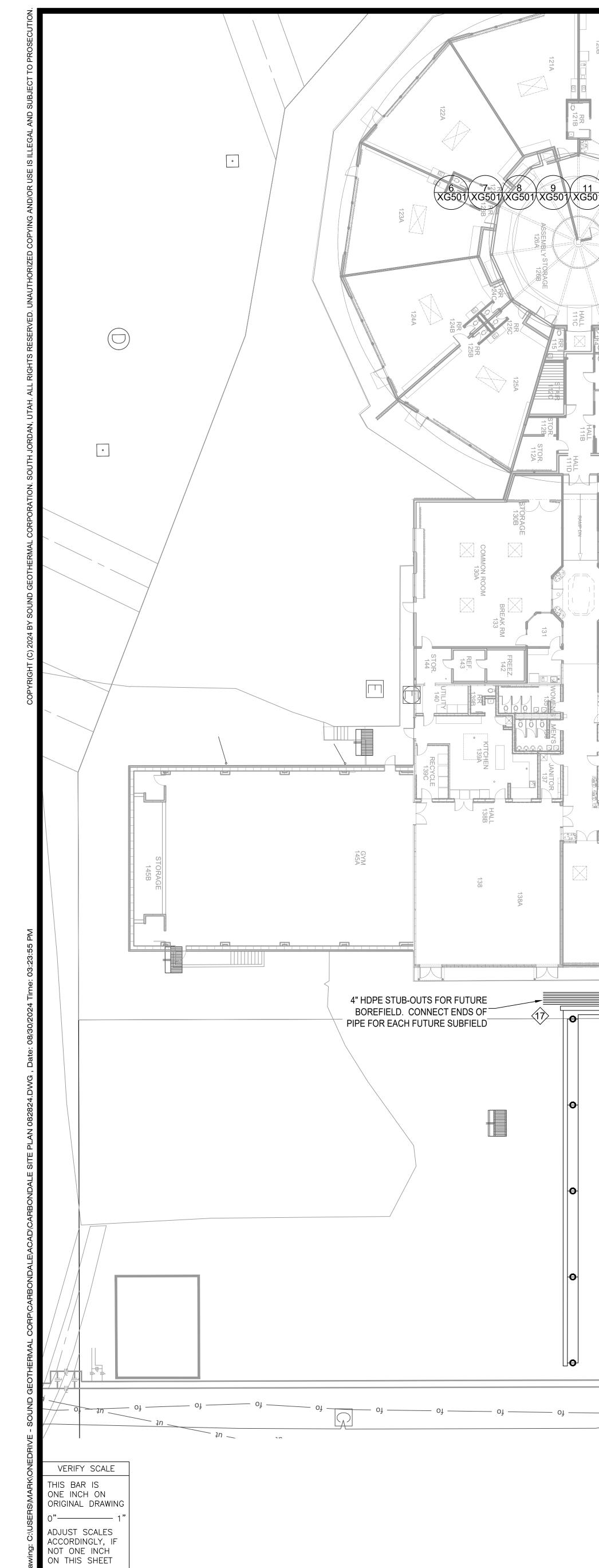
Detailed design for Ambient Temperature Loop, Geo-Borefield, & High Temperature Loop	Pages 2-9
Detailed Mechanical and Electrical Design for Third Street Center Retrofit and Central plant for ATL pumps, heat exchangers, boilers, and HTL heat pumps.	Pages 10–24











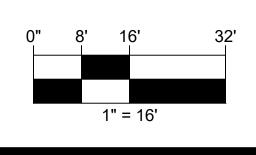
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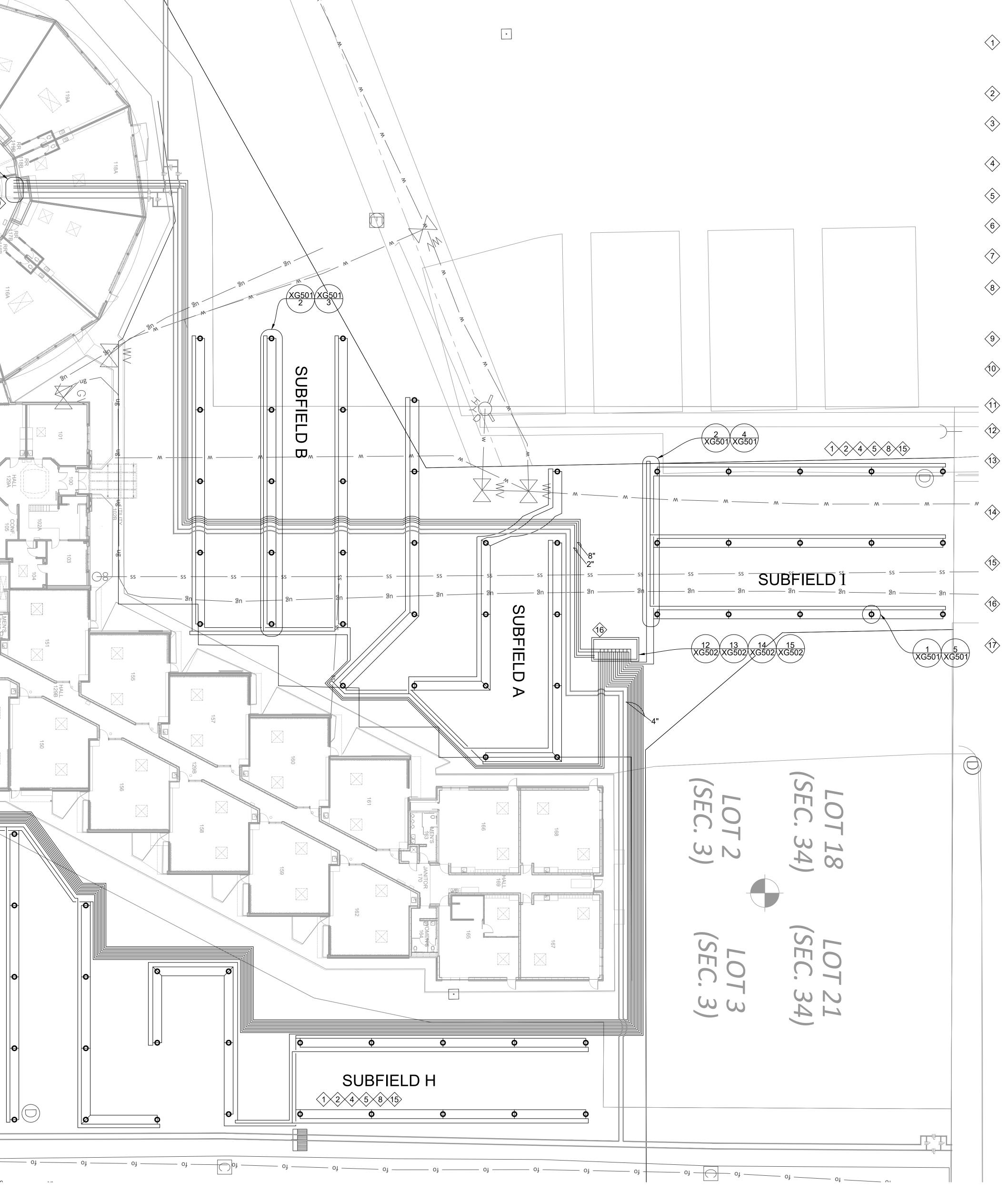
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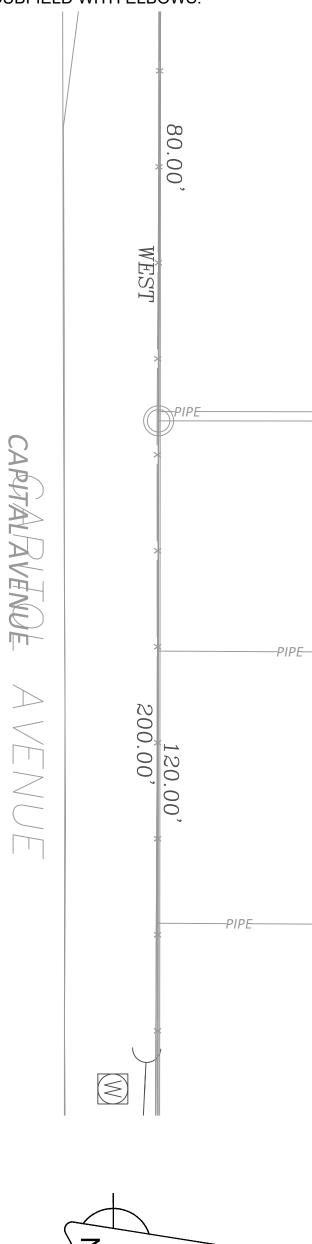
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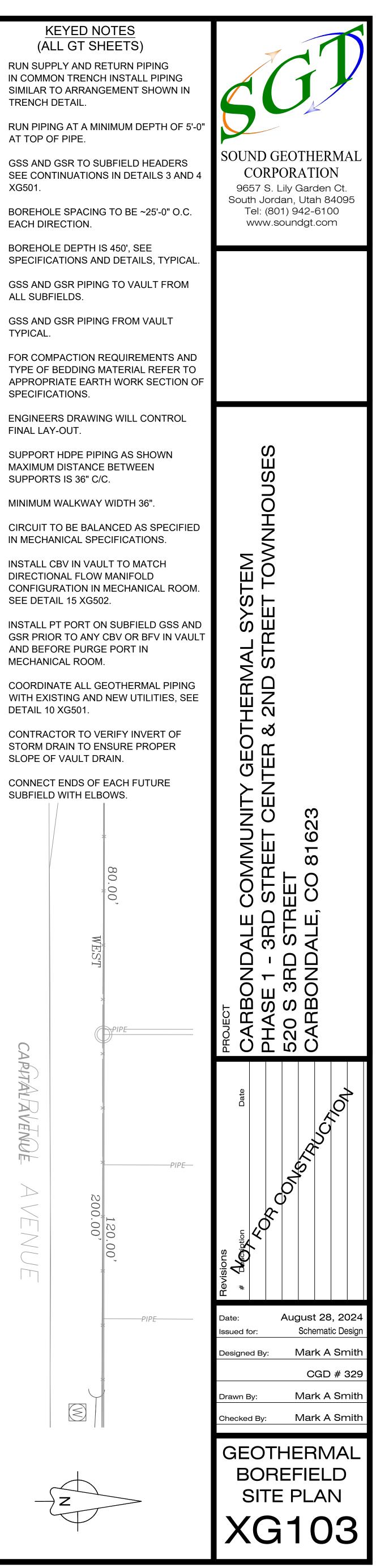


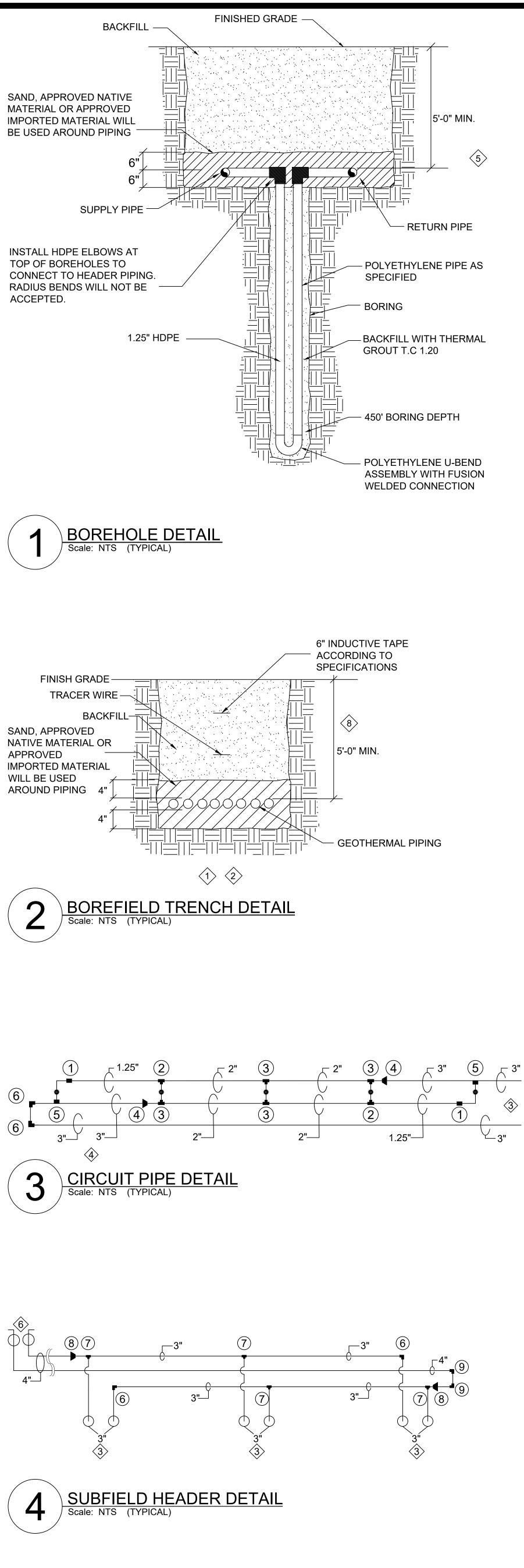


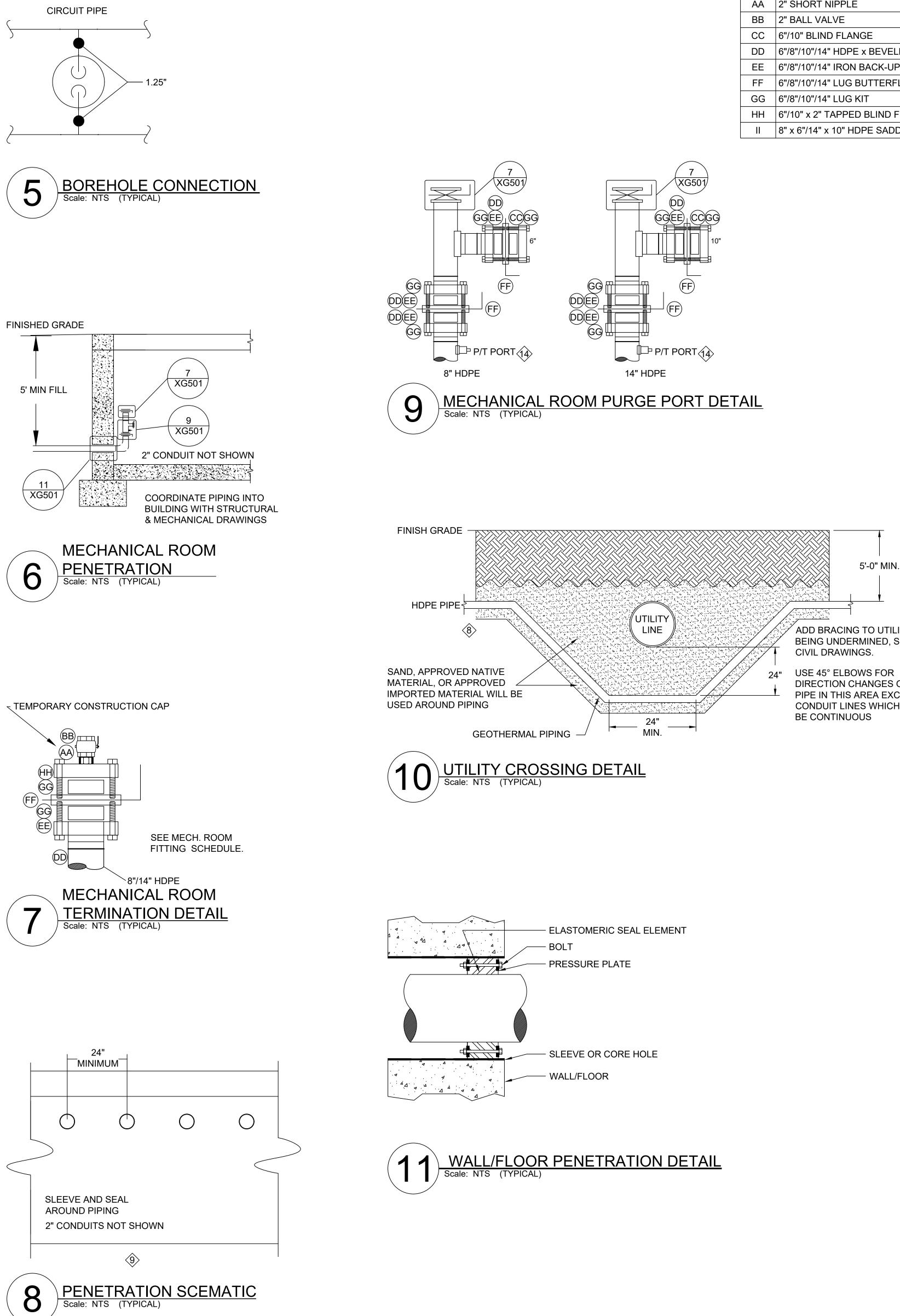
KEYED NOTES (ALL GT SHEETS) RUN SUPPLY AND RETURN PIPING IN COMMON TRENCH INSTALL PIPING

- TRENCH DETAIL. RUN PIPING AT A MINIMUM DEPTH OF 5'-0" AT TOP OF PIPE. GSS AND GSR TO SUBFIELD HEADERS SEE CONTINUATIONS IN DETAILS 3 AND 4 XG501. BOREHOLE SPACING TO BE ~25'-0" O.C. EACH DIRECTION. BOREHOLE DEPTH IS 450', SEE SPECIFICATIONS AND DETAILS, TYPICAL
- GSS AND GSR PIPING TO VAULT FROM ALL SUBFIELDS.
- GSS AND GSR PIPING FROM VAULT TYPICAL.
- FOR COMPACTION REQUIREMENTS AND TYPE OF BEDDING MATERIAL REFER TO APPROPRIATE EARTH WORK SECTION OF SPECIFICATIONS.
- ENGINEERS DRAWING WILL CONTROL FINAL LAY-OUT.
- SUPPORT HDPE PIPING AS SHOWN MAXIMUM DISTANCE BETWEEN SUPPORTS IS 36" C/C.
- MINIMUM WALKWAY WIDTH 36".
- CIRCUIT TO BE BALANCED AS SPECIFIED IN MECHANICAL SPECIFICATIONS.
- INSTALL CBV IN VAULT TO MATCH DIRECTIONAL FLOW MANIFOLD CONFIGURATION IN MECHANICAL ROOM. SEE DETAIL 15 XG502.
- INSTALL PT PORT ON SUBFIELD GSS AND GSR PRIOR TO ANY CBV OR BFV IN VAULT AND BEFORE PURGE PORT IN MECHANICAL ROOM.
- COORDINATE ALL GEOTHERMAL PIPING WITH EXISTING AND NEW UTILITIES, SEE DETAIL 10 XG501.
- CONTRACTOR TO VERIFY INVERT OF STORM DRAIN TO ENSURE PROPER SLOPE OF VAULT DRAIN.
- CONNECT ENDS OF EACH FUTURE SUBFIELD WITH ELBOWS.









MECH ROOM FITTING SCHEDULE

	SIZE
AA	2" SHORT NIPPLE
BB	2" BALL VALVE
CC	6"/10" BLIND FLANGE
DD	6"/8"/10"/14" HDPE x BEVELED FLANGE ADAPTOR
EE	6"/8"/10"/14" IRON BACK-UP RING
FF	6"/8"/10"/14" LUG BUTTERFLY VALVE
GG	6"/8"/10"/14" LUG KIT
HH	6"/10" x 2" TAPPED BLIND FLANGE
II	8" x 6"/14" x 10" HDPE SADDLE

ADD BRACING TO UTILITIES BEING UNDERMINED, SEE USE 45° ELBOWS FOR

PIPE IN THIS AREA EXCEPT CONDUIT LINES WHICH MUST

DIRECTION CHANGES ON ALL

KEYED NOTES (ALL GT SHEETS) RUN SUPPLY AND RETURN PIPING

- $\langle 1 \rangle$ IN COMMON TRENCH INSTALL PIPING SIMILAR TO ARRANGEMENT SHOWN IN TRENCH DETAIL. RUN PIPING AT A MINIMUM DEPTH OF 5'-0" $\langle 2 \rangle$ AT TOP OF PIPE. GSS AND GSR TO SUBFIELD HEADERS SEE CONTINUATIONS IN DETAILS 3 AND 4 XG501. BOREHOLE SPACING TO BE ~25'-0" O.C. $\langle 4 \rangle$ EACH DIRECTION. BOREHOLE DEPTH IS 450', SEE
- $\langle 5 \rangle$ SPECIFICATIONS AND DETAILS, TYPICAL
- GSS AND GSR PIPING TO VAULT FROM 6 ALL SUBFIELDS.
- GSS AND GSR PIPING FROM VAULT $\langle 7 \rangle$ TYPICAL.
- FOR COMPACTION REQUIREMENTS AND $\langle 8 \rangle$ TYPE OF BEDDING MATERIAL REFER TO APPROPRIATE EARTH WORK SECTION OF SPECIFICATIONS.
- ENGINEERS DRAWING WILL CONTROL $\langle 9 \rangle$ FINAL LAY-OUT.
- SUPPORT HDPE PIPING AS SHOWN $\langle 10 \rangle$ MAXIMUM DISTANCE BETWEEN SUPPORTS IS 36" C/C.
- MINIMUM WALKWAY WIDTH 36". (11)
- CIRCUIT TO BE BALANCED AS SPECIFIED (12) IN MECHANICAL SPECIFICATIONS.
- INSTALL CBV IN VAULT TO MATCH DIRECTIONAL FLOW MANIFOLD CONFIGURATION IN MECHANICAL ROOM SEE DETAIL 15 XG502.
- INSTALL PT PORT ON SUBFIELD GSS AND GSR PRIOR TO ANY CBV OR BFV IN VAULT AND BEFORE PURGE PORT IN MECHANICAL ROOM.
- COORDINATE ALL GEOTHERMAL PIPING WITH EXISTING AND NEW UTILITIES, SEE DETAIL 10 XG501.
- CONTRACTOR TO VERIFY INVERT OF STORM DRAIN TO ENSURE PROPER SLOPE OF VAULT DRAIN.
- CONNECT ENDS OF EACH FUTURE (17) SUBFIELD WITH ELBOWS.
 - GENERAL NOTES
- (ALL GT SHEETS) 1. BORE FIELD SUPPLY LINES ARE IDENTIFIED BY THE DIRECTIONAL CIRCUIT BALANCING VALVES.
- 2. DEPTH OF THE HORIZONTAL PIPING SHALL BE INCREASED AS NEEDED TO INSURE MINIMUM CODE SEPARATION FROM UTILITIES.

3. INDIVIDUAL BOREHOLES MAY BE MOVED +/- 4'-TO AVOID UTILITIES. RELOCATED BOREHOLES MUST BE SPECIFICALLY IDENTIFIED ON AS-BUILT DRAWINGS.

4. COORDINATE LOCATIONS AND ELEVATIONS WITH CIVIL PLANS.

5. ALL EXCAVATION SHALL COMPLY WITH OSHA **REGULATIONS.**

HDPE PIPE SCHEDULE

1.25" U-BEND x 910' SDR 11 1.25" HDPE SDR 11 2" HDPE SDR 11 3" HDPE SDR 17 4" HDPE SDR 17 6" HDPE SDR 17 8" HDPE SDR 17

14" HDPE SDR 17

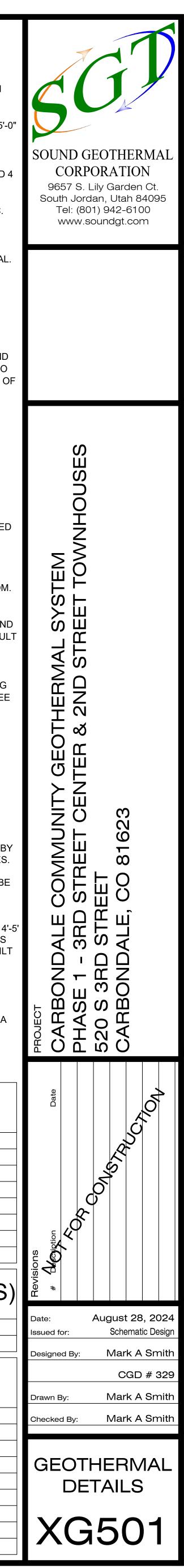
LABEL KEY (ALL GT SHEETS)

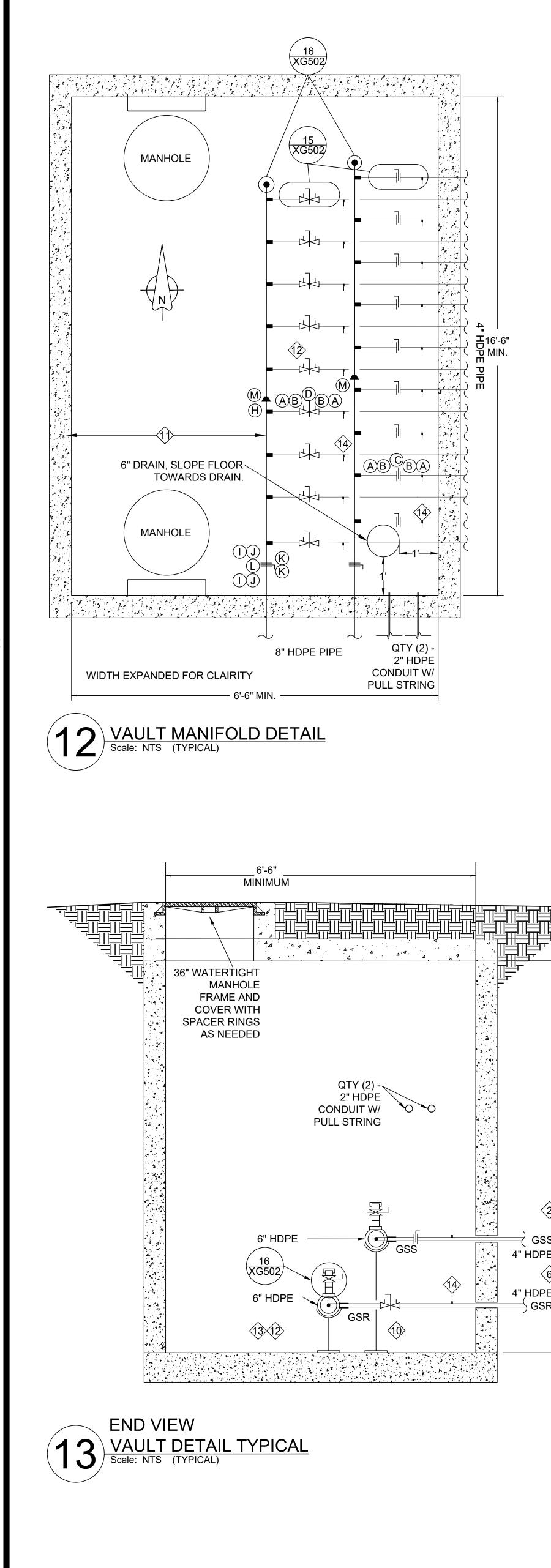
GSR GROUND SOURCE RETURN - TO BLDG GSS GROUND SOURCE SUPPLY - FROM BLDG

BOREFIELD FITTING SCHEDULE

	SIZE

	SIZE
1	1.25" HDPE COUPLING OR ELBOW
2	2" x 1.25" x 1.25" HDPE TEE
3	2" x 2" x 1.25" HDPE TEE
4	3" x 2" HDPE REDUCER
5	3" x 1.25" HDPE SADDLE
6	4" x 3" HDPE REDUCER
7	4" x 1.25" HDPE SADDLE
8	4" HDPE ELBOW





<u></u>16'-6

ΨMIN

6'-6"

 $\langle 2 \rangle$

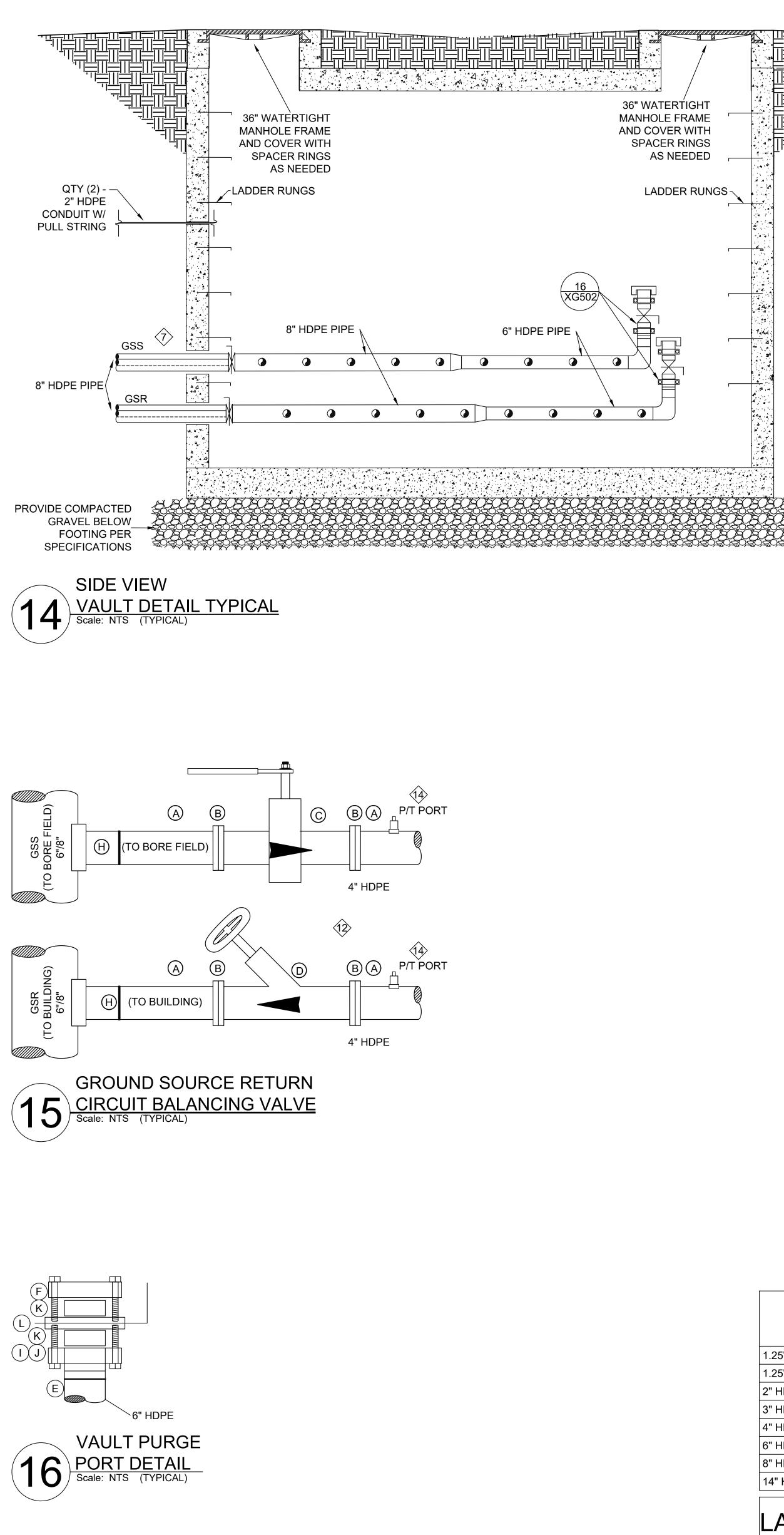
d GSS

4" HDPE PIPE

4" HDPE PIPE

 \rightrightarrows GSR

6



444 4 4.0

VAULT NOTES

-1' MIN

1. ALL CIRCUIT SUPPLY AND RETURN LINES SHALL BE CLEARLY LABELED WITH THE CIRCUIT NAME AND DIRECTION OF FLOW. LABELS SHALL BE PERMANENTLY APPLIED IN AN EASILY VISIBLE LOCATION.

2. ALL EXTERIOR SURFACES OF VAULT SHALL BE COVERED WITH A PAINT ON WATER PROOFING. WHERE DIFFERENT WATER PROOFING MATERIALS MEET THEY SHALL OVERLAP BY A MINIMUM OF 1"

3. VAULT SHALL HAVE HS-20 HEAVY DUTY TRAFFIC RATING, BUT IN NO CASE SHALL ANY PART OF THE VAULT BE LESS THAN 8" IN THICKNESS.

4. VAULT SHALL BE ENGINEERED, PRE-CAST RE-INFORCED CONCRETE VAULT. PROVIDE ENGINEERED SUBMITTAL WITH ENGINEER STAMP FOR APPROVAL.

- **KEYED NOTES** (ALL GT SHEETS)
- RUN SUPPLY AND RETURN PIPING $\langle 1 \rangle$ IN COMMON TRENCH INSTALL PIPING SIMILAR TO ARRANGEMENT SHOWN IN TRENCH DETAIL. RUN PIPING AT A MINIMUM DEPTH OF 5'-0" $\langle 2 \rangle$ AT TOP OF PIPE. GSS AND GSR TO SUBFIELD HEADERS $\langle 3 \rangle$ SEE CONTINUATIONS IN DETAILS 3 AND 4 XG501. BOREHOLE SPACING TO BE ~25'-0" O.C. $\langle 4 \rangle$ EACH DIRECTION. BOREHOLE DEPTH IS 450', SEE $\langle 5 \rangle$ SPECIFICATIONS AND DETAILS, TYPICAL GSS AND GSR PIPING TO VAULT FROM 6 ALL SUBFIELDS. GSS AND GSR PIPING FROM VAULT $\langle 7 \rangle$ TYPICAL. FOR COMPACTION REQUIREMENTS AND $\langle 8 \rangle$ TYPE OF BEDDING MATERIAL REFER TO APPROPRIATE EARTH WORK SECTION OF SPECIFICATIONS. ENGINEERS DRAWING WILL CONTROL **<**9> FINAL LAY-OUT. SUPPORT HDPE PIPING AS SHOWN (10) MAXIMUM DISTANCE BETWEEN SUPPORTS IS 36" C/C. <u><1</u> MINIMUM WALKWAY WIDTH 36". CIRCUIT TO BE BALANCED AS SPECIFIED $\langle 12 \rangle$ IN MECHANICAL SPECIFICATIONS INSTALL CBV IN VAULT TO MATCH DIRECTIONAL FLOW MANIFOLD CONFIGURATION IN MECHANICAL ROOM SEE DETAIL 15 XG502. INSTALL PT PORT ON SUBFIELD GSS AND GSR PRIOR TO ANY CBV OR BFV IN VAULT
- COORDINATE ALL GEOTHERMAL PIPING WITH EXISTING AND NEW UTILITIES, SEE DETAIL 10 XG501.

AND BEFORE PURGE PORT IN

MECHANICAL ROOM.

- CONTRACTOR TO VERIFY INVERT OF $\langle 16 \rangle$ STORM DRAIN TO ENSURE PROPER SLOPE OF VAULT DRAIN.
- CONNECT ENDS OF EACH FUTURE SUBFIELD WITH ELBOWS.

GENERAL NOTES (ALL GT SHEETS)

1. BORE FIELD SUPPLY LINES ARE IDENTIFIED BY THE DIRECTIONAL CIRCUIT BALANCING VALVES.

2. DEPTH OF THE HORIZONTAL PIPING SHALL BE INCREASED AS NEEDED TO INSURE MINIMUM CODE SEPARATION FROM UTILITIES.

3. INDIVIDUAL BOREHOLES MAY BE MOVED +/- 4'-TO AVOID UTILITIES. RELOCATED BOREHOLES MUST BE SPECIFICALLY IDENTIFIED ON AS-BUILT DRAWINGS.

4. COORDINATE LOCATIONS AND ELEVATIONS WITH CIVIL PLANS.

5. ALL EXCAVATION SHALL COMPLY WITH OSHA **REGULATIONS.**

HDPE PIPE SCHEDULE

1.25" U-BEND x 910' SDR 11 1.25" HDPE SDR 11 2" HDPE SDR 11 3" HDPE SDR 17 4" HDPE SDR 17 6" HDPE SDR 17

8" HDPE SDR 17

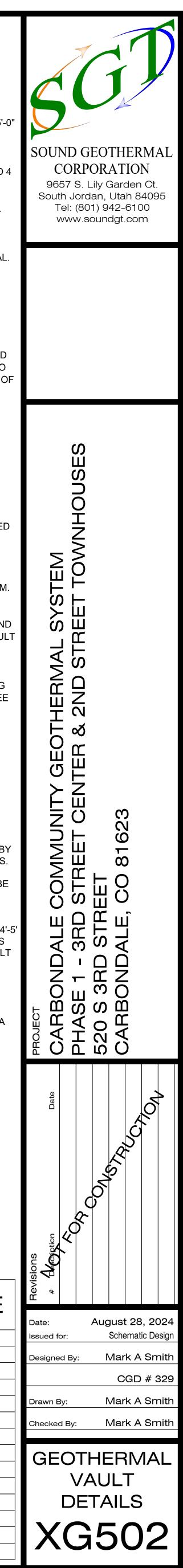
14" HDPE SDR 17

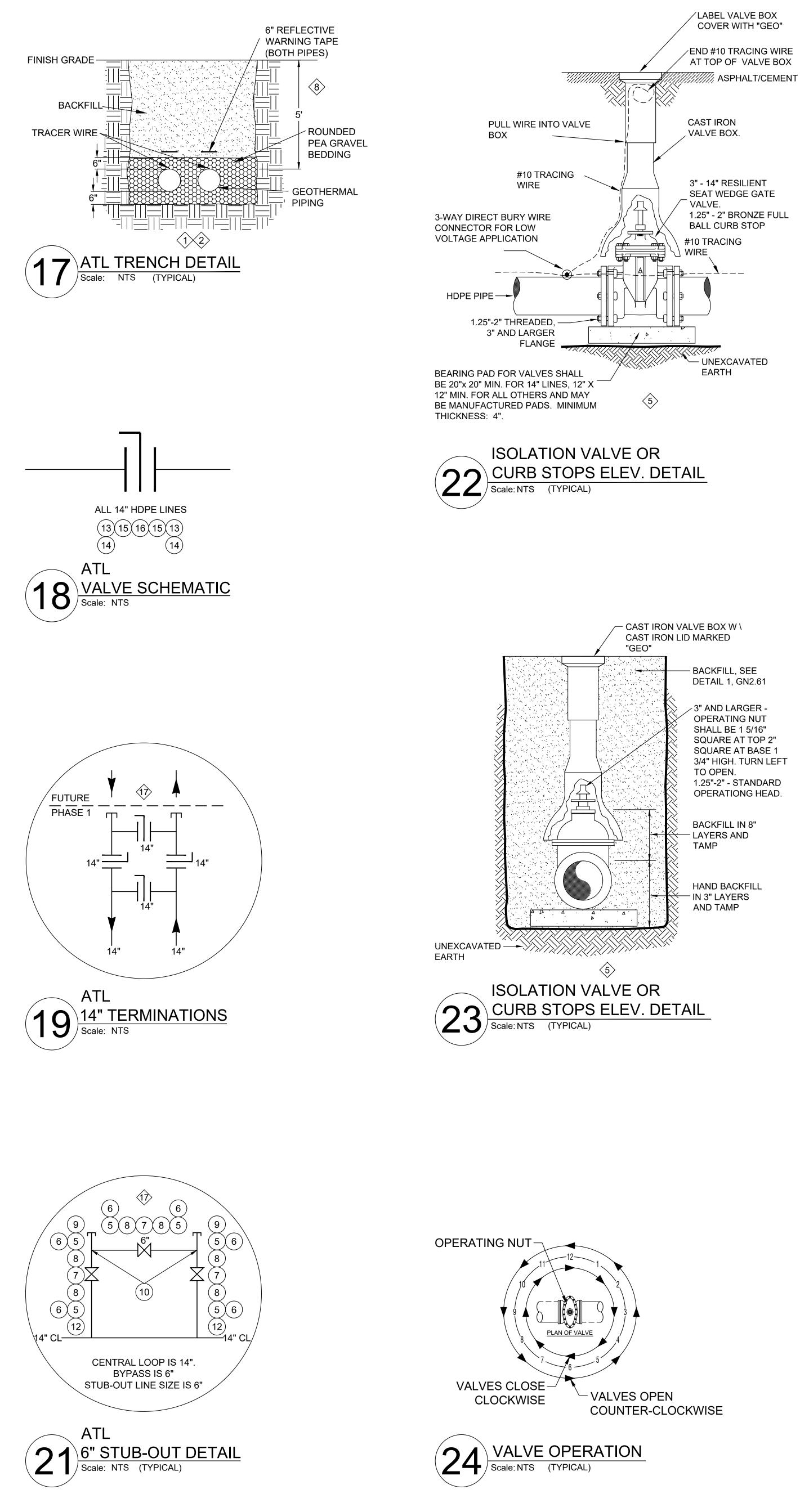
LABEL KEY (ALL GT SHEETS)

GSR GROUND SOURCE RETURN - TO BLDG GSS GROUND SOURCE SUPPLY - FROM BLDG

VAULT FITTING SCHEDULE

	SIZE
А	4" HDPE x GROOVED TRANSITION
В	4" GROOVED CLAMP
С	4" GROOVED BUTTERFLY VALVE
D	4" GROOVED CIRCUIT BALANCING VALVE
E	6" HDPE ELBOW
F	6" BLIND FLANGE
G	NOT USED
Н	6"/8" x 4" HDPE BRANCH SADDLE
I	6"/8" HDPE x BEVELED FLANGE ADAPTOR
J	6"/8" IRON BACK-UP RING
K	6"/8" LUG KIT
L	6"/8" LUG BUTTERFLY VALVE
М	8" x 6" HDPE REDUCER





NOTES:

ALL VALVES 3" AND LARGER TO BE RESILIENT SEAT WEDGE GATE VALVE, EPOXY COATED INSIDE AND OUT PER AWWA SPECS.

ALL VALVES 1.25" - 2" TO BE BRONZE FULL BALL CURB STOP PER AWWA SPECS.

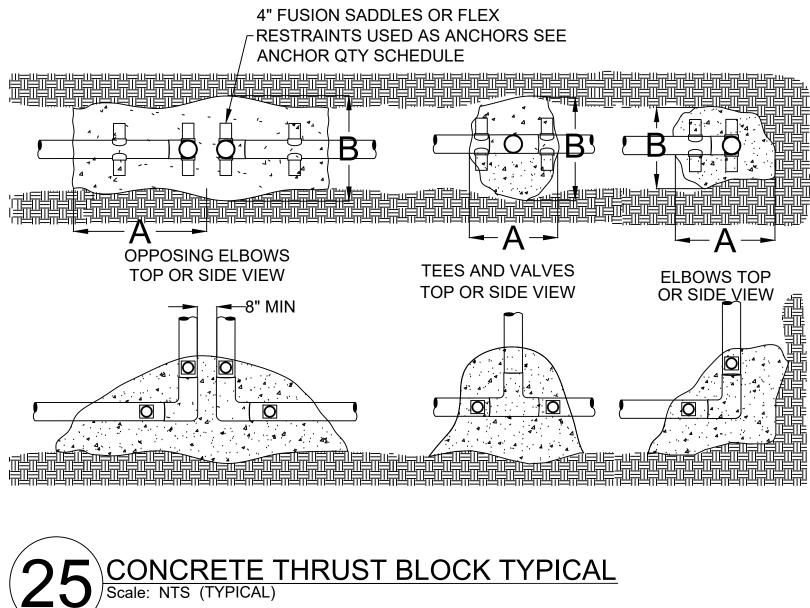
ALL VALVE BOXES TO BE OF CAST IRON CONSTRUCTION, TWO PIECE SLIDE CASING ADJUSTABLE DESIGN.

ALL VALVES 3" AND LARGER TO BE 8 MIL POLY WRAPPED.

ALL PACKING BOLTS AND VALVE BONNET BOLTS SHALL BE STAINLESS STEEL. ALL BOLTS FOR MECHANICAL JOINTS SHALL BE COR-BLUE OR APPROVED EQUAL. ALL BOLTS FOR FLANGE CONNECTIONS SHALL BE STAINLESS STEEL BOLTS COATED WITH ANTI-SEIZE.

MPT TRANSITION FOR 1.25"-2" PIPING SHALL BE STAINLESS STEEL.

INSTALL TRACING WIRE IN ALL VALVE BOXS AS SHOWN.



Scale: NTS (TYPICAL)

SPECIFICATIONS FOR LARGE DIAMETER PIPE THRUST BLOCKS

1. ALL LARGE DIAMETER PIPES (10" - 14"): FINAL CONNECTIONS AT THE SPOTS MARKED ON XG102 WITH "TB" SHALL BE MADE WHEN THE PIPING IS WITHIN ± 10°F OF THE ANTICIPATED OPERATING TEMPERATURE OF THE SYSTEM (80°F TO 35°F).

2. SHALLOW BURRIAL OF LARGE DIAMETER HDPE PIPING CAN RESULT IN EXCESSIVE LATERAL FORCES BEING EXERTED ON TRANSITION AND DIRECTIONAL CHANGE FITTINGS. LARGE DIAMETER PIPING SHALL BE FILLED WITH FLUID AND TESTED AT THE EARLIEST POSSIBLE TIME IN ORDER TO MINIMIZE THE LATERAL EXPANSION AND CONTRACTION.

3. THRUST BLOCKS OR ENCASEMENTS SHALL BE USED ON THE MAIN CIRCULATING LOOP AS SHOWN ON THE DRAWING. ALL BURIED, LARGE DIAMETER (10" OR LARGER), DIRECTIONAL FITTINGS AND TEES WILL REQUIRE THRUST BLOCKS. THE ENCASEMENT OR THRUST BLOCK IS CONSTRUCTED OF REINFORCED CONCRETE AND ACTS AS AN ANCHOR BETWEEN THE PIPE OR FITTING AND THE UNDISTURBED WALL OR BOTTOM OF THE TRENCH. SEE THE CHART FOR MINIMUM TRUST BLOCK SIZE. POURED THRUST BLOCKS WILL INCLUDE 3/8" REBAR PLACED HORIZONTALLY AND VERTICALLY ON 9" CENTERS WITH A MINIMUM OF TWO PIECES OF REBAR USED IN EACH ORIENTATION.

4. PIPING SHOULD BE COVERED TO WITHIN TEN FEET (10') OF THE LOCATION OF THE THRUST BLOCK TO PREVENT EXCESSIVE MOVEMENT WHILE THE CONCRETE IS CURING.

KEYED NOTES (ALL GT SHEETS)

(ALL GT SHEETS)
RUN SUPPLY AND RETURN PIPING IN COMMON TRENCH INSTALL PIPING SIMILAR TO ARRANGEMENT SHOWN IN TRENCH DETAIL.
RUN PIPING AT A MINIMUM DEPTH OF S AT TOP OF PIPE.
GSS AND GSR TO SUBFIELD HEADERS SEE CONTINUATIONS IN DETAILS 3 ANI XG501.
BOREHOLE SPACING TO BE ~25'-0" O.C EACH DIRECTION.
BOREHOLE DEPTH IS 450', SEE SPECIFICATIONS AND DETAILS, TYPICA
GSS AND GSR PIPING TO VAULT FROM ALL SUBFIELDS.
GSS AND GSR PIPING FROM VAULT TYPICAL.
FOR COMPACTION REQUIREMENTS AN TYPE OF BEDDING MATERIAL REFER T APPROPRIATE EARTH WORK SECTION SPECIFICATIONS.
ENGINEERS DRAWING WILL CONTROL FINAL LAY-OUT.
SUPPORT HDPE PIPING AS SHOWN MAXIMUM DISTANCE BETWEEN SUPPORTS IS 36" C/C.
MINIMUM WALKWAY WIDTH 36".
CIRCUIT TO BE BALANCED AS SPECIFII IN MECHANICAL SPECIFICATIONS.
INSTALL CBV IN VAULT TO MATCH DIRECTIONAL FLOW MANIFOLD CONFIGURATION IN MECHANICAL ROO SEE DETAIL 15 XG502.
INSTALL PT PORT ON SUBFIELD GSS A GSR PRIOR TO ANY CBV OR BFV IN VA AND BEFORE PURGE PORT IN MECHANICAL ROOM.
COORDINATE ALL GEOTHERMAL PIPIN WITH EXISTING AND NEW UTILITIES, SE DETAIL 10 XG501.
CONTRACTOR TO VERIFY INVERT OF STORM DRAIN TO ENSURE PROPER SLOPE OF VAULT DRAIN.
CONNECT ENDS OF EACH FUTURE SUBFIELD WITH ELBOWS.

GENERAL NOTES (ALL GT SHEETS)

1. BORE FIELD SUPPLY LINES ARE IDENTIFIED BY THE DIRECTIONAL CIRCUIT BALANCING VALVES.

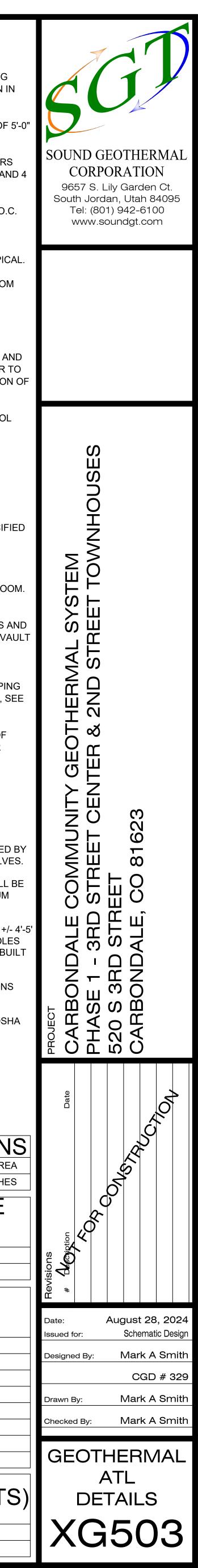
2. DEPTH OF THE HORIZONTAL PIPING SHALL BE INCREASED AS NEEDED TO INSURE MINIMUM CODE SEPARATION FROM UTILITIES.

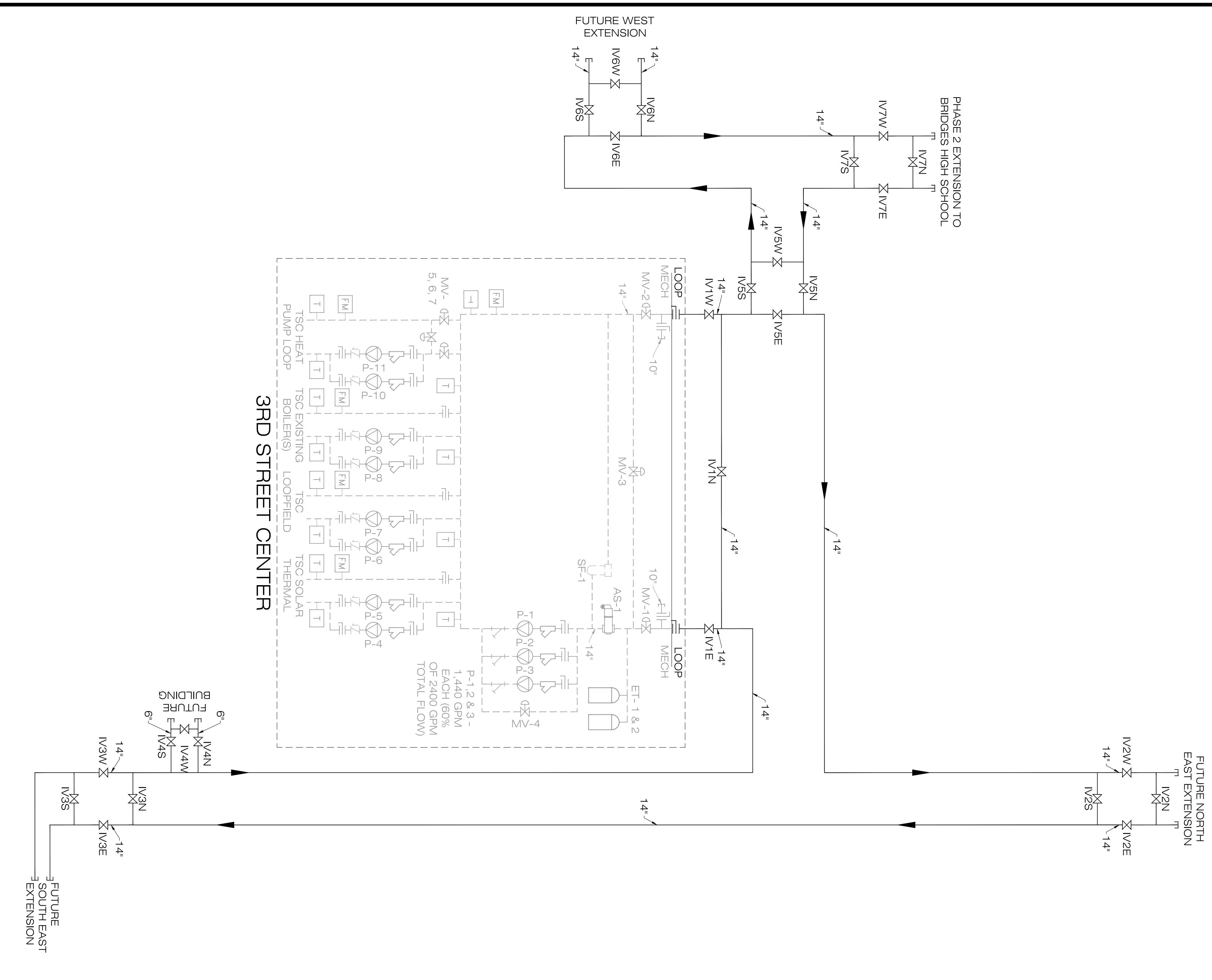
3. INDIVIDUAL BOREHOLES MAY BE MOVED +/- 4'-TO AVOID UTILITIES. RELOCATED BOREHOLES MUST BE SPECIFICALLY IDENTIFIED ON AS-BUILT DRAWINGS.

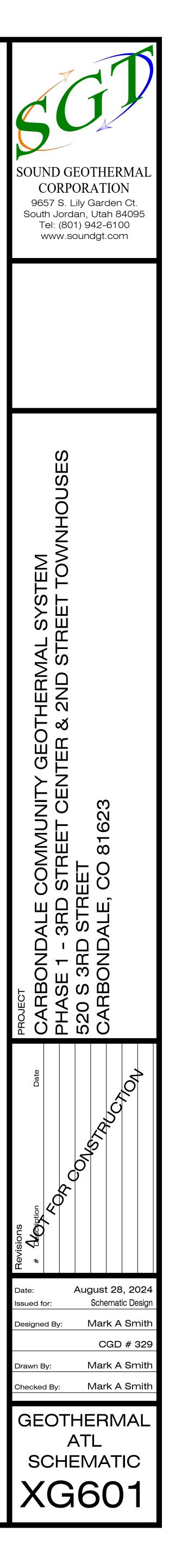
4. COORDINATE LOCATIONS AND ELEVATIONS WITH CIVIL PLANS.

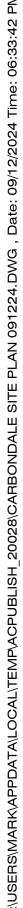
5. ALL EXCAVATION SHALL COMPLY WITH OSHA **REGULATIONS.**

		PIPE SI 14"	ZE	DIMENSION A 26"	DIMENSION B 26"	MENSIONS MIN REQUIRED AREA 676 SQUARE INCHES CHEDULE
	JRB STOP / ISOLATION			(SADD	LE OR	FLEX)
	LVE FITTING SCHEDULE	QTY 3	14	" HDPE SDR 17	PIPE SIZE	Ξ
	SIZE					
1	NOT USED					
2	NOT USED		Η	IDPE P	IPE SCI	HEDULE
3	NOT USED					
4	NOT USED			END x 910' SDR -	11	
5	6" HDPE x BEVELED FLANGE ADAPTER			E SDR 11		
6	6" IRON BACK-UP RING			SDR 11		
7	6" LUG STYLE BUTTERFLY VALVE			SDR 17		
8	BOLT KIT FOR 6" FLANGE, STAINLESS STEEL			SDR 17		
9	6" HDPE END CAP			SDR 17		
10	6" HDPE TEE			SDR 17		
11	14" x 1.25" HDPE SADDLE	14" HI	DPE	SDR 17		
12	14" X 6" HDPE SADDLE					
13	14" HDPE x BEVELED FLANGE ADAPTOR	LA	BE	EL KEY	í (ALL G	ST SHEETS)
14	14" IRON BACK-UP RING				1	/
15	BOLT KIT FOR 14" FLANGE, STAINLESS STEEL	GSR	GF	ROUND SOURC	E RETURN - TO E	BLDG
16	14" LUG STYLE BUTTERFLY VALVE	GSS	G	ROUND SOURC	E SUPPLY - FROI	M BLDG





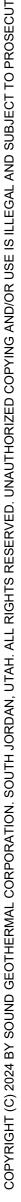


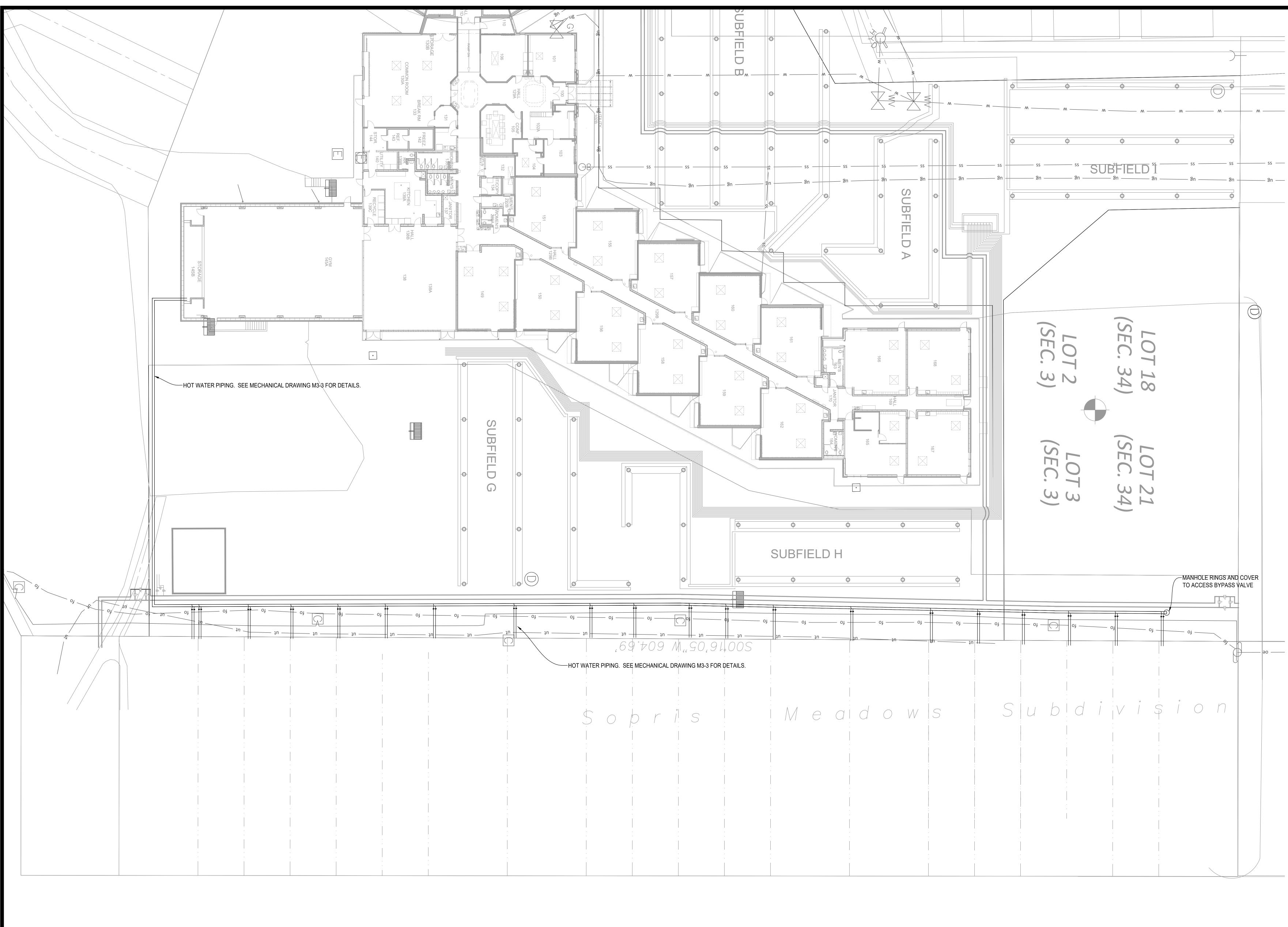


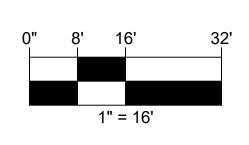
VERIFY SCALE

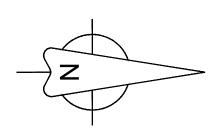
THIS BAR IS ONE INCH ON ORIGINAL DRAWING

ADJUST SCALES ACCORDINGLY, IF NOT ONE INCH ON THIS SHEET

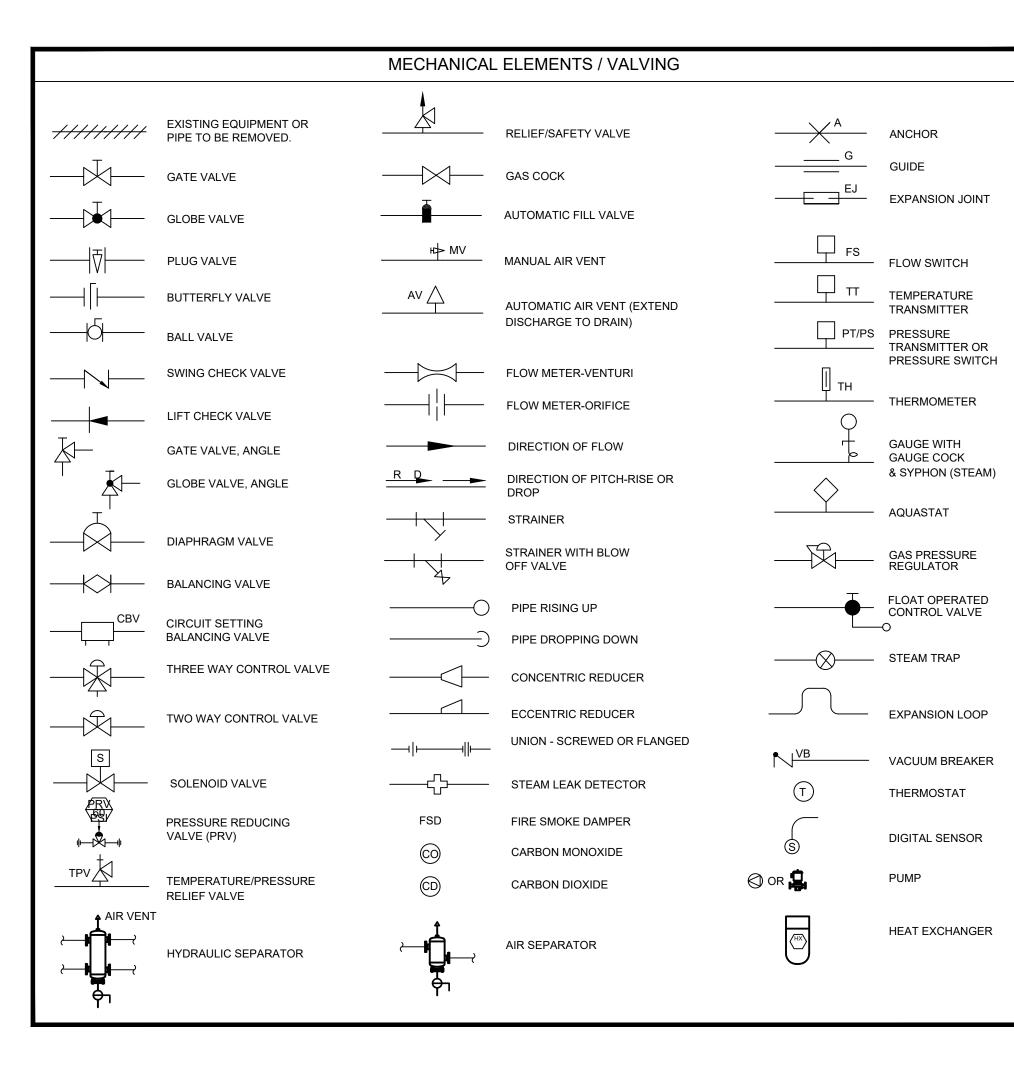


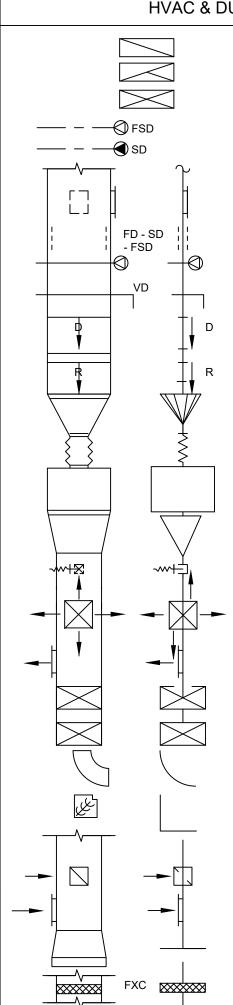












HVAC & DUCTWORK SYMBOLS

- SECTION THROUGH RETURN DUCT SECTION THROUGH EXHAUST AIR DUCT SECTION THROUGH SUPPLY OR OUTSIDE AIR DUCT FIRE / SMOKE DAMPER SMOKE DAMPER
- SUPPLY OR OUTSIDE AIR DUCT
- ACCESS DOOR (BOTTOM OR SIDE)
- ACOUSTICALLY LINED DUCT
- FIRE DAMPER, SMOKE DAMPER, FIRE/SMOKE DAMPER
- MANUAL VOLUME DAMPER
- INCLINED DROP IN DIRECTION OF ARROW
- INCLINED RISE IN DIRECTION OF ARROW
- TRANSITION, RECTANGULAR TO ROUND
- FLEXIBLE DUCT
- IN-LINE FAN
- TRANSITION, RECTANGULAR
- SPIN-IN COLLAR INTO ADAPTER ON TOP OF DUCT
- CEILING SUPPLY AIR REGISTER/GRILLE
- SIDEWALL SUPPLY AIR REGISTER (SR)
- ELBOW TURNED DOWN
- ELBOW TURNED UP
- ELBOW, RADIUS TYPE
- ELBOW, SQUARE OR RECTANGULAR TYPE WITH AIRFOIL TURNING VANES
- CEILING RETURN AIR REGISTER (RR)
- SIDEWALL RETURN AIR REGISTER (RR)
- OPEN END DUCT
- FLEXIBLE CONNECTION

LINE DESIGNATION SYMBOLS

CHWR ——	
 CHWS ———	CHILLED WATER SUPPLY
 CA	COMPRESSED AIR
 CR	CONDENSER WATER RETURN
 cs ———	CONDENSER WATER SUPPLY
 D	DRAIN
 HPR	HEAT PUMP RETURN
 HPS	HEAT PUMP SUPPLY
 HWR ———	HOT WATER RETURN
 HWS ———	HOT WATER SUPPLY
 G ———	NATURAL GAS
 RH	REFRIGERANT HIGH PRESSURE VAPOR
 R	REFRIGERANT LIQUID AND VAPOR LINE
 RS	REFRIGERANT SUCTION / VAPOR
 SMR	SNOWMELT RETURN
 SMS	SNOWMELT SUPPLY
 v ——	VENT PIPING

RESPONSIBLE DIVISION:

UNLESS OTHERWISE INDICATED ALL H AND OTHER MECHANICAL EQUIPMENT IN PLACE AND WIRED AS FOLLOWS:				
ITEM	FURNISHED	SET	POWER WIRED	CONTROL WIRED
EQUIPMENT	23	23	26	
COMBINATION MAGNETIC MOTOR STARTERS, MAGNETIC MOTOR STARTERS, VFD'S AND CONTACTORS	23(1)	26	26(2)	23
FUSED AND UNFUSED DISCONNECT SWITCHES, THERMAL OVERLOAD SWITCHES AND HEATERS, MANUAL MOTOR STARTERS	26	26	26	
MANUAL-OPERATING AND MULTI-SPEED SWITCHES	23	26	26	26
CONTROLS, RELAYS, TRANSFORMERS	23	23	26	23
THERMOSTATS (LOW VOLTAGE) AND TIME SWITCHES	23	23	26	23
THERMOSTATS (LINE VOLTAGE)	23	23	26	26
TEMPERATURE CONTROL PANELS	23	23	26	23
MOTOR AND SOLENOID VALVES, DAMPER MOTORS, PE & EP SWITCHES	23	23(2)		23(2)
PUSH-BUTTON STATIONS AND PILOT LIGHTS	23	23(2)		23(2)
HEATING, COOLING, VENTILATION AND AIR CONDITIONING CONTROLS	23	23	26	23
EXHAUST FAN SWITCHES	23	26	26	23(2)

SUBSCRIPT FOOTNOTES: 1. MOTOR STARTER TO INCLUDE CONTROL TRANSFORMER, HOA SWITCH, (1) NO AND (1)NC

AUXILIARY CONTACT, AND "ON" AND "OFF" PILOT LIGHTS. 2. IF ITEM IS FOR LINE VOLTAGE, SET IN PLACE AND CONNECT UNDER DIVISION 26. WHERE

FACTORY MOUNTED ON EQUIPMENT OR ATTACHED TO PIPING OR DUCTS AND USING LINE VOLTAGE FURNISH AND SET UNDER DIVISION 23, CONNECT UNDER DIVISION 26.

ABBREVIATIONS:

	MOUNTING HEIGHT ABOVE ED FLOOR TO CENTER OF DEVICE	DIFF DISCH	DIFFERENTIAL DISCHARGE
A	AMPS	DIV	DIVISION
A.D.		DN	DOWN
AAV ABV	AIR ADMITTANCE VALVE ABOVE	DS	DUCT SILENCER
ADV	ABOVE	DWG	DRAWING
AC	ABOVE COUNTER	DX	DIRECT EXPANSION
AD	AREA DRAIN (SEE SYMBOLS)	(A) EA	EXISTING EXHAUST AIR GRILLE/REGISTE
A.F.C.	ABOVE FINISHED CEILING	EAT	ENTERING AIR TEMPERATURE
A.F.G.	ABOVE FINISHED GRADE	EC	ELECTRICAL CONTRACTOR
AIC	AMPERE INTERRUPTING	ECC	ECCENTRIC
CAPAC		EF	EXHAUST FAN
		EFF	EFFICIENCY
	AIR HANDLING UNIT ALUMINUM	EL	ELEVATION
AP	ACCESS PANEL OR DOOR	ELEC	ELECTRIC
ATS		ELEV	ELEVATOR
AV	AUDIO / VIDEO	EM	EMERGENCY FUNCTION
AVG	AVERAGE	ENT	
AWG	AMERICAN WIRE GAGE	EMT	ELECTRIC METALLIC TUBE
BAS	BUILDING AUTOMATION SYSTEM	EQ	EQUAL
BB	BASEBOARD		EQUIPMENT EQUIVALENT
BD	BACK DRAFT DAMPER	EQUIV	EQUIVALENT END SWITCH
BFP	BACK FLOW PREVENTOR	ESP	EXTERNAL STATIC PRESSURE
BL	BOILER	ET.	EXPANSION TANK
	BUILDING	EWC	
BLW	BELOW	EWT	ENTERING WATER
BOB	BOTTOM OF BEAM	TEMPE	RATURE
BOD BOP	BOTTOM OF DUCT BOTTOM OF PIPE	EX	EXHAUST
	BASEMENT	EXPAN	
BTU	BRITISH THERMAL UNIT	EXT -	EXTERNAL
C	CHILLER	F FA	DEGREES FAHRENHEIT
CAP	CAPACITY	FA	FREE AREA FAN COIL UNIT
СВ	CIRCUIT BREAKER	FC	FOOTCANDLE
CBV	CIRCUIT BALANCING VALVE	FCV	FLOW CONTROL VALVE
	CORRELATED COLOR	FD	FIRE DAMPER
		FD	FLOOR DRAIN
CFH		FIN	FINISHED
CFM	CUBIC FEET PER HOUR CUBIC FEET PER MINUTE	FLA	FULL LOAD AMPS
	CHILLED WATER RETURN	FLEX	FLEXIBLE
	CHILLED WATER SUPPLY	FLR	FLOOR
CI	CAST IRON	FOB	FLAT ON BOTTOM
CL	CENTER LINE	FOT	FLAT ON TOP
CLG	CEILING	FP	FIRE PROTECTION
CMU	CONCRETE MASONRY UNIT	FP FPM	
со	CLEAN OUT	FPM	FEET PER MINUTE FEET PER SECOND
COL	COLUMN	FS	FLOW SWITCH
COMP	COMPRESSOR	FSD	FIRE/SMOKE DAMPER
	CONCRETE	FT	FEET
	CONDENSATE	FXC	FLEXIBLE CONNECTION
	CONNECTION	GND	GROUND
		GA	GAUGE
CONTF CRI	CONTRACTOR	GAL	GALLON
CT	COOLING TOWER	GALV	GALVANIZED
СТ	CURRENT TRANSFORMER	GEC	GROUND ELECTRODE
CU	CONDENSING UNIT		GFI GROUND FAULT CIRCUIT
CU	COPPER		RUPTER
СИН	CABINET UNIT HEATER	GC	GENERAL CONTRACTOR
CVB	CONSTANT VOLUME BOX	GPH	GALLONS PER HOUR
CWR	CONDENSER WATER RETURN	GPM	GALLONS PER MINUTE
CWS	CONDENSER WATER SUPPLY	GRS/LI	3 GRAINS PER POUND
DB	DRY BULB	H 20	WATER
	DEPARTMENT	HB	HOSE BIBB
DF		HD	HEAD (SEE SCHEDULES)
DIA	DIAMETER	HP	
	DIAGRAM	HP	HORSEPOWER

SUBSTITUTIONS:

A. SUBSTITUTIONS: SUBSTITUTION OF SPECIFIED EQUIPMENT WILL BE ALLOWED THROUGH A PRIOR APPROVAL PROCESS INITIATED BY THE CONTRACTOR. CONTRACTOR SHALL SUBMIT INTENDED SUBSTITUTION AT LEAST FIVE DAYS PRIOR TO BID FOR APPROVAL FROM ENGINEER. SUBMITTAL SHALL INCLUDE CAPACITIES, DIMENSIONS AND OPERATING INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT. SUBSTITUTION SHALL OCCUR AT NO COST TO THE OWNER. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF APPROVED SUBSTITUTION AND SHALL INCUR ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING STRUCTURAL MODIFICATIONS, SPACE LAYOUT AND REDESIGN COSTS. SEE ALSO DIVISION I GENERAL REQUIREMENTS.

EXAMINATION OF SITE, DRAWINGS, SPECIFICATIONS:

A. EXAMINE CAREFULLY THE SITE AND CONDITIONS OF THE SITE. PROVIDE ALL NECESSARY EQUIPMENT AND LABOR TO INSTALL A COMPLETE WORKING SYSTEM WITHIN THE SITE CONDITIONS.

B. EXAMINE THE DRAWINGS AND SPECIFICATIONS AND 5 DAYS PRIOR TO BIDDING REPORT ANY ERRORS, OMISSIONS, INCONSISTENCIES, AND CONFLICTS TO THE ENGINEER TO BE REMEDIED IN AN ADDENDUM TO THE PROJECT PRIOR TO BID TIME.

C. DRAWINGS ARE DIAGRAMMATIC AND CATALOG NUMBERS GIVEN ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE CAPACITY OF THE EQUIPMENT MEETS THE DRAWING REQUIREMENTS AND SHALL NOT DIMENSION FROM THE MECHANICAL, PLUMBING, OR PIPING DRAWINGS.

D. THE CODES THAT WILL BE ADHERED TO ARE THE 2018 INTERNATIONAL MECHANICAL, 2023 COLORADO PLUMBING CODE, AND 2018 INTERNATIONAL ENERGY CONSERVATION CODE, AS WELL AS THE 2023 NATIONAL ELECTRICAL CODE. ALL METHODS AND MATERIALS REQUIRED BY THESE CODES SHALL BE REQUIRED BY THESE SPECIFICATIONS UNLESS INDICATED OTHERWISE. OTHER APPLICABLE LOCAL CODES AND ORDINANCES SHALL BE AS REQUIRED AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BE KNOWLEDGEABLE OF THESE REQUIREMENTS. (REFERENCE ARCHITECTURAL DRAWINGS FOR CODE PLANS FOR GOVERNING CODES AND REGULATIONS.)

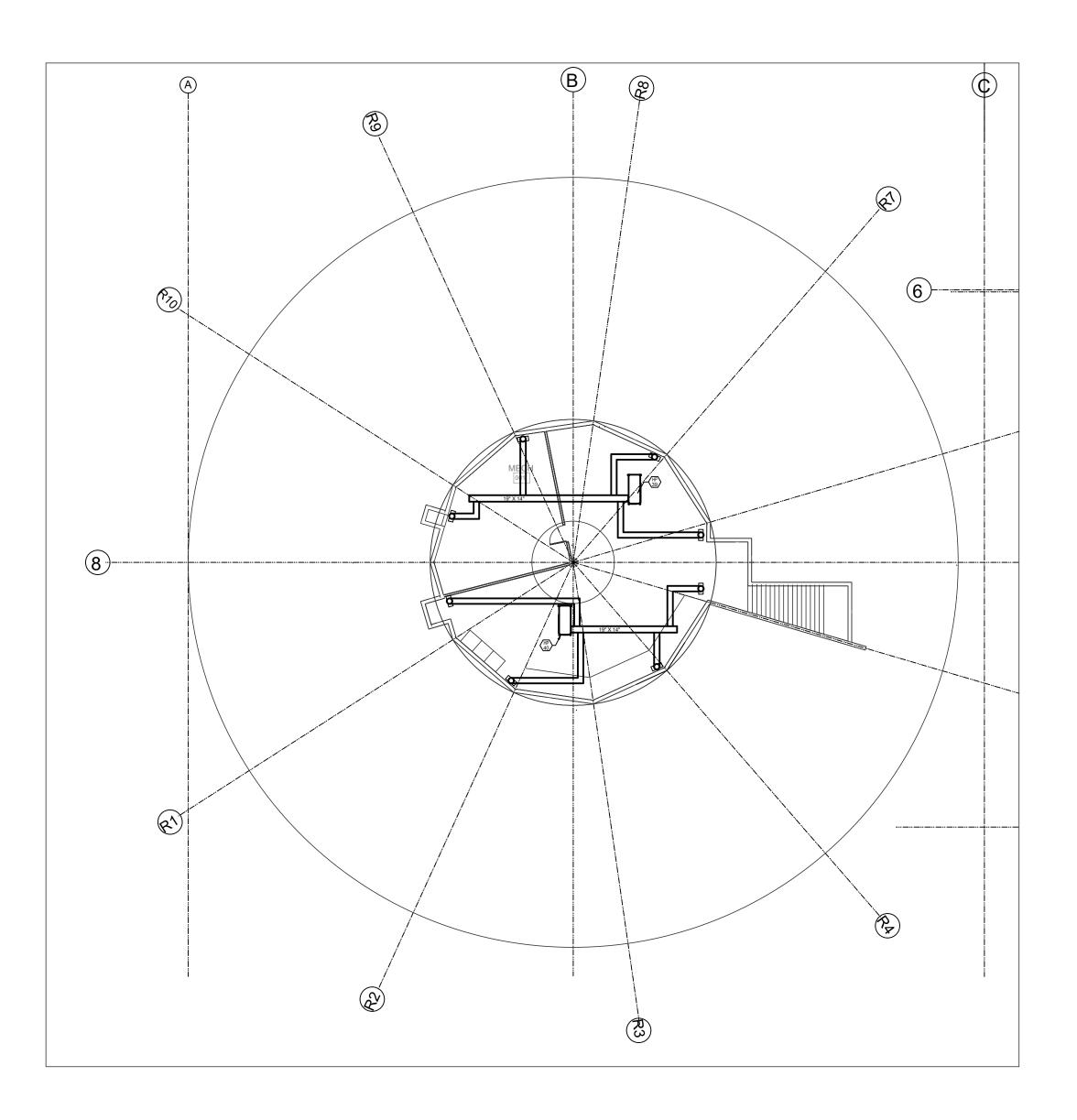
E. WHERE INSTALLATION PROCEDURES OR ANY PART THEREOF ARE REQUIRED TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL BEING INSTALLED, PRINTED COPIES OF THESE RECOMMENDATIONS SHALL BE FURNISHED TO THE ENGINEER PRIOR TO INSTALLATION. INSTALLATION OF THE ITEM WILL NOT BE ALLOWED TO PROCEED UNTIL THE RECOMMENDATIONS ARE RECEIVED. FAILURE TO FURNISH THESE RECOMMENDATIONS CAN BE CAUSE FOR REJECTION OF THE MATERIAL.

HR	HOUR
ΗT	HEIGHT
HTR	HEATER
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
нх	HEAT EXCHANGER
ΗZ	HERTZ
ID.	
IG	ISOLATED GROUND
IN	INCHES
INV	INVERT
JBOX	JUNCTION BOX
К	KELVIN
KW	KILOWATT
KVA	KILO VOLT - AMPS
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LV	LAVATORY
LB	POUND
LD	LINEAR DIFFUSER
LF	
LIN	
LIQ	LIQUID
LM	LUMEN
LRA	LOCKED ROTOR AMPS
LV	LOUVER
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MD	MOTORIZED DAMPER
MDP	
MED	MEDIUM
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUG ONLY
	MAXIMUM OVERCURRENT
	ECTION
MTD	MOUNTED
MUA	MAKE-UP AIR UNIT
Ν	NEUTRAL
NC	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NL	NIGHT / SECURITY LIGHT - DO
NOT S	WITCH
NO	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
ос	ON CENTER
occ	OCCUPIED
OCP	OVER CURRENT PROTECTION
OD.	OUTSIDE DIAMETER
OL ORD	OVERLOAD OVERFLOW ROOF DRAIN
OZ	
PBD	PARALLEL BLADE DAMPER
PD	PRESSURE DROP
PH	PHASE
PH POS	
	PHASE
POS	PHASE POSITIVE PRESSURE
POS POS	PHASE POSITIVE PRESSURE POINT OF SALES
POS POS PRV	PHASE POSITIVE PRESSURE POINT OF SALES PRESSURE REDUCING VALVE

PT	PRESSURE TRANSMITTER
PTAC	PACKAGED TERMINAL AIR
	ITIONER
PV	PLUG VALVE
PVC	
QTY RA	QUANTITY RETURN AIR GRILLE / REGISTER
	REFLECTED CEILING PLAN
RD	ROOF DRAIN
	RELIEF
REQD	REQUIRED
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RATED LOAD AMPS
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR GRILLE / REGISTER
SC	SHORT CIRCUIT
SCA	
SCCR RATIN	SHORT CIRCUIT CURRENT G
SCH	SCHEDULE
SD	SMOKE DAMPER
SEF	SMOKE EXHAUST FAN
SF	SUPPLY FAN
SH	SENSIBLE HEAT
SH	SHOWER
SP	STATIC PRESSURE
SPD	SURGE PROTECTION DEVICE
	SPECIFICATION
SQ	SQUARE
SS SS	STAINLESS STEEL SAFETY SHOWER
	STANDARD
STL	STEEL
	SYSTEM
TEMP	TEMPERATURE
TR	TRANSFER GRILLE / REGISTER
TR	TAMPER RESISTANT
TT	TEMPERATURE TRANSMITTER
TTB	TELECOMMUNICATIONS
TYP TX	TYPICAL TRANSFORMER
	UNDERCUT DOOR
UH	UNIT HEATER
	UNLESS NOTED OTHERWISE
UNOC	C UNOCCUPIED
UR	URINAL
V	VOLTS
VA	VOLT AMPERE
VA	VALVE
VAV	VARIABLE AIR VOLUME UNIT
	VARIABLE FREQUENCY DRIVE
VRF	
VOLT	
VTR W	VENT THROUGH ROOF WIDTH
W	WATTS
W/	WITH
W/O	WITHOUT
	WET BULB
WC	WATER COLUMN
WC	WATER CLOSET
WG	WATER GAUGE
WP	WEATHERPROOF
WPIU	WEATHERPROOF IN-USE
WSR	WITHSTAND RATING

XFMR TRANSFORMER

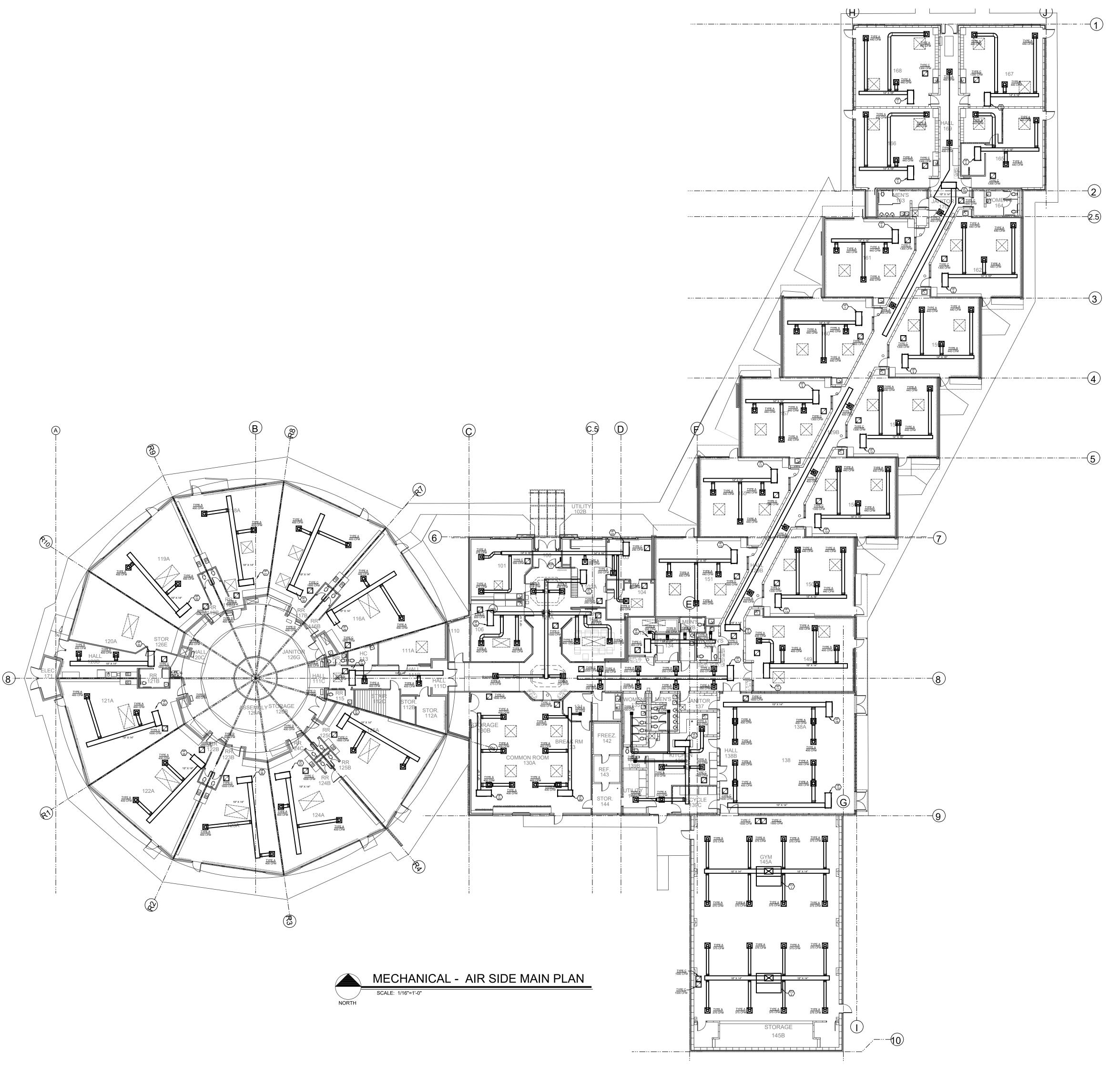




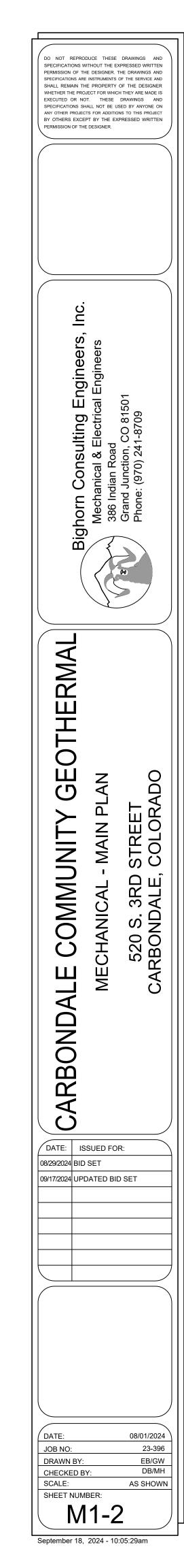


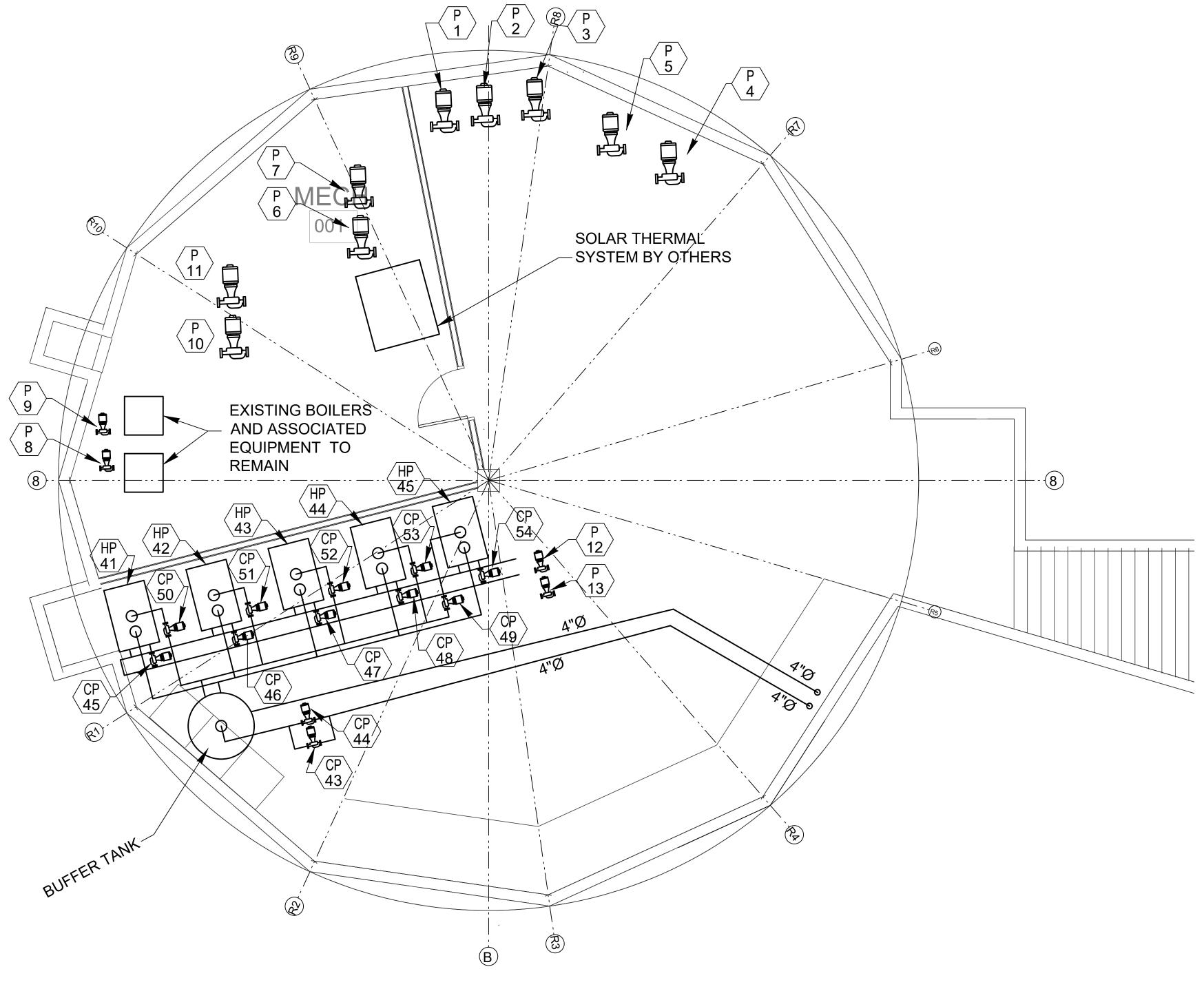
MECHANICAL - AIR SIDE BASEMENT PLAN





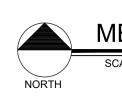


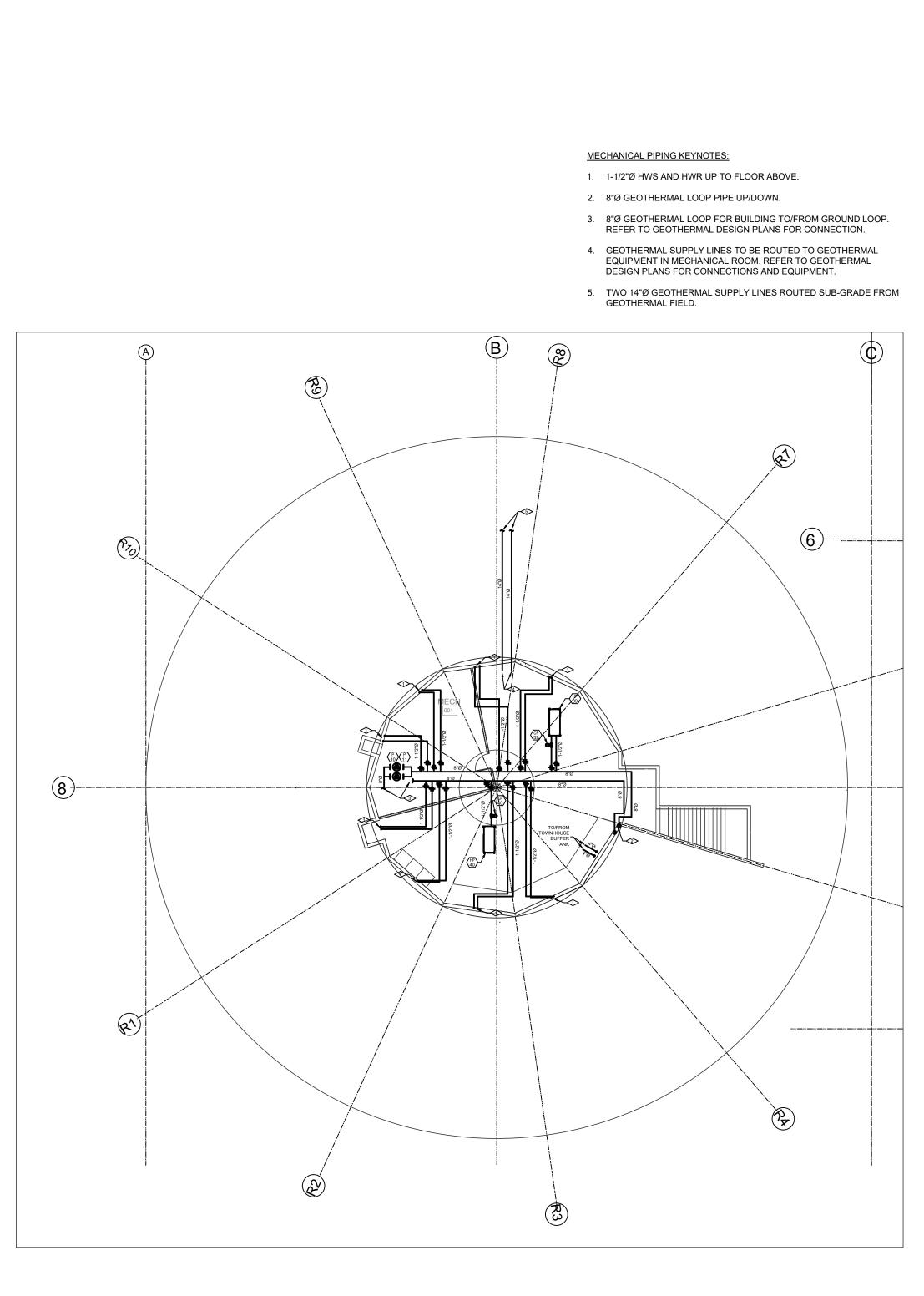




SCALE: 1/4"=1'-0"

MECHANICAL - ENLARGED MECH ROOM EQUIPMENT PLAN

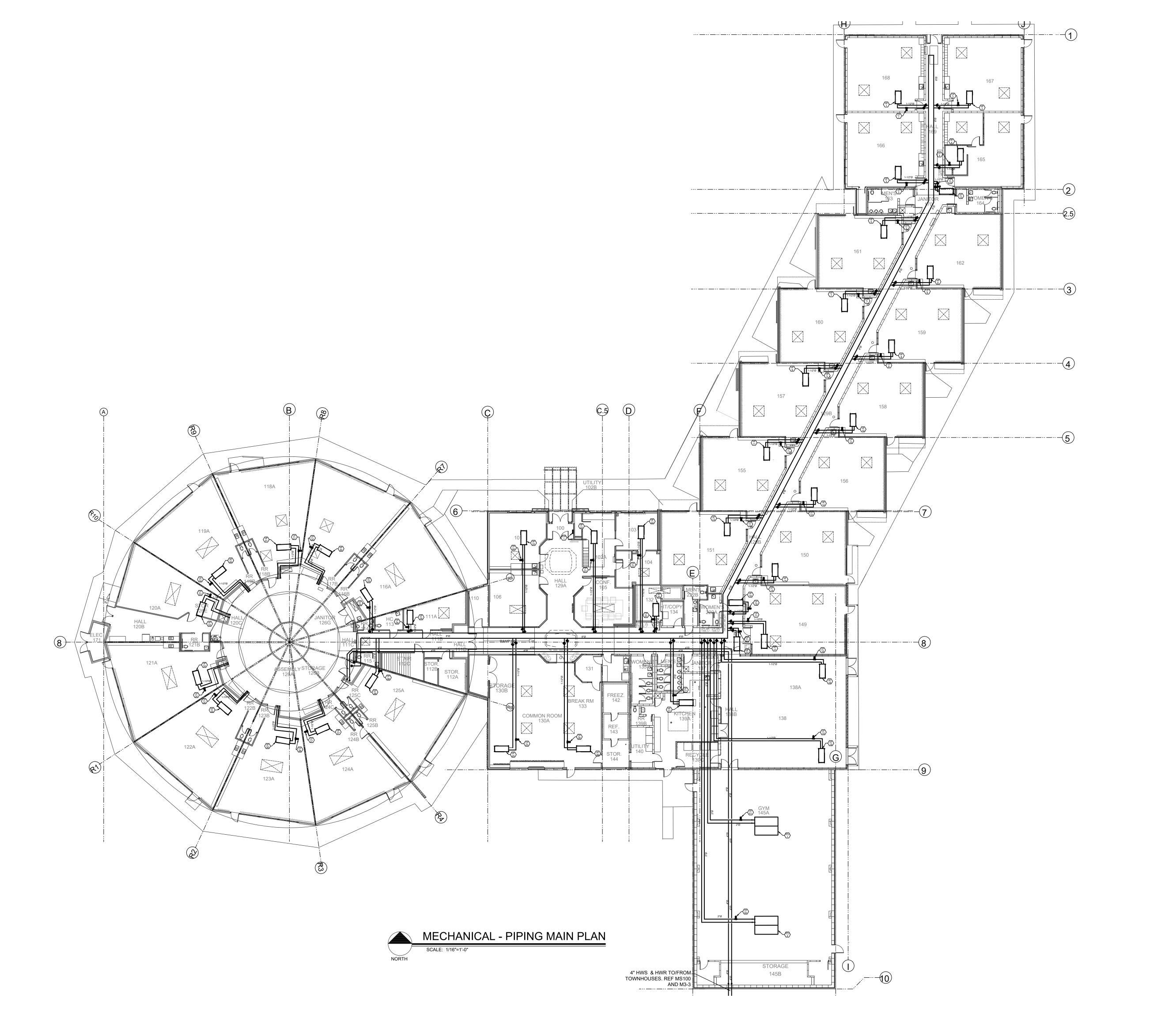




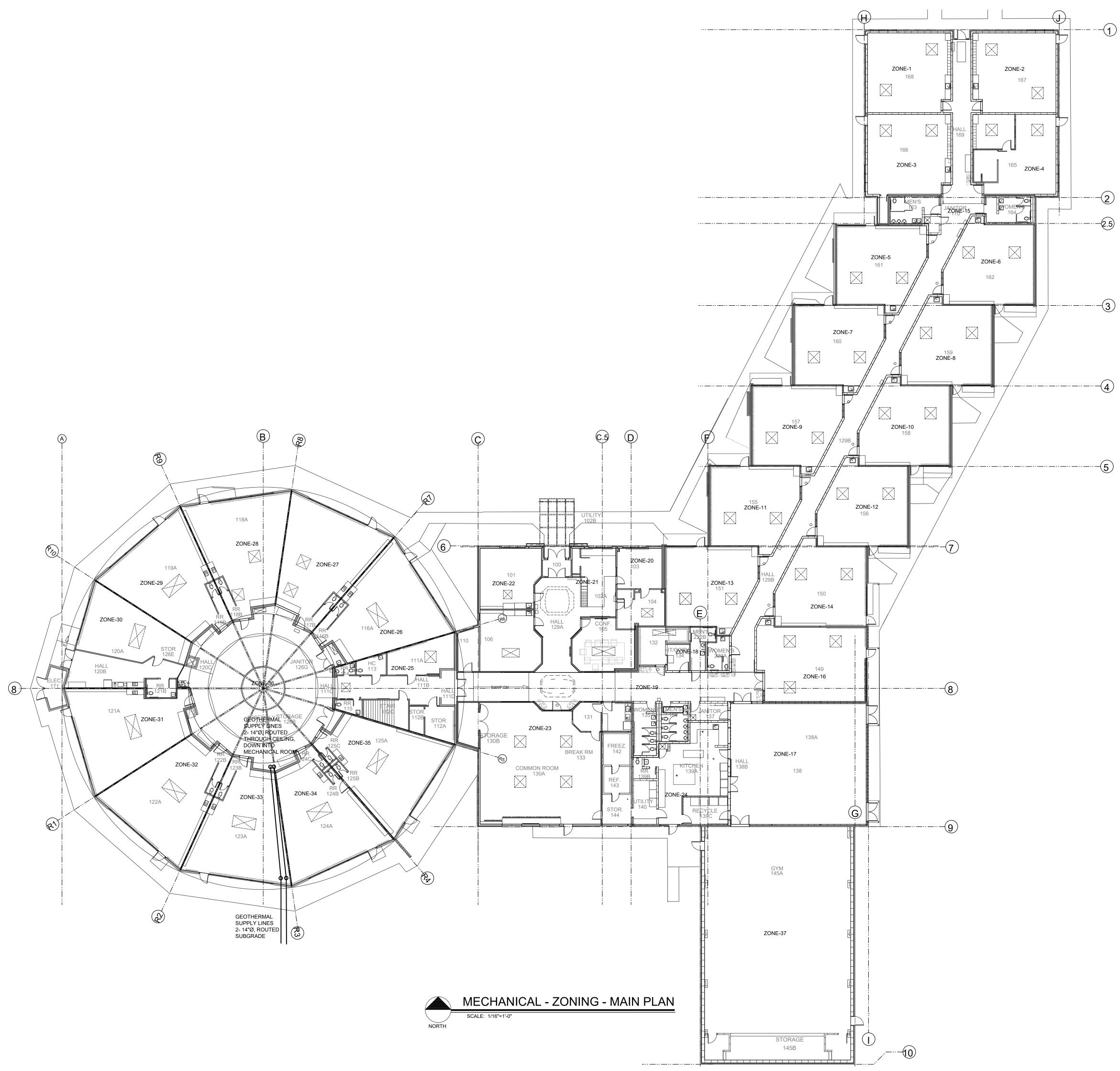
MECHANICAL - PIPING BASEMENT PLAN

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

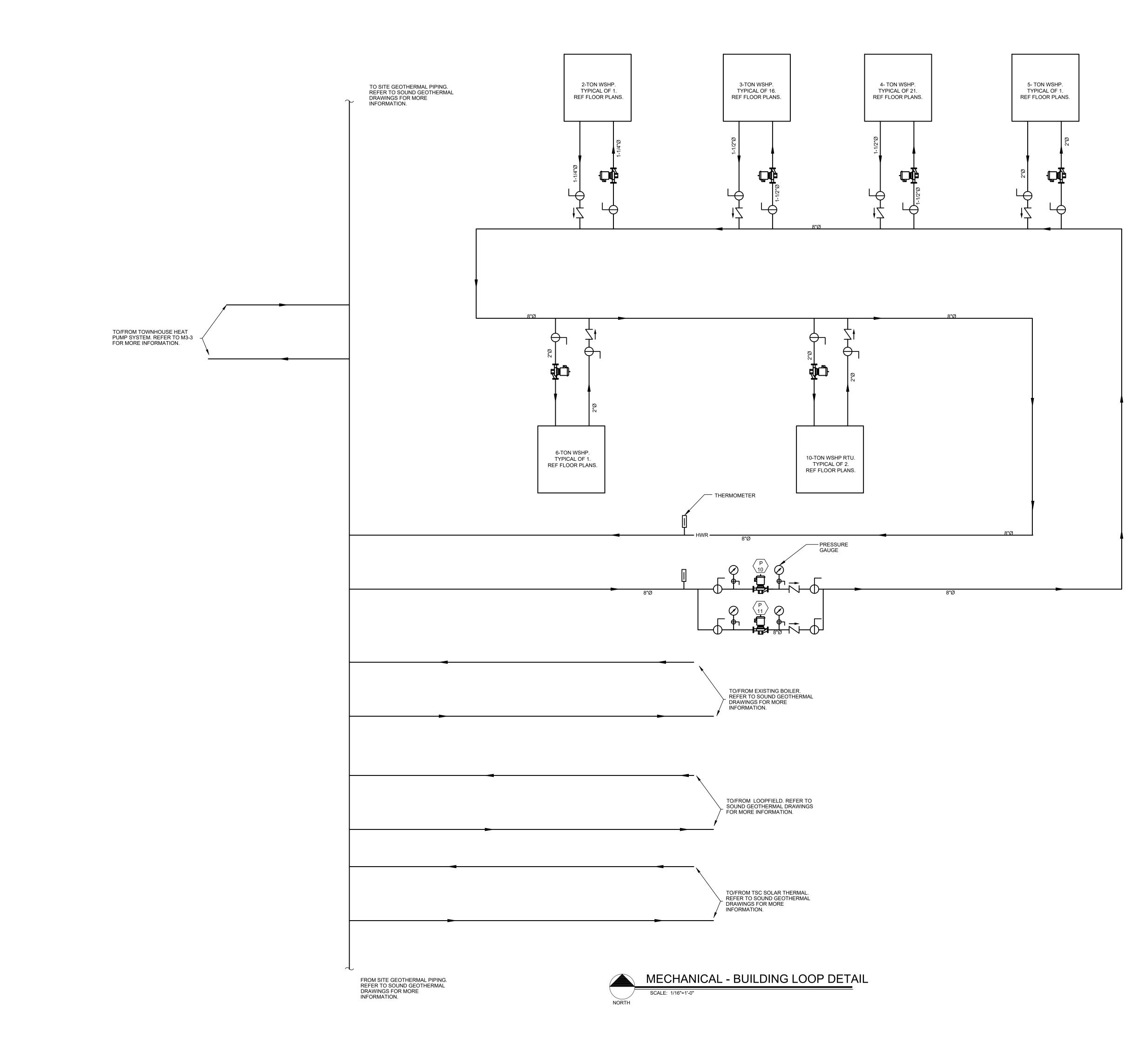




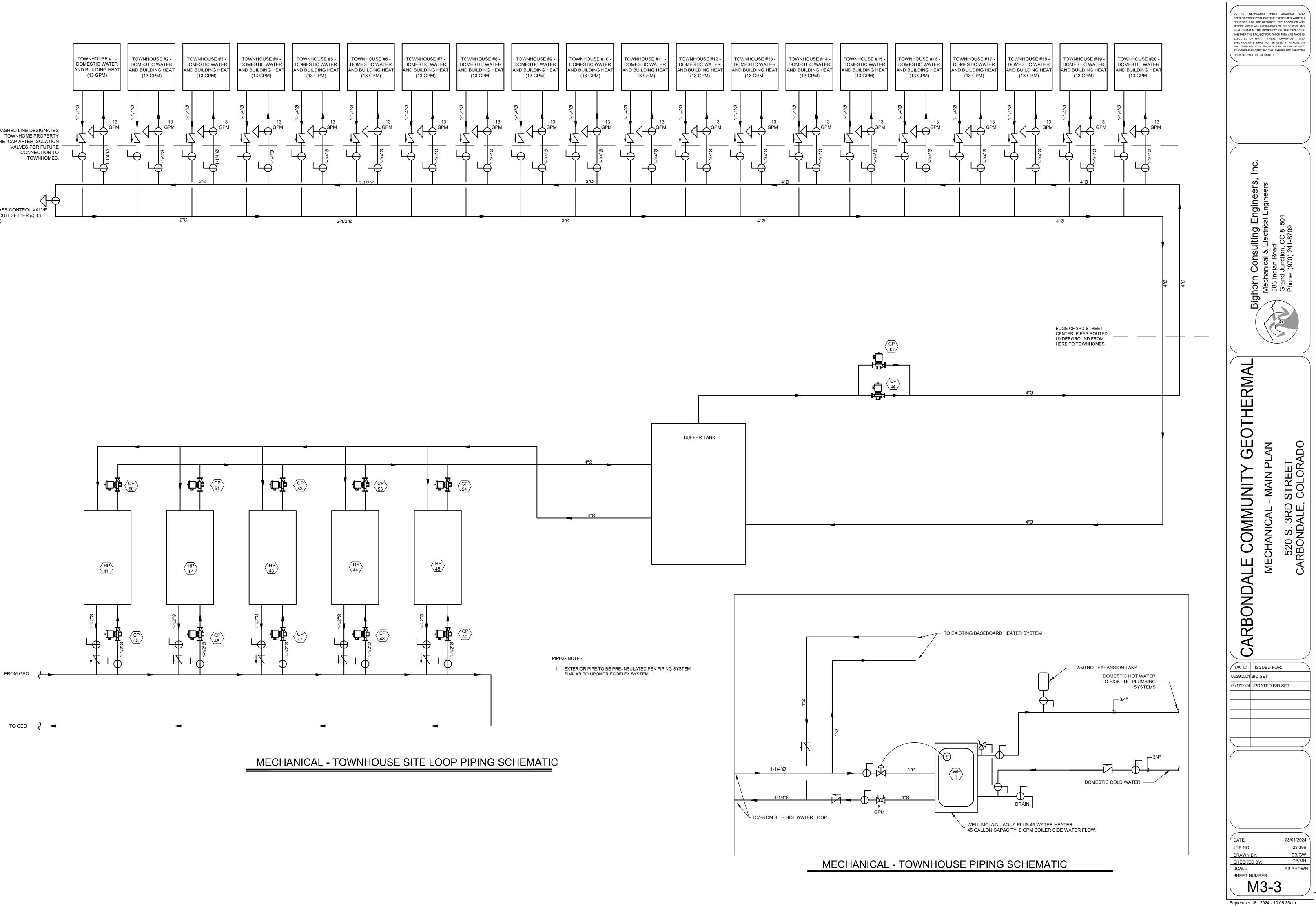


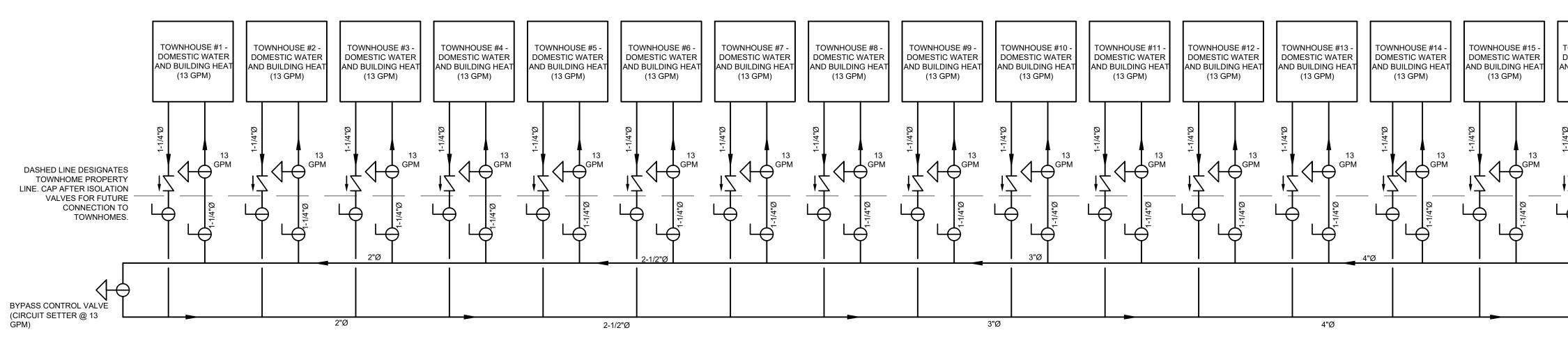












				WATER SOURCE HEAT PUMP SCHEDULE HEATING CYCLE							R FAN SECTION ELECTRIC															
					OOLING CYCLE											CONDENSER			FAN SE	CTION			ELECTRIC			
EQUIPMENT NO.	SERVICE	OFNO	1		TOTAL TONS	ENT.		WATER T					IP. (°F DB)		TEMP (°F)	GPM	P.D. (FT)	CFM	E.S.P	HP	FLA	V./PH/HZ	MCA (A)	MOCP (A)	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
	ZONE 1 (168)	SENS.		HEAT OF REJECTION	2		°F WB	ENT. 93	LVG.	TOTAL	HEAT OF EXTRACTION	ENT	LVG.	ENT.	LVG.	0	2.62	1200	0.14	1/0	4.2	200/1/00	10.2	20		NOTE-1
HP-1	ZONE 2 (167)	33.2	43.6	50	3	80.6	66.2		103	29	26.4	68	93.2	50	40	9	-	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SR0	
HP-2		33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-3	ZONE 3 (166)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SR0	NOTE-1
HP-4	ZONE 4 (165)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-5	ZONE 5 (161)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-6	ZONE 6 (162)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-7	ZONE 7 (160)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-8	ZONE 8 (159)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-9	ZONE 9 (157)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-10	ZONE 10 (158)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-11	ZONE 11 (155)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-12	ZONE 12 (156)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-13	ZONE 13 (151)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-14	ZONE 14 (150)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-15	ZONE 15 (163,170,164,129B)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-16	ZONE 15 (163,170,164,129B)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-17	ZONE 16 (149)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-18	ZONE 17 (138)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-19	ZONE 17 (138)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SL0	NOTE-1
HP-20	ZONE 18 (132,134,222B,222A)	21.3	28.3	12.4	2	80.6	66.2	93	103	17.8	15.8	68	88.7	50	40	6	1.09	800	0.07	1/2	4.3	208/1/60	15.4	20	WATER FURNACE UVH024SL0	NOTE-1
HP-21	ZONE 19 (129B)	54.6	78.3	92.4	6	80.6	66.2	93	103	58	52.3	68	101	50	40	20	12.3	2000	0.19	1	7.7	208/1/60	38.2	60	WATER FURNACE UVH072SL0	NOTE-1
HP-22	ZONE 20 (103,104,105)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-23	ZONE 21 (100,102A,129A)	33.2	43.6	50	3	80.6	66.2	93	103	29	26.4	68	93.2	50	40	9	2.62	1300	0.14	1/2	4.3	208/1/60	19.3	30	WATER FURNACE UVH036SL0	NOTE-1
HP-24	ZONE 22 (101,106,110)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-25	ZONE 23 (130A,130B,133)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-26	ZONE 23 (130A,130B,133)	41.2	55.2	60.7	A	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-27	ZONE 24 (142,143,144,140,139A,139B,139C)	49.1	68.35	70.4	5	80.6	66.2	93	103	45	41.1	68	96.8	50	40	17	9.18	1800	0.16	1	7.7	208/1/60	32.7	50	WATER FURNACE UVH060SL0	NOTE-1
HP-28	ZONE 25 (111,112,113,114,115)	41.2	55.2	60.7	3	80.6	66.2	93	103	38	34.4	68	94.5	50	40	17	4.5	1600	0.10	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-29	ZONE 26 (116)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-30	ZONE 27 (117)				4		66.2			38	34.4				40	12			0.15	1	7.7	208/1/60	27.7	_	WATER FURNACE UVH048SR0	NOTE-1
	ZONE 27 (117) ZONE 28 (118)	41.2	55.2	60.7	4	80.6		93 93	103			68	94.5	50 50			4.5	1600		1	_			40		
HP-31		41.2	55.2	60.7	4	80.6	66.2		103	38	34.4	68	94.5		40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7		WATER FURNACE UVH048SR0	NOTE-1
HP-32	ZONE 29 (119)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-33	ZONE 30 (120A,120B,121B,126E)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-34	ZONE 31 (121A)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-35	ZONE 32 (122A,122B)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-36	ZONE 33 (123A,123B)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-37	ZONE 34 (124A,124B)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-38	ZONE 35 (125 A,125B)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-39	ZONE 36 (126)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-40	ZONE 36 (126)	41.2	55.2	60.7	4	80.6	66.2	93	103	38	34.4	68	94.5	50	40	12	4.5	1600	0.15	1	7.7	208/1/60	27.7	40	WATER FURNACE UVH048SR0	NOTE-1
HP-41	TOWNHOMES	-	340.0	-	-	-	-	86	180	477	-	-	-	180	54	76	-	-	-	-	162	208/3/60	224		LYNC 500	NOTE-2
HP-42	TOWNHOMES	-	340.0	-	-	-	-	86	180	477	-	-	-	180	54	76	-	-	-	-	162	208/3/60	224		LYNC 500	NOTE-2
HP-43	TOWNHOMES	-	340.0	-	-	-	-	86	180	477	-	-	-	180	54	76	-	-	-	-	162	208/3/60	224		LYNC 500	NOTE-2
HP-44	TOWNHOMES	-	340.0	-	-	-	-	86	180	477	-	-	-	180	54	76	-	-	-	-	162	208/3/60	224		LYNC 500	NOTE-2
HP-45	TOWNHOMES		340.0	_	-	_	_	86	180	477	-	-	_	180	54	76	_	_	_		162	208/3/60	224		LYNC 500	NOTE-2

HEAT PUMP LOCATED ABOVE CEILING. UNPAINTED CABINET, FLOW METER, MERV 13 FILTER.
 HEAT PUMP LOCATED IN MECHANICAL ROOM. PROVIDE WITH CENTRAL CONTROLS FOR PARALLEL UNITS.

											WATER SOUR	CE HEAT	PUMP RO	OF TOP L	JNIT SCHE	DULE										
				C	OOLING CYCLE							HEATING CY	CLE			CONDENSER	2		FAN SE	ECTION			ELECTRIC			
EQUIPMENT NO.	SERVICE		Μ	вн	TOTAL TONS	EN	T. AIR	WATER [·]	ſEMP (°F)		MBH	AIR TEM	P. (°F DB)	WATER	TEMP (°F)	GPM	P.D. (FT)	CEM	Feb	Цр				MOCP (A)	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
		SENS.	TOTAL	HEAT OF REJECTION		°F DB	°F WB	ENT.	LVG.	TOTAL	HEAT OF EXTRACTION	ENT	LVG.	ENT.	LVG.	GPIN	F.D. (I I)	CFM	E.J.P	HP	FLA	V./PH/HZ				
RTU-1	ZONE 37 (GYM)	67.4	90.8	111.6	10	80.6	66.2	93	83	89.4	68	68	97.2	50	40	24	17.8	3000	0.5	4.8	9.2	208/3/60	43.2	50	WATER FURNACE URT096B3	NOTE-1
RTU-2	ZONE 37 (GYM)	67.4	90.8	111.6	10	80.6	66.2	93	83	89.4	68	68	97.2	50	40	24	17.8	3000	0.5	4.8	9.2	208/3/60	43.2	50	WATER FURNACE URT096B3	NOTE-1

1. PROVIDE WITH ROOF CURB, MODULATING ECONOMIZER, POWERED EXHAUST.

WATER SOURCE HEAT PUMP SCHEDULE

				E		JNII HEAIE	R SCHED	ULE	
EQUIPMENT NO.	SERVICE	CFM	BTU/HR	ĸw	AIR TEMP. RISE (F)	FULL LOAD AMPS (FLA)	V/PH/HZ	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
EUH-1	VEST 100	65	6,826	2	50	9.6	208/1/60	QMARK CWH1208DSAF	NOTE-1
NOTES:									

1. PROVIDE WITH INTEGRAL THERMOSTAT, RECESS MOUNTING FRAME, TERMAL OVERALOAD PROTECTION. ARCHITECT TO CONFIRM FINISH COLOR.

EI	JNIT	HEATE	ER	SCHED	ULE

	GRILLE-REGISTER-DIFFUSER SCHEDULE									
EQUIPMENT NO.	SIZE	MODEL	MANUFACTURER	FINISH	OPTIONS/ACCESSORIES					
TYPE - A	24"X24"	SPD	PRICE	WHITE	NOTE-1					
TYPE - B	12"X12"	SPD	PRICE	WHITE	NOTE-1					
TYPE - C	24"X24"	SPD	PRICE	WHITE	NOTE-2					
TYPE - D	24"X10"	500	PRICE	WHITE	NOTE-3					
NOTES: 1. CEILING MOUNTED SUPPLY GRILLE. PROVIDE MOUNTING BRACKET FOR CEILING. 2. CEILING MOUNTED RETURN GRILLE. PROVIDE MOUNTING BRACKET FOR CEILING. 3. FLOOR MOUNTED SUPPLY GRILLE. PROVIDE MOUNTING BRACKET FOR FLOOR.										



				PU	MP SCH	EDULE					
EQUIPMENT NO.	SERVICE	LOCATION	GPM	HEAD (FT.)			MOTOR			MANUFACTURER & MODEL	OPTIONS/ACCESSORIE
	SERVICE	LOCATION			WATTS	RPM	V./PH./HZ.	HP	FLA		
CP-1	HP-1	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-2	HP-2	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-3	HP-3	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-4	HP-4	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-5	HP-5	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-6	HP-6	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-7	HP-7	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-8	HP-8	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-9	HP-9	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-10	HP-10	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-11	HP-11	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-12	HP-12	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-13	HP-13	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-14	HP-14	INLINE IN SPACE	9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-15	HP-15	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-16	HP-16	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-17	HP-17	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-18	HP-18	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-19	HP-19	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-19 CP-20	HP-20		6		480	1600		0.6	4		
				2			120/1/60			TACO VR15M	NOTE-1
CP-21	HP-21		20	20	480	3000	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-22	HP-22		9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-23	HP-23		9	5	480	1700	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-24	HP-24	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-25	HP-25	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-26	HP-26	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-27	HP-27	INLINE IN SPACE	17	20	480	3100	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-28	HP-28	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-29	HP-29	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-30	HP-30	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-31	HP-31	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-32	HP-32	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-33	HP-33	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-34	HP-34	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-35	HP-35	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-36	HP-36	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-37	HP-37	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-38	HP-38	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-39	HP-39	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-40	HP-40	INLINE IN SPACE	12	9	480	2200	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-41	RTU-1	INLINE IN SPACE	24	20	480	3100	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-42	RTU-2	INLINE IN SPACE	24	20	480	3100	120/1/60	0.6	4	TACO VR15M	NOTE-1
CP-43	TOWNHOMES	MECHANICAL ROOM	215	60	-00	1760	208/3/60	10	30.8	TACO SKV4009D	NOTE-2
CP-44	TOWNHOMES	MECHANICAL ROOM	215	60		1760	208/3/60	10	30.8	TACO SKV4009D	NOTE-2
CP-44 CP-45	HP-41 GEO SIDE	MECHANICAL ROOM	35	50	-	1760	208/3/00	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2
					-						-
CP-46	HP-42 GEO SIDE		35	50	-	1760	208/1/60	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2
CP-47	HP-43 GEO SIDE		35	50	-	1760	208/1/60	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2
CP-48	HP-44 GEO SIDE		35	50	-	1760	208/1/60	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2
CP-49	HP-45 GEO SIDE	MECHANICAL ROOM	35	50	-	1760	208/1/60	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2
CP-50	HP-41 SUPPLY SIDE	MECHANICAL ROOM	35	50	-	1760	208/1/60	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2
CP-51	HP-42 SUPPLY SIDE	MECHANICAL ROOM	35	50	-	1760	208/1/60	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2
CP-52	HP-43 SUPPLY SIDE	MECHANICAL ROOM	35	50	-	1760	208/1/60	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2
CP-53	HP-44 SUPPLY SIDE	MECHANICAL ROOM	35	50	-	1760	208/1/60	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2
CP-54	HP-45 SUPPLY SIDE	MECHANICAL ROOM	35	50		1760	208/1/60	2	13.2	TACO SKV1507D-A-4P-PD	NOTE-2

GEOTHERMAL SYSTEM PUMP SCHEDULE (REFER TO SHEET XG601)

				- (/			
SED\//CE		CDM				MOTOR				OPTIONS/ACCESSORIES
SERVICE	LOCATION	GPIVI		WATTS	RPM	V./PH./HZ.	HP	FLA	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
MAIN GEOTHERMAL LOOP PUMP	3RD STREET CENTER MECH ROOM	1440	50	-	1760	208/3/60	25	74.8	TACO - SKV8011D	NOTE-1
MAIN GEOTHERMAL LOOP PUMP	3RD STREET CENTER MECH ROOM	1440	50	-	1760	208/3/60	25	74.8	TACO - SKV8011D	NOTE-1
MAIN GEOTHERMAL LOOP PUMP	3RD STREET CENTER MECH ROOM	1440	50	-	1760	208/3/60	25	74.8	TACO - SKV8011D	NOTE-1
TSC SOLAR THERMAL LOOP	3RD STREET CENTER MECH ROOM	100	25	-	3900	208/1/60	2.1	13.8	TACO - VR25H	NOTE-2
TSC SOLAR THERMAL LOOP	3RD STREET CENTER MECH ROOM	100	25	-	3900	208/1/60	2.1	13.8	TACO - VR25H	NOTE-2
TSC LOOPFILED SYSTEM PUMP	3RD STREET CENTER MECH ROOM	405	35	-	1760	208/3/60	7.5	24.2	TACO - SKV5007D	NOTE-1
TSC LOOPFILED SYSTEM PUMP	3RD STREET CENTER MECH ROOM	405	35	-	1760	208/3/60	7.5	24.2	TACO - SKV5007D	NOTE-1
TSC EXISTING BOILERS	3RD STREET CENTER MECH ROOM	-	-	-	-	-	-	-	EXISTING TO REMAIN	NOTE-3
TSC EXISTING BOILERS	3RD STREET CENTER MECH ROOM	-	-	-	-	-	-	-	EXISTING TO REMAIN	NOTE-3
TSC HEAT PUMP LOOP	3RD STREET CENTER MECH ROOM	825	50	-	1760	208/3/60	15	46.2	TACO KV6011D-4P-PM	NOTE-1
TSC HEAT PUMP LOOP	3RD STREET CENTER MECH ROOM	825	50	-	1760	208/3/60	15	46.2	TACO KV6011D-4P-PM	NOTE-1
TOWNHOUSE CO2 HEAT PUMPS	3RD STREET CENTER MECH ROOM	175	10	-	3900	208/1/60	2.1	13.8	TACO - VR25H	NOTE-2
TOWNHOUSE CO2 HEAT PUMPS	3RD STREET CENTER MECH ROOM	175	10	-	3900	208/1/60	2.1	13.8	TACO - VR25H	NOTE-2
	MAIN GEOTHERMAL LOOP PUMP MAIN GEOTHERMAL LOOP PUMP TSC SOLAR THERMAL LOOP TSC SOLAR THERMAL LOOP TSC LOOPFILED SYSTEM PUMP TSC LOOPFILED SYSTEM PUMP TSC LOOPFILED SYSTEM PUMP TSC EXISTING BOILERS TSC EXISTING BOILERS TSC HEAT PUMP LOOP TSC HEAT PUMP LOOP	SERVICELOCATIONMAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOMMAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOMMAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOMTSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOMTSC LOOPFILED SYSTEM PUMP3RD STREET CENTER MECH ROOMTSC LOOPFILED SYSTEM PUMP3RD STREET CENTER MECH ROOMTSC EXISTING BOILERS3RD STREET CENTER MECH ROOMTSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOMTSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOMTOWNHOUSE CO2 HEAT PUMPS3RD STREET CENTER MECH ROOM	SERVICELOCATIONGPMMAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH 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PUMP LOOP3RD STREET CENTER MECH ROOM82550TSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOM82550TOWNHOUSE CO2 HEAT PUMPS3RD STREET CENTER MECH ROOM17510	SERVICEHEAD (FT.)MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM100250-TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM100250-TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM100250-TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM405355-TSC LOOPFILED SYSTEM PUMP3RD STREET CENTER MECH ROOM405355-TSC LOOPFILED SYSTEM PUMP3RD STREET CENTER MECH ROOM405355-TSC EXISTING BOILERS3RD STREET CENTER MECH ROOM405355-TSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOM825500-TSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOM825500-TOWNHOUSE CO2 HEAT PUMPS3RD STREET CENTER MECH ROOM175100-	SERVICELOCATIONPEAD (FT.)WATTSRPMMAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM10025-3900TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM10025-3900TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM10025-3900TSC LOOPFILED SYSTEM PUMP3RD STREET CENTER MECH ROOM40535-1760TSC LOOPFILED SYSTEM PUMP3RD STREET CENTER MECH ROOM40535-1760TSC EXISTING BOILERS3RD STREET CENTER MECH ROOMTSC EXISTING BOILERS3RD STREET CENTER MECH ROOMTSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOM825500-1760TSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOM82550-1760TOWNHOUSE CO2 HEAT PUMPS3RD STREET CENTER MECH ROOM175100-3900	SERVICEHEAD (FT.)HEAD (FT.)MATTSRPMV./PH./HZ.MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760208/3/60MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760208/3/60MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760208/3/60MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM10025-3900208/1/60TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM10025-3900208/1/60TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM10025-3900208/1/60TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM405355-1760208/3/60TSC LOOPFILED SYSTEM PUMP3RD STREET CENTER MECH ROOM405355-1760208/3/60TSC EXISTING BOILERS3RD STREET CENTER MECH ROOM405355TSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOM625500-1760208/3/60TSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOM825500-1760208/3/60TOWNHOUSE CO2 HEAT PUMPS3RD STREET CENTER MECH ROOM175100-3900208/1/60	SERVICELOCATIONPHAD (FT.)WATTSROWV./PH./HZ.HPAD (FT.)MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760208/3/6025MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760208/3/6025MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760208/3/6025MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM10025-3900208/1/602.1TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM405355-1760208/3/607.5TSC LOOPFILED SYSTEM PUMP3RD STREET CENTER MECH ROOM405355TSC EXISTING BOILERS3RD STREET CENTER MECH ROOMTSC EXISTING BOILERS3RD STREET CENTER MECH ROOM825500-1760208/3/6015TSC HEAT PUMP LOOP3RD STREET CENTER MECH ROOM825500-1760208/3/6015TOWNHOUSE CO2 HEAT PUMPS	SERVICEIDCATIONHEAD (F1)WATTSRPMV/PH./HZ.HPFLAMAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760208/3/602574.8MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760208/3/602574.8MAIN GEOTHERMAL LOOP PUMP3RD STREET CENTER MECH ROOM1440500-1760208/3/602574.8TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM10025-3900208/1/602.113.8TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM10025-3900208/1/602.113.8TSC SOLAR THERMAL LOOP3RD STREET CENTER MECH ROOM10025-3900208/1/602.113.8TSC LOOPFILED SYSTEM PUMP3RD STREET CENTER MECH ROOM405355-1760208/3/607.524.2TSC EXISTING BOILERS3RD STREET CENTER MECH ROOMTSC EXISTING BOILERS3RD STREET CENTER MECH 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BOILERS3RD STREET CENTER MECH ROOM405355EXISTING TO REMAINTSC EXISTING BOILERS3RD STREET CENTER MECH ROOMEXISTING TO REMAINTSC

NOTES: HIGH EFFICENCY PUMP 3PH PUMP. PROVIDE WITH VFD, BMS INTERFACE, SUPPORT STAND, TEFC MOTOR ENCLOSURE, AND FLANGED PIPE CONNECTIONS.
 VARIABLE SPEED PUMP. PROVIDE WITH EC MOTOR, BMS INTERFACE, .TEFC MOTOR ENCLOSURE, AND FLANGED PIPE CONNECTIONS.
 EXISTING PUMPS ARE TO REMAIN. FEED INTO GEO LOOP AS SHOWN ON GEOTHERMAL DRAWINGS. VERIFY GOOD WORKING CONDITION OF PUMPS.



FIRE ALARM EQUIPMENT LEGEND FACP FIRE ALARM CONTROL PANEL FIRE ALARM PULL STATION \triangleright FIRE ALARM HORN \bowtie FIRE ALARM STROBE FIRE ALARM HORN/STROBE \bigtriangledown CEILING MOUNTED SPEAKER $\langle D \rangle -$ DUCT DETECTOR $\langle R_L \rangle$ REMOTE LAMP (S)^A SMOKE DETECTOR - PHOTOELECTRIC 135° STANDARD HEAT DETECTOR (H)_{135°} PIR PIR DETECTOR DH DOOR HOLD - MAGNETIC HOLD FLOW SWITCH TAMPER SWITCH

COMMUNICATION LEGEND

9	CLOCK ONLY
$\bigcirc \bigcirc$	CLOCK / PA SPEAKER WALL MOUNTED
S	ROUND CEILING MOUNTED SPEAKER
S	SQUARE SPEAKER
- C	INTERCOM PUSH TO CALL SWITCH
WAP	WIRELESS ACCESS POINT ABOVE THE CEILING
OJECTOR	ABOVE THE CEILING PROJECTOR CONNECTION
	WALL MOUNTED HDMI
\bigtriangledown	PLAIN DATA OUTLET
∕∕80"	PLAIN DATA OUTLET WITH MOUNTING HEIGHT
\mathbf{V}	COMBINATION DATA/TELEPHONE
\mathbf{V}	FLOOR MOUNTED COMBINATION DATA/TELEPHONE
\mathbf{v}	CEILING MOUNTED COMBINATION DATA/TELEPHON
	TELEVISION OUTLET

SECURITY SYSTEM LEGEND

ADA DOOR OPERATOR PUSH BUTTON	
ELECTRIC DOOR STRIKE	
CARD READER FOR DOOR OPERATOR	

SECURITY CAMERA

LIGHTING LEGEND

NOTES: SYMBOLS SHOWN ARE STANDARD. VARIATION AND/OR COMBINATIONS MAY BE USED ON THE PLANS. THIS LIST SHOWS STANDARD SYMBOLS AND ALL MAY NOT APPEAR ON THE PROJECT DRAWINGS; HOWEVER, WHEREVER THE SYMBOL ON THE PROJECT DRAWINGS OCCUR, THE ITEM SHALL BE PROVIDED AND INSTALLED. VARIATION AND/OR COMBINATION MAY BE USED ON THE PLANS. A NUMBER NEXT TO A RECEPTACLE OR DEVICE INDICATES A CIRCUIT NUMBER. AN UPPER CASE LETTER NEXT TO A SWITCH INDICATES THE FUNCTION OF THE SWITCH. A LOWER CASE LETTER INDICATES THE SWITCH CIRCUIT. AN UPPER CASE LETTER NEXT TO A LIGHT FIXTURE INDICATES THE TYPE OF FIXTURE. REFER TO THE LUMINAIRE SCHEDULE FOR FIXTURE SPECIFICATIONS. A LOWER CASE LETTER NEXT TO A LIGHT CORRESPONDS TO THE SWITCH DESIGNATION. SWITCHES SINGLE POLE SWITCH TWO POLE SWITCH THREE-WAY SWITCH FOUR-WAY SWITCH DIMMER SWITCH \$_{3D} 3 WAY DIMMER SWITCH - (4D INDICATES A 4WAY DIMMER) \$_{DR} DOOR ACTIVATED SWITCH WALL MOUNTED DUAL TECHNOLOGY MANUAL ON / AUTO OFF VACANCY SENSOR \$_{MA} SWITCH \$_{IV} LOW VOLTAGE LIGHT SWITCH \$_{TO} MANUAL MOTOR STARTER PILOT LIGHT SWITCH AUTO ON / AUTO OFF LIGHT SWITCH \$MO DUAL TECHNOLOGY MOTION / OCCUPANCY SENSOR LIGHT SWITCH MANUAL ON / AUTO OFF DIMMING LIGHT SWITCH KEY OPERATED LIGHT SWITCH MANUAL ON - TIMED OFF LIGHT SWITCH $\langle OS \rangle \langle OS \rangle$ CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH $\langle MA angle (MA)$ Ceiling mounted dual technology manual on / auto off vacancy sensor (DH) CEILING MOUNTED DAYLIGHT RESPONSIVE CONTROL (DAYLIGHT HARVESTING) \$_{SC} SCENE CONTROL STATION \$_{MS} UNIT LIGHTING MANAGEMENT CONTROL STATION, LIGHT FIXTURES

	1'x4' LED TROFFER OR DIRECT/INDIRECT TY OR SURFACE MOUNTED
	2'x4' LED TROFFER OR DIRECT/INDIRECT TY OR SURFACE MOUNTED
A	2'x2' LED TROFFER OR DIRECT/INDIRECT TY OR SURFACE MOUNTED
	OPEN STRIP FIXTURE
<u> </u>	WALL BRACKET LINEAR FIXTURE
A	WALL MOUNTED SCONCE LIGHT FIXTURE
а ф-	RECESSED DOWNLIGHT CAN FIXTURE
А -ф-	SURFACE CEILING OR PENDANT MOUNTED
X2	DOUBLE FACE EXIT SIGN, WALL AND CEILIN
X1 €∄€	SINGLE FACE EXIT SIGN, WALL AND CEILIN
EM ()()	WALL MOUNTED EMERGENCY LIGHT
MR	EMERGENCY EXTERIOR EGRESS FIXTURE

GENERAL ELECTRICAL NOTES:

- GOVERNING CODES.
- 2. FIELD COORDINATION DURING CONSTRUCTION IS IMPERATIVE. CONTRACTORS BIDDING THIS WORK MUST MAKE REASONABLE ALLOWANCES FOR UNFORESEEN CONTINGENCIES.
- 3. ELECTRIC UTILITY TO ADVISE OWNER AND/OR THE ELECTRICAL ENGINEER PRIOR TO SERVICE MODIFICATION REQUIRING COST TO THE OWNER.

WIRING

- TO ROUGH-IN. 2. ALL CONDUITS AND CONVEYANCES SHALL BE CONCEALED. IN THE EVENT THAT A NEW DEVICE IS BEING INSTALLED IN AN EXISTING DRYWALL PARTITION, PROVIDE A CUT IN TYPE BOX AND FISH
- AROUND THE CONDUIT. TRANSITION TO EMT ONCE ABOVE THE CEILING. 3. SIZES OF WIRE AND CABLES ARE BASED UPON COPPER CONDUCTORS, UNLESS OTHERWISE
- UNLESS NOTED OTHERWISE. 4. ALL BRANCH CIRCUITS WITH HOME RUNS OVER 50 FEET, WILL BE SIZED ONE SIZE LARGER.
- 5. ALL PENETRATIONS IN OR THROUGH FIRE RATED PARTITIONS SHALL BE FIRE STOPPED IN SUCH A WAY THAT THE PENETRATION MATCHES THE FIRE RATING OF THE WALL.
- APPROPRIATE DISCIPLINES AND CONTRACTORS.
- 7. COORDINATE ALL DEVICE, FIXTURE AND HARDWARE COLOR SELECTIONS WITH THE ARCHITECT PRIOR TO MAKING SHOP DRAWING SUBMITTALS.
- CASEWORK AND APPLIANCE RECEPTACLES WITH ARCHITECTURAL ELEVATIONS.
- 9. BRANCH CIRCUIT AND SPECIAL SYSTEMS WIRING FOR DEVICES ON WALLS IN FINISHED AREAS WHICH CANNOT BE CONCEALED SHALL BE INSTALLED IN SURFACE MOUNTED RACEWAY. 10. ALL EXPOSED CONDUITS, BOXES, ETC. IN ROOMS TO BE PAINTED SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACE, EXPOSED CONDUITS, BOXES, ETC. IN ROOMS WHICH ARE NOT
- PAINTED MAY BE LEFT UN-PAINTED. EXPOSED CONDUIT, BOXES, ETC. ON THE EXTERIOR OF BUILDINGS SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACE AS CLOSELY AS POSSIBLE. 11. THE CONTRACTOR IS RESPONSIBLE FOR PATCHING, PAINTING, REPAIRING OR REPLACEMENT OF
- ALL WALLS, CEILING OR OTHER BUILDING ELEMENTS WHICH ARE DISTURBED AS PART OF THE DEMOLITION AND/OR INSTALLATION OF ELECTRICAL WORK. 12. PROVIDE ELECTRICAL CONNECTION TO ALL FIRE, SMOKE, AND FIRE / SMOKE DAMPERS INCLUDING
- POWER AND FIRE ALARM. VERIFY EXACT SIZE AND FINAL LOCATION OF ALL DAMPERS WITH THE MECHANICAL CONTRACTOR. ALL ROOFTOP UNITS RATED AT MORE THAN 2000 CFM WILL BE OUTFITTED WITH A DUCT DETECTOR IN THE RETURN DUCT. ALL ROOFTOP UNITS RATED AT MORE THAN 15000 CFM WILL BE OUTFITTED WITH A DUCT DETECTOR IN BOTH THE SUPPLY AND RETURN DUCT AT ROOFTOP LEVEL AND IN THE RETURN DUCT AT EVERY LEVEL THAT IS SERVED. ELECTRICAL CONTRACTOR WILL PROVIDE A REMOTE TEST STATION AND ALL WIRING NECESSARY TO COMPLETE INSTALLATION.
- 13. REFER TO THE MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS ASSOCIATED WITH PLUMBING AND HVAC EQUIPMENT AND OWNER/GENERAL CONTRACTOR FURNISHED EQUIPMENT.

TYPE FIXTURE GRID, FLANGE

TYPE FIXTURE GRID, FLANGE

TYPE FIXTURE GRID, FLANGE

D FIXTURE ING MOUNTED

NG MOUNTED

1. ALL ELECTRICAL WORK TO COMPLY WITH LATEST EDITION OF NEC, IECC AND ALL APPLICABLE

1. ALL WIRING IS SHOWN DIAGRAMMATICALLY ON DRAWING, FIELD VERIFY ALL CONDITIONS PRIOR

FLEXIBLE CONDUIT DOWN INSIDE THE WALL FROM ABOVE THE CEILING AND REPAIR THE DRYWALL

INDICATED. ALL CIRCUITS SHALL CONTAIN (2) #12 AWG WITH (1) #12 GND IN 1/2" CONDUIT

6. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION BETWEEN THE

8. COORDINATE THE MOUNTING HEIGHTS OF ALL RECEPTACLES MOUNTED ABOVE COUNTERS,

	ELECTRICAL EQUIPMENT LEGEND
	BRANCH CIRCUIT PANELBOARD
	TELEPHONE TERMINAL BOARD
\bigcirc	ELECTRIC MOTOR
F	FUSED SAFETY SWITCH / DISCONNECT COMBINATION
4	MOTOR STARTER
	CONTACTOR
LA-7	CIRCUITRY HOMERUN: PANEL LA - CIR. #7
	- CONDUIT OR WIRE CONCEALED IN WALL/CLG. (SOLID LINE TYPE)
	- CONDUIT OR WIRE UNDERFLOOR/UNDERGND. (CENTER LINE TYPE)
	MAIN DISTRIBUTION GEAR
	CIRCUIT BREAKER IN A PANEL BOARD
	PAD MOUNTED UTILITY TRANSFORMER
	FUSED DISCONNECT
	1004 = AMP RATING 2P = NUMBER OF POLES
100 A 2 POLE	
FUSED DISCON	
M	ELECTRICAL METER SHOWN ON ONE-LINE DIAGRAMS
	ELECTRICAL POWER PANEL WITH MAIN LUG OR MAIN BREAKER
	PP1= PANEL NAME 225A MLO = MAIN LUG OR BREAKER SIZE
	120/208V = PANEL VOLTAGE 3PH, 4 WIRE = PANEL PHASE, DISTRIBUTION TYPE
PP1	 PP1
225A MCB 225	
	H, 4W
	ELECTRICAL DEVICE LEGEND
J	CEILING JUNCTION BOX - SURFACE/FLUSH
	WALL JUNCTION BOX - SURFACE/FLUSH
	DUPLEX RECEPTACLE
	FLOOR MOUNTED RECEPTACLE
	CEILING MOUNTED DUPLEX RECEPTACLE
	FLOOR MOUNTED FOURPLEX RECEPTACLE
	APPLIANCE RECEPTACLE - 3 WIRE
⊕ GFCI	GROUND FAULT CIRCUIT INTERRUPTER
Физв	RECEPTACLE WITH USB CHARGING CAPABILITES
\oplus_{AC}	RECEPTACLE MOUNTED ABOVE COUNTER
⊕cw	RECEPTACLE MOUNTED IN CASEWORK
	ELECTRIC HAND DRYER
T	THERMOSTAT
	OPEN/CLOSE/STOP PUSH BUTTON
	DRAWING KEY NOTES
ROOM	

LUMINAIRES

GFCI

GFCI

WP

PROOF COVER

ABOVE FINISHED FLOOR

1. COORDINATE THE LOCATION OF ALL LIGHTING EQUIPMENT INCLUDING BUT NOT LIMITED TO THE LUMINAIRES, SWITCHES WITH THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND ALL OTHER TRADES AS REQUIRED. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONAL LOCATION OF LIGHT FIXTURES.

GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE WITH A WEATHER

GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE MOUNTED AT 44"

- 2. LIGHTING FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE ABOVE AND SHALL NOT BE SUPPORTED FROM THE T-BAR CEILING GRID.
- 3. THE ELECTRICAL CONTRACTOR IS TO CONFIRM THE LIGHT FIXTURES ORDERED WILL BE COMPATIBLE WITH THE CEILING TYPES AS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING THE FIXTURES. 4. VERIFY LUMINAIRE MOUNTING REQUIREMENTS AND OVERALL HEIGHT OF ALL PENDANT
- MOUNTED FIXTURES PRIOR TO ORDERING. 5. ALL LIGHT FIXTURES NEED TO BE COMPATIBLE WITH THE SWITCHES AND CONTROLS BEING PROVIDED.
- 6. THE LIGHTING PACKAGE SHALL BE APPROVED BY BOTH THE ARCHITECT AND ENGINEER AS APPROVED EQUAL BEFORE BID. NO LIGHT FIXTURE SHALL BE ORDERED UNTIL THE LIGHT FIXTURE SUBMITTAL PACKAGE HAS BEEN APPROVED IN WRITING BY THE ARCHITECT, GENERAL CONTRACTOR AND ELECTRICAL ENGINEER.
- 7. COORDINATE LUMINAIRE MOUNTING REQUIREMENTS PRIOR TO PLACING ORDER.

RESPONSIBLE DIVISION:

UNLESS OTHERWISE INDICATED ALL HI AND OTHER MECHANICAL EQUIPMENT, IN PLACE AND WIRED AS FOLLOWS:		
ITEM	FURNISHED	SET
EQUIPMENT	23	23
COMBINATION MAGNETIC MOTOR STARTERS, MAGNETIC MOTOR STARTERS, VFD'S AND CONTACTORS	23(1)	26
FUSED AND UNFUSED DISCONNECT SWITCHES, THERMAL OVERLOAD SWITCHES AND HEATERS, MANUAL MOTOR STARTERS	26	26
MANUAL-OPERATING AND MULTI-SPEED SWITCHES	23	26
CONTROLS, RELAYS, TRANSFORMERS	23	23
THERMOSTATS (LOW VOLTAGE) AND TIME SWITCHES	23	23
THERMOSTATS (LINE VOLTAGE)	23	23
TEMPERATURE CONTROL PANELS	23	23
MOTOR AND SOLENOID VALVES, DAMPER MOTORS, PE & EP SWITCHES	23	23(2)
PUSH-BUTTON STATIONS AND PILOT LIGHTS	23	23(2)
HEATING, COOLING, VENTILATION AND AIR CONDITIONING CONTROLS	23	23
EXHAUST FAN SWITCHES	23	26

SUBSCRIPT FOOTNOTES:

AUXILIARY CONTACT, AND "ON" AND "OFF" PILOT LIGHTS. 2. IF ITEM IS FOR LINE VOLTAGE, SET IN PLACE AND CONNECT UNDER DIVISION 26. WHERE FACTORY MOUNTED ON EQUIPMENT OR ATTACHED TO PIPING OR DUCTS AND USING LINE

ABBREVIATIONS:

INISHED FLOOR TO CENTER OF DEVICEDISCH DISCHARGEAMPSDIVDIVISIOND.ACCESS DOORDIVDIVISIOND.ACCESS DOORDIVDIVISIONWAAR ADMITTANCE VALVEDISDUC SILERBVABOVEDWGDRAWINGCARCONDITIONING UNITDXDIRECT EXICABOVE FINISHED CEILINGEAEXISTINGLCAMPERE INTERRUPTINGECCELECTRICAAMPERE INTERUPTINGECCECCENTRICAPACTIYFFABOVE FINISHED FLOOREFFF.F.ABOVE FINISHED FLOOREFFEFFPACCTYFFELECATIONPACCTYAUTOMATIC TRANSFER SWITCHEMPACECESS PANEL OR DOOREUVEQUIP EQUIVALENBBASEBOARDEQUIVEQUIP EQUIPMENTDBACK DRAFT DAMPERESEND SWITCBBASEBOARDEWCELECTRIC NODBACK DRAFT DAMPERESEND SWITCDBACK DRAFT DAMPEREXEXTERNALLBOILEREXEXANISTDDBATTOM OF DUCTEXEXHAUSTDFBACK FLOW PREVENTOREXEXPANDBBASEMENTEXEXTERNALLBOILEREXEXANISTDDBOTTOM OF DUCTEXEXHAUSTDDBATTOM OF DIPEEXEXANISTCHILLERFAFREE AREAAPACAPACITYFCFAN COLLDCICCUIT BREA	BB	REVIATIONS:		
AMPSDIVDIVDIV.D.ACCESS DOORDIVDIVDOWNAM AIR ADMITTANCE VALVEDSDUV TSILENBVABOVEDWGDRAWINGCAR CONDITIONING UNITDXDIRECT EXICABOVE FINISHED CEILINGEAEXHAUST ALF.C. ABOVE FINISHED CEILINGEAEXHAUST ALF.G. ABOVE FINISHED CEILINGECELECTRICAAPACITYEFEXHAUST ALIMAIR HANDLING UNITELELEVATIONLIMALUMINUMELECELEVATIONPACCESS PANEL OR DOORELECELEVATIONVAUDIO / VIDEOEMEMERCENCVGAVERAGEEMELECTRICABBASEBOARDEQUIP EQUIPALENTDBACK FLOW PREVENTORESEND SWITCHLBBOLLEREVEXTERNALLDBOLLEREVEXTERNALLDBOLTOM OF PREVENTORESEXTERNALLDBOLTOM OF DEAMEXTEXTERNALLTBOTTOM OF DEAMEXTEXTRANALMMBASEMENTEXEXHAUSTCHILLERFAFREE AREACHILLED WATER KERFCFOOTCANDBMCIRCUIT BALANCING VALVEFCVFLOW ONCTCORRELATED COLORFDFLOR ONTCTCORRELATED COLORFDFLOR ONTCTCORRELATED COLORFDFLOR ONTCTCORRELATED COLORFDFLOR ONTCT </td <td></td> <td></td> <td>DIFF</td> <td>DIFFERENTIAL</td>			DIFF	DIFFERENTIAL
D. ACCESS DOOR DN DOWN AV AIR ADMITTANCE VALVE DN DOWN AV AIR ADMITTANCE VALVE DS DUCT SILE M ABOVE C AIR CONDITIONING UNIT DX DIRECT EXX C ABOVE COUNTER (A) EXISTING C ABOVE FINISHED CELLING EAT ENTERNING F.C. ABOVE FINISHED CELLING EAT ENTERNING C AMOVE FINISHED CELLING EAT ENTERNING C AMOVE FINISHED CELLING EAT ENTERNING P ACCESS PANEL OR DOOR EFF EFFICIENCY HU AIR HANDLING UNIT EL ELEVATION P ACCESS PANEL OR DOOR EFF EFFICIENCY VA JUDIO / VIDEO VG AVERAGE EXTRASSFER SWITCH ENTERNING DB BACK DRAFT DAMPER B BASEBOARD EQUIP EQUIPMENT B BASEBOARD EXTRASSFER SWITCH EXTRASSFER SWITCH D BACK DRAFT DAMPER ES END SWITCH D BACK DRAFT DAMPER ES END SWITC C AVERAGE EXTRASSFER SWITCH EXTRASSFER SWITCH D BACK DRAFT DAMPER ES END SWITC C AVERAGE EXTRASSFER SWITCH EXTRASSFER SWITCH EXTRASSFER SWITCH EXTRASSFER SWITCH EXTRASSFER SWITCH EXTRASSFER SWITCH EXTRASSFER SWITCH EXTRASSFER SWITCH EXTRASSFER D BACK DRAFT DAMPER ES END SWITC D BACK DRAFT DAMPER ES END SWITC D BACK DRAFT DAMPER ES END SWITCH EXT EXTERNAL D BOLLER EXTRASSFER SWITCH EXTRESSFER D BOTTOM OF BEAM TEMPERATURE EXTRASSION D BOTTOM OF DEFE EXPANSION EXT EXTERNAL D BOITCM OF DEFE EXPAN EXT EXTERNAL D BOITCM OF DEFE EXPAN EXT EXTERNAL D BOITCM OF DEFE EXPAN EXT EXTERNAL D BOTTOM OF DIPE EXTRAS C FLUIT BREAKER FC FC FOOTCAND BV CIRCUIT BREAKER FC FC FOOTCAND BV CIRCUIT BREAKER FC FC FLOW CON CT CORRELATED COLOR FC FD FLOOR DR Z KT CIRCUIT BREAKER FC FC FLOW CON CT COURTENT FET PER NON FM CUBIC FEET PER MINUTE FLEX FLEXIBLE FM CUBIC FEET PER MINUTE FLEX FLEXIBLE FM CUBIC FEET PER MINUTE FF FIRE PER NO FO FLAT ON TC TO CORRELATED COLOR FF FD FIRE PONT FM CUBIC FEET PER MINUTE FP FIRE PER NO FO FLAT ON TC T COURTENT FROM FC FC FOOTCAND FM CUBIC FEET PER MINUTE FF FLEY FLEX FLEX FLEXIBLE FM CUBIC FEET PER MINUTE FF FE FER FROM	INISH		DISCH	DISCHARGE
AVAIR ADMITTANCE VALVEDSDUCT SILEPBVABOVEDWGDRAWINGCAIR CONDITIONING UNITDXDIRECT EXILCABOVE COUNTERA)EXISTINGLCABOVE FINISHED CEILINGEAEXHAUST AJF.C.ABOVE FINISHED CEILINGEAEXHAUST AJF.G.ABOVE FINISHED CEILINGEAEXHAUST ALCAMPERE INTERRUPTINGECELECTRICAJCAMPERE INTERRUPTINGECELECATIONJF.F.ABOVE FINISHED FLOOREFEFFJLALIONATIC TRANSFER SWITCHEHELECTRICAJDACCESS PANEL OR DOORENTENTERINGJCAVERAGEEMEQUIP EQUIPMENTBBASEBOARDEQUIP EQUIPMENTESEND SWITCJDBACK DRAFT DAMPERESEND SWITCLBOILEREXEXTERNALEXLDBUILDINGAUTOMATICN SYSTEMESEND SWITCDFBACK FLOW PREVENTORESEND SWITCDFBACK CHAFT DAMPEREXEXTERNALLLBOILEREXEXTERNALLLBOITOM OF DUCTEXEXPANDFBOTTOM OF DUCTEXEXPANDFBOTTOM OF DUCTEXEXPANDFCHLLERFAFREE AREAAPCAPACITYFCFOOTCANDDFCIRCUIT BRAKERFCFOOTCANDDFCIRCUIT BRAKERFCFOOTCAND	П			
BVABOVEDWSDRAWINGCAIR CONDITIONING UNITDXDIRECT EXICCABOVE COUNTER(A)EXISTINGF.C.ABOVE FINISHED CEILINGEAEXHUST AF.F.ABOVE FINISHED CEILINGEAEXHUST ACAMPERE INTERUPTINGECCECCENTRICAARACITYFFFFFEFFEFFF.F.ABOVE FINISHED FLOOREFFEFFF.F.ABOVE FINISHED FLOOREFFEFFPACCITYFAUDIO / VIDEOELCVIDID AUDIO / VIDEOENEMTELCC RICINGVGAVERAGEEMTELCCTRICVGAVERAGEEMTELCUPMENTBBASEBOARDEOUP EOUVALENDBACK DRAFT DAMPERESEND SWITCFBACK DRAFT DAMPERESEND SWITCDBOTTOM OF DUCTEXEXHANSTDBOTTOM OF DUCTEXEXHANSTDBOTTOM OF PIPEEXAFT EXTERNALDBOTTOM OF PIPEEXAFT EXTERNALDBOTTOM OF PIPEEXAFT EXTERNALDBOTTOM OF PIPEEXAFT EXTERNALDCHILLERFCFOOT EANDBOTTOM OF PIPEEXAFT EXTERNALCCHULRRFCFOOT CANDDBOTTOM OF PIPEEXAFT EXTERNALDCHRUNTFCDEGRESS FCHILLERFLEFLEAPCAPACITYFCFOOT CANDDCHCUIT BRAKERFC <td></td> <td></td> <td></td> <td></td>				
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IA DIAMETER HP HEAT PUMF			НВ	HOSE BIBB
	F	DRINKING FOUNTAIN	HD	HEAD (SEE SCH
IAG DIAGRAM HP HORSEPOW	IA	DIAMETER	HP	HEAT PUMP
	IAG	DIAGRAM	HP	HORSEPOWER

AIR CONDITIONING, PLUMBING, OLS SHALL BE FURNISHED, SET

POWER WIRED	CONTROL WIRED	
26		
26(2)	23	
26		
26	26	
26	23	
00	00	
26	23	
26	26	
26	23	
	23(2)	
	22(2)	
	23(2)	
26	23	
26	23(2)	

1. MOTOR STARTER TO INCLUDE CONTROL TRANSFORMER, HOA SWITCH, (1) NO AND (1)NC

VOLTAGE FURNISH AND SET UNDER DIVISION 23, CONNECT UNDER DIVISION 26.

ERENTIAL	HR	HOUR
CHARGE	HT	HEIGHT
SION	HTR	
/N T SILENCER	HWR HWS	HEATING WATER RETURN HEATING WATER SUPPLY
WING	HX	HEAT EXCHANGER
ECT EXPANSION	HZ	HERTZ
TING	ID	INSIDE DIAMETER
AUST AIR GRILLE/REGISTER	IG	ISOLATED GROUND
ERING AIR TEMPERATURE	IN	INCHES
	INV	
ENTRIC AUST FAN	K JBOX	JUNCTION BOX KELVIN
CIENCY		KILOWATT
/ATION	KVA	KILO VOLT - AMPS
CTRIC	L	LENGTH
VATOR	LAT	LEAVING AIR TEMPERATURE
RGENCY FUNCTION	LV	LAVATORY
	LB	
CTRIC METALLIC TUBE	LD LF	LINEAR DIFFUSER LINEAR FEET
IPMENT	LIN	LINEAR
IVALENT	LIQ	LIQUID
SWITCH	LM	LUMEN
ERNAL STATIC PRESSURE	LRA	LOCKED ROTOR AMPS
ANSION TANK	LV	LOUVER
	LVG	
ERING WATER JRE	LWT MBH	LEAVING WATER TEMPERATURE THOUSANDS OF BTU PER HOUR
AUST	MC	
EXPANSION	MCA	MINIMUM CIRCUIT AMPACITY
ERNAL	MCB	MAIN CIRCUIT BREAKER
REES FAHRENHEIT E AREA	MD	MOTORIZED DAMPER
E AREA COIL UNIT	MDP	MAIN DISTRIBUTION PANEL
TCANDLE	MED MFR	MEDIUM
W CONTROL VALVE	MIN	MINIMUM
DAMPER	MISC	MISCELLANEOUS
OR DRAIN	MLO	MAIN LUG ONLY
SHED		MAXIMUM OVERCURRENT
LOAD AMPS	PROTE MTD	
OR		MAKE-UP AIR UNIT
F ON BOTTOM	N	NEUTRAL
I ON TOP	NC	NORMALLY CLOSED
PROTECTION	NEG	NEGATIVE
PUMP	NIC	NOT IN CONTRACT
	NL NOT S\	NIGHT / SECURITY LIGHT - DO WITCH
T PER SECOND W SWITCH	NO	NORMALLY OPEN
SMOKE DAMPER	NOM	NOMINAL
Г	NTS	NOT TO SCALE
KIBLE CONNECTION	OA	
DUND	OBD OC	OPPOSED BLADE DAMPER ON CENTER
GE	000	OCCUPIED
LON VANIZED	OCP	OVER CURRENT PROTECTION
	OD	OUTSIDE DIAMETER
R	OL	OVERLOAD
GROUND FAULT CIRCUIT FR	ORD	OVERFLOW ROOF DRAIN
ERAL CONTRACTOR	OZ	
LONS PER HOUR	PBD PD	PARALLEL BLADE DAMPER PRESSURE DROP
LONS PER MINUTE	PH	PHASE
GRAINS PER POUND	POS	POSITIVE PRESSURE
ER	POS	POINT OF SALES
E BIBB D (SEE SCHEDULES)	PRV	PRESSURE REDUCING VALVE
D (SEE SCHEDULES) T PUMP	PS	PRESSURE SWITCH
SEPOWER	PSI	POUNDS PER SQUARE INCH

SUBSTITUTIONS:

A. SUBSTITUTIONS: SUBSTITUTION OF SPECIFIED EQUIPMENT WILL BE ALLOWED THROUGH A PRIOR APPROVAL PROCESS INITIATED BY THE CONTRACTOR. CONTRACTOR SHALL SUBMIT INTENDED SUBSTITUTION AT LEAST FIVE DAYS PRIOR TO BID FOR APPROVAL FROM ENGINEER. SUBMITTAL SHALL INCLUDE CAPACITIES, DIMENSIONS AND OPERATING INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT. SUBSTITUTION SHALL OCCUR AT NO COST TO THE OWNER. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF APPROVED SUBSTITUTION AND SHALL INCUR ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING STRUCTURAL MODIFICATIONS, SPACE LAYOUT AND REDESIGN COSTS. SEE ALSO DIVISION I GENERAL REQUIREMENTS. EXAMINATION OF SITE, DRAWINGS, SPECIFICATIONS:

A. EXAMINE CAREFULLY THE SITE AND CONDITIONS OF THE SITE. PROVIDE ALL NECESSARY EQUIPMENT AND LABOR TO INSTALL A COMPLETE WORKING SYSTEM WITHIN THE SITE CONDITIONS.

B. EXAMINE THE DRAWINGS AND SPECIFICATIONS AND 5 DAYS PRIOR TO BIDDING REPORT ANY ERRORS, OMISSIONS, INCONSISTENCIES, AND CONFLICTS TO THE ENGINEER TO BE REMEDIED IN AN ADDENDUM TO THE PROJECT PRIOR TO BID TIME.

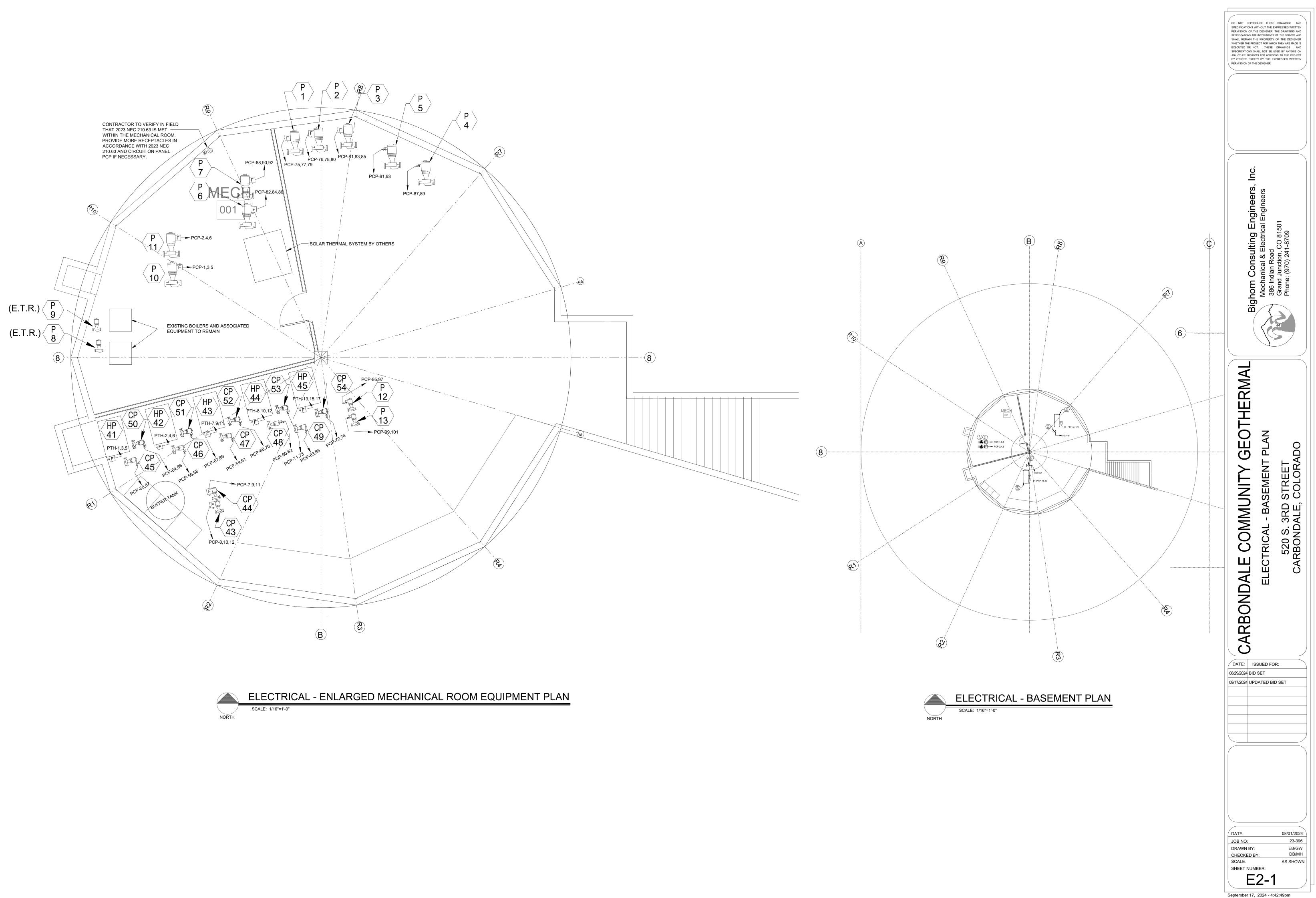
C. DRAWINGS ARE DIAGRAMMATIC AND CATALOG NUMBERS GIVEN ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE CAPACITY OF THE EQUIPMENT MEETS THE DRAWING REQUIREMENTS AND SHALL NOT DIMENSION FROM THE MECHANICAL, PLUMBING, OR PIPING DRAWINGS.

D. THE CODES THAT WILL BE ADHERED TO ARE THE 2018 INTERNATIONAL MECHANICAL, 2023 COLORADO PLUMBING CODE, AND 2018 INTERNATIONAL ENERGY CONSERVATION CODE, AS WELL AS THE 2023 NATIONAL ELECTRICAL CODE. ALL METHODS AND MATERIALS REQUIRED BY THESE CODES SHALL BE REQUIRED BY THESE SPECIFICATIONS UNLESS INDICATED OTHERWISE. OTHER APPLICABLE LOCAL CODES AND ORDINANCES SHALL BE AS REQUIRED AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BE KNOWLEDGEABLE OF THESE REQUIREMENTS. (REFERENCE ARCHITECTURAL DRAWINGS FOR CODE PLANS FOR GOVERNING CODES AND REGULATIONS.)

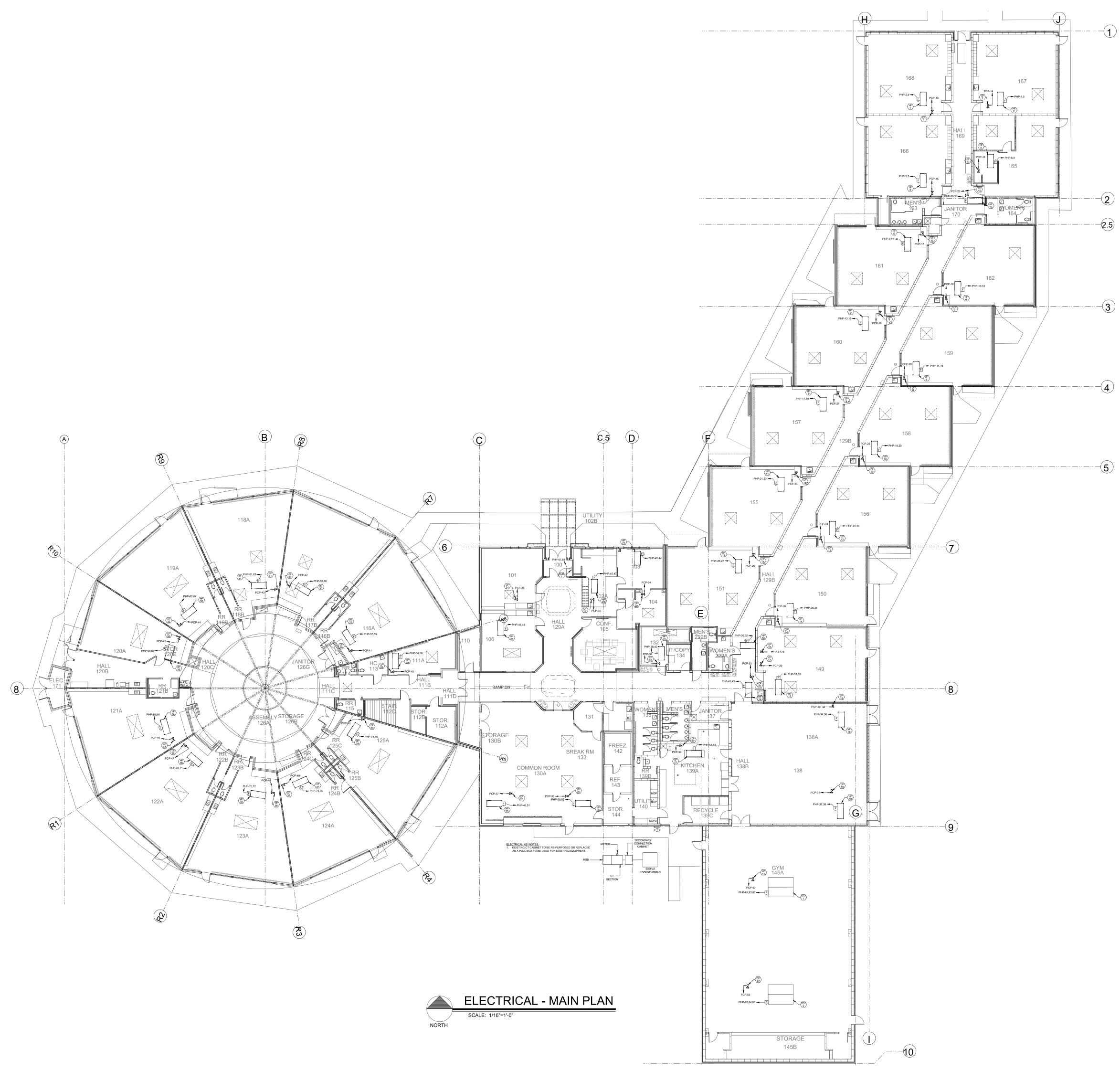
E. WHERE INSTALLATION PROCEDURES OR ANY PART THEREOF ARE REQUIRED TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL BEING INSTALLED, PRINTED COPIES OF THESE RECOMMENDATIONS SHALL BE FURNISHED TO THE ENGINEER PRIOR TO INSTALLATION. INSTALLATION OF THE ITEM WILL NOT BE ALLOWED TO PROCEED UNTIL THE RECOMMENDATIONS ARE RECEIVED. FAILURE TO FURNISH THESE RECOMMENDATIONS CAN BE CAUSE FOR REJECTION OF THE MATERIAL.

PT	PRESSURE TRANSMITTER
	PACKAGED TERMINAL AIR TIONER
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RA	RETURN AIR GRILLE / REGISTER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REL	RELIEF
REQD	REQUIRED
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RATED LOAD AMPS
RM	
RPM SA	REVOLUTIONS PER MINUTE SUPPLY AIR GRILLE / REGISTER
SC	SHORT CIRCUIT
SCA	SHORT CIRCUIT AVAILABLE
SCCR	
RATIN	
SCH	SCHEDULE
SD	SMOKE DAMPER
SEF	SMOKE EXHAUST FAN
SF	SUPPLY FAN
SH	SENSIBLE HEAT
SH	SHOWER
SP	STATIC PRESSURE
	SURGE PROTECTION DEVICE
	SPECIFICATION
SQ SS	SQUARE STAINLESS STEEL
SS	SAFETY SHOWER
	STANDARD
	STEEL
	SYSTEM
	TEMPERATURE
TR	TRANSFER GRILLE / REGISTER
TR	TAMPER RESISTANT
TT	TEMPERATURE TRANSMITTER
ттв	TELECOMMUNICATIONS
TERMI	NAL BACKBOARD
TYP	TYPICAL
ТХ	
	C UNOCCUPIED URINAL
UR V	VOLTS
v VA	VOLTS
VA	VALVE
VAV	VARIABLE AIR VOLUME UNIT
VFD	
VRF	VARIABLE REFRIGERANT FLOW
VOLT	VOLTAGE
VTR	VENT THROUGH ROOF
W	WIDTH
W	WATTS
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN
WC	WATER CLOSET
WG	WATER GAUGE
WP	WEATHERPROOF
WPIU	WEATHERPROOF IN-USE
	WITHSTAND RATING
XFMR	TRANSFORMER

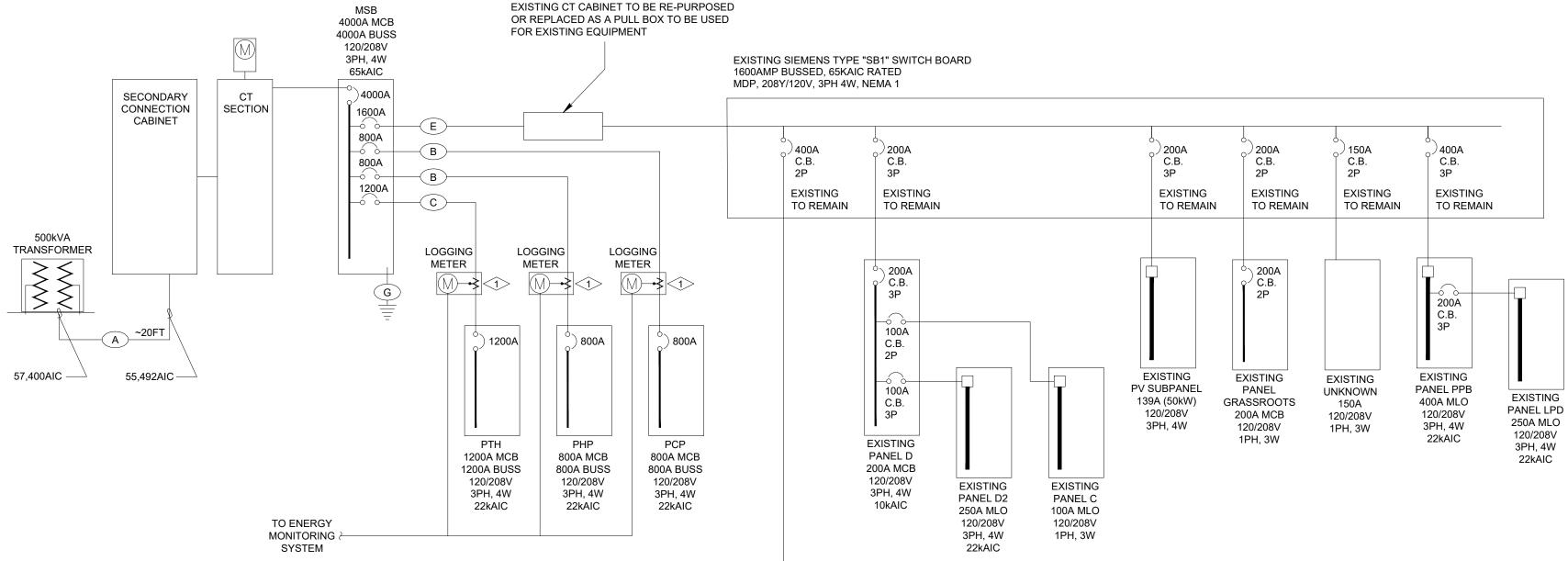












ONE-LINE DIAGRAM

NOT TO SCALE

- PROVIDE GROUNDING AND BONDING TO MEET THE REQUIREMENTS OF 2023 NEC 250.
- 2. PROVIDE DISCONNECTING MEANS FOR FEEDER IN ACCORDANCE WITH 2023 NEC 225.30. 3. PROVIDE LABELING TO MEET THE REQUIREMENTS OF 2023 NEC 110.21 AND 230.85.
- 4. PROVIDE SURGE PROTECTION FOR SERVICE TO MEET THE REQUIREMENTS OF 2023 NEC 230.67. PROVIDE SURGE PROTECTIVE
- DEVICES TO MEET THE REQUIREMENTS OF 2023 NEC 215.18. 5. PROVIDE SERIES RATED COMBINATIONS FOR FEEDER CIRCUIT BREAKERS TO REDUCE DOWNSTREAM AVAILABLE FAULT CURRENT.

KEYNOTES: (#>

- . LOGGING METERS SHALL COMPLY WITH ALL OF THE FOLLOWING:
- 1.1. BE FULLY ELECTRONIC WITH DIGITAL 8-DIGIT LCD DISPLAY WITHOUT MULTIPLIER DISPLAYING CUMULATIVE KWH AND "REAL-TIME" KW LOAD. PROVIDE RATE OF CONSUMPTION INDICATION AND ALSO A SEGMENT TEST BUTTON (CPU) TO ENSURE INTEGRITY OF THE DISPLAY. 1.2. PROVIDE A LOAD INDICATOR TO INDICATE REAL-TIME CONSUMPTION LEVELS FOR FIELD TESTING AND CERTIFICATION. 1.3.
- BE EQUIPPED WITH CURRENT SENSOR DIAGNOSTIC INDICATOR FOR INSTALLATION VERIFICATION. 1.4.

1.6. BE AVAILABLE WITH OPTIONAL TERMINAL BLOCK FOR FIXED-VALUE PULSE OUTPUT.

BE PROVIDED WITH A NON-VOLATILE MEMORY TO MAINTAIN READING DURING POWER OUTAGES. 1.5.

WIRE SCHEDULE:

- (A) (13) 3-1/2"C (4#500kCMIL(AL,XHHW))
- (B) (3) 3-1/2"C (4#400kCMIL(AL,THWN) + 1#1/0AWG(CU)G)
- (C) (4) 3-1/2"C (4#500kCMIL(AL,THWN) + 1#3/0AWG(CU)G)
- E EXISTING TO REMAIN
- $igl(\mathsf{G}igr)$ #3/0AWG CU TO METAL WATER PIPES AND STRUCTURAL STEEL
- #6AWG CU TO GROUND ROD MEETING NEC 250.53

GENERAL NOTES

1. ALL PENETRATIONS IN OR THROUGH FIRE RATED PARTITIONS SHALL BE FIRE STOPPED IN SUCH A WAY THAT THE PENETRATION MATCHES THE FIRE RATING OF THE WALL.

RODE

- 2. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION BETWEEN THE APPROPRIATE DISCIPLINES AND CONTRACTORS. ALL EQUIPMENT IS TO BE INSTALLED TO STRICTLY CONFORM TO MANUFACTURER'S INSTALLATION GUIDELINES. ALL EQUIPMENT IS TO BE INSTALLED WITH ALL NECESSARY CONTROL/ACCESSORY OPTIONS TO FUNCTION AS INTENDED. IT IS THE RESPONSIBILITY OF THE EQUIPMENT MANUFACTURER/SUPPLIER AND THE CONTRACTOR/INSTALLER TO PROVIDE COMPLETE INSTALLATION AND FUNCTIONALITY OF ALL EQUIPMENT BASED ON DESIGN SPECIFICATIONS AS OUTLINED BY THE ARCHITECT/ENGINEER.
- 3. COORDINATE ALL DEVICE, FIXTURE AND HARDWARE COLOR SELECTIONS WITH THE ARCHITECT/OWNER PRIOR TO MAKING SHOP DRAWING SUBMITTALS.
- 4. ALL EXPOSED CONDUITS, BOXES, ETC. IN ROOMS TO BE PAINTED SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACE. EXPOSED CONDUITS, BOXES, ETC. IN ROOMS WHICH ARE NOT PAINTED MAY BE LEFT UN-PAINTED. EXPOSED CONDUIT, BOXES, ETC. ON THE EXTERIOR OF BUILDINGS SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACE AS CLOSELY AS POSSIBLE.
- 5. ALL SERVICEABLE MECHANICAL EQUIPMENT IS TO BE INSTALLED WITH AN ACCEPTABLE DISCONNECTING MEANS AND/OR SERVICE OUTLET AS REQUIRED BY GOVERNING CODES.
- 6. ALL INSTALLED EQUIPMENT THAT REQUIRES MARKING, TAGGING, OR OTHER IDENTIFICATION SHALL BE SO MARKED, TAGGED, OR OTHERWISE IDENTIFIED BY THE CONTRACTOR/INSTALLER AT THE TIME OF INSTALLATION IN COMPLIANCE WITH ALL GOVERNING CODES.
- 7. ALL 120V, SINGLE-PHASE, 15- AND 20-AMPERE BRANCH CIRCUITS SUPPLYING ELECTRICAL OUTLETS OR DEVICES SHALL BE PROVIDED WITH ARC-FAULT CIRCUIT-INTERRUPTER PROTECTION IN ACCORDANCE WITH 2023 NEC 210.12(B). ELECTRICAL CONTRACTOR TO DETERMINE MEANS OF PROTECTION LISTED IN 2023 NEC 210.12(A) BEFORE ORDERING EQUIPMENT.
- 8. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL IN ACCORDANCE WITH 2023 NEC 210.8, OR AS MAY BE REQUIRED BY OTHER SECTIONS OF 2023 NEC. ELECTRICAL CONTRACTOR TO DETERMINE IF GFCI PROTECTION IS REQUIRED AT THE BREAKER OR AT THE RECEPTACLE BEFORE ORDERING EQUIPMENT. ALL GFCI PROTECTION SHALL BE RESETTABLE IN ROOMS WHERE PROTECTION IS REQUIRED INCLUDING OUTSIDE RECEPTACLES.
- 9. ELECTRICAL CONTRACTOR SHALL PROVIDE REQUIRED GROUND-FAULT PROTECTION OF EQUIPMENT FOR ALL ELECTRIC HEAT TRACING AND HEATING PANELS IN ACCORDANCE WITH 2023 NEC 426.28, OR AS MAY BE REQUIRED BY OTHER SECTIONS OF 2023 NEC. ELECTRICAL CONTRACTOR SHALL ALSO PROVIDE FOR ANY REQUIRED AT-GRADE ACCESSIBLE SHUTOFF DEVICE(S) OR DISCONNECT(S) FOR ELECTRIC HEAT TRACE INSTALLED ON THE ROOF. ELECTRICAL CONTRACTOR TO DETERMINE MEANS OF PROTECTION BEFORE ORDERING ELECTRICAL EQUIPMENT AND DEVICES.
- 10. ELECTRICAL CONTRACTOR SHALL FOLLOW THE APPLICABLE INSTALLATION REQUIREMENTS OF 2023 NEC 406.12; AS AMENDED BY AHJ.
- 11. ELECTRICAL CONTRACTOR SHALL PROVIDE WEATHER-PROOF IN-USE COVERS FOR ALL EXTERIOR RECEPTACLES.
- 12. REFER TO MECHANICAL AND PLUMBING DESIGN DRAWINGS FOR ADDITIONAL EQUIPMENT INFORMATION.
- 13. CIRCUIT EXHAUST FANS WITH ITS RESPECTIVE LIGHTING CIRCUIT.
- 14. RECEPTACLES THAT ARE INSTALLED TO SERVE AN ISLAND OR PENINSULAR COUNTERTOP SHALL BE INSTALLED IN ACCORDANCE WITH 2023 NEC 210.52(C)(3).

APPLIANCE

MOTOR

SPARE

TOTAL

MISCELLANEOUS

LARGEST MOTOR

218592.00

1319508.00

0.00

0.00

0.00

ABOVE

1.00

1.00

1.00

1.00

0.25

327888.00

115285.25

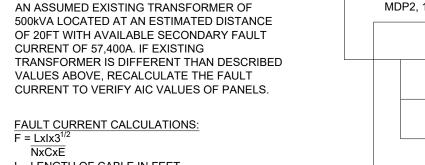
1434792.00

0.00

0.00

0.00

EXISTING SQUARE D QMB SAFLEX DISTRIBUTION PANELBOARD MDP2, 120/208V, 1PH 3W, NEMA 1



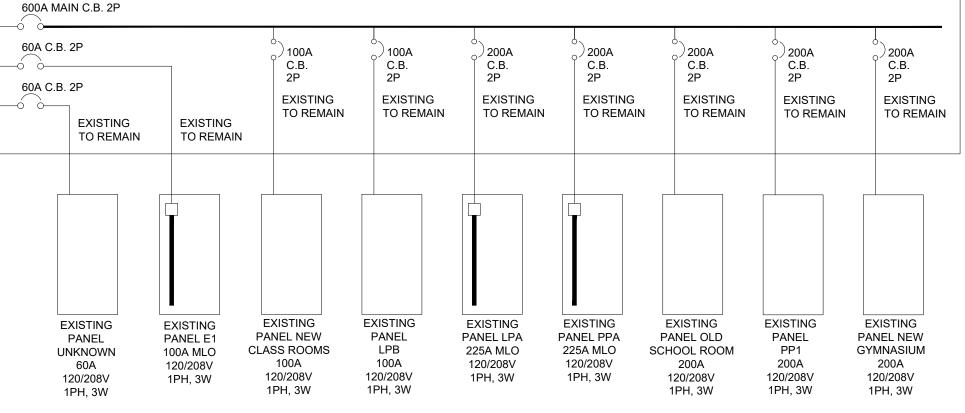
L - LENGTH OF CABLE IN FEET

FAULT CURRENT NOTES

- I AVAILABLE FAULT CURRENT
- N NUMBER OF CONDUCTORS PER PHASE C - CONDUCTANCE CONSTANT
- E VOLTAGE LINE TO LINE
- F INTERMEDIARY VALUE FOR COMPUTATION M = 1/(1+F)

UTILITY FAULT CURRENT VALUES BASED UPON

- M MULTIPLIER TO ACHIEVE AVAILABLE FAULT I(SC) = I(SC)*M
- FRASNFORMER TO MSB C - CONDUCTANCE CONSTANT
- 500kCMIL ALUMINUM: 21,391
- $F = LxIx3^{1/2} = 20FT \times 57,400 A \times 3^{1/2} = 0.034$ NxCxE 13 x 21,391 x 208 V
- M = 1 = 1 = 0.967 1+F 1+0.034
- I(SC) = IxM = 57,400A x 0.967 = 55,492 A



PANEL SCHEDULE	E- MSB	TYPE: VOLTAGE: ENCLOSU				SIZE: BRKR: NTING:	4000 4000 SURF/	ACE	PHASES: WIRES: SC RATING:	3 4 65000	NEUTRAL BUS: GROUND BUS:	YES YES	СОМВ	: COMBINATION M
LOAD TYPE	LOAD DESCRIPTION	l		AMPS POLES	CKT# LOAD	۵	CKT# LOAD	AMPS POLES	LOAD TYPE		LOAD DESCRIPTION		MAG:	MAGNETIC MOTO
SUBFEED					1 153714	A	2 81752		SUBFEED				UNIT NO	FUN (No
SUBFEED	PANEL MDP			1600A 3P	3 153714	В	4 75379	800A 3P	SUBFEED		PANEL PHP 		HP-20	WATER SOURCE
SUBFEED					5 153714	С	6 79143		SUBFEED				HP-1	WATER SOURCE
SUBFEED					7 73259	A	8 134500		SUBFEED				HP-15	I YPICAL OF UNI
SUBFEED	PANEL PCP			800A 3P	9 73384	В	10 134500	1200A 3P	SUBFEED		PANEL PTH		HP-27	WATER SOURCE
SUBFEED					11	С	12		SUBFEED				HP-21	WATER SOURCE
					71949	Ŭ	134500						RTU-1	WATER SOURCE
SPACE					13 0	A	14 0		SPACE				CP-1	CIRCULATION PU TYPICAL OF UNI
SPACE					15 0	В	16 0		SPACE				CP-43	CIRCULATION PU TYPICAL OF UNI
SPACE					17 0	С	18 0		SPACE				HP-41	I YPICAL OF UNI
LOADS BY TYPE:					LOADS BY	Y PHASI	•						CP-45	CIRCULATION PU TYPICAL OF UNI
LOAD TYPE	CONNECTED LOAD (VA)	DEMAND FACTOR	DEMAND LOAD (VA)		PHASE			CONNECTED	CONNI LOAD (AM		BALANCE (PERCENT)		P-1	CIRCULATION PU TYPICAL OF UNI
LIGHTING	0.00	1.25	0.00		A	_	_	443224.70	3693	,	A-B: 98.6		P-4	CIRCULATION PU TYPICAL OF UNI
KITCHEN PROCESS	0.00 0.00	0.80 1.00	0.00 0.00		B C			436976.70 439306.20	3641 3660		B-C: 99.5 C-A: 99.1		P-6	CIRCULATION PU TYPICAL OF UNI
RECEPTACLES MECH HEATING	0.00 2000.00	1.00 1.00	0.00 2000.00		TOTAL	/AVERA	AGE 13	319508.00	366	5.30	99.1		P-10	CIRCULATION PU TYPICAL OF UNI
MECH COOLING MECH YEAR ROUND	0.00 1098915.00	1.00 1.00	0.00 1098915.00		NOTES:								EUH-1	ELECTRIC UNIT I

1. THE LARGEST CONNECTED MOTOR LOAD IS INCLUDED IN MECHANICAL, PROCESS, OR MOTOR LOADS.

MECHANICAL EQUIPMENT SCHEDULE

IBINATION MOTOR STARTER NETIC MOTOR STARTER		R: NONE /I: PLUG-			CONT: CONTRACTOR MAN: MANUAL MOTOR STARTER W/U: SUPPLIED WITH UNIT:						
FUNCTION (NOTES)	LOAD	VOLTS	Ø	FULL LOAD AMPS	BRANG CONDUIT SIZE	CH CIRC NO.	WIRE	GRND WIRE SIZE	BRKR SIZE	START	DISC FUSE
ER SOURCE HEAT PUMP (UVH024)	3.203kW	208	1	15.4A	3/4"	3	12	12	20A	CONT	\$ ₂
ER SOURCE HEAT PUMP (UVH036) ICAL OF UNITS 2-14, 22, 23	4.014kW	208	1	19.3A	3/4"	3	10	10	25A	CONT	30A 25A
ER SOURCE HEAT PUMP (UVH048) ICAL OF UNITS 16-19, 24-26, 28-40	5.761kW	208	1	27.7A	1"	3	8	10	35A	CONT	60A 35A
ER SOURCE HEAT PUMP (UVH060)	6.801kW	208	1	32.7A	1"	3	8	10	45A	CONT	60A 45A
ER SOURCE HEAT PUMP (UVH072)	7.945kW	208	1	38.2A	1"	3	8	10	50A	CONT	60A 50A
ER SOURCE HEAT PUMP RTU (URT096) ICAL OF RTU-2	15.56kW	208	3	43.2A	1"	3	8	10	50A	CONT	60A 50A
CULATION PUMP ICAL OF UNITS 2-42	480W	120	1	4.0A	3/4"	2	14	14	15A	CONT	\$
CULATION PUMP ICAL OF UNIT 44	11.1kW	208	3	30.8A	1"	3	8	10	40A	CONT	60A 40A
ER SOURCE HEAT PUMP RTU (W500) ICAL OF UNITS 42-45	80.7kW	208	3	224A	3-1/2"	3	400k CMIL	3	350A	CONT	400A 350A
CULATION PUMP ICAL OF UNITS 46-54	2.745kW	208	1	13.2A	3/4"	3	12	12	20A	CONT	\$ ₂
CULATION PUMP ICAL OF UNIT 2-3	26.95kW	208	3	74.8A	1-1/4"	3	3	8	100A	CONT	100A 100A
CULATION PUMP ICAL OF UNITS 5, 12-13	2.87kW	208	1	13.8A	3/4"	3	12	12	20A	CONT	\$ ₂
CULATION PUMP ICAL OF UNIT 7	8.718kW	208	3	24.2A	1"	3	8	10	35A	CONT	60A 35A
CULATION PUMP ICAL OF UNIT 11	16.64kW	208	3	46.2A	1"	3	6	10	60A	CONT	60A 60A
CTRIC UNIT HEATER	2.0kW	208	1	9.6A	3/4"	3	14	14	15A	CONT	\$ ₂

MECHANICAL EQUIPMENT SCHEDULE NOTES:

1. HACR CIRCUIT BREAKER IN USA ONLY (REFERENCE MANUFACTURER'S DOCUMENTATION) 2. ELECTRICAL CONTRACTOR TO VERIFY EQUIPMENT START IS PROVIDE WITH UNIT OR IF IT IS TO BE PROVIDED BY CONTRACTOR. REFER TO MECHANICAL PLANS FOR MORE INFORMATION REGARDING MECHANICAL AND PLUMBING EQUIPMENT.



September 17, 2024 - 4:42:51pm

PANEL SCHEDULE - PHP	TYPE: PANELBOARD BUS SIZE: 800 PHASES: 3 NEUTRAL BUS: NO	PANEL SCHEDULE		BOARD	BUS SIZE:	800	PHASES: 3	NEUTRAL BUS: YES	PANEL SCHEDULE - PTH TYPE: SWITCHBOARD BUS SIZE: 1200 PHASES: 3 NEUTRAL BUS: YES
	VOLTAGE: 120/208 MAIN BRKR: 800 WIRES: 4 GROUND BUS: YES ENCLOSURE: NEMA3R MOUNTING: SURFACE SC RATING: 22000 22000		VOLTAGE: 120/208 ENCLOSURE: NEMA3F	B R	MAIN BRKR: MOUNTING:	800 SURFACE	WIRES: 4 SC RATING: 22000	GROUND BUS: YES	VOLTAGE: 120/208 MAIN BRKR: 1200 WIRES: 4 GROUND BUS: YES ENCLOSURE: NEMA3R MOUNTING: SURFACE SC RATING: 22000
LOAD TYPE LOAD DESCRIPTION MECH YEAR ROUND HP-1	AMPS CKT# 0 CKT# AMPS LOAD TYPE LOAD DESCRIPTION POLES LOAD 1 A 2 25A MECH YEAR ROUND HP-2	LOAD TYPE MOTOR		POLES	CKT# 0 CK LOAD LOA				LOAD TYPE LOAD DESCRIPTION AMPS POLES CKT# LOAD AMPS POLES LOAD TYPE LOAD DESCRIPTION MECH YEAR ROUND 1 A 2 MECH YEAR ROUND
MECH YEAR ROUND HP-1 MECH YEAR ROUND	25A 1 A 2 25A MECH YEAR ROUND HP-2 2P 2007 2P 3 B 4 MECH YEAR ROUND	MOTOR	 P-10	 60A	1 A 2 5548 554 3 B 4	 60A	MOTOR	 P-11	Image: Mech year round 26900 26900 MECH YEAR ROUND TOWNHOMES HEAT PUMP (HP-41) 350A 3 B 4 350A MECH YEAR ROUND TOWNHOMES HEAT PUMP (HP-42)
MECH YEAR ROUND HP-3	2007 2007 25A 5 C 6 25A MECH YEAR ROUND HP-4	MOTOR		3P 	5548 554 5 C 6	8 3P	MOTOR		Image: Mech year round 3P 26900 26900 3P MECH year round 5 C 6 MECH year round
MECH YEAR ROUND	2P 2007 2007 2P 7 A 8 MECH YEAR ROUND	MOTOR			5548 554 7 A 8 2000 2000 2000		MOTOR		Image: Mech year round 26900 26900 MECH YEAR ROUND 7 A 8 MECH YEAR ROUND
MECH YEAR ROUND HP-5	2007 2007 25A 9 B 10 25A MECH YEAR ROUND HP-6 2P 2007 2007 2P	MOTOR	 CP-43 	40A 3P	3699 369 9 B 10 3699 369	40A	MOTOR	 CP-44 	Image: Problem in the system Image: Problem in the system <th< td=""></th<>
MECH YEAR ROUND	Image: Second	MOTOR			11 C 12 3699 369		MOTOR		MECH YEAR ROUND 11 C 12 MECH YEAR ROUND 26900 26900 MECH YEAR ROUND MECH YEAR ROUND
MECH YEAR ROUND HP-7 	25A 13 A 14 25A MECH YEAR ROUND HP-8 2P 2007 2007 2P	MOTOR	CP-1	15A 1P	13 A 14 480 480		MOTOR	CP-2 	MECH YEAR ROUND
MECH YEAR ROUND	15 B 16 MECH YEAR ROUND 2007 MECH YEAR ROUND	MOTOR	CP-3 	15A 1P	15 B 16 480 A80	15A 1P	MOTOR	CP-4 	MECH YEAR ROUND TOWNHOMES HEAT PUMP (HP-45) 350A 350A 15 26900 15 26900 0 16 SPACE
MECH YEAR ROUND HP-9	25A 17 C 18 25A MECH YEAR ROUND HP-10 2P 2007 2P P P P P	MOTOR	CP-5 	15A 1P	17 C 18 480 480		MOTOR	CP-6 	MECH YEAR ROUND 17 C 18 SPACE
MECH YEAR ROUND MECH YEAR ROUND HP-11	19 A 20 MECH YEAR ROUND 2007 2007 2007 25A 21 B 22 25A MECH YEAR ROUND HP-12	MOTOR	CP-7 CP-9	15A 1P 15A	19 A 20 480 480 21 B 22		MOTOR	CP-8 CP-10	SPACE 19 A 20 SPACE 0 0 0 SPACE LOADS BY TYPE: LOADS BY PHASE: LOADS BY PHASE: LOADS BY PHASE: LOADS BY PHASE:
MECH YEAR ROUND	20A 21 B 22 20A MECH YEAR ROUND III - 12 2P 2007 2P MECH YEAR ROUND	MOTOR	CP-11		21 B 22 480 480 23 C 24		MOTOR	 CP-12	LOAD CONNECTED DEMAND DEMAND CONNECTED CONNECTED BALANCE TYPE LOAD (VA) FACTOR LOAD (VA) PHASE LOAD (VA) LOAD (AMPS) (PERCENT)
MECH YEAR ROUND HP-13	2007 2007 25A 25 A 26 25A MECH YEAR ROUND HP-14	MOTOR	 CP-13	1P 15A	480 480 25 A 26	15A	MOTOR	 CP-14	LIGHTING 0.00 1.25 0.00 A 134500.00 1120.83 A-B: 100 KITCHEN 0.00 0.00 0.00 B 134500.00 1120.83 B-C: 100
MECH YEAR ROUND	2P 2007 2007 2P 27 B 28 MECH YEAR ROUND	MOTOR	 CP-15	15A	480 480 27 B 28 480 480 480	15A	MOTOR	 CP-16	PROCESS 0.00 1.00 0.00 C 134500.00 1120.83 C-A: 100 RECEPTACLES 0.00 1.00 0.00 TOTAL/AVERAGE 403500.00 1120.83 C-A: 100
MECH YEAR ROUND HP-15	2007 2007 35A 29 C 30 35A MECH YEAR ROUND HP-16 2P 2881 2881 2P	MOTOR	 CP-17 	15A	480 480 29 C 30 480 480 480	15A	MOTOR	 CP-18 	MECH COOLING 0.00 1.00 0.00 MECH YEAR ROUND 403500.00 1.00 403500.00 NOTES: APPLIANCE 0.00 1.00 0.00 NOTES:
MECH YEAR ROUND 	2F 2601 2601 2F MECH YEAR ROUND 2881 2881	MOTOR	 CP-19 	15A	480 480 31 A 32 480 480 480	15A	MOTOR	CP-20 	MISCELLANEOUS 0.00 1.00 0.00 1. THE LARGEST CONNECTED MOTOR LOAD IS INCLUDED IN MECHANICAL, PROCESS, OR MOTOR LOADS. 0.00 1.00 0.00
MECH YEAR ROUND HP-17	35A 33 B 34 35A MECH YEAR ROUND HP-18 2P 2881 2P 2881 2P	MOTOR	CP-21 	15A 1P	33 B 34 480 480	15A	MOTOR	CP-22 	SPARE 0.00 1.00 0.00 LARGEST MOTOR ¹ ABOVE 0.25 20175.00 TOTAL 403500.00 423675.00
MECH YEAR ROUND	35 C 36 MECH YEAR ROUND 2881 MECH YEAR ROUND	MOTOR	CP-23 		35 480 C 36 480) 1P	MOTOR	CP-24 	
MECH YEAR ROUND HP-19	35A 37 A 38 20A MECH YEAR ROUND HP-20 2P 2881 1602 2P MECH YEAR ROUND	MOTOR	CP-25 	1P	37 A 38 480 A 480) 1P		CP-26	
MECH YEAR ROUND MECH YEAR ROUND HP-21	39 B 40 MECH YEAR ROUND 2881 1602 MECH YEAR ROUND 50A 41 C 42 25A MECH YEAR ROUND HP-22	MOTOR	CP-27 CP-29		39 B 40 480 480 480 41 C 42) 1P		CP-28 CP-30	
MECH YEAR ROUND	2P 3973 2007 2P 43 A 44 MECH YEAR ROUND	MOTOR	CP-29 CP-31	1P 15A	480 480 43 A 44) 1P 15A		CP-30 CP-32	
MECH YEAR ROUND HP-23	3973 2007 25A 45 B 46 35A MECH YEAR ROUND HP-24	MOTOR	 CP-33	1P 15A	480 480 45 B 46) 1P 15A		 CP-34	
MECH YEAR ROUND 	2P 2007 2881 2P 47 C 48 MECH YEAR ROUND 2007 2881 MECH YEAR ROUND	MOTOR	 CP-35 	15A	480 480 47 C 48 480 480 480	15A	MOTOR	 CP-36 	
MECH YEAR ROUND HP-25	2007 2881 35A 49 A 50 35A MECH YEAR ROUND HP-26 2P 2881 2881 2P	MOTOR	 CP-37 	15A	480 480 49 A 50 480 480 480	15A	MOTOR	 CP-38 	
MECH YEAR ROUND	51 B 52 MECH YEAR ROUND 2881 2881	MOTOR	CP-39 	15A	51 B 52 480 480 480	15A	MOTOR	CP-40 	
MECH YEAR ROUND HP-27	45A 53 C 54 35A MECH YEAR ROUND HP-28 2P 3401 C 54 2P MECH YEAR ROUND HP-28	MOTOR	CP-41 	-	53 C 54 480 480		MOTOR	CP-42 	
MECH YEAR ROUND	55 A 56 MECH YEAR ROUND 3401 2881 MECH YEAR ROUND	MOTOR	CP-45 	2P	55 A 56 1373 137	'3 2P		CP-46 	
MECH YEAR ROUND HP-29 	35A 57 B 58 35A MECH YEAR ROUND HP-30 2P 2881 2P 2P 2P	MOTOR	 		57 B 58 1373 137 59 C 60	3	MOTOR	 	
MECH YEAR ROUND MECH YEAR ROUND HP-31	59 C 60 MECH YEAR ROUND 2881 2881 35A 61 A 62 35A MECH YEAR ROUND HP-32	MOTOR MOTOR	CP-47 	2P	59 C 60 1373 137 61 A 62	'3 2P	MOTOR	CP-48 	
MECH YEAR ROUND	2P 2881 2P 63 B 64 MECH YEAR ROUND	MOTOR	 CP-49	 20A	1373 137 63 B 64	'3 20A		 CP-50	
 MECH YEAR ROUND HP-33	2881 35A 65 C 66 35A MECH YEAR ROUND HP-34	MOTOR		2P 	1373 137 65 C 66	'3 2P	MOTOR		
MECH YEAR ROUND	2P 2881 2P 67 A 68 MECH YEAR ROUND 2881 2881	MOTOR	 CP-51 	20A	1373 137 67 A 68 1373 137	20A	MOTOR	 CP-52 	
MECH YEAR ROUND HP-35 	35A 69 B 70 35A MECH YEAR ROUND HP-36 2P 2881 2P 2881 2P	MOTOR			1373 137 69 B 70 1373 137		MOTOR		
MECH YEAR ROUND	71 C 72 MECH YEAR ROUND 2881 2881	MOTOR	CP-53 	20A	71 C 72 1373 137	20A	MOTOR	CP-54 	
MECH YEAR ROUND HP-37	35A 73 A 74 35A MECH YEAR ROUND HP-38 2P 2881 2P 2P 2P 2000000000000000000000000000000000000	MOTOR			73 A 74 1373 A 74	3	MOTOR		
	75 B 76 MECH YEAR ROUND 2881 2881 250 77 C 78 250 MECH YEAR POUND HB 40	MOTOR	 		75 B 76 8983 898	3	MOTOR	 	
MECH YEAR ROUND HP-39 MECH YEAR ROUND	35A 77 C 78 35A MECH YEAR ROUND HP-40 2P 2881 2P MECH YEAR ROUND 79 A 80 MECH YEAR ROUND	MOTOR	P-1 		77 C 78 8983 898 79 A 80	3 3P	MOTOR	P-2 	
MECH YEAR ROUND	2881 2881 81 B 82 MECH YEAR ROUND	MOTOR			8983 898 81 B 82		MOTOR		
MECH YEAR ROUND RTU-1	5187 5187 50A 83 C 84 50A MECH YEAR ROUND RTU-2	MOTOR	 P-3	 100A	8983 290 83 C 84	06 35A		 P-6	
MECH YEAR ROUND 	3P 5187 5187 3P 85 A 86 MECH YEAR ROUND 5187 5187	MOTOR			8983 290 85 A 86 8983 290		MOTOR		
SPACE 	5187 5187 87 B 88 SPACE 0 0 0	MOTOR	 P-4 	20A	8983 290 87 B 88 1435 290		MOTOR		
SPACE 	89 C 90 SPACE 0 0 SPACE	MOTOR			89 C 90 1435 290	35A	MOTOR	P-7 	
SPACE	91 A 92 SPACE 0 0 SPACE	MOTOR	P-5 	20A	91 A 92 1435 290		MOTOR		
SPACE	93 B 94 SPACE	MOTOR			93 B 94 1435 143	5 2P		SOLAR PUMP SPARE	
SPACE 	95 C 96 SPACE 0 0 SPACE 	MOTOR	P-12 	2P	95 C 96 1435 143	5	MOTOR		
LOADS BY TYPE:	97 A 98 SPACE 0 0 SPACE LOADS BY PHASE:	MOTOR	 P-13	 20A	97 A 98 1435 143 99 B 100	5 2P	MOTOR	SOLAR PUMP SPARE	
LOAD CONNECTED [DEMAND DEMAND CONNECTED CONNECTED BALANCE FACTOR LOAD (VA) PHASE LOAD (VA) LOAD (AMPS) (PERCENT)	MOTOR		2P 	1435 143 101 C 102	5	SPACE		
LIGHTING 0.00 KITCHEN 0.00	1.25 0.00 A 81751.91 681.27 A-B: 91 0.00 0.00 B 74378.91 619.82 B-C: 95.2	SPACE			1435 0 103 A 104		SPACE		
RECEPTACLES0.00MECH HEATING0.00	1.00 0.00 C 78143.41 651.20 C-A: 95.6 1.00 0.00 TOTAL/AVERAGE 234274.00 650.76 93.9	SPACE			0 0 105 B 106 0 0) 	SPACE		
MECH COOLING 0.00 MECH YEAR ROUND 234274.00	1.00 0.00 1.00 234274.00 1.00 0.00	SPACE			0 0 107 C 108 0 0	3 	SPACE		
MISCELLANEOUS 0.00 MOTOR 0.00	1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00	LOADS BY TYPE:	CONNECTED DEMAND DEMAND		LOADS BY PHASE:	CONNEG	CTED CONNECTED	BALANCE	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		LOAD (VA) FACTOR LOAD (VA) 0.00 1.25 0.00		PHASE	LOAD (V 73259.0	/A) LOAD (AMPS) 09 610.49	(PERCENT) A-B: 99.8	
		KITCHEN PROCESS RECEPTACLES	0.00 0.00 0.00 0.00 1.00 0.00 0.00 1.00 0.00		B C	73384.0 71949.0	09 599.58	B-C: 98 C-A: 98.2	
		MECH HEATING MECH COOLING MECH YEAR ROUND	0.00 1.00 0.00 0.00 1.00 0.00 0.00 1.00 0.00 0.00 1.00 0.00		TOTAL/AVERAGE	218592.0	00 607.20	98.7	
		APPLIANCE MISCELLANEOUS MOTOR	0.00 1.00 0.00 0.00 1.00 0.00			NNECTED MO	TOR LOAD IS INCLUDED IN MI	ECHANICAL, PROCESS, OR MOTOR LOADS.	
		SPARE LARGEST MOTOR ¹	0.00 1.00 0.00 ABOVE 0.25 6737.00						
		TOTAL	218592.00 225329.00	-					

