



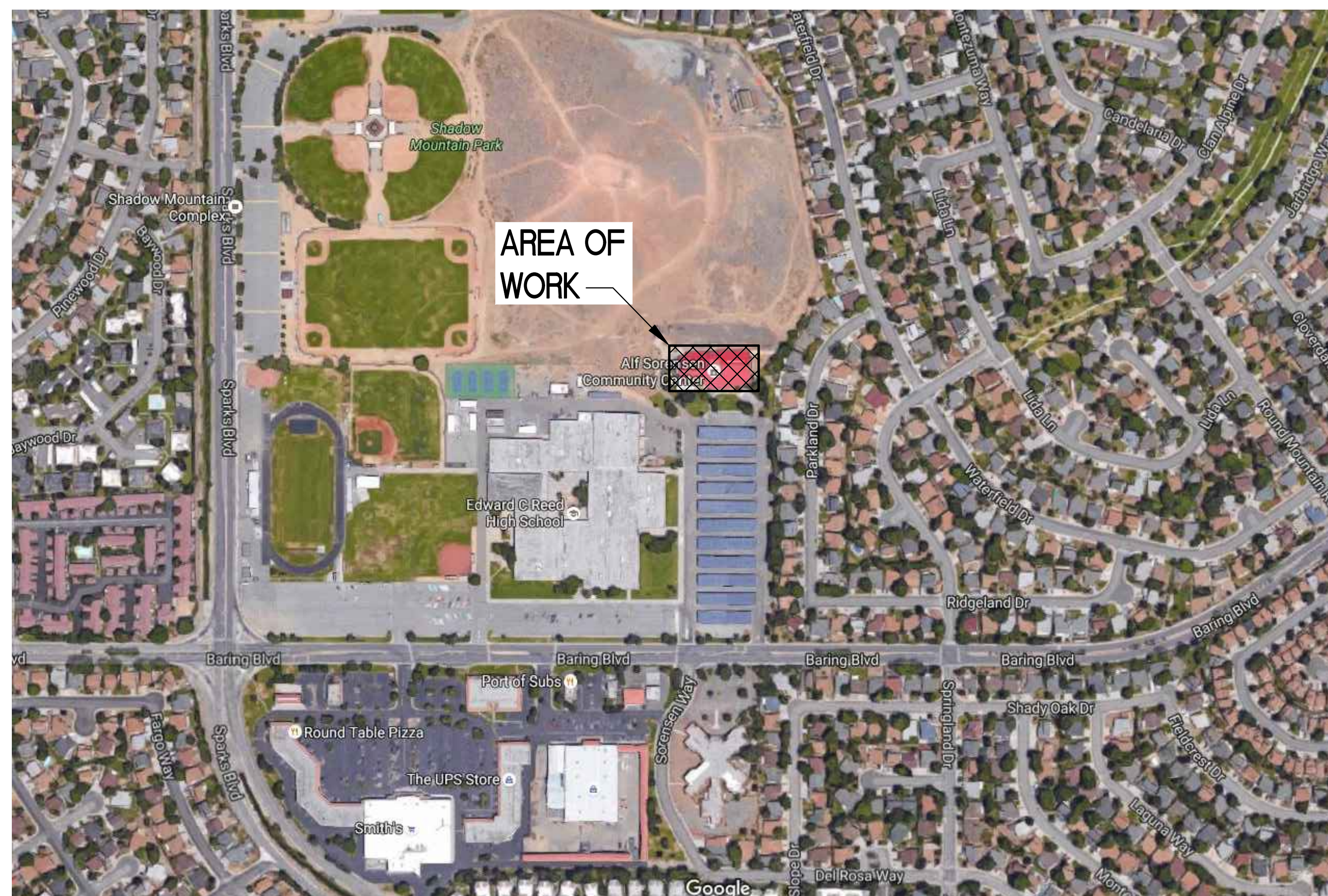
ALF SORENSEN COMMUNITY CENTER POOL HVAC UPGRADE - MECHANICAL AND ELECTRICAL



1400 BARING BLVD.
SPARKS, NEVADA
89434

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DESIGN CONSULTANTS



MECHANICAL
Matthew C. Myres, PE
Mechanical Engineer
MMI Engineering Co.
385 Gentry Way
Reno, Nevada, 89502
(775)-750-0849



ELECTRICAL
Keller Hackbusch, PE
Electrical Engineer
Dinter Engineering Co.
385 Gentry Way
Reno, Nevada, 89502
Office: 775-826-4044
Direct: 775-682-4618

MATTHEW C. MYRES, P.E.
MMI ENGINEERING

DATE: 02/02/2018

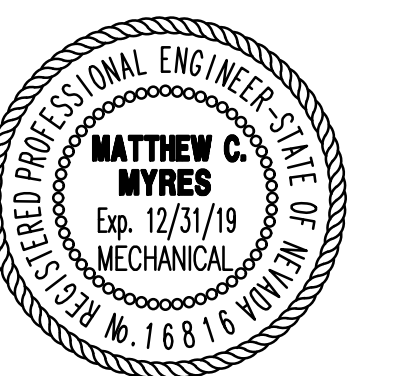
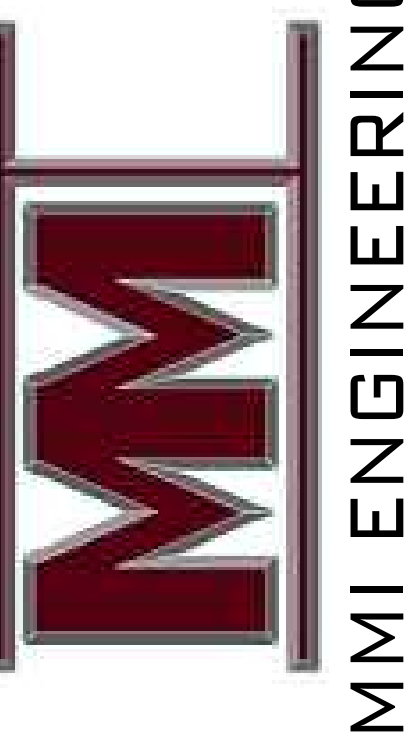
KELLER C. HACKBUSH, P.E.
DINTER ENGINEERING

DATE: 02/02/2018

JON R. ERICSON, P.E., P.T.O.E.
CITY ENGINEER

DATE: 02/02/2018

MMI ENGINEERING
385 GENTRY WAY
RENO, NV. 89502
(775) 750-0849
WWW.MMI-ENGINEER.COM
MMI PROJECT# 2016-24



2/02/2018

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SHEET TITLE

TITLE SHEET - GENERAL INFO

REVISIONS

1	PLAN REVIEW COMMENTS (2/23/18)
2	2nd PLAN REVIEW COMMENTS (4/26/18)

DATE :
FEBRUARY 02, 2018
SHEET NUMBER :

T1.0

BID DOCUMENTS

MECHANICAL SYMBOL LIST (NOTE: ALL OF THE SYMBOLS INDICATED BELOW MAY NOT APPEAR ON THIS PROJECT)

	DUCT 12\"/>	AF	ABOVE FINISHED FLOOR
	DUCT 12\"/>	AFG	ABOVE FINISHED GRADE
	V.D. MANUAL VOLUME / BALANCING DAMPER	BDD	BACKDRAFT DAMPER
	F.D.R. FIRE DAMPER	BHP	BRAKE HORSEPOWER
	S.D. SMOKE DAMPER	BTUH	BRITISH THERMAL UNITS PER HOUR
	F.S.D. COMBINATION FIRE / SMOKE DAMPER	CFH	CUBIC FEET PER HOUR
	90\"/>	CFM	CUBIC FEET PER MINUTE
	SQUARE TO ROUND DUCT TRANSITION	DB	DRY BULB TEMPERATURE
	FLEX FLEXIBLE DUCT	EAT	ENTERING AIR TEMPERATURE
	S.A. SUPPLY AIR DUCT DOWN	ESP	EXTERNAL STATIC PRESSURE
	S.A. SUPPLY AIR DUCT UP	EWT	ENTERING WATER TEMPERATURE
	R.A. RETURN AIR DUCT DOWN	GPH	GALLONS PER HOUR
	R.A. RETURN AIR DUCT UP	GPM	GALLONS PER MINUTE
	E.A. EXHAUST AIR DUCT DOWN	HD	HEAD
	E.A. EXHAUST AIR DUCT UP	HP	HORSEPOWER
	RL REFRIGERANT LIQUID PIPING	HWR	HOT WATER RETURN PIPE
	RS REFRIGERANT SUCTION PIPING	HWS	HOT WATER SUPPLY PIPE
	S.T.R. STRAINER	LAT	LEAVING AIR TEMPERATURE
	P.T.R. PRESSURE - TEMPERATURE RELIEF VALVE	LWT	LEAVING WATER TEMPERATURE
	2VAL 2-WAY CONTROL VALVE	MBH	BRITISH THERMAL UNITS PER HOUR (THOUSANDS)
	3VAL 3-WAY CONTROL VALVE	MUA	MAKE-UP AIR
	U UNION	NOM	NOMINAL
	P.R.G. PRESSURE GAUGE WITH GAUGE COCK	OA	OUTSIDE AIR
	TH THERMOMETER	PD	PRESSURE DROP
	P.D. PIPING TEE DOWN	RPM	REVOLUTION PER MINUTE
	P.U. PIPING TEE UP	SP	STATIC PRESSURE
	P.U. PIPING ELBOW UP	TYP	TYPICAL
	P.D. PIPING ELBOW DOWN	WB	WET BULB TEMPERATURE
	B.L.V. BALL VALVE		
	C.C. CIRCUIT SETTER BALANCE VALVE		
	INDICATES DIRECTION OF FLOW		
	MECHANICAL EQUIPMENT TAG		
	DIFFUSER OR GRILLE TAG		
	P.O.C. POINT OF CONNECTION - NEW ITEMS TO EXISTING ITEMS		
	T. THERMOSTAT		
	S.E.N. SENSOR		
	S.D.E.T. SMOKE DETECTOR		
	T.C.C. TEMPERATURE CONTROL PANEL		

GENERAL MECHANICAL NOTES

- DUE TO THE SMALL SCALE OF THE DRAWINGS, IT IS IMPOSSIBLE TO SHOW ALL REQUIRED OFFSETS, ELEVATIONS, ETC. IT IS THEREFORE THE CONTRACTORS RESPONSIBILITY TO VERIFY THE REQUIRED ROUTING, ELEVATION, AND PLACEMENT OF EQUIPMENT AND PROVIDE REQUIRED OFFSETS INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS AND THE SPECIFICATIONS TO MEET THE INTENT OF THE DESIGN.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE CUTTING, SAUCUTTING OPENINGS OF WALLS, CEILING, SOFFITS AS REQUIRED FOR THE INSTALLATION OF EQUIPMENT AND DUCTWORK AS REQUIRED.
- THE CONTRACTOR SHALL KEEP INSTALLATION INSTRUCTIONS FOR ALL LISTED EQUIPMENT ON THIS PROJECT AT THE JOBSITE AND SHALL HAVE THEM ACCESSIBLE FOR THE FIELD INSPECTOR UPON REQUEST.

HEAT EXCHANGER SCHEDULE

SYM	TYPE	MANUFACTURER AND MODEL	MAXIMUM DESIGN PRESSURE	MAXIMUM DESIGN TEMPERATURE	SURFACE AREA	NUMBER OF PLATES	MINIMUM CAPACITY AT DESIGN CONDITIONS (MBH)	HOT SIDE - HEATING HOT WATER				COLD SIDE - HEATING HOT WATER				MAX OPERATING LIT LBS	STANDARD ACCESSORIES AND OPTIONS
								EWT	LWT	WATER FLOW (GPM)	MAXIMUM WPD (FT L/C)	EWT	LWT	WATER FLOW (GPM)	MAXIMUM WPD (FT L/C)		
HEX	PLATE AND FRAME	SUNDEX MODEL # STA-1G16	150 PSI	180	18.2 SQUARE FEET	25	614	180	160	62.9	8.0	122	140	71.3	11.0	250	PERFORMANCE SHALL BE BASED ON WATER FOR THE HOT SIDE AND 30% PROPYLENE GLYCOL FOR THE COLD SIDE OF HEAT EXCHANGER. PLATES SHALL BE CONSTRUCTED OF AISI 316L STAINLESS STEEL WITH 2" NPT MALE THREADED PIPE CONNECTIONS. CONTRACTOR TO PROVIDE AND INSTALL LATE STRAINERS WITH 80 MESH SCREEN ON THE HOT AND COLD SIDE INLETS.

GLYCOL FEEDER TANK SCHEDULE

SYM	DESCRIPTION	MANUFACTURER & MODEL NO.	CONNECTION SIZE	REMARKS
GFT	GLYCOL FEEDER TANK	AXIOM MODEL # MF200	1/2"	6.6 GALLON STORAGE/MIXING TANK WITH COVER, 1/2" SYSTEM CONNECTION, AND COMPATIBLE WITH 30% PROPYLENE GLYCOL SOLUTION. ELECTRICAL: 115/60/1, 0.1 A. OPERATING WEIGHT: 60 LBS

EXPANSION TANK SCHEDULE

SYM	DESCRIPTION	MANUFACTURER & MODEL NO.	CAPACITY & TRIM	CONNECTION SIZE	LBS	REMARKS
ET	BLADDER TYPE EXPANSION TANK, ASME TANK	WESSELS MODEL NO. NLAP-40	11 GALLON TOTAL TANK VOLUME, 11 GALLON ACCEPTANCE VOLUME FOR USE WITH HEATING HOT WATER, NOT FOR USE WITH POTABLE WATER, VERTICAL INSTALLATION ONLY	3/4" MALE	150 LBS	FLOOR MOUNTED TANK FOR USE WITH 30% PROPYLENE GLYCOL SOLUTION

CHEMICAL FEEDER TANK SCHEDULE

SYM	DESCRIPTION	MANUFACTURER & MODEL NO.	CONNECTION SIZE	REMARKS
CFT	CHEMICAL POT FEEDER	ELBI MODEL # FB2-200	(2) 3/4"	FLAT BOTTOM, CARBON STEEL, 2-GALLON BYPASS FEEDER. OPERATING WEIGHT: 25 LBS.

AIR SEPARATOR SCHEDULE

SYM	DESCRIPTION	MANUFACTURER & MODEL NO.	CAPACITY	CONNECTION SIZE	REMARKS
AS	AIR SEPARATOR	CALEFFI MODEL # 551060A	DESIGN FLOW RATE 62.9 GPM, MAX PRESSURE DROP = 0.275 FT. HD. Cv = 114.0	2 1/2" FLANGED 1" NPT BLOWDOWN	FOR USE WITH 30% PROPYLENE GLYCOL SOLUTION HOT WATER SYSTEM

AIR HANDLER EQUIPMENT SCHEDULE

SYM	DESCRIPTION	MANUFACTURER	MODEL	UNIT CAPACITY	ACCESSORIES	HP	ELEC.	WEIGHT	REMARKS
AHL	POOL ROOM AIR HANDLER (OUTDOOR CONFIGURATION)	SORESCO	NP-045-PR-X-P6FT22534ZE3AD0	SUPPLY FAN: 25,000 CFM SUPPLY AIR AT 2.0" W.C. E.S.P., VFD, DIRECT DRIVE, PLENUM TYPE. EXHAUST FAN: 8,992 CFM EXHAUST AIR AT 0.5" W.C. E.S.P., PLENUM TYPE. PURGE FAN: 18,508 CFM PURGE AIR AT 0.5" W.C. E.S.P., AXIAL TYPE. EVAPORATOR COIL: 2 CIRCUITS, 45-TON (2) SCROLL COMPRESSORS WITH R410A REFRIGERANT DEHUMIDIFIERS, 585.5 MBH TOTAL CAPACITY, 341.4 MBH SENSIBLE CAPACITY, 226.0 LBS/H LATENT CAPACITY. REHEAT COIL: 131.9 MBH HEAT REJECTION AND FULLY MODULATING AUXILIARY HEATING COIL: 650 MBH TOTAL CAPACITY @ 71.3 GPM, EWT 140°, LWT 122°, EAT 85°, LAT 120.5°, 11.3 FL WPD, MODULATED, 2" STUB CONNECTION AND 30% PROPYLENE GLYCOL SOLUTION. PACKAGED FLUID COOLER: 95 GALLON SYSTEM FILL, 100 GPM, 5.54 FT. WPD, 131.9 MBH CAPACITY, 100°F DESIGN EAT. POOL HEATING COIL: CUPRO-NICKEL CO-AXIAL TYPE, 439 MBH CAPACITY, 75 GPM @ 13.84 FT WPD PRESSURE DROP, 2" PVC STUB CONNECTION. CONNECT TO EXISTING SYSTEM IS NOT INCLUDED IN THIS PROJECT.	MINIMUM MERV 8 FLEATED DISPOSABLE AIR FILTERS, SMOKE DETECTOR IN SUPPLY AIR DUCTWORK, PURGE/ECONOMIZER, HOT WATER AUXILIARY HEATING COIL FOR POOL WATER HEATING, BACKET CONTROLLER, HEAT RECOVERY	SUPPLY FANS (2) 20 HP EXHAUST FANS (3) 2.4 HP PURGE FANS (2) 5.3 HP PROTOCOL PUMP 1.8 HP FLUID COOLER (6) 3.4 HP HEAT RECOVERY 0.15 HP	460V/3/4/60 HZ 188.3 FLA MCA 169 200 MOCF	18,300 LBS	MINIMUM OUTSIDE AIR: 81.75 CFM

DUCT MATERIAL SPECIFICATIONS

- RECTANGULAR AND ROUND DUCTWORK SHALL BE CONSTRUCTED FROM GALVANIZED STEEL IN ACCORDANCE WITH THE LATEST EDITION S.M.A.C.N.A. HVAC DUCT CONSTRUCTION STANDARDS FOR 2" W.C. PRESSURE SYSTEMS. FIBERGLASS DUCT WILL NOT BE PERMITTED.
- EXTERIOR DUCT AND FITTINGS SHALL BE EXTERNALLY INSULATED WITH 2" THICK RIGID POLYISOCYANURATE OR POLYSTYRENE FOAM INSULATION (R-8 MINIMUM) WITH MINIMUM 20 GAUGE ALUMINUM OR GALVANIZED STEEL JACKET, LAP AND SEAL EXTERIOR JACKET JOINTS. INTERNALLY LINE DUCT (WHERE SHOWN ON DRAWINGS) WITH JOHNS MANVILLE FERMACOTE LINACOUSTIC R-300 (OR EQUAL) 1" THICK, 1 1/2" DENSITY ACOUSTICAL DUCT LINER. ADJUST DUCT SIZE TO ACCOMMODATE LINER AND GIVE NET DIMENSIONS SHOWN ON DRAWINGS.
- ALL DUCT JOINTS SHALL BE SEALED WITH S.M.A.C.N.A. APPROVED TAPE AND POLYMER ADHESIVES AIR SEAL #33 OR DESIGN POLYMERIC #DPIOO WATER BASED DUCT SEALANT OR APPROVED EQUAL.

PIPE MATERIAL SPECIFICATIONS

- HYDRONIC, SIZES UP TO 2", ASTM B88, TYPE 'L', HARD DRAWN COPPER WITH WROT COPPER SOLDER JOINT FITTINGS OR COPPER PRESS FITTINGS.
- HYDRONIC, SIZES OVER 2", ASTM A53, SCHEDULE 40, 0.375" WALL FOR SIZES OVER 10", BLACK STEEL WITH WELDED JOINTS.
- EQUIPMENT DRAIN PIPING TO BE TYPE 'M' HARD DRAWN COPPER WITH WROT COPPER FITTINGS. USE 95/5 SOLDER. SLOPE PIPING 1/8" PER FOOT TOWARDS DRAIN.
- INTERIOR HOT WATER PIPING SHALL BE INSULATED WITH FIBERGLASS PIPE INSULATION WITH ALL SERVICE JACKET. 1/2" THICK ON PIPES SIZES UP TO AND INCLUDING 1/4", 2" THICK ON PIPE SIZES OVER 1/4". JACKET SHALL HAVE A SELF SEALING LAP AND A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS. INSULATE FITTINGS WITH PVC PRE-MOLDED INSULATED COVERS USING VAPOR BARRIER MASTIC AND TAPE. INSULATE FLANGES AND UNIONS.
- EXTERIOR HYDRONIC PIPING SHALL BE INSULATED WITH 1/2" THICK POLYISOCYANURATE FOAM PIPE INSULATION WITH ALUMINUM JACKET.

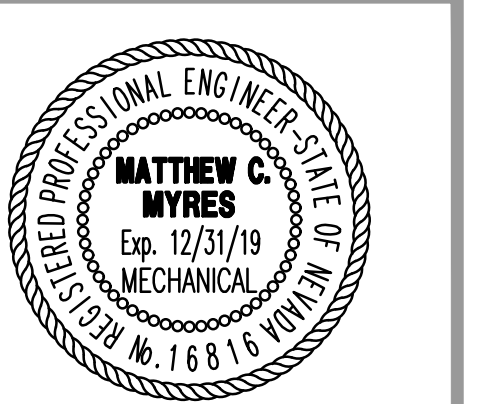
PUMP SCHEDULE

SYM	SERVICE	MANUFACTURER	MODEL #	MINIMUM CAPACITY GPM	TOTAL DYNAMIC HEAD (FT HD)	MOTOR TYPE	PUMP RPM	MINIMUM PUMP EFFICIENCY %	ELECTRICAL			DESCRIPTION / FEATURES / REMARKS	
									MINIMUM HP	VOLTAGE	PHASE		HERTZ
HL1	HOT WATER IN-LINE PUMP	TACO	MODEL # 8KV2006-15	63	22	CLOSED COUPLE	1760	59%	1.5	460	3	60	CARBON STEEL SHAFT, CAST BRONZE IMPELLER, CAST IRON CASE, STANDARD HIGH TEMP SEAL, FLANGED CONNECTION, PERMANENTLY LUBRICATED BEARINGS, 175 PSI WORKING PRESSURE
HL2	HOT WATER IN-LINE PUMP - 30% PROPYLENE GLYCOL SOLUTION	TACO	MODEL # 8KV3009-3	72	46	CLOSED COUPLE	1760	49%	3.0	460	3	60	CARBON STEEL SHAFT, CAST BRONZE IMPELLER, CAST IRON CASE, BUNA-CARBON/CERAMIC SEAL, FLANGED CONNECTION, PERMANENTLY LUBRICATED BEARINGS, 175 PSI WORKING PRESSURE

HEAT TRACE SCHEDULE

SYM	DESCRIPTION	MANUFACTURER	INFORMATION	ELECTRICAL
HT1	HEAT TRACE	RAYCHEM MODEL 5XL2-CR HEATING CABLES	HEATING CABLES, COMPONENTS, AND CONTROLS TO PREVENT PIPES FROM FREEZING. HEAT TRACE SHALL BE CONSTRUCTED OF (2) 16 AWG NICKEL-COPPER BUS WIRES EMBEDDED IN A SELF REGULATING POLYMER CORE. CABLE SHALL BE COVERED BY A POLYOLEFIN DIELECTRIC STANDARD JACKET. TOTAL LENGTH OF NEW HEAT TRACE (HT-1) SHALL BE 40 FT AND HEAT TRACE (HT-2) SHALL BE 120 FT. PROVIDE HEAT TRACE WITH 120V POWER KIT, AMBIENT TEMPERATURE SENSOR, GROUND FAULT DEVICE, END SEAL KITS, SPLICE KITS, LABEL KIT, AND TEE KITS AS REQUIRED. HEAT TRACE TO PROVIDE AUTOMATIC 24-HOUR FREEZE PROTECTION.	HT-1 ELECTRICAL: 120V/1/60HZ (54 PER 1 FOOT) = 25 WATTS HT-2 ELECTRICAL: 120V/1/60HZ (54 PER 1 FOOT) = 80 WATTS

MMI ENGINEERING
385 GENTRY WAY
RENO, NV, 89502
(775) 750-0849
WWW.MMI-ENGINEER.COM
MMI PROJECT# 2016-24



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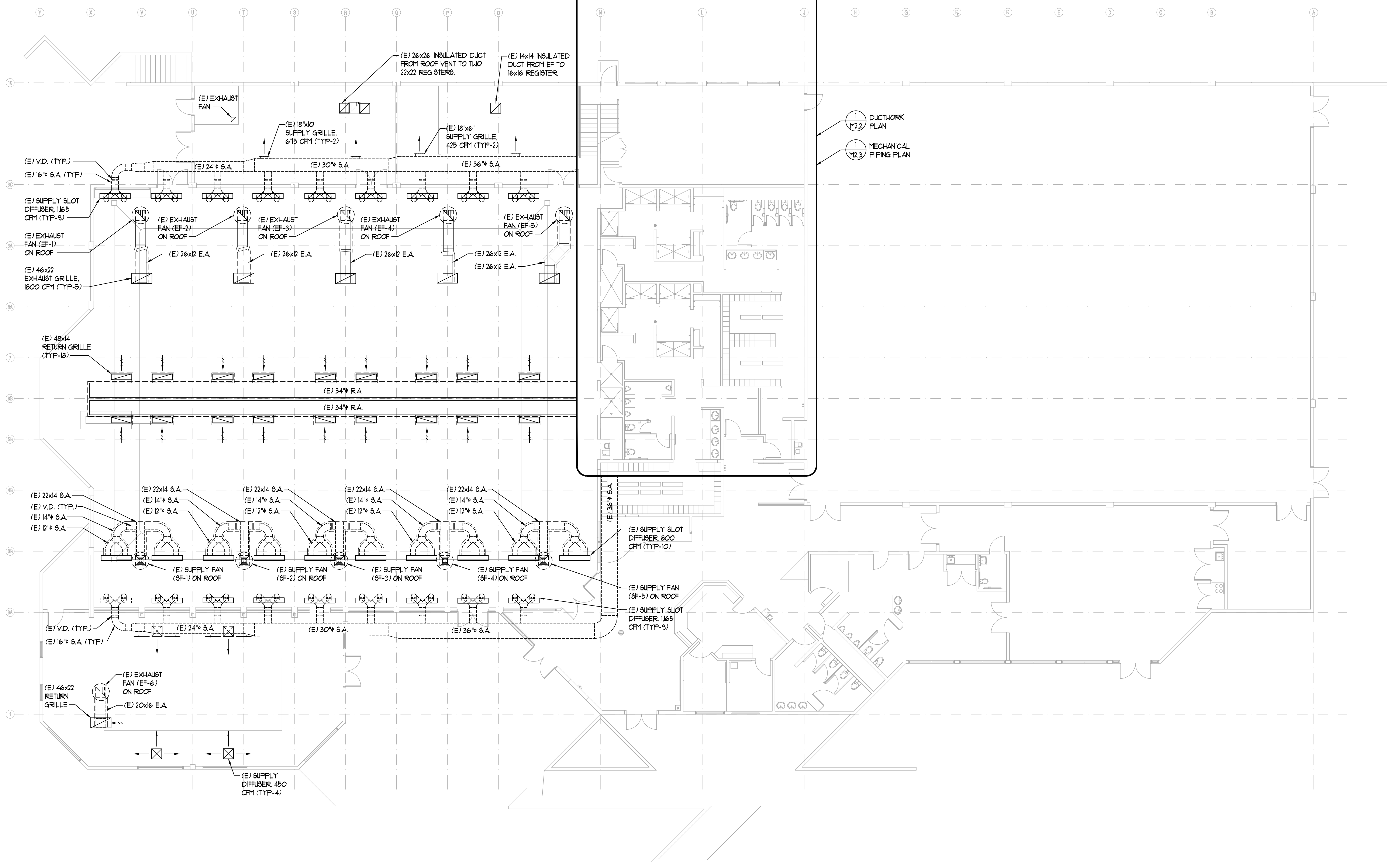
SHEET TITLE
MECHANICAL SYMBOLS, DETAILS, AND SCHEDULES

- REVISIONS
- PLAN REVIEW COMMENTS (2/23/18)
 - 2nd PLAN REVIEW COMMENTS (4/26/18)

DATE: FEBRUARY 02, 2018
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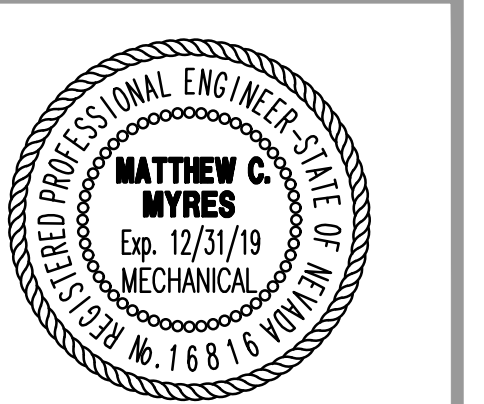
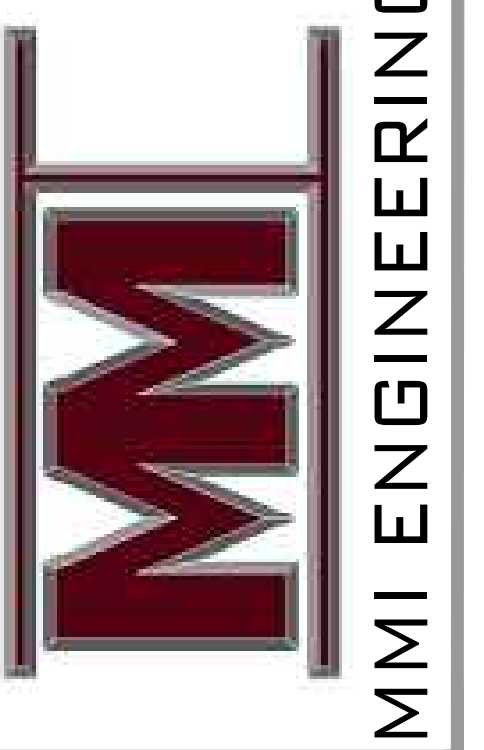
M0.1

BID DOCUMENTS



1 MECHANICAL FLOOR PLAN
 M2.1 SCALE: 1/8"=1'-0" (SHOWN FOR AIR BALANCE ONLY)

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 385 GENTRY WAY
 RENO, NV, 89502
 (775) 750-0849
 WWW.MMI-DESIGNER.COM
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 MECHANICAL FLOOR PLAN

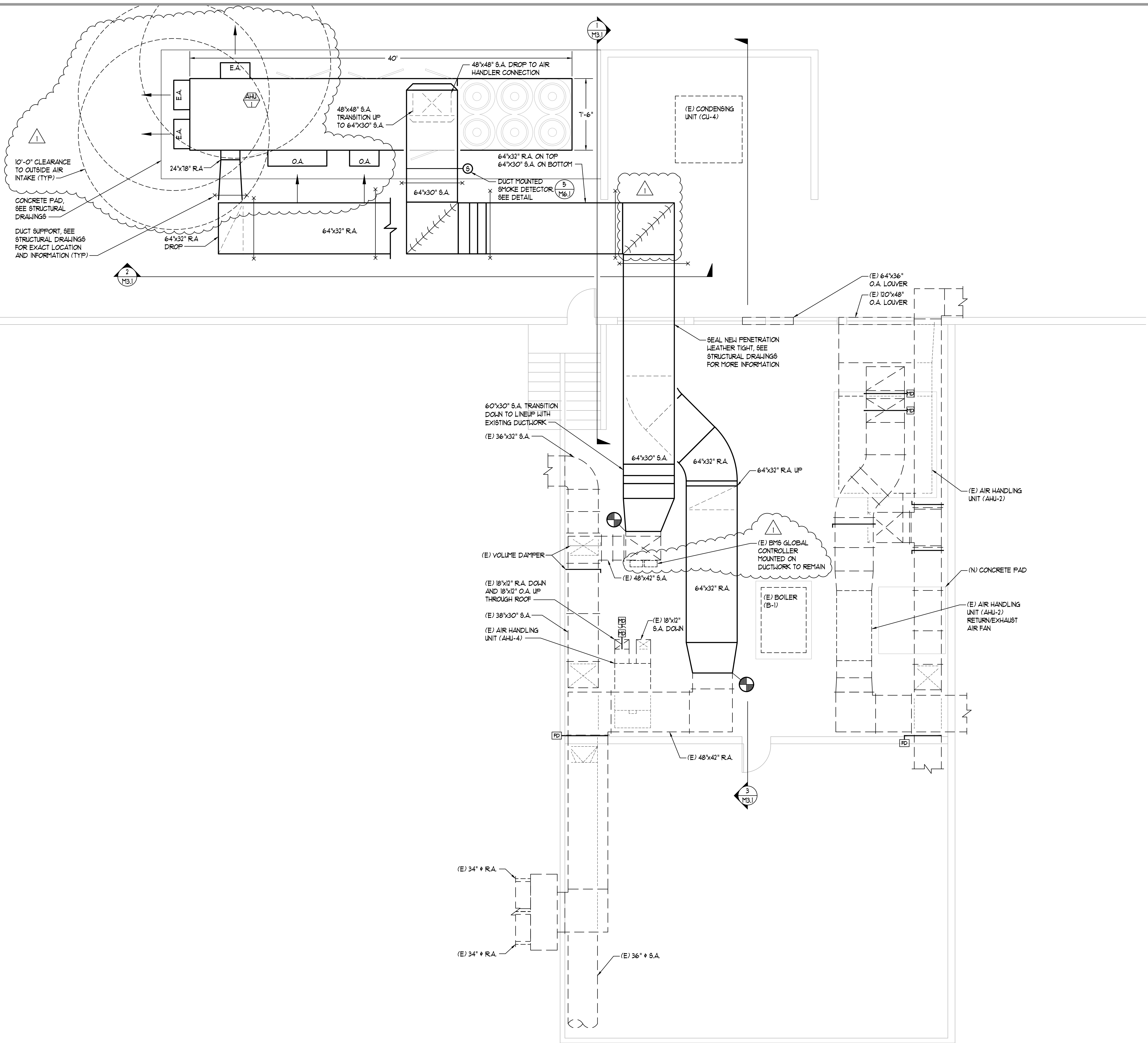
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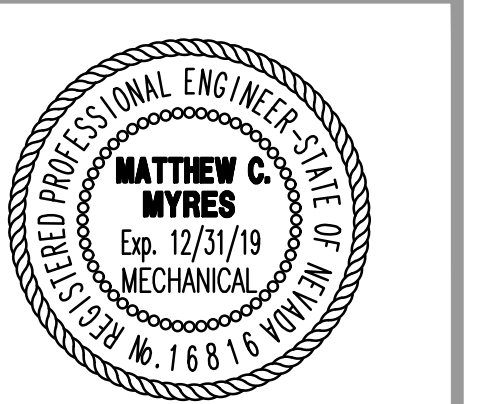
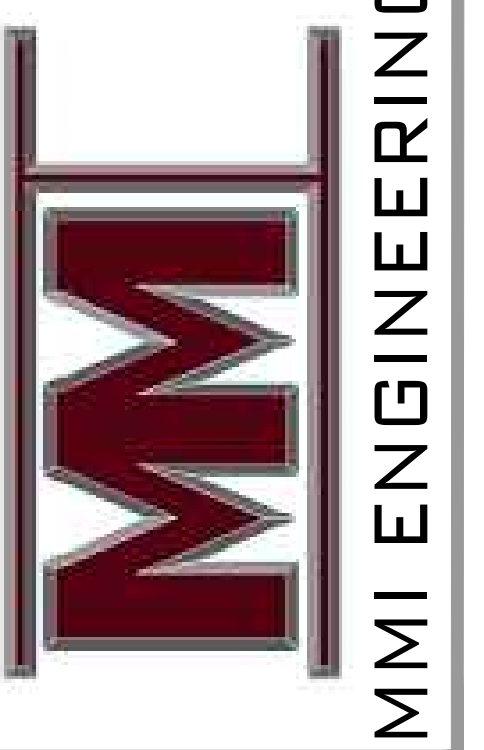
10'-0" CLEARANCE TO OUTSIDE AIR INTAKE (TYP)

CONCRETE PAD, SEE STRUCTURAL DRAWINGS

DUCT SUPPORT, SEE STRUCTURAL DRAWINGS FOR EXACT LOCATION AND INFORMATION (TYP)

1 M2.2 MECHANICAL ROOM DUCTWORK FLOOR PLAN SCALE: 1/4"=1'-0"

MMI ENGINEERING
 385 GENTRY WAY
 RENO, NV, 89502
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 MECHANICAL ROOM
 DUCTWORK PLAN

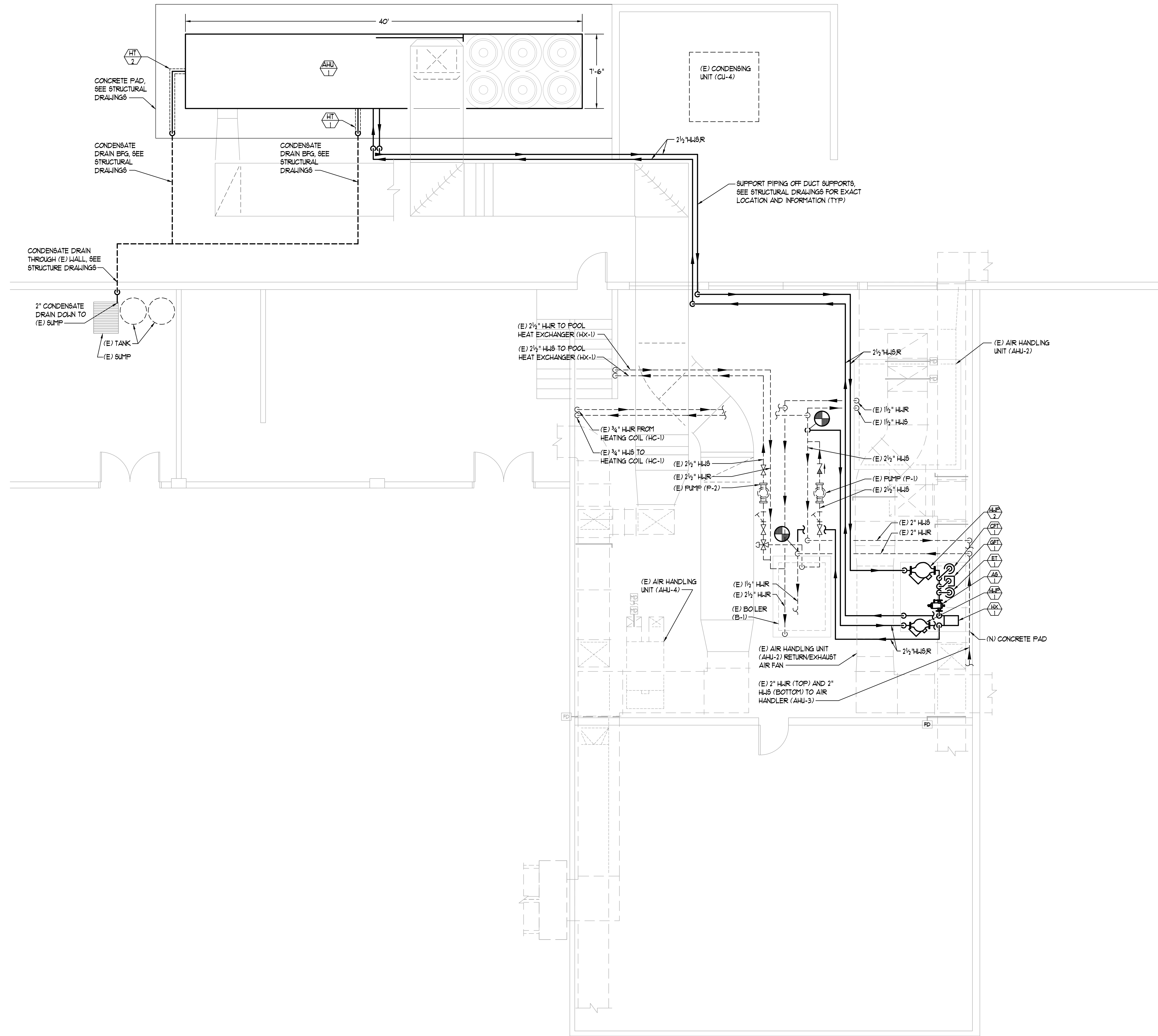
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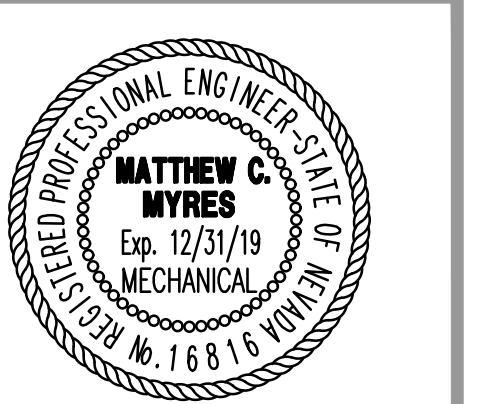
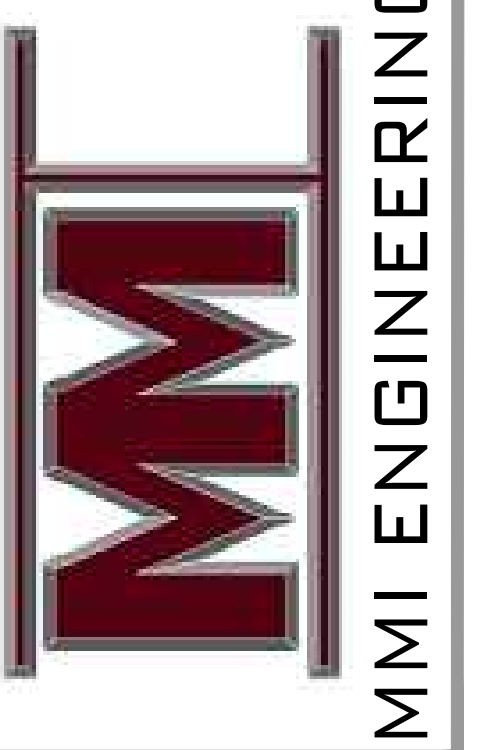
M2.2

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1 M2.3 MECHANICAL ROOM PIPING PLAN
SCALE: 1/4"=1'-0"

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SHEET TITLE
MECHANICAL ROOM
PIPING PLAN

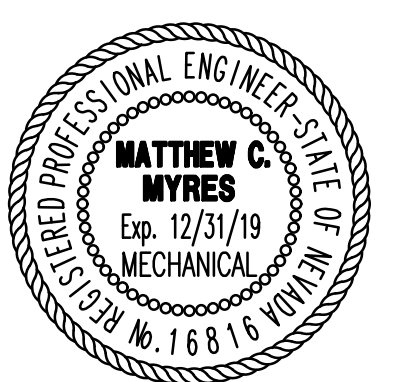
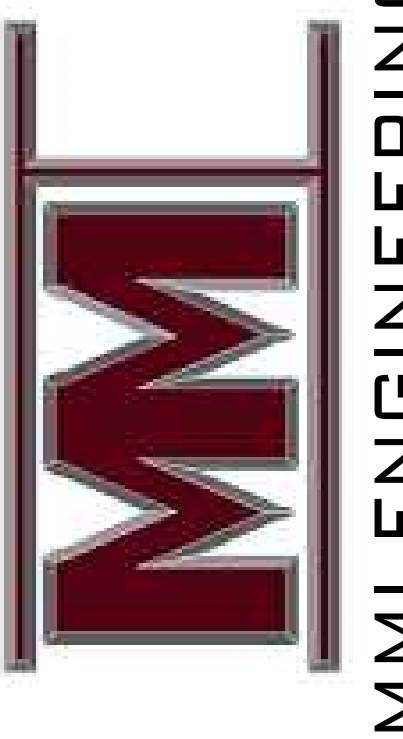
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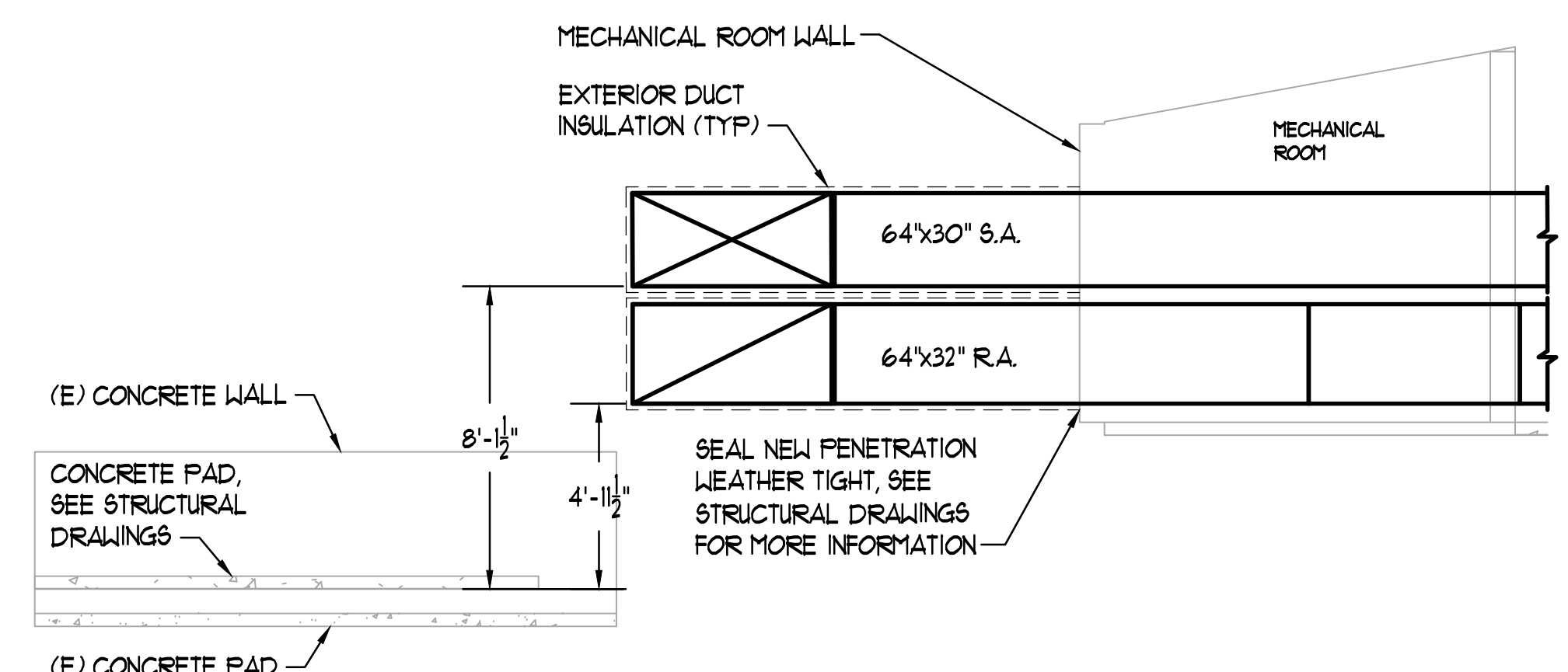
SHEET TITLE
 MECHANICAL SECTIONS

REVISIONS

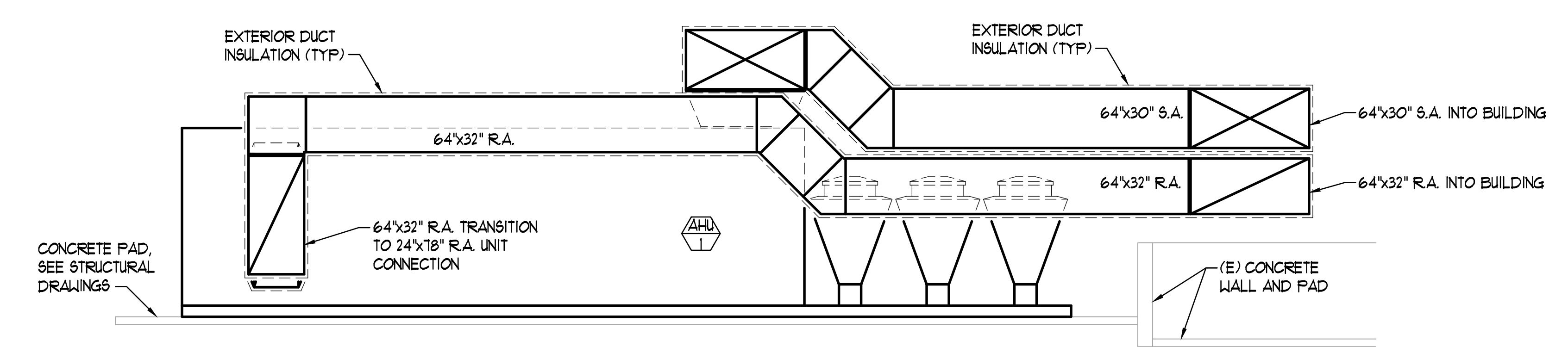
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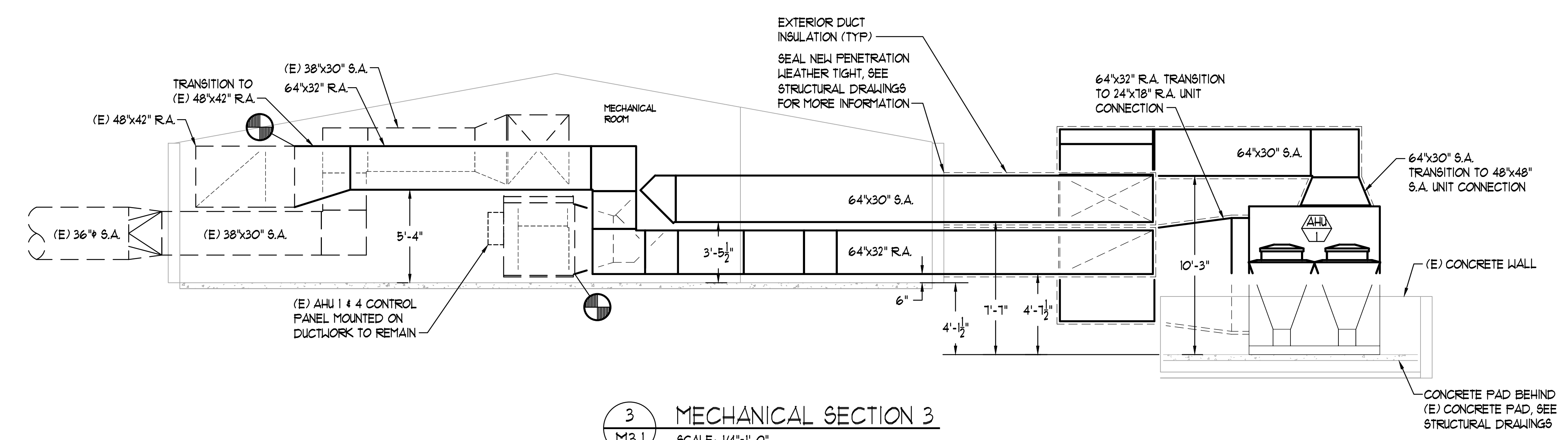
M3.1



1 MECHANICAL SECTION 1
 M3.1 SCALE: 1/4"=1'-0"

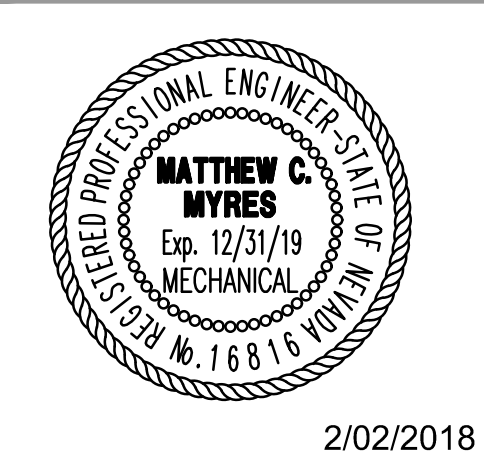


2 MECHANICAL SECTION 2
 M3.1 SCALE: 1/4"=1'-0"



3 MECHANICAL SECTION 3
 M3.1 SCALE: 1/4"=1'-0"

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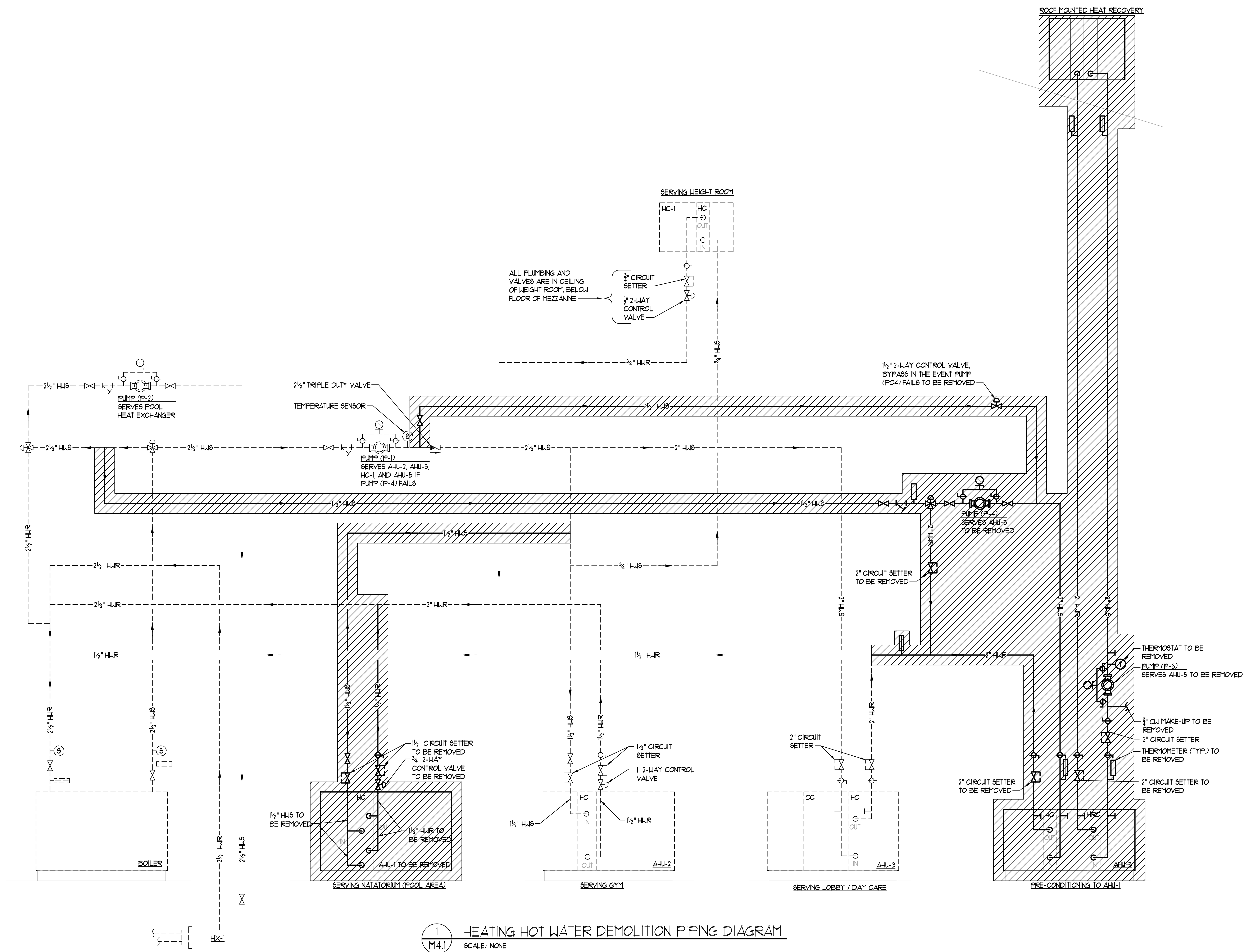
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SHEET TITLE
 MECHANICAL DEMOLITION
 PIPING DIAGRAM

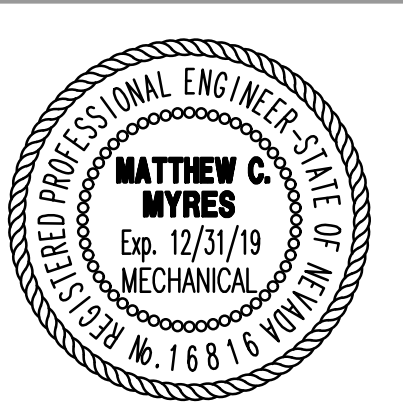
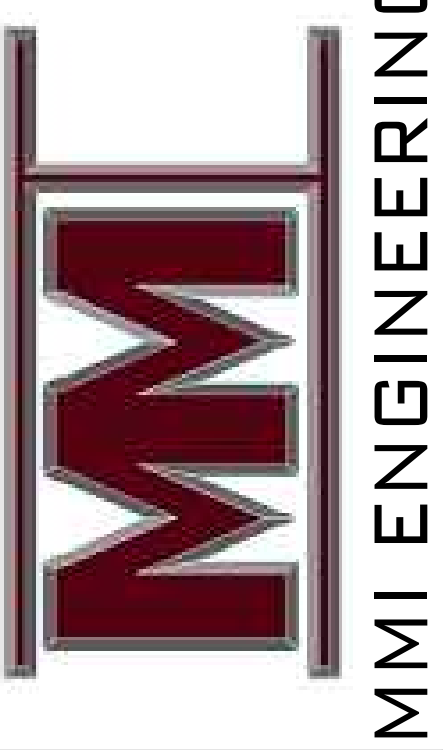
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1 HEATING HOT WATER DEMOLITION PIPING DIAGRAM
 M4.1 SCALE: NONE

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 MECHANICAL PIPING
 DIAGRAM

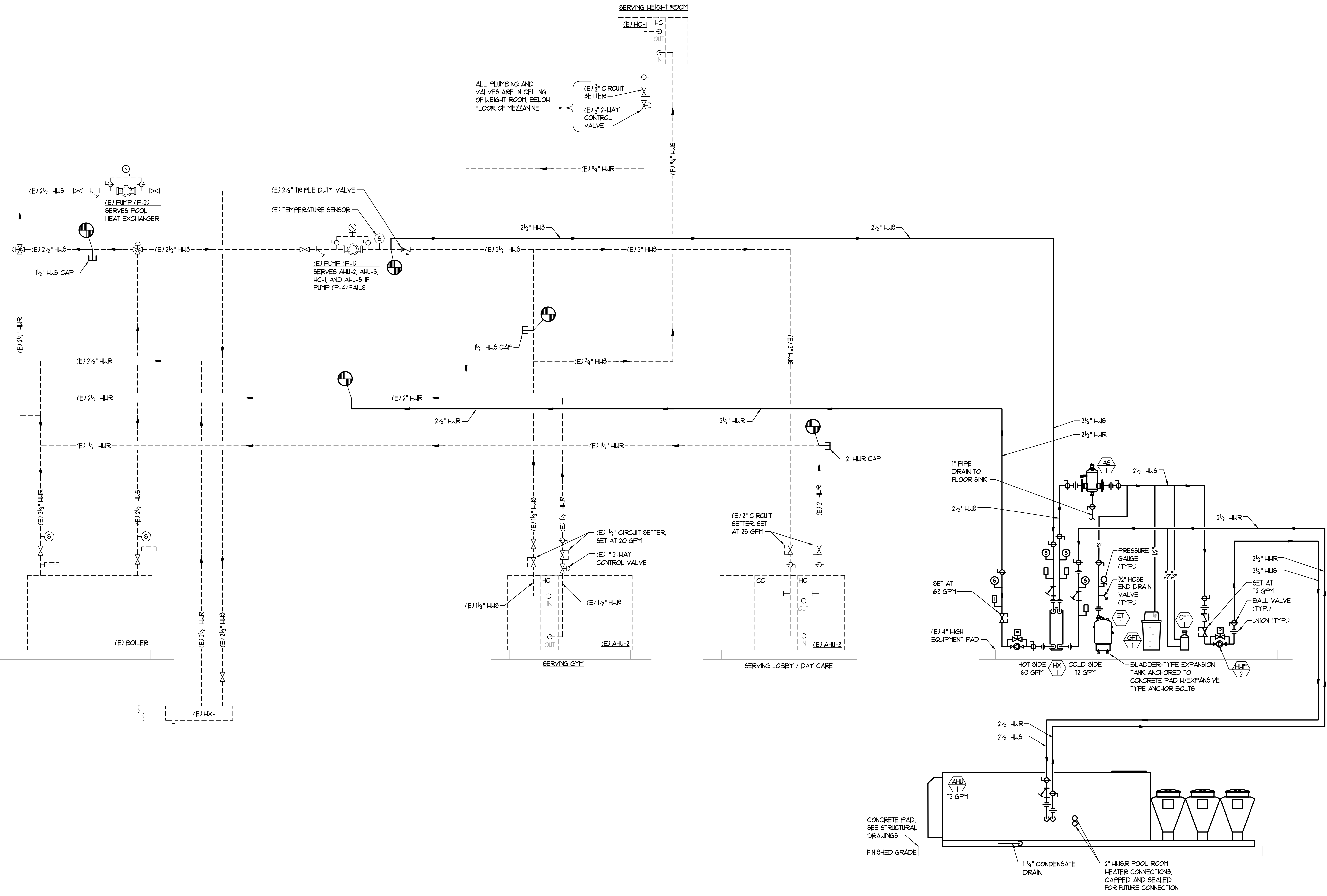
REVISIONS

1	PLAN REVIEW COMMENTS (2/23/18)
2	2nd PLAN REVIEW COMMENTS (4/26/18)

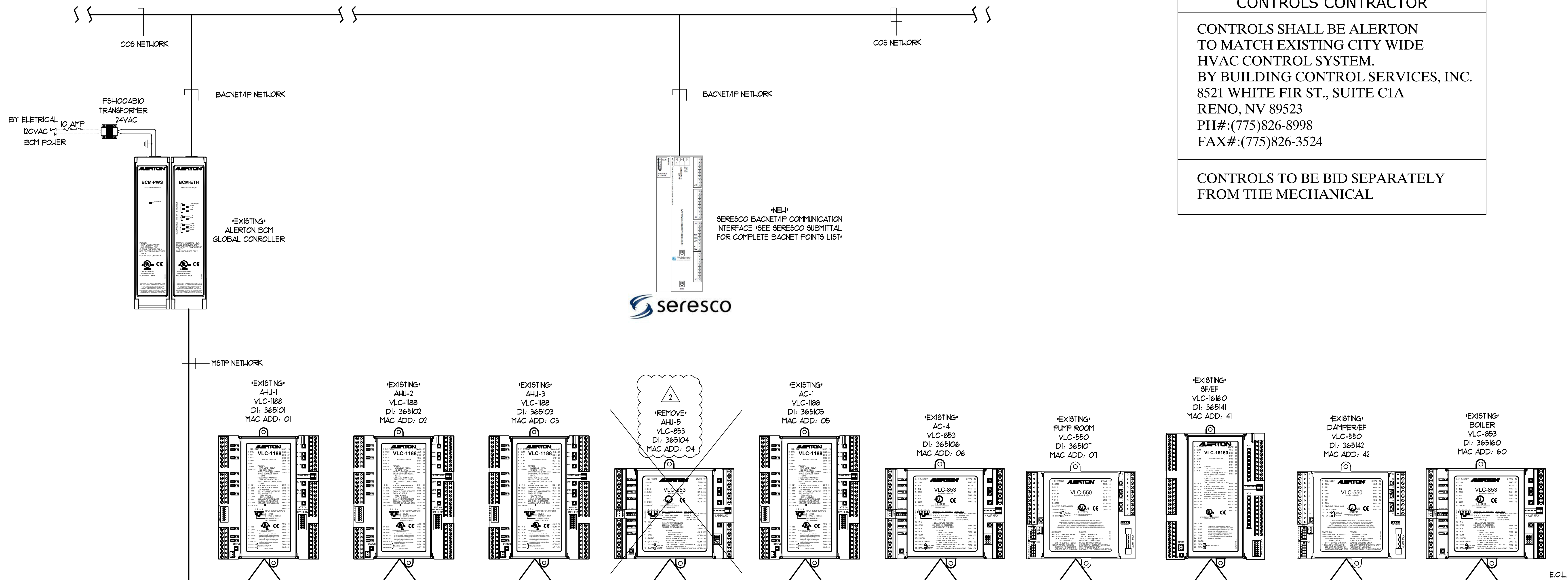
DATE :
 FEBRUARY 02, 2018
 SHEET NUMBER :

M4.2

1 HEATING HOT WATER PIPING DIAGRAM
 M4.2 SCALE: NONE



BID DOCUMENTS

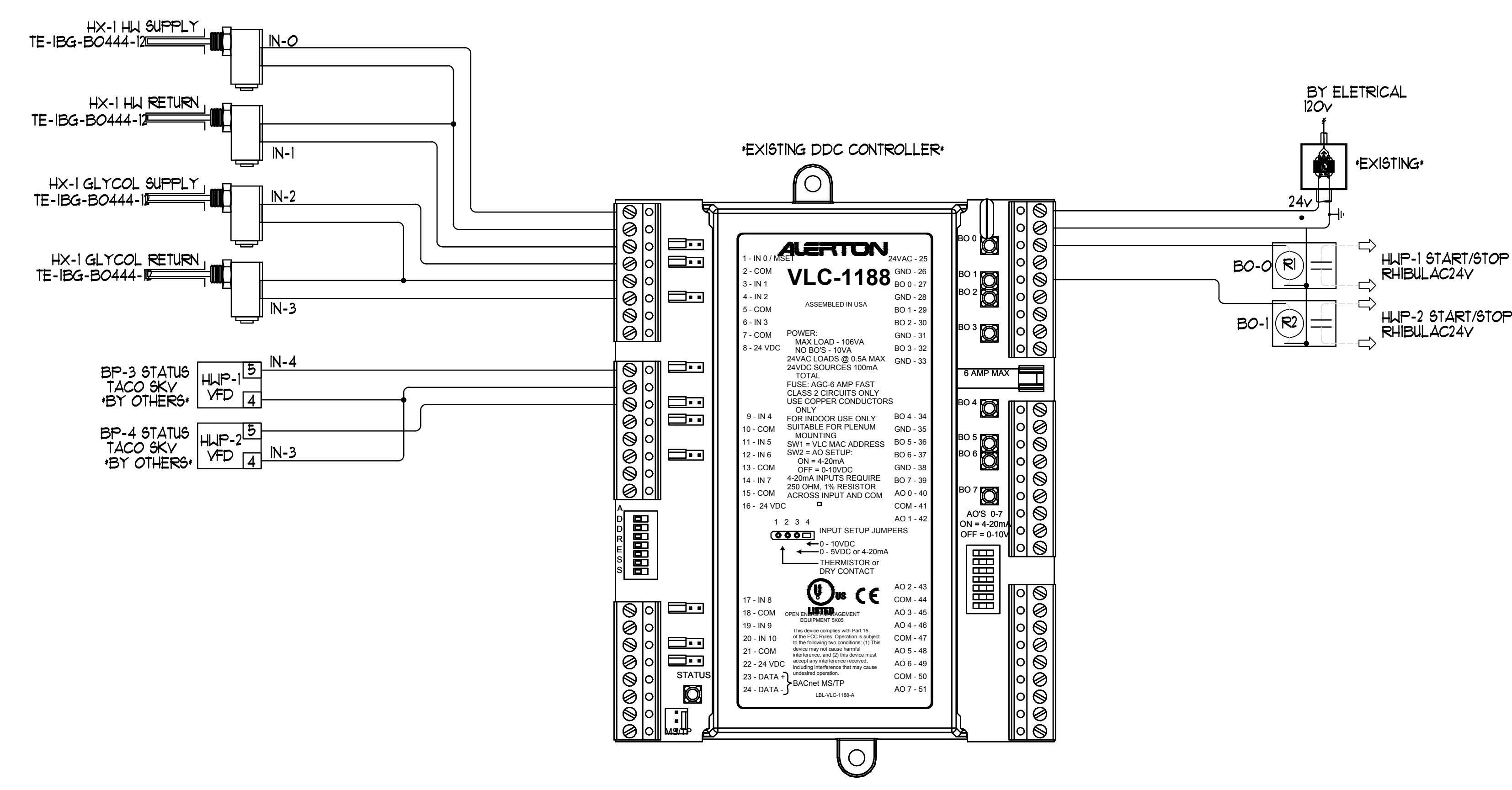


CONTROLS CONTRACTOR

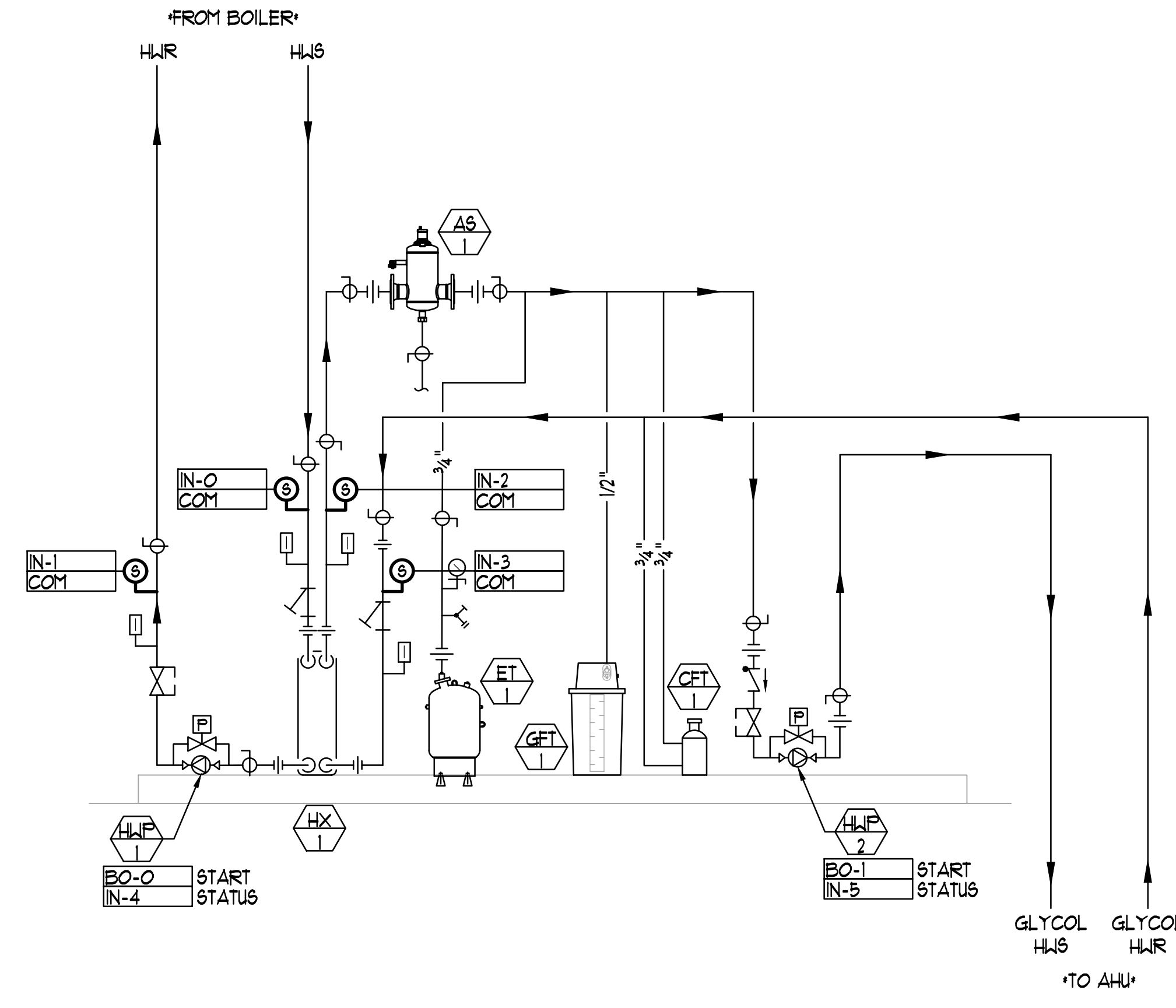
CONTROLS SHALL BE ALERTON TO MATCH EXISTING CITY WIDE HVAC CONTROL SYSTEM.
BY BUILDING CONTROL SERVICES, INC.
8521 WHITE FIR ST., SUITE C1A
RENO, NV 89523
PH#:(775)826-8998
FAX#:(775)826-3524

CONTROLS TO BE BID SEPARATELY FROM THE MECHANICAL

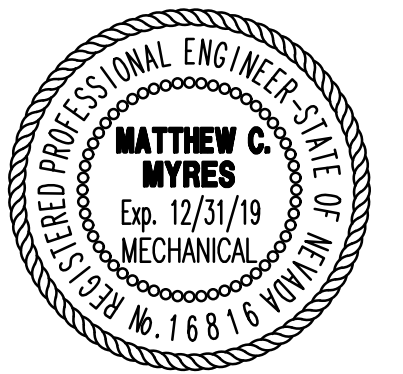
1 CONTROL SYSTEM ARCHITECTURE
SCALE: NONE



2 AHU GLYCOL HX CONTROL
SCALE: NONE



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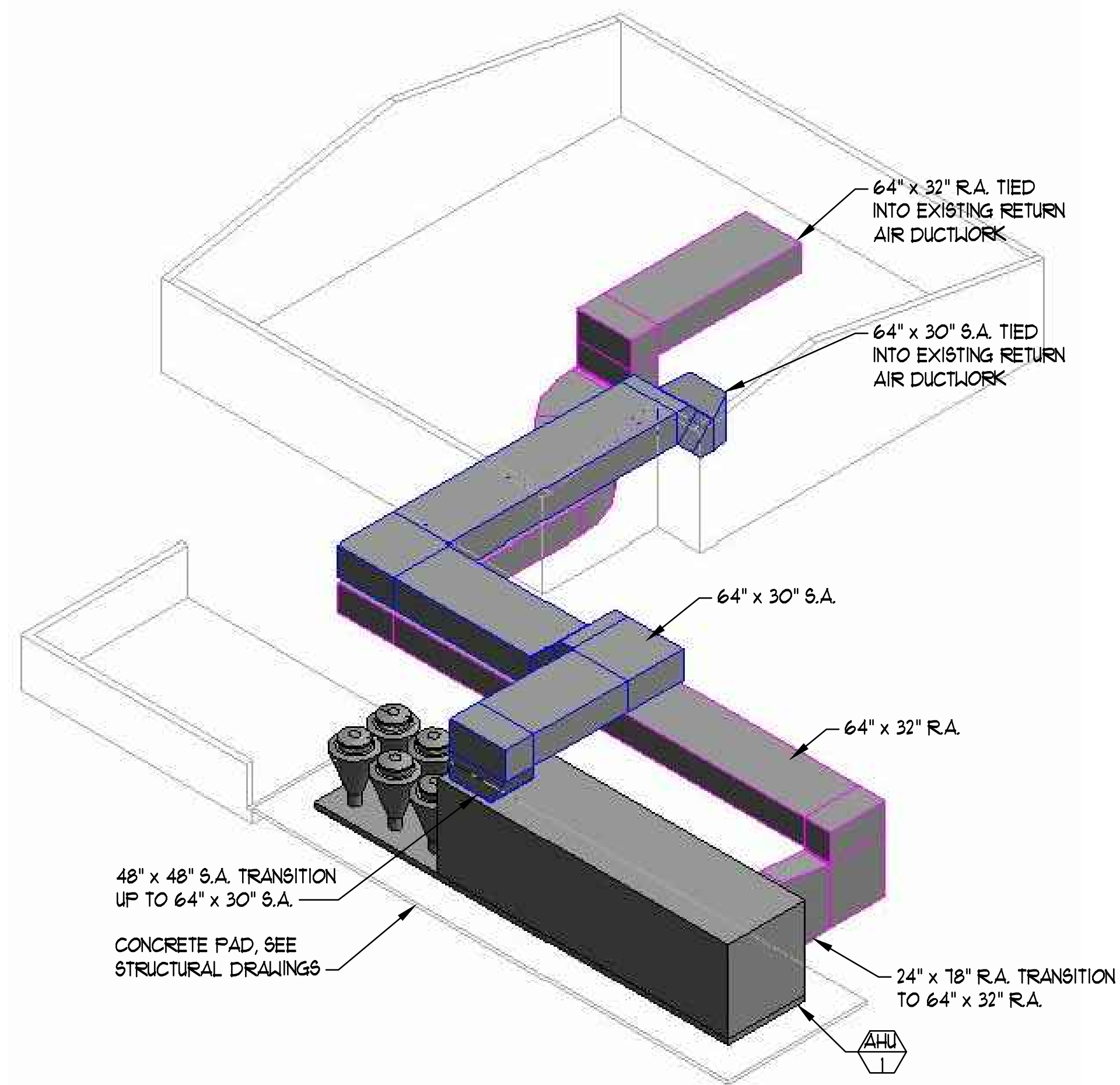
SHEET TITLE
MECHANICAL CONTROLS

- REVISIONS
- 1 PLAN REVIEW COMMENTS (2/23/18)
 - 2 2nd PLAN REVIEW COMMENTS (4/26/18)

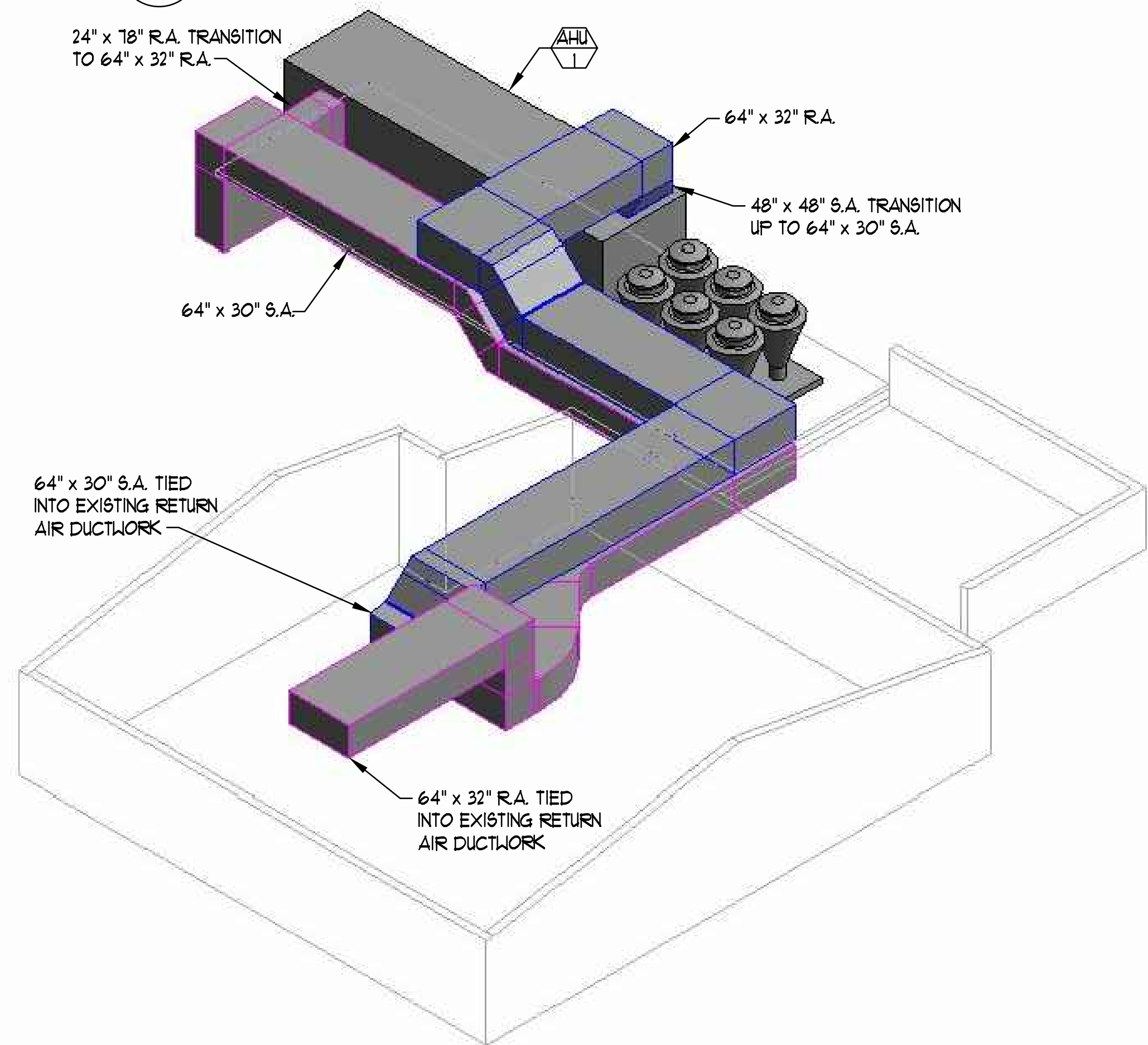
DATE :
FEBRUARY 02, 2018
SHEET NUMBER :

M5.1

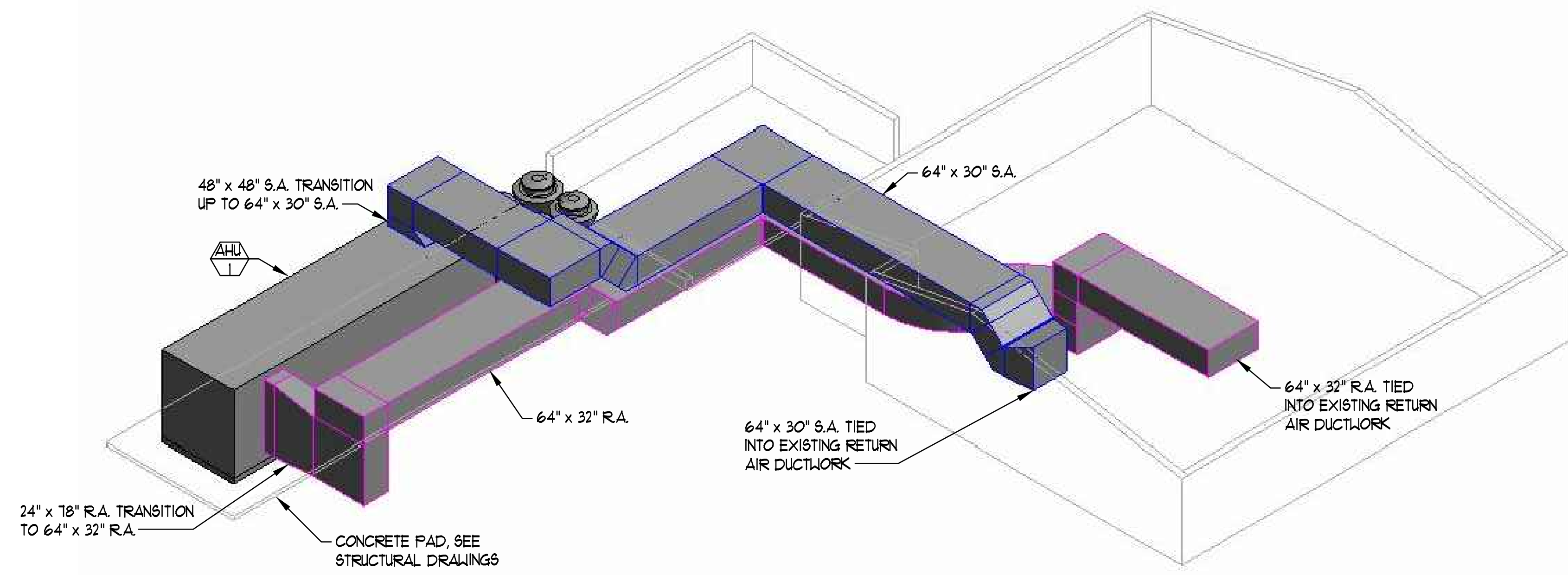
BID DOCUMENTS



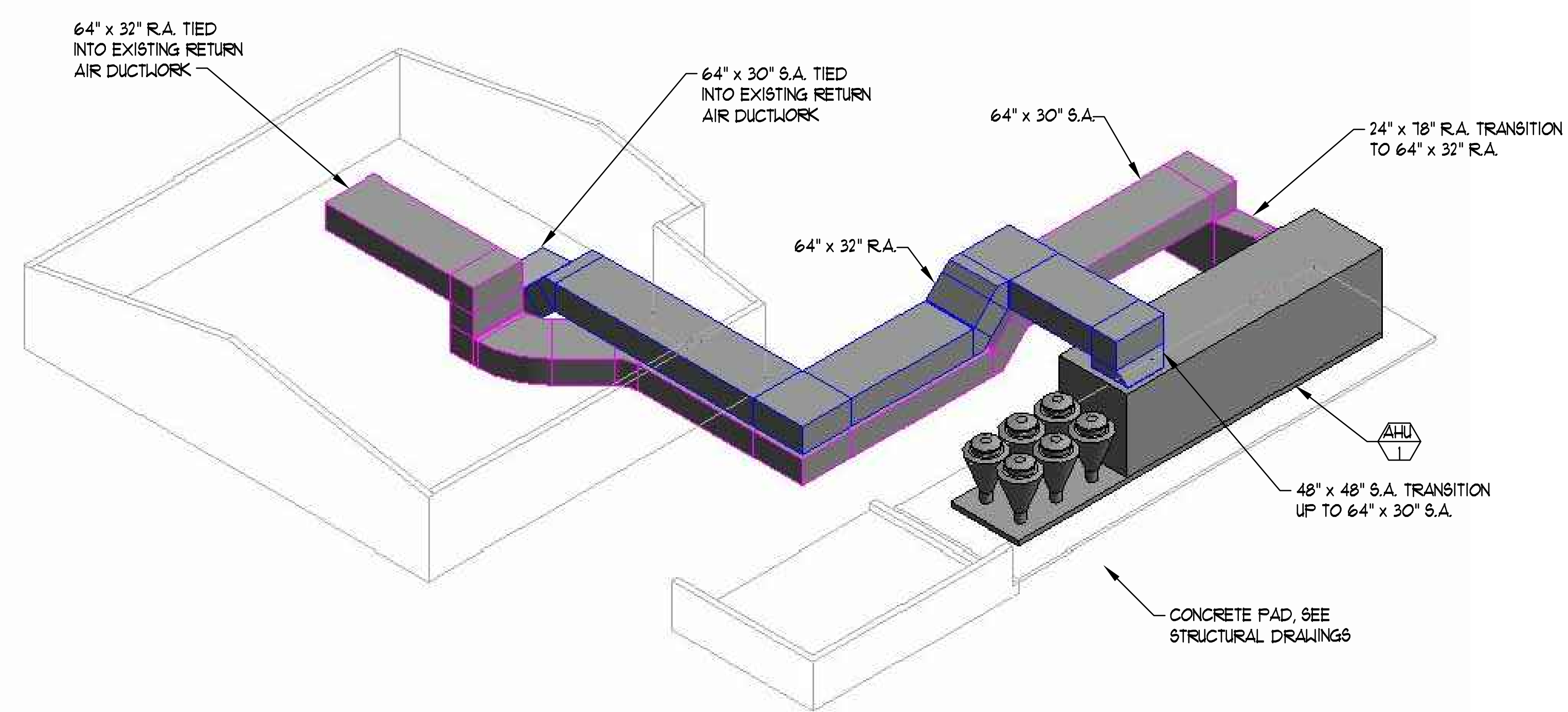
1 MECHANICAL 3D VIEW - SOUTHEAST CORNER
SCALE: NONE



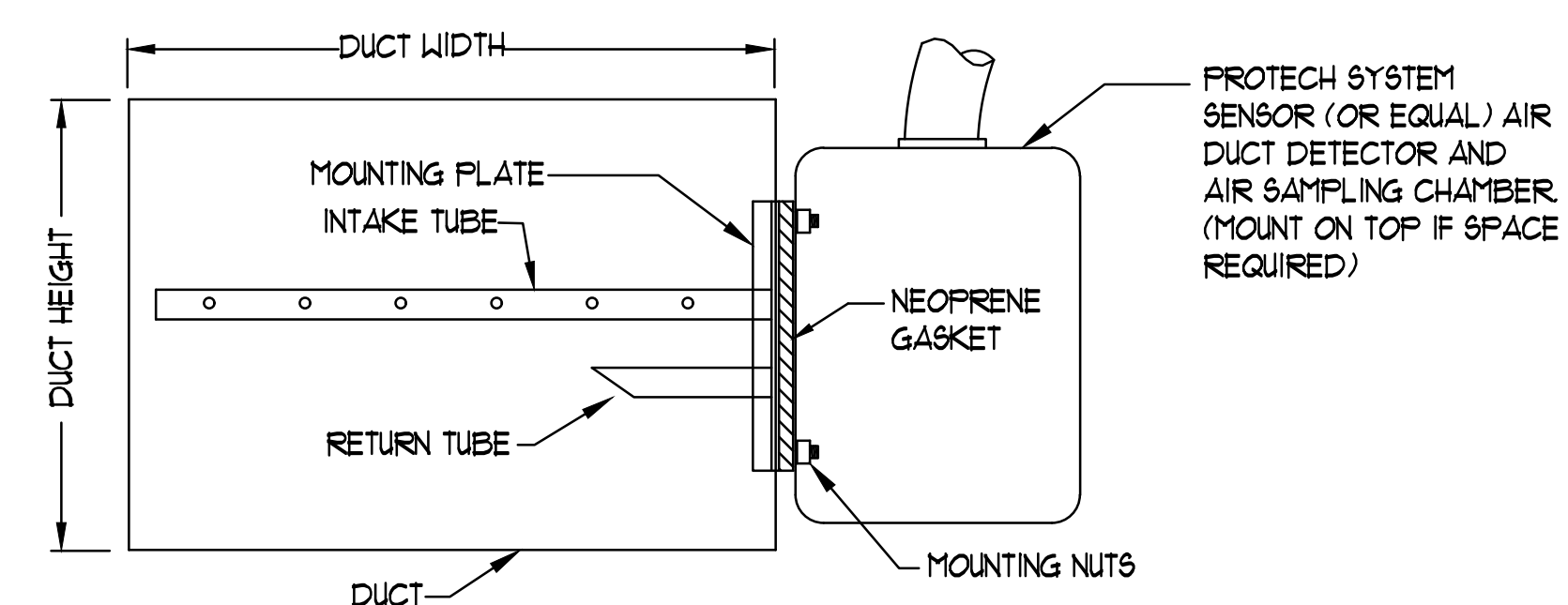
3 MECHANICAL 3D VIEW - NORTHWEST CORNER
SCALE: NONE



2 MECHANICAL 3D VIEW - NORTHEAST CORNER
SCALE: NONE



4 MECHANICAL 3D VIEW - NORTHEAST CORNER
SCALE: NONE



- NOTES:
1. SMOKE DETECTOR FURNISHED, MOUNTED, AND WIRED BY CONTRACTOR.
 2. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION.
 3. INSTRUCTIONS: PROVIDE ACCESS DOOR AT SAMPLING TUBES.
 4. DETECTOR TO BE MOUNTED IN SUPPLY AIR DROP.

5 DUCT MOUNTED SMOKE DETECTOR DETAIL
SCALE: NONE

ELECTRICAL SYMBOL LIST

	CONDUIT RUN IN OR ON CEILING OR WALL
	CONDUIT RUN IN OR UNDER FLOOR OR UNDERGROUND
	HASH MARKS INDICATE NUMBER OF #12 AWG CONDUCTORS IN CONDUIT. NO MARKS INDICATE 2 #12S. DOES NOT INCLUDE GROUND WIRE. IF NON-METALLIC CONDUIT ADD GROUND PER NEC.
	LONG SLASH WITH HASH MARKS AS SHOWN INDICATES GROUND WIRE FOR ISOLATED GROUNDING SYSTEM. SIZE PER N.E.C.
	HOMERUN TO PANEL WITH PANEL AND CIRCUIT INDICATED
	HOMERUN TO PANEL WITH CIRCUIT NUMBER IN BRACKETS INDICATING MULTI-POLE BREAKER.
	RACEWAY UP
	RACEWAY DOWN
	FRACTIONAL HORSEPOWER MOTOR MANUAL STARTER
	MOTOR SYMBOL - HORSEPOWER AS INDICATED
	DISCONNECT SWITCH (30A/3P UNLESS INDICATED ON DWGS) "F" INDICATES FUSES PER MANUFACTURERS NAMEPLATE RATING
	MAGNETIC MOTOR STARTER (SIZE AS INDICATED ON DRAWINGS)
	COMBINATION STARTER / FUSED DISCONNECT SWITCH (SIZE AS INDICATED ON DRAWINGS - FUSES SIZED PER MANUFACTURER'S NAMEPLATE RATING)
	THERMOSTAT OUTLET +60" AFF
	120V DUPLEX CONVENIENCE RECEPTACLE +18" AFF
	JUNCTION BOX AS REQUIRED BY NATIONAL ELECTRIC CODE
	ELECTRICAL PANELBOARD - SURFACE MOUNTED
	ELECTRICAL PANELBOARD - FLUSH MOUNTED
	SERVICE OR DISTRIBUTION EQUIPMENT
	TRANSFORMER
	EXISTING WIRE AND/OR CONDUIT TO BE REMOVED OR ABANDONED
	EXISTING WIRE AND/OR CONDUIT TO REMAIN
	DASHED DEVICES, LIGHT FIXTURES, ETC. EXISTING TO BE REMOVED
	"E" ADJACENT TO DEVICES, LIGHT FIXTURES, ETC. INDICATES EXISTING TO REMAIN
	SHEET NOTE
	MECHANICAL EQUIPMENT DESIGNATION. SEE MECHANICAL & PLUMBING PLANS
	FEEDER - SIZE AS INDICATED ON SINGLE LINE DIAGRAM
	DETAIL DESIGNATION - "B" INDICATES DETAIL # ON SHEET E3.1
	ROOM NUMBER
	NOTE: ALL MOUNTING HEIGHTS AS INDICATED UNLESS NOTED OTHERWISE. ALL SYMBOLS MAY NOT BE USED ON PROJECTS.

ELECTRICAL ABBREVIATIONS

AC	ABOVE COUNTER, INSTALL 4" ABOVE SPLASH OR COUNTER OR AT HEIGHT AS INDICATED ON DRAWINGS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
A	AMPS
CL	CENTERLINE
CU	COPPER
EC	EMPTY CONDUIT WITH PULL WIRE
(E)	EXISTING
FBO	FURNISHED BY OTHER SECTION
GFI	GROUND FAULT INTERRUPTING
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NVE	NV ENERGY
PNL	PANEL
(RR)	REMOVE AND RELOCATE
SPD	SURGE PROTECTION DEVICE
UNO	UNLESS NOTED OTHERWISE
W/	WITH
WP	WEATHERPROOF (NEMA 3R)
XFMR	TRANSFORMER

GENERAL DEMOLITION NOTES

- THESE PLANS DO NOT PURPORT TO SHOW ALL EXISTING CONDITIONS. ANY OUTLETS, CIRCUITING AND/OR DEVICES THAT CONFLICT WITH ALL WORK BEING PERFORMED DURING THE COURSE OF THIS PROJECT SHALL BE RELOCATED/ROUTED OR REMOVED ENTIRELY AS DICTATED BY ENGINEER.
- ALL EXISTING EQUIPMENT REMOVED DURING THE COURSE OF THIS PROJECT SHALL BE OFFERED TO OWNER FOR SALVAGE. EQUIPMENT SELECTED SHALL BE TURNED OVER TO OWNER ON PROJECT SITE. ALL REMAINING EQUIPMENT BECOMES THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM PROJECT SITE.
- IT IS MANDATORY THAT THE CONTRACTOR VISIT SITE AND VERIFY EXISTING CONDITIONS THAT MIGHT AFFECT HIS OR HER WORK. ALL DISCREPANCIES SHALL BE REPORTED TO ENGINEER PRIOR TO BID.
- DEMOLITION AND MODIFICATION OF EXISTING DISTRIBUTION SYSTEMS SHALL BE PERFORMED AS FOLLOWS:
 - EXISTING WIRING TO BE REMOVED SHALL BE REMOVED BACK TO ITS SOURCE. CONDUITS MAY BE ABANDONED IN PLACE IF THEY ARE IN CONCEALED LOCATION AND DO NOT CONFLICT WITH ANY NEW WORK. REMOVE ALL WIRING FROM ABANDONED RACEWAYS.
 - REMOVAL OF EXISTING ELECTRICAL DISTRIBUTION SYSTEM SHALL INCLUDE EQUIPMENT, ASSOCIATED WIRING, INCLUDING (BUT NOT LIMITED TO) CONDUCTORS, CABLES, EXPOSED CONDUIT, SURFACE RACEWAYS, BOXES, FITTINGS, ETC. (BACK TO EQUIPMENT SOURCE.)

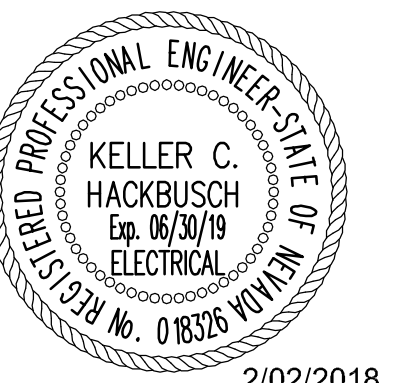
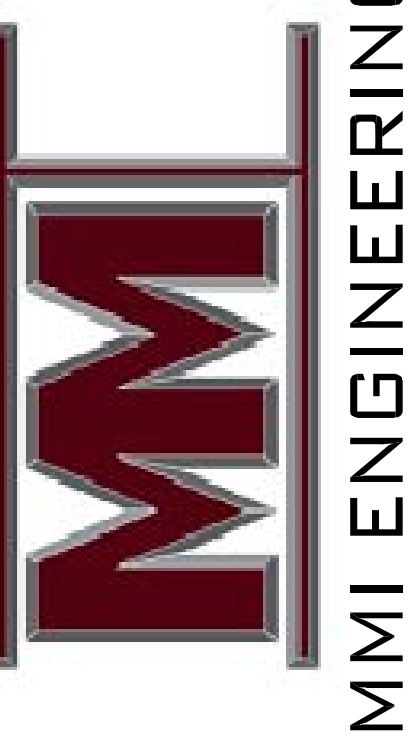
ELECTRICAL GENERAL NOTES

- FURNISH ALL LABOR, MATERIALS, ROOLS ACCESSORIES, ETC. REQUIRED FOR A COMPLETE WORKING ELECTRICAL SYSTEM.
- ALL ELECTRICAL WORK SHALL COMPLY WITH ALL APPLICABLE STATE, COUNTY AND LOCAL CODES AND ORDINANCES, AS WELL AS ALL CURRENT STANDARDS, CODES AND PRACTICES AS REQUIRED BY NEC(2012), NEMA, ANSI, NFPA(2012), IBC(2012), UL, IECC(2012).
- ALL EQUIPMENT, MATERIALS AND WORK SHOWN ARE NEW UNLESS SPECIFICALLY NOTED AS EXISTING, OR NOTED OTHERWISE ON OTHER SHEETS.
- ANY POWER OUTAGE OF ANY CIRCUIT SHALL BE APPROVED BY THE OWNER IN WRITING A MINIMUM OF 5 DAYS PRIOR TO OUTAGE. ALL OUTAGES SHALL BE DONE EXACTLY WHEN DETERMINED BY THE OWNER AND DONE DURING WORKING HOURS. NO SINGLE OUTAGE SHALL REQUIRE MORE THAN 4 HOURS. PROVIDE TEMPORARY POWER, HEAT & COOLING IF REQUIRED DURING OUTAGE.
- DUE TO THE REQUIREMENTS TO INTERFACE WITH EXISTING FACILITIES AND UTILITIES, IT IS SUGGESTED THAT THE CONTRACTOR ATTEND SITE VISIT TO DETERMINE EXISTING CONDITIONS PRIOR TO BID.
- PRIOR TO PURCHASE OF ANY PANEL, PROTECTIVE DEVICES, SWITCH, CONDUIT, WIRE, ETC., TO FEED ANY PIECE OF EQUIPMENT VERIFY THE VOLTAGE, PHASE, & LOAD OF THAT ITEM IN THE FIELD AND/OR WITH THE PARTICULAR ENTITY INVOLVED IN FURNISHING THE ITEM SUCH THAT THE PROPER SIZE & RATING OF THE MATERIALS ARE PURCHASED. NO EXTRAS WILL BE ALLOWED FOR FAILURE TO COMPLY. THIS APPLIES TO ALL EQUIPMENT UNDER OTHER SECTIONS AND BY THE OWNER.
- PULL ROPES: PROVIDE 12 GA PULL WIRE OR NYLON EQUIVALENT IN ALL INTERIOR EMPTY CONDUIT RUNS. PROVIDE 1/4" DIA NYLON PULL ROPE IN EACH EMPTY EXTERIOR CONDUIT OR DUCT.
- APPEARANCE AND WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY AND STANDARDS.
- ELECTRICAL CONTRACTOR SHALL GUARANTEE THE ELECTRICAL WORK TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- VERIFY THE EXACT LOCATION AND ELEVATION OF ALL ELECTRICAL EQUIPMENT PRIOR TO ROUGH-IN. FINAL CONNECTIONS OF EQUIPMENT SHALL BE PER MANUFACTURERS APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
- ORDER AND/OR RELEASE ORDERED MATERIALS PROMPTLY AFTER SUBMITTAL APPROVAL. NO SUBSTITUTIONS OR ALTERNATE METHODS OF INSTALLATION WILL BE ACCEPTED FOR FAILURE TO ORDER MATERIALS IN A TIMELY FASHION.
- OBTAIN WRITTEN APPROVAL FROM THE ENGINEER OF ALL SHOP DRAWINGS AND MANUFACTURERS DATA FOR PANEL BOARDS, TRANSFORMERS, WIRING DEVICES, ETC. BEFORE RELEASING ORDERED MATERIALS. SUBMITTAL DATA SHALL INDICATE THAT THE CONTRACTOR HAS REVIEWED THE INFORMATION THERIN AND THAT THE PROPOSED EQUIPMENT WILL MEET THE PHYSICAL CONSTRAINTS AT THE JOB SITE. ANY SUBSTITUTIONS SHALL BE OF EQUIVALENT OR BETTER QUALITY THAN THE SPECIFIED COMPONENTS.
- TYPE MC OR TYPE AC CABLE SHALL ONLY BE USED WITH THE SPECIFIC WRITTEN PERMISSION OF THE ENGINEER. ENT TYPE CONDUIT IS NOT ALLOWED.
- CONDUIT/ CONDUCTOR RUNS SHOWN ARE DIAGRAMMATICAL ONLY. THE BEST FINAL CONDUIT ROUTING SHALL BE AS DETERMINED BY THE ELECTRICAL CONTRACTOR AT TIME OF CONSTRUCTION AND ACCURATELY LOCATED ON THE ON-SITE RECORD DRAWINGS.
- ALL WIRE SHALL BE COPPER.
- UPDATE ALL PANEL BOARDS WITH TYPED DIRECTORIES INSTALLED UNDER A CLEAR PLASTIC CONER. SUBMIT DIRECTORY INFORMATION TO THE OWNER FOR APPROVAL PRIOR TO FINALIZATION.

385 Gentry Way
Reno, NV 89502
Ph: 775.826.4044
Fax: 775.826.4190
Web: dinter.com
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MMI ENGINEERING
385 GENTRY WAY
RENO, NV, 89502
(775) 750-0849
WWW.MMI-DESIGNER.COM
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2/02/2018

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SHEET TITLE

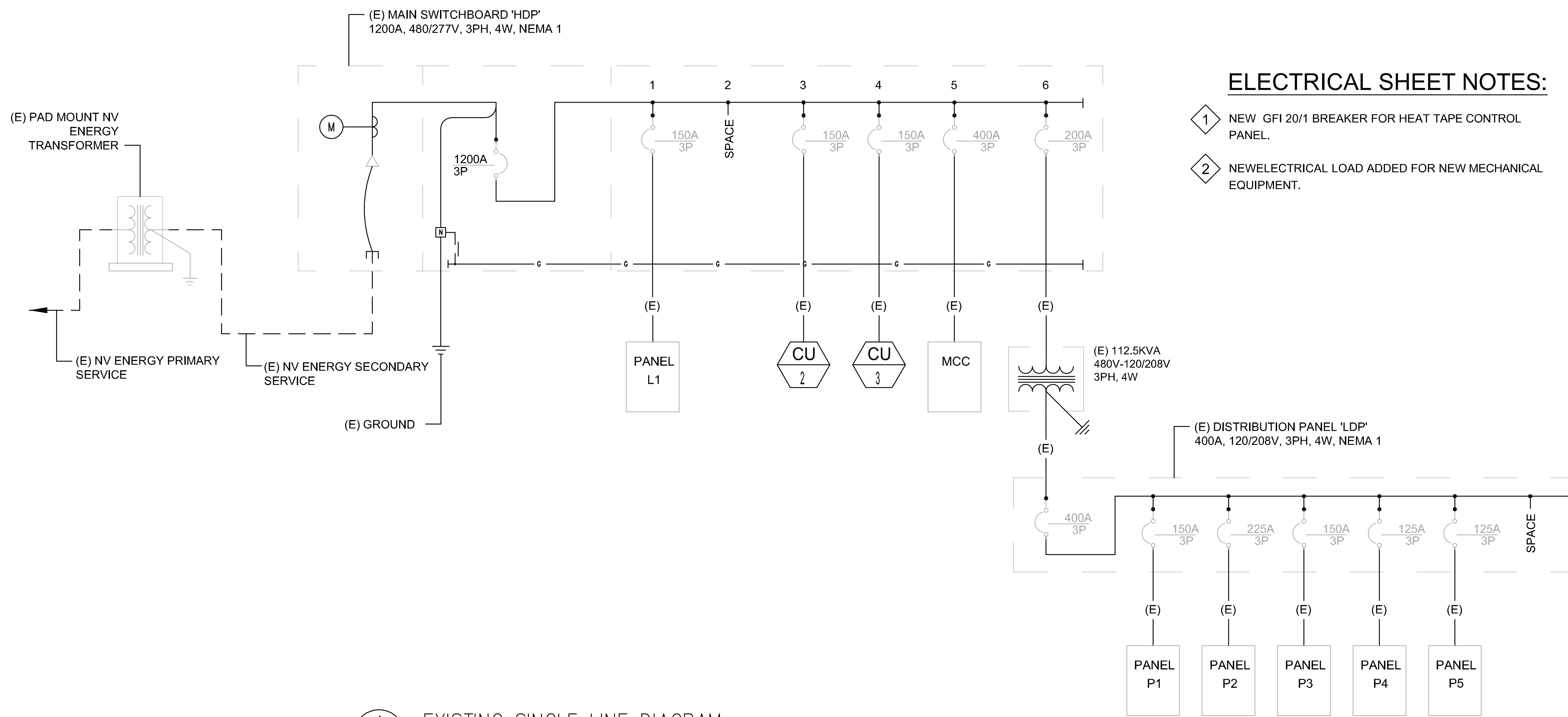
ELECTRICAL SYMBOL LIST,
ABBREVIATIONS, GENERAL
NOTES, AND SCHEDULE

REVISIONS

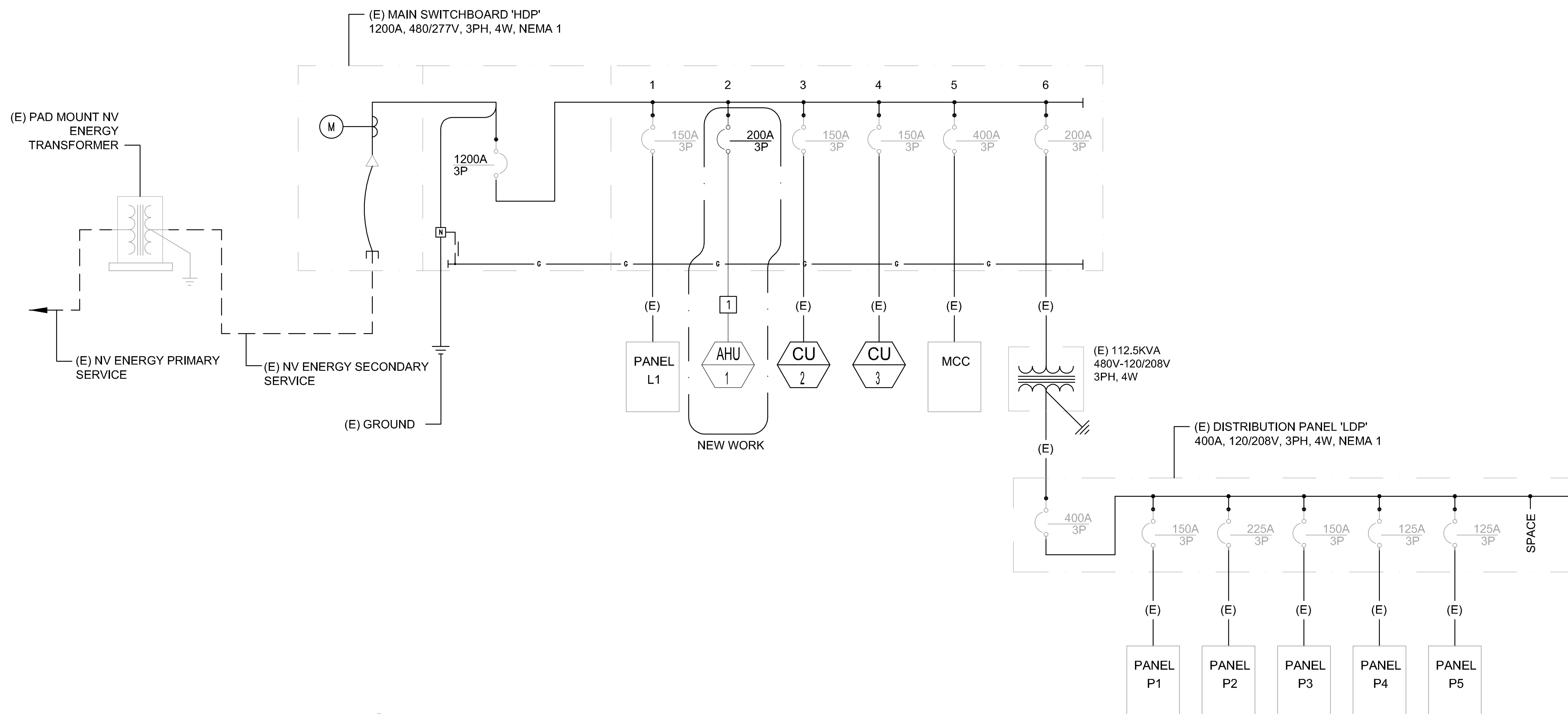
DATE :
FEBRUARY 02, 2018
SHEET NUMBER :

E0.1

BID DOCUMENTS



1 EXISTING SINGLE LINE DIAGRAM
E0.2 NO SCALE



2 NEW SINGLE LINE DIAGRAM
E0.2 NO SCALE

ELECTRICAL SHEET NOTES:

- 1 NEW GFI 20/1 BREAKER FOR HEAT TAPE CONTROL PANEL.
- 2 NEW ELECTRICAL LOAD ADDED FOR NEW MECHANICAL EQUIPMENT.

PANEL BOARD	P5	EXISTING									
		LOAD	BKR	CIR		CIR	BKR	LOAD	DIRECTORY		
(E) Boiler		20/1	1	A	2	20/1		(E) Sm D, EM Ltgs, Exit Ltgs			
(E) HVAC Control		20/1	3	B	4	20/1		(E) TCP			
(E) S Wall B Room Rec		20/1	5	C	6	20/1		(E) Temp Controls			
(E) Circ Pump Boiler		20/1	7	A	8	10		(E) Circ Pump Heat Reclaim			
(E) Johnson Control Panel		20/1	9	B	10						
		20/1	11	C	12	3					
		20/1	13	A	14	40					
		20/1	15	B	16	2					
(N) HT-1, HT-2 Control Panel	800	20/1	17	C	18	80		(E) AON			
(N) GFT-1	84	20/1	19	A	20						
Space		21	B	22	3						
		23	C	24				Space			
		25	A	26							
		27	B	28							
		29	C	30							
		31	A	32							
		33	B	34							
		35	C	36							
		37	A	38							
		39	B	40							
		41	C	42							
CONNECTED LOAD		884 VA	(2.5 A)					OTHER NOTES:			
A=		84 VA	0.7 A					120/208V, 3PH, 4W			
B=		0 VA	0 A					225 AMP MLO			
C=		800 VA	6.7 A					225 AMP BUS			

'MCC' LOAD CALCULATION

	PHASE A	PHASE B	PHASE C	TOTAL VA	AMPS @ 480/277V
1] HWP-2 **	1330 **	1330 **	1330 **	3990 **	4.8 **
2] AH-2	7483	7483	7483	22449	27
3] AH-3	3880	3880	3880	11640	14
4] AC-1	3326	3326	3326	9978	12
5] HWP-1 *	721 *	721 *	721 *	2163 *	2.6 *
6] R/EF-2	3880	3880	3880	11640	14
7] TF-1	388	388	388	1164	1.4
8] TF-2	388	388	388	1164	1.4
9] EF-1	277	277	277	831	1
10] EF-3	499	499	499	1497	1.8
11] P-1	943	943	943	2829	3.4
12] P-2	721	721	721	2163	2.6
13] B-1	388	388	388	1164	1.4
14] 2A	5820	5820	5820	17460	21
15] 6D	499	499	499	1497	1.8
16] 1B	721	721	721	2163	2.6
17] PS-1	1330	1330	1330	3990	4.8
			SERVICE TOTAL	97782	118

* HWP-1 (1.5HP 2.6A, 480V, 3PH) REPLACES R/EF-1 (10HP 14A, 480V, 3PH) IN MCC
 ** HWP-2 (3HP 4.8A, 480V, 3PH) REPLACES AH-1 (20HP 27A, 480V, 3PH) IN MCC

'HDP' SERVICE LOAD CALCULATION

	PHASE A	PHASE B	PHASE C	TOTAL VA	AMPS @ 480/277V
PANEL 'L1'	16796	11200	13525	41521	50
CU-2	14667	14667	14667	44001	53
CU-3	13734	13734	13734	41202	50
MCC **	32594 **	32954 **	32594 **	97782 **	118 **
XFMR (DP 'LDP')*	16796	11200	13709*	41705*	50*
AHU-1***	46835 ***	46835 ***	46835 ***	140505 ***	169 ***
			SERVICE TOTAL	406716	490

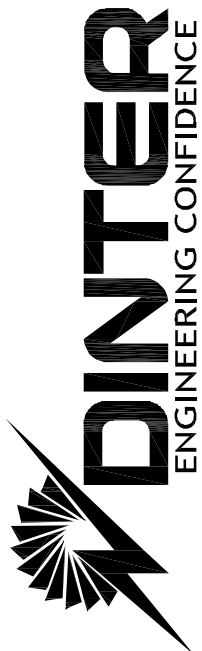
* MODIFIED XFMR (DISTRIBUTION PANEL 'LDP'), SEE PANEL SCHEDULE 'P-5'.
 ** MODIFIED MCC WITH LOWER ELECTRICAL LOAD, SEE MCC SCHEDULE.
 *** NEW MECHANICAL UNIT AHU-1.

FEEDER SCHEDULE

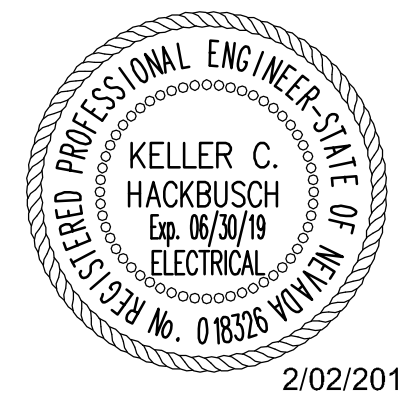
NO.	FROM	TO	CONDUIT & WIRE THWN U.N.O.	CU	AL
1	(E)MSB 'HDP'	(N)AHU-1	(N)(3)#3/0 CU IN 2-1/2" C	X	

VOLTAGE DROP CALCULATIONS

FROM	TO	QUAN PER	AWG	INSUL TYPE	COND MAT	AMP	COND LENGTH	R/M	X/M	P.F.	VOLTS	FEEDER PHASE	%V.D.
MSB-HDP	AHU-1	1	3/0		CU	169.00	80	0.077	0.042	0.80	480	3	0.42
MCC	HWP-1	1	12		CU	2.60	90	2.000	0.054	0.80	480	3	0.14
MCC	HWP-2	1	12		CU	5.60	110	2.000	0.054	0.80	480	3	0.36
PANEL R5	HT PANEL	1	12		CU	6.70	170	2.000	0.054	0.80	120	3	2.68



385 Gentry Way
Reno, NV 89502
Ph: 775.826.4044
Fax: 775.826.4190
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J-4538



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POOL HVAC UPGRADE
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SHEET TITLE
ELECTRICAL SINGLE LINE
SCHEDULES AND LOAD
CALCULATIONS

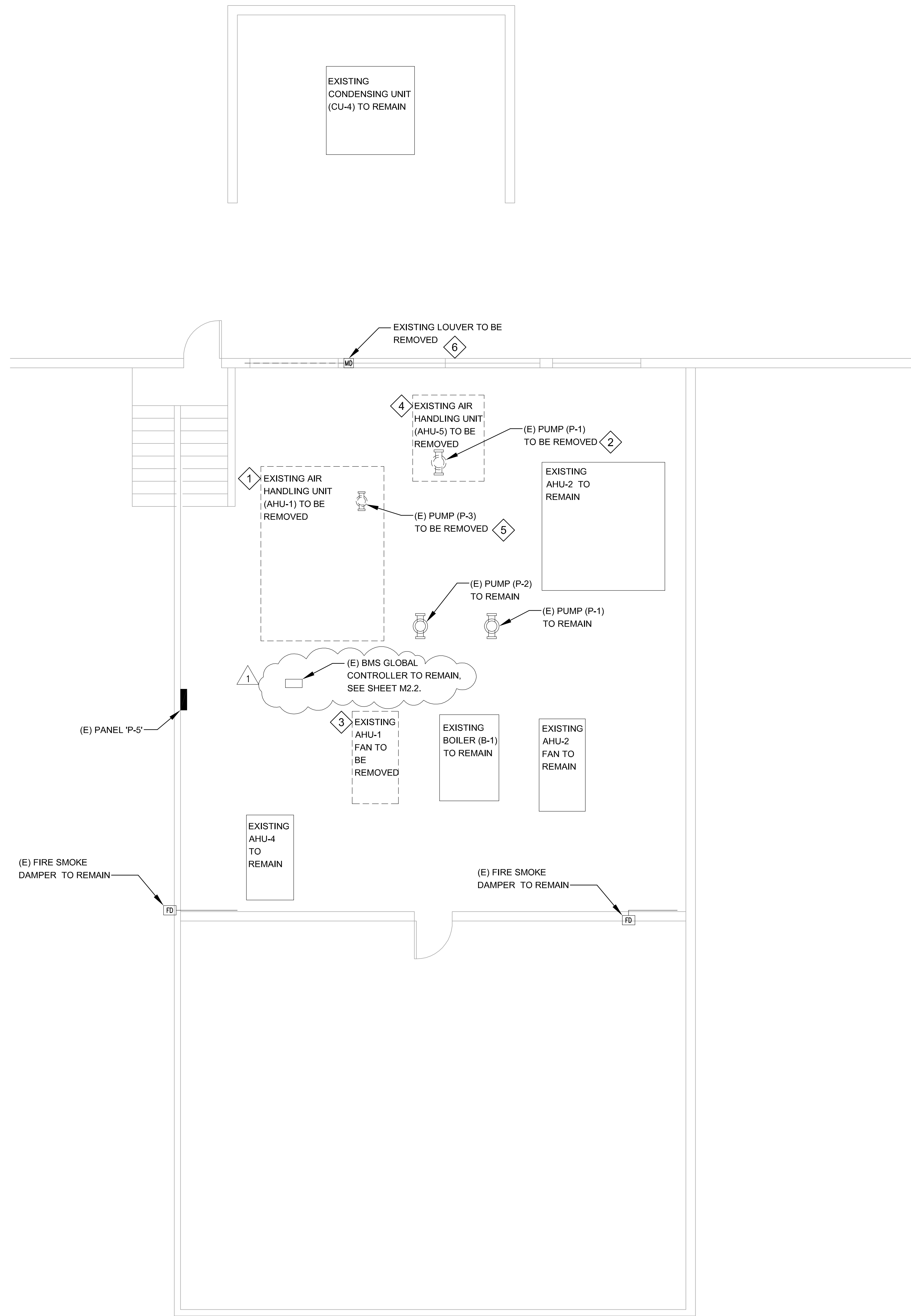
REVISIONS

DATE: FEBRUARY 02, 2018
SHEET NUMBER:

E0.2

BID DOCUMENTS

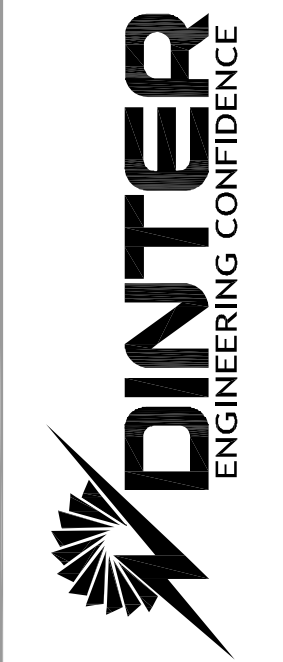
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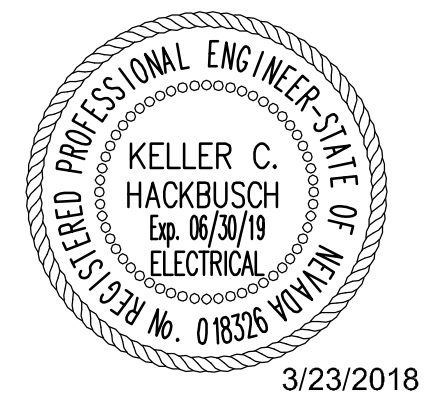
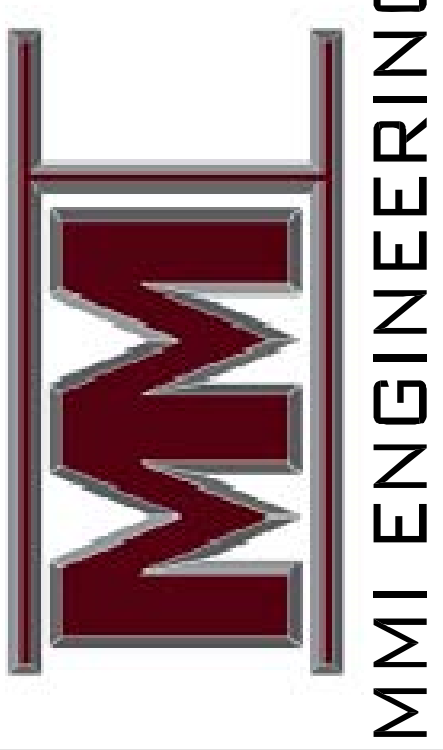
ELECTRICAL SHEET NOTES:

- 1 EXISTING AIR HANDLING UNIT (AHU-1) TO BE REMOVED. ELECTRICAL CONTRACTOR TO REMOVE ELECTRICAL CONNECTIONS AND REMOVE CONDUCTORS AND CONDUIT BACK TO MCC.
- 2 EXISTING PUMP (P-1) TO BE REMOVED. ELECTRICAL CONTRACTOR TO REMOVE ELECTRICAL CONNECTIONS AND REMOVE CONDUCTORS AND CONDUIT BACK TO MCC.
- 3 EXISTING AIR HANDLING UNIT RETURN EXHAUST FAN #1 TO BE REMOVED. ELECTRICAL CONTRACTOR TO REMOVE ELECTRICAL CONNECTIONS AND REMOVE CONDUCTORS AND CONDUIT BACK TO MCC BUCKET #5.
- 4 EXISTING AIR HANDLING UNIT (AHU-5) TO BE REMOVED. ELECTRICAL CONTRACTOR TO REMOVE ELECTRICAL CONNECTIONS AND REMOVE CONDUCTORS AND CONDUIT BACK TO PANEL BOARD 'P5'.
- 5 EXISTING PUMP (P-3) TO BE REMOVED. ELECTRICAL CONTRACTOR TO REMOVE ELECTRICAL CONNECTIONS AND REMOVE CONDUCTORS AND CONDUIT BACK TO PANEL BOARD 'P5'.
- 6 EXISTING LOUVER TO BE REMOVED. ELECTRICAL CONTRACTOR TO REMOVE ELECTRICAL CONNECTIONS AND REMOVE CONDUCTORS BACK TO PANEL BOARD OR NEXT DEVICE ON THE CIRCUIT. ELECTRICAL CONTRACTOR TO MAKE SURE ALL DOWN STREAM DEVICE/S ARE RECONNECTED AND FULLY FUNCTIONING AND OPERATING CORRECTLY..

385 Gentry Way
 Reno, NV 89502
 Ph: 775.826.4044
 Fax: 775.826.4190
 Web: dinter.com
 J-4538



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 RENO, NV. 89502
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ALF SORENSEN COMMUNITY CENTER
 POOL HVAC UPGRADE
 1400 BARING BLVD
 SPARKS, NEVADA 89434

SHEET TITLE
 ELECTRICAL MECHANICAL ROOM DEMOLITION FLOOR PLAN

REVISIONS
 1 PLAN REVIEW COMMENTS (2/13/2018)

DATE : FEBRUARY 02, 2018
 SHEET NUMBER :

E1.1

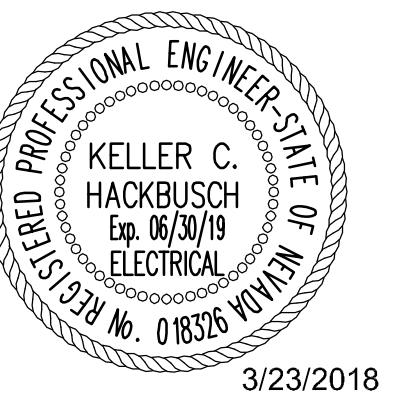
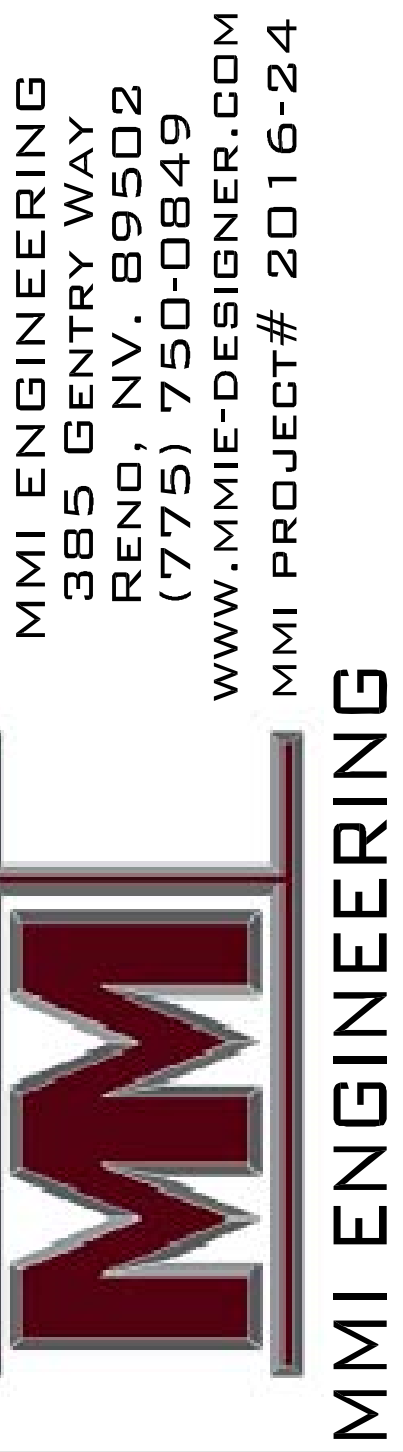
1 ELECTRICAL MECHANICAL ROOM DEMO FLOOR PLAN
 E1.1 SCALE: 1/4"=1'-0"

BID DOCUMENTS

ELECTRICAL SHEET NOTES:

- 1 NEW AHU-1 TO BE CONNECTED TO EXISTING MSB. ELECTRICAL CONTRACTOR TO USE ONE OF THE SPACES LOCATED IN THE MSB AND SHALL FURNISH AND INSTALL A NEW 200AMP, 3POLE BREAKER FOR NEW AHU-1.
- 2 NEW HWP-1 TO BE CONNECTED TO EXISTING MCC. ELECTRICAL CONTRACTOR TO REMOVE OLD COMBO FUSED BREAKER AND STARTER FOR REMOVED MECHANICAL EQUIPMENT: "AHU-1 REF". ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW COMBO 30/3/3P-600 FUSED BREAKER WITH NEMA 00 STARTER.
- 3 NEW HWP-2 TO BE CONNECTED TO EXISTING MCC. ELECTRICAL CONTRACTOR TO REMOVE OLD COMBO FUSED BREAKER AND STARTER FOR REMOVED MECHANICAL EQUIPMENT: "AHU-1". ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW COMBO 30/5.6/3P-600 FUSED BREAKER WITH NEMA 00 STARTER.
- 4 NEW HT-1 AND HT-2 CONTROL PANEL. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL NEW 20/1 GFI BREAKER IN PANEL 'P-5' AT CIRCUIT SPACE #17. ELECTRICAL CONTRACTOR TO CONNECT HT-1 AND HT-2 CONTROL PANEL TO THE NEW 20/1 GFI CIRCUIT BREAKER IN PANEL BOARD 'P-5'.
- 5 NEW GFT-1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL NEW 20/1 BREAKER IN PANEL 'P-5' AT CIRCUIT SPACE #19. ELECTRICAL CONTRACTOR TO CONNECT GFT-1 TO THE NEW 20/1 CIRCUIT BREAKER IN PANEL BOARD 'P-5'.
- 6 EXISTING MECHANICAL EQUIPMENT CONTROL PANEL. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL "ABUS E250 WALL SWITCH LOCKOUT #00406" OR EQUAL TO LOCK WALL SWITCHES IN THE CONTROL PANEL IN THE OFF POSITION.
- 7 NEW HEAT TAPE CONTROL PANEL. PANEL TO BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR TO ALSO FURNISH AND INSTALL HT-1 AND HT-2. MECHANICAL CONTRACTOR TO ALSO CONNECT HT-1 AND HT-2 TO HEAT TAPE CONTROL PANEL.

385 Gentry Way
 Reno, NV 89502
 Ph: 775.826.4044
 Fax: 775.826.4190
 Web: dinter.com
 J-4538



**ALF SORENSEN COMMUNITY CENTER
 POOL HVAC UPGRADE
 1400 BARING BLVD
 SPARKS, NEVADA 89434**

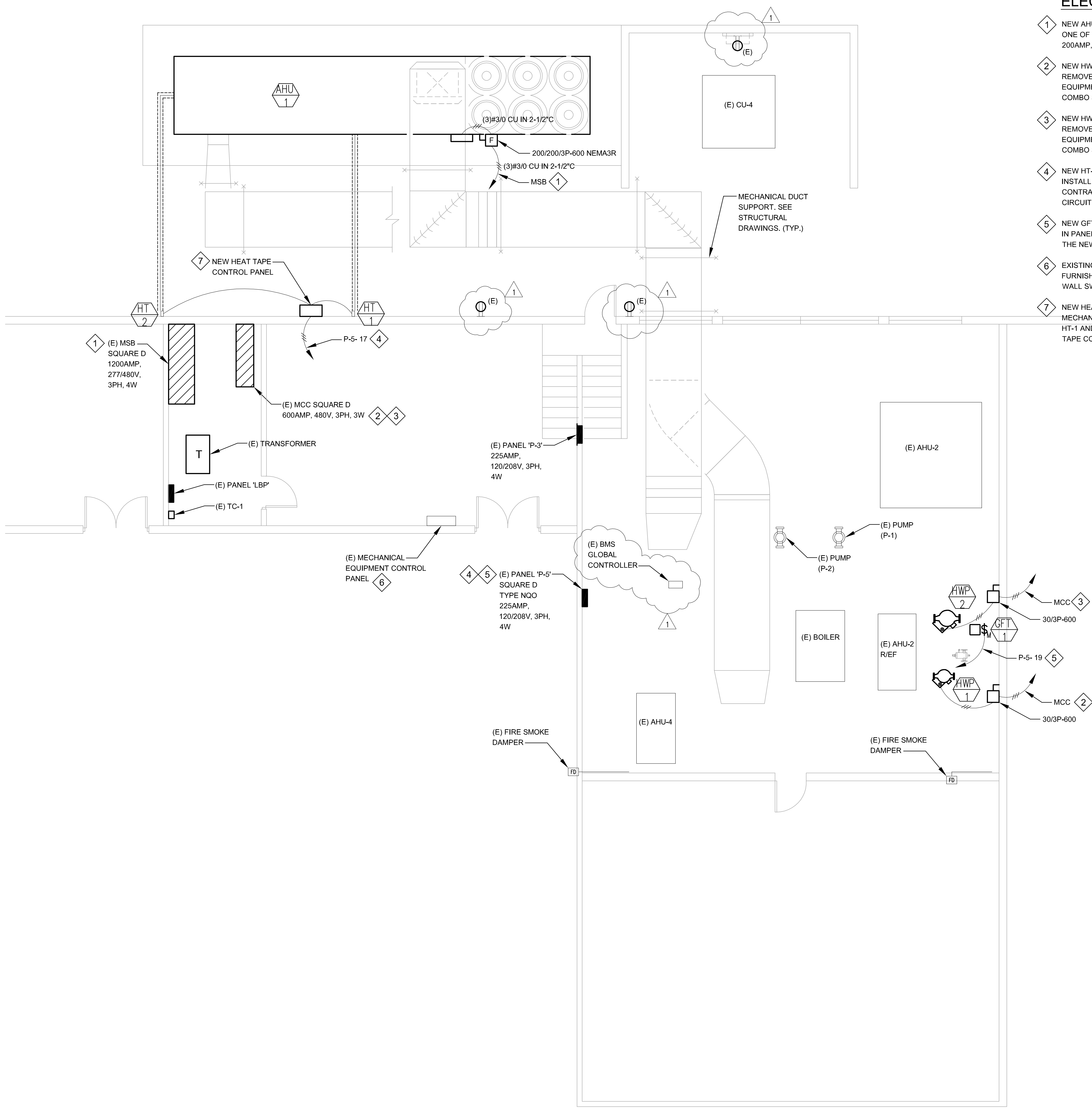
SHEET TITLE
 ELECTRICAL
 MECHANICAL
 POWER FLOOR PLAN

REVISIONS

1	PLAN REVIEW
	COMMENTS (2/13/2018)

DATE :
 FEBRUARY 02, 2018
 SHEET NUMBER :

E2.1



1 ELECTRICAL MECHANICAL POWER FLOOR PLAN
 E2.1 SCALE: 1/4"=1'-0"

BID DOCUMENTS



ALF SORENSEN COMMUNITY CENTER POOL HVAC UPGRADE - STRUCTURAL

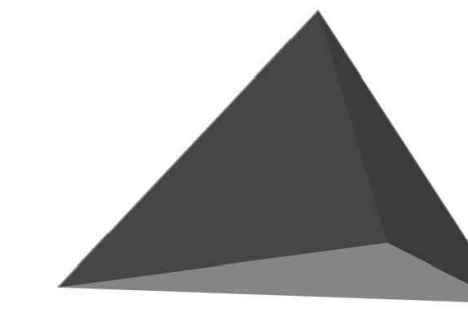


SHEET INDEX

GENERAL	T1.0	TITLE SHEET-GENERAL INFO
STRUCTURAL	S01	STRUCTURAL NOTES, ABBREVIATIONS, STANDARD DETAILS
	S10	EXISTING CONDITIONS, EXTERIOR DEMOLITION PLAN, EROSION CONTROL
	S2.0	FOUNDATION PLAN DETAILS
	S3.0	MECHANICAL ROOM FRAMING PLAN DETAILS

1400 BARING BLVD.
SPARKS, NEVADA
89434

DESIGN CONSULTANTS



STRUCTURAL
Thomas Lundin, CE/SE
Structural Engineer
Structural System Solutions Inc.
410 Mill Street, Suite 206
Reno, Nevada, 89502
Office: 775-232-4664



MMI ENGINEERING
385 GENTRY WAY
RENO, NV, 89502
(775) 750-0849
WWW.MMI-ENGINEER.COM
MMI PROJECT# 2016-24



2/02/2018

ALF SORENSEN COMMUNITY CENTER
POOL HVAC UPGRADE
1400 BARING BLVD
SPARKS, NEVADA 89434

SHEET TITLE
TITLE SHEET - GENERAL
INFO

REVISIONS

THOMAS LUNDIN, CE/SE
STRUCTURAL SYSTEM SOLUTIONS INC.

DATE: 02/02/2018

JON R. ERICSON, P.E., P.T.O.E.
CITY ENGINEER

DATE: 02/02/2018

DATE :
FEBRUARY 02, 2018
SHEET NUMBER :
T1.0

BID DOCUMENTS

1. GENERAL

- 1.1 THE FOLLOWING STRUCTURAL NOTES SHALL APPLY TO ALL STRUCTURAL DRAWINGS UNLESS SPECIFICALLY SHOWN OR NOTED OTHERWISE.
- 1.2 ALL WORK SHALL CONFORM TO THESE NOTES, DRAWINGS, AND SPECIFICATIONS IN ALL RESPECTS.
- 1.3 PROMPTLY REPORT ANY DISCREPANCY FOUND AMONG THESE NOTES, DRAWINGS, SPECIFICATIONS, AND EXISTING CONDITIONS TO THE ENGINEER, WHO WILL CORRECT SUCH DISCREPANCIES IN WRITING. ANY WORK DONE BY THE CONTRACTOR AFTER THE DISCOVERY OF SUCH DISCREPANCY IS AT THE CONTRACTORS OWN RISK. VERIFY AND COORDINATE THE DIMENSIONS AMONG ALL DRAWINGS PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION. IT IS THE CONTRACTORS RESPONSIBILITY FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION.
- 1.4 DO NOT SCALE WORKING DIMENSIONS FROM THESE PLANS, SECTIONS, OR DETAILS. DIMENSIONS REFER TO ROUGH CONCRETE SURFACES. FACE OF STUDS, FACE OF CONCRETE BLOCK, TOP OF SHEATHING OR TOP OF SLAB UNLESS OTHERWISE INDICATED.
- 1.5 DETAILS OF THE CONSTRUCTION NOT FULLY SHOWN OR NOTED ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS SHALL BE OF THE SAME SIZE AND CHARACTER AS FOR SIMILAR CONDITIONS WHICH ARE SHOWN AND NOTED.
- 1.6 THE WORD "TYPICAL" SHALL MEAN THAT INFORMATION SHOWN SHALL BE APPLIED TO ALL SIMILAR CONDITIONS WHETHER OR NOT THE INFORMATION IS SPECIFICALLY REFERENCED, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- 1.7 MODIFICATIONS OR SUBSTITUTIONS TO THE DESIGN, MATERIALS, OR PRODUCTS SPECIFIED ON THE PLANS ARE PROHIBITED WITH OUT PRIOR WRITTEN APPROVAL BY THE ENGINEER.
- 1.8 THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS FROM ALL APPLICABLE AGENCIES AND TO PAY ALL ASSOCIATED FEES PRIOR TO CONSTRUCTION.
- 1.9 THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING A SAFE WORK ENVIRONMENT IN ACCORDANCE WITH ALL LOCAL, STATE, FEDERAL SAFETY AND HEALTH STANDARDS LAWS AND REGULATIONS. THE CONTRACTOR SHALL EXECUTE WORK TO ENSURE SAFETY OF PERSONS AND PROPERTY AGAINST DAMAGE AND SHALL PROVIDE ADEQUATE SHORING AND BRACING AS REQUIRED FOR STABILITY DURING ALL PHASES OF CONSTRUCTION. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE MEANS AND METHODS OF CONSTRUCTION. STRUCTURAL CALCULATIONS AS PROVIDED AS PART OF THE CONSTRUCTION DOCUMENTS ARE BASED ON A COMPLETED STRUCTURE. THE STRUCTURAL ADEQUACY OF THE PARTIALLY COMPLETED STRUCTURE TO RESIST APPLIED LOADS IS BEYOND THE SCOPE OF THESE STRUCTURAL DRAWINGS.
- 1.11 REFER TO THE MECHANICAL AND ELECTRICAL DRAWINGS FOR PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL OPENINGS, CONCRETE INSERTS AND SIZE AND LOCATION OF MACHINE AND EQUIPMENT BASES.

2. DESIGN CRITERIA

- 2.1 DESIGN, MATERIALS, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS OF THE 2012 INTERNATIONAL BUILDING CODE AS AMENDED AND ADOPTED BY THE CITY OF SPARKS, NEVADA.
- 2.2 ALL OTHER CODES AND STANDARDS SHALL BE THE MOST CURRENT ADOPED EDITION AS OF THE DATE OF THESE DRAWINGS.
- 2.3 SNOW LOADS:

SNOW LOAD IMPORTANCE FACTOR, I _s	1.1	
GROUND SNOW LOAD, P _g	30 PSF	(ELEV: 4435')
- 2.6 WIND DESIGN:

BASIC WIND SPEED, V _{ult}	130 MPH
NOMINAL WIND SPEED, V _{asd}	101 MPH
RISK CATEGORY	II
WIND EXPOSURE	C
INTERNAL PRESSURE COEFFICIENT	±0.0
VELOCITY PRESSURE AT MEAN HEIGHT	36.9 PSF (MWFRS)
- 2.7 SEISMIC DESIGN:

RISK CATEGORY	III
SEISMIC IMPORTANCE FACTOR, I _s	1.0
MAPPED SPECTRAL ACCELERATION, S _s	1.52 g
SITE CLASS	D
SPECTRAL RESPONSE COEFFICIENT, S _{ds}	1.01 g
SEISMIC DESIGN CATEGORY	D
BASIC SEISMIC FORCE-RESISTING SYSTEM	NON-STRUCTURAL COMPONENTS WALLS
SEISMIC DESIGN FORCE (F _p)	0.25
COMPONENT AMPLIFICATION FACTOR, R _p	1.0
RESPONSE MODIFICATION FACTOR, R _p	2.5

3. FOUNDATIONS

- 3.1 ALLOWABLE LOAD-BEARING VALUES OF SOILS (IBC TABLE 1804.2):

ALLOWABLE FOUNDATION PRESSURE:	1500 PSF
LATERAL BEARING (PASSIVE):	150 PSF
LATERAL BEARING (ACTIVE):	35 PSF
LATERAL SLIDING:	0.35'
MIN DEPTH OF FOOTINGS:	24" MIN
- 3.2 BEFORE COMMENCING EARTHWORK, THE CONTRACTOR SHALL INSPECT THE SITE FOR ANY EXISTING ITEMS THAT MAY INTERFERE WITH THE PROPOSED IMPROVEMENTS. IT SHALL BE THE DUTY OF THE CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES AND STRUCTURES. NOTIFY ENGINEER WHERE CONFLICTS EXIST. RELOCATE OR AVOID AS NECESSARY AS TO NOT DAMAGE OR INTERFERE WITH EXISTING TO REMAIN.
- 3.3 GENERAL SITE CLEARING SHALL INCLUDE THE REMOVAL OF ALL SURFACE DEBRIS, RUBBLE, AND LARGER VEGETATION AND ORGANICS AS DIRECTED BY THE ENGINEER.
- 3.4 SCARIFY THE SOILS EXPOSED TO EXCAVATION TO A DEPTH OF 8" AND RE-COMPACT TO 95% MAXIMUM DRY DENSITY (ASTM D-1557, METHOD C). WATER OR DRY MATERIALS AS NECESSARY TO OBTAIN PROPER MOISTURE CONTENT.
- 3.5 TRENCHING MAY BE USED FOR FOOTINGS ONLY WHERE THE SOIL IS FIRM AND STABLE. THE CONCRETE WILL NOT BE EXPOSED, AND IT DOES NOT CONFLICT WITH THE GEOTECHNICAL REPORT. CONCRETE SURFACES WITHIN 6" OF FINISHED GRADE ARE CONSIDERED EXPOSED. WHERE TRENCHING IS USED, EXCAVATION SHALL BE 2" WIDER THAN SPECIFIED ON PLANS.
- 3.6 PLACE ALL FOOTINGS ON APPROVED SOIL. (UNDISTURBED NATURAL SOILS OR COMPACTED ENGINEERED FILL). FILL HOLES DUE TO REMOVAL OF LARGE ROCKS OR OVER-EXCAVATION WITH CONCRETE.
- 3.7 FOOTING EXCAVATIONS SHALL BE NEAT AND TRUE, WITH ALL LOOSE MATERIAL AND STANDING WATER REMOVED BEFORE FOOTING CONCRETE IS PLACED.
- 3.8 ALL EXCAVATIONS, FORMS AND REINFORCING SHALL BE INSPECTED BY THE BUILDING OFFICIAL AND ENGINEER PRIOR TO PLACING CONCRETE.
- 3.9 PLACE ALL LOOSE SOIL AND FILL, INCLUDING BACKFILL BEHIND WALLS IN 6" LIFTS AND UNIFORMLY COMPACT TO AT LEAST 90% MAXIMUM DENSITY PER ASTM D1557.

4. CAST-IN-PLACE CONCRETE

- 4.1 CONCRETE MATERIALS AND CONSTRUCTION SHALL COMPLY WITH IBC CHAPTER 19, ACI 318, AND ACI 301.
- 4.2 CONTRACTOR SHALL SUBMIT ALL MIX DESIGNS FOR REVIEW AND APPROVAL.
- 4.3 CONCRETE PROPERTIES AND COMPOSITION (ASTM C94):

PROPERTY	CLASS A
28-DAY F _c (1)	4000 PSI
W/C	0.45
UNIT WT (2)	145 PCF
AIR (+) (3)	6%
SLUMP (MAX) (4)	3"
SHRINKAGE (5)	NR
CEMENT (6)	TYPE II
MIN CEMENT	620
FIBER REINF (7)	1.5 LB PCY
- NOTES:
 - FOUNDATION DESIGN FOR CONCRETE ENCLOSED IN (1) IS DESIGNED FOR 2500 PSI AND DOES NOT REQUIRE SPECIAL INSPECTION.
 - AGGREGATE PER ACI 318, SECTION 3.3.
 - 6% MAXIMUM AIR FOR 3/4" MAX AGGREGATE AND 7% FOR 1/2" MAX AGGREGATE.
 - SLUMPS ARE FOR UNPLASTICIZED CONCRETE. LARGER SLUMPS MAY BE ATTAINED THROUGH THE USE OF SUPERPLASTICIZER. WATER REDUCING ADMIXTURES FOR PIERS SHALL CONFORM TO ASTM C 484, TYPE D, TO MEET SLUMP REQUIREMENTS.
 - SHRINKAGE AT 28 DAYS (ININ) PER ASTM C157.
 - CEMENT PER ASTM C150, C595, C1157 AS APPROPRIATE.
 - SYNTHETIC MICRO FIBERS (ASTM C1115) 1/2" - 3/4" LONG, MINIMUM RATE INDICATED, RATE PER MANUFACTURERS WRITTEN INSTRUCTIONS.
- CLASS A: FOUNDATIONS, EXTERIOR SLABS ON GRADE, UNO
- ADMITTRES SHALL COMPLY WITH ACI 318, SECTION 3.6
- CONCRETE THAT IS TO BE PLACED DURING FREEZING OR NEAR-FREEZING WEATHER SHALL COMPLY WITH THE REQUIREMENTS OF ACI 318, SECTION 5.12. EQUIPMENT SHALL BE PROVIDED FOR HEATING CONCRETE MATERIALS AND PROTECTING CONCRETE. CONCRETE MATERIALS AND REINFORCEMENT, FORMS, FILLERS, AND GROUND WITH WHICH CONCRETE WILL COME IN CONTACT SHALL BE FREE OF FROST, FROZEN MATERIALS OR MATERIALS CONTAINING ICE SHALL NOT BE USED.
- APPROVAL MUST BE OBTAINED PRIOR TO PLACING CONCRETE FOR ANY OPENINGS, SLEEVES, OR OTHER ATTACHMENTS NOT SHOWN ON DRAWINGS.
- PROVIDE 3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE UNLESS DETAILED OTHERWISE.
- ROUGHEN THE EXISTING CONCRETE SURFACE AT THE INTERFACE OF CONSTRUCTION JOINTS TO AN AMPLITUDE OF (+) 1/4" PRIOR TO PLACING NEW CONCRETE. THOROUGHLY WET THE INTERFACE SURFACE AND REMOVE AND STANDING WATER.
- FORMS SHALL CONFORM TO ACI 347 AND SHALL BE PROPERLY CONSTRUCTED TO CONCRETE SURFACES AS SHOWN ON THE DRAWINGS. SUFFICIENT TIGHT TO PREVENT LEAKAGE, SUFFICIENTLY STRONG, AND BRACED TO MAINTAIN SHAPE AND ALIGNMENT.
- FORMS AND SHORING SHALL NOT BE REMOVED UNTIL THE CONCRETE HAS ATTAINED SUFFICIENT STRENGTH TO WITHSTAND ALL LOADS TO BE IMPOSED WITHOUT EXCESS STRESS, CREEP OR DEFLECTION.
- CONDUIT EMBEDDED IN CONCRETE SHALL BE SPACED WITH ONE CONDUIT DIAMETER (1" MIN) CLEAR DISTANCE BETWEEN ADJACENT CONDUITS OR REBAR. CONDUIT SHALL NOT BE LOCATED DIRECTLY OVER AND PARALLEL TO REBAR. PROVIDE 1-1/2" MINIMUM COVER OVER CONDUITS IN SLABS ON GRADE.
- SLEEVES IN CONCRETE SHALL BE SPACED WITH ONE SLEEVE DIAMETER (2" MIN) CLEAR DISTANCE BETWEEN ADJACENT SLEEVES. SLEEVES SHALL NOT TOUCH REBAR. SLEEVES GREATER THAN 12" IN DIAMETER SHALL BE REVIEWED BY THE ENGINEER FOR APPROVAL AND MAY REQUIRE ADDITIONAL TRIM REINFORCEMENT.

5. CONCRETE REINFORCEMENT

- 5.1 REINFORCEMENT SHALL CONFORM TO ACI 318, SECTION 3.5 AND ASTM A615, GRADE 60 (#4 AND LARGER) AND GRADE 40 (#3 BARS ONLY).
- 5.2 CONCRETE REINFORCEMENT DETAILS INCLUDING BAR SUPPORTS AND PLACING SHALL CONFORM TO ACI 315 AND THE CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE." HOOKS SHALL BE PER ACI 318, SECTION 7.1 UNLESS DETAILED OTHERWISE.
- 5.3 PROVIDE THE FOLLOWING COVER ON REINFORCEMENT UNLESS NOTED OTHERWISE IN DRAWINGS. COVER SHALL BE TO FACE OF BAR, MECHANICAL COUPLER, OR WELDED HEADED BAR.

CAST-IN-PLACE CONCRETE	MINIMUM CONCRETE COVER
CAST AGAINST AND EXPOSED TO EARTH	3"
EXPOSED TO EARTH OR WEATHER	1 1/2"
#6 AND SMALLER	1 1/2"
CLEAR TO TOP FOR REINFORCEMENT IN SLAB-ON-GRADE	2"
- 5.4 PROVIDE LAP SPLICES, AND DEVELOPMENT OF STANDARD HOOKS AS SPECIFIED IN ACI 318, CHAPTER 12. MAKE LAP SPLICES ONLY AT LOCATIONS SHOWN ON DRAWINGS, AS INDICATED IN THESE NOTES, OR AS APPROVED BY THE ENGINEER.
- 5.5 LAP SPLICE ALL BARS A MINIMUM OF 40 BAR DIAMETERS UNLESS OTHERWISE NOTED. STAGGER LAP SPLICES A MINIMUM OF 24 BAR SPACES.
- 5.6 SECURELY TIE ALL REINFORCEMENT PRIOR TO PLACING CONCRETE INCLUDING LAP SPLICES. TIES SHALL BE SUFFICIENT TO MAINTAIN THEIR EXACT POSITION THROUGHOUT THE PLACEMENT OF CONCRETE.
- 5.7 SUBMIT SHOP DRAWINGS OF REINFORCEMENT LAYOUTS AND DETAILS FOR REVIEW PRIOR TO FABRICATION. SHOW ALL PROPOSED SPLICE LOCATIONS. FABRICATE FROM APPROVED DRAWINGS ONLY.
- 5.8 IN LIEU OF LAP SPLICES, REBAR COUPLERS MAY BE USED. COUPLERS SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH AND 100% OF THE SPECIFIED REINFORCING STEEL YIELD STRENGTH AND SHALL BE TYPE 2 PER ACI 318. PRIOR TO USE, CONTRACTOR SHALL SUBMIT TO THE ENGINEER, MANUFACTURERS DOCUMENTATION AND ICC ETR REPORT FOR APPROVAL.
- 5.9 BEND REINFORCING STEEL IN ACCORDANCE WITH ACI 301, SECTION 3.2.2.8. #3, #4, & #5 BARS MAY BE BENT COLD THE FIRST TIME PROVIDED TEMPERATURE OF BAR IS ABOVE 32F. FOR OTHER BAR SIZES PREHEAT REINFORCING BARS PRIOR TO BENDING.
- 5.10 PROMPTLY NOTIFY ENGINEER IF CONDITIONS ARISE WHERE THERE IS INSUFFICIENT CLEAR DISTANCE BETWEEN BARS OR WHERE CONGESTION OCCURS.

6. SLABS-ON-GRADE

- 6.1 USE CONCRETE OF THE TYPE AND PROPORTION INDICATED IN SECTION 4 OF THESE NOTES.
- 6.2 LOCATE CONTROL JOINTS AS SHOWN ON PLANS (BUT NOT TO EXCEED 10'). MAKE JOINTS AS SOON AS THE SLAB IS STRONG ENOUGH TO ACCEPT THE JOINT. PROVIDE JOINTS SO THAT PANEL LENGTH TO WIDTH DOES NOT EXCEED 1.5 TO 1 FOR ANY PANEL. THE CONTRACTOR SHALL SUBMIT A CONTROL JOINT LAYOUT TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
- 6.3 PROTECT FRESHLY DEPOSITED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE HOT OR COLD TEMPERATURES FOR A MINIMUM (7) DAYS.
- 6.4 CONCRETE SLABS SHALL BE CONTINUOUSLY CURED FOR A MINIMUM OF (7) DAYS AFTER PLACING BY APPROPRIATE MEANS INCLUDING BUT NOT LIMITED TO, CURING COMPOUND OR PAPER.
- 6.5 DAMPEN BASE PRIOR TO PLACING CONCRETE.
- 6.6 CONSTRUCT EXTERIOR SLABS-ON-GRADE AS FOLLOWS:
 - BROOM FINISH FOR ALL EXTERIOR CONCRETE WORK.
 - CONCRETE SLAB - MINIMUM THICKNESS AND REINFORCING PER PLAN.
 - MINIMUM LAYER OF TYPE 2 CLASS B AGGREGATE BASE AND COMPACT TO 95%

7. ANCHORS TO CONCRETE

- 7.1 THREADED ROD SHALL BE ASTM F1554, GRADE 36 GALVANIZED (ASTM A153), UNLESS OTHERWISE DETAILED.
- 7.2 MINIMUM ANCHOR EMBEDMENT SHALL BE AS INDICATED ON THE PLANS BUT IN NO CASE LESS THAN SPECIFIED BY THE MANUFACTURER FOR THE DIAMETER.
- 7.3 POST-INSTALLED EPOXY ANCHORS SHALL BE INSTALLED USING HILTI HIT-RE 500 V3 (ESR-3814) PER THE MANUFACTURERS WRITTEN INSTRUCTION.
- 7.4 EPOXY ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT THE TIME OF ANCHOR INSTALLATION PER SECTION 17.1.2 OF ACI 318.
- 7.5 MINIMUM EMBEDMENT FOR POST-INSTALLED ANCHORS SHALL BE AS INDICATED ON THE PLANS BUT IN NO CASE LESS THAN SPECIFIED BY THE MANUFACTURER FOR THE DIAMETER.
- 7.6 CLEAN ALL NUTS, WASHERS, AND ANCHORS FROM CONTAMINANTS PRIOR TO INSTALLATION.

8. STEEL CONSTRUCTION

- 8.1 STRUCTURAL STEEL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO IBC CHAPTER 12 AND AISI 360, AISI 341, AND AISI 303.
- 8.2 PROVIDE SHOP DRAWINGS INCLUDING DETAILS FOR CUTS, HOLES AND WELDS FOR ALL FABRICATED PARTS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- 8.3 HSS STEEL TUBING SHALL BE ASTM A500, GR B (F_y = 46 ksi).
- 8.4 PLATES, CHANNELS AND ANGLES SHALL BE ASTM A36, UNO.
- 8.5 STEEL PIPE SHALL BE ASTM A53, GRADE B (F_y = 35 KSI).
- 8.6 FASTENERS/HILTI BOLTS ASTM A307A - GALVANIZED ASTM F2329.
- 8.7 WELDING SHALL CONFORM TO AWS D1.1. CERTIFIED WELDERS SHALL PERFORM ALL WELDING.
- 8.8 USE LOW-HYDROGEN E7018 ELECTRODES WITH A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LB AT 0°F.
- 8.9 ALL WELDS SHALL BE PRE-QUALIFIED AND SHALL BE PERFORMED IN STRICT CONFORMANCE WITH AN APPROVED WRITTEN WELD PROCEDURE SPECIFICATION (WPS) PER AWS D1.1. CONTRACTOR TO PROVIDE ENGINEER OF RECORD WELDING PROCEDURES TO BE REVIEWED AND APPROVED PRIOR TO BEGINNING ANY WELDING.
- 8.10 ALL STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION AND PRIOR TO INSTALLATION - ASTM A123. TOUCH UP AND REPAIR DAMAGED GALVANIZED SURFACES IN ACCORDANCE WITH ASTM F780. THICKNESS OF TOUCH UP PAINT SHALL BE 50% MORE THAN SURROUNDING COATING THICKNESS.
- 8.11 USE NON-METALLIC, NON-SHRINK GROUT CONFORMING TO ASTM C1107, GRADE A, B OR C UNDER BASE PLATES AND AT FENCE POSTS SLEEVES. NON-SHRINK GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 8000 PSI. INSTALL IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS. GROUT SHALL BE DELIVERED TO THE JOB SITE IN DRY, PRE-MIXED FACTORY PACKAGING REQUIRING ONLY THE ADDITION OF WATER. SURFACES TO RECEIVE GROUT SHALL BE FREE OF DIRT, OIL, GREASE, OR OTHER DELETERIOUS SUBSTANCES THAT MAY INHIBIT BOND. CONCRETE SURFACES SHALL BE ROUGH AND SATURATED (PONDED) WITH CLEAN WATER FOR A MINIMUM OF 4 HOURS PRIOR TO GROUTING. PLACE GROUT TO ENSURE FULL BEARING CONTACT AND CURE FOR A MINIMUM OF 8 HOURS WITH WET Rags.

9. SPECIAL INSPECTIONS AND TESTING

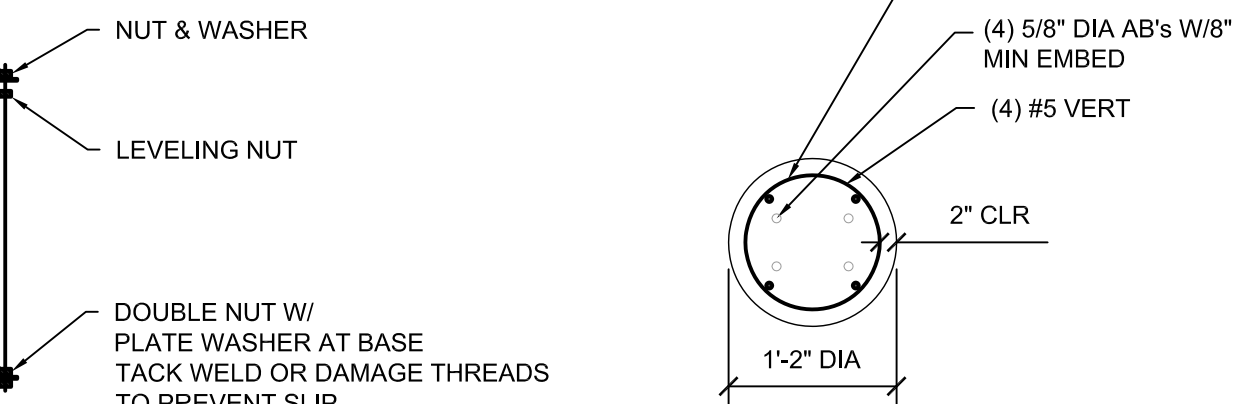
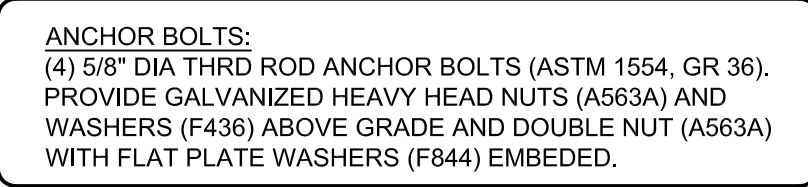
- 9.1.1 PROVIDE SPECIAL INSPECTIONS IN COMPLIANCE WITH IBC 1704 BY AN APPROVED INSPECTOR. THE FOLLOWING ITEMS SHALL BE INSPECTED IN ACCORDANCE WITH THE APPROPRIATE SECTION IN THE IBC. THE INSPECTION AGENCY SHALL PROVIDE COPIES OF ALL INSPECTION REPORTS DIRECTLY TO THE ENGINEER. ANY CONSTRUCTION THAT FAILS TO COMPLY WITH THE APPROVED CONSTRUCTION DOCUMENTS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
- 9.1.2 CONCRETE CONSTRUCTION, IBC 1705.3:
 - PERIODIC INSPECTION OF REINFORCING STEEL AND ANCHOR BOLT PLACEMENT.
 - PERIODIC INSPECTION OF REQUIRED MIX DESIGN.
 - PERIODIC INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.
 - EVALUATION AND ACCEPTANCE OF CONCRETE SHALL CONFORM TO ACI 318, SECTION 5.6. MAKE (4) CYLINDERS FOR EACH CLASS OF CONCRETE PLACED EACH DAY. TEST (1) CYLINDER AT 7 DAYS, AND (2) CYLINDERS AT 28 DAYS. HOLD (1) CYLINDER FOR 56 DAYS IF NECESSARY.
 - PERIODIC SPECIAL INSPECTION IS REQUIRED FOR POST-INSTALLED ANCHORS AS INDICATED IN THE CORRESPONDING RESEARCH REPORT ISSUED BY THE APPROVAL AGENCY.

10. STRUCTURAL OBSERVATIONS

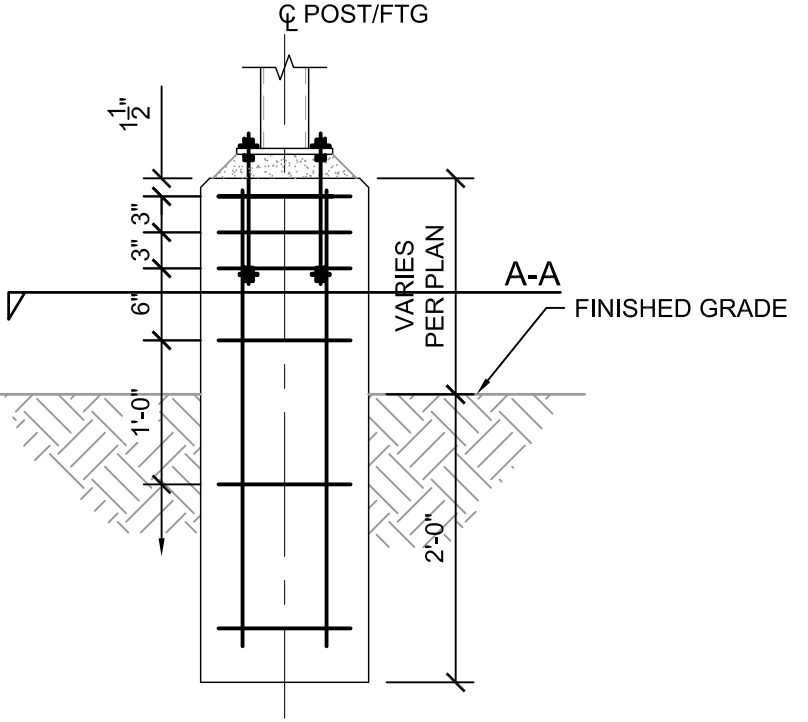
- 10.1 STRUCTURAL OBSERVATION SHALL BE PROVIDED BY A REGISTERED DESIGN PROFESSIONAL FOR GENERAL PERFORMANCE OF CONSTRUCTION TO THE APPROVED CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM.
- 10.2 STRUCTURAL OBSERVATIONS ARE NOT A SUBSTITUTE FOR SPECIAL INSPECTIONS. ALL SPECIAL INSPECTIONS SHALL BE PERFORMED BY THE PROJECT SPECIAL INSPECTOR.

ABBREVIATIONS

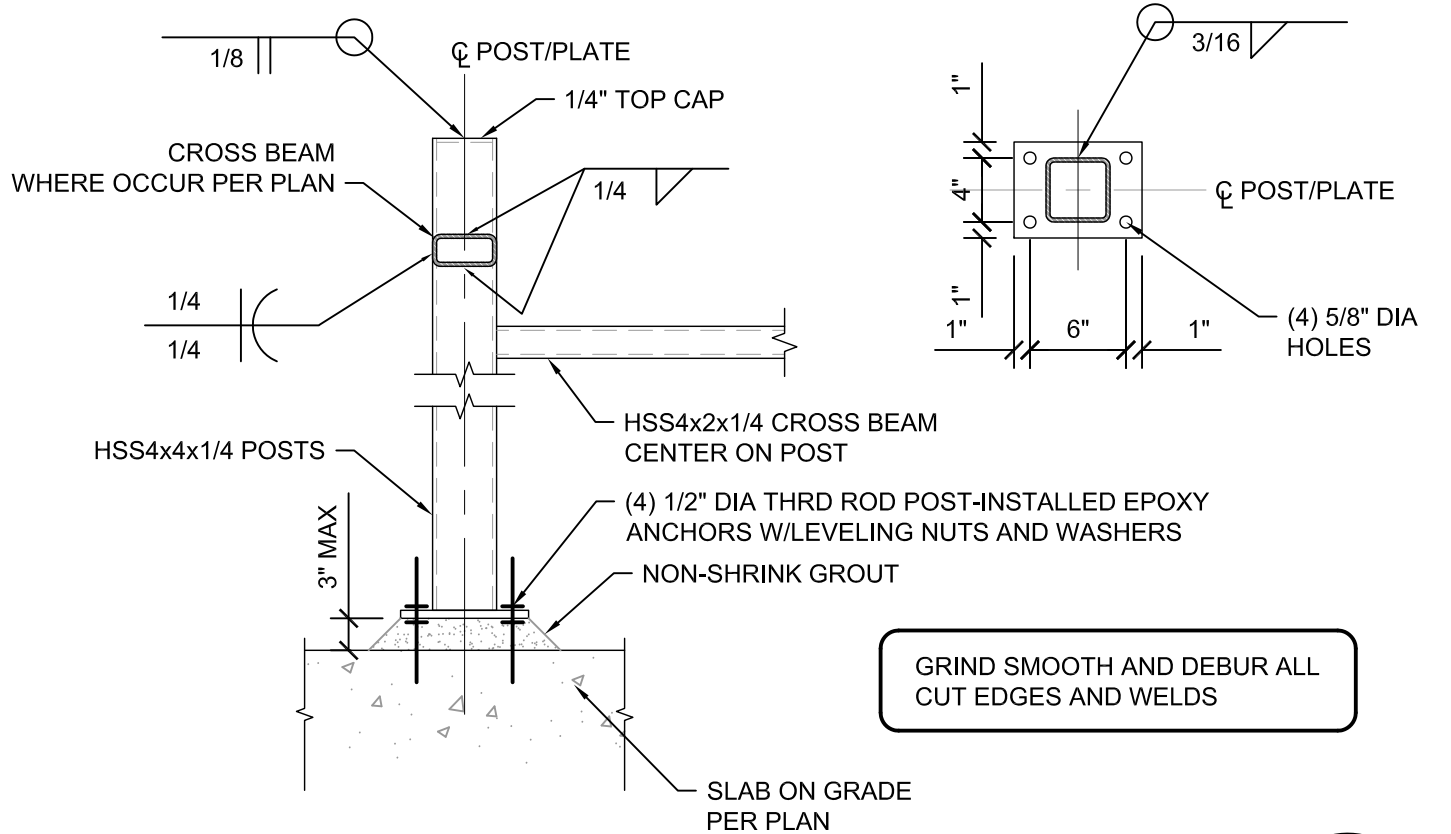
&	AND
@	AT
AB	ANCHOR BOLT
ABV	ABOVE
AC	ASPHALT CONCRETE
ADDL	ADDITIONAL
ADJ	ADJACENT
AF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
APPRV	APPROVE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BLW	BELOW
BM	BEAM
BO	BOTTOM OF
BOT	BOTTOM
BRG	BEARING
CB	CENT-AN-PLACE
CJ	CONSTRUCTION JOINT
CL	CENTER LINE
CLR	CLEAR
CONC	CONCRETE
COND	CONDITION
CONN	CONNECTION
CONT	CONTINUOUS
CTJ	CONTROL JOINT
CTR	CENTER
EL	ELEVATION
EOR	ENGINEER OF RECORD
EPS	EXPANDED POLYSTYRENE
EQ	EQUAL
ES	EACH SIDE
EW	EACH WAY
EXA	EXPANSION ANCHOR
EXT	EXTERIOR
FDN	FOUNDATION
FG	FINISHED GRADE
FIN	FLOOR
FLR	FLOOR
FOC	FACE OF CONCRETE
FOW	FACE OF WALL
FS	FAR SIDE
FTG	FOOTING
GA	GALVANIZED
GB	GRADE BEAM
GRD	GRADE
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
HSB	HIGH STRENGTH BOLT
HSS	HOLLOW STRUCTURAL SHAPE
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
IF	INSIDE FACE
IN	IN
INT	INTERIOR
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LW	LIGHTWEIGHT
MFG	MANUFACTURED
MAX	MAXIMUM
MB	MACHINE BOLT
MIN	MINIMUM
MTL	METAL
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OF	OUTSIDE FACE
OH	OPPOSITE HAND
OPG	OPENING
PDF	POWER DRIVEN FASTENER
PL	PLATE
PLY	PLYWOOD
R	RADIUS
RE	REFER TO
REINF	REINFORCEMENT
REQ	REQUIRED
SCHD	SCHEDULE
SECT	SECTION
SIM	SIMILAR
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STGRD	STAGGERED
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
SYMM	SYMMETRICAL
T&B	TOP AND BOTTOM
TF	TOP OF FINISHED FLOOR
THRD	THREADED
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VP	VERIFY IN FIELD
VERT	VERTICAL
W/	WITH
W/O	WITHOUT
WF	WIDE FLANGE
WP	WORK POINT
WS	WATERSTOP



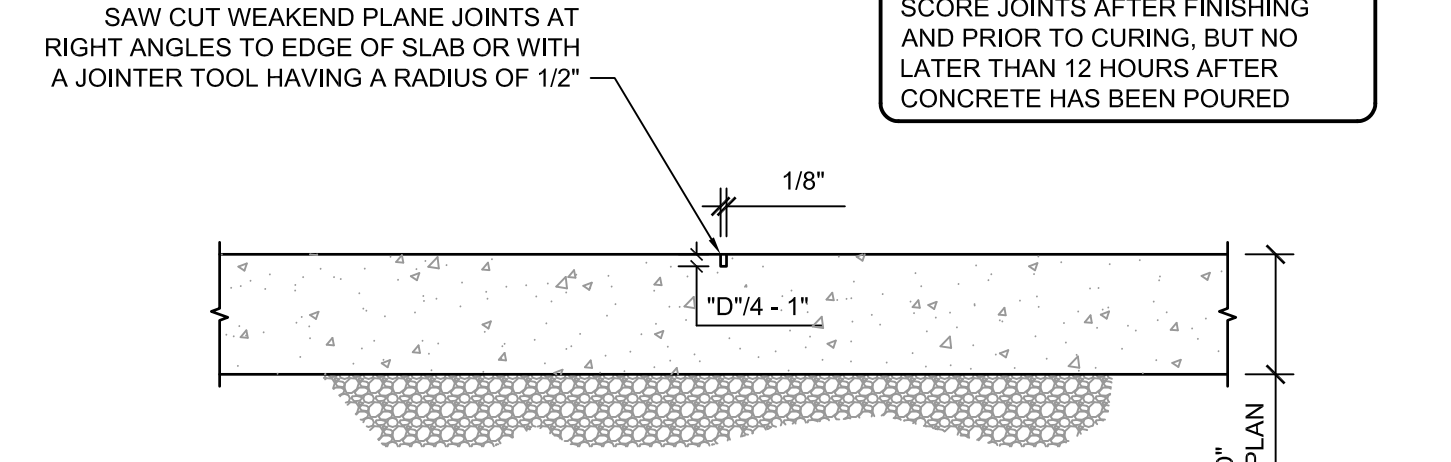
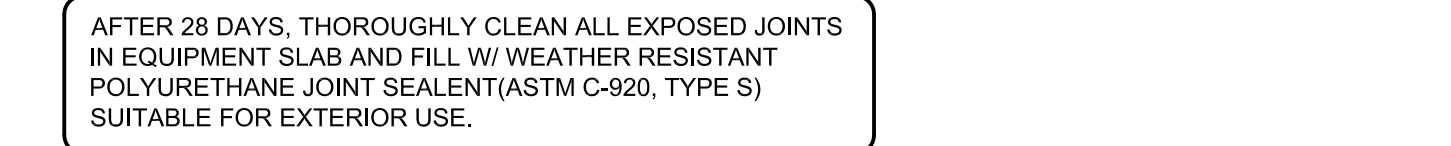
ANCHOR BOLT
 SCALE: 3/4" = 1'-0"



TYPICAL POLE BASE DETAIL
 SCALE: 3/4" = 1'-0"



TYPICAL DUCT SUPPORT DETAILING
 SCALE: 1" = 1'-0"



STANDARD - TYPICAL SLAB ON GRADE JOINTS
 NO SCALE

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 POOL HVAC UPGRADE
 1400 BARING BLVD
 SPARKS, NEVADA 89434

SHEET TITLE
**STRUCTURAL NOTES
ABBREVIATIONS
STANDARD DETAILS**

REVISIONS

DATE:
 FEBRUARY 2, 2018

SHEET NUMBER:

S0.1

BID DOCUMENTS

- EROSION CONTROL NOTES:**
1. THE CONTRACTOR SHALL USE TEMPORARY EROSION CONTROL FACILITIES DURING CONSTRUCTION TO PREVENT DISCHARGE OF EARTHEN MATERIALS FROM THE SITE DURING PERIODS OF PRECIPITATION.
 2. EACH WEEK THE CONTRACTOR AND OR THEIR AUTHORIZED AGENTS SHALL REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT HAVE BEEN DISCHARGED AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM DRAIN SYSTEM.
 3. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED PRIOR ANY ANTICIPATED STORM EVENT. SEDIMENT MUST BE REMOVED WHEN THE BMP DESIGN CAPACITY IS REDUCED BY MORE THAN 50%.
 4. THE CONTRACTOR SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE, VEHICLE PATH, AND BMPs WEEKLY, PRIOR TO A FORECASTED RAIN EVENT AND WITHIN 24 HOURS OF AN ACTUAL RAIN EVENT. THE CONTRACTOR SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY.
 5. CONTRACTOR SHALL CONSTRUCT AND OR INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES PRIOR TO ANY GRADING ACTIVITY.
 6. CONTRACTOR SHALL STOCKPILE EXISTING GRAVEL TO BE REAPPLIED AFTER COMPLETION OF GRADING.
 7. ALL LOOSE PILES OF SOIL, SILT, CLAY, SAND, DEBRIS, OR EARTHEN MATERIALS SHALL BE PROTECTED IN A REASONABLE WAY TO PREVENT DISCHARGE.
 8. AFTER COMPLETION OF EACH PHASE, ALL SURPLUS OR WASTE MATERIAL SHALL BE REMOVED FROM THE SITE AND DEPOSITED AT A LEGAL POINT OF DISPOSAL.
 9. THE CONTRACTOR SHALL DEVELOP, PROPOSE AND IMPLEMENT AN APPROPRIATE DUST CONTROL PROGRAM TO BE USED THROUGHOUT CONSTRUCTION. THE DUST CONTROL PLAN SHALL BE SUBMITTED TO THE DOUGLAS COUNTY BUILDING DEPARTMENT AND SHALL SATISFY ALL APPLICABLE STATE AND FEDERAL REQUIREMENTS. CONTRACTOR SHALL BE REQUIRED TO PAY ANY ASSOCIATED FEES TO SATISFY DUST CONTROL REQUIREMENTS. CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO CONTROL DUST IN CONSTRUCTION AND STAGING AREAS. SUFFICIENT WATER TRUCKS SHALL BE MADE AVAILABLE FOR DUST CONTROL PURPOSES. THE CONTRACTOR IS REQUIRED TO SUPPRESS DUST AT ALL TIMES, 24 HOURS A DAY, 7 DAYS A WEEK.

- GRADING NOTES:**
1. GENERAL SITE CLEARING SHALL INCLUDE REMOVAL OF ALL SURFACE DEBRIS, RUBBLE, AND LARGER VEGETATION.
 2. AFTER REMOVAL OF DEBRIS, ORGANICS SHALL BE STRIPPED AND EXTEND INTO THE SOIL AS DIRECTED BY THE ENGINEER.
 3. APPROVED SOIL FOR REUSE MAY BE STOCKPILED IN AREAS AS DIRECTED AND APPROVED BY THE ENGINEER. SEE SHEET G1.0 FOR EROSION/SEDIMENT CONTROL REQUIREMENTS.
 4. EXCAVATE AS NECESSARY TO OBTAIN REQUIRED SUBGRADE ELEVATIONS, PLACEMENT OF FOUNDATIONS AND FORMWORK.
 5. SCARIFY THE SOILS EXPOSED TO EXCAVATION TO A DEPTH OF 8" AND RE-COMPACT TO 90% MAXIMUM DRY DENSITY (ASTM D-1557, METHOD C).
 6. BACKFILL FOUNDATIONS AND SITEWORK AS INDICATED IN THESE PLANS. WATER OR DRY MATERIAL AS NECESSARY TO OBTAIN PROPER MOISTURE CONTENT. COMPACT ALL BASE MATERIALS TO 95% DRY DENSITY (ASTM D1557, METHOD C).
 7. DO NOT PERFORM EARTHWORK DURING INCLEMENT WEATHER OR WHEN EXCESSIVE MOISTURE IS PRESENT IN THE SOILS.
 8. USE NO FROZEN FILL OR DO NOT PLACE FILL ON FROZEN GROUND.
 9. REMOVE AND REPLACE IN-PLACE FILLS WHICH ARE FROZEN OR HAVE BECOME SATURATED.
 10. PROVIDE POSITIVE DRAINAGE AWAY FROM EQUIPMENT PAD AND BUILDINGS. 6" MINIMUM FOR 10'.

- DUST CONTROL NOTES:**
1. DUST CONTROL SHALL BE STRICTLY ENFORCED BY THE CONTRACTOR AT ALL TIMES.
 2. DUST CONTROL WORK SHALL COMPLY WITH THE STATE OF NEVADA'S AIR QUALITY STANDARDS.
 3. A WATER TRUCK AND OTHER MEASURES NECESSARY SHALL BE SUPPLIED BY THE CONTRACTOR AT ALL TIMES THROUGHOUT CONSTRUCTION.
 4. THE CONTRACTOR SHALL MINIMIZE DUST LEVELS AS TO NOT EXCEED THE LIMITS REQUIRED BY THE NEVADA DEPARTMENT OF ENVIRONMENTAL PROTECTION.

- EXISTING CONDITIONS / DEMOLITION NOTES:**
1. CONTRACTOR SHALL INSPECT THE SITE FOR ANY EXISTING ITEMS THAT MAY INTERFERE WITH THE PROPOSED IMPROVEMENTS AND PROMPTLY REPORT ANY DISCREPANCIES FOUND AMONG THESE DRAWINGS AND SPECIFICATIONS TO THE ENGINEER. ALL DISCREPANCIES SHALL BE CORRECTED IN WRITING. ANY WORK DONE BY THE CONTRACTOR AFTER THE DISCOVERY OF SUCH DISCREPANCIES PRIOR TO RECEIVING WRITTEN DIRECTION FROM THE ENGINEER IS AT THE CONTRACTORS OWN RISK.
 2. VERIFY AND COORDINATE ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO BEGINNING ANY CONSTRUCTION.
 3. THE UNDERGROUND UTILITIES SHOWN IN THESE DRAWINGS ARE APPROXIMATE. UTILITY LOCATIONS ARE BASED ON SURFACE FIELD TIES AND IMPROVEMENT PLAN MAPS FROM AS-BUILT DRAWINGS. ACTUAL LOCATIONS MAY VARY. STRUCTURAL SYSTEM SOLUTIONS, INC. IS NOT RESPONSIBLE FOR THE EXACT LOCATIONS OF THE UTILITIES SHOWN HERE ON, NOR FOR ANY DAMAGES CAUSED BY ANY CONSTRUCTION OR EXCAVATION ON OR NEAR SAID UTILITIES. DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION SHALL BE REPAIRED IMMEDIATELY IN ACCORDANCE WITH THE UTILITIES COMPANIES OR OWNERS REQUIREMENTS AND AT THE CONTRACTORS EXPENSE.
 4. IT SHALL BE THE DUTY OF THE OF THE CONTRACTOR TO MAKE THE DETERMINATION AS TO THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING ANY WORK. CONTACT USA AT 1-800-227-2600. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANY/OWNER AND INFORM THEM OF ANY PLANNED DISTURBANCE TO OR AROUND EXISTING UTILITIES.
 5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES WITHIN THE PROJECT AREA FROM ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT.
 6. ALL SAWCUTTING OF CONCRETE SHALL BE NEAT AND STRAIGHT AS SHOWN.
 7. ANY DAMAGE BY THE CONTRACTOR TO THE EXISTING IMPROVEMENTS TO REMAIN SHALL BE REMOVED AND REPLACED PER THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION, AT THE CONTRACTORS EXPENSE.

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MMI ENGINEERING

REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA
 THOMAS LUNDIN
 Exp. 12/31/19
 CIVIL
 57008686

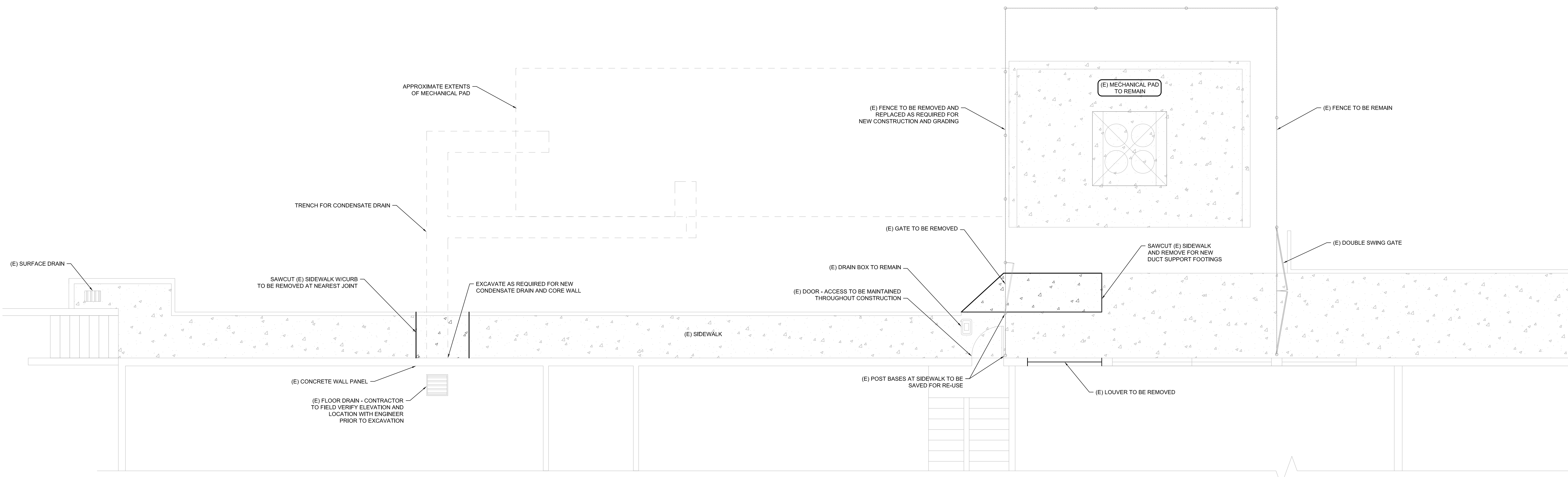
2/2/2018

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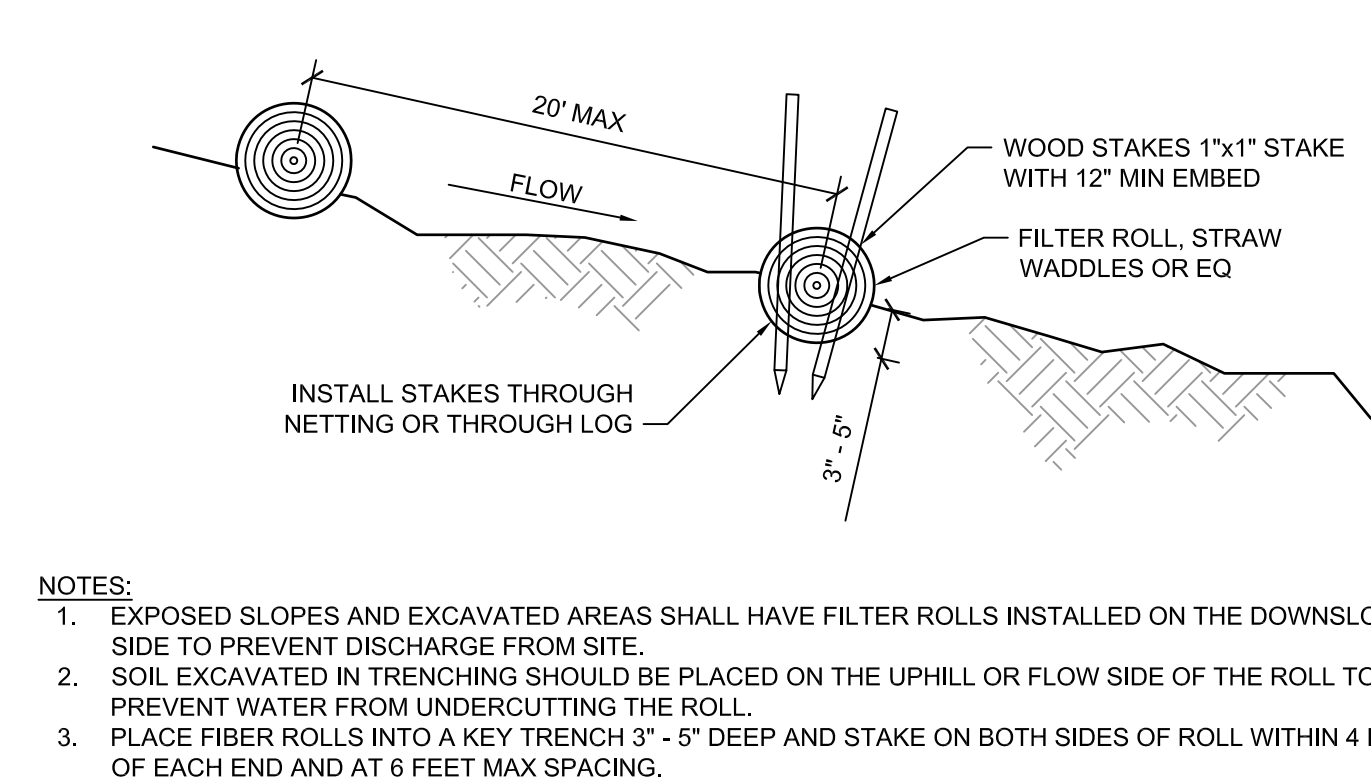
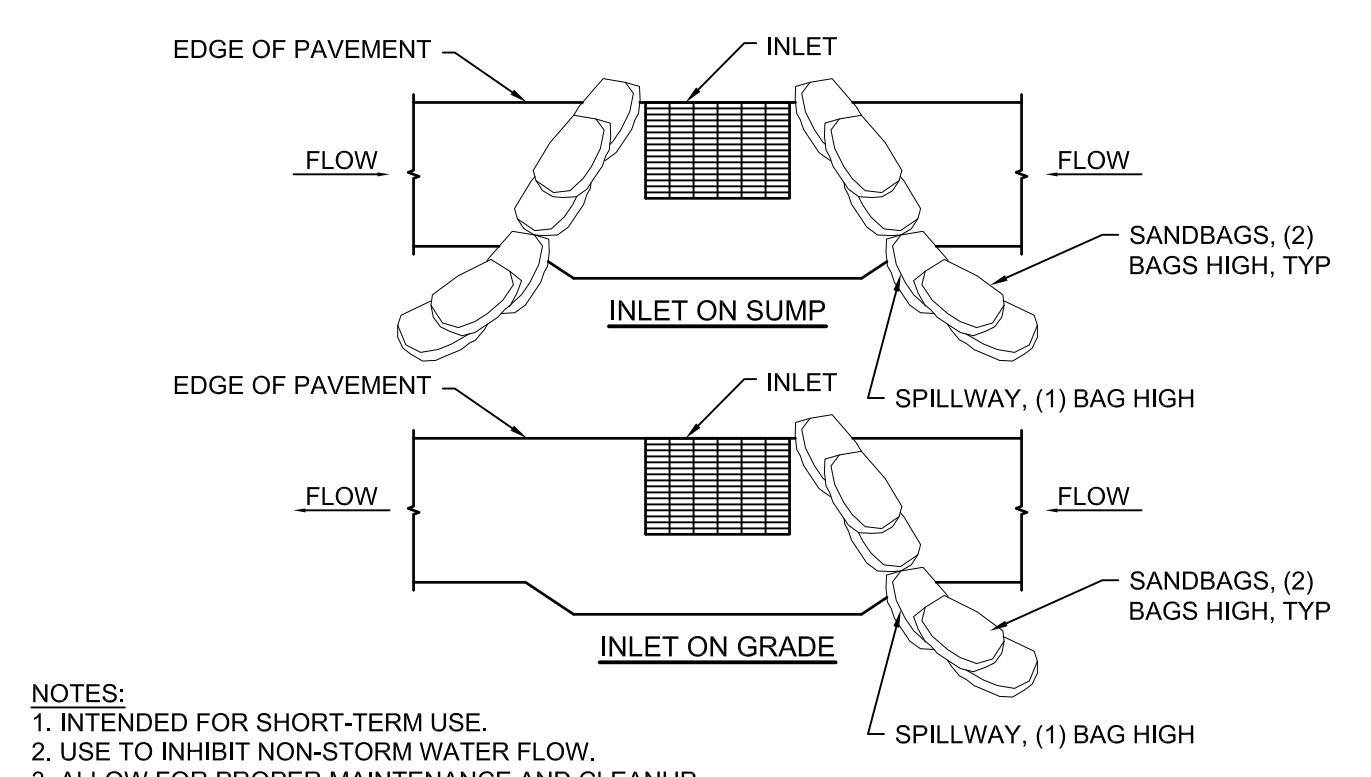
SHEET TITLE
**EXISTING CONDITIONS
 EXTERIOR DEMOLITION PLAN
 EROSION CONTROL**

REVISIONS

DATE: **FEBRUARY 2, 2018**
 SHEET NUMBER: **1**
S1.0



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

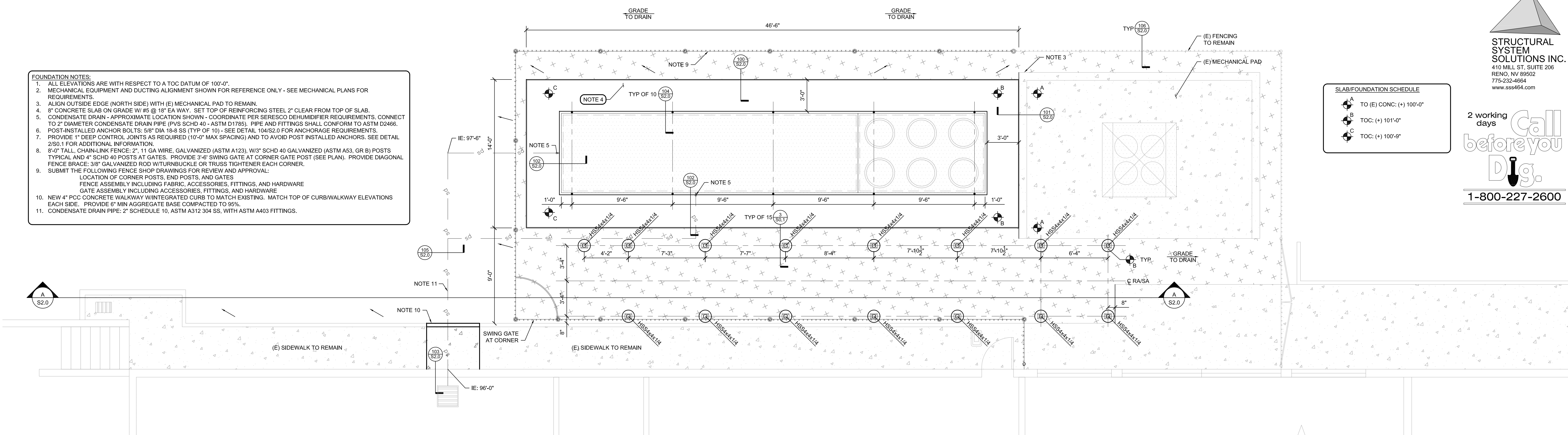


- NOTES:**
1. INTENDED FOR SHORT-TERM USE.
 2. USE TO INHIBIT NON-STORM WATER FLOW.
 3. ALLOW FOR PROPER MAINTENANCE AND CLEANUP.
 4. BAGS TO BE REMOVED AFTER ADJACENT OPERATIONS COMPLETE.
 5. NOT APPLICABLE FOR AREAS WITH HIGH SILTS OR CLAYS WITHOUT FILTER FABRIC.

- NOTES:**
1. EXPOSED SLOPES AND EXCAVATED AREAS SHALL HAVE FILTER ROLLS INSTALLED ON THE DOWNSLOPE SIDE TO PREVENT DISCHARGE FROM SITE.
 2. SOIL EXCAVATED IN TRENCHING SHOULD BE PLACED ON THE UPHILL OR FLOW SIDE OF THE ROLL TO PREVENT WATER FROM UNDERCUTTING THE ROLL.
 3. PLACE FIBER ROLLS INTO A KEY TRENCH 3" - 5" DEEP AND STAKE ON BOTH SIDES OF ROLL WITHIN 4 FEET OF EACH END AND AT 6 FEET MAX SPACING.
 4. MAINTAIN ROLLS AS NECESSARY; REPAIR OR REPLACE SPLIT, TORN, OR UNRAVELLING. INSPECT FIBER ROLLS PRIOR TO AND FOLLOWING EACH RAIN EVENT.
 5. USE WEIGHTED STRAW WADDLES ON HARD SURFACES.

BID DOCUMENTS

- FOUNDATION NOTES:**
- ALL ELEVATIONS ARE WITH RESPECT TO A TOC DATUM OF 100'-0".
 - MECHANICAL EQUIPMENT AND DUCTING ALIGNMENT SHOWN FOR REFERENCE ONLY - SEE MECHANICAL PLANS FOR REQUIREMENTS.
 - ALIGN OUTSIDE EDGE (NORTH SIDE) WITH (E) MECHANICAL PAD TO REMAIN.
 - 8" CONCRETE SLAB ON GRADE W/ #5 @ 18" EA WAY. SET TOP OF REINFORCING STEEL 2" CLEAR FROM TOP OF SLAB.
 - CONDENSATE DRAIN - APPROXIMATE LOCATION SHOWN - COORDINATE PER SERESCO DEHUMIDIFIER REQUIREMENTS. CONNECT TO 2" DIAMETER CONDENSATE DRAIN PIPE (PVS SCHED 40 - ASTM D1785). PIPE AND FITTINGS SHALL CONFORM TO ASTM D2486.
 - POST-INSTALLED ANCHOR BOLTS: 5/8" DIA 18-8 SS (TYP OF 10) - SEE DETAIL 104/S2.0 FOR ANCHORAGE REQUIREMENTS.
 - PROVIDE 1" DEEP CONTROL JOINTS AS REQUIRED (10'-0" MAX SPACING) AND TO AVOID POST INSTALLED ANCHORS. SEE DETAIL 250.1 FOR ADDITIONAL INFORMATION.
 - 8'-0" TALL CHAIN-LINK FENCE: 2" 11 GA WIRE, GALVANIZED (ASTM A123), W/ 3" SCHED 40 GALVANIZED (ASTM A53, GR B) POSTS TYPICAL AND 4" SCHED 40 POSTS AT GATES. PROVIDE 3'-8" SWING GATE AT CORNER GATE POST (SEE PLAN). PROVIDE DIAGONAL FENCE BRACE: 3/8" GALVANIZED ROD W/TURNBUCKLE OR TRUSS TIGHTENER EACH CORNER.
 - SUBMIT THE FOLLOWING FENCE SHOP DRAWINGS FOR REVIEW AND APPROVAL:
 LOCATION OF CORNER POSTS, END POSTS, AND GATES
 FENCE ASSEMBLY INCLUDING FABRIC, ACCESSORIES, FITTINGS, AND HARDWARE
 GATE ASSEMBLY INCLUDING ACCESSORIES, FITTINGS, AND HARDWARE
 - NEW 4" PCC CONCRETE WALKWAY W/ INTEGRATED CURB TO MATCH EXISTING. MATCH TOP OF CURB/WALKWAY ELEVATIONS EACH SIDE. PROVIDE 6" MIN AGGREGATE BASE COMPACTED TO 95%.
 - CONDENSATE DRAIN PIPE: 2" SCHEDULE 10, ASTM A312 304 SS, WITH ASTM A403 FITTINGS.

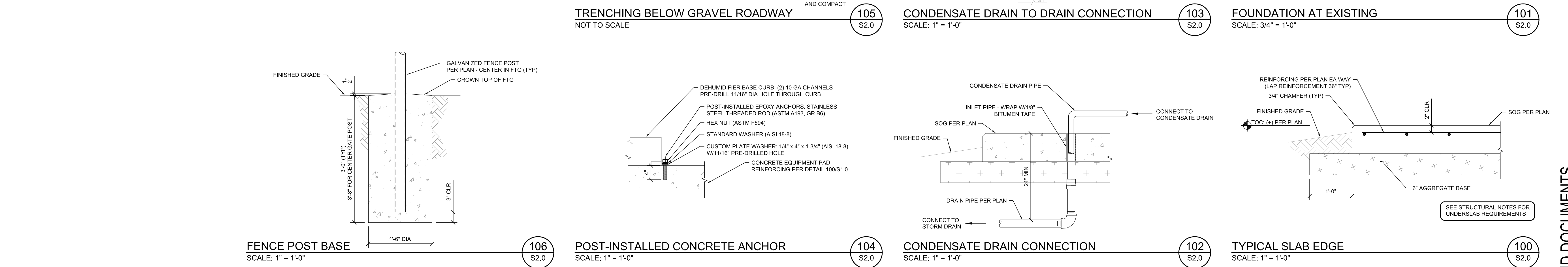
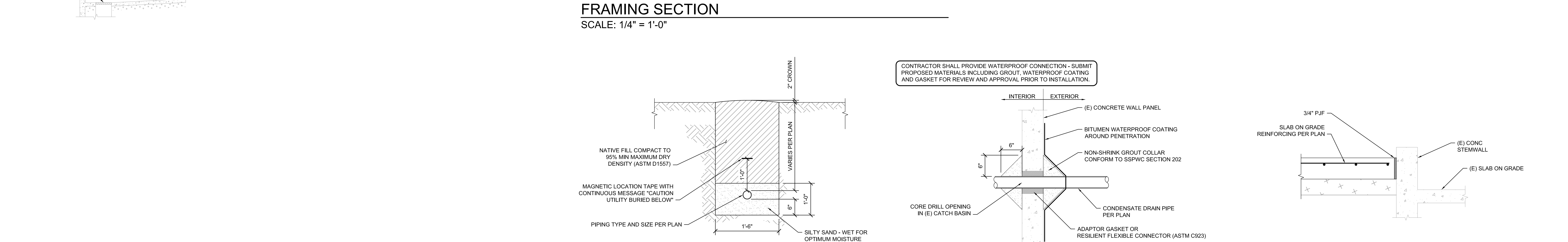
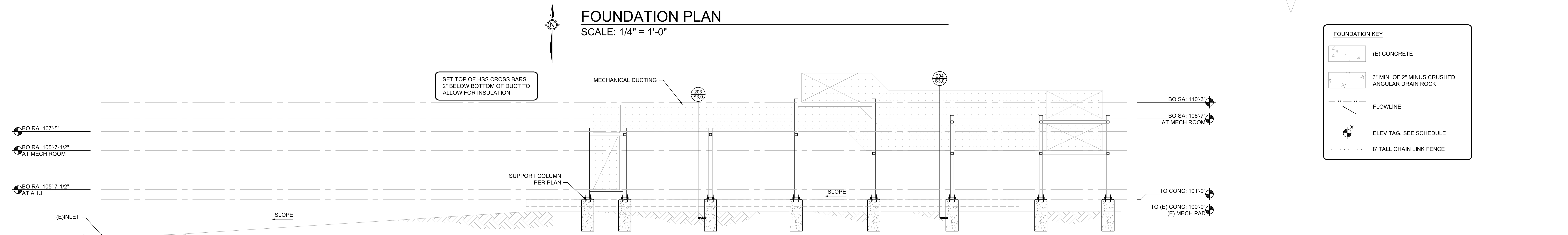


SLAB FOUNDATION SCHEDULE

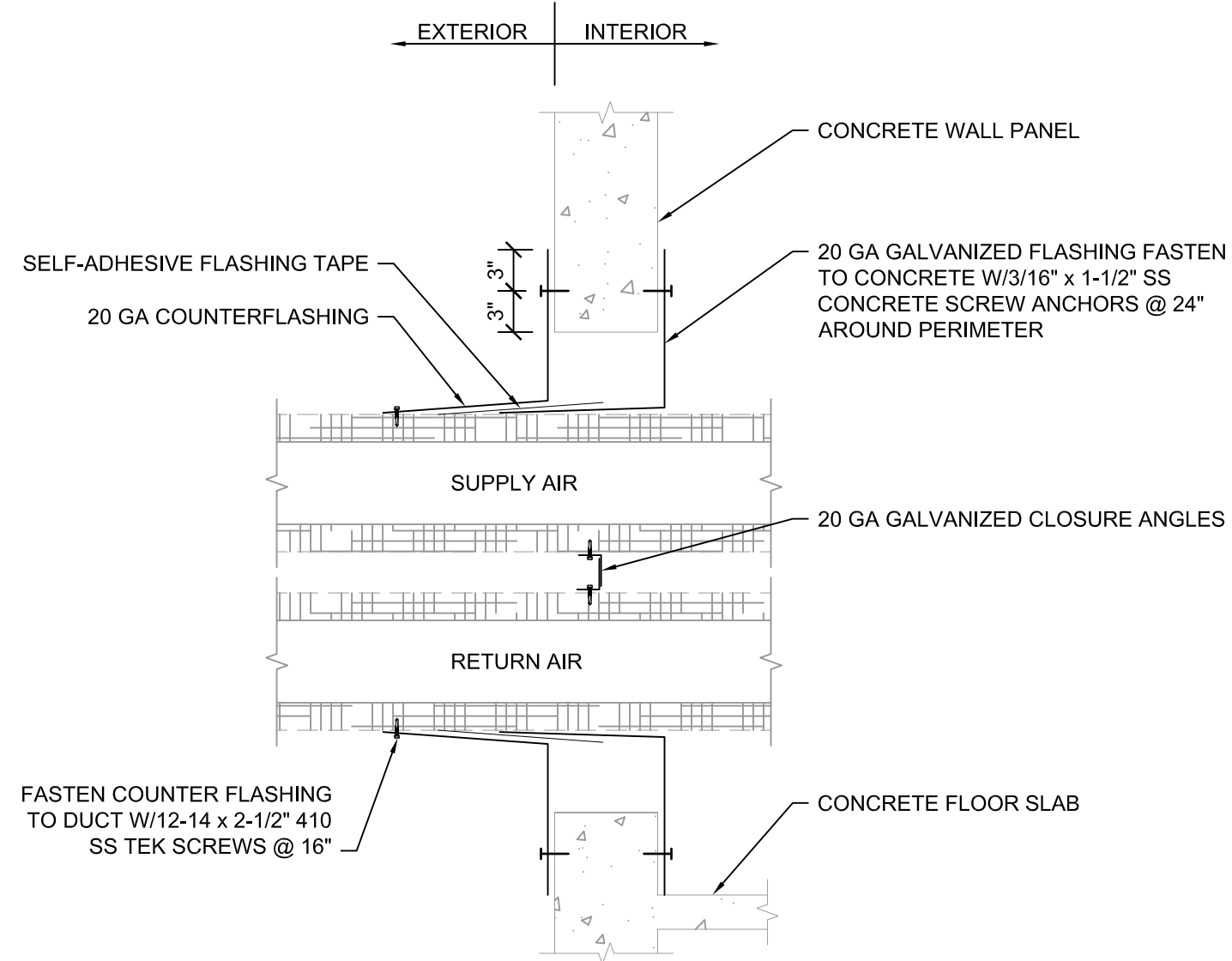
A	TO (E) CONC: (+) 100'-0"
B	TOC: (+) 101'-0"
C	TOC: (+) 100'-9"

FOUNDATION KEY

(E) CONCRETE
3" MIN OF 2" MINUS CRUSHED ANGULAR DRAIN ROCK
FLOWLINE
ELEV TAG. SEE SCHEDULE
8' TALL CHAIN LINK FENCE



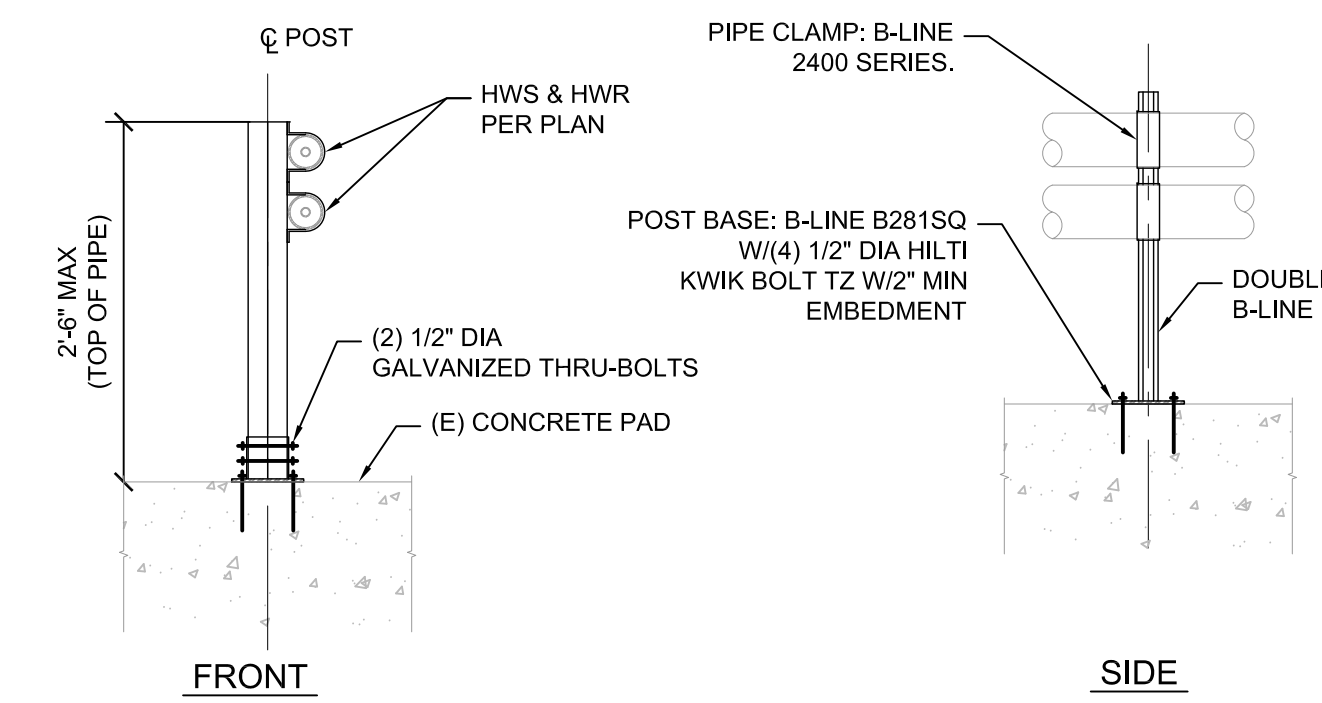
CONTRACTOR TO PROVIDE SHOP DRAWING OF PROPOSED LOUVER FLASHING ASSEMBLY FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. DRAWINGS SHALL INCLUDE DIMENSIONS OF OPENINGS AND FABRICATED PIECES. ALL SPLICES SHALL BE LAPPED A MINIMUM OF 6" WITH SEALANT BETWEEN.



FLASHING AT DUCT PENETRATION
SCALE: 1" = 1'-0"

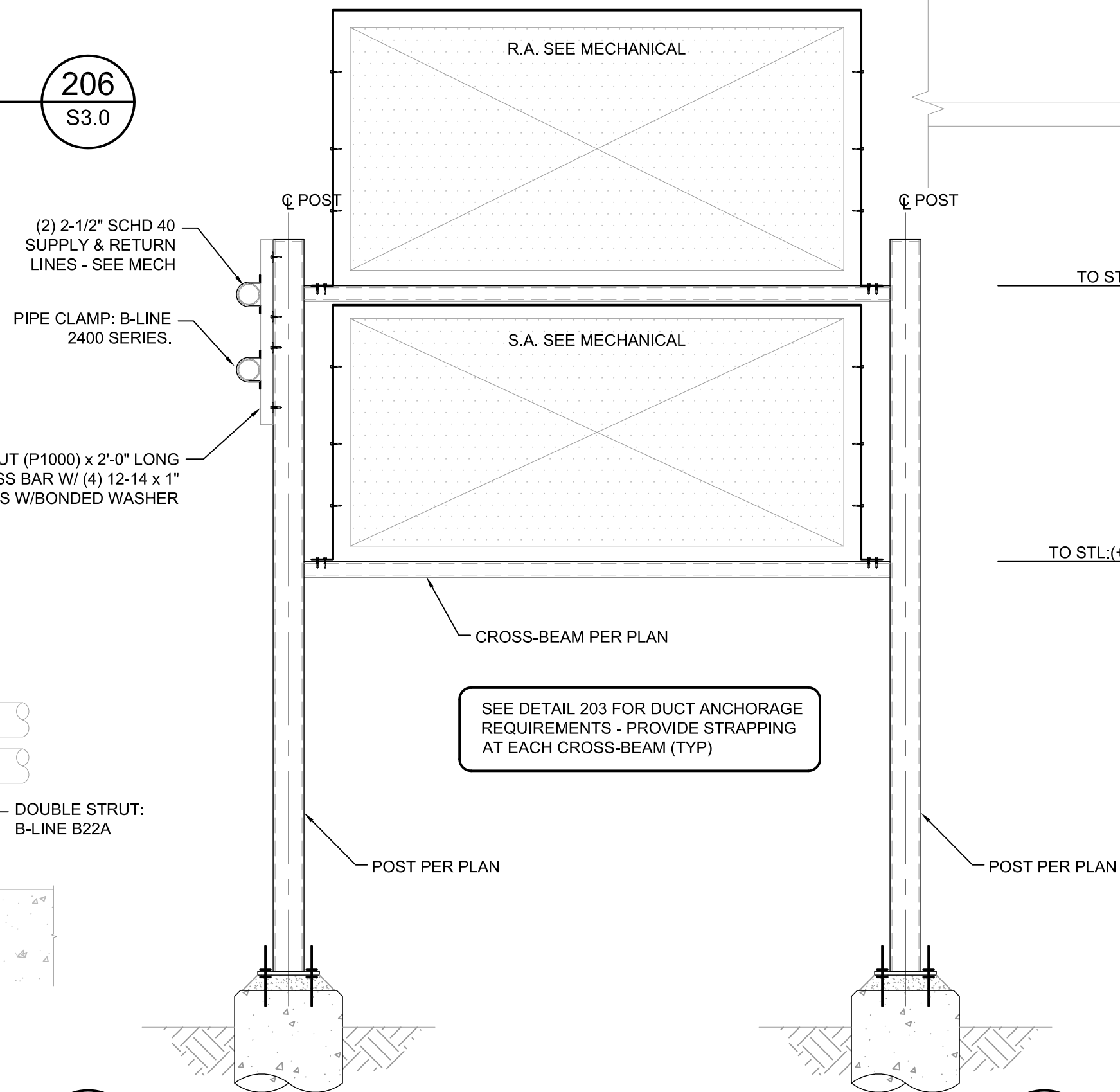
206 S3.0

INSTALL NUTS AND BOLTS PER MANUFACTURERS REQUIREMENTS AND THE PROJECT SPECIFICATIONS, TYP.



PIPE SUPPORT ELEVATION (2'-6" MAX HEIGHT)
SCALE: 3/4" = 1'-0"

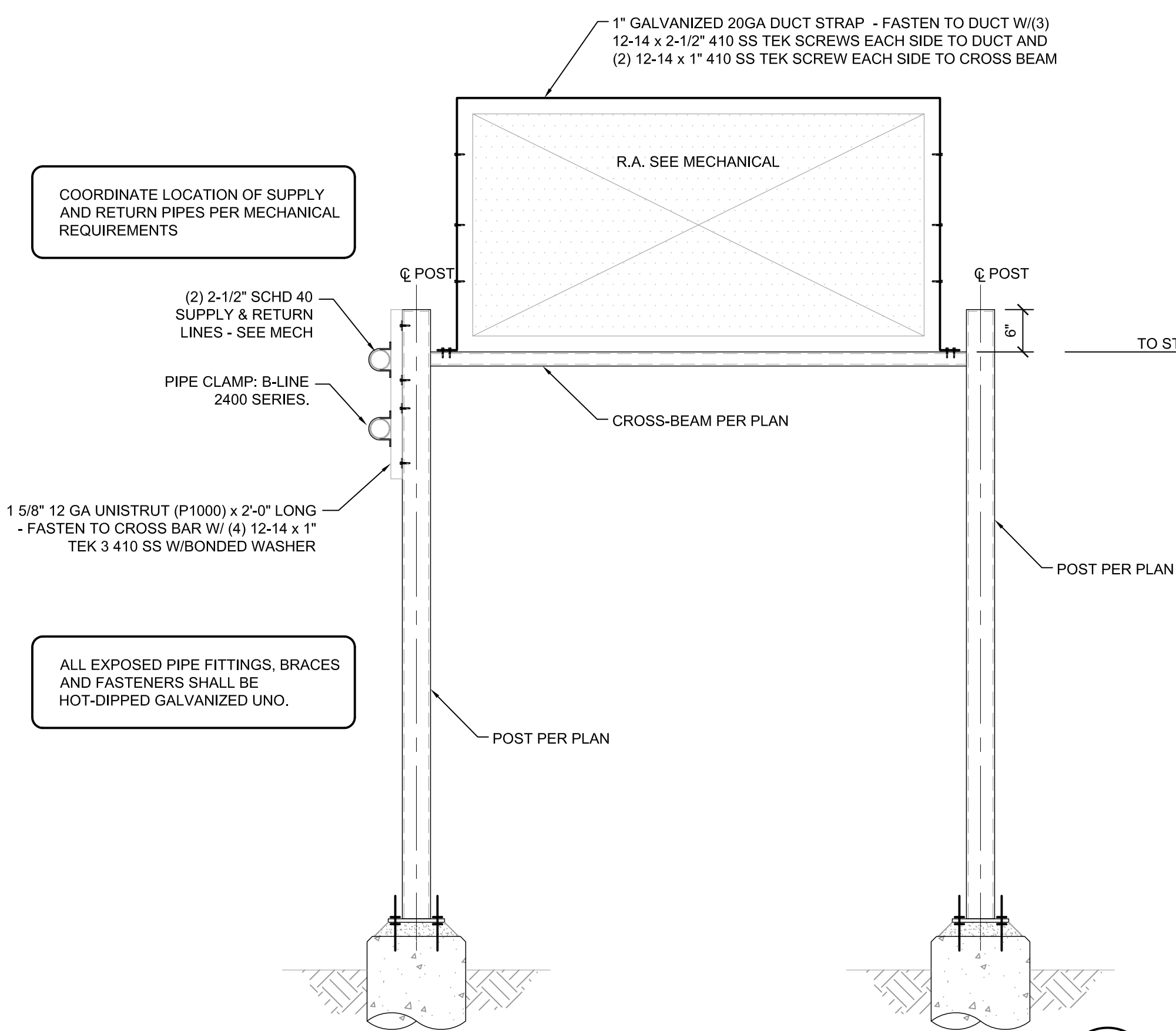
205 S3.0



TYPICAL DUCT SUPPORT DETAILING
SCALE: 3/4" = 1'-0"

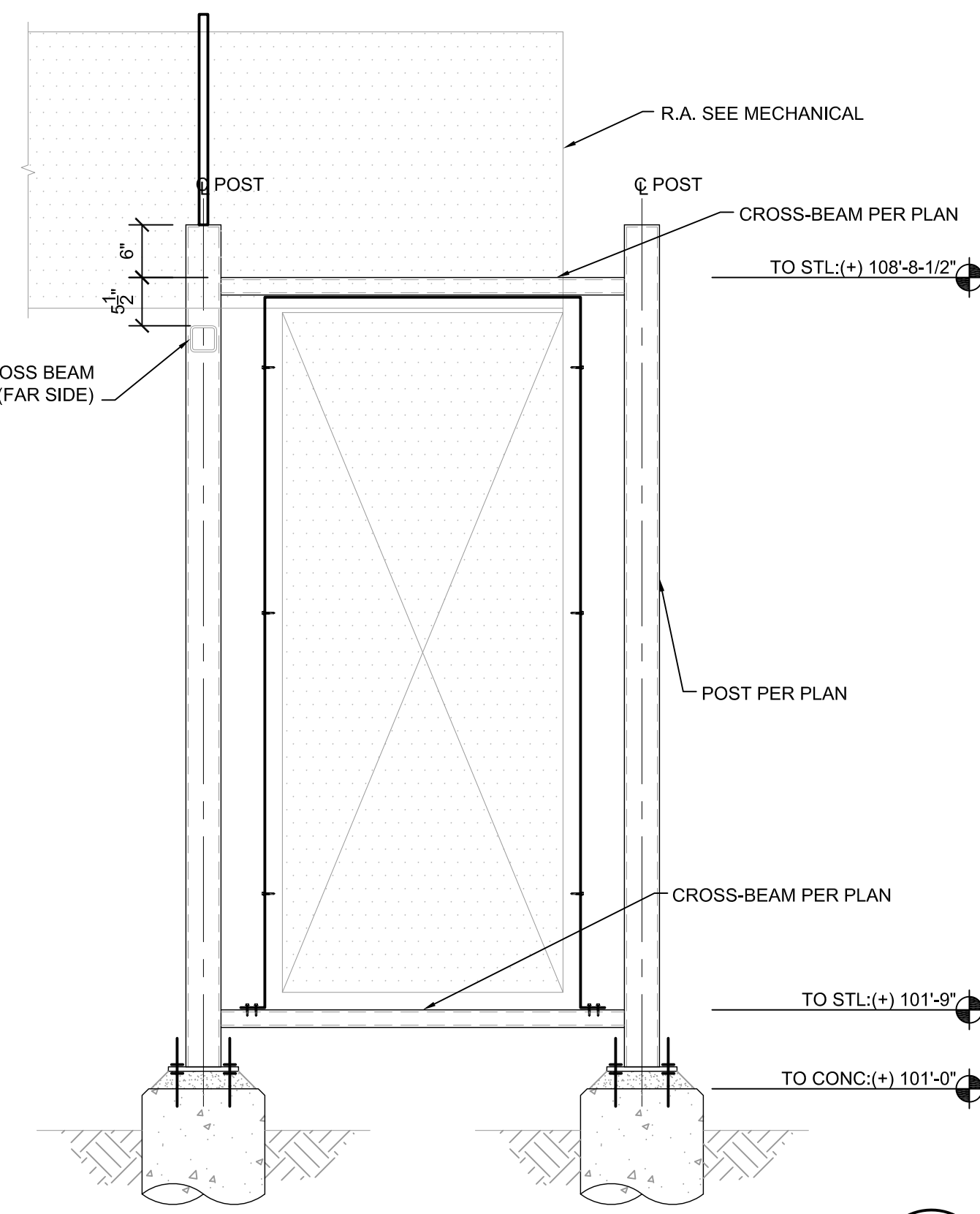
204 S3.0

DUCT INSULATION NOT SHOWN FOR CLARITY
SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION



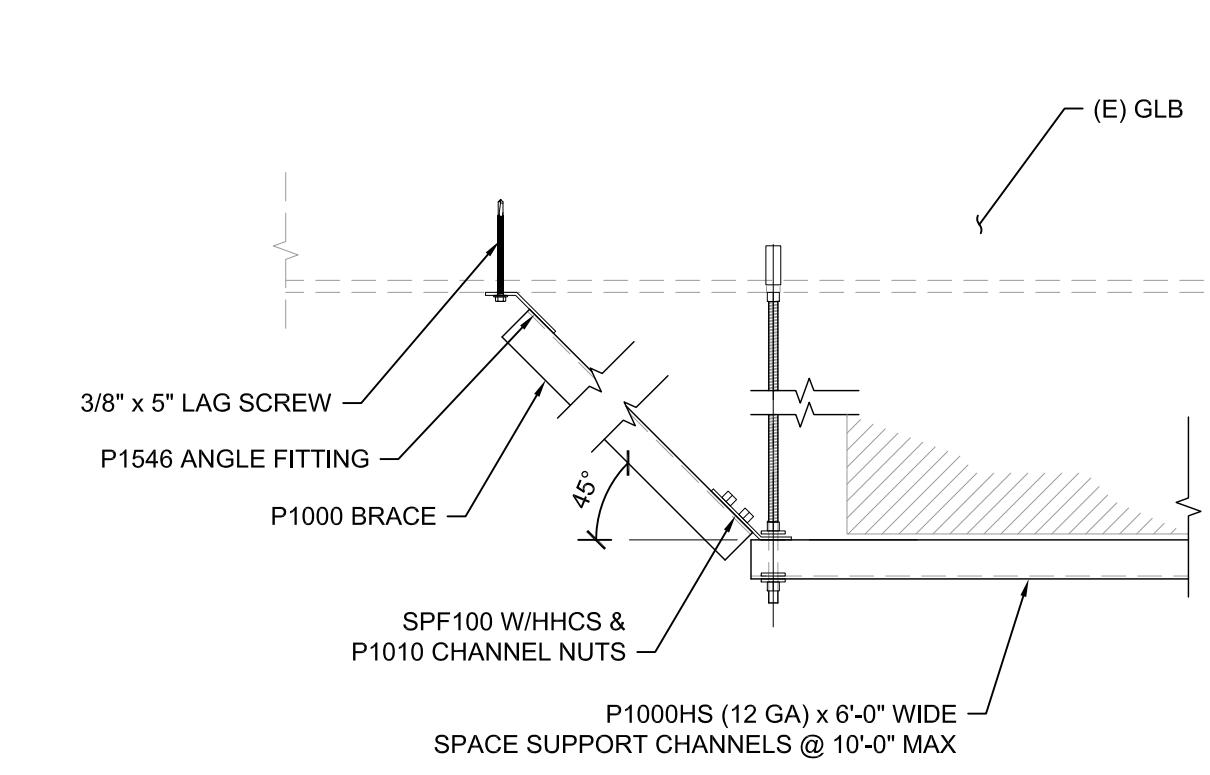
TYPICAL DUCT SUPPORT DETAILING
SCALE: 3/4" = 1'-0"

203 S3.0



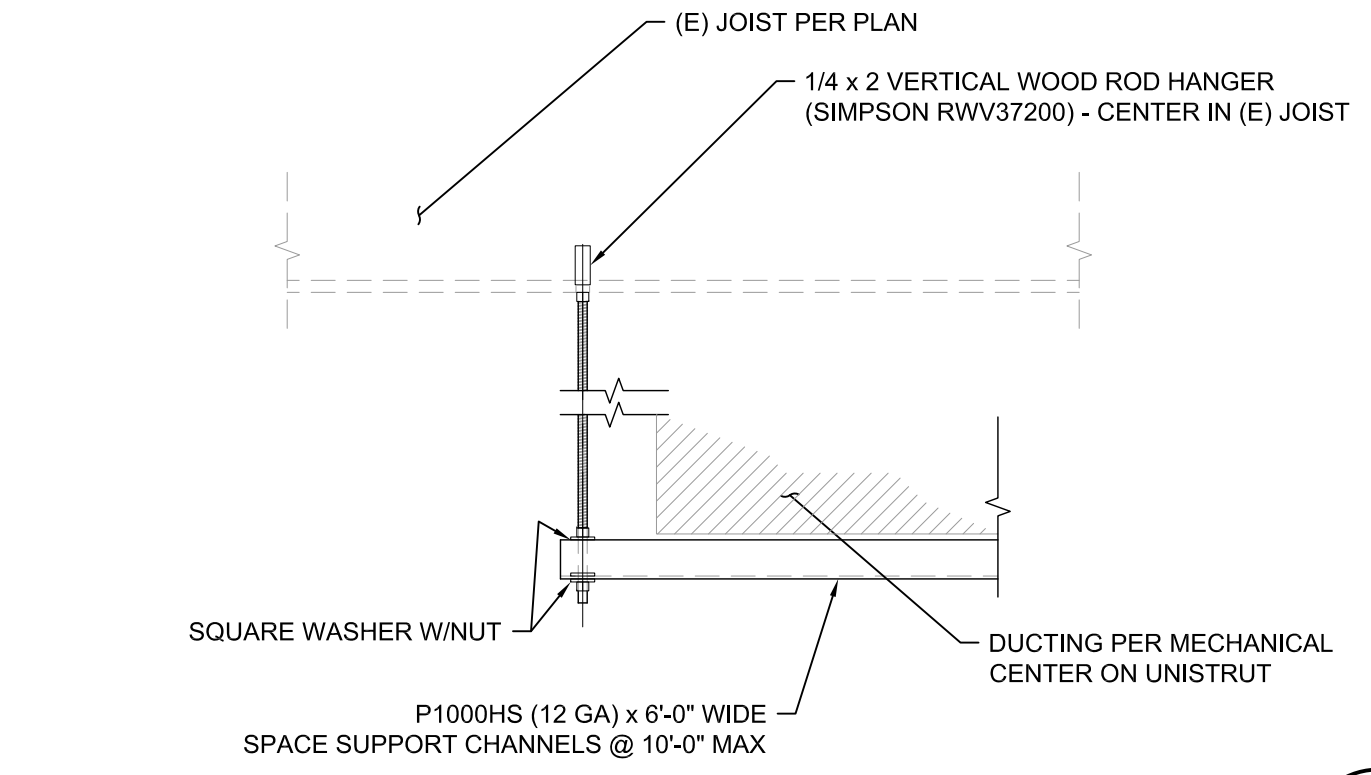
TYPICAL DUCT SUPPORT DETAILING
SCALE: 3/4" = 1'-0"

202 S3.0



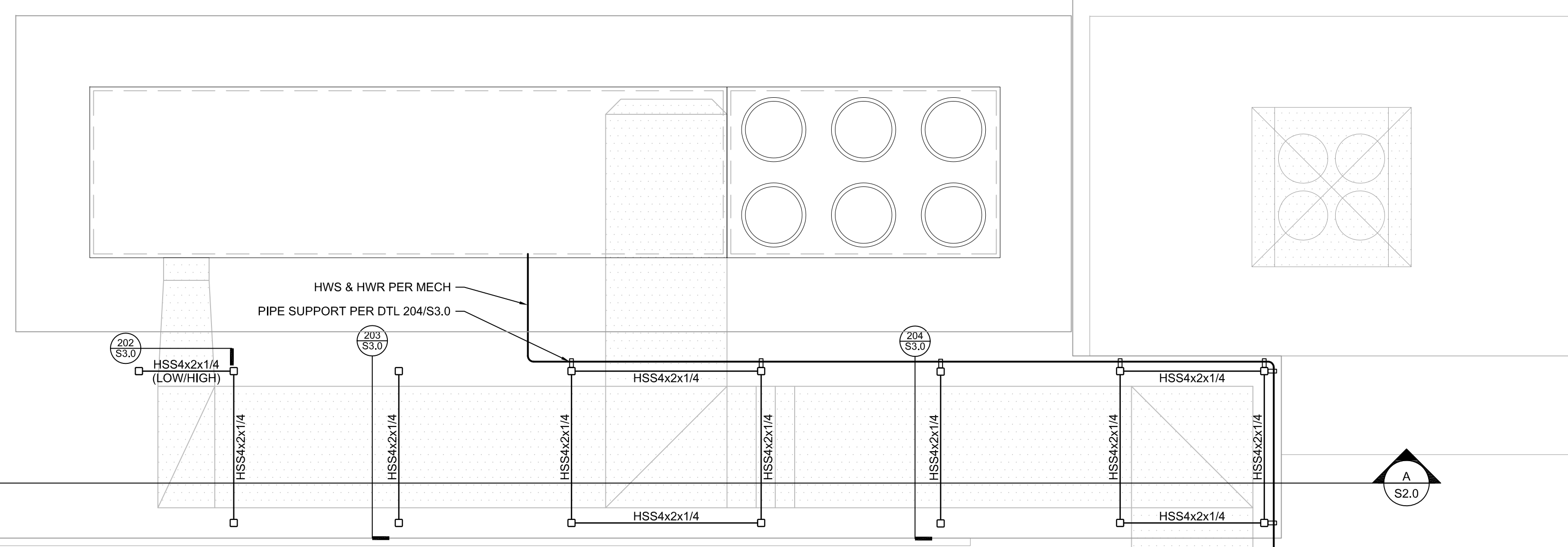
BRACED TRAPEZE ASSEMBLY
NO SCALE

201 S3.0



TRAPEZE HANGER
NO SCALE

200 S3.0



MECHANICAL ROOM ANCHORAGE PLAN
SCALE: 1/4" = 1'-0"

FRAMING KEY

- INDICATES TRAPEZEE TYPE HANGER PER DTL 200/S3.0
- INDICATES LATERAL BRACE PER DTL 201/S3.0
- R.A./S.A. DUCTING - SEE MECHANICAL FOR ALIGNMENT AND ADDITIONAL REQUIREMENTS NOT SHOWN
- INDICATES (E) ROOF JOIST (ABOVE)
- INDICATES (E) WALL TO REMAIN

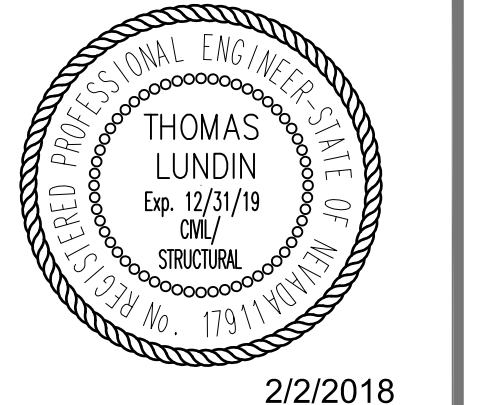
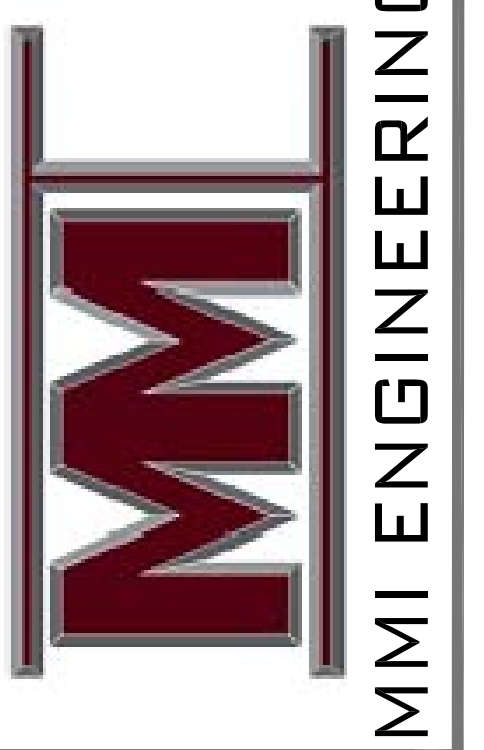
FRAMING NOTES:

- ALL ELEVATIONS ARE WITH RESPECT TO A TO (E) CONC DATUM OF 100'-0".
- MECHANICAL EQUIPMENT AND DUCTING ALIGNMENT SHOWN FOR REFERENCE ONLY - SEE MECHANICAL PLANS FOR REQUIREMENTS AND DIMENSIONING.
- SEE DETAIL 205/1 FOR TYPICAL SUPPORT STEEL DETAILING REQUIREMENTS.
- ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED (ASTM A123).
- FASTENERS IN CONTACT WITH DUCTING SHALL BE STAINLESS STEEL.
- CONTRACTOR MAY SUPPORT INTERIOR DUCTWORK OFF (E) SLAB. PROVIDE UNISTRUT P1000 VERTICAL LEGS, P1001 HORIZONTALS, P1033 ANGLE CLIPS, AND P2072A SQ-POST BASE W(4) 5/8" X 4-3/4" HILTI KWIK BOLT TZ (ESR-1917).

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SHEET TITLE
**MECHANICAL ROOM FRAMING PLAN
DETAILS**

REVISIONS

DATE: **FEBRUARY 2, 2018**
SHEET NUMBER:

S3.0

BID DOCUMENTS