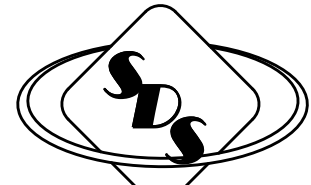


LAB BUILDING HVAC UPGRADES FOUR RIVERS SANITATION AUTHORITY CIP# 2202



SYSTEMS DESIGN SERVICE
engineering

3600 EAST STATE STREET SUITE 215
ROCKFORD, ILLINOIS 61108

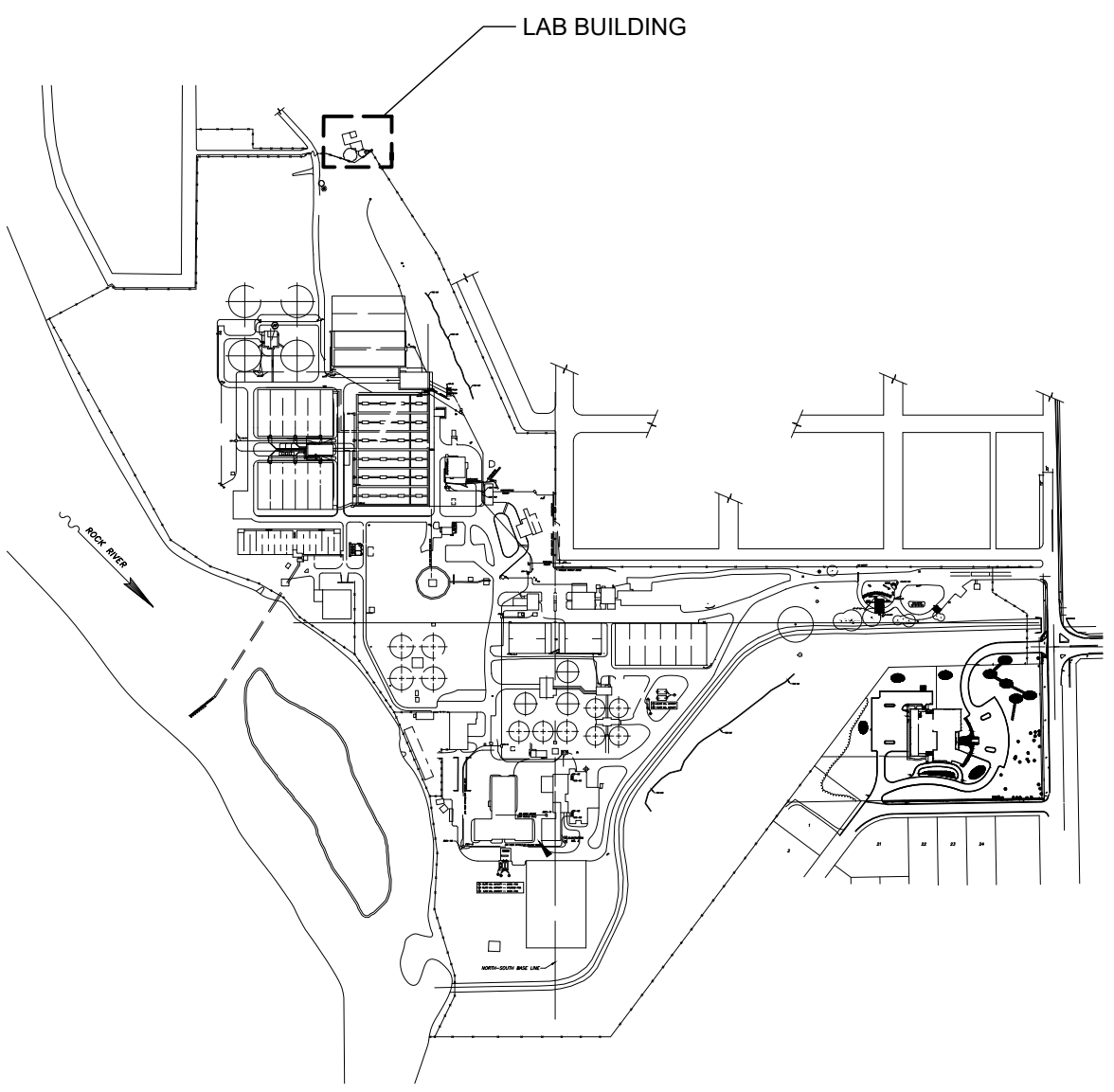
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IL PROF DESIGN FIRM #184.004999

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PROJECT LOCATION
NO SCALE

PROJECT SITE KEY PLAN
NO SCALE



BOARD OF TRUSTEES
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**LAB BUILDING
HVAC SYSTEM REPLACEMENT**

Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
3		
4		

COVER SHEET

PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)

DATE: NOVEMBER 8, 2023
DR BY: SDS
CK BY: SDSE

C1

SCALE: AS NOTED

SCOTT JAY BAIER
062-059748
STATE OF ILLINOIS
EXP 30 Nov 25

NOT TO BE USED FOR BIDDING PURPOSES

PRESENT EQUIPMENT AND DEMOLITION NOTES

- A. WORK SHALL BE COORDINATED SO THAT HEATING, PLUMBING, AND ELECTRICAL SERVICES TO THE PRESENT BUILDING WILL NOT BE INTERRUPTED, EXCEPT AS APPROVED BY FOUR RIVERS SANITATION AUTHORITY OPERATIONS.
- B. REMOVED DUCTWORK AND PIPING MUST NOT BE REUSED.
- C. EQUIPMENT DESIGNATED ON DRAWINGS WHICH IS NOT REUSED (PX) SHALL BECOME PROPERTY OF CONTRACTOR, AND SHALL BE REMOVED FROM PREMISES.
- D. EQUIPMENT SO DESIGNATED ON DRAWINGS.
- D. FOLLOWING PRESENT EQUIPMENT SHALL BE CAREFULLY REMOVED, INTACT, MATCH MARKED, INsofar AS IS PRACTICAL, SHALL REMAIN PROPERTY OF OWNER, AND SHALL BE DELIVERED TO OWNER OUTSIDE OF BUILDING IF INDICATED OR AS DIRECTED BY FOUR RIVERS SANITATION AUTHORITY OPERATIONS (PX-DO).
- E. CONTRACTOR SHALL:
- EQUIPMENT SO DESIGNATED ON DRAWINGS.
 - PROVIDE NEW FLOORS UNDER REMOVED PRESENT EQUIPMENT AND WHERE CALLED FOR
 - REPAIR FLOORS UNDER AND WALLS ADJACENT TO REMOVED EQUIPMENT, TO MATCH ADJACENT CONSTRUCTION.
 - CAP CHASES WHICH ARE NO LONGER REQUIRED AND NEATLY PATCH TO MATCH ADJACENT CONSTRUCTION.
 - CUT OPENINGS AT A 90 DEGREE ANGLE REQUIRED FOR:
 - HIS WORK;
 - ADMISSION OF NEW EQUIPMENT;
 - REMOVAL OF PRESENT EQUIPMENT;
 - NEW CONNECTION TO PRESENT CONSTRUCTION.
 - PATCH AND REPAIR UNUSED PRESENT HOLES AND OPENINGS, AND THOSE LEFT BY THE REMOVAL OF PRESENT EQUIPMENT AND ADMISSION OF NEW EQUIPMENT.
 - PATCH AND REPAIR PRESENT EQUIPMENT, AND BUILDING CONSTRUCTION WHICH HAS BEEN CUT, REMOVED, DISTURBED OR MARRED, AS REQUIRED, TO RESTORE IT TO ORIGINAL CONDITION BEFORE BEING DISTURBED.
- F. WHERE EQUIPMENT, DUCTWORK, PIPING, ANCHORS/SUPPORTS, ETC. ARE REMOVED AND UNUSED OPENINGS REMAIN IN EQUIPMENT, DUCTWORK, PIPING, WALLS, CEILING, FLOOR, ETC., OPENINGS SHALL BE FILLED WITH LIKE MATERIAL TO MATCH EXISTING AND PAINTED TO MATCH EXISTING TO CREATE A FINISHED LOOK.
- G. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAIRED AND PAINTED SAME AS NEW CONSTRUCTION TO MATCH EXISTING.
- H. CERTAIN ABBREVIATIONS OR SYMBOLS, WHEN APPLIED TO PRESENT (TO EXISTING) LINE, DEVICE OR EQUIPMENT, SHALL HAVE THE FOLLOWING MEANINGS:
- NC NEW CONNECTIONS TO PRESENT DUCTWORK, EQUIPMENT, PIPING, ETC. INSTALL, TEST, COVER, PAINT, ETC., SAME AS NEW WORK.
- P TO REMAIN UNCHANGED, IF CHANGE CANNOT BE AVOIDED, DUE TO CONTRACTOR CONVENIENCE, CHANGE "P" TO "PXR", AT NO INCREASE IN CONTRACT PRICE.
- PX **TO BE COMPLETELY REMOVED**, INCLUDING UNNEEDED CONNECTIONS, PIPING, DUCTS, CONTROLS, WIRING, CONDUIT, BASES, ETC., OF EVERY KIND. UNUSED OPENINGS PLUGGED OR CAPPED, TESTED, COVERED, PAINTED SAME AS NEW WORK. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., TO EQUAL ORIGINAL CONDITION. REMOVED MATERIAL MUST NOT BE REUSED UNLESS OTHERWISE SPECIFIED OR DIRECTED BY ENGINEER.
- PXR REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED, SAME AS NEW WORK, IN ORIGINAL POSITION, OR CLOSE TO ORIGINAL LOCATION. IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., EQUAL TO EXISTING OR NEW WORK.
- PXN REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED SAME AS NEW WORK, IN NEW POSITION MARKED "PN". IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE. UNUSED OPENINGS PLUGGED OR CAPPED, TESTED, COVERED, PAINTED SAME AS EXISTING OR NEW WORK. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., EQUAL TO EXISTING OR NEW WORK.
- PN COMPLETELY REINSTALL DEVICE AT NEW LOCATION TO EXISTING OR NEW DUCTWORK AS SHOWN, SAME AS NEW WORK. PROVIDE ALL NECESSARY DUCT OR PIPE EXTENSIONS AS REQUIRED.
- PX-DO SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED INTACT, AS FAR AS PRACTICAL. MATCHED MARKED, AND OTHERWISE IDENTIFIED AS REQUIRED AND DELIVERED AS INDICATED BY FOUR RIVERS SANITATION AUTHORITY OPERATIONS.
- I. WORK OF EVERY DIVISION SHALL BE COORDINATED WITH ALL OTHER WORK AND PRESENT CONDITIONS, SO THAT
- ELECTRICAL SERVICES TO PRESENT BUILDINGS OR PORTIONS OF BUILDING WILL NOT BE INTERRUPTED DURING PERIODS WHEN THOSE SERVICES ARE NEEDED.
 - SPECIAL SYSTEMS SUCH AS FIRE ALARM, SOUND, ETC., OF EVERY KIND TO PRESENT BUILDINGS WILL NOT BE INTERRUPTED DURING WORKING AND/OR OCCUPIED HOURS, EXCEPT AS APPROVED BY FOUR RIVERS SANITATION AUTHORITY (WARREN ADAM, 815-871-0787).
- J. DUCTWORK SERVING NEW AND/OR PRESENT MECHANICAL DEVICES IN FINISHED PRESENT ROOMS OR SPACES SHALL BE CONCEALED IN FINISHED ROOMS, WHERE POSSIBLE OR SHALL BE RUN IN ADJOINING UNFINISHED ROOMS, SHAFTS, CHAMBERS, CLOAK ROOMS, ETC., EXCEPT WHERE EXPOSED DUCT IS PERMITTED IN FINISHED PRESENT ROOMS BY ENGINEER IN WRITING, PRESENT DIFFUSERS, GRILLS, REGISTERS, SWITCHES, ETC. SHALL BE REMOVED AS PER NOTE "PX" UNLESS ANOTHER SYMBOL IS SHOWN ON DRAWINGS OR THE DEVICES ARE SERVING OTHER EQUIPMENT. WHERE SPECIFICALLY APPROVED BY ENGINEER IN WRITING, OPENINGS MAY BE PERMITTED TO REMAIN AND BE PROVIDED WITH NEAT FLUSH COVERS, EXTENDING OVER ENTIRE WALL OPENING.
- K. UNNEEDED EQUIPMENT, DUCTWORK, ETC., SHALL BE COMPLETELY REMOVED; AND CONSTRUCTION PATCHED AS PER NOTE "PX". NEW CONNECTIONS TO PRESENT DUCTS/PIPPING/EQUIPMENT, SHALL BE MADE, TESTED, COVERED, PAINTED, ETC., SAME AS NEW EQUIPMENT. PRESENT EQUIPMENT, AND OTHER COVERING DISTURBED BY CONTRACTOR SHALL BE REPAIRED TO EQUAL NEW CONDITION AND PAINTED SAME AS NEW COVERING TO MATCH EXISTING FINISH OR AS APPROVED BY OWNER.

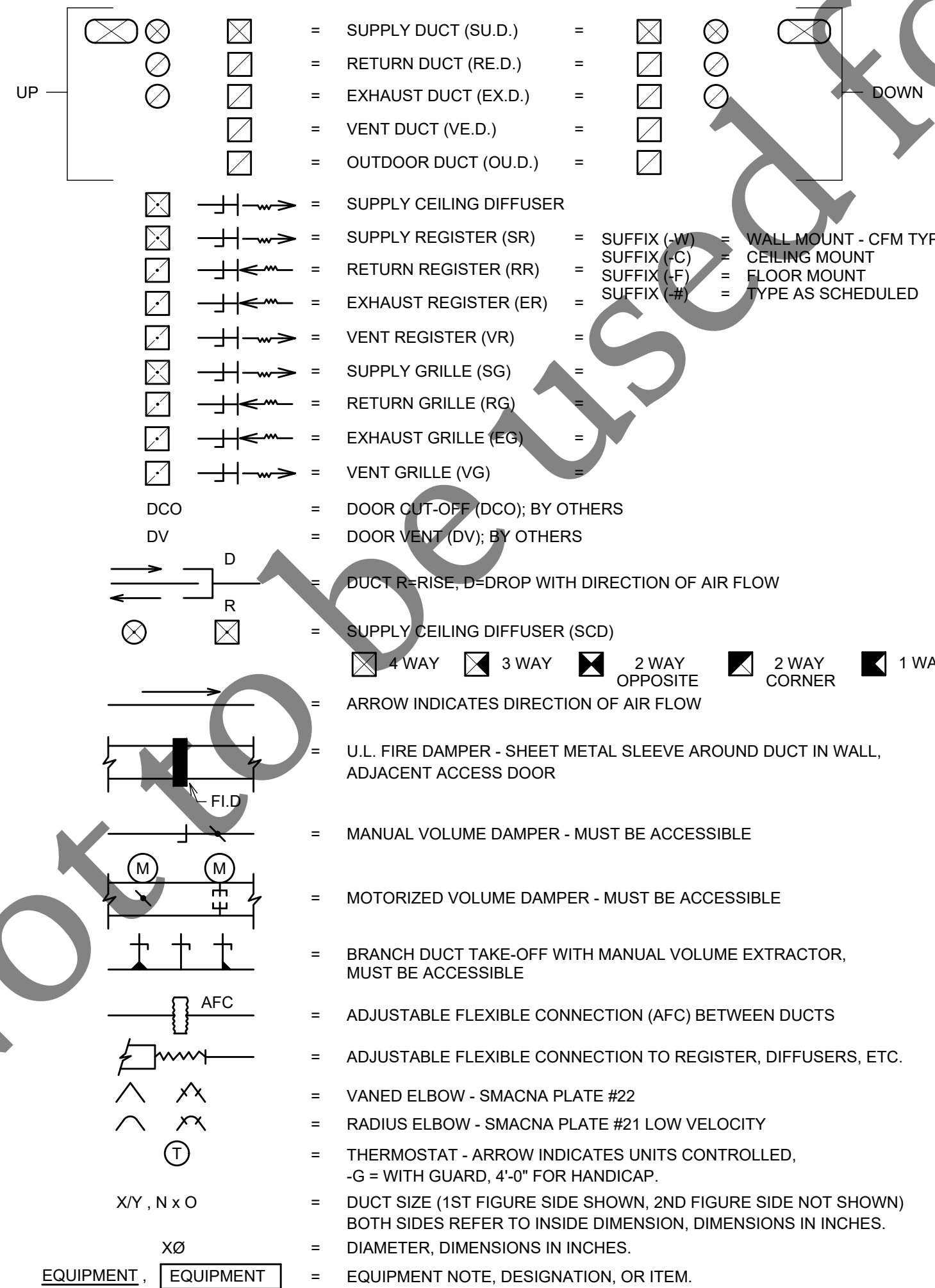
BASIC ABBREVIATIONS

MARK	DESCRIPTION	MARK	DESCRIPTION
AAD	AUTOMATIC ALUMINUM DAMPERS	MC	MECHANICAL CONTRACTOR
ACCU	AIR COOLED CONDENSING UNIT	MTD	MOUNTED
AD	ACCESS DOOR	NC	NEW CONNECTION
AFC	ADJUSTABLE FLEXIBLE CONNECTION	OA	OUTDOOR AIR
AFF	ABOVE FINISH FLOOR	OA.D.	OUTDOOR AIR DAMPER
ALUM	ALUMINUM	OAI	OUTDOOR AIR INTAKE
AP	ACCESS PANEL	P	PRESENT
ASC	ABOVE SUSPENDED CEILING	PC	PLUMBING CONTRACTOR
BOD	BOTTOM OF DUCT	PRE	POWER ROOF EXHAUSTER
BDD	BACK DRAFT DAMPER	RAD	RETURN AIR DAMPER
BJA	BETWEEN JOISTS ABOVE	RE.D.	RETURN AIR DUCT
CAD	COMBUSTION AIR DAMPER	REF	REFERENCE
CD	CEILING DIFFUSER (S) SUPPLY (R) RETURN	REFRIG.	REFRIGERANT-LIQUID,SUCTION,HGBP
CFM	CUBIC FEET PER MINUTE	RG	RETURN GRILLE
CLG	CEILING	RR	RETURN REGISTER
CTC	CLOSE TO CEILING (EXPOSED)	RTU	ROOFTOP UNIT
CTF	CLOSE TO FLOOR	SCD	SUPPLY CEILING DIFFUSER
CTW	CLOSE TO WALL (EXPOSED)	SIM	SIMILAR
D	DRAIN	SG	SUPPLY GRILLE
DC	DUCT COVERING	SLD	SUPPLY LINEAR DIFFUSER
DCO	DOOR CUTOFF (BY OTHERS)	SM	SHEET METAL
DL	DUCT LINING	SR	SUPPLY REGISTER
DS	DISCONNECT SWITCH	SS	STAINLESS STEEL
DV	DOOR VENT (BY OTHERS)	STW	SLEEVE THRU WALL AND SEAL
EC	ELECTRICAL CONTRACTOR	SU.D.	SUPPLY DUCT
EH	EXHAUST HOOD	TBF	TO BELOW FLOOR
ER	EXHAUST REGISTER	TC	TEMPERATURE CONTROL
EF	EXHAUST FAN	TFA	TO FLOOR ABOVE
EG	EXHAUST GRILLE	TFB	TO FLOOR BELOW
EX.D.	EXHAUST DUCT	TF.D.	TRANSFER DUCT
EXP	EXPOSED	TG	TRANSFER GRILLE
FBF	FROM BELOW FLOOR	TJA	THRU JOIST ABOVE
FBO	FURNISHED BY OTHERS	TOD	TOP OF DUCT
FFA	FROM FLOOR ABOVE	TR	THROUGH ROOF
FFB	FROM FLOOR BELOW	TYP	TYPICAL
F.I.D.	FIRE DAMPER	VE.D.	VENT AIR DUCT
G	GAS PIPING	VD	VOLUME DAMPER
GC	GENERAL CONTRACTOR	VG	VENT GRILLE
HGBP	HOT GAS BYPASS PIPING	VTR	VENT THRU ROOF
HVAC	HEATING, VENTILATING & AIR CONDITION.	W	WITH
IWS	IN WALL SPACE, CONCEALED		

SEE SPECIFICATIONS FOR ADDITIONAL ABBREVIATIONS, PREFIXES, SUFFIXES, ETC.

HVAC SHEET METAL SYMBOLS:

(SEE SPECIFICATIONS FOR ADDITIONAL NOTES, SYMBOLS, ABBREVIATIONS, ETC.)



MECHANICAL GENERAL NOTES:

- DRAWINGS ARE GENERALLY DIAGRAMMATIC. EACH CONTRACTOR SHALL MAKE REQUIRED CHANGES FROM THE DRAWINGS SHOWN ON THESE DRAWINGS SUCH AS OFF SETS, BENDS OR CHANGES IN ELEVATION DUE TO COORDINATION WITH THE WORK OF OTHER TRADES AND THE BUILDING CONSTRUCTION. ALL CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER. FOR PRESENT CONSTRUCTION, VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING TO AVOID CONFLICT. IT IS INTENDED THAT ALL EQUIPMENT, MATERIAL, DEVICES, ETC., SHALL BE LOCATED SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS, NOTWITHSTANDING THE FACT THAT LOCATIONS INDICATED BY THESE DRAWINGS MAY BE DISTORTED FOR CLARITY OF PRESENTATION.

CONTRACTOR IS ALLOWED TO MAKE MINOR CHANGES TO THE PIPING TO AVOID FIELD CONFLICTS AT NO ADDITIONAL COST TO THE OWNER AND AS LONG AS THE RELOCATION DOES NOT AFFECT THE PERFORMANCE OF THE SYSTEM.

EACH CONTRACTOR SHALL CHECK DRAWINGS OF THE OTHER CONTRACTORS TO VERIFY SPACES IN WHICH THEIR WORK WILL BE INSTALLED IS CLEAR OF OBSTRUCTIONS. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION.

FURNISH ALL TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF PIPING, DUCTWORK, EQUIPMENT, FRAMES, BOXES, SLEEVES AND OPENINGS NEEDED FOR WORK, AND ALSO FURNISH INFORMATION AND SHOP DRAWINGS TO PERMIT TRADES AFFECTED TO INSTALL THEIR WORK PROPERLY AND WITHOUT DELAY.

WHERE THERE IS EVIDENCE THAT WORK OF ONE TRADE WILL INTERFERE WITH WORK OF OTHER TRADES, ALL TRADES SHALL ASSIST IN WORKING OUT SPACE CONDITIONS TO MAKE SATISFACTORY ADJUSTMENTS.

CONTRACTOR TO REVIEW, PRIOR TO BIDDING, ALL DRAWINGS TO COORDINATE VARIOUS WORK AS CALLED FOR. CONTRACTOR SHALL CAREFULLY CHECK ALL DRAWINGS FOR ALL TRADES, AND ANY LACK OF COORDINATION BETWEEN HIS WORK AND DRAWINGS FOR JOB CONDITIONS SHALL BE IMMEDIATELY REPORTED TO ARCHITECT/ENGINEER.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING, INCLUDING CORE DRILLING, SAW CUTTING, ETC., AS REQUIRED TO ACCOMMODATE HIS WORK. CUTTING AND PATCHING AND PAYMENT OF SAID WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR REQUIRING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR, IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE MECHANICAL CONTRACTOR TO GIVE QUANTITIES OF PATCHING REQUIREMENTS TO A GENERAL CONTRACTOR. SEE SPECIFICATION SECTION 02 41 19 "SELECTIVE DEMOLITION" FOR ADDITIONAL INFORMATION.

CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF PRESENT CEILING, LIGHT FIXTURES, DIFFUSERS, DUCTWORK, PIPING, CONDUIT, ETC., AS REQUIRED FOR THE INSTALLATION OF HIS WORK. REMOVAL, REPLACEMENT AND PAYMENT FOR MECHANICAL/ELECTRICAL ITEMS SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE MECHANICAL CONTRACTOR. REMOVAL AND REPLACEMENT OF PRESENT CEILING, ETC., SHALL BE THE RESPONSIBILITY OF CONTRACTOR MAKING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE MECHANICAL CONTRACTOR TO GIVE QUANTITIES OF REMOVAL/REPLACEMENT REQUIREMENTS TO A GENERAL CONTRACTOR.
- HEATING, VENTILATING, AIR CONDITIONING, AND ELECTRICAL DESIGNS ARE BASED ON THE REQUIREMENTS FOR THE SPECIFIED EQUIPMENT MANUFACTURER. CONDUITS, DISCONNECTS, BREAKERS, FUSES, AND WIRE SIZES ARE SELECTED ON THE BASIS OF SPECIFIED EQUIPMENT MANUFACTURER. INCREASED CURRENT REQUIREMENTS NECESSITATING LARGER WIRE, BREAKERS, FUSES, SWITCHES, ETC. TO ACCOMMODATE ANY ALTERNATE OR SUBSTITUTE MANUFACTURER'S EQUIPMENT OTHER THAN AS SHOWN ON DRAWINGS OR SCHEDULES SHALL BE PROVIDED WITHOUT INCREASE IN CONTRACT PRICE BY THE CONTRACTOR FURNISHING EQUIPMENT. WIRE SIZES ARE SELECTED ON THE BASIS OF SPECIFIED EQUIPMENT.
- REFRIGERANT PIPING TO BE SIZED, PIPED, AND QUANTITIES AS RECOMMENDED BY THE MANUFACTURER. FURNISH DRAWINGS IN THE FORM OF SHOP DRAWINGS SHOWING ALL PIPING SIZES, CONNECTIONS RISERS, TRAPS, REFRIGERANT DEVICES AND ACCESSORIES, ETC. FOR THE COMPLETE INSTALLATION OF EACH RESPECTIVE SYSTEM. CONNECTIONS TO CONDENSING UNITS SHALL BE MADE WITH REFRIGERANT TYPE VIBRATION ELIMINATORS. CONNECTIONS TO AIR HANDLING UNITS SHALL BE MADE WITH SWING TYPE OFFSETS TO ABSORB ANY VIBRATION THAT MAY BE EVIDENT. PRECHARGED REFRIGERANT PIPING WILL NOT BE ALLOWED. CONTRACTOR TO INSULATE ALL SUCTION AND HOT GAS LINES WITH 1" ARMAFLEX, RUBATEX, OR APPROVED EQUAL.
- CONTRACTOR SHALL PROVIDE TRAPPED COOLING COIL CONDENSATE DRAIN LINES FROM ALL ROOFTOP UNITS TO ROOF.
- CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR FOR ALL CEILING DIFFUSERS, REGISTERS, AND/OR GRILLES AS TO LOCATION, QUANTITIES AND PROPER TYPES FOR SURFACE MOUNT AND/OR LAY-IN SUSPENDED CEILINGS AND LIGHT PATTERNS. OPENINGS SHALL BE IN CENTER OF TILES OR AS DIRECTED BY ARCHITECT/ENGINEER.
- CONTRACTOR SHALL INCLUDE IN HIS WORK THE RELOCATION OF ALL CROSS BRACING AS REQUIRED TO FIT DUCTS BETWEEN JOISTS. THIS WORK SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR WITH OWNER APPROVAL.
- CONTRACTOR SHALL PROVIDE ALL DUCT DROPS AND OFFSETS TO AVOID INTERFERENCES WITH JOISTS, OTHER DUCTS, LIGHTS, PIPES, ETC.
- ALL DUCTWORK TO BE HELD TIGHT TO STRUCTURAL ROOF JOISTS, BEAMS, ETC. AS CLEARANCE IS MINIMAL. COORDINATE WITH OTHER CONTRACTORS TO AVOID CONFLICT. ALL DUCTWORK IS ABOVE SUSPENDED CEILINGS, UNLESS NOTED OTHERWISE.
- SHEETMETAL DUCT SIZES MAY BE ALTERED TO FIT JOB CONDITIONS, BUT NET FREE AREAS MUST BE MAINTAINED. INCREASE SHEETMETAL DUCT SIZE TO ALLOW FOR DUCT LINING. INSULATE DUCTWORK AS NOTED.
- INSTALL 1" OF NON-SHRINK GROUT AROUND DUCTWORK ON EACH WALL FACE TO SEAL OPENINGS AND ELIMINATE SOUND TRANSFER WITH AIR-TIGHT CONNECTIONS.
- OUTDOOR INTAKE SHEETMETAL DUCTWORK SHALL BE WATER-TIGHT WITH SOLDERED SEAMS. PITCH DUCTWORK TO WALL LOWER AND SCREEN TO DRAIN ALL MOISTURE TO BUILDING EXTERIOR. INTAKES TO BE INSULATED. CAULK AROUND INTAKE AT EXTERIOR WALL, COORDINATE WITH GENERAL CONTRACTOR.
- CONTRACTOR SHALL INCLUDE IN HIS WORK (1) SET OF FILTERS TO BE USED DURING CONSTRUCTION FOR ALL AIR HANDLING EQUIPMENT, FURNACES, ENERGY RECOVERY VENTILATORS, ROOFTOP UNITS, RETURN FANS, FILTER BOXES, FAN OPERATED VAV BOXES, ETC. CONTRACTOR PRIOR TO AIR BALANCING AND BUILDING OCCUPANCY SHALL INSTALL A COMPLETE SET OF CLEAN FILTERS. PROVIDE TO OWNER (1) COMPLETE SPARE REPLACEMENT SET OF FILTERS FOR EACH PIECE OF EQUIPMENT. PROVIDE ALSO TO OWNER IN WRITING REPLACEMENT SIZES, TYPE, NUMBER PER EQUIPMENT, LOCATIONS, ETC.
- UPON BALANCING, IF SYSTEM(S) CANNOT BE SUCCESSFULLY BALANCED AS AGREED BY OWNER/ARCHITECT/ENGINEER THEN ADDITIONAL DAMPERS, BELTS, SHEAVES, OR PULLEYS WILL BE INSTALLED TO PROVIDE PROPER AIR QUANTITIES, ACCEPTABLE SOUND LEVELS AND TEMPERATURE/HUMIDITY REQUIREMENTS BY THE HVAC CONTRACTOR WITHOUT INCREASE IN CONTRACT PRICE WITHIN THE GUARANTEE PERIOD.
- ALL THERMOSTATS LOCATED UP 4'-0" TO MEET ADA REQUIREMENTS WITH PLASTIC OR CAST GUARDS, AS SPECIFIED. ALL THERMOSTATS LOCATED ON EXTERIOR WALLS OR COLUMNS MUST BE MOUNTED ON THERMAL INSULATING BLOCKS.
- PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAINTED SAME AS NEW CONSTRUCTION TO MATCH EXISTING FINISH OR AS APPROVED BY OWNER.
- THE USER OF THE DRAWINGS AGREES TO HOLD THE ENGINEER HARMLESS FOR ANY RESPONSIBILITY IN REGARD TO CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES AND FOR ANY SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK AND FURTHER SHALL HOLD THE ENGINEER HARMLESS FOR COST AND PROBLEMS ARISING FROM THE NEGLIGENCE OF THE CONTRACTOR, SUBCONTRACTOR, TRADESMEN OR WORKMEN. THE USE OF THESE DRAWINGS ALSO IMPLIES THAT THE ENGINEER SHALL TAKE NO RESPONSIBILITY FOR THE PLANNED USER'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE DRAWINGS OR CONTRACT DOCUMENTS.
- SEE SPECIFICATIONS FOR ADDITIONAL NOTES, SYMBOLS, ABBREVIATIONS, PREFIXES AND SUFFIXES.



LAB BUILDING HVAC SYSTEM REPLACEMENT

Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
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MECHANICAL NOTES & ABBREVIATIONS

PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)

DATE: NOVEMBER 8, 2023
DR BY: SDSE
CK BY: SDSE

M1

SCALE: AS NOTED

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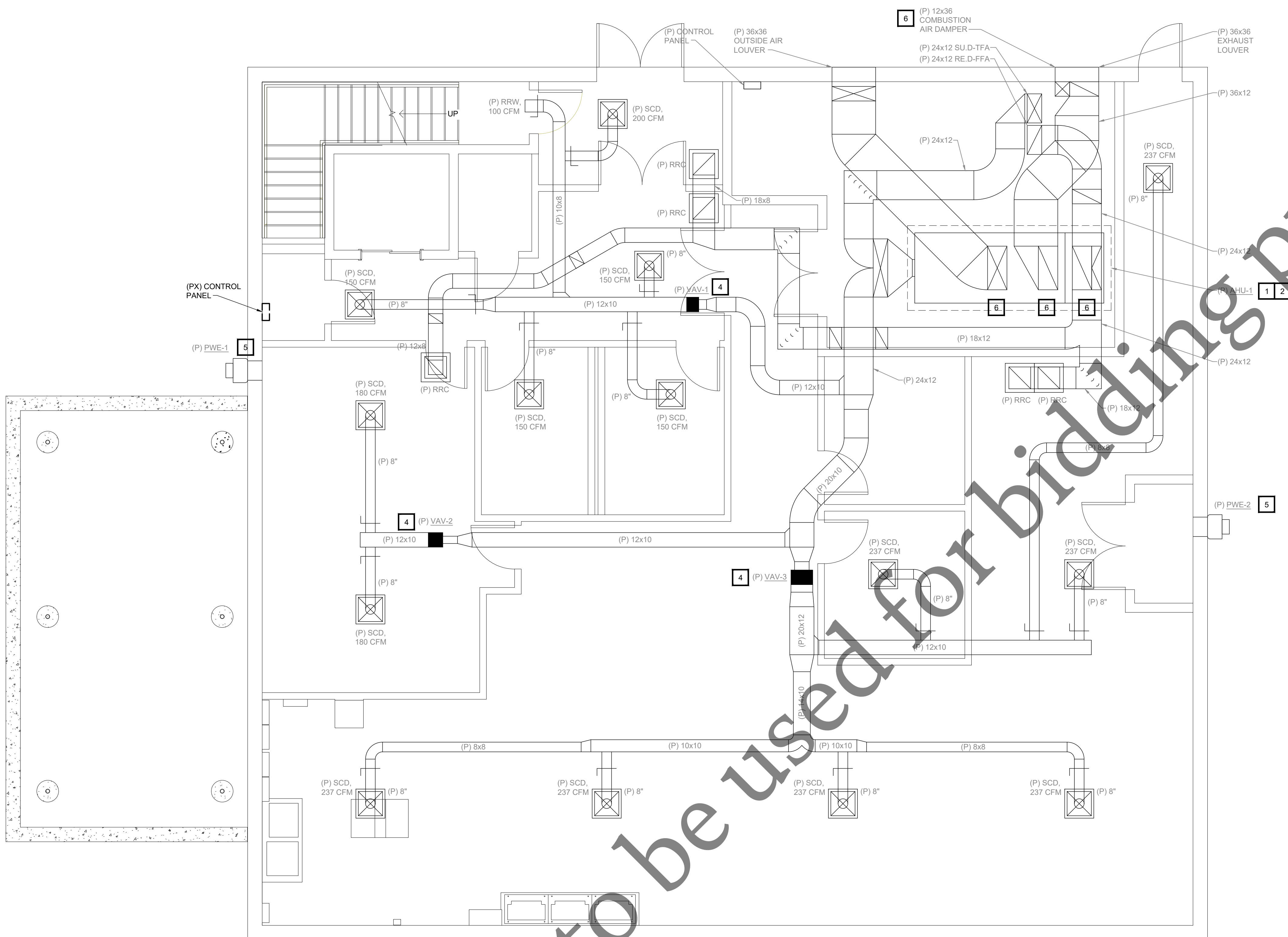
LOWER LEVEL DUCTWORK DEMOLITION

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CK BY: SDSE

M2

SCALE: AS NOTED



- REMOVAL NOTES**
- REMOVE (PX) MOTOR, BELTS, PULLEYS, BEARINGS, FILTERS, ETC. EXAMINE SHAFT AND BLOWER WHEEL FOR DAMAGE OR WEAR. SEE SPECIFICATION 23 01 30 "HVAC REFURBISHING".
 - REMOVE (PX) EXISTING DAMPER ACTUATOR AND ASSOCIATED WIRING FOR EXISTING OUTSIDE AIR, EXHAUST AIR, AND RETURN AIR DAMPERS. ALL AHU DAMPERS TO REMAIN AND BE CLEANED. REMOVE AND REINSTALL DUCTWORK AS REQUIRED FOR ACTUATOR REMOVAL AND DAMPER CLEANING. SEE SPECIFICATION 23 01 30 "HVAC REFURBISHING".
 - REMOVE (PX) EXISTING DX COOLING COIL AND ASSOCIATED REFRIGERANT PIPING TO OUTDOOR CONDENSER.
 - REMOVE (PX) EXISTING DAMPER ACTUATOR AND ASSOCIATED WIRING FROM EXISTING VAV BOX. REMOVE AND REINSTALL DUCTWORK AS REQUIRED FOR ACTUATOR REMOVAL.
 - REMOVE (PX) EXISTING CONTROLS FOR EXISTING EXHAUST FAN.
 - REMOVE (PX) EXISTING DAMPER ACTUATOR AND ASSOCIATED WIRING FOR EXISTING DAMPER. DAMPER SHALL REMAIN AND BE CLEANED. REMOVE AND REINSTALL DUCTWORK AS REQUIRED FOR ACTUATOR REMOVAL AND DAMPER CLEANING.

LOWER LEVEL FLOOR PLAN - DUCTWORK
SCALE: 1/4" = 1'-0"

Not to be used for bidding purposes

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**UPPER LEVEL
DUCTWORK
DEMOLITION**

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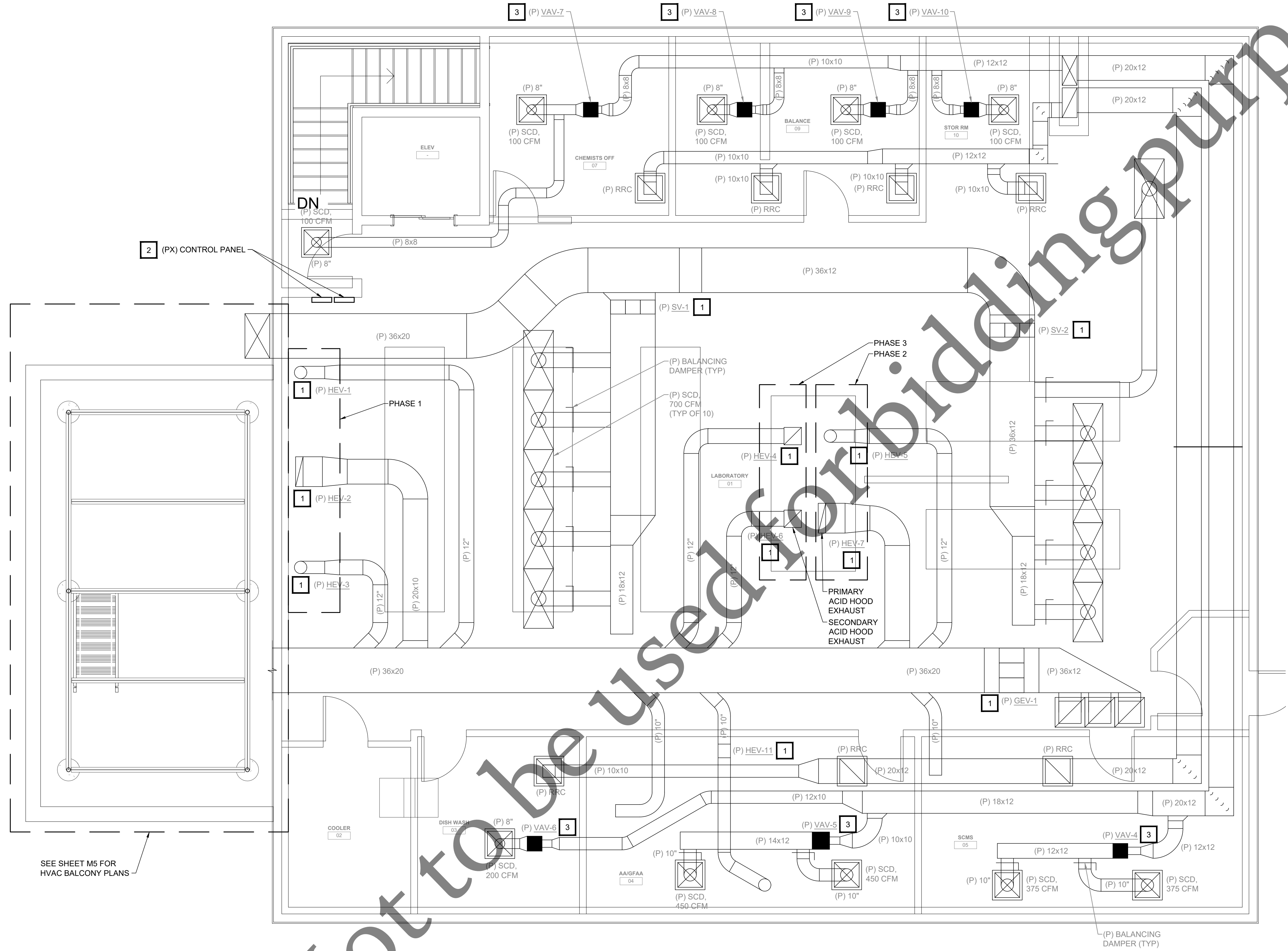
DATE: NOVEMBER 8, 2023
DR BY:
CK BY: SDSE

M3

SCALE: AS NOTED

- [X] REMOVAL NOTES**
- REMOVE (PX) EXISTING PNEUMATIC CONTROLLER, CONTROLS, AND ASSOCIATED TUBING FOR EXISTING PHOENIX AIR VALVE.
 - REMOVE (PX) EXISTING PHOENIX AIR VALVE CONTROL PANELS AND ASSOCIATED TUBING.
 - REMOVE (PX) EXISTING DAMPER ACTUATOR AND ASSOCIATED WIRING FROM EXISTING VAV BOX. REMOVE AND REINSTALL DUCTWORK AS REQUIRED FOR ACTUATOR REMOVAL.

- GENERAL NOTES**
- PERFORM WORK ON HOODS IN 3 PHASES AS OUTLINED ON DRAWINGS.
 - ONE ACID HOOD MUST BE AVAILABLE DURING EACH PHASE.
 - NO CONSTRUCTION SHALL BE PERFORMED DURING IEPA AUDIT. SCHEDULED FOR 3/19/2024 - 3/21/2024.
 - HOOD PHASING SHUTDOWNS SHOULD BEGIN ON CALENDAR QUARTERS.
 - COORDINATION REGARDING HOOD SHUTDOWNS SHALL BE DONE THROUGH WARREN ADAM, 815-871-0787.



SEE SHEET M5 FOR HVAC BALCONY PLANS

UPPER LEVEL FLOOR PLAN - DUCTWORK
SCALE: 1/4" = 1'-0"

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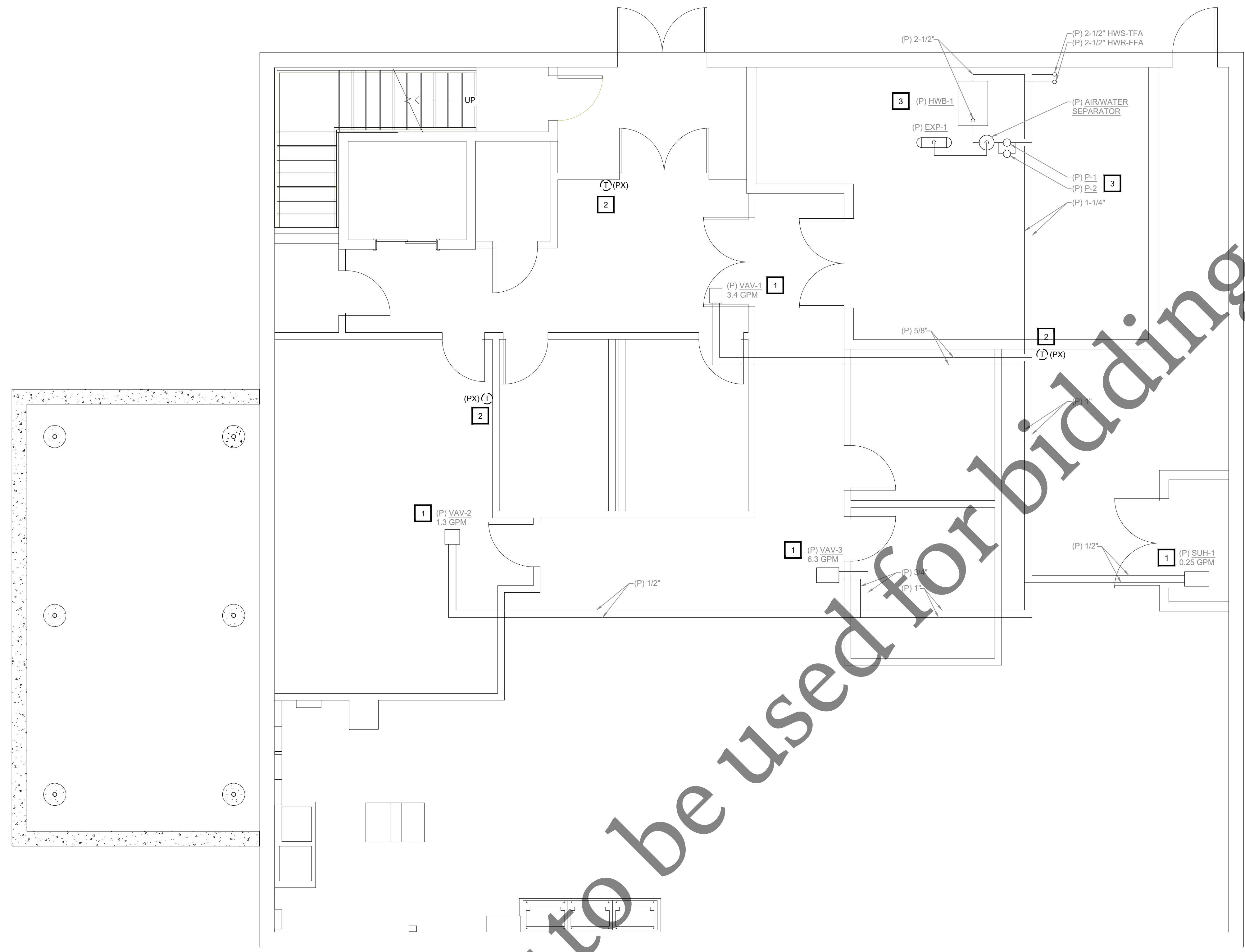
LOWER LEVEL PIPING DEMOLITION

PROJECT NUMBER:
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CK BY: SDSE

M4

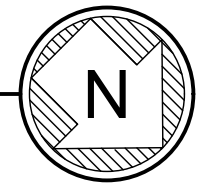
SCALE: AS NOTED



REMOVAL NOTES

1. REMOVE (PX) EXISTING HOT WATER CONTROL VALVE AND ASSOCIATED WIRING FROM EXISTING HOT WATER COIL AND CLEAN AND FLUSH EXISTING HOT WATER COIL. REMOVE AND REINSTALL HWS/HWR PIPING AS REQUIRED FOR CONTROL VALVE REMOVAL AND COIL CLEANING. SEE SPECIFICATION 23 01 30 "HVAC REFURBISHING".
2. REMOVE (PX) EXISTING WALL MOUNTED THERMOSTAT AND WIRING BACK TO UNIT.
3. REMOVE (PX) EXISTING CONTROLS FOR EXISTING EQUIPMENT.

LOWER LEVEL FLOOR PLAN - PIPING
SCALE: 1/4" = 1'-0"



Not to be used for bidding purposes

LAB BUILDING
HVAC SYSTEM REPLACEMENT
Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
3		
4		

**UPPER LEVEL
PIPING
DEMOLITION**

PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)

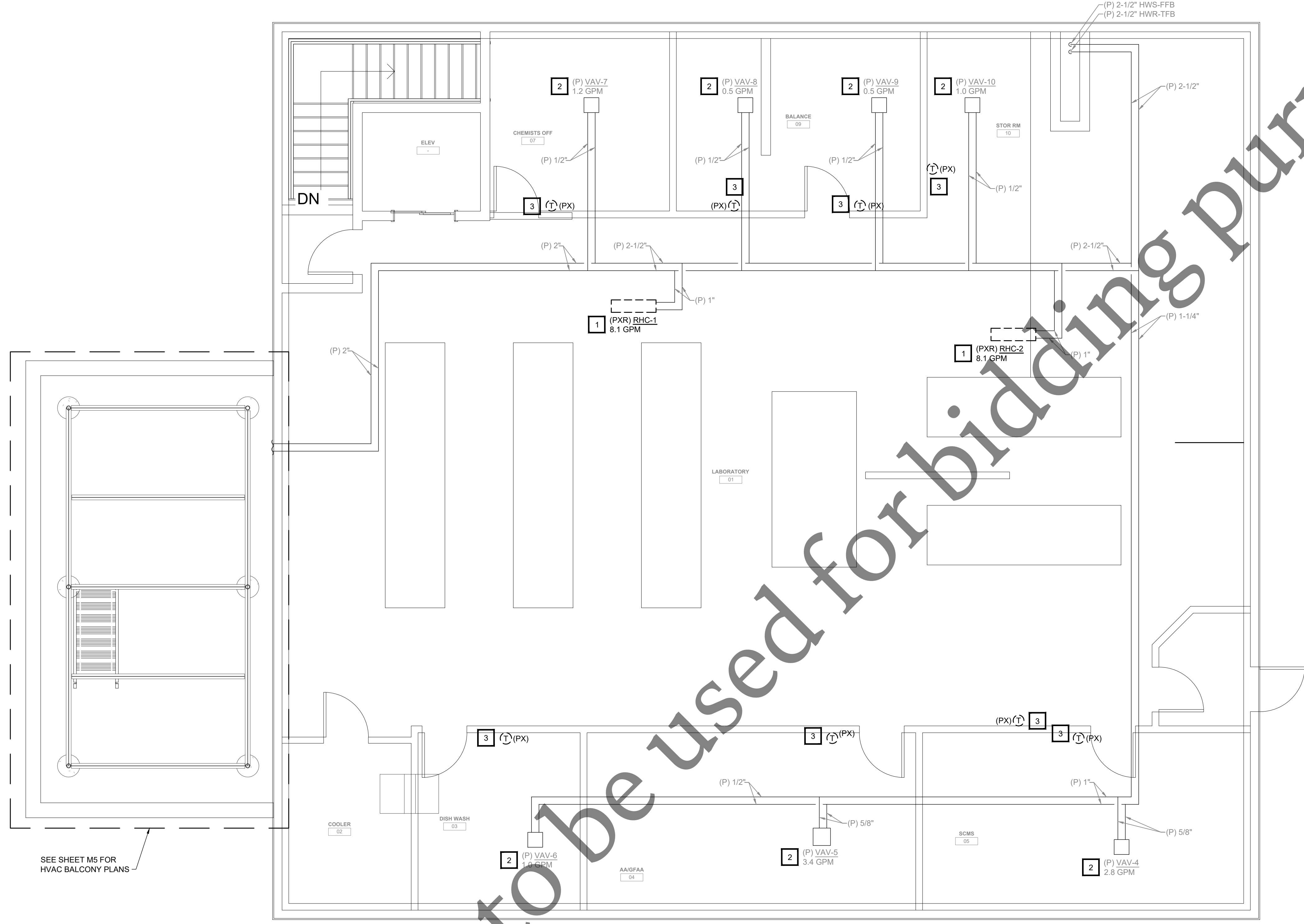
DATE: NOVEMBER 8, 2023
DR BY: SDS
CK BY: SDSE

M5

SCALE: AS NOTED

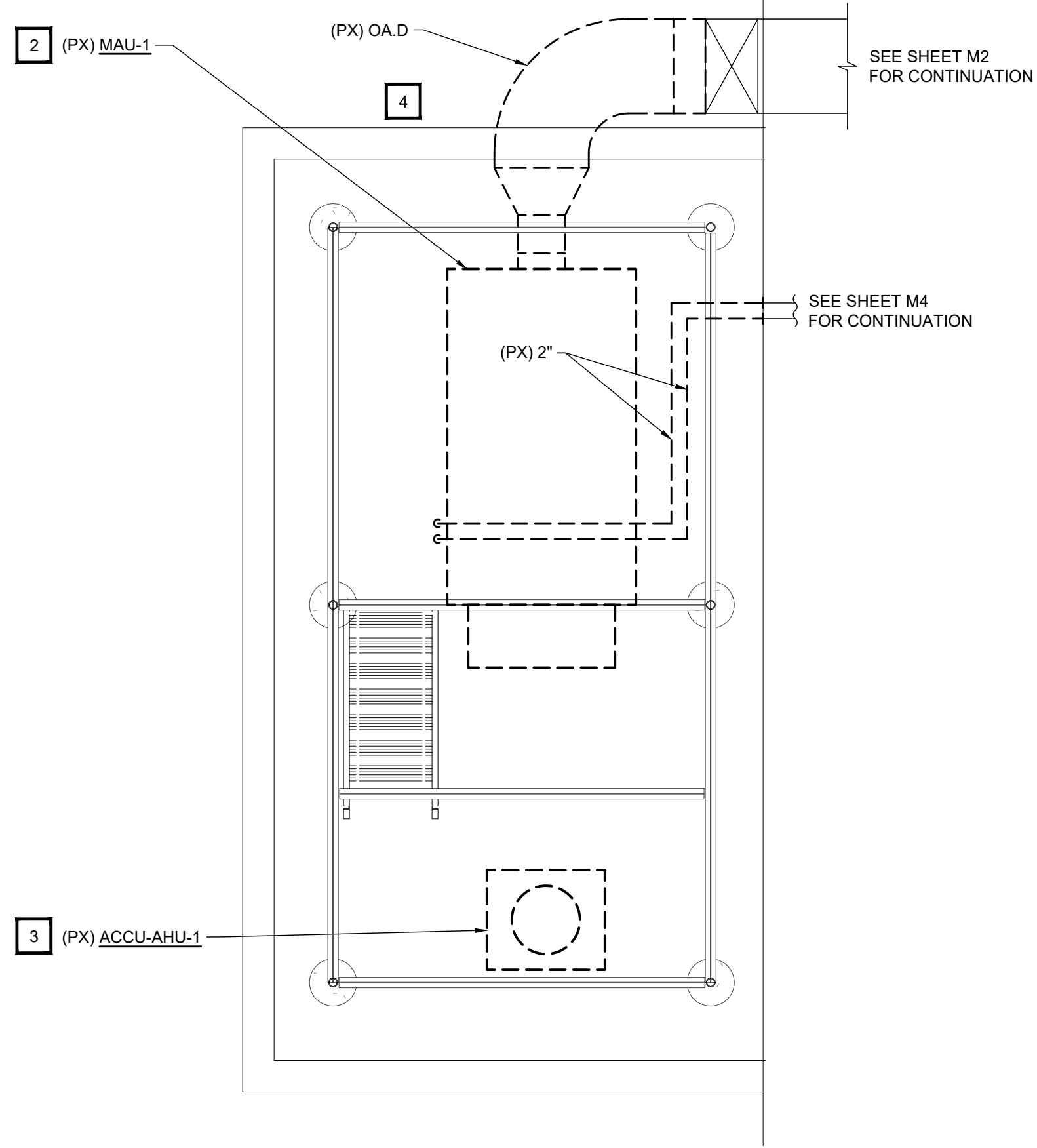
REMOVAL NOTES

1. REMOVE, CLEAN, AND RE-INSTALL (PXR) EXISTING HOT WATER COIL. REMOVE (PX) EXISTING HOT WATER CONTROL VALVE AND ASSOCIATED WIRING FROM EXISTING COIL. REMOVE AND REINSTALL HWS/HWR PIPING AS REQUIRED FOR HOT WATER COIL AND CONTROL VALVE REMOVAL. SEE SPECIFICATION 23 01 30 "HVAC REFURBISHING".
2. REMOVE (PX) EXISTING HOT WATER CONTROL VALVE AND ASSOCIATED WIRING FROM EXISTING HOT WATER COIL AND CLEAN AND FLUSH EXISTING HOT WATER COIL. REMOVE AND REINSTALL HWS/HWR PIPING AS REQUIRED FOR CONTROL VALVE REMOVAL AND COIL CLEANING. SEE SPECIFICATION 23 01 30 "HVAC REFURBISHING".
3. REMOVE (PX) EXISTING WALL MOUNTED THERMOSTAT AND WIRING BACK TO UNIT.

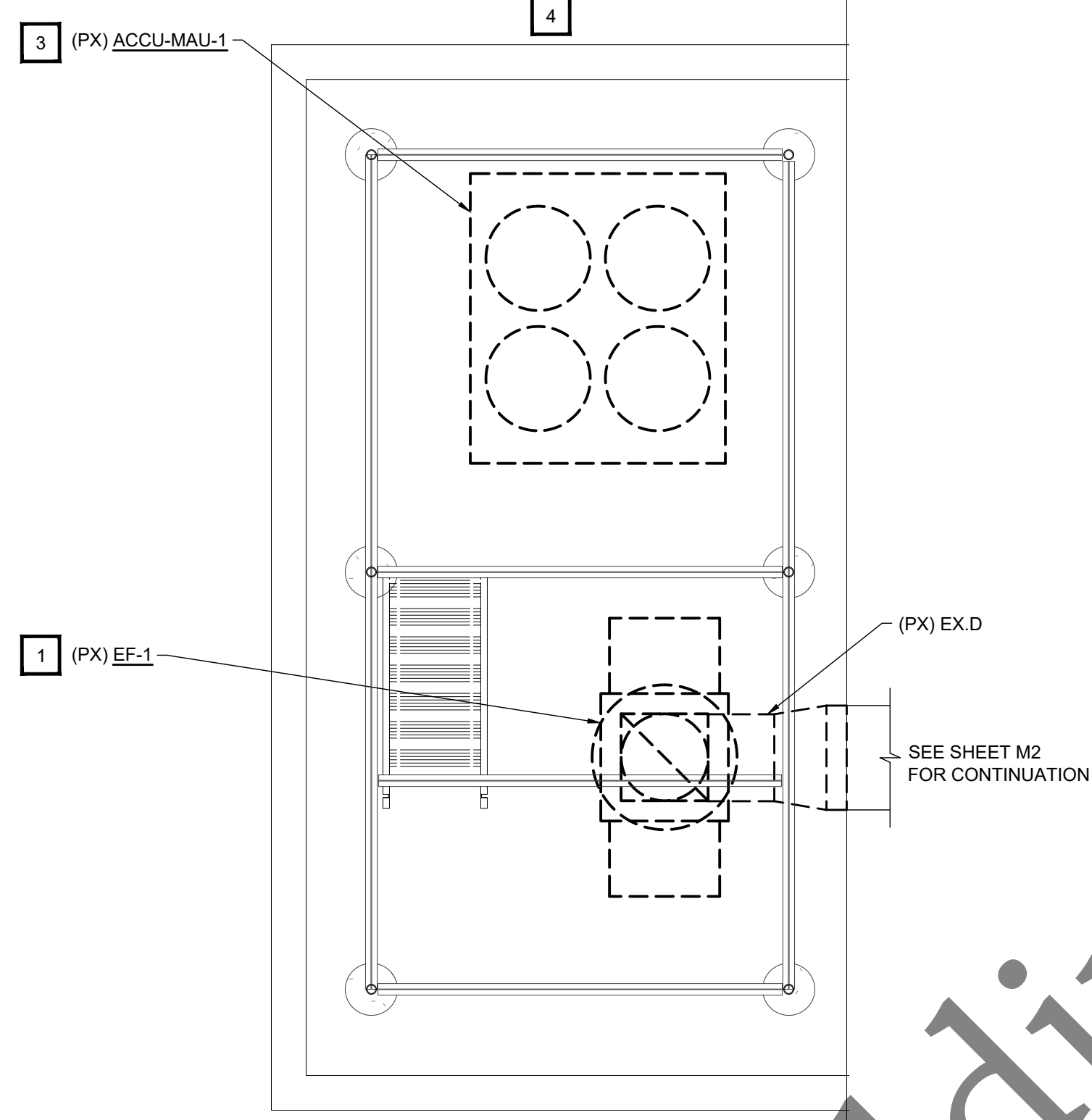


UPPER LEVEL FLOOR PLAN - PIPING
SCALE: 1/4" = 1'-0"

Not to be used for bidding purposes



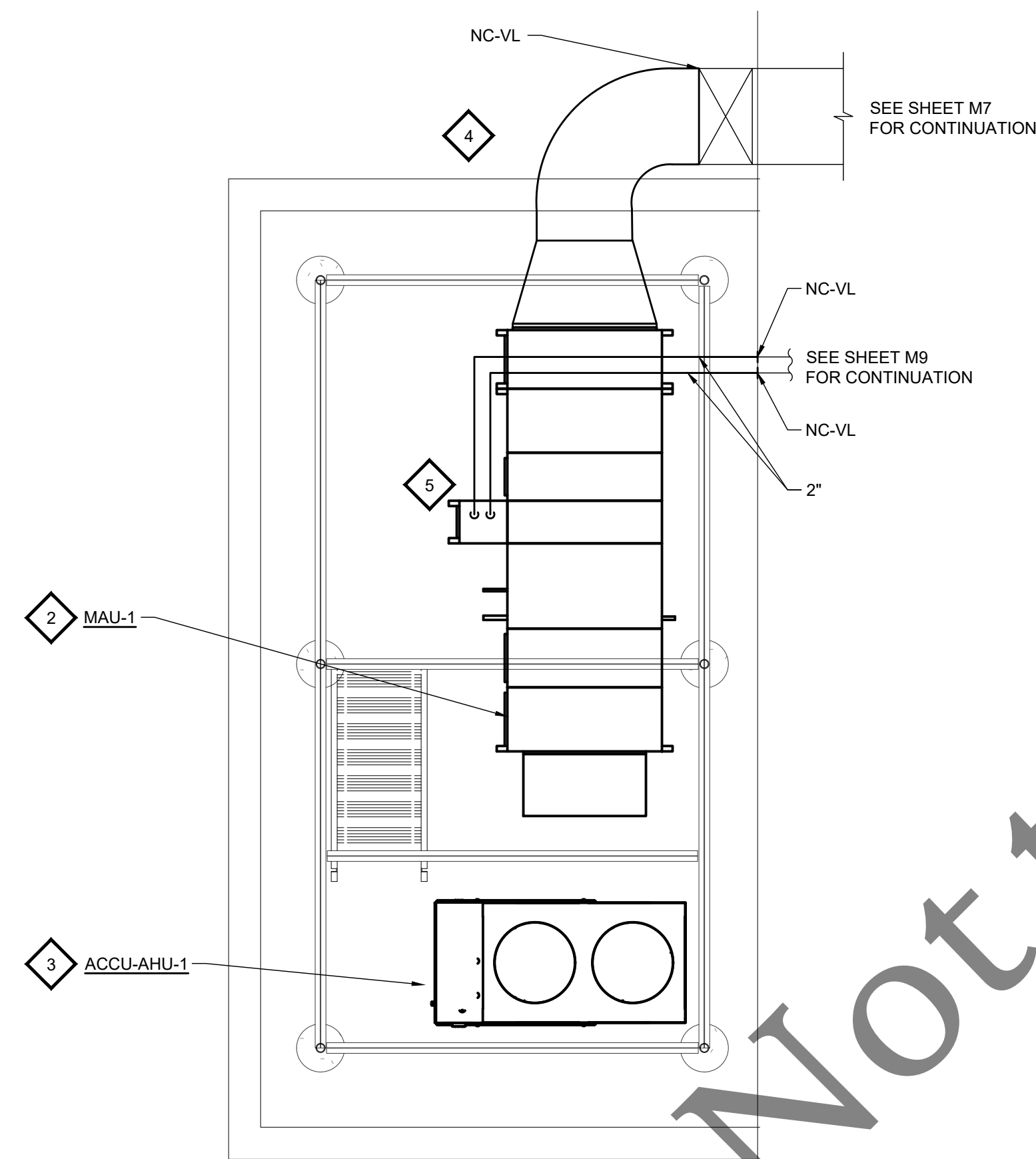
LOWER BALCONY DEMOLITION PLAN - DUCTWORK & PIPING
SCALE: 1/4\" = 1'-0"



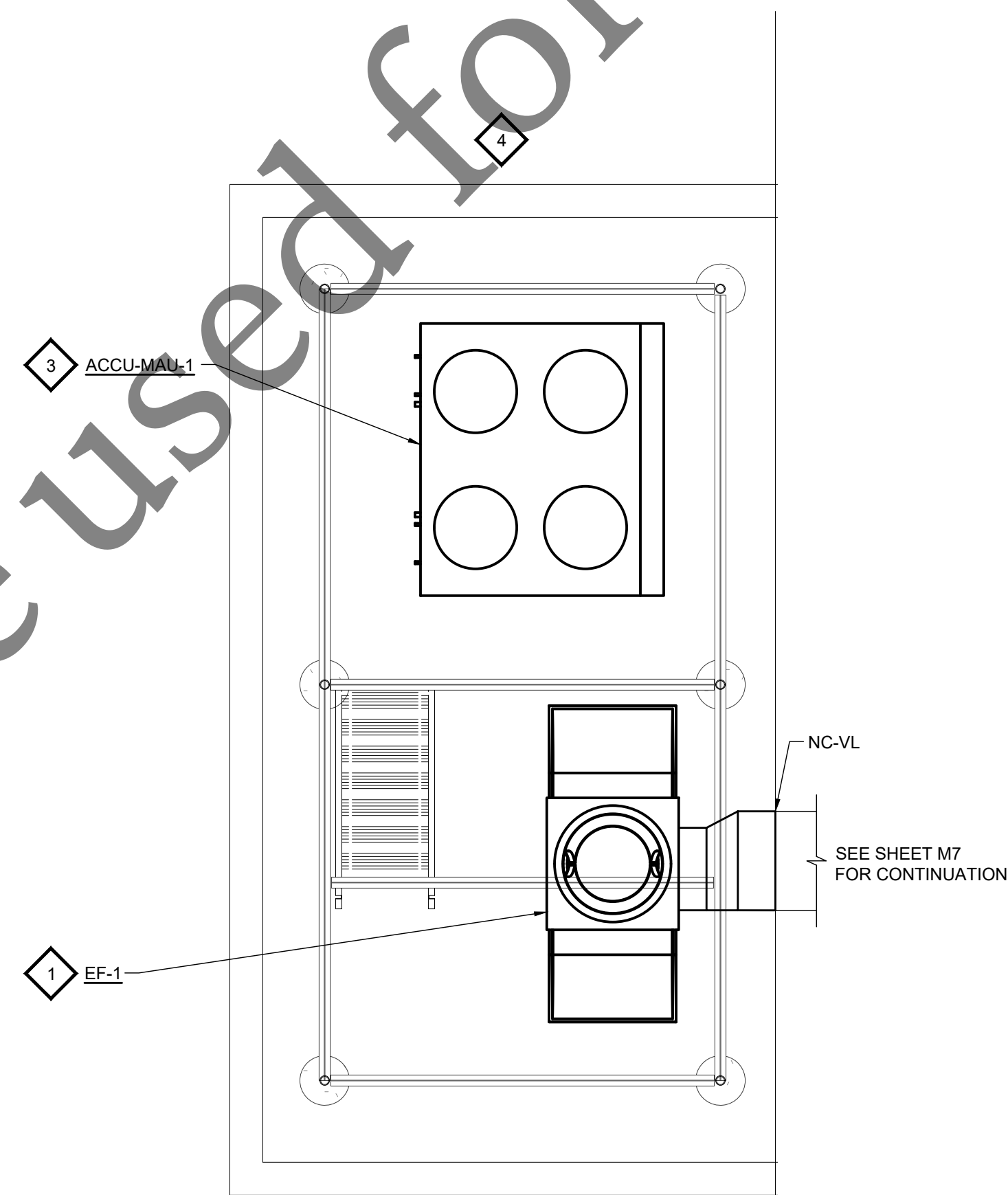
UPPER BALCONY DEMOLITION PLAN - DUCTWORK & PIPING
SCALE: 1/4\" = 1'-0"

REMOVAL NOTES

1. REMOVE (PX) EXISTING EXHAUST FAN, ASSOCIATED DUCT CONNECTION UP TO THE EXISTING BUILDING WALL PENETRATION, AND CONTROLS.
2. REMOVE (PX) EXISTING MAKEUP AIR UNIT AND ASSOCIATED DUCT UP TO THE EXISTING RISE ON EXTERIOR OF THE BUILDING, HOT WATER PIPING CONNECTIONS, REFRIGERANT PIPING, AND CONTROLS.
3. REMOVE (PX) EXISTING CONDENSING UNIT AND ASSOCIATED REFRIGERANT PIPING BACK TO ASSOCIATED DX COOLING COIL.
4. REMOVE AND REINSTALL (PXR) EXISTING FENCING FROM PLATFORM AS REQUIRED FOR REMOVAL OF HVAC UNITS.



LOWER BALCONY NEW WORK PLAN - DUCTWORK & PIPING
SCALE: 1/4\" = 1'-0"



UPPER BALCONY NEW WORK PLAN - DUCTWORK & PIPING
SCALE: 1/4\" = 1'-0"

KEY NOTES

1. INSTALL NEW EXHAUST FAN AND DUCTWORK UP TO THE EXISTING BUILDING WALL.
2. INSTALL NEW MAKEUP AIR UNIT AND ASSOCIATED DUCT UP TO THE EXISTING RISE ON EXTERIOR OF THE BUILDING, HOT WATER PIPING CONNECTIONS, REFRIGERANT PIPING, AND CONTROLS.
3. INSTALL NEW CONDENSING UNIT AND ASSOCIATED REFRIGERANT PIPING BACK TO ASSOCIATED DX COOLING COIL.
4. REINSTALL (PXR) EXISTING FENCING FROM PLATFORM AFTER INSTALLATION OF UNITS AND DUCTWORK.
5. CONNECT 2\" HWS AND HWR TO (2) HOT WATER COILS.



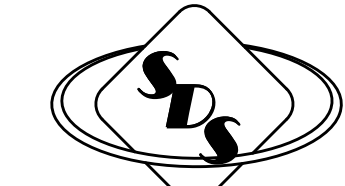
**LAB BUILDING
HVAC SYSTEM REPLACEMENT**
Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
3		
4		

**BALCONY
DUCTWORK & PIPING
DEMOLITION & NEW
WORK**
PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)
DATE: NOVEMBER 8, 2023
DR BY:
CK BY: SDSE

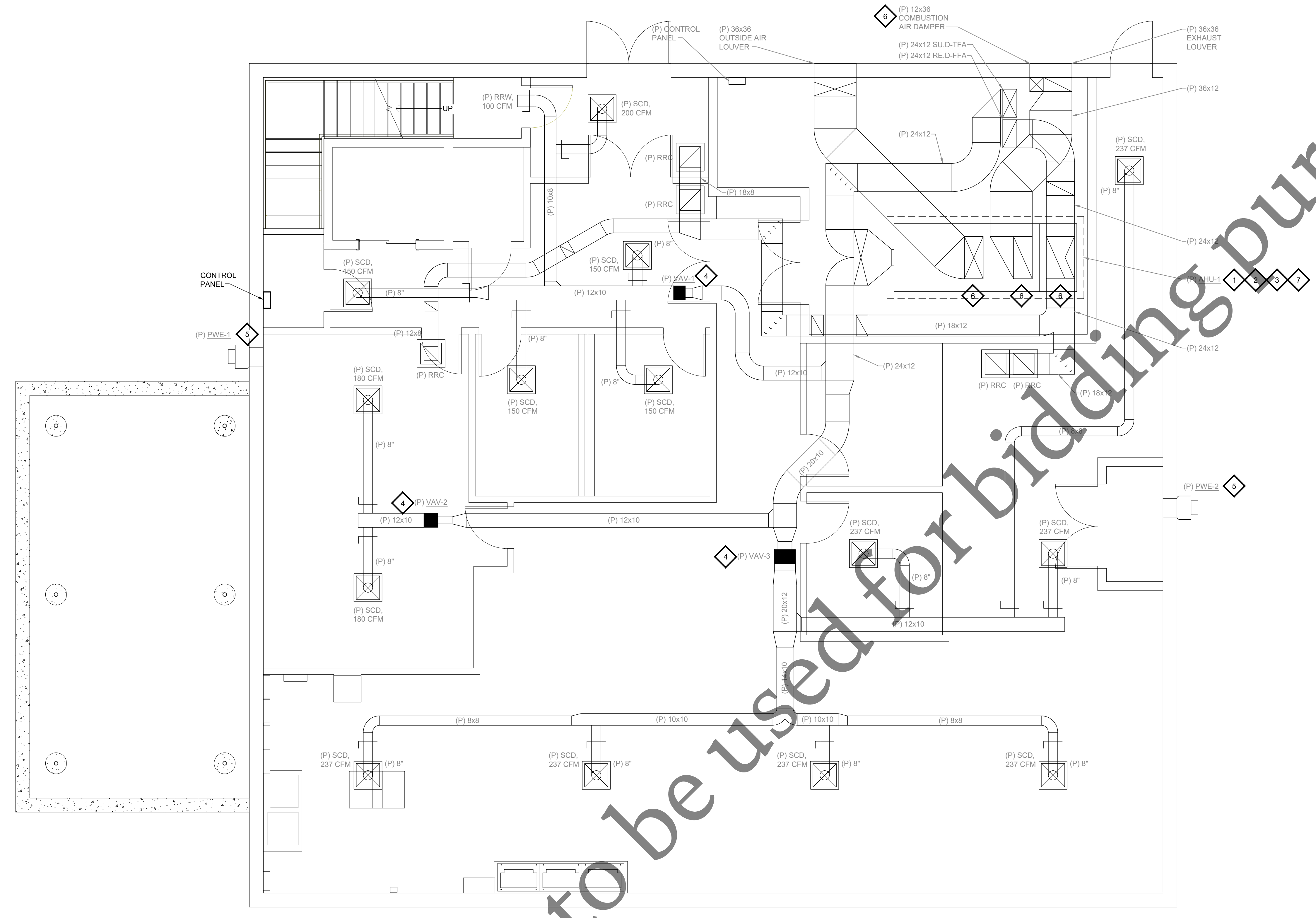
M6

SCALE: AS NOTED



SYSTEMS DESIGN SERVICE
ENGINEERING

3600 EAST STATE STREET SUITE 215
ROCKFORD, ILLINOIS 61108
PHONE: (815) 399-3381 FAX: (815) 399-3383
WWW.SDSEGROUP.COM
IL PROF DESIGN FIRM #184.004999



KEY NOTES

- CONTRACTOR TO CLEAN AND REFURBISH UNIT; REPLACE BELTS, PULLEYS, BEARINGS, FILTERS, MOTORS, ETC. AS DETERMINED FROM INSPECTION. SEE MECHANICAL SPECIFICATION 23 01 30 "HVAC REFURBISHING"; MOTORS TO BE REPLACED WITH PREMIUM EFFICIENCY MOTORS TO MATCH EXISTING MOTOR DATA.
- PROVIDE AND INSTALL NEW ELECTRONIC DDC MODULATING DAMPER ACTUATOR AND ASSOCIATED WIRING FOR EXISTING OUTSIDE AIR, EXHAUST AIR, AND RETURN AIR DAMPERS. ALL AHU DAMPERS SHALL BE CLEANED. REMOVE AND REINSTALL DUCTWORK AS REQUIRED FOR ACTUATOR INSTALLATION AND DAMPER CLEANING. SEE SPECIFICATION 23 01 30 "HVAC REFURBISHING".
- INSTALL NEW COOLING COIL AND ASSOCIATED REFRIGERANT PIPING TO OUTDOOR CONDENSER. FOLLOW SAME ROUTING AS REFRIGERANT PIPING THAT WAS REMOVED.
- PROVIDE AND INSTALL NEW ELECTRONIC DDC MODULATING DAMPER ACTUATOR AND ASSOCIATED WIRING FOR EXISTING VAV BOX. REMOVE AND REINSTALL DUCTWORK AS REQUIRED ACTUATOR INSTALLATION. RE-BALANCE VAV BOX AND ASSOCIATED CEILING DIFFUSERS TO CFM AS SHOWN.
- PROVIDE AND INSTALL NEW ELECTRONIC DDC CONTROLS FOR EXISTING EXHAUST FAN.
- PROVIDE AND INSTALL NEW ELECTRONIC DDC MODULATING DAMPER ACTUATOR AND ASSOCIATED WIRING FOR EXISTING DAMPER. REMOVE AND REINSTALL DUCTWORK AS REQUIRED FOR ACTUATOR INSTALLATION AND DAMPER CLEANING.
- CONTROLS CONTRACTOR TO PROVIDE NEW BAGNET CONTROL CARD FOR EXISTING UNIT TO TIE INTO NEW MCS.

Not to be used for bidding purposes

LOWER LEVEL FLOOR PLAN - DUCTWORK
SCALE: 1/4" = 1'-0"

**LAB BUILDING
HVAC SYSTEM REPLACEMENT**
Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
3		
4		

**LOWER LEVEL
DUCTWORK
NEW WORK**

PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)

DATE: NOVEMBER 8, 2023
DR BY: SDS
CK BY: SDSE

M7

SCALE: AS NOTED

LAB BUILDING
HVAC SYSTEM REPLACEMENT

Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
3		
4		

UPPER LEVEL DUCTWORK
NEW WORK

PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)

DATE: NOVEMBER 8, 2023
DR BY: SDS
CK BY: SDSE

M8

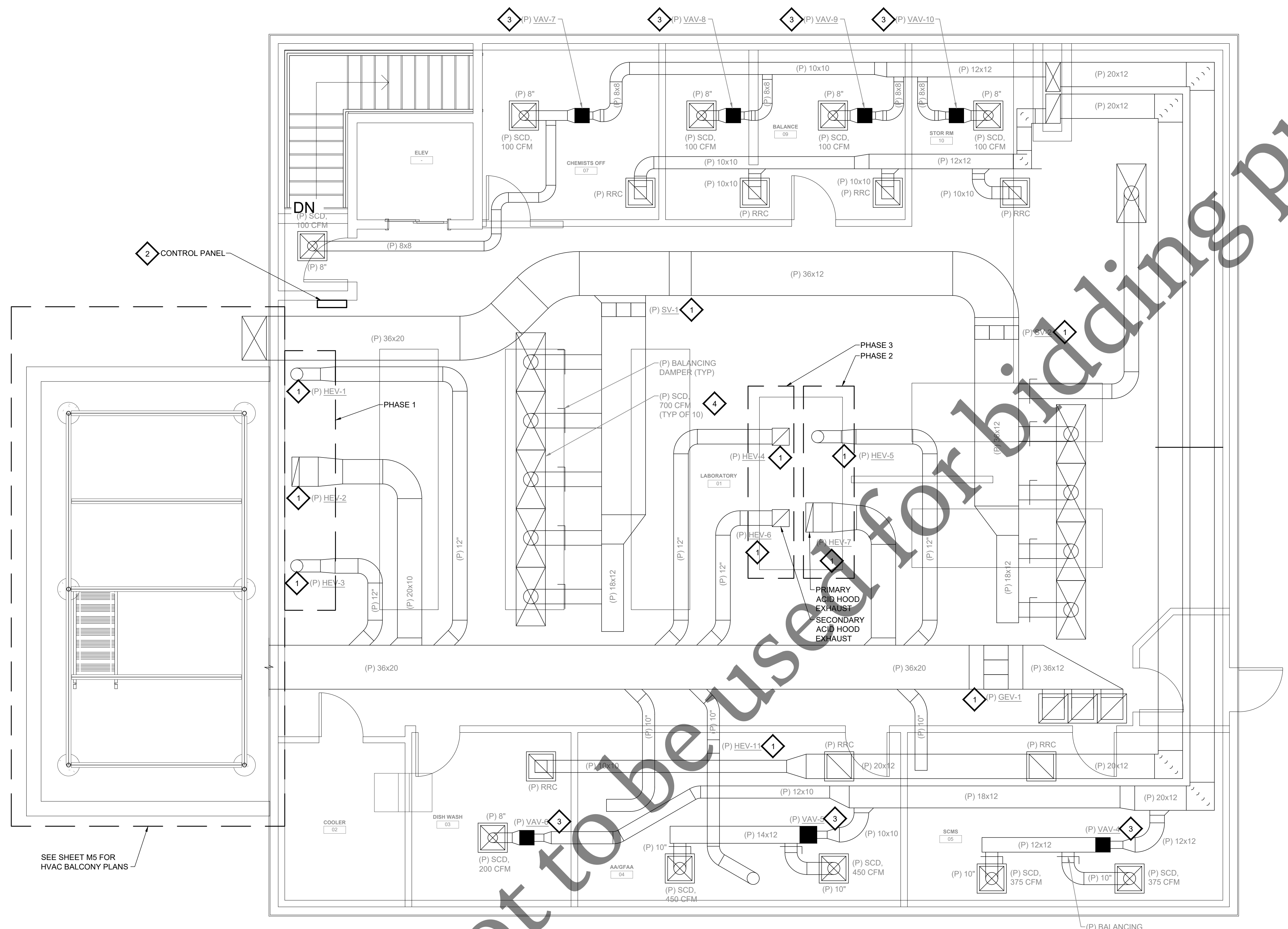
SCALE: AS NOTED

KEY NOTES

1. INSTALL NEW ELECTRONIC CONTROLLER, CONTROLS, AND WIRING FOR EXISTING PHOENIX AIR VALVE. BALANCE VALVES TO CFM SHOWN ON EXISTING SCHEDULE ON SHEET M11.
2. INSTALL NEW CONTROL PANELS FOR NEW ELECTRONIC PHOENIX AIR VALVE CONTROLS.
3. PROVIDE AND INSTALL NEW ELECTRONIC DDC MODULATING DAMPER ACTUATOR AND ASSOCIATED WIRING FOR EXISTING VAV BOX. REMOVE AND REINSTALL DUCTWORK AS REQUIRED ACTUATOR INSTALLATION. RE-BALANCE VAV BOX AND ASSOCIATED CEILING DIFFUSERS TO CFM AS SHOWN.
4. BALANCE CEILING DIFFUSERS TO CFM AS SHOWN.

GENERAL NOTES

1. PERFORM FORM ON HOODS IN 3 PHASES AS OUTLINED ON DRAWINGS.
2. ONE ACID HOOD MUST BE AVAILABLE DURING EACH PHASE.
3. NO CONSTRUCTION SHALL BE PERFORMED DURING IEPA AUDIT. SCHEDULED FOR 3/19/2024 - 3/21/2024.
4. HOOD PHASING SHUTDOWNS SHOULD BEGIN ON CALENDAR QUARTERS.
5. COORDINATION REGARDING HOOD SHUTDOWNS SHALL BE DONE THROUGH WARREN ADAM, 815-871-0787.



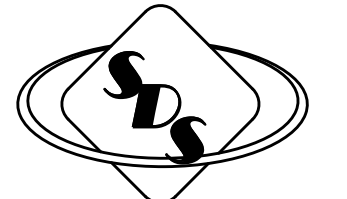
UPPER LEVEL FLOOR PLAN - DUCTWORK

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



SEE SHEET M5 FOR HVAC BALCONY PLANS

Not to be used for bidding purposes



SYSTEMS DESIGN SERVICE
ENGINEERING

3600 EAST STATE STREET SUITE 215
ROCKFORD, ILLINOIS 61108

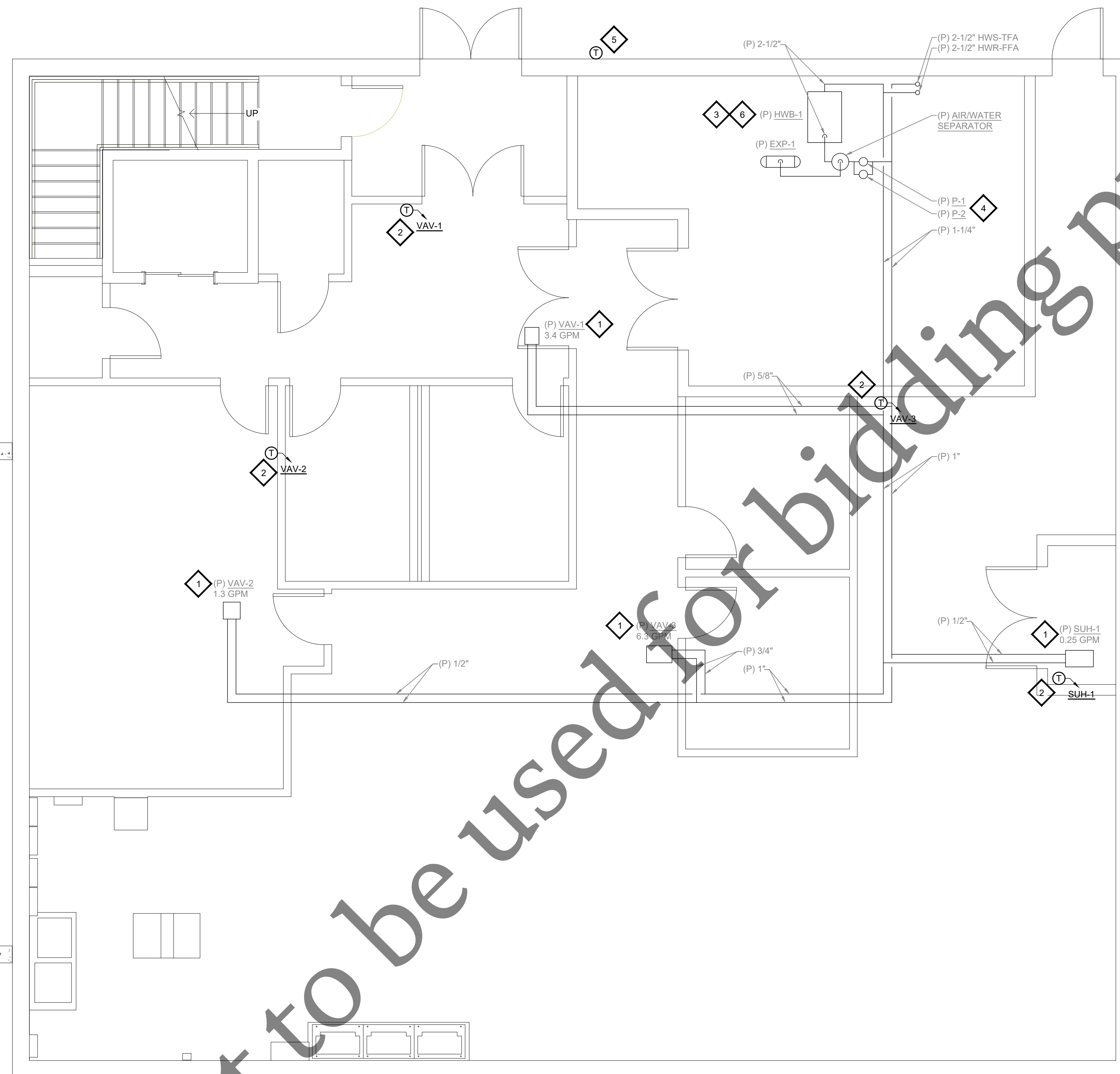
PHONE: (815) 399-3381 FAX: (815) 399-3383

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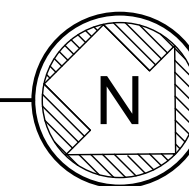
KEY NOTES

1. PROVIDE AND INSTALL NEW ELECTRONIC DDC MODULATING CONTROL VALVE/ACTUATOR FOR EXISTING HOT WATER COIL. PROVIDE NEW PIPING CONNECTIONS AS REQUIRED FOR INSTALLATION OF CONTROL VALVE. BALANCE CONTROL VALVE TO GPM AS SHOWN. RE-INSULATE PIPING THAT WAS REMOVED AND REINSTALLED OR REPLACED. HW COIL SHALL BE CLEANED AND FLUSHED. SEE SPECIFICATION 23 01 30 "HVAC REFURBISHING".
2. CONTROLS CONTRACTOR SHALL PROVIDE AND INSTALL NEW ELECTRONIC DDC WALL MOUNTED TEMPERATURE SENSOR AND ASSOCIATED WIRING. SENSOR SHALL HAVE DIGITAL READOUT AND LOCAL TEMPERATURE OVERRIDE CAPABILITIES (+/- 3 DEGREES).
3. CONTROLS CONTRACTOR TO PROVIDE NEW BACNET CONTROL CARD FOR EXISTING UNIT TO TIE INTO NEW MCS.
4. INSTALL NEW ELECTRONIC DDC DIFFERENTIAL PRESSURE SENSORS FOR AUTOMATIC PUMP CHANGEOVER UPON PUMP FAILURE. INSTALL NEW HEADER SUPPLY AND RETURN TEMPERATURE SENSORS.
5. NEW DDC OUTDOOR AIR TEMPERATURE SENSOR, TO BE TIED INTO MCS.
6. REFILL BOILER SYSTEM WITH GLYCOL/WATER. COMPLETE WATER TREATMENT AFTER SYSTEM IS FILLED.



LOWER LEVEL FLOOR PLAN - PIPING

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



No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
3		
4		

LOWER LEVEL PIPING NEW WORK

PROJECT NUMBER:

FRSA 2202 (SDSE 22-054)

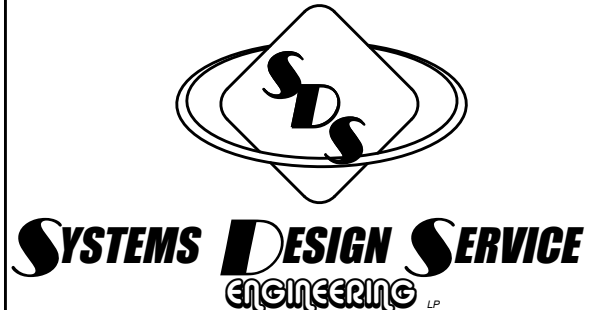
DATE: NOVEMBER 8, 2023

DR BY: SDS

CK BY: SDSE

M9

SCALE: AS NOTED



3600 EAST STATE STREET SUITE 215
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PHONE (815) 399-3381 FAX (815) 399-3383
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LAB BUILDING
HVAC SYSTEM REPLACEMENT
Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
3		
4		

**UPPER LEVEL
PIPING
NEW WORK**

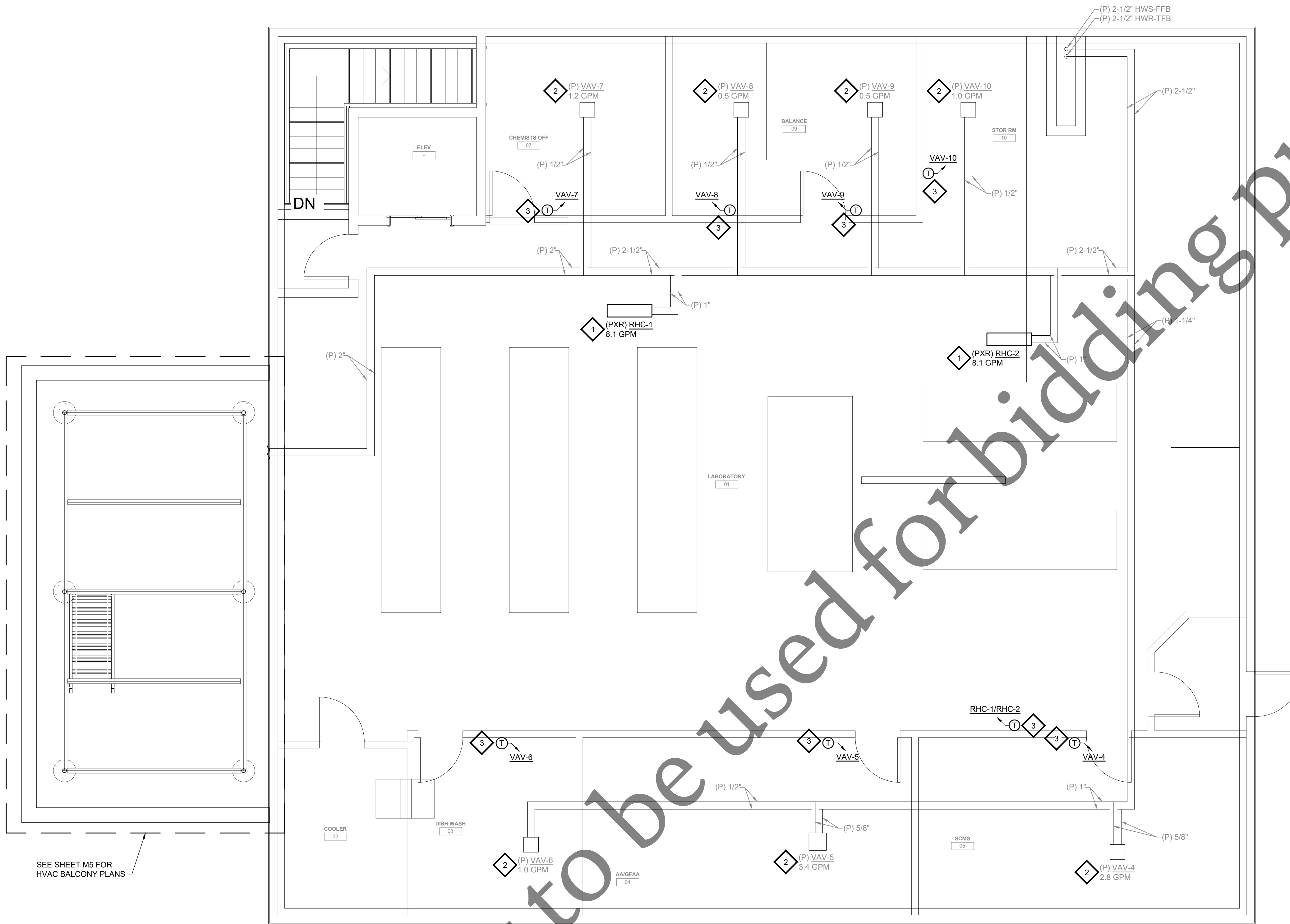
PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)

DATE: NOVEMBER 8, 2023
DR BY: SDS
CK BY: SDSE

M10

SCALE: AS NOTED

- KEY NOTES**
- RE-INSTALL (PXR) CLEANED HOT WATER COIL. PROVIDE AND INSTALL NEW ELECTRONIC DDC MODULATING CONTROL VALVE AND ACTUATOR FOR EXISTING HOT WATER COIL. PROVIDE NEW PIPING CONNECTIONS AS REQUIRED FOR INSTALLATION OF CONTROL VALVE. BALANCE CONTROL VALVE TO GPM AS SHOWN. RE-INSULATE PIPING THAT WAS REMOVED AND REINSTALLED OR REPLACED.
 - PROVIDE AND INSTALL NEW ELECTRONIC DDC MODULATING CONTROL VALVE/ACTUATOR FOR EXISTING HOT WATER COIL. PROVIDE NEW PIPING CONNECTIONS AS REQUIRED FOR INSTALLATION OF CONTROL VALVE. BALANCE CONTROL VALVE TO GPM AS SHOWN. RE-INSULATE PIPING THAT WAS REMOVED AND REINSTALLED OR REPLACED. HW COIL SHALL BE CLEANED AND FLUSHED. SEE SPECIFICATION 23 01 30 "HVAC REFURBISHING".
 - CONTROLS CONTRACTOR SHALL PROVIDE AND INSTALL NEW ELECTRONIC DDC WALL MOUNTED TEMPERATURE SENSOR AND ASSOCIATED WIRING. SENSOR SHALL HAVE DIGITAL READOUT AND LOCAL TEMPERATURE OVERRIDE CAPABILITIES (+/- 3 DEGREES).



UPPER LEVEL FLOOR PLAN - PIPING
SCALE: 1/4" = 1'-0"



SEE SHEET M5 FOR
HVAC BALCONY PLANS

Not to be used for bidding purposes

MAKE-UP AIR UNIT (MAU) EQUIPMENT SCHEDULE:

PLAN NO.	MAU-1
SERVICE	LAB
MFGR.	DAIKIN
MODEL	OAH016GDCM
MOUNTING	BALCONY
DX COIL QUANTITY	2
CAPACITY (BTU/HR)	489,275
ROWS	8
FPI	10
EAT DB (DEG F)	91.0
EAT WB (DEG F)	74.0
LAT DB(EG F)	54.1
LAT WB (DEG F)	52.9
APD (IN WC)	1.01
REFRIGERANT	R410-A
HOT WATER COIL QUANTITY	2
TOTAL CAPACITY (BTU/HR)	516,505
ROWS	2
FPI	8
EWTLWT (DEG F)	180.0/148.4
EAT/LAT (DEG F)	-9.0/58.5
GPM	35.9
APD (IN WC)	0.16
PD (FT HD)	2.10
GLYCOL %	40
SUPPLY FAN QUANTITY	3
TOTAL SUPPLY CFM/ESP	7000/1.5"
SUPPLY FAN HP (EACH)	4.4
SUPPLY FAN DRIVE/SPEEDS	ECM/VARIABLE
FILTERS	(8) 20x24x2 & (4) 12x24x2
UNIT VOLTAGE	480-3-60
UNIT MCA	14.6
UNIT MOP	15
APPROX. WEIGHT IN LBS.	3200
PLAN NO.	ACCU-MAU-1
MFGR.	DAIKIN
MODEL	RC505D
NOMINAL CAP @ 95 DEG. F	540 MBH
VOLT/PH/Hz	480-3-60
MCA	91.3
MOP	110
COMP. FLA	(4) 19.2
COND. FAN FLA	(4) 2.1
STAGES	MODULATING
CIRCUITS	2
REFRIGERANT	R-410A
APPROX. WT. IN LBS.	2600
NOTES	1-9

NOTES: SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

- MAKEUP AIR UNIT SHALL HAVE ECM MOTORS, DOUBLE WALL FULLY INSULATED CABINET (DESIGNED FOR OUTDOOR INSTALLATION), FILTER SECTION, UNIT MOTORIZED INTAKE DAMPER, AND WEATHERHOOD WITH BIRDSCREEN. CONDENSER SHALL HAVE VARIABLE SPEED DIGITAL SCROLL COMPRESSORS, HOT GAS BYPASS, HALL GUARD, CONTROLS TRANSFORMER, LOW AND HIGH SAFETY PRESSURE SWITCH, COMPRESSOR 5 MINUTE TIME DELAY, CRANKCASE HEATER, LOW AMBIENT CONTROL (DOWN TO 0 DEG), FILTER DRIER, 5 YEAR COMPRESSOR WARRANTY, AND SPRING ISOLATION KIT.
- DISCONNECTS AND CONVENIENCE OUTLETS PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR, COORDINATE.
- CONTROLS CONTRACTOR TO FURNISH AND INSTALL ALL DDC CONTROLS: UNIT CONTROLLER, SPACE SENSORS, SYSTEM SENSORS, AIRFLOW SENSORS, DUCT SENSORS, WIRING, PROGRAMMING, GRAPHICS, ETC. AS SHOWN ON CONTROLS DIAGRAMS AND POINTS LIST. UNIT TO BE TIED INTO NEW BUILDING MANAGEMENT SYSTEM.
- MAKEUP AIR UNIT AND CONDENSING UNIT SHALL SIT ON MANUFACTURER'S RAILS, 6" TALL FOR MOUNTING ON METAL GRATE FLOOR.
- PIPE TRAPPED DX COIL CONDENSATE (FULL SIZE).
- PROVIDE FULL SIZE AFC AT OUTLET.
- FOR REFRIGERATION PIPING, PROVIDE FIELD PIPED LINE SET BETWEEN COIL AND CONDENSING UNIT. REFRIGERANT PIPING TO BE SIZED AND PIPED AS RECOMMENDED BY THE MANUFACTURER. FURNISH DRAWINGS IN THE FORM OF SHOP DRAWINGS SHOWING ALL PIPING OFFSETS, CONNECTIONS RISERS, TRAPS, REFRIGERANT DEVICES AND ACCESSORIES, ETC., FOR THE COMPLETE INSTALLATION OF EACH RESPECTIVE SYSTEM. CONNECTIONS TO CONDENSING UNITS AND COILS SHALL BE MADE WITH SWING TYPE OFFSETS TO ABSORB ANY VIBRATION THAT MAY BE EVIDENT. CONTRACTOR TO INSULATE ALL SUCTION AND HOT GAS LINES WITH 1" ARMAFLEX, RUBATEX OR EQUIVALENT MAKE.
- EXTERNAL STATIC PRESSURE DOES NOT INCLUDE FILTER, PLENUM, OR COIL PRESSURE DROPS.
- HVAC CONTRACTOR TO COORDINATE ALL FINAL SIZES WITH MANUFACTURER(S) PRIOR TO ORDERING. TO ASSURE PROPER USE AND SELECTION. CONTROL PACKAGES TO INCLUDE ALL NECESSARY RELAYS, AND OPERATIONAL LIGHTS, SMOKE DETECTOR, CONTACTORS, CONTROL CABINET/PANELS, TRANSFORMERS, WIRING TERMINAL STRIP, WIRING DIAGRAMS, COMPLETE INSTALLATION DETAILS/MATERIAL LISTS/START-UP AND CHECK-OUT PROCEDURE FOR THE SYSTEM AND FACTORY CHECK-OUT WITH WRITTEN ASSURANCE THAT THE SYSTEM IS OPERATING AND INSTALLED IN CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS/RECOMMENDATIONS.

AIR HANDLING UNIT (AHU) EQUIPMENT SCHEDULE:

PLAN NO.	(P) AHU-1
UNIT MFGR.	YORK
TYPE	EXISTING
MODEL	EXISTING
CFM/ESP	5000/1.25"
MIN. VENT % / CFM	800
FUEL TYPE	EXISTING
MEH IN/OUT	EXISTING
EFFICIENCY	EXISTING
STAGES	EXISTING
HP/VOLTAGE	EXISTING
SUPPLY FAN LRA/FLA	EXISTING
DRIVE	EXISTING
REPL. FILTER	EXISTING
TOTAL APPROX. WT. IN LBS.	EXISTING
DX COOLING COIL MODEL	5EN0906B
BTU/HR TOTAL	111,541
BTU/HR SENSIBLE	92,170
EAT DB/WB (DEGREE F)	75.4/62.5
LAT DB/WB (DEGREE F)	55.0/53.2
ROWS	6
FPI	9
FIN HEIGHT (IN)	30
FIN LENGTH (IN)	40
FACE AREA (SQ FT)	8.3
CFM	4,125
APD (IN WC)	0.77
PLAN NO.	ACCU-AHU-1
MFGR.	AAON
MODEL	CFA-011-B-A-3-DA00N
NOMINAL CAP @ 95 DEG. F	120 MBH
VOLT/PH/Hz	480-3-60
MCA	21
MOP	25
STAGES	MODULATING
REFRIGERANT	R-410A
APPROX. WT. IN LBS.	1100
NOTES	1-8

NOTES: SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

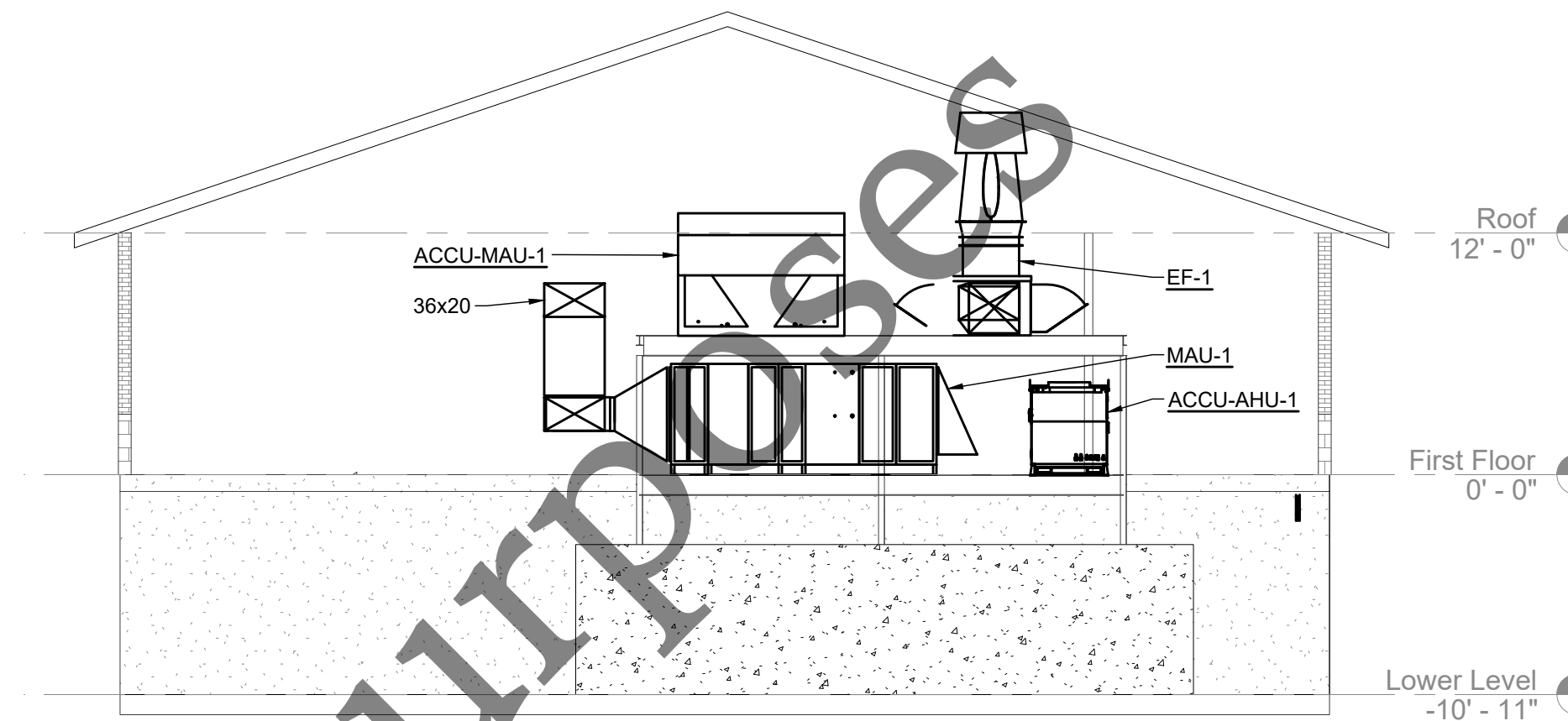
- PROVIDE NEW DX COIL TO FIT INTO EXISTING COIL MODULE. VERIFY DIMENSIONS IN FIELD. PROVIDE AND INSTALL SOLENOID VALVE, THERMAL EXPANSION VALVE, VALVES, SITE GLASS, FILTER DRIERS, ETC. TO BE FIELD INSTALLED FOR A COMPLETE INSTALLATION OF THE REFRIGERANT SYSTEM. CONDENSER SHALL HAVE VARIABLE SPEED DIGITAL SCROLL COMPRESSORS, ECM CONDENSER FAN, LOW AND HIGH SAFETY PRESSURE SWITCH, COMPRESSOR 5 MINUTE TIME DELAY, CRANKCASE HEATER, LOW AMBIENT CONTROL, FILTER DRIER, AND 5 YEAR COMPRESSOR WARRANTY.
- DISCONNECTS AND CONVENIENCE OUTLETS PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR, COORDINATE.
- CONTROLS CONTRACTOR TO FURNISH AND INSTALL ALL DDC CONTROLS: UNIT CONTROLLER, SPACE SENSORS, SYSTEM SENSORS, AIRFLOW SENSORS, DUCT SENSORS, WIRING, PROGRAMMING, GRAPHICS, ETC. AS SHOWN ON CONTROLS DIAGRAMS AND POINTS LIST. UNIT TO BE TIED INTO NEW BUILDING MANAGEMENT SYSTEM.
- CONDENSING UNIT SHALL SIT ON MANUFACTURER'S RAILS, 6" TALL FOR MOUNTING ON METAL GRATE FLOOR.
- PIPE TRAPPED DX COIL CONDENSATE (FULL SIZE) TO FLOOR DRAIN.
- BALANCE AIR FLOWS ON FULL RETURN. ADDITIONALLY, BALANCE AIRFLOWS ON MINIMUM VENT AIR AND PROPORTIONATE RETURN AIR.
- FOR REFRIGERATION PIPING, PROVIDE FIELD PIPED LINE SET BETWEEN COIL AND CONDENSING UNIT. REFRIGERANT PIPING TO BE SIZED AND PIPED AS RECOMMENDED BY THE MANUFACTURER. FURNISH DRAWINGS IN THE FORM OF SHOP DRAWINGS SHOWING ALL PIPING OFFSETS, CONNECTIONS RISERS, TRAPS, REFRIGERANT DEVICES AND ACCESSORIES, ETC., FOR THE COMPLETE INSTALLATION OF EACH RESPECTIVE SYSTEM. CONNECTIONS TO CONDENSING UNITS AND COILS SHALL BE MADE WITH SWING TYPE OFFSETS TO ABSORB ANY VIBRATION THAT MAY BE EVIDENT. CONTRACTOR TO INSULATE ALL SUCTION AND HOT GAS LINES WITH 1" ARMAFLEX, RUBATEX OR EQUIVALENT MAKE.
- HVAC CONTRACTOR TO COORDINATE ALL FINAL SIZES WITH MANUFACTURER(S) PRIOR TO ORDERING. TO ASSURE PROPER USE AND SELECTION. CONTROL PACKAGES TO INCLUDE ALL NECESSARY RELAYS, SMOKE DETECTOR(S), AS CALLED FOR, CONTACTORS, CONTROL CABINET/PANELS, TRANSFORMERS, WIRING TERMINAL STRIP, WIRING DIAGRAMS, COMPLETE INSTALLATION DETAILS/MATERIAL LISTS/STARTUP AND CHECK-OUT PROCEDURE FOR THE SYSTEM AND FACTORY CHECK-OUT WITH WRITTEN ASSURANCE THAT THE SYSTEM IS OPERATING AND INSTALLED IN CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS/RECOMMENDATIONS. CONFIRM CONNECTION SIDE AND ACCESS SIDE PRIOR TO ORDERING.

EXHAUST FAN (EF) SCHEDULE:

PLAN NO.	EF-1
MFGR.	STROBIC AIR-TRI STACK
MODEL	TS1S150B18
TYPE	FUME EXHAUST
INLET CFM/ESP	7880/2.5"
BYPASS CFM	1220
HP/VOLTAGE	15/480-3-60
DRIVE/SPEEDS	DIRECT/VFD
APPROX. WT. IN LBS.	1600 LBS.
NOTES	1-4

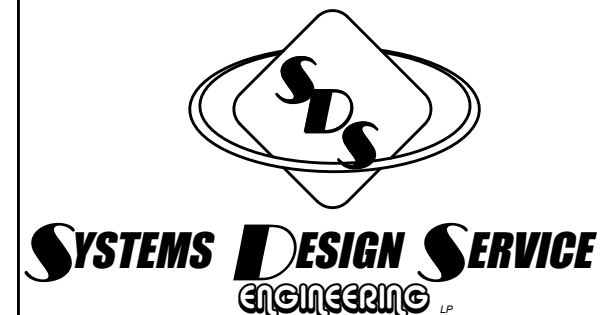
NOTES: SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

- FAN SHALL HAVE SIDE INLET, TWO BYPASS DAMPERS WITH DAMPER/ACTUATOR AND RAIN HOOD, INLINE STAINLESS STEEL (FILM LINED) SILENCER, AND VFD.
- DISCONNECT PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR, COORDINATE.
- CONTROLS CONTRACTOR TO FURNISH AND INSTALL ALL DDC CONTROLS: UNIT CONTROLLER, SPACE SENSORS, SYSTEM SENSORS, AIRFLOW SENSORS, DUCT SENSORS, WIRING, PROGRAMMING, GRAPHICS, ETC. AS SHOWN ON CONTROLS DIAGRAMS AND POINTS LIST. UNIT TO BE TIED INTO NEW BUILDING MANAGEMENT SYSTEM.
- UNIT TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.



HVAC BALCONY SECTION

SCALE: 1/8" = 1'-0"



3600 EAST STATE STREET SUITE 215
 ROCKFORD, ILLINOIS 61108
 PHONE: (815) 399-3381 FAX: (815) 399-3383
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HVAC SYSTEM REPLACEMENT
 Four Rivers Sanitation Authority
 3333 Kishwaukee Street
 Rockford, Illinois 61109

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
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EXISTING PHOENIX VALVE SCHEDULE:

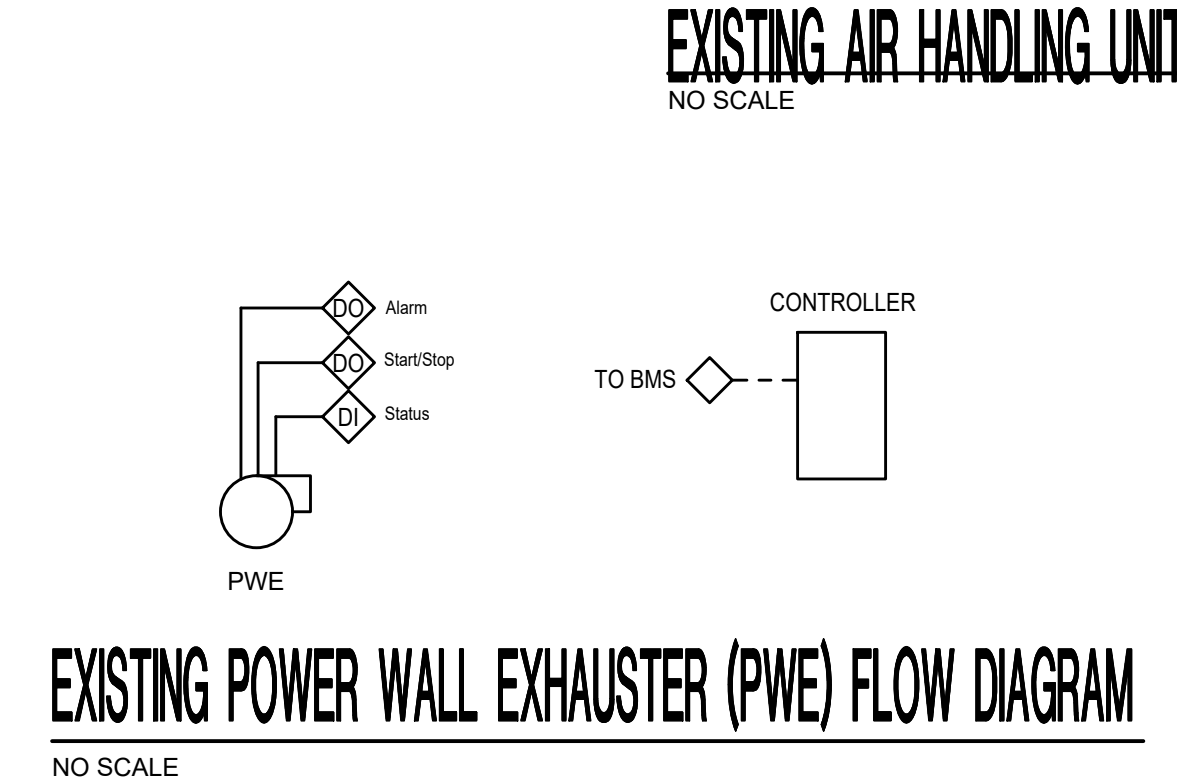
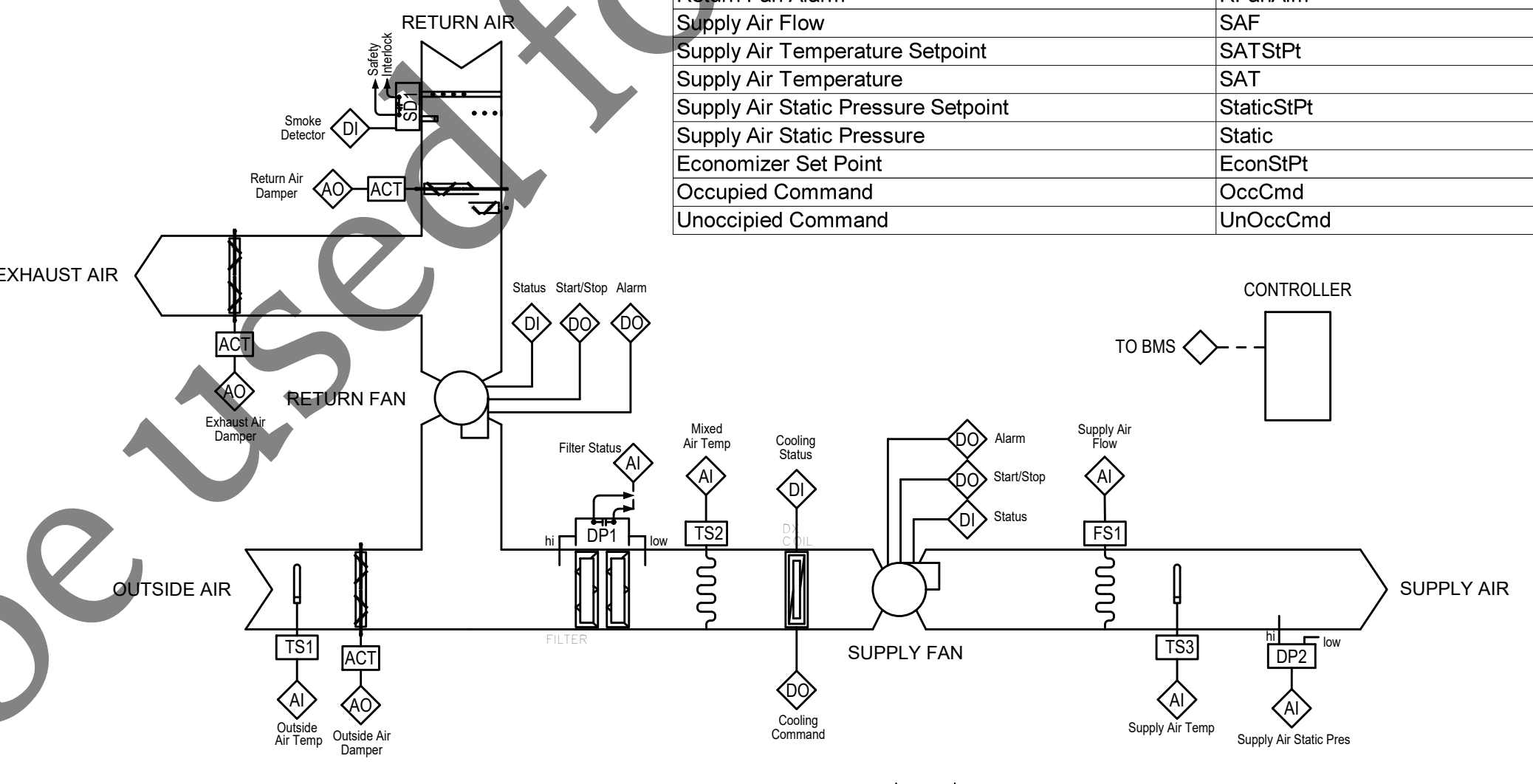
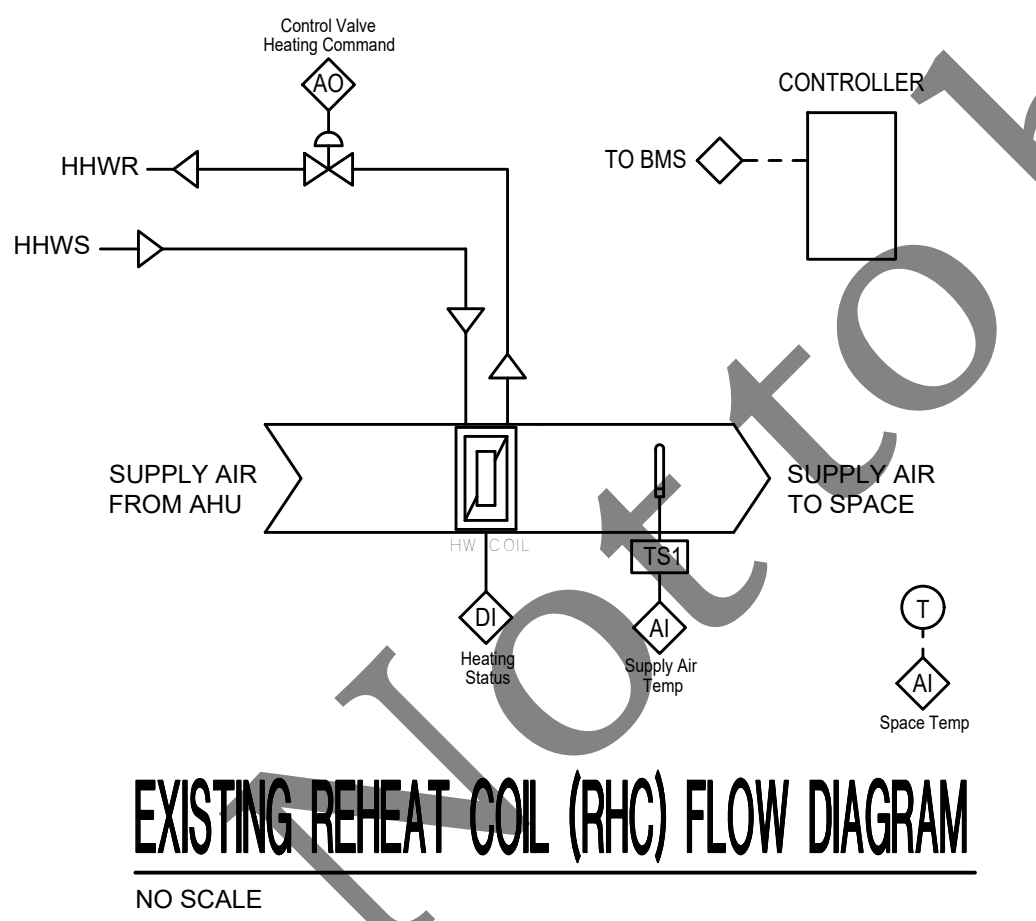
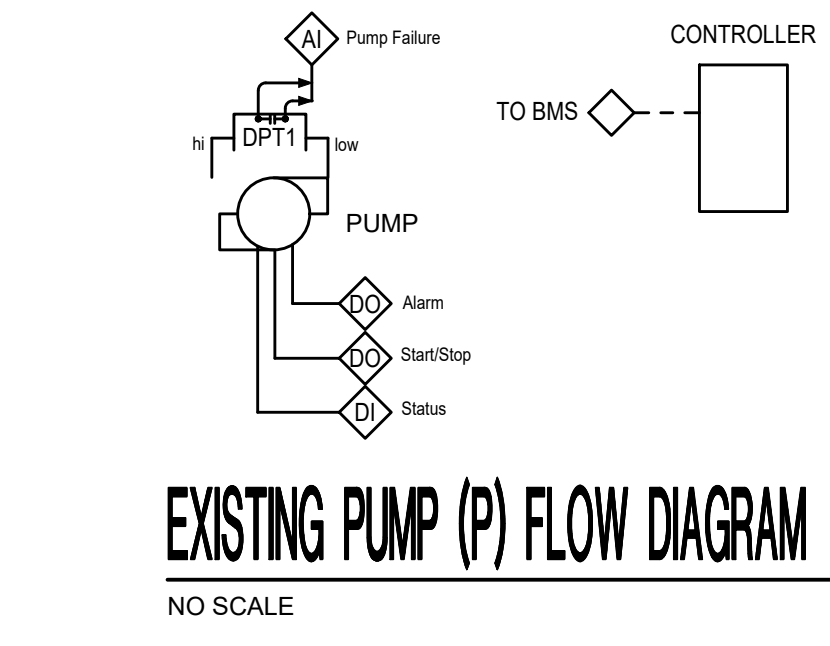
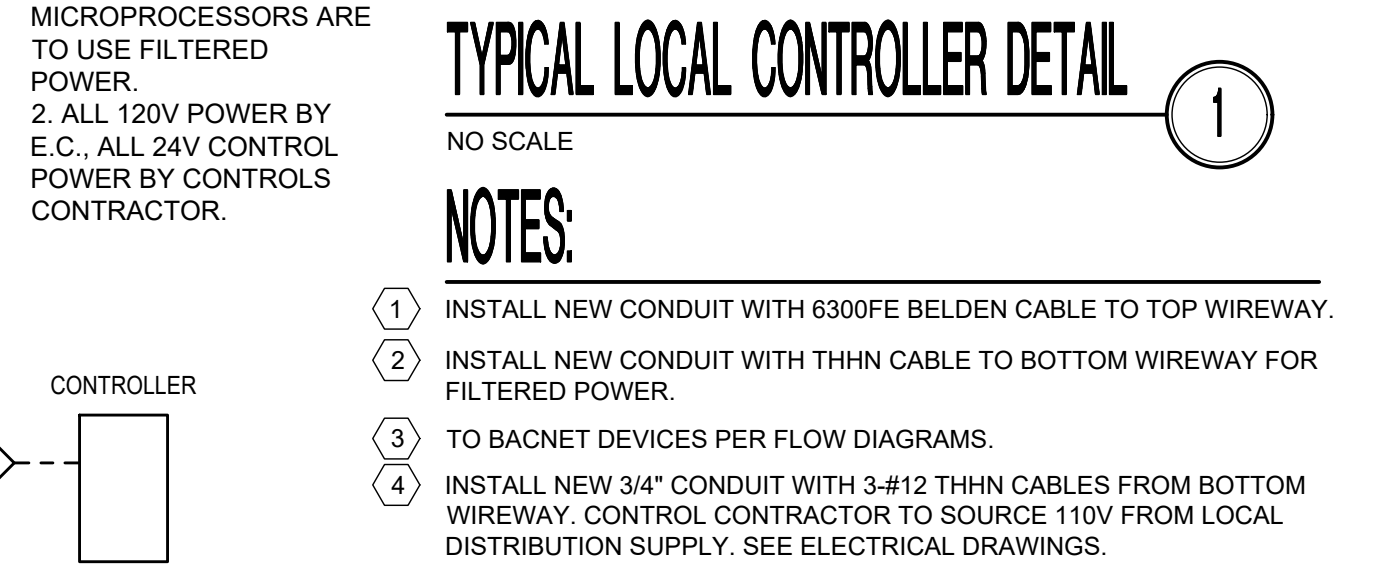
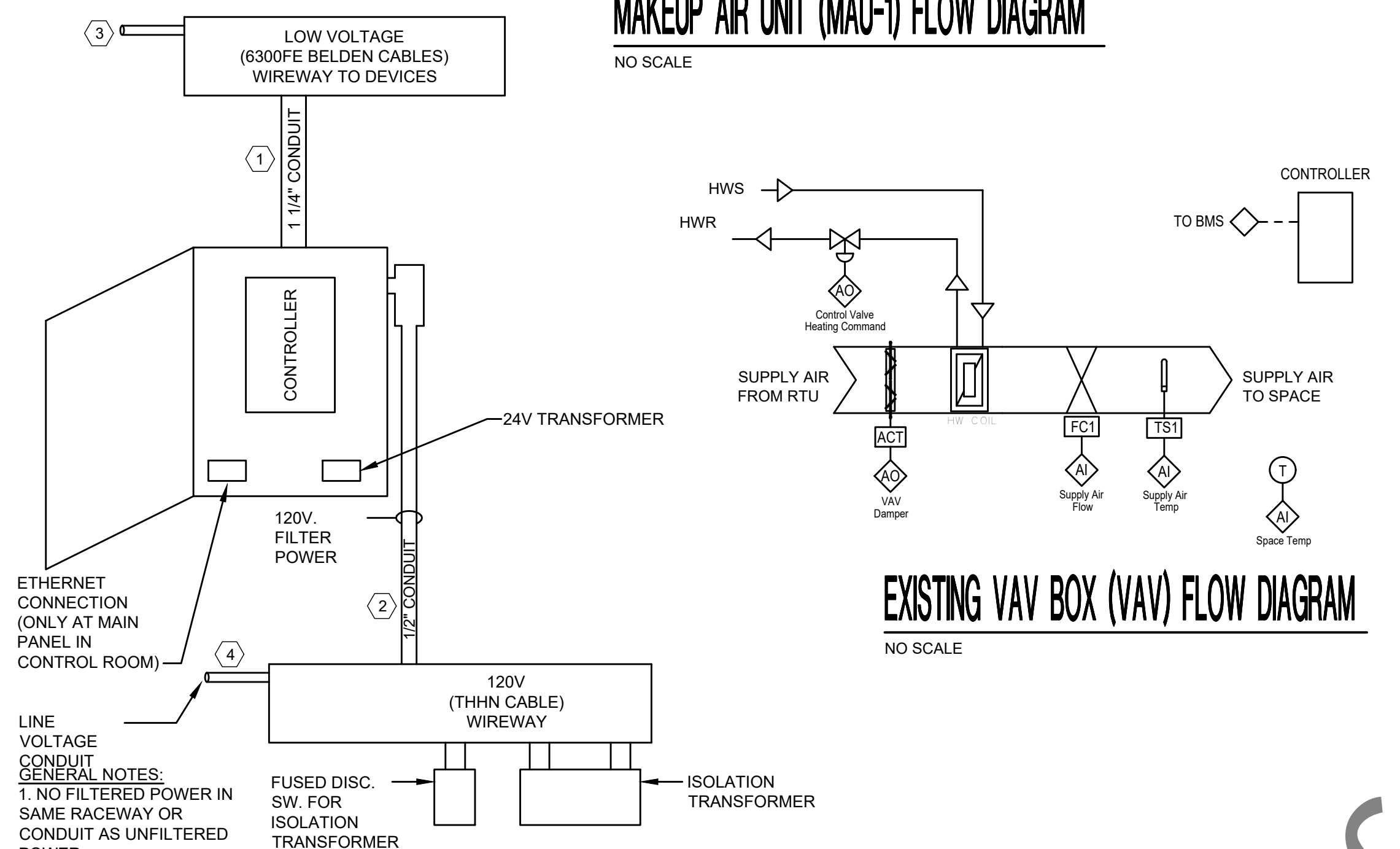
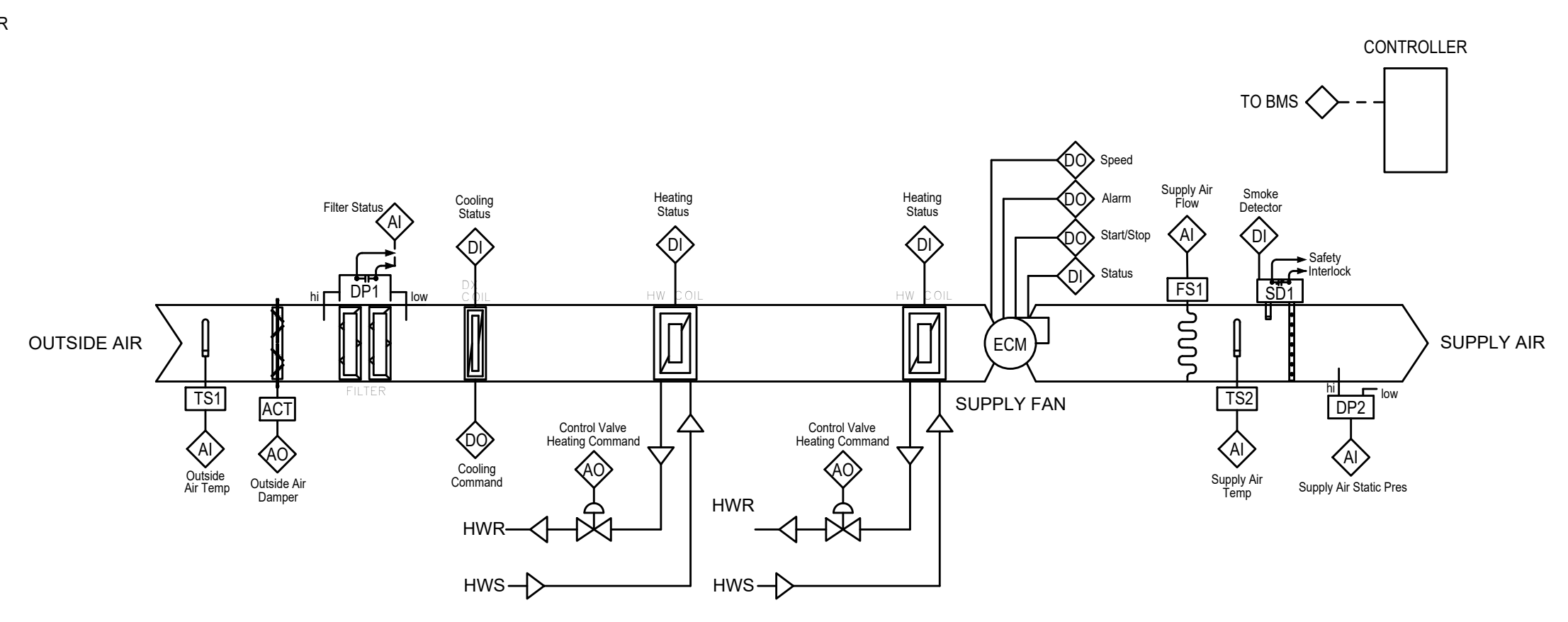
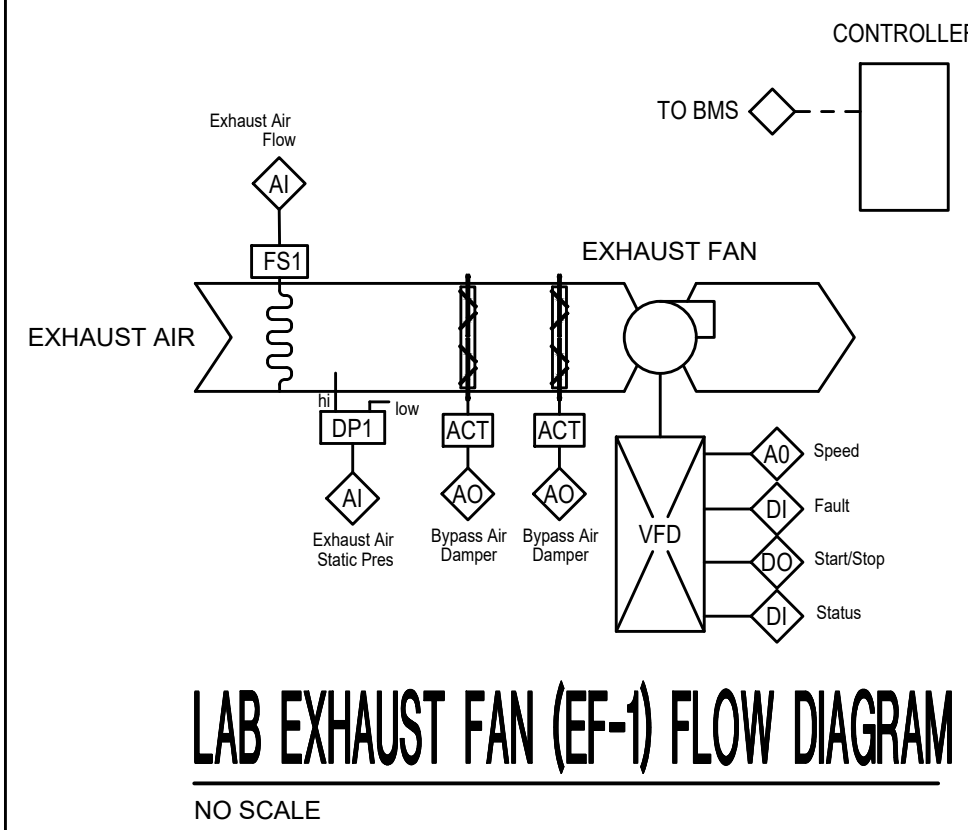
Room Number	Catalog Number	Description	Function	Tag Number	Serial #	Model	Min CFM	Max CFM	Scale CFM
LABORATORY	CVB108M-ACNHX-P	VALVE	CAN	HEV-11	197771		400	400	
LABORATORY	EXV8110M-AAHHO	VALVE	HOOD	HEV-1	197690	HI2	50	960	500
LABORATORY	EXV8210M-AAHHO	VALVE	HOOD	HEV-2	197790	HI2	100	1250	500
LABORATORY	EXV8110M-AAHHO	VALVE	HOOD	HEV-3	197778	HI2	50	960	500
LABORATORY	EXV8110M-AAHHO	VALVE	HOOD	HEV-4	197772	HI2	50	960	500
LABORATORY	EXV8110M-AAHHO	VALVE	HOOD	HEV-5	197799	HI2	50	960	500
LABORATORY	EXV8110M-AAHHO	VALVE	HOOD	HEV-6	197820	HI2	50	960	500
LABORATORY	EXV8210M-AAHHO	VALVE	HOOD	HEV-7	197795	HI2	100	1250	500
LABORATORY	MAVA312M-AAMHC	VALVE	SUP	SV-1	197788	SN1	270	3650	1250
LABORATORY	MAVA312M-AASHC	VALVE	SUP	SV-2	197782	SV3	270	3650	1250
LABORATORY	EXVA312M-AAEHE	VALVE	GEX	GEV-1	197774	GM1	900	4500	500

HVAC EQUIPMENT SCHEDULES & DETAILS

PROJECT NUMBER:
 FRSA 2202 (SDSE 22-054)
 DATE: NOVEMBER 8, 2023
 DR BY: SDS
 CK BY: SDSE

M11

SCALE: AS NOTED



MINIMUM CONTROLS POINTS LIST:

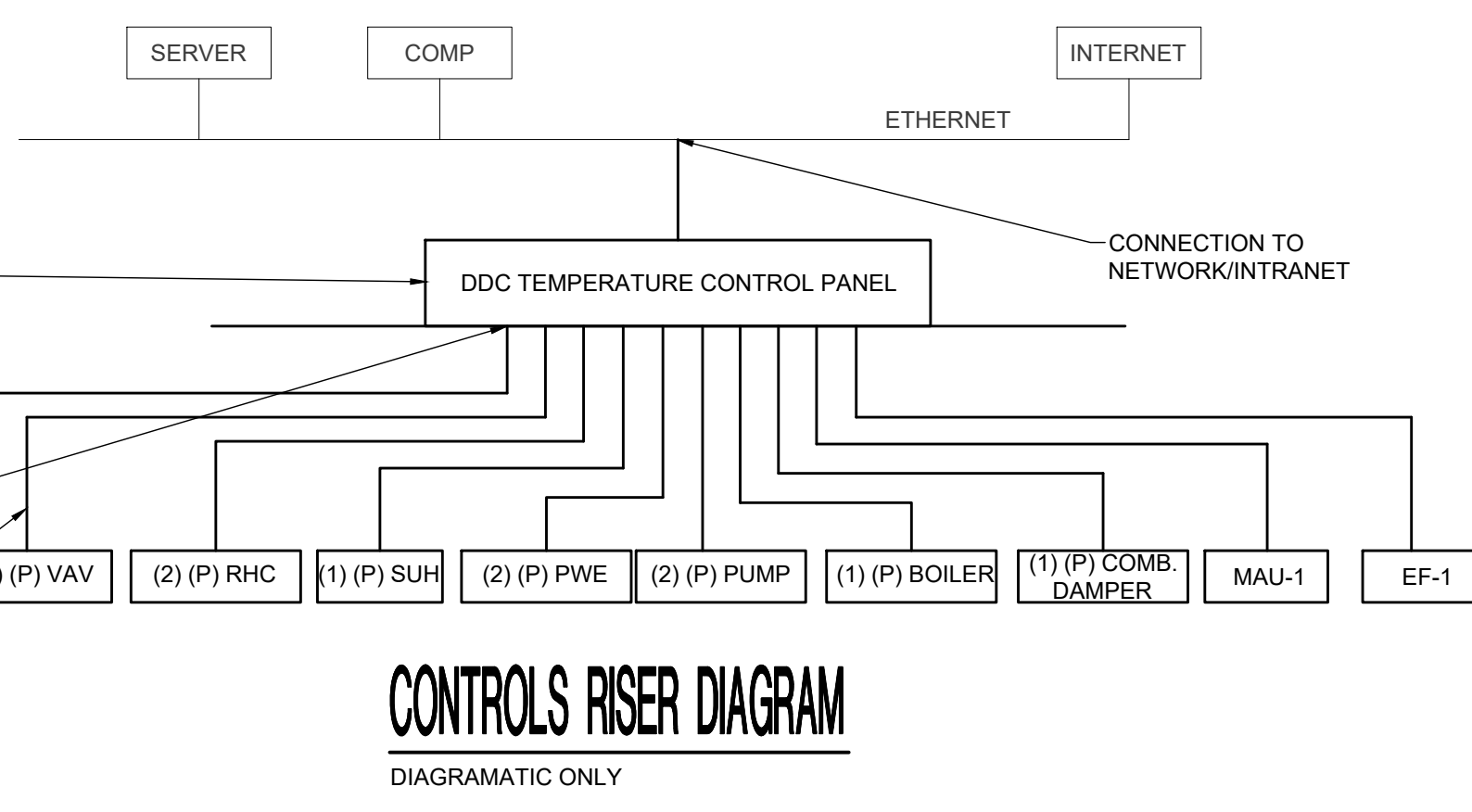
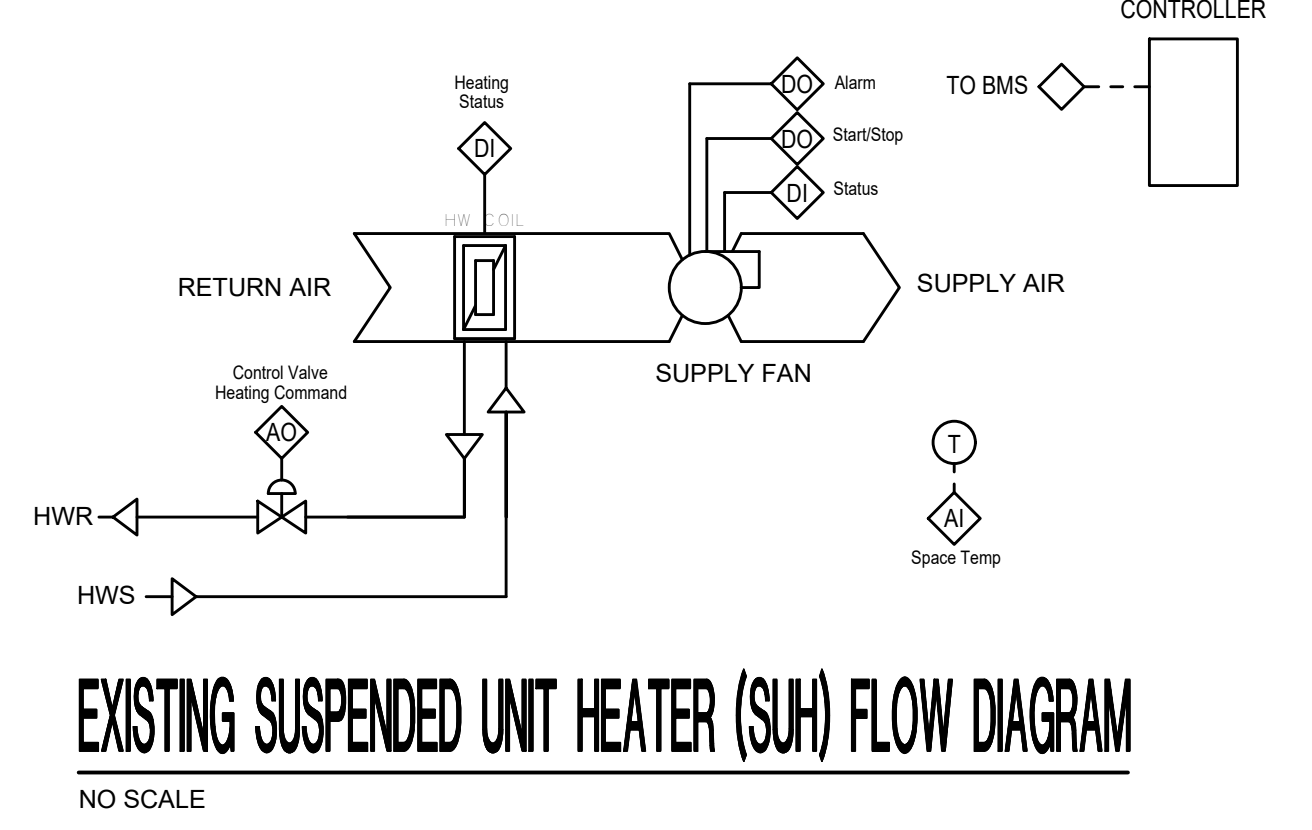
System Point Names	System Point Names
Makeup Air Unit (MAU-1)	Existing Variable Air Volume Box (VAV)
Outside Air Temperature	Damper Command
Outside Air Damper Command	Damper Set Point
Outside Air Damper Set Point	Heating Command
Outside Air Damper Status	Heating Status
Smoke Alarm	Supply Air Flow
Filter Pressure Setpoint	Supply Air Temperature
Filter Alarm	Space Temperature
Cooling Command	Occupied Command
Cooling Status	Unoccupied Command
Heating Command	Occupied Heating Set Point
Heating Status	Occupied Cooling Set Point
Supply Fan Speed	Unoccupied Heating Set Point
Supply Fan Status	Unoccupied Cooling Set Point
Supply Fan Command	
Supply Fan Alarm	
Supply Air Flow	
Supply Air Temperature Setpoint	
Supply Air Temperature	
Supply Air Static Pressure Setpoint	
Supply Air Static Pressure	
Occupied Command	
Unoccupied Command	
Lab Exhaust Fan (EF-1)	Existing Reheat Coil (RHC)
Exhaust Air Flow	Heating Command
Exhaust Air Static Pressure Setpoint	Heating Status
Exhaust Air Static Pressure	Supply Air Temperature
Bypass Air Damper Command	Space Temperature
Bypass Air Damper Set Point	Occupied Command
Bypass Air Damper Status	Unoccupied Command
Exhaust Fan Command	Unoccupied Heating Set Point
Exhaust Fan Status	Unoccupied Cooling Set Point
Exhaust Fan Speed	
Exhaust Fan Alarm	
Existing Air Handling Unit (AHU)	Existing Power Wall Exhauster (PWE)
Outside Air Temperature	Fan Command
Outside Air Damper Command	Fan Status
Outside Air Damper Set Point	Fan Alarm
Outside Air Damper Status	
Return Air Damper Command	Existing Suspended Unit Heater (SUH)
Return Air Damper Set Point	Fan Command
Return Air Damper Status	Fan Status
Exhaust Air Damper Command	Fan Alarm
Exhaust Air Damper Set Point	Heating Command
Exhaust Air Damper Status	Heating Status
Smoke Alarm	Space Temperature
Filter Pressure Setpoint	Occupied Command
Filter Alarm	Unoccupied Command
Mixed Air Temperature	Occupied Heating Set Point
Cooling Command	Unoccupied Heating Set Point
Cooling Status	
Supply Fan Status	
Supply Fan Command	Existing Combustion Air Damper
Supply Fan Alarm	Damper Command
Return Fan Status	Damper Set Point
Return Fan Command	Damper Status
Return Fan Alarm	Occupied Command
Supply Air Flow	Unoccupied Command
Supply Air Temperature Setpoint	
Supply Air Temperature	Existing Pumps (P)
Supply Air Static Pressure Setpoint	Differential Pressure Setpoint
Supply Air Static Pressure	Differential Pressure
Economizer Set Point	Pump Command
Occupied Command	Pump Status
Unoccupied Command	Pump Alarm

System Point Names	System Point Names
Existing Variable Air Volume Box (VAV)	Existing Reheat Coil (RHC)
Damper Command	Heating Command
Damper Set Point	Heating Status
Heating Command	Supply Air Temperature
Heating Status	Space Temperature
Supply Air Flow	Occupied Command
Supply Air Temperature	Unoccupied Command
Space Temperature	Occupied Heating Set Point
Occupied Command	Occupied Cooling Set Point
Unoccupied Command	Unoccupied Heating Set Point
Occupied Heating Set Point	Unoccupied Cooling Set Point
Occupied Cooling Set Point	
Unoccupied Heating Set Point	
Unoccupied Cooling Set Point	

System Point Names	System Point Names
Existing Reheat Coil (RHC)	Existing Power Wall Exhauster (PWE)
Heating Command	Fan Command
Heating Status	Fan Status
Supply Air Temperature	Fan Alarm
Space Temperature	
Occupied Command	Existing Suspended Unit Heater (SUH)
Unoccupied Command	Fan Command
Unoccupied Heating Set Point	Fan Status
Unoccupied Cooling Set Point	Fan Alarm

System Point Names	System Point Names
Existing Power Wall Exhauster (PWE)	Existing Suspended Unit Heater (SUH)
Fan Command	Fan Command
Fan Status	Fan Status
Fan Alarm	Fan Alarm
	Heating Command
	Heating Status
	Space Temperature
	Occupied Command
	Unoccupied Command
	Occupied Heating Set Point
	Unoccupied Heating Set Point

System Point Names	System Point Names
Existing Combustion Air Damper	Existing Pumps (P)
Damper Command	Differential Pressure Setpoint
Damper Set Point	Differential Pressure
Damper Status	Pump Command
Occupied Command	Pump Status
Unoccupied Command	Pump Alarm



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**LAB BUILDING
HVAC SYSTEM REPLACEMENT**

Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

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**HVAC
DDC CONTROLS**

PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)

DATE: NOVEMBER 8, 2023
DR BY: SDSE
CK BY: SDSE

M12

SCALE: AS NOTED

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 3333 Kishwaukee Street
 Rockford, Illinois 61109

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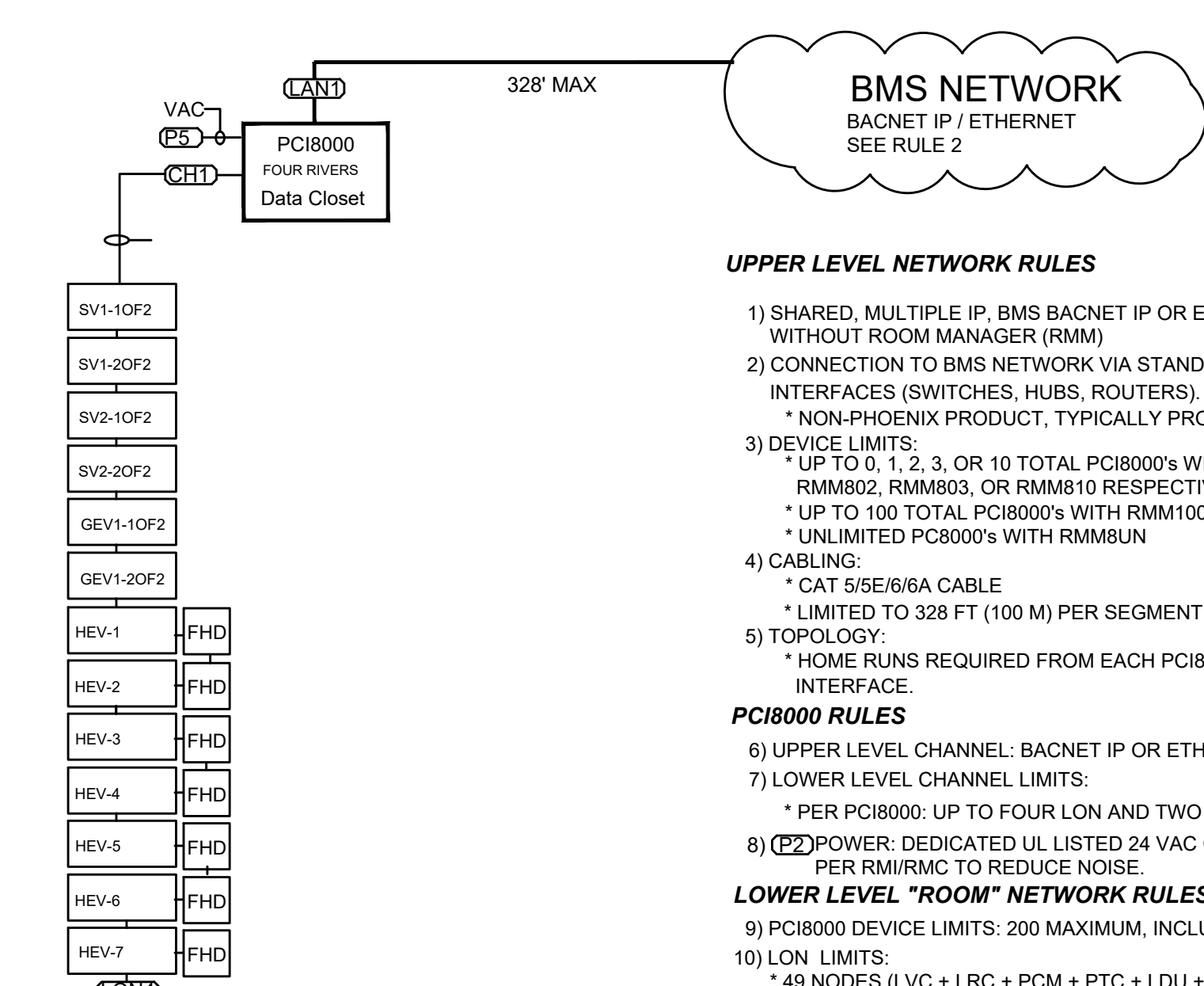
**PHOENIX LAB
 CONTROLS
 DETAILS AND
 DIAGRAMS**

PROJECT NUMBER:
 FRSA 2202 (SDSE 22-054)

DATE: NOVEMBER 8, 2023
 DR BY: SDS
 CK BY: SDSE

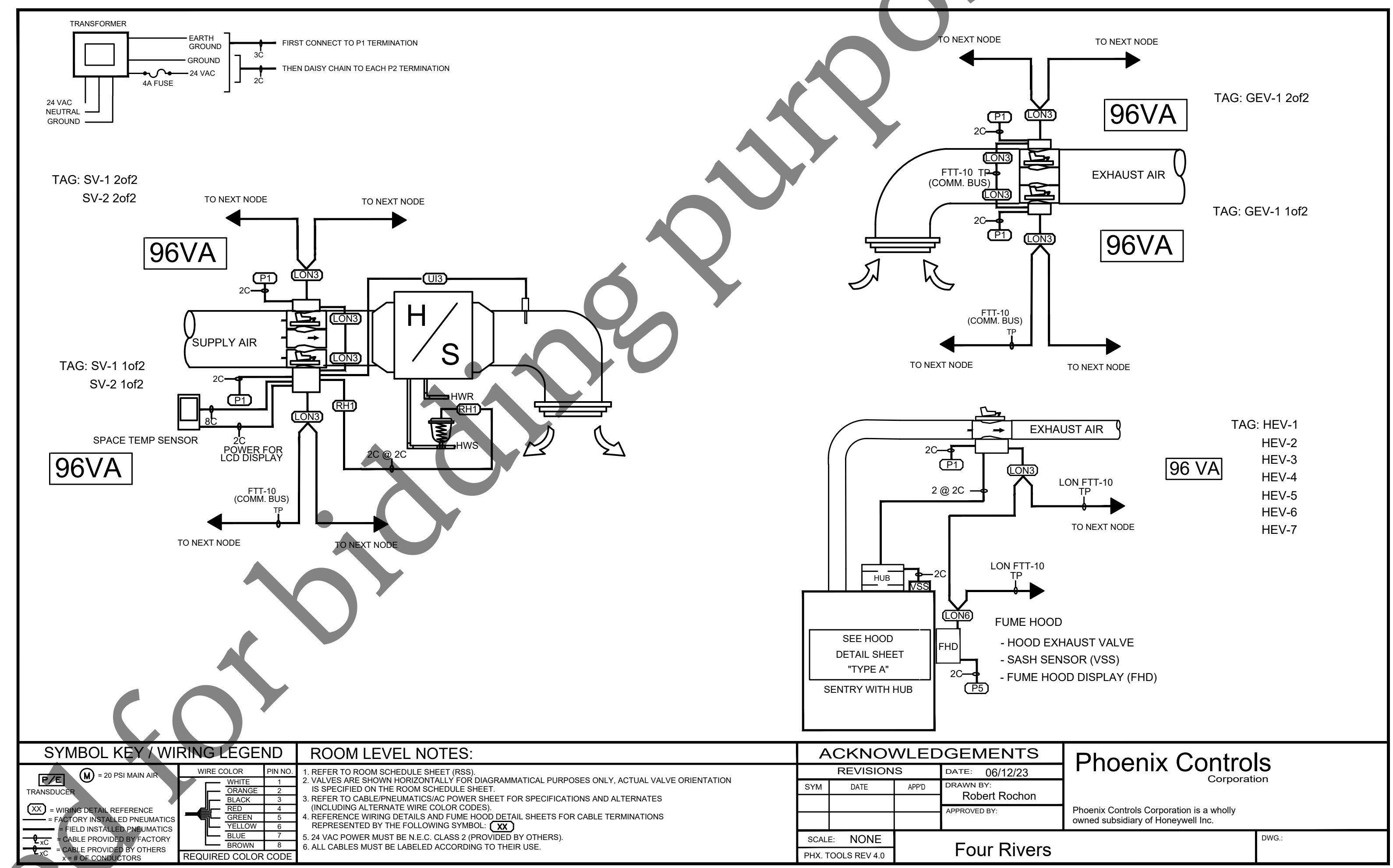
M13

SCALE: AS NOTED



PHOENIX LAB CONTROL DIAGRAM
 NO SCALE

- UPPER LEVEL NETWORK RULES**
- 1) SHARED, MULTIPLE IP, BMS BACNET IP OR ETHERNET NETWORK WITHOUT ROOM MANAGER (RMM)
 - 2) CONNECTION TO BMS NETWORK VIA STANDARD NETWORK INTERFACES (SWITCHES, HUBS, ROUTERS).
 * NON-PHOENIX PRODUCT, TYPICALLY PROVIDED BY BMS
 - 3) DEVICE LIMITS:
 * UP TO 0, 1, 2, 3 OR 10 TOTAL PCI8000'S WITH RMM800, RMM801, RMM802, RMM803, OR RMM810 RESPECTIVELY
 * UP TO 100 TOTAL PCI8000'S WITH RMM100 OR RMM899
 * UNLIMITED PC8000'S WITH RMM8UN
 - 4) CABLING:
 * CAT 5/5E/6/6A CABLE
 * LIMITED TO 328 FT (100 M) PER SEGMENT.
 - 5) TOPOLOGY:
 * HOME RUNS REQUIRED FROM EACH PCI8000 TO BMS NETWORK INTERFACE.
- PCI8000 RULES**
- 6) UPPER LEVEL CHANNEL: BACNET IP OR ETHERNET
 - 7) LOWER LEVEL CHANNEL LIMITS:
 * PER PCI8000: UP TO FOUR LON AND TWO BACNET MS/TP
 - 8) POWER: DEDICATED UL LISTED 24 VAC CLASS 2 TRANSFORMER PER RMI/RMC TO REDUCE NOISE.
- LOWER LEVEL "ROOM" NETWORK RULES**
- 9) PCI8000 DEVICE LIMITS: 200 MAXIMUM. INCLUDES BOTH LON AND BACNET
 - 10) LON LIMITS:
 * 49 NODES (LVC + LRC + PCM + PTC + LDU + FHD) WITH 20 FUME HOOD VALVES MAXIMUM PER CHANNEL.
 * REFER TO VANTAGE SPECS: TABLE 2
 - 11) LON CABLING:
 * FTT-10 CABLE (22 AWG) LIMITED TO 4,500 FT (1,370 M) WITH NO REPEATERS WIRED IN BUS TOPOLOGY.
 * HOME RUN BETWEEN FHD AND IT'S HOOD VALVE IN BUS TOPOLOGY.
 * REFER TO VANTAGE SPECS: TABLE 1
 - 12) BACNET MS/TP LIMITS:
 * SMALLER OF 32 UNIT LOADS OR 50 DEVICES PER NETWORK SEGMENT.
 * REFER TO VANTAGE SPECS: TABLE 2
 - 13) BACNET MS/TP CABLING:
 * 3-CONDUCTOR, SHIELDED 22 AWG CABLE LIMITED TO 4,000 FT (1,219 M) WITHOUT REPEATERS WIRED IN BUS TOPOLOGY
 * REFER TO VANTAGE SPECS: TABLE 1 AND BACNET MS/TP WIRING.



PHOENIX VALVES WIRING DIAGRAM
 NO SCALE

Not to be used for bidding purposes

PRESENT EQUIPMENT AND DEMOLITION NOTES

- A. WORK SHALL BE COORDINATED SO THAT HEATING, PLUMBING, AND ELECTRICAL SERVICES TO THE PRESENT BUILDING AND ALL LABORATORY TESTING FUNCTIONS WILL NOT BE INTERRUPTED, EXCEPT AS APPROVED BY FRSA OPERATIONS.
- B. REMOVED PIPE MUST NOT BE REUSED. REMOVED WIRE SHALL BE REMOVED FROM THE SITE BY CONTRACTOR (PX).
- C. ANY OF ABOVE EQUIPMENT WHICH IS NOT REUSED AND FOLLOWING REMOVED PRESENT EQUIPMENT SHALL BECOME PROPERTY OF CONTRACTOR, AND SHALL BE REMOVED FROM PREMISES BY HIM (PX).
1. EQUIPMENT SO DESIGNATED ON DRAWINGS.
- D. FOLLOWING PRESENT EQUIPMENT SHALL BE CAREFULLY REMOVED, INTACT, MATCH MARKED, INSOFAR AS IS PRACTICAL, SHALL REMAIN PROPERTY OF OWNER, AND SHALL BE DELIVERED TO OWNER OUTSIDE OF BUILDING IF INDICATED OR AS DIRECTED BY FRSA OPERATIONS (PX-DO).
1. EQUIPMENT SO DESIGNATED ON DRAWINGS.
- E. CONTRACTOR SHALL:
1. PROVIDE NEW FLOORS UNDER REMOVED PRESENT EQUIPMENT AND WHERE CALLED FOR
2. REPAIR FLOORS UNDER AND WALLS ADJACENT TO REMOVED EQUIPMENT, TO MATCH ADJACENT CONSTRUCTION.
3. CAP CHASES WHICH ARE NO LONGER REQUIRED AND NEATLY PATCH TO MATCH ADJACENT CONSTRUCTION.
4. CUT OPENINGS REQUIRED FOR:
A. HIS WORK;
B. ADMISSION OF NEW EQUIPMENT;
C. REMOVAL OF PRESENT EQUIPMENT;
D. NEW CONNECTION TO PRESENT CONSTRUCTION.
5. PATCH AND REPAIR UNUSED PRESENT HOLES AND OPENINGS, AND THOSE LEFT BY THE REMOVAL OF PRESENT EQUIPMENT AND ADMISSION OF NEW EQUIPMENT.
6. PATCH AND REPAIR PRESENT EQUIPMENT, AND BUILDING CONSTRUCTION WHICH HAS NOT BEEN CUT, REMOVED, DISTURBED OR MARRED, AS REQUIRED, TO RESTORE IT TO ORIGINAL CONDITION BEFORE BEING DISTURBED.
- F. UNUSED OPENINGS IN ENCLOSURES, IN CONDUITS, BOXES, CABINETS, AND PANELS SHALL BE CAPPED.
- G. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAIRED SAME AS NEW CONSTRUCTION.
- H. CERTAIN ABBREVIATIONS OR SYMBOLS, WHEN APPLIED TO PRESENT (TO EXISTING) LINE, DEVICE OR EQUIPMENT, SHALL HAVE THE FOLLOWING MEANINGS.
- NC** NEW CONNECTIONS TO PRESENT PIPING, DEVICE WIRING, EQUIPMENT, ETC. INSTALL, TEST, COVER, PAINT, ETC., SAME AS NEW WORK.
- P** TO REMAIN UNCHANGED, IF CHANGE CANNOT BE AVOIDED DUE TO CONTRACTOR CONVENIENCE CHANGE "P" TO "PX", AT NO INCREASE IN CONTRACT PRICE.
- PX** TO BE COMPLETELY REMOVED, INCLUDING UNNEEDED CONNECTIONS, PIPING, DUCTS, WIRING, BASES, ETC., OF EVERY KIND. UNUSED OPENINGS PLUGGED OR CAPPED, TESTED, COVERED, PAINTED SAME AS NEW WORK. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., TO EQUAL ORIGINAL CONDITION. REMOVED MATERIAL MUST NOT BE REUSED UNLESS OTHERWISE SPECIFIED OR DIRECTED BY ENGINEER.
- PXR** SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED, SAME AS NEW WORK, IN ORIGINAL OR REVISED POSITION. IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE.
- PX-DO** SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED INTACT, AS FAR AS PRACTICAL, MATCHED MARKED, AND OTHERWISE IDENTIFIED AS REQUIRED AND DELIVERED AS INDICATED AND DIRECTED BY FRSA OPERATIONS.
- PN ETC.** COMPLETELY REINSTALL DEVICE, LINE OR EQUIPMENT REMOVED, AT NEW LOCATION, SAME, AS NEW WORK.
- I. WORK SHALL BE COORDINATED WITH ALL OTHER WORK AND PRESENT CONDITIONS, SO THAT:
1. ELECTRICAL SERVICES TO PRESENT BUILDINGS OR PORTIONS OF BUILDING WILL NOT BE INTERRUPTED DURING PERIODS WHEN THOSE SERVICES ARE NEEDED.
2. SPECIAL SYSTEMS SUCH AS FIRE ALARM, SOUND, ETC., OF EVERY KIND TO PRESENT BUILDINGS WILL NOT BE INTERRUPTED DURING WORKING AND/OR OCCUPIED HOURS, EXCEPT AS APPROVED BY FRSA (WARREN ADAM (815) 871-0787).
- J. NEW CONDUIT SERVING NEW AND/OR PRESENT ELECTRICAL DEVICES IN FINISHED PRESENT ROOMS OR SPACES SHALL BE CONCEALED IN FINISHED ROOMS, WHERE POSSIBLE OR SHALL BE RUN IN ADJOINING UNFINISHED ROOMS, SHAFTS, CHAMBERS, ETC., WHERE EXPOSED CONDUIT IS PERMITTED IN FINISHED PRESENT ROOMS BY OWNER IN WRITING. IT SHALL BE WIREMOLDED WITH MATCHING BOXES, RUN INCONSPICUOUSLY AS POSSIBLE, IN STRAIGHT LINES, PARALLEL TO WALLS AND CEILINGS, WITH NEAT BENDS. UNNEEDED BOXES, SWITCHES AND WIRING SHALL BE COMPLETELY REMOVED AND OPENINGS PATCHED. PRESENT FIXTURES, BOXES, WIRING, SWITCHES, ETC. SHALL BE REMOVED AS NOTED UNLESS ANOTHER DISPOSITION IS SHOWN ON DRAWINGS. WHERE SPECIFICALLY APPROVED BY FRSA OPERATIONS IN WRITING, BOXES MAY BE PERMITTED TO REMAIN AND BE PROVIDED WITH NEAT FLUSH COVERS, EXTENDING OVER ENTIRE WALL OPENING.
- K. UNNEEDED ELECTRICAL FIXTURES, SWITCHES, STARTERS, DEVICES, ETC., SHALL BE COMPLETELY REMOVED, AND CONSTRUCTION PATCHED. NEW CONNECTIONS TO PRESENT EQUIPMENT, SHALL BE MADE, TESTED, COVERED, PAINTED, ETC., SAME AS NEW EQUIPMENT. PRESENT EQUIPMENT, AND OTHER COVERING DISTURBED BY CONTRACTOR SHALL BE REPAIRED TO EQUAL NEW CONDITION AND PAINTED SAME AS NEW COVERING TO MATCH EXISTING FINISH OR AS APPROVED BY OWNER.
- L. WHERE DEVICES ARE OMITTED FROM PRESENT BRANCH CIRCUITS, THE REMAINING DEVICES, ON THE SAME CIRCUIT AND/OR CONDUIT RUN, SHALL BE REWIRED, IF NEEDED AND AS REQUIRED, TO REMAIN ON THEIR RESPECTIVE CIRCUITS AND IN OPERATING CONDITION.

ELECTRICAL SYMBOLS

	GROUNDING DUPLEX GFCI RECEPTACLE	
	OUTLET WITH FINAL CONNECTIONS TO EQUIPMENT, PROVIDE NECESSARY RECEPTACLE, SAFETY SWITCH, WIRING ETC. FOR COMPLETE INSTALLATION VERIFY EXACT LOCATION AND HEIGHT BEFORE ROUGH-IN.	
	WALL JUNCTION BOX WITH FLUSH COVERPLATE	
	EQUIPMENT MOTOR	
	SAFETY SWITCH (F=FUSED)	
	ENCLOSED CONTROLLER	
	MOTOR STARTER (VFD=VARIABLE FREQUENCY DRIVE)	
	SURFACE ELECTRICAL PANELBOARD	
	TRANSFORMER	
	CONDUIT RUN CONCEALED (OR PARTIALLY CONCEALED) IN CEILINGS OR WALLS	} CHARACTER MARKS= NUMBER OF WIRES, IF NONE ARE SHOWN TWO ARE REQUIRED
	CONDUIT RUN CONCEALED IN OR UNDER FLOORS	
	CONDUIT RUN EXPOSED, IN STRAIGHT LINES	
	CONDUIT RUN UNDERGROUND	
	HOME-RUN TO PANEL, IN CONDUIT, CONCEALED	
	ARROWS INDICATE NUMBER OF CIRCUITS	

NOTES: ELECTRICAL OUTLET BOXES INSTALLED IN FIRE RATED ASSEMBLIES SHALL COMPLY WITH LATEST IBC, SECTION 712 (NOT LESS THAN 24" O.C.)

ELECTRICAL ABBREVIATIONS

AC	ABOVE COUNTER	LTG	LIGHTING
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
ASC	ABOVE SUSPENDED CEILING	MFG	MANUFACTURER
C	CONDUIT	MIN	MINIMUM
CTC	CLOSE TO CEILING	MOB	MOTOR OUTLET BOX
CTF	CLOSE TO FLOOR	MTD	MOUNTED
CTW	CLOSE TO WALL	NEC	NATIONAL ELECTRICAL CODE
E	EMERGENCY	PH	PHASE (Ø)
FBO	FURNISHED BY OTHERS	PNL	PANEL
FFA	FROM FLOOR ABOVE	SW	SWITCH
FFB	FROM FLOOR BELOW	TFA	TO FLOOR ABOVE
FLA	FULL LOAD AMPS	TFB	TO FLOOR BELOW
GFI	GROUND FAULT INTERRUPTER	UNO	UNLESS NOTED OTHERWISE
HP	HORSEPOWER	V	VOLTS
IWS	IN WALL SPACE	W	WIRE
JB	JUNCTION BOX	WP	WEATHER PROOF
KW	KILOWATTS	WR	WEATHER RESISTANT

ELECTRICAL COORDINATION NOTE

THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS ASSOCIATED WITH ALL OTHER TRADES THAT INVOLVE THE ELECTRICAL CONTRACTOR TO PROVIDE POWER WIRING FOR DEVICES AND SYSTEMS PROVIDED BY OTHER TRADES. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ASPECTS OF WORK RELATED TO THESE SYSTEMS AND DEVICES PRIOR TO SUBMITTING FINAL BID. INCLUDE ALL NECESSARY LABOR AND MATERIALS ASSOCIATED WITH OTHER TRADES AS REQUIRED FOR COMPLETE OPERATIONAL SYSTEMS THAT REQUIRE THE ELECTRICAL CONTRACTOR TO WIRE.

GENERAL DEMOLITION NOTE:

FOR ALL WALLS, CEILINGS, FLOORS, ETC. REQUIRED FOR CONSTRUCTION DEMOLITION WORK OR NEW CONSTRUCTION WORK, INCLUDING, BUT NOT LIMITED TO ITEMS SHOWN: REMOVE (PX) AND/OR REMOVE AND RELOCATE (PX+PN) ALL ELECTRICAL EQUIPMENT, DEVICES, BOXES, CONDUIT, WIRING, ETC., AS REQUIRED, FOR DEMOLITION OF PRESENT CONSTRUCTION AND TO AVOID INTERFERENCE WITH NEW CONSTRUCTION. (VERIFY BEFORE BIDDING TO INCLUDE ALL NECESSARY MATERIALS AND LABOR).

GENERAL NOTES APPLY TO ALL SHEETS:

SEE DETAILS AND SCHEDULES ON DRAWINGS AND SPECIFICATIONS FOR MEANING OF ABBREVIATIONS AND ADDITIONAL REQUIREMENTS AND INFORMATION. CHECK ARCHITECTURAL, STRUCTURAL, AND OTHER MECHANICAL AND ELECTRICAL DRAWINGS FOR SCALE, SPACE LIMITATIONS, BEAMS, FLOOR SWINGS, WINDOWS, COORDINATION, ADDITIONAL INFORMATION, ETC. AND REPORT ANY DISCREPANCIES, CONFLICTS, ETC. TO FRSA ENGINEERING PRIOR TO SUBMITTING BID.

ALL EQUIPMENT FURNISHED BY OTHERS SHALL BE PROVIDED WITH PROPER MOTOR STARTERS, DISCONNECTS, CONTROLS, ETC. UNLESS SPECIFICALLY NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND COMPLETELY WIRE ALL ASSOCIATED EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S WIRING DIAGRAMS AND AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF EQUIPMENT PRIOR TO ROUGH-IN OF CONDUIT AND WIRING TO AVOID CONFLICTS.

CONTRACTOR SHALL VERIFY FINAL LOCATIONS AND CEILING TYPES FOR ALL ELECTRICAL EQUIPMENT WITH ARCHITECTURAL REFLECTED CEILING PLAN AND ALL TRADES BEFORE ORDERING OR ROUGH-IN OF EQUIPMENT TO AVOID CONFLICTS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING, INCLUDING CORE DRILLING, SAW CUTTING, ETC., AS REQUIRED TO ACCOMMODATE HIS WORK. CUTTING AND PATCHING AND PAYMENT OF SAID WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR REQUIRING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE ELECTRICAL CONTRACTOR TO GIVE QUANTITIES OF PATCHING REQUIREMENTS TO A GENERAL CONTRACTOR.

CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF PRESENT CEILINGS, LIGHT FIXTURES, DIFFUSERS, DUCTWORK, PIPING, CONDUIT, ETC., AS REQUIRED FOR THE INSTALLATION OF HIS WORK. REMOVAL, REPLACEMENT AND PAYMENT FOR MECHANICAL/PLUMBING ITEMS SHALL BE THE RESPONSIBILITY OF THE APPLICABLE ELECTRICAL CONTRACTOR. REMOVAL AND REPLACEMENT OF PRESENT CEILINGS, ETC., SHALL BE THE RESPONSIBILITY OF CONTRACTOR MAKING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE ELECTRICAL CONTRACTOR TO GIVE QUANTITIES OF REMOVAL/REPLACEMENT REQUIREMENTS TO A GENERAL CONTRACTOR.

SYSTEMS DESIGN SERVICE
 engineering
 3600 EAST STATE STREET SUITE 216
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3		
4		

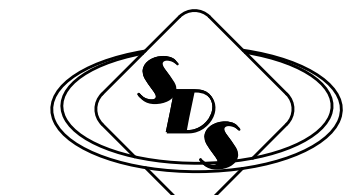
ELECTRICAL
SYMBOLS, NOTES
& ABBREVIATIONS

PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)

DATE: NOVEMBER 8, 2023
DR BY: SDS
CK BY: SDSE

E1

SCALE: AS NOTED



SYSTEMS DESIGN SERVICE
Engineering

3600 EAST STATE STREET SUITE 215
ROCKFORD, ILLINOIS 61108
PHONE: (815) 399-3381 FAX: (815) 399-3383
WWW.SDSEGROUP.COM
IL PROF DESIGN FIRM #184.004999

LAB BUILDING HVAC SYSTEM REPLACEMENT

Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

REMOVAL NOTE

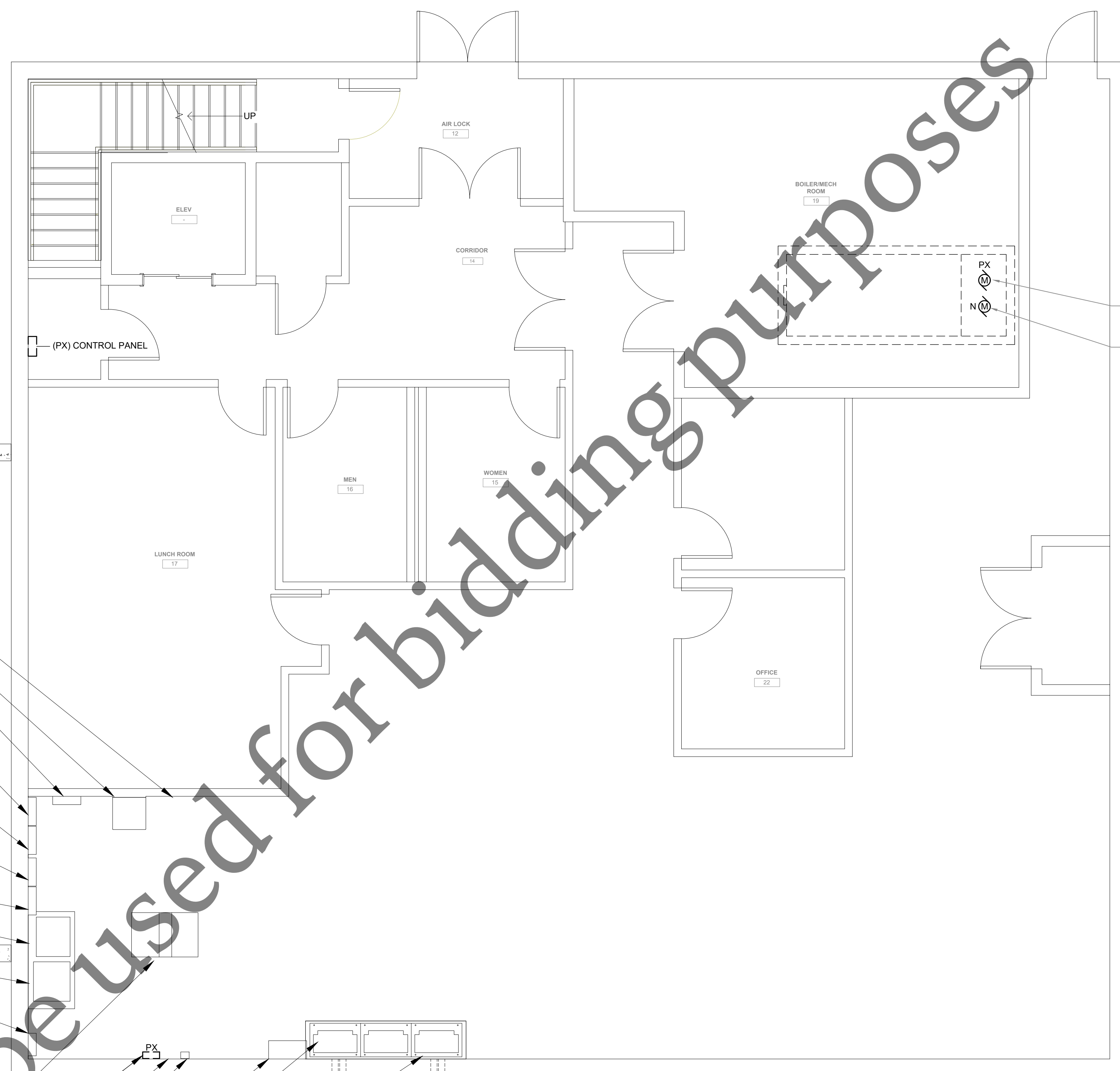
- 1. REMOVE (PX) AHU-1 MOTOR. COORDINATE WITH HVAC CONTRACTOR.

KEY NOTE

- 1. WIRE NEW MOTOR (AHU-1) TO EXISTING 15A/3P BREAKER. COORDINATE WITH HVAC CONTRACTOR.

- (P) SECURITY EQUIPMENT
- (P) TELECOM CABINET
- (P) SUB PANEL "A"
- (P) PANEL "E", 225AMP, 175A MAIN, 120/208VOLT, 3PHASE, 4WIRE
- (P) PANEL "D", 225AMP, 175A MAIN, 120/208VOLT, 3PHASE, 4WIRE
- (P) PANEL "C", 125AMP, 100A MAIN, 120/208VOLT, 3PHASE, 4WIRE
- (P) PANEL "B", 225AMP, 150A MAIN, 120/208VOLT, 3PHASE, 4WIRE
- (P) 112.5 KVA XFMR
- (P) 75 KVA XFMR
- (P) PANEL "A", 600AMP MAIN, 480VOLT

- (P) IT CABINET
- (PX) EF-1 MOTOR STARTER
- (P) EXTERIOR LIGHTING TIMECLOCK
- (P) LIGHTING CONTACTOR
- (P) 200 AMP ATS
- (P) SWBD LAB "9A"
- (P) SWBD LAB "0A"



- (P) AHU-1 (P) MDP-50,(62,54) 1
- (P) AHU-1 (P) MDP-50,(62,54) 2

LOWER LEVEL FLOOR PLAN - ELECTRICAL DEMOLITION & NEW WORK
SCALE: 1/4" = 1'-0" 

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
3		
4		

LOWER LEVEL ELECTRICAL DEMOLITION & NEW WORK

PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)

DATE: NOVEMBER 8, 2023
DR BY: SDS
CK BY: SDSE

E2

SCALE: AS NOTED

Not to be used for bidding purposes



SYSTEMS DESIGN SERVICE
ENGINEERING

3600 EAST STATE STREET SUITE 215
ROCKFORD, ILLINOIS 61108
PHONE: (815) 399-3381 FAX: (815) 399-3383
WWW.SDSEGROUP.COM
IL PROF DESIGN FIRM #184.004999

LAB BUILDING HVAC SYSTEM REPLACEMENT

Four Rivers Sanitation Authority
3333 Kishwaukee Street
Rockford, Illinois 61109

No.	Description	Date
1	75% REVIEW	07/28/23
2	ISSUED FOR CONST.	11/08/23
3		
4		

BALCONY/LOWER ELECTRICAL DEMOLITION & NEW WORK

PROJECT NUMBER:
FRSA 2202 (SDSE 22-054)
DATE: NOVEMBER 8, 2023
DR BY: SDS
CK BY: SDSE

E3

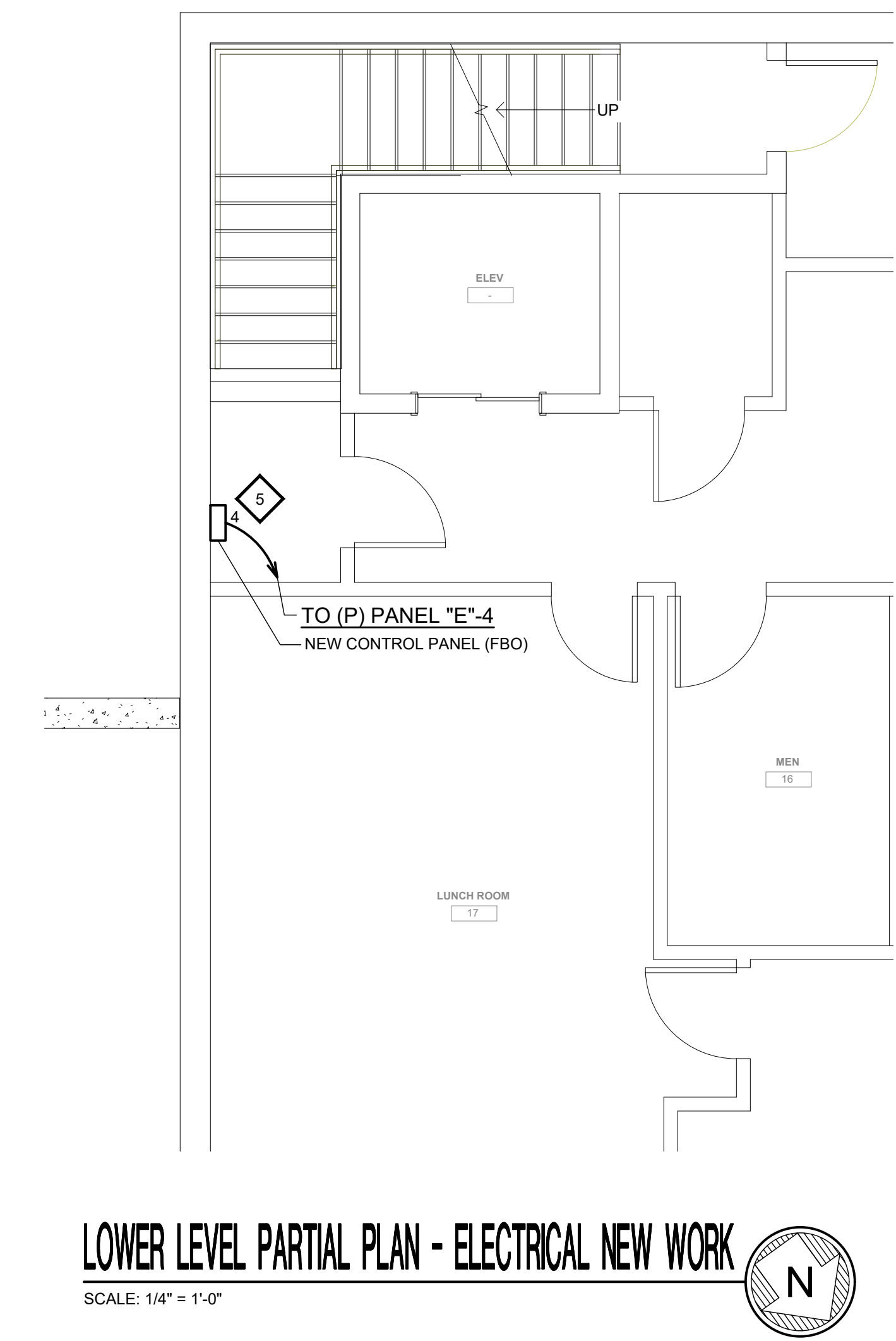
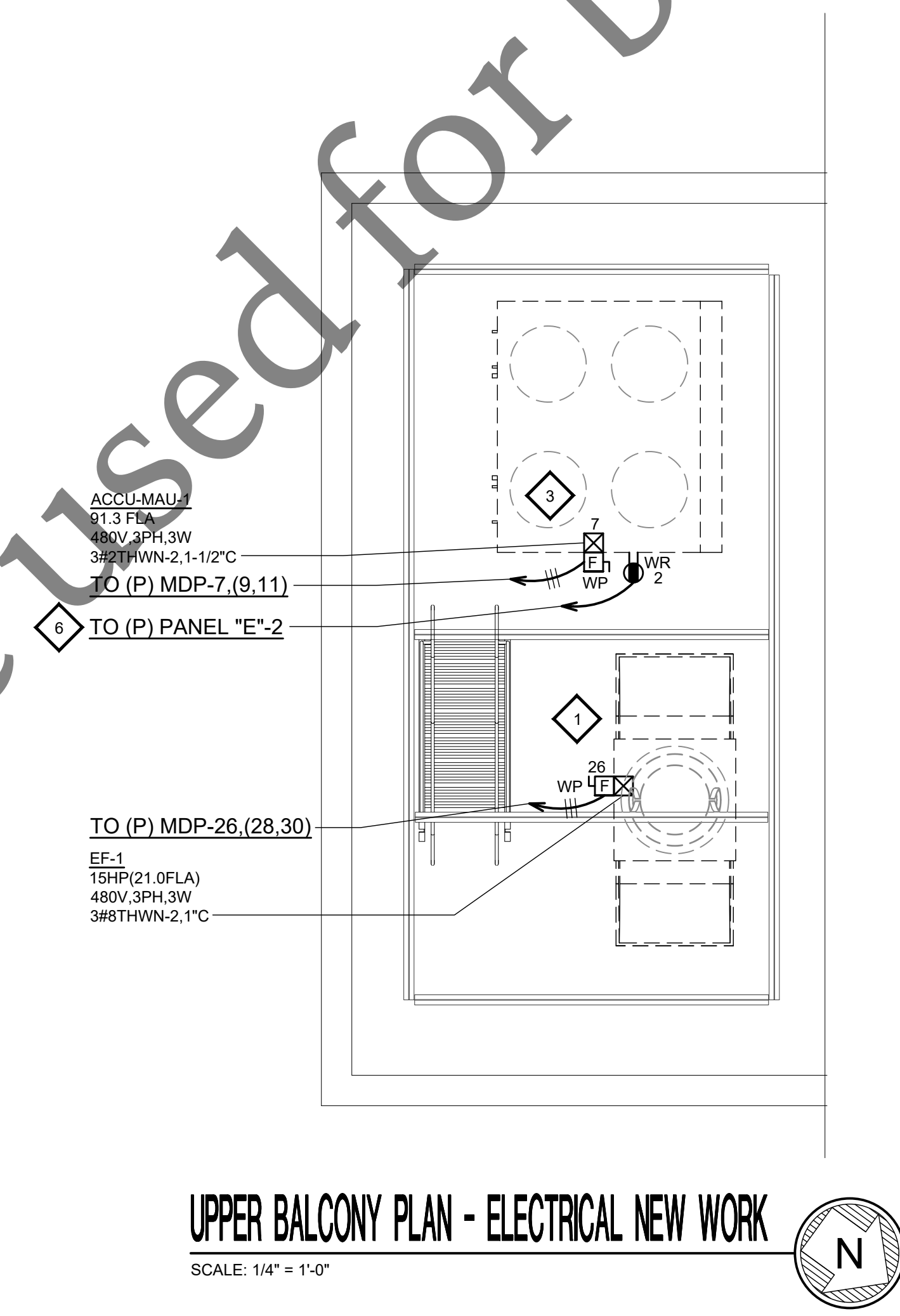
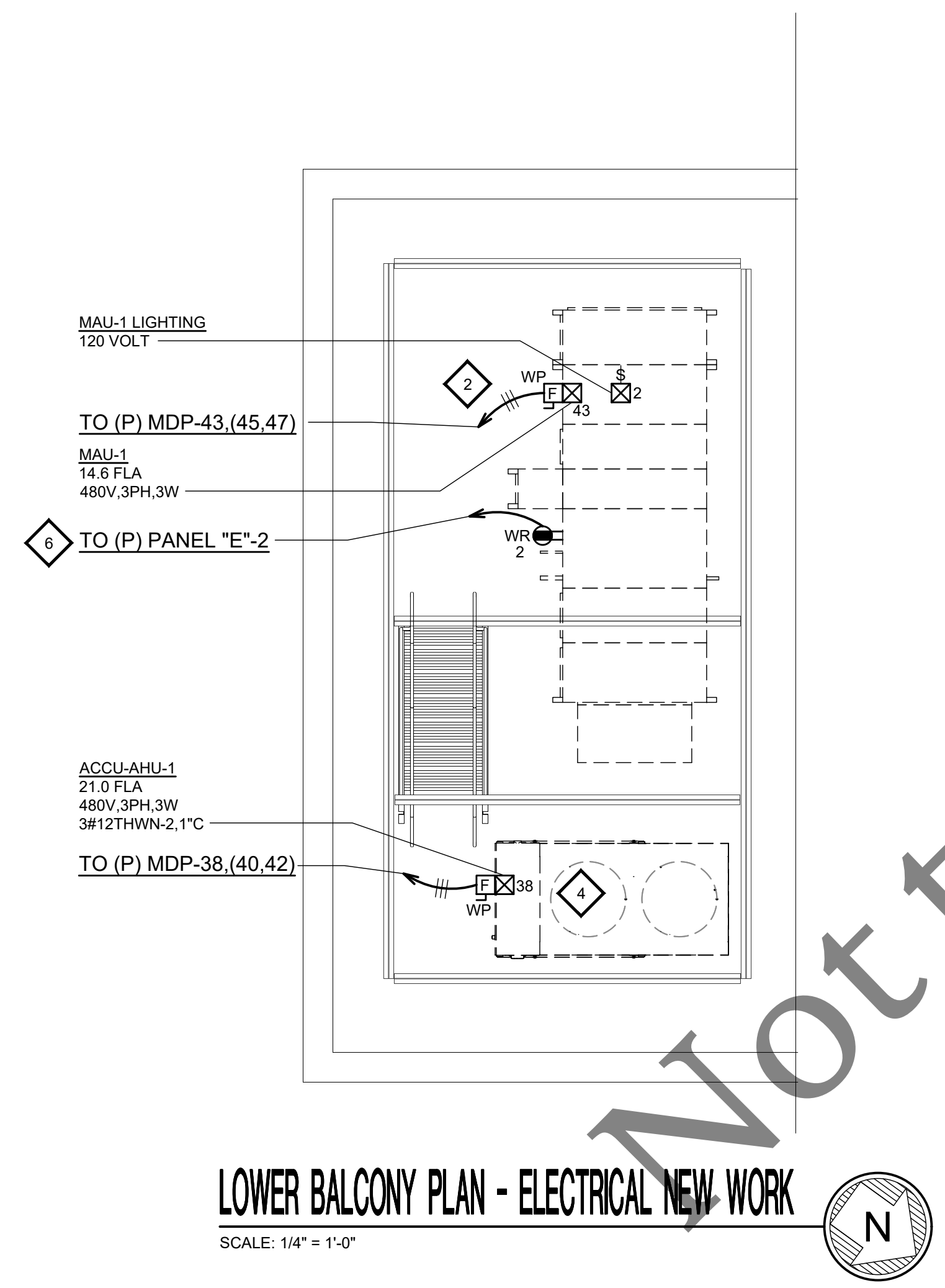
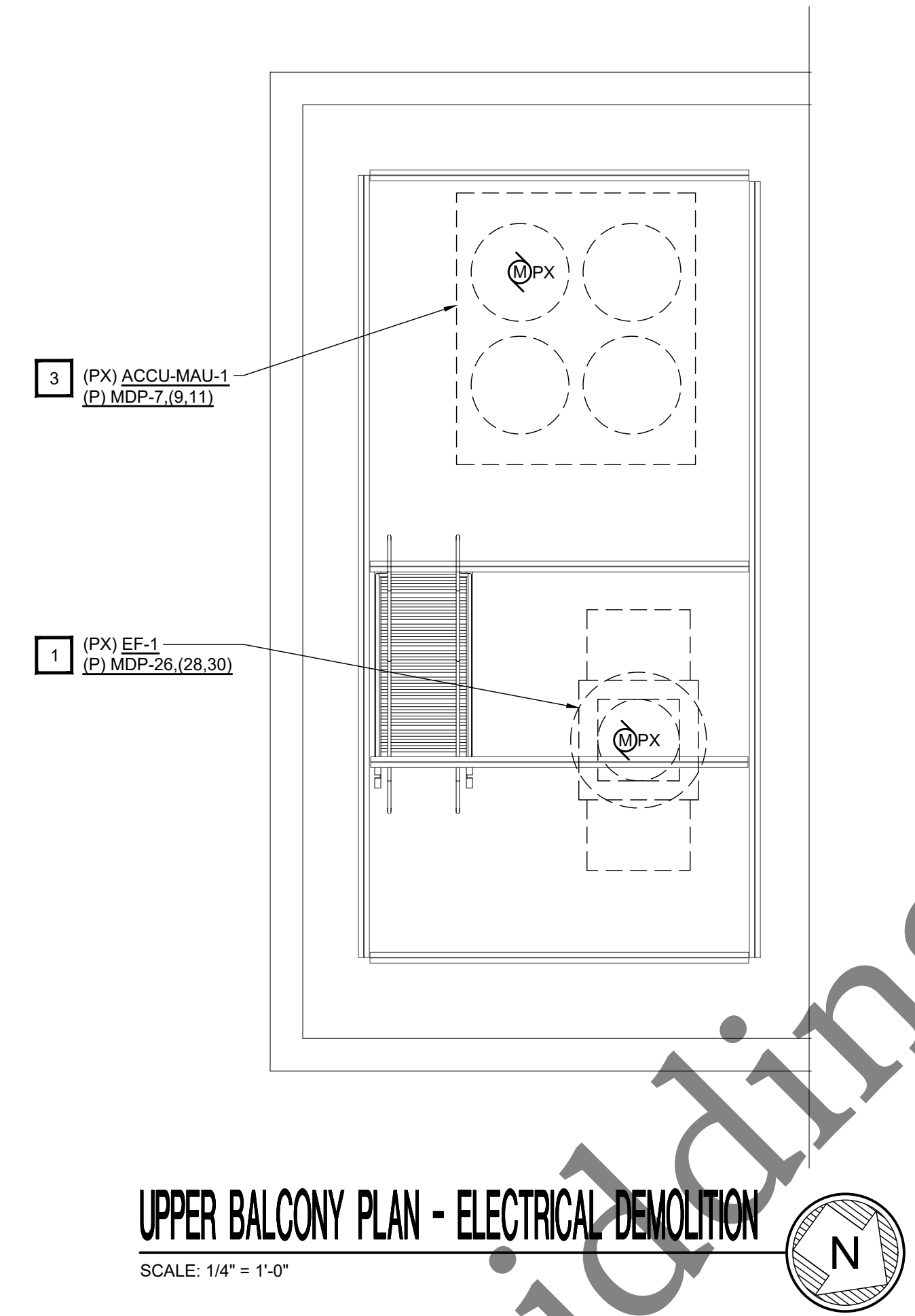
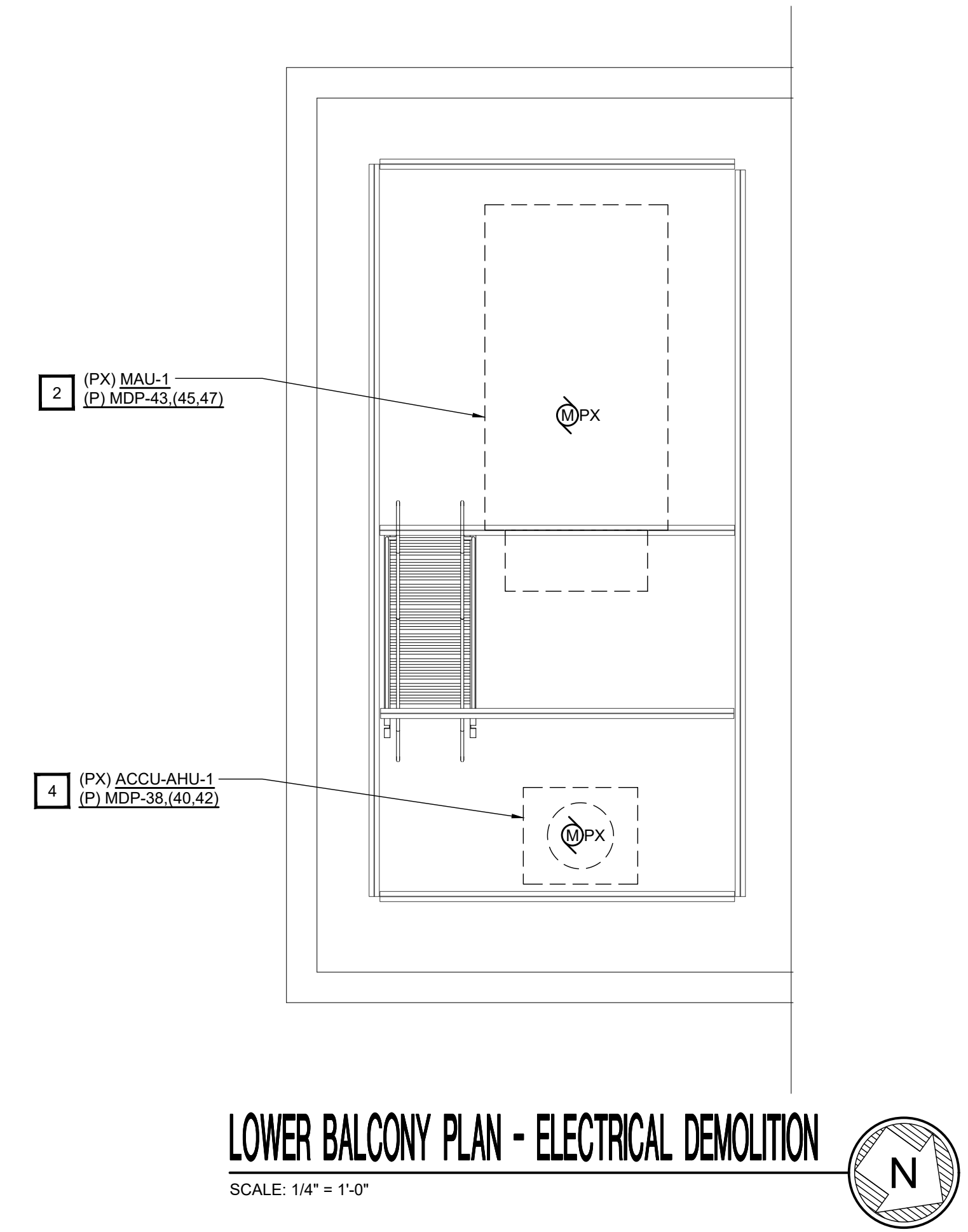
SCALE: AS NOTED

REMOVAL NOTES

- REMOVE (PX) EXHAUST FAN (EF-1) MOTOR AND ASSOCIATED MOTOR STARTER/DISCONNECT. COORDINATE WITH HVAC CONTRACTOR.
- REMOVE (PX) MAKEUP AIR UNIT MOTOR (MAU-1) AND ASSOCIATED DISCONNECT. COORDINATE WITH HVAC CONTRACTOR.
- REMOVE (PX) MAKEUP AIR CONDENSING UNIT MOTOR (ACCU-MAU-1) AND ASSOCIATED DISCONNECT. COORDINATE WITH HVAC CONTRACTOR.
- REMOVE (PX) CONDENSING UNIT MOTOR (ACCU-AHU-1) AND ASSOCIATED DISCONNECT. COORDINATE WITH HVAC CONTRACTOR.

KEY NOTES

- WIRE NEW EXHAUST FAN (EF-1) TO EXISTING 40A/3P BREAKER. PROVIDE 1" EMPTY CONDUIT FOR CONTROL WIRING. COORDINATE WITH HVAC CONTRACTOR.
- WIRE NEW MAKEUP AIR UNIT (MAU-1) TO EXISTING 20A/3P BREAKER. PROVIDE 1" EMPTY CONDUIT FOR CONTROL WIRING. COORDINATE WITH HVAC CONTRACTOR.
- WIRE NEW MAKEUP AIR CONDENSING UNIT (ACCU-MAU-1) TO EXISTING 40A/3P BREAKER. PROVIDE 1" EMPTY CONDUIT FOR CONTROL WIRING. COORDINATE WITH HVAC CONTRACTOR.
- WIRE NEW AIR HANDLER CONDENSING UNIT (ACCU-AHU-1) TO EXISTING 25A/3P BREAKER. PROVIDE 1" EMPTY CONDUIT FOR CONTROL WIRING. COORDINATE WITH HVAC CONTRACTOR.
- WIRE NEW CONTROL PANEL AS DIRECTED BY THE HVAC/CONTROLS CONTRACTOR. PROVIDE 120 VOLT POWER AND NEW 20A/1P BREAKER IN SPACE NUMBER INDICATED. EXISTING PANEL "E" = GE A SERIES
- PROVIDE NEW 20A/1P BREAKER IN SPACE NUMBER INDICATED. EXISTING PANEL "E" = GE A SERIES



Not to be used for bidding purposes