

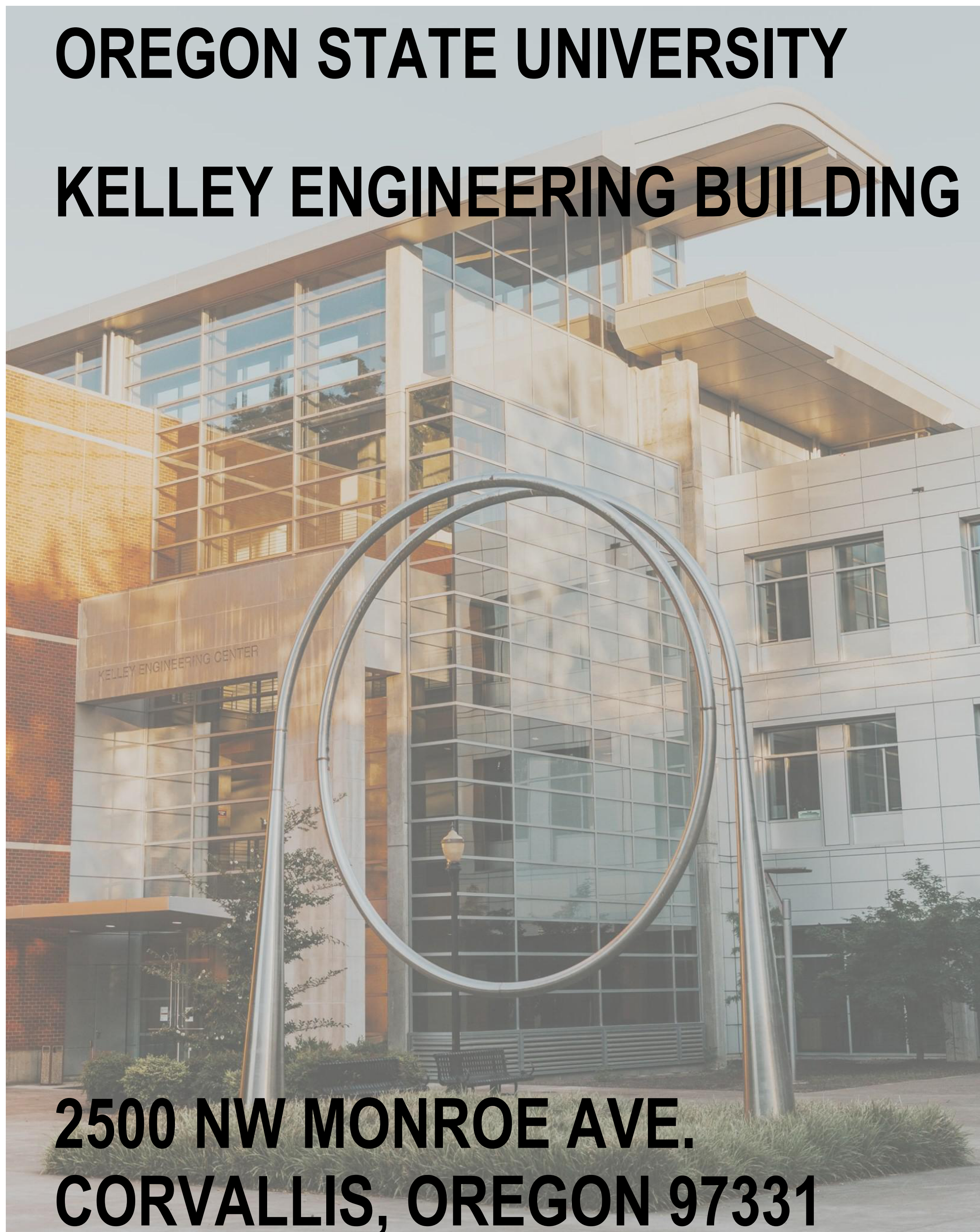
SYSTEMS WEST ENGINEERS
 725 A Street
 Springfield, OR 97477
 541.342.7210
 systemswestengineers.com

100% DESIGN DEVELOPMENT

OCTOBER 14TH, 2022

OREGON STATE UNIVERSITY

KELLEY ENGINEERING BUILDING



**2500 NW MONROE AVE.
 CORVALLIS, OREGON 97331**

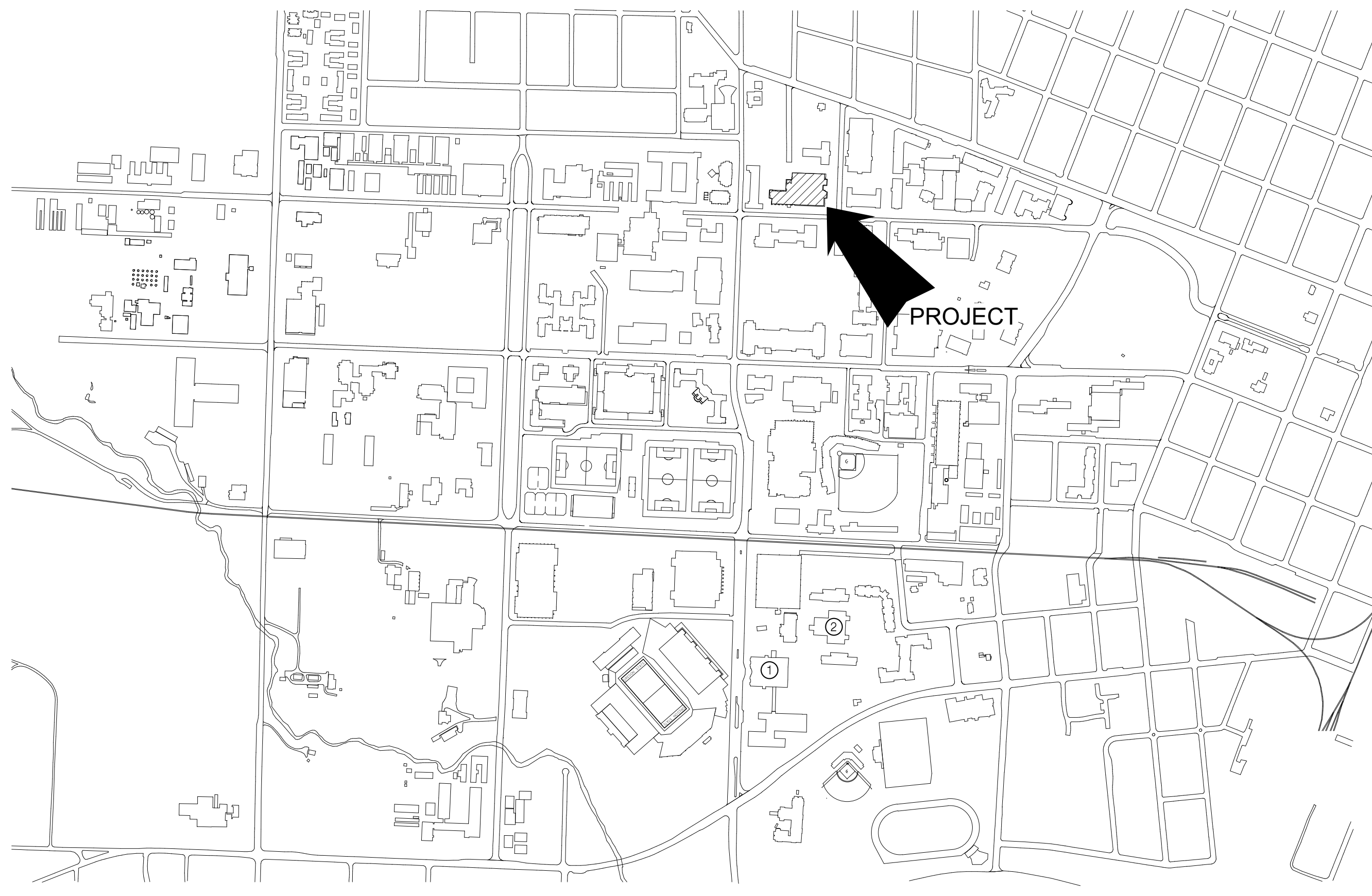
**OWNER:
 OREGON STATE UNIVERSITY**
 850 SW 35th Street
 Corvallis, OR 97333
 Contact:
 Ryan Wilson
 Construction Manager
 p. 503-779-3488

**MECHANICAL & ELECTRICAL:
 SYSTEMS WEST ENGINEERS**
 725 A Street
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 Contact:
 Tyson Oleman
 Mechanical Engineer
 d. 458.210.2661

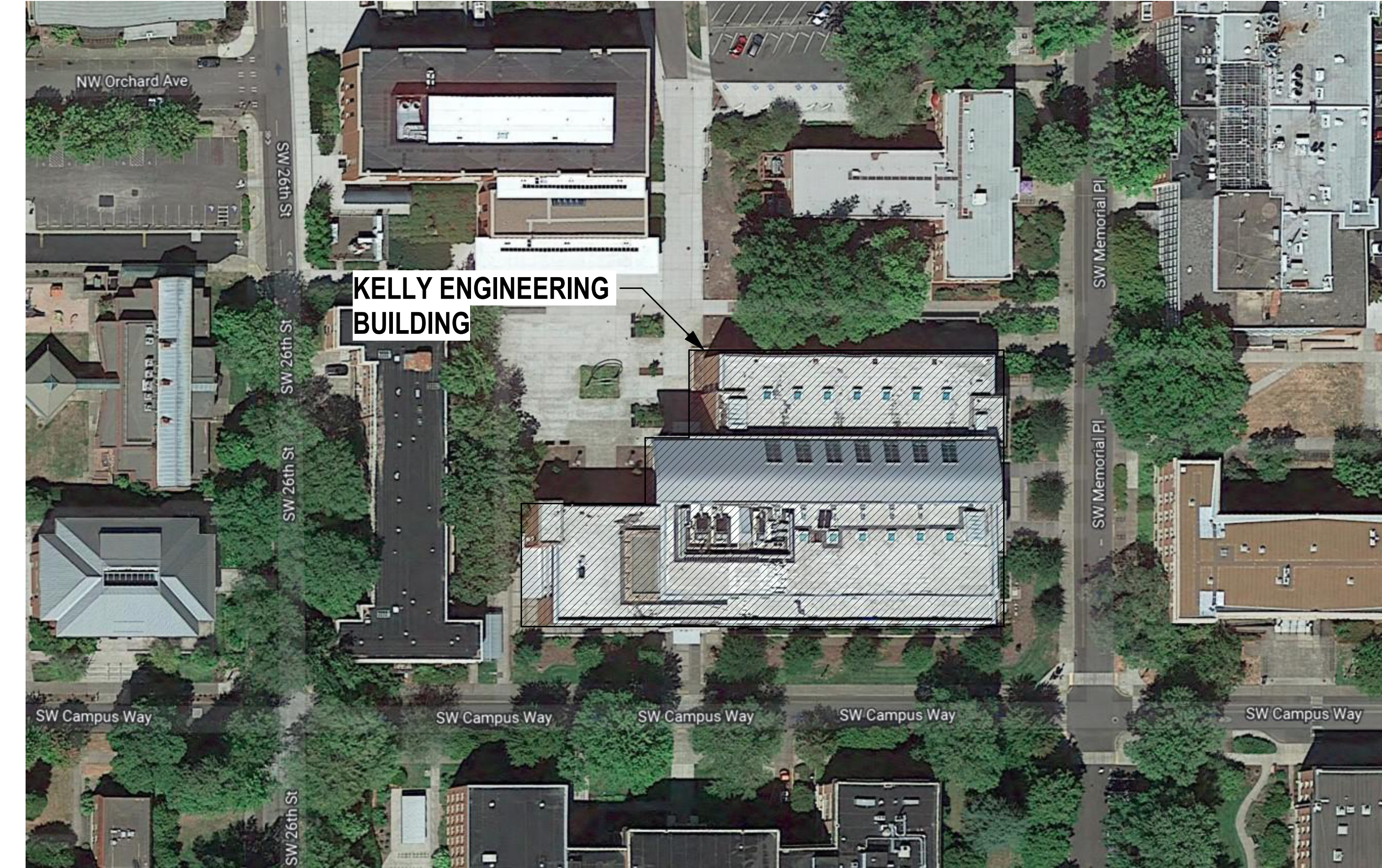
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 Construction**

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- E122 POWER DISTRIBUTION - ROOF
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- E611 ONE-LINE DIAGRAMS
- E612 ONE-LINE DIAGRAMS



AREA MAP
 NOT TO SCALE



SITE MAP
 NOT TO SCALE

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE. CORVALLIS, OR 97331

**OWNER:
 OREGON STATE UNIVERSITY**

**COVER SHEET -
 CONTACTS,
 AREA MAP, SITE
 MAP & SHEET
 INDEX**

| | |
|-----------|-----|
| DESIGNED: | SGS |
| DRAWN: | PZL |
| CHECKED: | TKO |

DATE: 10.14.2022
 PROJECT: V015.23

G001

PLOTTED BY: PZL ON: 10/14/2022 12:49:20 PM



MECHANICAL LEGEND

PIPING

TYPES

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|------------------------|
| | CWS | CHILLED WATER SUPPLY |
| | CWR | CHILLED WATER RETURN |
| | HS | HEATING WATER SUPPLY |
| | HR | HEATING WATER RETURN |
| | CD | CONDENSATE DRAIN |
| | CDS | CONDENSER WATER SUPPLY |
| | CDR | CONDENSER WATER RETURN |
| | HRS | HEAT RECOVERY SUPPLY |
| | HRR | HEAT RECOVERY RETURN |

STEAM

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|-------------------------------------|
| | MPS | MEDIUM PRESSURE STEAM 15 psi-60 psi |
| | LPS | LOW PRESSURE STEAM <15 psi |
| | LPR | LOW PRESSURE CONDENSATE RETURN |
| | PR | PUMPED CONDENSATE RETURN |
| | SSV | STEAM SAFETY VALVE |

FUEL

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|---------------------------------|
| | GI* | NATURAL GAS (*=SUPPLY PRESSURE) |

REFRIGERANT

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|---------------------|
| | RL | REFRIGERANT LIQUID |
| | RS | REFRIGERANT SUCTION |
| | RHG | REFRIGERANT HOT GAS |

FIRE PROTECTION

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|-----------------------|
| | F | FIRE SPRINKLER SUPPLY |

PLUMBING

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|--------------------------|
| | CW | POTABLE COLD WATER |
| | HW | POTABLE HOT WATER |
| | HWR | POTABLE HOT WATER RETURN |
| | NP | NON-POTABLE COLD WATER |
| | W | SANITARY WASTE |
| | PW | PUMPED WASTE |
| | V | VENT |
| | D | DRAIN |
| | SD | STORM DRAIN |
| | OD | OVERFLOW DRAIN |

MISCELLANEOUS FITTINGS

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|------------------------|
| | | WYE STRAINER |
| | | SIGHT FLOW INDICATOR |
| | | SENSOR WELL |
| | MAV | MANUAL AIR VENT |
| | AAV | AUTOMATIC AIR VENT |
| | | THERMOMETER |
| | | PRESSURE GAUGE |
| | | TEST PLUG |
| | | WATER FLOW METER |
| | | VENTURI |
| | FMS | FLOW MEASURING STATION |

FITTINGS

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|------------------------------|
| | | PIPING UP |
| | | PIPING DOWN |
| | | DIRECTION OF SLOPE |
| | | CAPPED PIPE |
| | | PIPE REDUCING FITTING |
| | | CONCENTRIC ECCENTRIC FITTING |
| | | DIRECTION OF FLOW |
| | | UNION |
| | | FLEXIBLE PIPE CONNECTION |

VALVES

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|--|
| | DV | DRAIN VALVE WITH HOSE CONNECTION |
| | BV | BALL VALVE |
| | BFV | BUTTERFLY VALVE |
| | CHV | CHECK VALVE |
| | GV | GATE VALVE |
| | GBV | GLOBE VALVE |
| | | BALANCING VALVE / ECCENTRIC PLUG VALVE |
| | PRV | PRESSURE REGULATING VALVE |
| | | SELF CONTAINED CONTROL VALVE |
| | CFR | CONSOLIDATED FITTING RETURN |
| | CFS | CONSOLIDATED FITTING SUPPLY |
| | RV | RELIEF VALVE |
| | SRV | SAFETY RELIEF VALVE (HYDRAULIC) |
| | SSV | STEAM SAFETY VALVE |
| | TPS | TEMPERATURE/PRESSURE SAFETY VALVE |

AUTOMATIC VALVES

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|-------------------------------|
| | FCV | AUTOMATIC FLOW CONTROL VALVE |
| | AV | AUTOMATIC CONTROL VALVE 2-WAY |
| | AV | AUTOMATIC CONTROL VALVE 3-WAY |
| | AV | AUTOMATIC BUTTERFLY VALVE |
| | AV | THREE-WAY BYPASS VALVE |
| | SV | SOLENOID VALVE |

EQUIPMENT

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|-------------------------------------|
| | FD | FLOOR DRAIN |
| | RP | REDUCED PRESSURE BACKFLOW PREVENTER |
| | | PUMP |
| | | PUMP SUCTION DIFFUSER |
| | | FAN |

DUCTWORK

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|---|
| | SA | RECTANGULAR SUPPLY AIR DUCT UP |
| | RA | RECTANGULAR RETURN AIR DUCT UP |
| | EA | RECTANGULAR EXHAUST AIR DUCT UP |
| | OSA | RECTANGULAR OUTSIDE AIR DUCT UP |
| | MAS | RECTANGULAR MAKE-UP AIR DUCT UP |
| | | RECTANGULAR SUPPLY AIR DUCT DOWN |
| | | RECTANGULAR RETURN AIR DUCT DOWN |
| | | RECTANGULAR EXHAUST AIR DUCT DOWN |
| | | ROUND DUCTWORK UP |
| | | ROUND DUCTWORK DOWN |
| | | TURN VANE ELBOW |
| | | STANDARD RADIUS ELBOW |
| | | FLEXIBLE DUCT CONNECTION |
| | | DUCT SIZE: WIDTH x DEPTH |
| | | INTERNALLY LINED OR DOUBLE WALL DUCTWORK |
| | | MANUAL VOLUME DAMPER |
| | | DUCT SMOKE DETECTOR |
| | | FIRE DAMPER |
| | | COMBINATION FIRE/SMOKE DAMPER: HORIZONTAL BLADE |
| | | AUTOMATIC CONTROL DAMPER |
| | | RECTANGULAR DUCT ANGLED CHANGE IN ELEVATION |
| | | ROUND DUCT ANGLED CHANGE IN ELEVATION |
| | | CONCENTRIC TRANSITION |
| | | ECCENTRIC TRANSITION |
| | | MITERED TEE WITH TURNING VANES |
| | | MITERED ELBOW WITH BRANCH FITTING |
| | | 45 DEGREE LATERAL BRANCH, ROUND OR RECTANGULAR |
| | | 45 DEGREE ENTRY BRANCH, ROUND OR RECTANGULAR |
| | | CONICAL BRANCH, ROUND |

DIFFUSERS AND GRILLES

| SYMBOL | ABBREV. | DESCRIPTION |
|--------|---------|---------------|
| | SD-1 | DIFFUSER TYPE |
| | RG-1 | DIFFUSER TYPE |
| | EG-1 | DIFFUSER TYPE |
| | EG-2 | DIFFUSER TYPE |
| | EG-3 | DIFFUSER TYPE |
| | EG-4 | DIFFUSER TYPE |
| | EG-5 | DIFFUSER TYPE |

GENERAL

| SYMBOL | DESCRIPTION |
|--------|-------------------------------------|
| | EXISTING |
| | DIAMETER |
| | NEW TO EXISTING POINT OF CONNECTION |
| | NOTE REFERENCE MARKER |
| | PLAN OR DETAIL NUMBER |
| | SECTION LETTER |
| | EQUIPMENT TYPE |
| | EQUIPMENT NUMBER |
| | ROOM NAME |
| | ROOM NUMBER |
| | EXISTING SHOWN LIGHT |
| | NEW WORK SHOWN BOLD |
| | EXISTING TO BE REMOVED |
| | PACKAGE EQUIPMENT BOUNDARY |

CONTROL SCHEMATIC SYMBOLS

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|--------|---|--------|---|
| | PROCESS PIPING SIGNAL ELECTRICAL SIGNAL | | ACTUATOR - ELECTRIC |
| | SPACE THERMOSTAT | | AUTOMATIC CONTROL DAMPER |
| | SPACE TEMPERATURE | | EMERGENCY STOP SWITCH |
| | SPACE HUMIDITY | | BAS INPUT/OUTPUT POINT |
| | SPACE CARBON DIOXIDE | | BAS INPUT/OUTPUT POINT A = ANALOG INPUT D = ANALOG OUTPUT DI = DIGITAL INPUT DO = DIGITAL OUTPUT FUNCTION DESIGNATION SS = START/STOP |
| | SPACE MULTIFUNCTION | | EQUIPMENT CONTROL PANEL (EQUIP. INDICATED UNDERLINED) |
| | TEMPERATURE MEASUREMENT | | RELAY DP = DIFFERENTIAL PRESSURE |
| | PRESSURE MEASUREMENT | | MOTOR CONTROL |
| | HUMIDITY MEASUREMENT | | FLOW SWITCH |
| | FLOOD MEASUREMENT | | CONTROL PANEL |
| | SMOKE DETECTOR | | HEAT RECOVERY COIL |
| | GAS CONCENTRATION | | HEATING WATER COIL |
| | RELAY OR SWITCH | | CHILLED WATER COIL |
| | RELAY FREEZE PROTECTION | | |
| | ELECTRICAL CURRENT/POWER | | |

ABBREVIATIONS

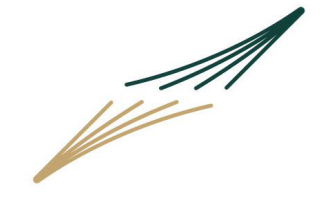
| ABBREVIATION | DESCRIPTION | ABBREVIATION | DESCRIPTION |
|--------------|---------------------------------|--------------|--|
| ACH | AIR CHANGES PER HOUR | EMS | ENERGY MANAGEMENT SYSTEM |
| AFF | ABOVE FINISHED FLOOR | ENT | ENTERING |
| AFS | AUTOMATIC FIRE SPRINKLER | ESP | EXTERNAL STATIC PRESSURE |
| AI | ANALOG INPUT | EWT | ENTERING WATER TEMPERATURE |
| AL | ALUMINUM | F | DEGREES FAHRENHEIT |
| ALT | ALTERNATE | FLA | FULL LOAD AMPS |
| AMP | AMPERE | FP | FIRE PROTECTION |
| AO | ANALOG OUTPUT | FPM | FEET PER MINUTE |
| APD | AIR PRESSURE DROP | FT | FEET |
| AWT | AVERAGE WATER TEMPERATURE | FT2 | SQUARE FEET |
| BAS | BUILDING AUTOMATION SYSTEM | FT WC | FEET WATER COLUMN |
| BHP | BRAKE HORSEPOWER | FUT | FUTURE |
| BOD | BOTTOM OF DUCT | GALV | GALVANIZED |
| BTUH | BRITISH THERMAL UNITS PER HOUR | GPH | GALLONS PER HOUR |
| CFH | CUBIC FEET PER HOUR | GPM | GALLONS PER MINUTE |
| CFM | CUBIC FEET PER MINUTE | GYP BD | GYPSEUM WALL BOARD |
| CMU | CONCRETE MASONRY UNIT | H | HEIGHT |
| CONC | CONCRETE | HP | HORSEPOWER |
| CONT | CONTINUATION | HR | HEAT RECOVERY |
| CU FT | CUBIC FEET | HPF | HEATING SEASONAL PERFORMANCE FACTOR |
| D | DEPTH | HVAC | HEATING, VENTILATING, & AIR CONDITIONING |
| DB | DRY BULB | HZ | HERTZ (CYCLES PER SECOND) |
| dBa | DECIBELS ACOUSTIC | IAQ | INDOOR AIR QUALITY |
| DDC | DIRECT DIGITAL CONTROL | IN | INCHES |
| DEMO | DEMOLITION | IN WC | INCHES WATER COLUMN |
| DI | DIGITAL INPUT | IRLV | INTEGRATED PART LOAD VALVE |
| DN | DOWN | IW | INDIRECT WASTE |
| DO | DIGITAL OUTPUT | KLMWAT | KILOWATT |
| DP | DIFFERENTIAL PRESSURE | L | LENGTH |
| DX | DIRECT EXPANSION | LAT | LEAVING AIR TEMPERATURE |
| (E) | EXISTING | LES | POUNDS |
| EA | EXHAUST AIR | LCM | LOCAL OPERATING NETWORK |
| EAT | ENTERING AIR TEMPERATURE | LON | LOCAL OPERATING NETWORK |
| ECM | ELECTRONICALLY COMMUTATED MOTOR | LVG | LEAVING WATER TEMPERATURE |
| EER | ENERGY EFFICIENCY RATIO | LWT | LEAVING WATER TEMPERATURE |
| EFF | EFFICIENCY | MA | MILLIAMPERE |
| EG | EXHAUST GRILLE | MA | MIXED AIR |
| | | MAX | MAXIMUM |
| | | MBH | THOUSAND BTUs PER HOUR |
| | | MCA | MINIMUM CIRCUIT AMPS |
| | | MFR | MANUFACTURER |
| | | MN | MINIMUM |
| | | MN EFF | MINIMUM EFFICIENCY |
| | | MOP | MAXIMUM OVERCURRENT PROTECTION |
| | | (N) | NEW |
| | | NC | NORMALLY CLOSED |
| | | NO | NORMALLY OPEN |
| | | NFLV | NON-STANDARD PART LOAD VALVE |
| | | NFSH | NET POSITIVE SUCTION HEAD |
| | | NR | NOT REQUIRED |
| | | OAT | OUTSIDE AIR TEMPERATURE |
| | | OCC | OCCUPIED |
| | | OCFI | OWNER FURNISHED/CONTRACTOR INSTALLED |
| | | OSA | OUTSIDE AIR |
| | | PD | PRESSURE DROP |
| | | PH | PHASE |
| | | PPH | POUNDS PER HOUR |
| | | PSI | POUNDS PER SQUARE INCH |
| | | PSIG | POUNDS PER SQUARE INCH GAUGE |
| | | RAT | RETURN AIR TEMPERATURE |
| | | REC'D | REQUIRED |
| | | RG | RETURN GRILLE |
| | | RH | RELATIVE HUMIDITY |
| | | RL | REFRIGERANT LIQUID |
| | | RLA | RUNNING LOAD AMPS |
| | | RS | REFRIGERANT SUCTION |
| | | RPM | REVOLUTIONS PER MINUTE |
| | | SA | SUPPLY AIR |
| | | SAT | SUPPLY AIR TEMPERATURE |
| | | SCFM | STANDARD CUBIC FEET PER MINUTE |
| | | SD | SUPPLY DIFFUSER |
| | | SEER | SEASONAL ENERGY EFFICIENCY RATIO |
| | | SP | STATIC PRESSURE |
| | | SS | STAINLESS STEEL |
| | | STL | STEEL |
| | | TEMP | TEMPERATURE |
| | | TDH | TOTAL DYNAMIC HEAD |
| | | TP | TOTAL PRESSURE |
| | | TSP | TOTAL STATIC PRESSURE |
| | | TYP | TYPICAL |
| | | V | VOLT |
| | | VFD | VARIABLE FREQUENCY DRIVE |
| | | VP | VELOCITY PRESSURE |
| | | VSD | VARIABLE SPEED DRIVE |
| | | W | WATTS |
| | | WB | WET BULB |
| | | WPD | WATER PRESSURE DROP |
| | | WC | WATER COLUMN |
| | | WG | WATER GAUGE |

GENERAL NOTES

- THE FACILITY WILL REMAIN IN OPERATION DURING CONSTRUCTION. COORDINATE ALL SHUTDOWNS AND CONSTRUCTION ACTIVITY WITH FACILITIES STAFF.
- SIZE AND LOCATION OF ALL PIPING AND OTHER MECHANICAL EQUIPMENT IS APPROXIMATE. CONTRACTOR SHALL SITE VERIFY THE LOCATION OF EXISTING PIPING AND EQUIPMENT AND CONSTRUCT WORK FROM FIELD DIMENSIONS. CONTRACTOR SHALL MAKE ADJUSTMENTS NECESSARY TO ACCOMMODATE MINOR DEVIATIONS AT NO COST TO OWNER.
- FINE (LIGHT) LINE WORK INDICATES EXISTING PIPING AND OTHER MECHANICAL EQUIPMENT. BOLD (HEAVY) LINE WORK INDICATES NEW PIPING AND OTHER MECHANICAL EQUIPMENT.
- IT IS RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE CUTTING AND PATCHING TO ALLOW THE INSTALLATION OF MATERIALS AND EQUIPMENT AS SPECIFIED AND SHOWN ON DRAWINGS.
- DOCUMENTS HAVE BEEN PREPARED USING A 3-DIMENSIONAL COMPUTERIZED MODELING PROGRAM TO ESTABLISH EQUIPMENT AND UTILITY ARRANGEMENT, AND TO VERIFY THAT SPACE FOR EQUIPMENT IS ADEQUATE. HOWEVER, CLEARANCES IS LIMITED SOME AREAS, AND CAREFUL COORDINATION BETWEEN TRADES IS REQUIRED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FULLY COORDINATE THE WORK OF EACH TRADE, AND TO VERIFY AND ROUTING PRIOR TO THE START OF WORK WHERE WORK IS NOT PROPERLY COORDINATED. ANY INSTALLED WORK THAT MUST BE MODIFIED TO ALLOW WORK OF OTHER TRADES OR TO PROVIDE RECOMMENDED MAINTENANCE ACCESS SHALL BE PERFORMED AT NO EXPENSE TO THE OWNER.

DEMOLITION NOTES

- REVIEW DEMOLITION DRAWINGS FOR ITEMS TO REMAIN, TO BE RETAINED FOR RELOCATION, OR TO BE SALVAGED TO THE OWNER. REFER TO ARCHITECTURAL DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
- DEMOLISH EQUIPMENT, FIXTURES, DEVICES, PIPING, CONDUIT, FITTINGS, AND APPURTENANCES INTERIOR TO THE BUILDING THAT ARE MADE OBSOLETE BY THE NEW WORK AND/OR ARE ABANDONED AND NO LONGER IN USE.
- PROTECT AND MAINTAIN OPERABLE EXISTING EQUIPMENT, FIXTURES, OR SYSTEMS THAT ARE INDICATED TO REMAIN, INCLUDING ELECTRICAL POWER, CONTROLS, AND RELATED SYSTEMS REQUIRED TO MAINTAIN OPERABILITY.
- EXISTING CONDITIONS SHOWN ARE BASED ON RECORD DOCUMENTS AND LIMITED FIELD OBSERVATIONS OF ACCESSIBLE AREAS AND MAY NOT SHOW THE ENTIRE SCOPE OF DEMOLITION WORK. OMISSION OF EXISTING EQUIPMENT, FIXTURES, DEVICES, PIPING, CONDUIT, FITTINGS, AND APPURTENANCES FROM THE DEMOLITION DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PROVIDE DEMOLITION OF SYSTEMS THAT ARE MADE OBSOLETE BY THE NEW WORK, ARE ABANDONED, OR AS OTHERWISE REQUIRED TO PERFORM THE WORK DESCRIBED HEREIN.
- PROTECT AND MAINTAIN SERVICES TO REMAIN OPERATIONAL THAT PASS THROUGH THE AREA OF CONSTRUCTION, WHEN IT IS NOT POSSIBLE TO MAINTAIN THESE SERVICES INTACT, REPLACE, REROUTE, MODIFY, OR PROVIDE NEW AS REQUIRED TO MAINTAIN SERVICES.



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Construction**

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
2500 NW MONROE AVE
CORVALLIS, OR 97331

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UNIVERSITY

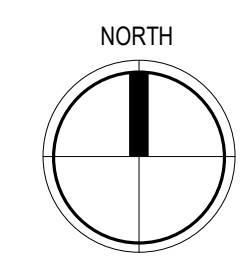
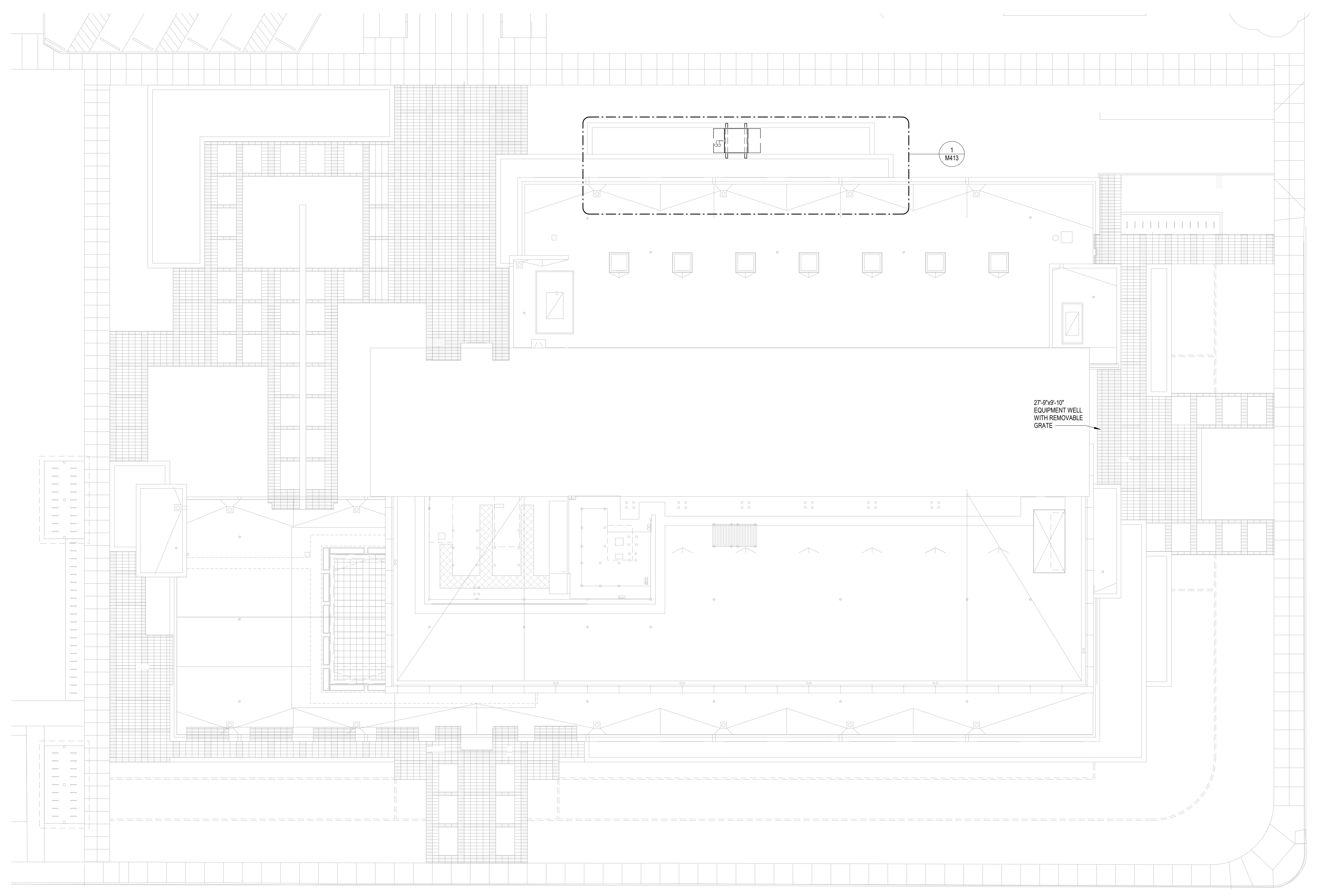
SITE PLAN

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: SGS
DRAWN: PZL
CHECKED: TKO

DATE: 10.14.2022
PROJECT: V015.23

M090



1 MECHANICAL SITE PLAN
1/16" = 1'-0"

PLOTTED BY: PZL ON: 10/27/2022 4:26:54 PM

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E

D

C

B

A

1

2

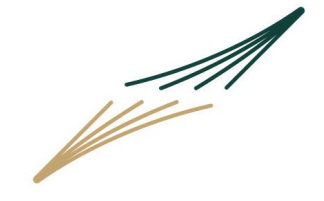
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4

5

6

7



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OSU KEC DUP DESIGN - PHASE 1

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 CORVALLIS, OR 97331

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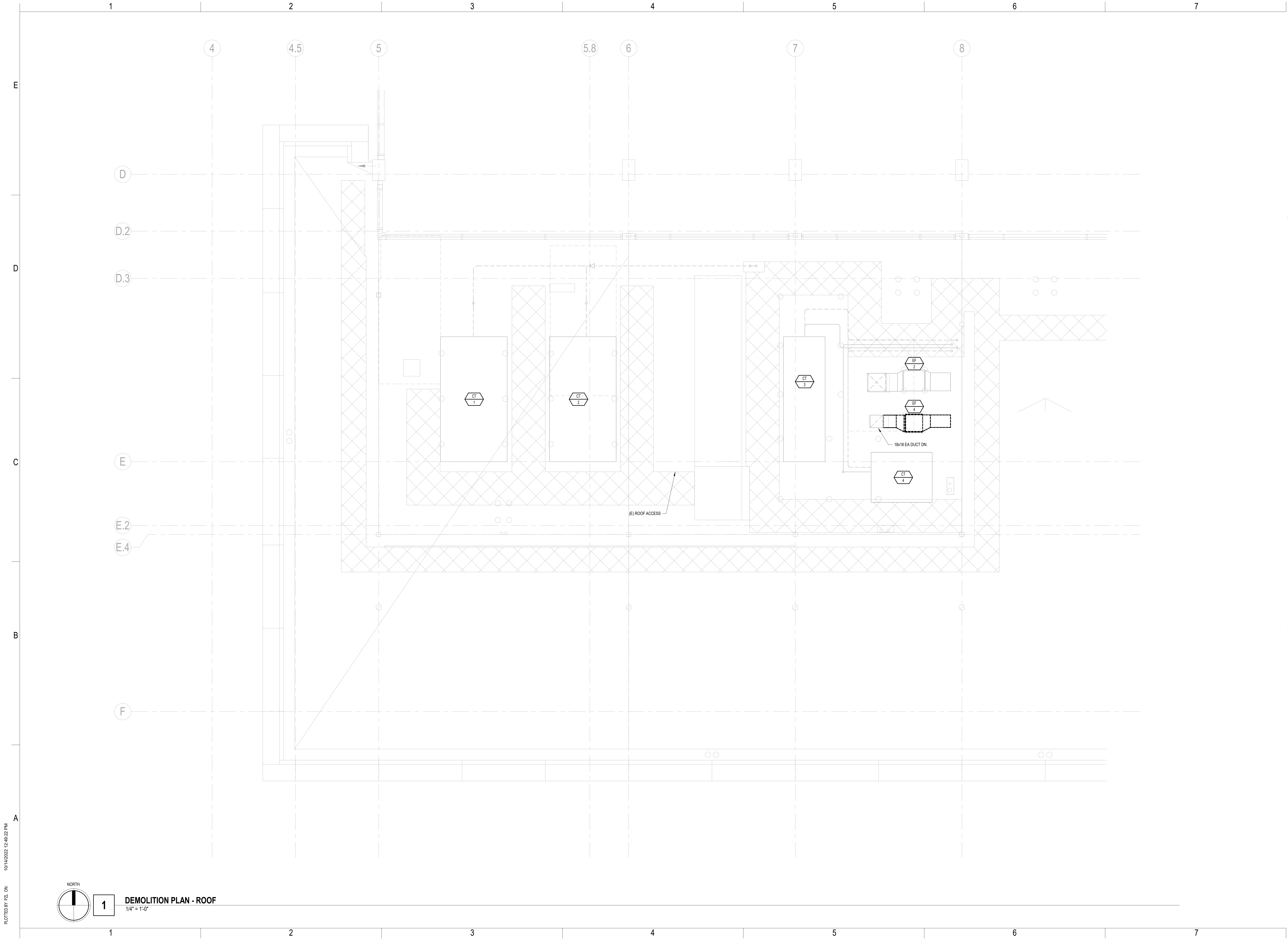
DEMOLITION PLAN - ROOF

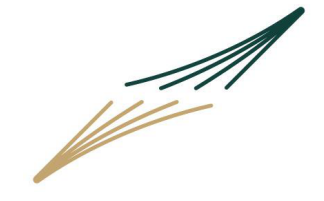
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DATE: 10.14.2022
 PROJECT: V015.23

M103





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KELLEY ENGINEERING BUILDING
2500 NW MONROE AVE.
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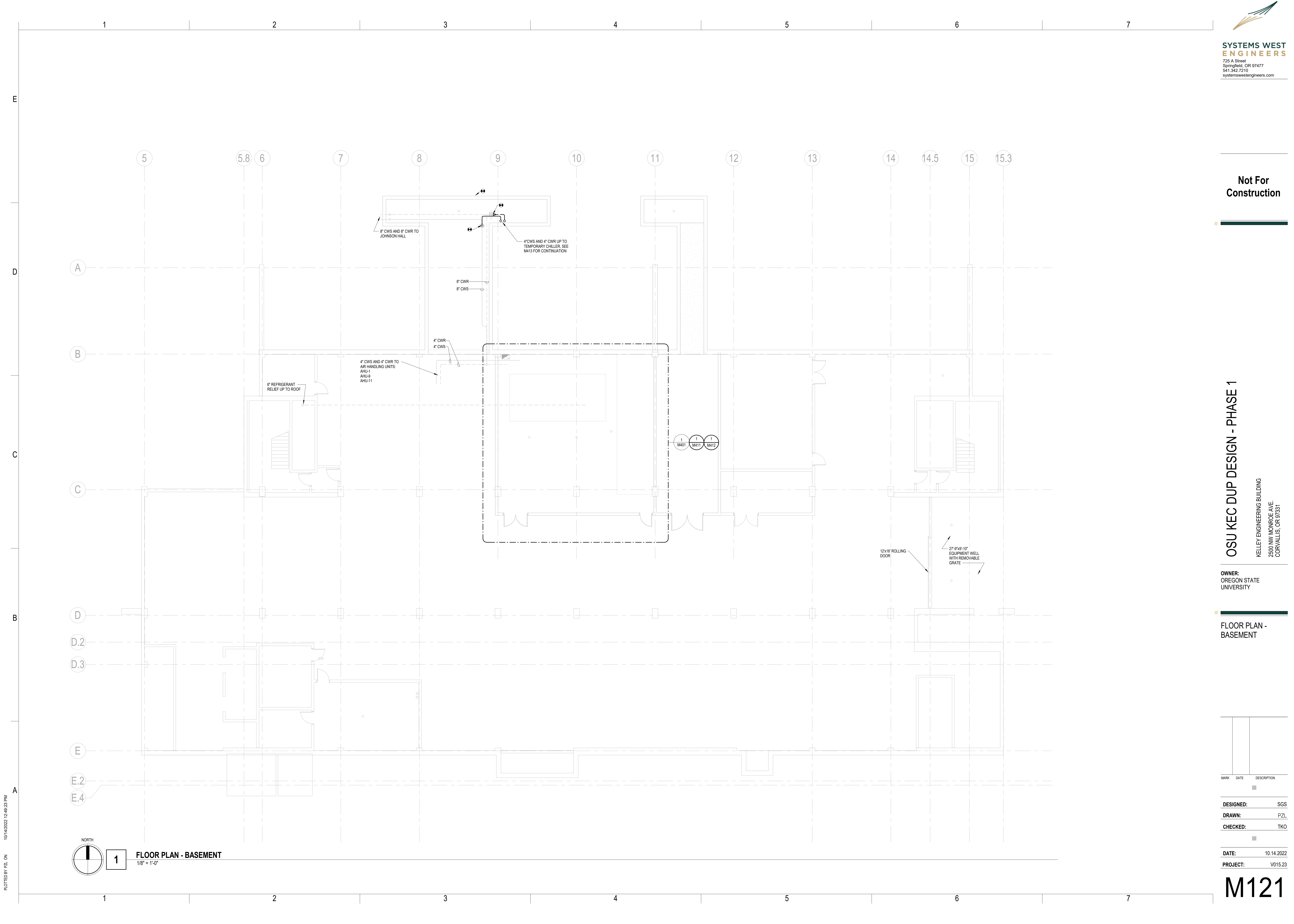
**FLOOR PLAN -
BASEMENT**

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: SGS
DRAWN: PZL
CHECKED: TKO

DATE: 10.14.2022
PROJECT: V015.23

M121



1 FLOOR PLAN - BASEMENT
1/8" = 1'-0"

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**SYSTEMS WEST
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Springfield, OR 97477
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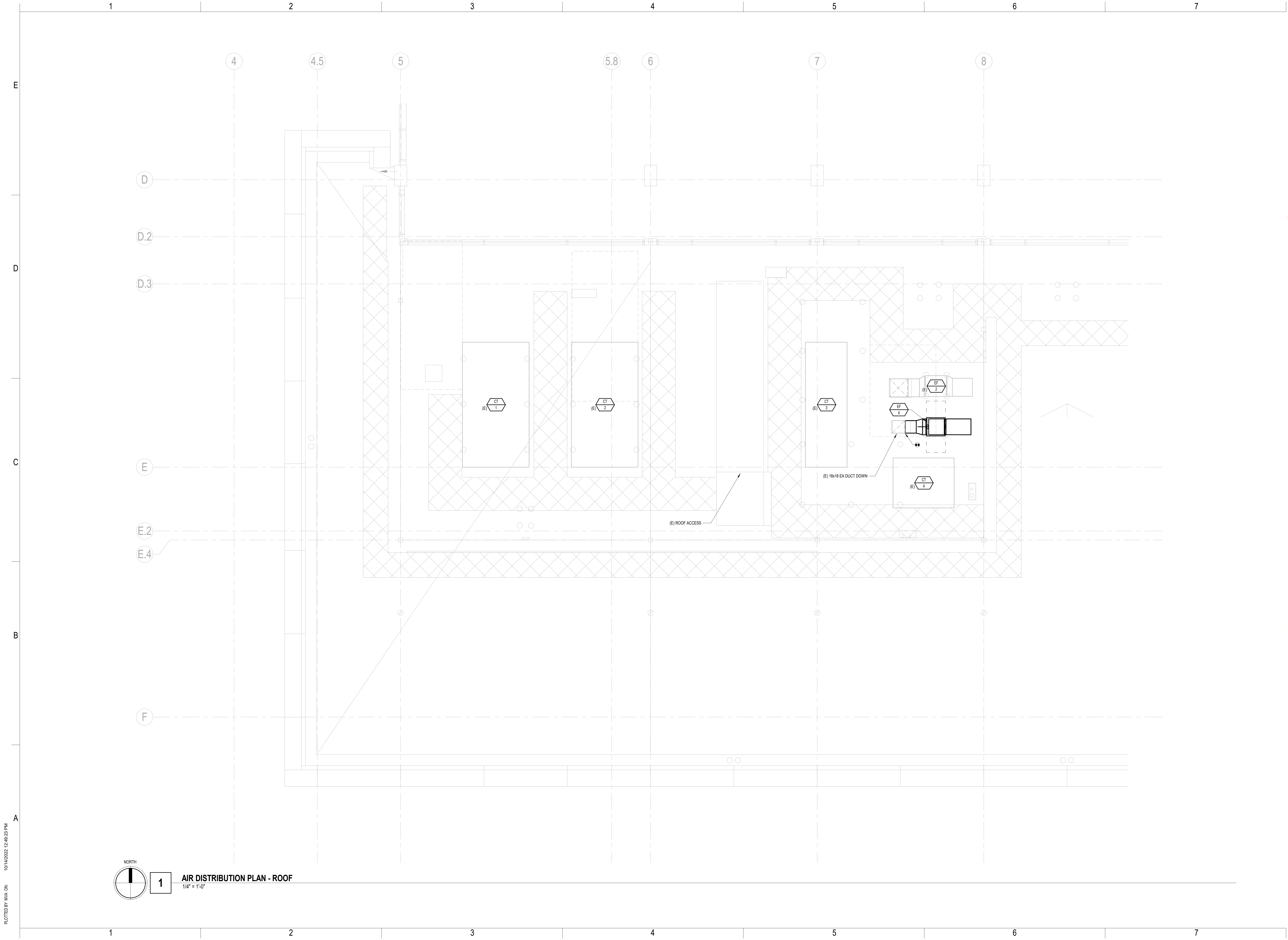
**FLOOR PLAN -
ROOF**

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
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DRAWN: MVA
CHECKED: TKO

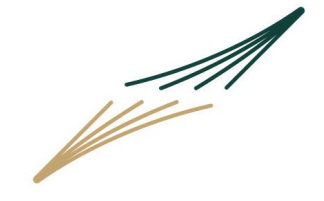
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M122



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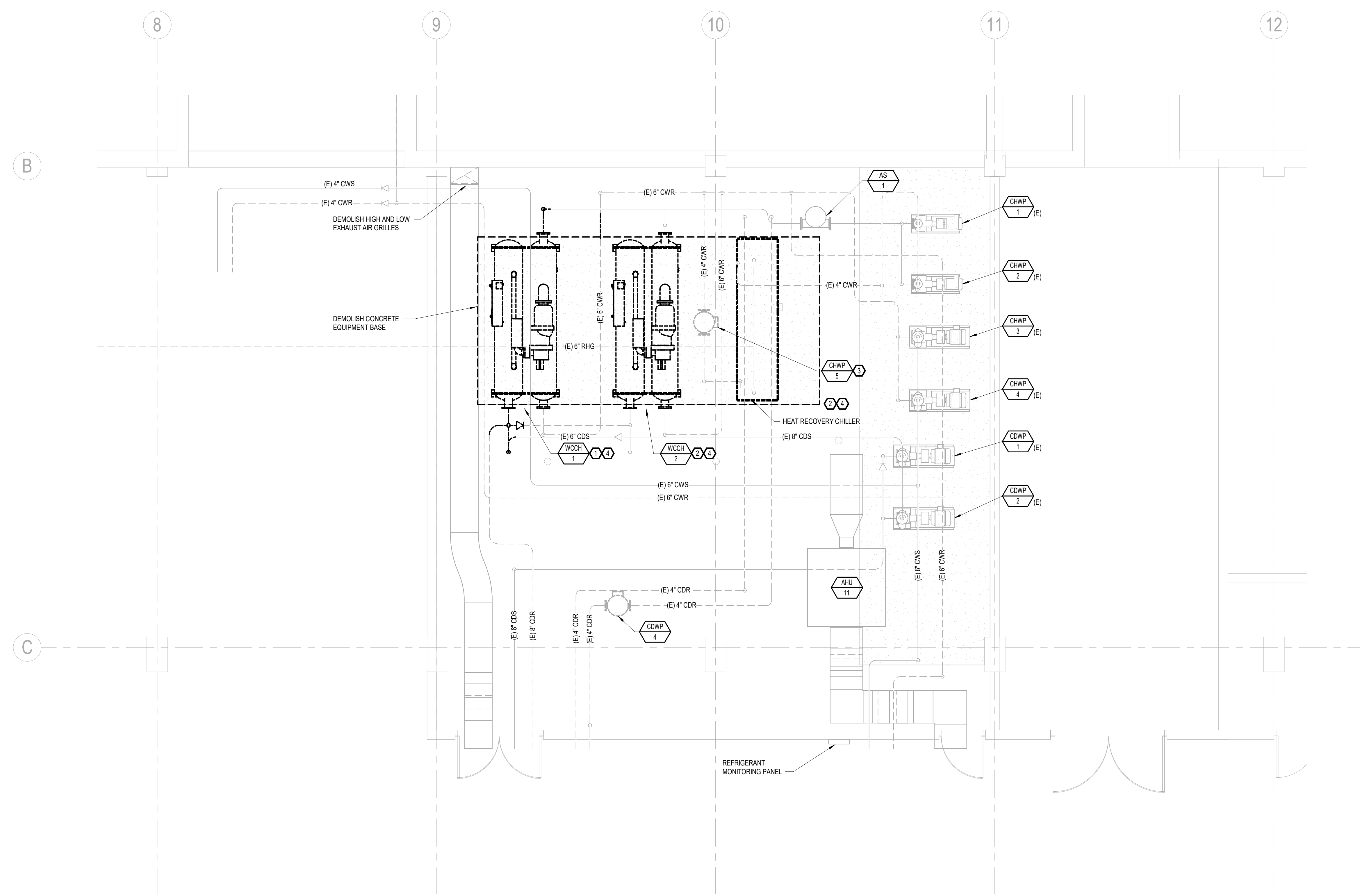
1 AIR DISTRIBUTION PLAN - ROOF
1/4" = 1'-0"



SHEET NOTES:
 1. SEE M811 FOR EXISTING CHILLED WATER DEMOLITION DIAGRAM.

- REFERENCE NOTES:**
- ⊗ REMOVE EXISTING CHILLER IN ITS ENTIRETY. REMOVE CHILLED WATER AND CONDENSER WATER PIPING BACK TO NEAREST 6" PIPE AND TEMPORARILY CAP. EXISTING PIPING TO REMAIN WILL BE RECONNECTED TO NEW CHILLER.
 - ⊗ REMOVE EXISTING CHILLER IN ITS ENTIRETY. REMOVE CHILLED WATER AND CONDENSER WATER PIPING BACK TO NEAREST OVERHEAD ISOLATION VALVE AND CAP.
 - ⊗ CONTRACTOR OPTION. REMOVE EXISTING PUMP AS PART OF PHASE 1 WORK OR ABANDON IN PLACE AND REMOVE LATER IN PHASE 2 WORK.
 - ⊗ REMOVE REFRIGERANT RELIEF PIPING FROM CHILLERS TO OVERHEAD MAIN AND CAP. EXISTING MAIN TO REMAIN FOR RECONNECTION TO NEW CHILLER REFRIGERANT RELIEF PIPING.

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1 DEMOLITION ENLARGED PLAN - CHILLER ROOM
 1/4" = 1'-0"

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

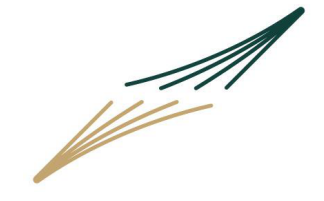
DEMOLITION ENLARGED PLAN - CHILLER ROOM

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: SGS
 DRAWN: TKO
 CHECKED: PZL
 DATE: 10.14.2022
 PROJECT: V015.23

M401

PLOTTED BY: TKO ON: 10/27/2022 4:39:42 PM



Not For Construction

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

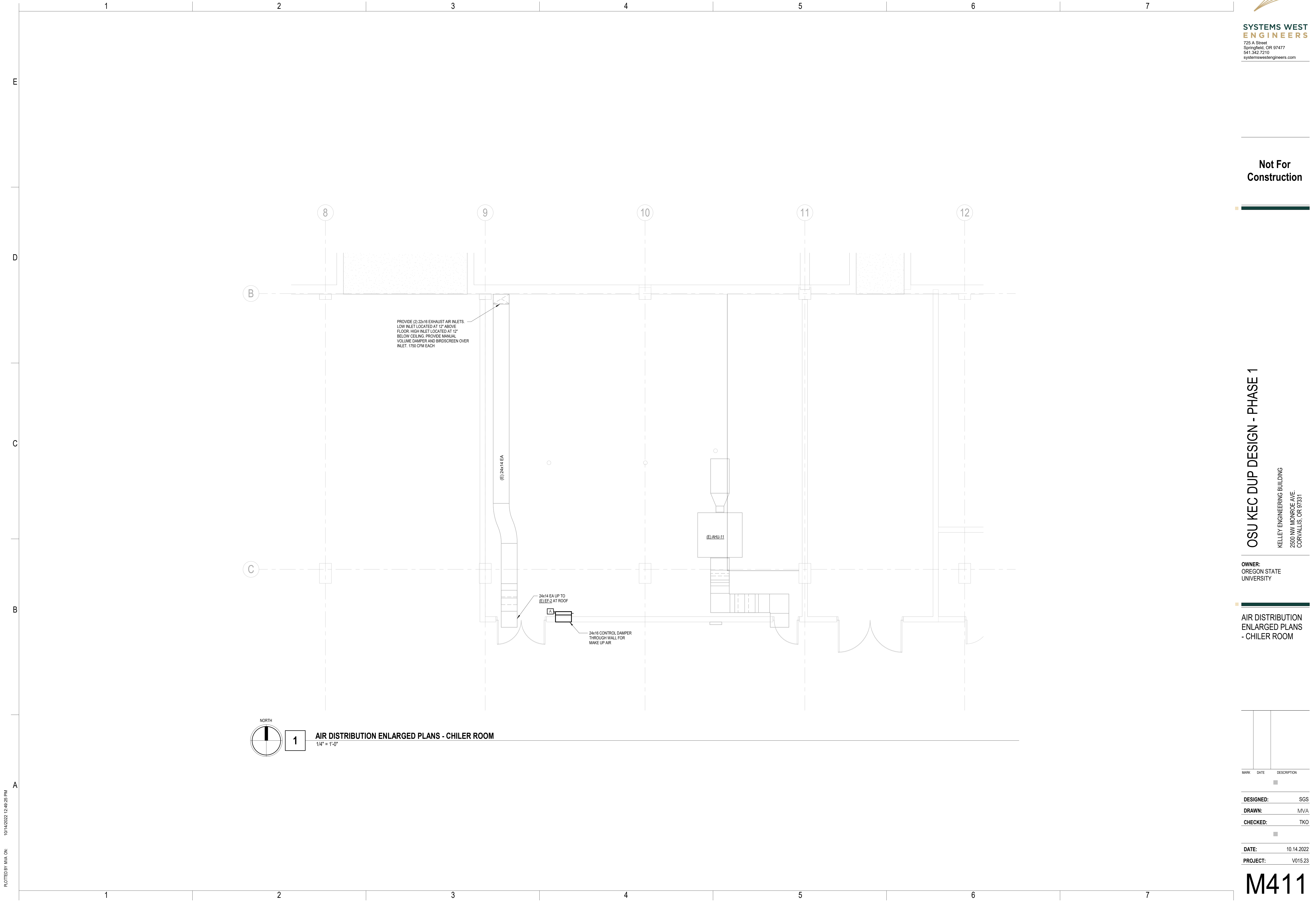
AIR DISTRIBUTION ENLARGED PLANS - CHILER ROOM

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: SGS
 DRAWN: MVA
 CHECKED: TKO

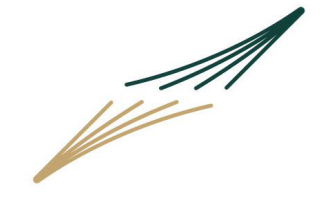
DATE: 10.14.2022
 PROJECT: V015.23

M411



1 AIR DISTRIBUTION ENLARGED PLANS - CHILER ROOM
 1/4" = 1'-0"

PLOTTED BY: MVA, ON: 10/14/2022 12:49:26 PM



Not For Construction

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

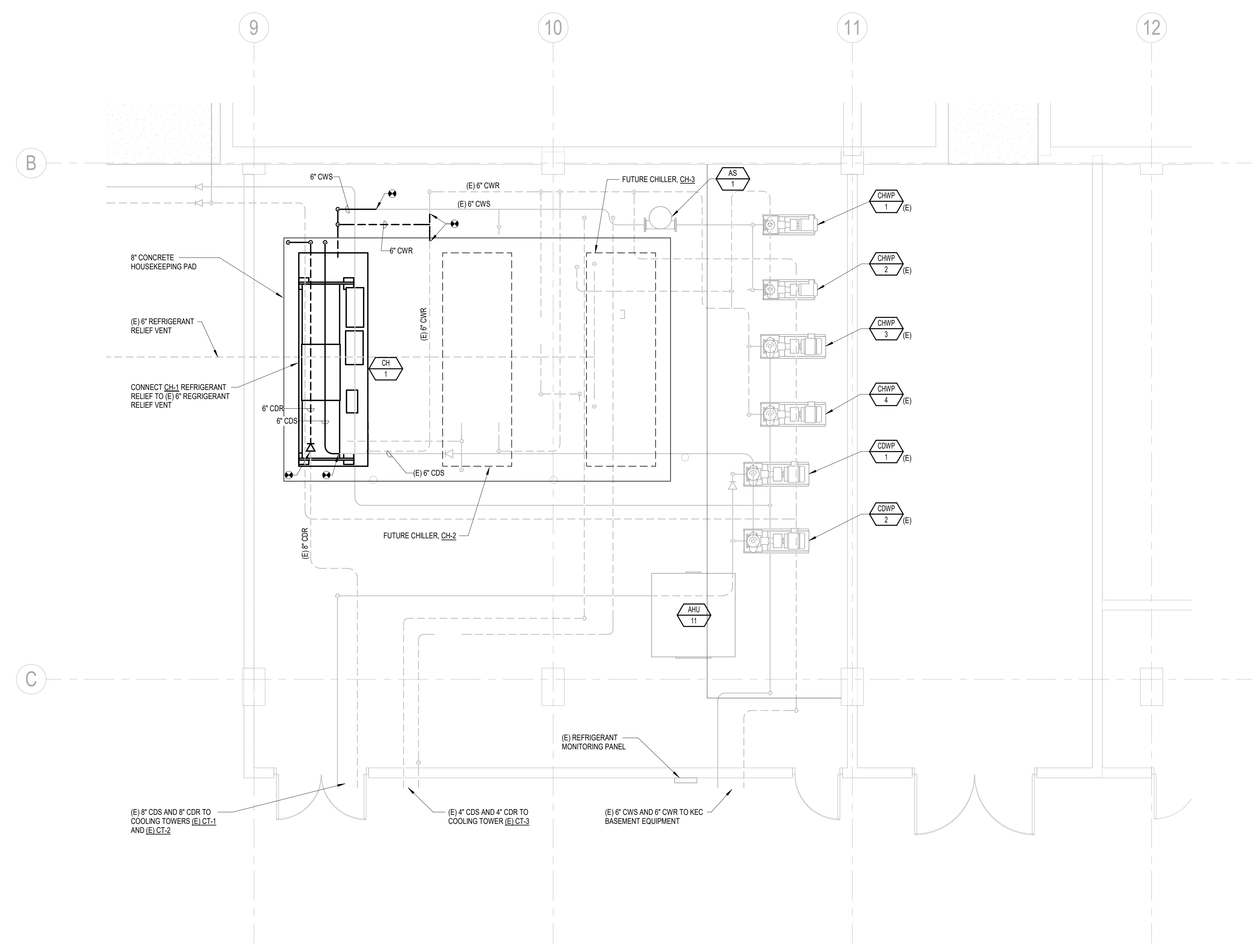
MECHANICAL PIPING ENLARGED PLANS - CHILLER ROOM

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: SGS
 DRAWN: MVA
 CHECKED: TKO

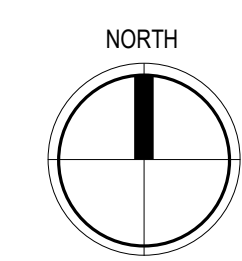
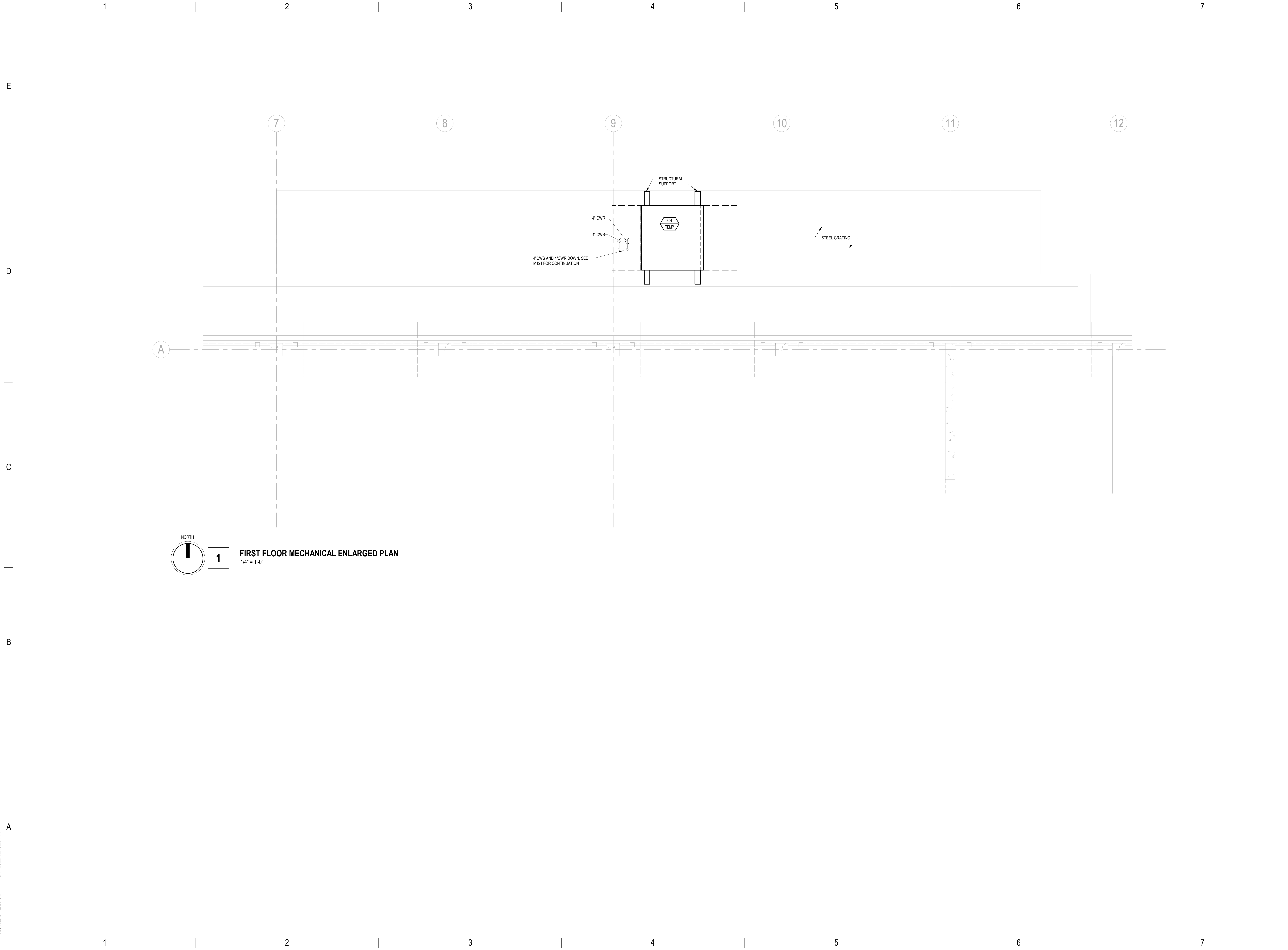
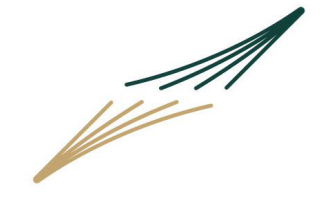
DATE: 10.14.2022
 PROJECT: V015.23

M412



1 MECHANICAL PIPING ENLARGED PLANS - CHILER ROOM
 1/4" = 1'-0"

PLOTTED BY MVA ON: 10/14/2022 12:49:28 PM



1 FIRST FLOOR MECHANICAL ENLARGED PLAN
 1/4" = 1'-0"

Not For Construction

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

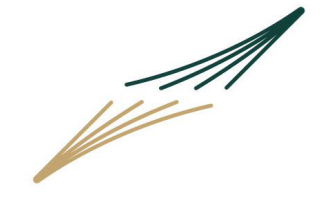
MECHANICAL PIPING ENLARGED PLANS - FIRST LEVEL

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

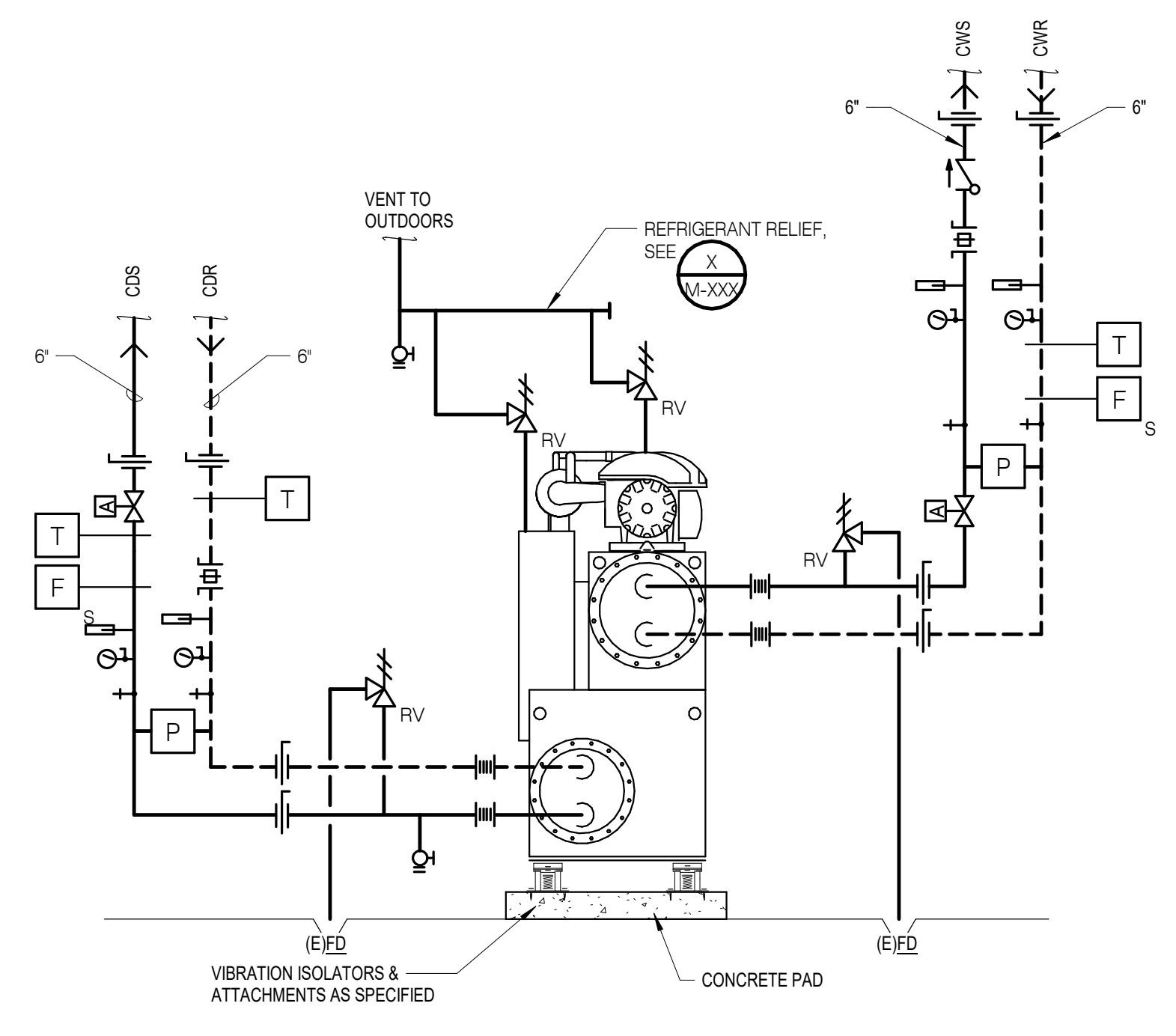
DESIGNED: SGS
 DRAWN: MVA
 CHECKED: TKO

DATE: 10.14.2022
 PROJECT: V015.23

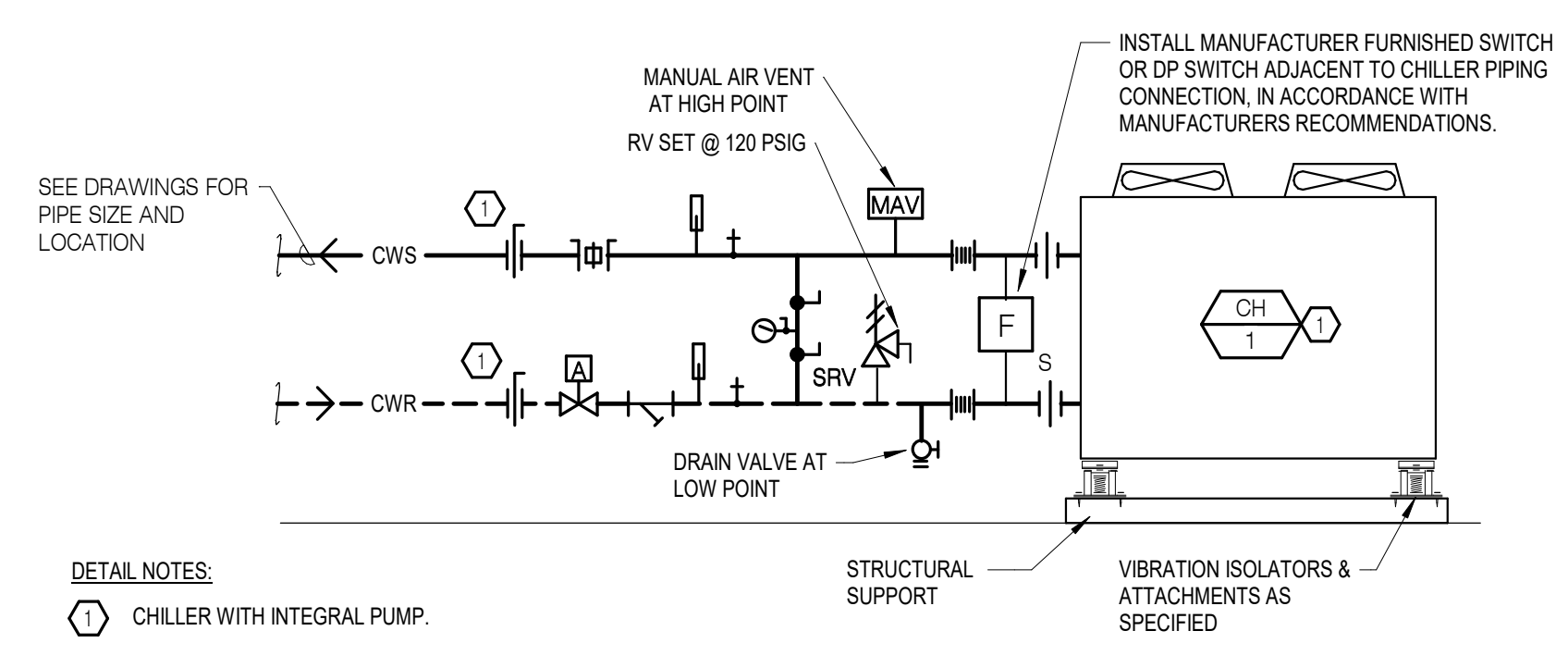
M413



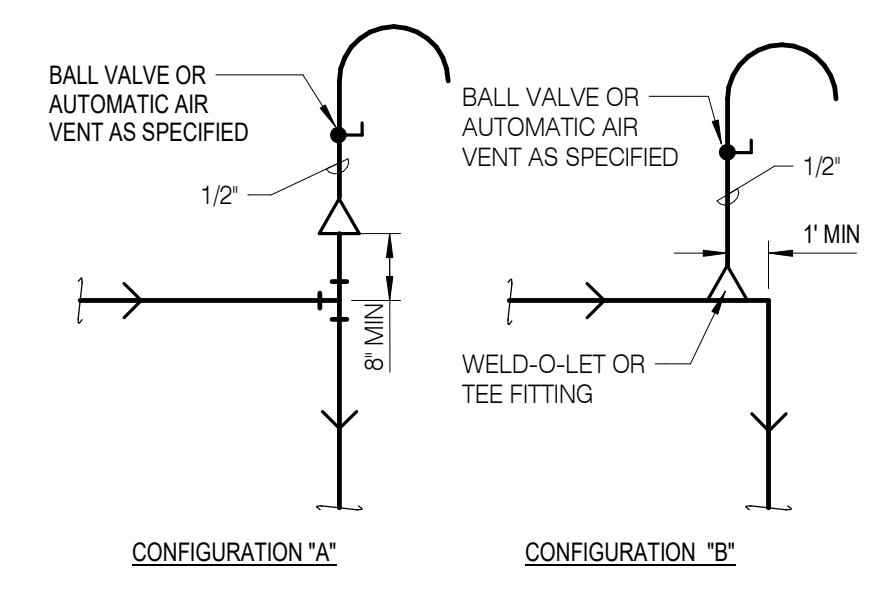
Not For Construction



1 WATER - COOLED CHILLER
 NOT TO SCALE



2 AIR - COOLED CHILLER
 NOT TO SCALE



DESIGNER NOTES:
 1. PROVIDE AIR VENTS AT ALL HIGH POINTS OF HYDRONIC SYSTEMS.
 2. CONFIGURATION 'A' & 'B' ARE BOTH ACCEPTABLE.

4 MANUAL AIR VENT
 NOT TO SCALE

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

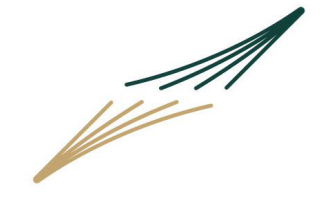
MECHANICAL DETAILS

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: SGS
DRAWN: MVA
CHECKED: TKO

DATE: 10.14.2022
PROJECT: V015.23

M501



E

WATER COOLED CHILLER

(1) MAXIMUM CIRCUIT AMPACITY
 (2) MAXIMUM OVERCURRENT PROTECTION

| TAG | MANUFACTURER | MODEL | NOMINAL CAPACITY (TONS) | COMPRESSOR | | | EVAPORATOR | | | CONDENSER | | | PERFORMANCE | | OPERATING WEIGHT (LBS) | ELECTRICAL | | | | REMARKS | |
|------|--------------|--------------|-------------------------|------------|------|----------------|-------------------|----------------|----------|-----------|-----------------|----------------|----------------|----------|------------------------|------------|-------------|------|--------|---------|-------|
| | | | | QTY | TYPE | MAX FLOW (GPM) | DESIGN FLOW (GPM) | MIN FLOW (GPM) | EWT (°F) | LWT (°F) | MAX PD (FT) (4) | MAX FLOW (GPM) | MIN FLOW (GPM) | EWT (°F) | | LWT (°F) | MAX PD (FT) | NPLV | KW/TON | | VOLTS |
| CH-1 | DAIKIN | WME092CSCSNA | 600 | 0 | | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0.0 | 0.0 | 15,300 | 460 | 3 | 587 | 1,000 | |

AIR COOLED CHILLER

(1) IPLV PERFORMANCE BASED ON AHRI 550/590
 (2) ENERGY EFFICIENCY RATIO AT DESIGN CONDITIONS
 (3) MINIMUM CIRCUIT AMPERAGE
 (4) MAXIMUM OVERCURRENT PROTECTION

| TAG | MANUFACTURER | MODEL | OUTDOOR AMBIENT (°F) | NOMINAL CAPACITY (TONS) | COMPRESSOR | | | EVAPORATOR | | PERFORMANCE | | OPERATING WEIGHT (LBS) | AMBIENT SOUND (dBA) | ELECTRICAL | | | | REMARKS | | | |
|---------|--------------|----------|----------------------|-------------------------|------------|--------|----------|------------|-------------------|----------------|-------------|------------------------|---------------------|------------|---------|-------|-------|---------|-----|---------|---------|
| | | | | | QTY | TYPE | EWT (°F) | LWT (°F) | DESIGN FLOW (GPM) | MIN FLOW (GPM) | MAX PD (FT) | | | IPLV (1) | EER (2) | VOLTS | PHASE | | FLA | MCA (3) | MOP (4) |
| CH-TEMP | CARRIER | 30RAP000 | 95 | 60 | 1 | SCROLL | 56 | 44 | 0 | 68 | 5 | 0 | 10.3 | 2995 | 0 | 460 | 3 | 0 | 138 | 150 | |

EXHAUST FAN

(1) MOTOR STARTER & VFDS FURNISHED BY DIV. 23, INSTALLED BY DIV. 20. ECM MOTORS FURNISHED & INSTALLED BY 23.
 (2) MS - MOTOR STARTER, VFD - VARIABLE FREQUENCY DRIVE, ECM MOTOR CONTROLLER, CR - CONTROL RELAY

| TAG | MANUFACTURER | MODEL | TYPE | PERFORMANCE | | | | WHEEL | | SOUND LEVEL (SONES) | MOTOR | | | (1) (2) MOTOR CONTROL | REMARKS |
|------|--------------|-----------|--------|---------------|----------|-------------|-------------|-------|-------|---------------------|---------------|-------|-------|-----------------------|---------|
| | | | | AIRFLOW (CFM) | TSP (IN) | SPEED (RPM) | POWER (BHP) | TYPE | BLADE | | DIAMETER (IN) | VOLTS | PHASE | | |
| EF-4 | GREENHECK | BSQ-160HP | INLINE | 3500 | 2 | 0 | 0 | | | 0 | 460 | 3 | 3 | VFD | |

D

C

B

A

Not For Construction

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

SCHEDULES

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: SGS
 DRAWN: MVA
 CHECKED: TKO

DATE: 10.14.2022
 PROJECT: V015.23

M601



**Not For
Construction**

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
25000 NW MONROE AVE.
CORVALLIS, OR 97331

OWNER:
OREGON STATE
UNIVERSITY

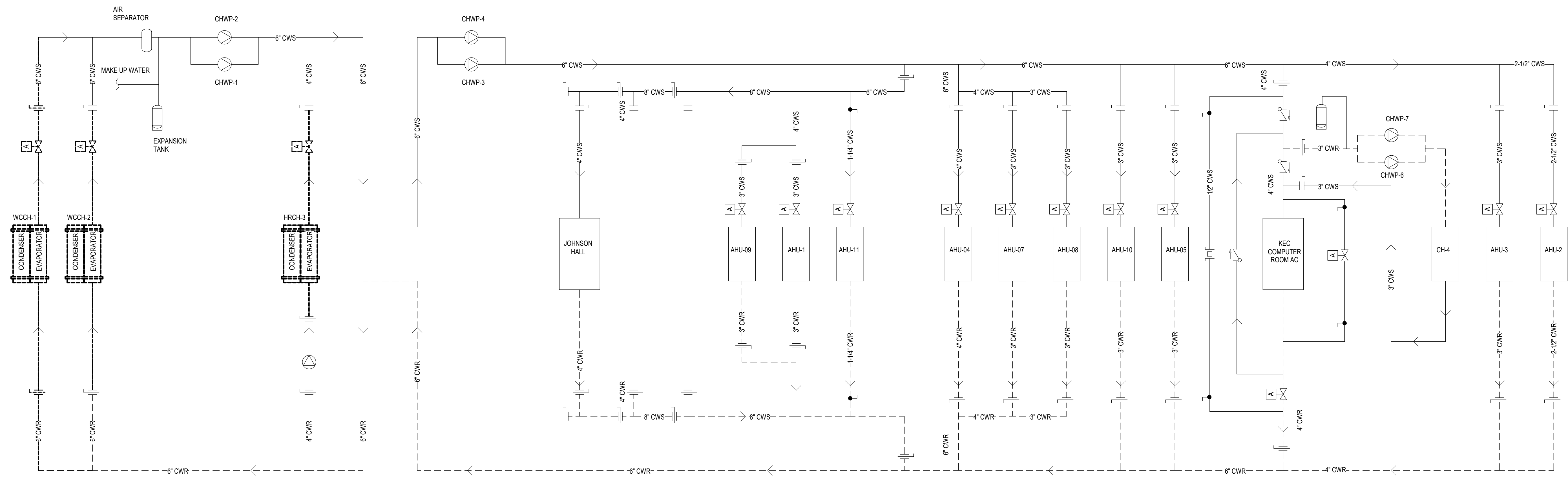
MECHANICAL
DIAGRAMS

MARK DATE DESCRIPTION

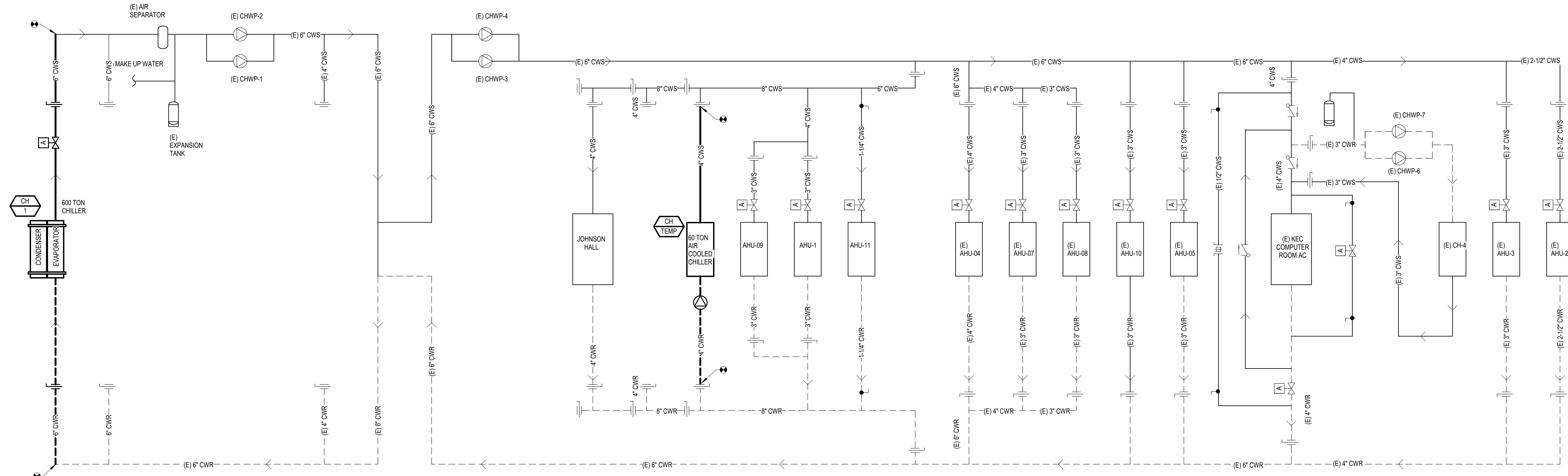
DESIGNED: SGS
DRAWN: MVA
CHECKED: TKO

DATE: 10.14.2022
PROJECT: V015.23

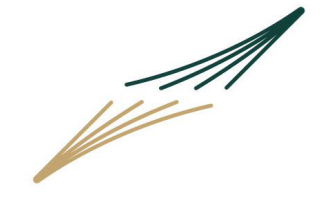
M611



1 PHASE 1 - CHILLED WATER DEMOLITION
NOT TO SCALE



2 PHASE 1 CHILLED WATER
NOT TO SCALE



Not For Construction

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

MECHANICAL DIAGRAMS

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

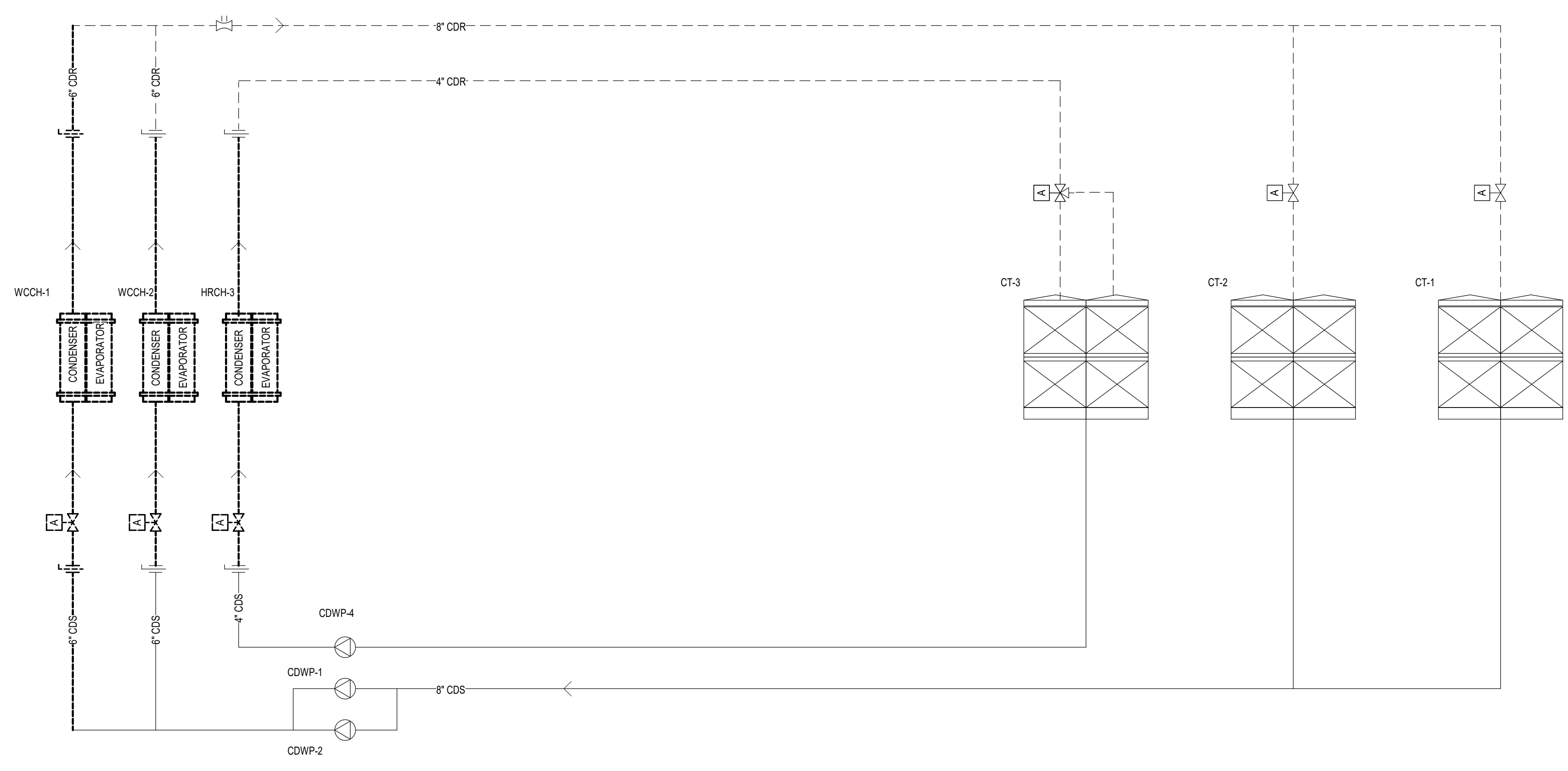
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 DRAWN: MVA
 CHECKED: TKO

DATE: 10.14.2022
 PROJECT: V015.23

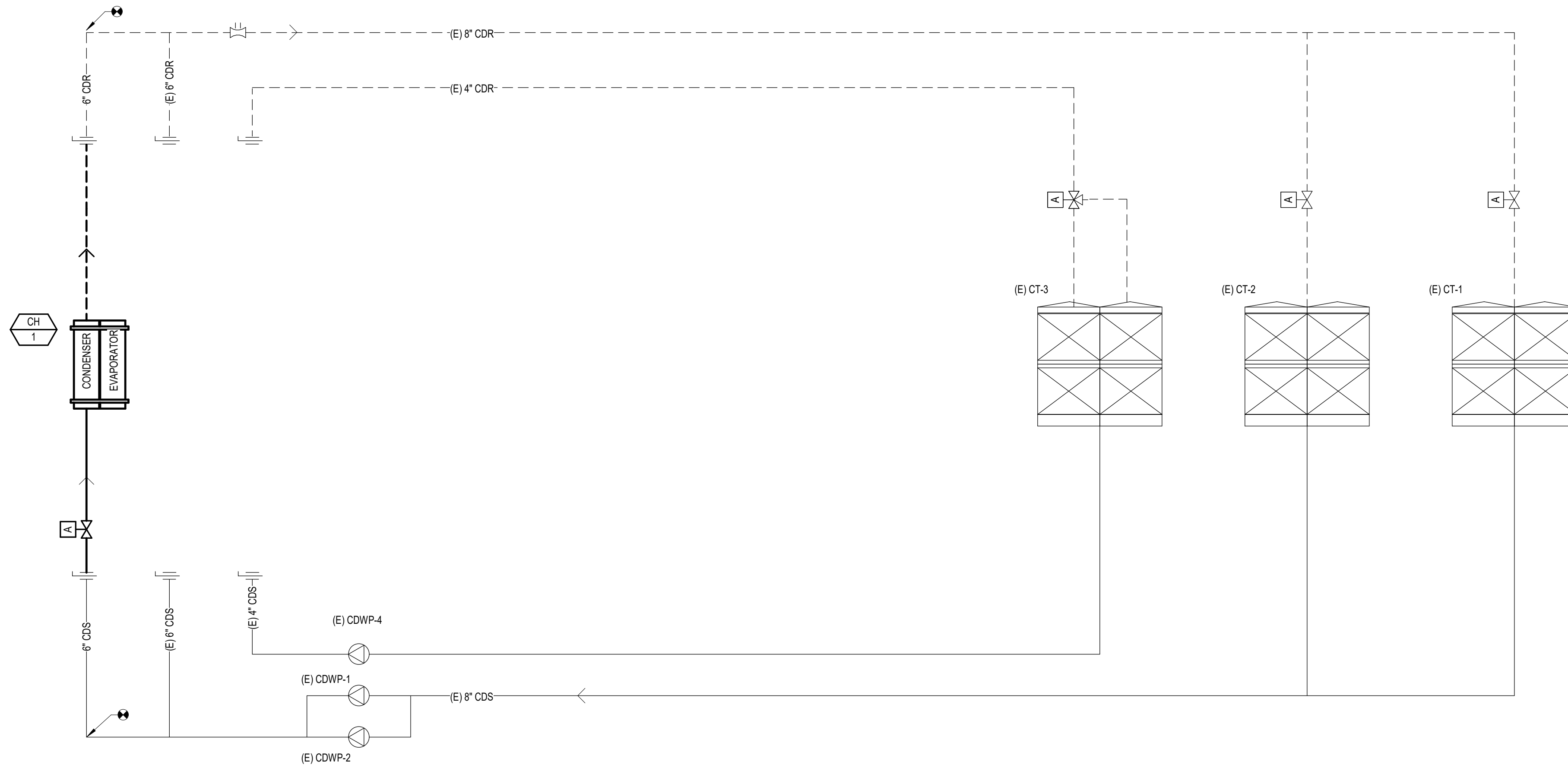
M612

E
D
C
B
A

1 2 3 4 5 6 7



1 PHASE 1 - CONDENSER WATER DEMOLOITION
 NOT TO SCALE



2 PHASE 1 CONDENSER WATER
 NOT TO SCALE

1 2 3 4 5 6 7



ELECTRICAL LEGEND

| RACEWAYS, BOXES, AND CONDUCTORS | |
|---------------------------------|--|
| | CONCEALED RACEWAY AND CONDUCTORS. NUMBER OF SLASHES INDICATES NUMBER OF CONDUCTORS IF MORE THAN TWO. SIZE OTHER THAN 1/2 AWG AS NOTED. (APPLIES TO ALL WIRING SYMBOLS) |
| | UNDERGROUND OR UNDERFLOOR RACEWAY |
| | HOMERUN |
| | OVERHEAD POWER LINE |
| | SPLICE |
| | GROUND CONNECTION |
| | CONDUIT UP |
| | CONDUIT DOWN |
| | JUNCTION BOX |
| | JUNCTION BOX FLUSH WITH FLOOR OR AT GRADE |
| | CONDUIT STUB |
| | CABLE TRAY |

| ELECTRICAL EQUIPMENT - PLANS | |
|------------------------------|---|
| | DISTRIBUTION TRANSFORMER |
| | ELECTRICAL EQUIPMENT AS NOTED ON DRAWINGS |
| | SURFACE-MOUNTED PANELBOARD (120/208V) |
| | SURFACE-MOUNTED PANELBOARD (277/480V) |
| | RECESSED PANELBOARD (120/208V) |
| | RECESSED PANELBOARD (277/480V) |
| | SURFACE-MOUNTED CABINET, TYPE AS NOTED |
| | PULL BOX, SIZE AS NOTED OR AS REQUIRED |
| | GROUNDING BUSBAR |

| ONE-LINE DIAGRAM | |
|------------------|--|
| | SERVICE TRANSFORMER, PAD-MOUNTED |
| | SERVICE TRANSFORMER, WITH VAULT |
| | DISTRIBUTION TRANSFORMER |
| | ELECTRICAL EQUIPMENT AS NOTED |
| | PANELBOARD WITH CHARACTERISTICS AS NOTED. WHERE NO CHARACTERISTICS NOTED, SEE PANEL SCHEDULES. |
| | PULL BOX, DIMENSIONS AS NOTED OR AS REQUIRED |
| | GENERATOR |
| | AUTOMATIC TRANSFER SWITCH |
| | PHOTOVOLTAIC INVERTER |
| | CIRCUIT BREAKER WITH CHARACTERISTICS AS NOTED |
| | CIRCUIT BREAKER WITH INTEGRAL GROUND FAULT PROTECTION |
| | SWITCH WITH CHARACTERISTICS AS NOTED |
| | FUSED SWITCH WITH CHARACTERISTICS AS NOTED. AS = SWITCH RATING, AF = FUSE RATING. |
| | NON-FUSED DISCONNECT WITH CHARACTERISTICS AS NOTED. |
| | FUSED DISCONNECT WITH CHARACTERISTICS AS NOTED. AS = SWITCH RATING, AF = FUSE RATING. |
| | MAGNETIC STARTER |
| | COMBINATION DISCONNECT AND MAGNETIC STARTER |
| | SURGE PROTECTIVE DEVICE |
| | MOTOR CONNECTION |
| | EQUIPMENT CONNECTION |
| | ELECTRIC METER, TYPE AS NOTED |
| | CURRENT TRANSFORMER |
| | FEEDER TAG. SEE FEEDER SCHEDULE. |
| | FEEDER CONTINUATION CALLOUT. SEE CALLOUT ON DRAWING IDENTIFIED WITH THE SAME LETTER TAG. |

| WIRING DEVICES | |
|----------------|---|
| | PUSH BUTTON STATION |
| | SPECIAL PURPOSE RECEPTACLE WITH NEMA CONFIGURATION AS NOTED. |
| | SIMPLEX RECEPTACLE |
| | DUPLEX RECEPTACLE |
| | QUADPLEX RECEPTACLE |
| | FLUSH FLOOR BOX. REFER TO SPECIFICATIONS AND SCHEDULES FOR DEVICE QUANTITIES AND TYPES. |
| | FLUSH POKE-THROUGH FLOOR BOX. REFER TO SPECIFICATIONS AND SCHEDULES FOR DEVICE QUANTITIES AND TYPES. |
| | SPLIT-WIRED RECEPTACLE WITH HALF SWITCHED CONTROL VIA MANUAL CONTROL, OCCUPANCY SENSING CONTROL, OR TIME BASED CONTROL. REFER TO SPECIFICATIONS AND DRAWINGS. |
| | RECEPTACLE WITH FULL SWITCHED CONTROL VIA MANUAL CONTROL, OCCUPANCY SENSING CONTROL, OR TIME BASED CONTROL. REFER TO SPECIFICATIONS AND DRAWINGS. |
| | FLUSH FLOOR BOX WITH SWITCHED CONTROL VIA MANUAL CONTROL, OCCUPANCY SENSING CONTROL, OR TIME BASED CONTROL. REFER TO SPECIFICATIONS AND DRAWINGS. |
| | FLUSH POKE-THROUGH FLOOR BOX WITH SWITCHED CONTROL VIA MANUAL CONTROL, OCCUPANCY SENSING CONTROL, OR TIME BASED CONTROL. REFER TO SPECIFICATIONS AND DRAWINGS. |
| | SURFACE MOUNTED RACEWAY WITH DUPLEX RECEPTACLES |
| | LETTER DESIGNATOR(S) INDICATE ADDITIONAL RECEPTACLE CHARACTERISTICS (APPLIES TO ALL RECEPTACLE AND FLOOR BOX TYPES): A = INTEGRAL AFCI B = INTEGRAL WITH USB OUTLET(S) C = SUPPLIED POWER VIA CRITICAL BRANCH (NEC 517) E = SUPPLIED POWER VIA LIFE SAFETY BRANCH (NEC 517) G = INTEGRAL GFCI IG = SUPPLIED POWER VIA AN ISOLATED GRD SYSTEM P = INTEGRAL SURGE PROTECTIVE DEVICE S = SUPPLIED POWER VIA OPTIONAL STANDBY BRANCH (NEC 702) U = SUPPLIED POWER VIA A UPS WP = WEATHERPROOF AND INTEGRAL GFCI |
| | INDICATES RECEPTACLE ROUGH IN HEIGHT FROM AFF TO CL OF RECEPTACLE WHEN NOT AT STANDARD MOUNTING HEIGHT. |
| | INDICATES PANELBOARD AND BRANCH CIRCUIT NUMBER SERVING RECEPTACLE. |
| | INDICATES BRANCH CIRCUIT NUMBER SERVING RECEPTACLE. REFER TO SHEET NOTES AND REFERENCE NOTES FOR SOURCE. |

| LIGHTING | |
|----------|--|
| | WALL SWITCH WITH CHARACTERISTICS AS NOTED. a = ZONE CONTROLLED, K = KEYSWITCH, P = WITH INTEGRAL PILOT LIGHT, 3 = THREE-WAY, 4 = FOUR-WAY, OS = COMBINATION OCCUPANCY SENSOR AND WALL SWITCH, D = MANUAL DIMMER, T = DIGITAL TIMER SWITCH. |
| | DIGITAL WALL SWITCH. SEE WALL SWITCH SCHEDULE. a = ZONE(S) CONTROLLED. |
| | DIGITAL POWER PACK CONCEALED IN CEILING WITH CHARACTERISTICS AS NOTED. E = EMERGENCY, D = DIMMING (0-10VDC), a = ZONE CONTROLLED. |
| | CEILING-MOUNTED OCCUPANCY SENSOR. A = SPECIAL TYPE (SEE OCCUPANCY SENSOR SCHEDULE). |
| | WALL-MOUNTED OCCUPANCY SENSOR. A = SPECIAL TYPE (SEE OCCUPANCY SENSOR SCHEDULE). |
| | CEILING-MOUNTED PHOTOELECTRIC CELL LIGHT LEVEL SENSOR. A = SPECIAL TYPE (SEE OCCUPANCY SENSOR SCHEDULE). |
| | WALL-MOUNTED PHOTOELECTRIC CELL LIGHT LEVEL SENSOR. A = SPECIAL TYPE (SEE OCCUPANCY SENSOR SCHEDULE). |
| | RELAY |
| | CEILING SURFACE-MOUNTED LUMINAIRE |
| | RECESSED LUMINAIRE |
| | LINEAR CEILING SURFACE-MOUNTED LUMINAIRE |
| | LINEAR SUSPENDED LUMINAIRE |
| | LINEAR WALL-MOUNTED LUMINAIRE |
| | LINEAR UNDER CABINET-MOUNTED LUMINAIRE |
| | SURFACE WALL-MOUNTED LUMINAIRE |
| | RECESSED WALL-MOUNTED LUMINAIRE |
| | ROUND SUSPENDED LUMINAIRE |
| | CEILING SURFACE-MOUNTED LUMINAIRE |
| | CEILING SURFACE-MOUNTED ASYMMETRIC LUMINAIRE |
| | CEILING RECESSED LUMINAIRE |
| | RECESSED ASYMMETRIC DOWNLIGHT |
| | POLE-MOUNTED LUMINAIRE |
| | POST TOP LUMINAIRE |
| | ILLUMINATED BOLLARD |
| | TRACK LIGHTING, NUMBER AND TYPE OF HEADS AS SHOWN |
| | WALL MOUNTED EXIT SIGN, SHADING INDICATES FACES |
| | CEILING MOUNTED EXIT SIGN, SHADING INDICATES FACES |
| | CEILING MOUNTED EXIT SIGN WITH INTEGRAL EMERGENCY LIGHTS AND BATTERY PACK |
| | SURFACE-MOUNTED EMERGENCY LIGHT WITH INTEGRAL BATTERY PACK. SHADING INDICATES LUMINAIRE PROVIDES ILLUMINATION FOR EMERGENCY EGRESS. SHADING VARIES WITH EACH LUMINAIRE TYPE. |
| | LUMINAIRE TYPE IDENTIFIER. SEE LUMINAIRE SCHEDULE. |
| | CONTROL ZONE IDENTIFIER |
| | INDICATES PANELBOARD AND BRANCH CIRCUIT NUMBER SERVING LUMINAIRE |
| | INDICATES BRANCH CIRCUIT NUMBER SERVING LUMINAIRE. REFER TO SHEET NOTES OR REFERENCE NOTES FOR SOURCE PANELBOARD. |

| FIRE ALARM | |
|------------|--|
| | MANUAL PULL STATION |
| | STROBE |
| | HORN, SPEAKER |
| | COMBINATION HORN/STROBE, COMBINATION SPEAKER/STROBE |
| | SPRINKLER BELL, CHIME |
| | FLOW SWITCH, TAMPER SWITCH |
| | PHOTOELECTRIC SMOKE DETECTOR, DUCT DETECTOR |
| | COMBINATION FIXED TEMPERATURE AND RATE-OF-RISE HEAT DETECTOR |
| | FIRE/SMOKE DAMPER, SMOKE DAMPER |
| | MAGNETIC DOOR HOLDER AND RELEASING DEVICE |
| | FIRE ALARM CONTROL PANEL |
| | FIRE ALARM ANNUNCIATOR PANEL |
| | NOTIFICATION APPLIANCE CIRCUIT EXTENDER |
| | FIRE SUPPRESSION CONTROL PANEL |

| SECURITY AND ACCESS CONTROL | |
|-----------------------------|---|
| | CEILING-MOUNTED SECURITY CAMERA |
| | WALL-MOUNTED 360° VIEW ANGLE SECURITY CAMERA |
| | WALL-MOUNTED SECURITY CAMERA |
| | WALL-MOUNTED 300° VIEW ANGLE SECURITY CAMERA |
| | MULTI-DIRECTIONAL SECURITY CAMERA |
| | MAGNETIC DOOR POSITION SENSOR |
| | SECURITY SYSTEM OUTDOOR SIREN WITH TAMPER WIREGUARD |
| | SECURITY SYSTEM OUTDOOR SIREN |
| | CORNER SECURITY SYSTEM MOTION SENSOR |
| | CEILING MOUNTED SECURITY SYSTEM MOTION |
| | SECURITY SYSTEM KEYPAD |
| | REQUEST TO EXIT SENSOR |
| | GLASS BREAKAGE SENSOR |
| | CARD READER |
| | ELECTRIC LOCK |

| TELECOMMUNICATIONS | |
|--------------------|--|
| | TELECOMMUNICATIONS OUTLET, CONDUIT AND BACKBOX ONLY REFER TO SPECIFICATIONS. |
| | WIRELESS ACCESS POINT, CEILING MOUNTED WIRELESS ACCESS POINT |
| | TELECOMMUNICATIONS OUTLET WITH FLUSH FLOOR BOX. REFER TO SPECIFICATIONS AND SCHEDULES FOR DEVICE QUANTITIES AND TYPES. |
| | COAXIAL CABLE OUTLET, COMBINATION COAXIAL AND DATA OUTLET |

| NURSE CALL | |
|------------|--|
| | SINGLE BED STATION |
| | NURSE ASSIST BUTTON |
| | NURSE CALL STATION. B = BED COMMUNICATION OUTLET, CB = CODE BLUE, D = DUTY STATION, E = EMERGENCY STATION, NA = NURSE ASSIST ANNUNCIATOR, N = NURSE LOCATOR STATION, M = PATIENT MONITORING OUTLET, S = STAFF STATION, U = UTILITY STATION |
| | DOME LIGHT (CEILING AND WALL MOUNTED) |
| | ZONE DOME LIGHT (CEILING AND WALL MOUNTED) |
| | NURSE CALL MASTER STATION |

| GENERAL | |
|---------|---|
| | MECHANICAL EQUIPMENT DESIGNATOR. SEE SCHEDULES. |
| | LAB EQUIPMENT DESIGNATOR. SEE SCHEDULES. |
| | REFERENCE NOTE MARKER |
| | PLAN OR DETAIL NUMBER |
| | SHEET NUMBER |
| | EXISTING WORK SHOWN LIGHT |
| | NEW WORK SHOWN BOLD |
| | EXISTING TO BE REMOVED (APPLIES TO DEMOLITION PLANS ONLY) |

| ABBREVIATIONS | | | |
|---------------|----------------------------------|------|-------------------------------|
| (#) | DESIGNATES QUANTITY | LV | LOW VOLTAGE |
| A | AMPERE (AMP) | LSI | LSI ELECTRONIC TRIP UNIT |
| AC | ALTERNATING CURRENT | LSIG | LSIG ELECTRONIC TRIP UNIT |
| AFC | AVAILABLE FAULT CURRENT | LTG | LIGHTING |
| AF | ABOVE FINISHED FLOOR | MCA | MINIMUM CIRCUIT AMPACITY |
| AFG | ABOVE FINISHED GRADE | MCB | MAIN CIRCUIT BREAKER |
| AL | ALUMINUM | MCC | MOTOR CONTROL CENTER |
| ARCH | ARCHITECT/ARCHITECTURAL | MOF | MAIN DISTRIBUTION FRAME |
| ATS | AUTOMATIC TRANSFER SWITCH | MDS | MAIN DISTRIBUTION SWITCHBOARD |
| AWG | AMERICAN WIRE GAUGE | MIP | MAIN DISTRIBUTION PANELBOARD |
| BUD | BUILDING | MECH | MECHANICAL |
| BOCT | BOTTOM OF CABLE TRAY | MLO | MAIN LUG ONLY |
| BSC | BIOLOGICAL SAFETY CABINET | MTS | MAIN TRANSFER SWITCH |
| C | CONDUIT | MVA | MEGAVOLT-AMPERE |
| CENT | CENTRIFUGE | MW | MEGAWATT |
| CKT | CIRCUIT | (N) | NEW |
| CL | CENTERLINE | (NL) | NEW LOCATION |
| CLG | CEILING | NA | NOT APPLICABLE |
| CRJ | COLOR RENDERING INDEX | NIC | NOT IN CONTRACT |
| CJ | COPPER | PA | PUBLIC ADDRESS |
| DC | DIRECT CURRENT | PE | PHOTOELECTRIC CELL |
| DF | DRINKING FOUNTAIN | PF | POWER FACTOR |
| DW | DISHWASHER | PB | PANELBOARD |
| (E) | EXISTING | PV | PHOTOVOLTAIC |
| ECC | ENVIRONMENTAL CONTROL ROOM | PVC | POLYVINYL CHLORIDE |
| ELEC | ELECTRICAL | PWR | POWER |
| EMERG | EMERGENCY | (R) | REMOVE |
| EMT | ELECTRICAL METALLIC TUBING | (RL) | RELOCATE |
| FA | FIRE ALARM | REFL | REFLECTOR |
| FH | FLUME HOOD | SCCR | SHORT CIRCUIT CURRENT RATING |
| FLA | FULL LOAD AMPS | SDP | SUB-DISTRIBUTION PANELBOARD |
| FTL | FEED-THROUGH LUGS | SWIB | SWITCHBOARD |
| GFCI | GROUND FAULT CIRCUIT INTERRUPTER | TR | TAMPER RESISTANT |
| GFP | GROUND FAULT PROTECTION | TTB | TELEPHONE TERMINAL BOARD |
| GND | GROUND | TV | TELEVISION |
| HP | HORSEPOWER | TYP | TYPICAL |
| IDF | INTERMEDIATE DISTRIBUTION FRAME | UC | UNDER CABINET |
| INC | INCUBATOR | UPS | UNINTERRUPTIBLE POWER SUPPLY |
| K | KELVIN | UN | UNLESS OTHERWISE NOTED |
| KWH | KILOWATT-HOUR | V | VOLTAGE |
| KV | KILOVOLT | VA | VOLT-AMPERE |
| KVA | KILOVOLT-AMPERE | VP | VAPOR PROOF |
| KVAR | KILOVOLT-AMPERE REACTIVE | W | WATT |
| LED | LIGHT EMITTING DIODE | WP | WEATHERPROOF |
| LM | LUMENS | WPMR | TRANSFORMER |

| SHEET LIST - ELECTRICAL | |
|-------------------------|--------------------------------------|
| E001 | LEGEND, GENERAL NOTES, & SHEET INDEX |
| E100 | ELECTRICAL SITE PLAN |
| E101 | DEMOLITION PLAN - BASEMENT |
| E102 | DEMOLITION PLAN - ROOF |
| E121 | POWER DISTRIBUTION - BASEMENT |
| E122 | POWER DISTRIBUTION - ROOF |
| E601 | SCHEDULES |
| E611 | ONE-LINE DIAGRAMS |
| E612 | ONE-LINE DIAGRAMS |

Not For Construction

OSU KEC DUP DESIGN - PHASE 1
 KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

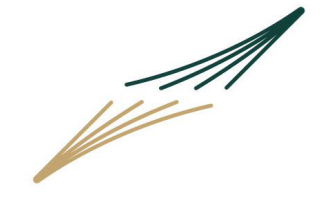
LEGEND, GENERAL NOTES, & SHEET INDEX

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: JSJ
DRAWN: AJV
CHECKED: MBR

DATE: 10.14.2022
PROJECT: V015.23

E001

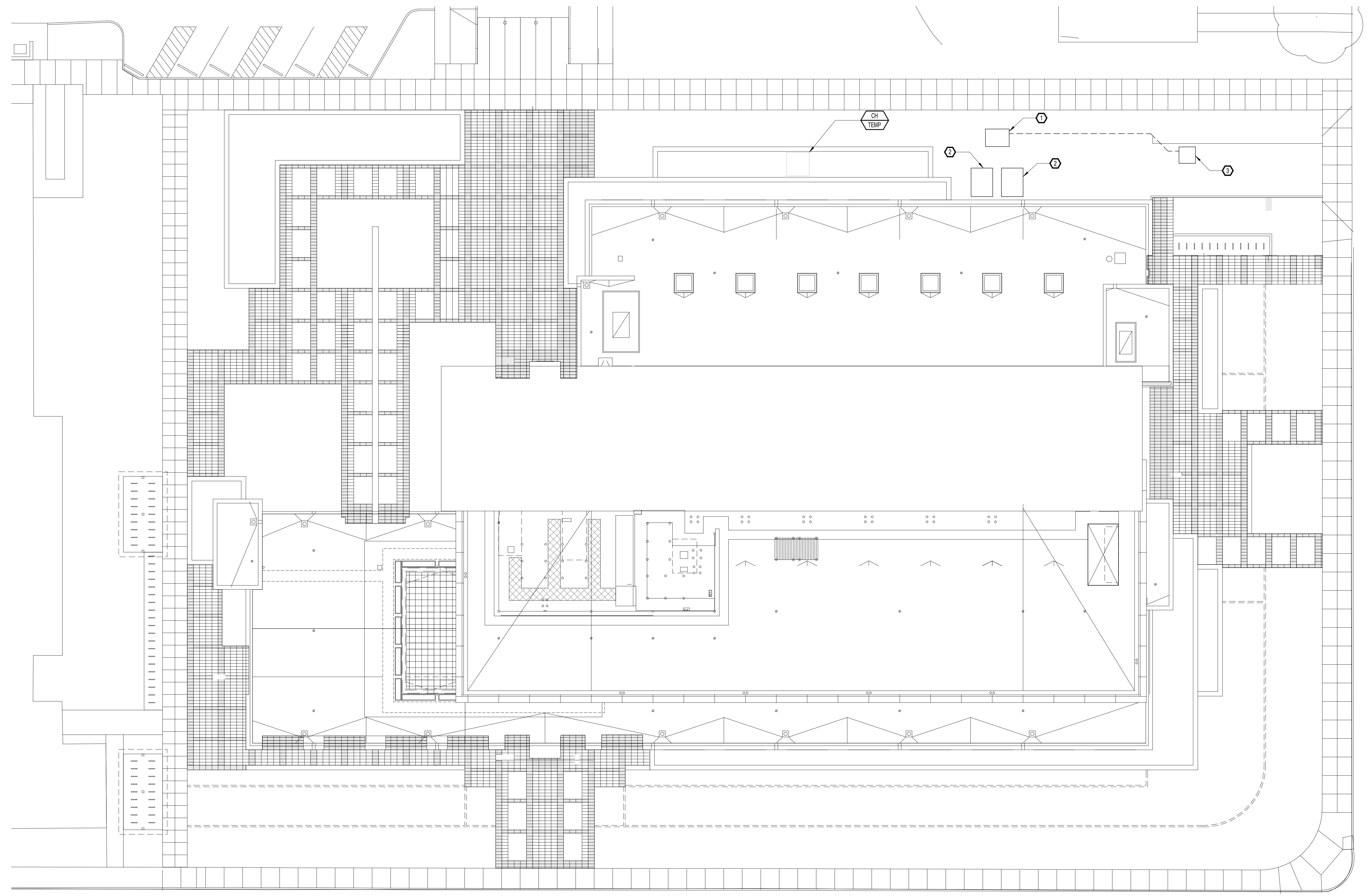


SYSTEMS WEST ENGINEERS
 725 A Street
 Springfield, OR 97477
 541.342.7210
 systemswestengineers.com

REFERENCE NOTES:

- ① EXISTING 25KV UTILITY SECTIONALIZING VAULT
- ② EXISTING 25KV UTILITY TRANSFORMER
- ③ EXISTING 25KV UTILITY PULL VAULT

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OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
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 CORVALLIS, OR 97331

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ELECTRICAL SITE PLAN

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: JSG
 DRAWN: AJV
 CHECKED: MBR

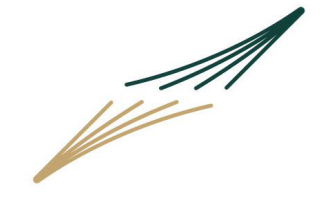
DATE: 10.14.2022
 PROJECT: V015.23

E100

NORTH

1 SITE PLAN
 1/16" = 1'-0"

PLOTTED BY: AJV ON: 10/14/2022 12:48:10 PM



REFERENCE NOTES:
 (E) ELECTRICAL EQUIPMENT WITHIN THIS AREA IS EXISTING

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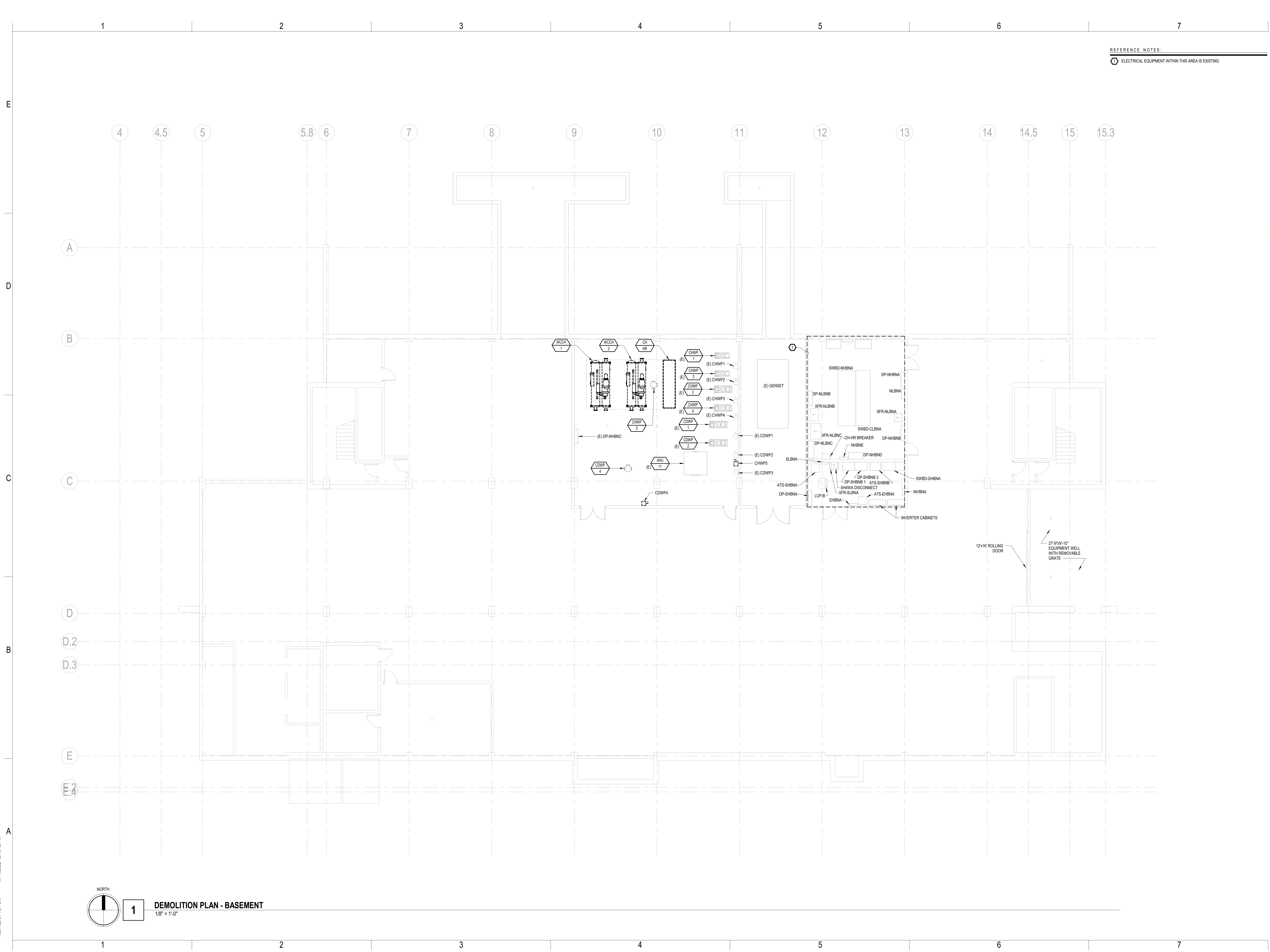
DEMOLITION PLAN - BASEMENT

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: JSG
 DRAWN: AJV
 CHECKED: MBR

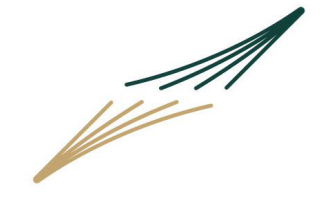
DATE: 10.14.2022
 PROJECT: V015.23

E101



1 DEMOLITION PLAN - BASEMENT
 1/8" = 1'-0"

PLOTTED BY: AJV ON: 10/14/2022 12:48:12 PM



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Construction**

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
2500 NW MONROE AVE.
CORVALLIS, OR 97331

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OREGON STATE
UNIVERSITY

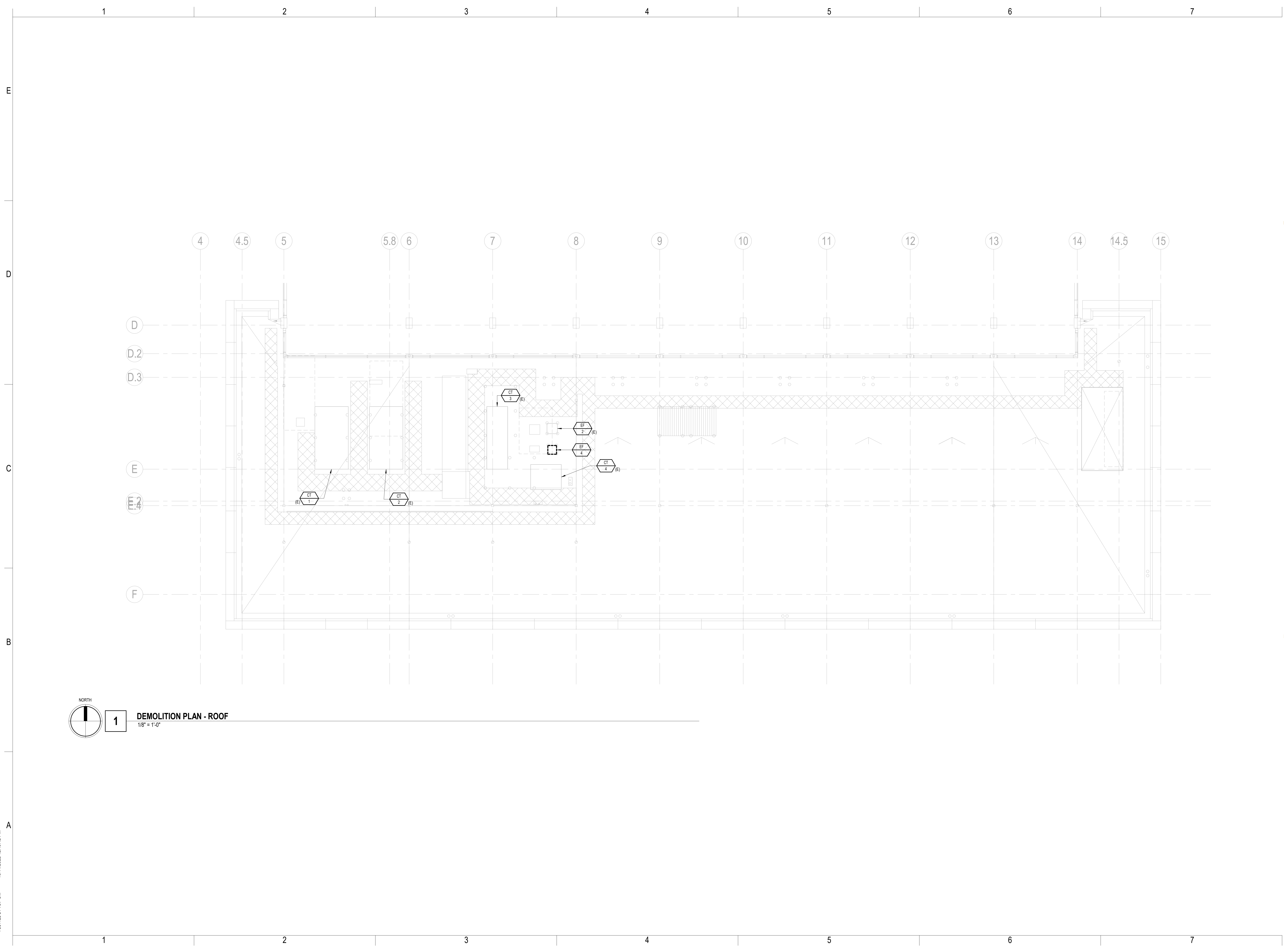
DEMOLITION PLAN
- ROOF

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: JSG
DRAWN: AJV
CHECKED: MBR

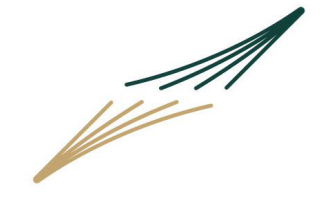
DATE: 10.14.2022
PROJECT: V015.23

E102

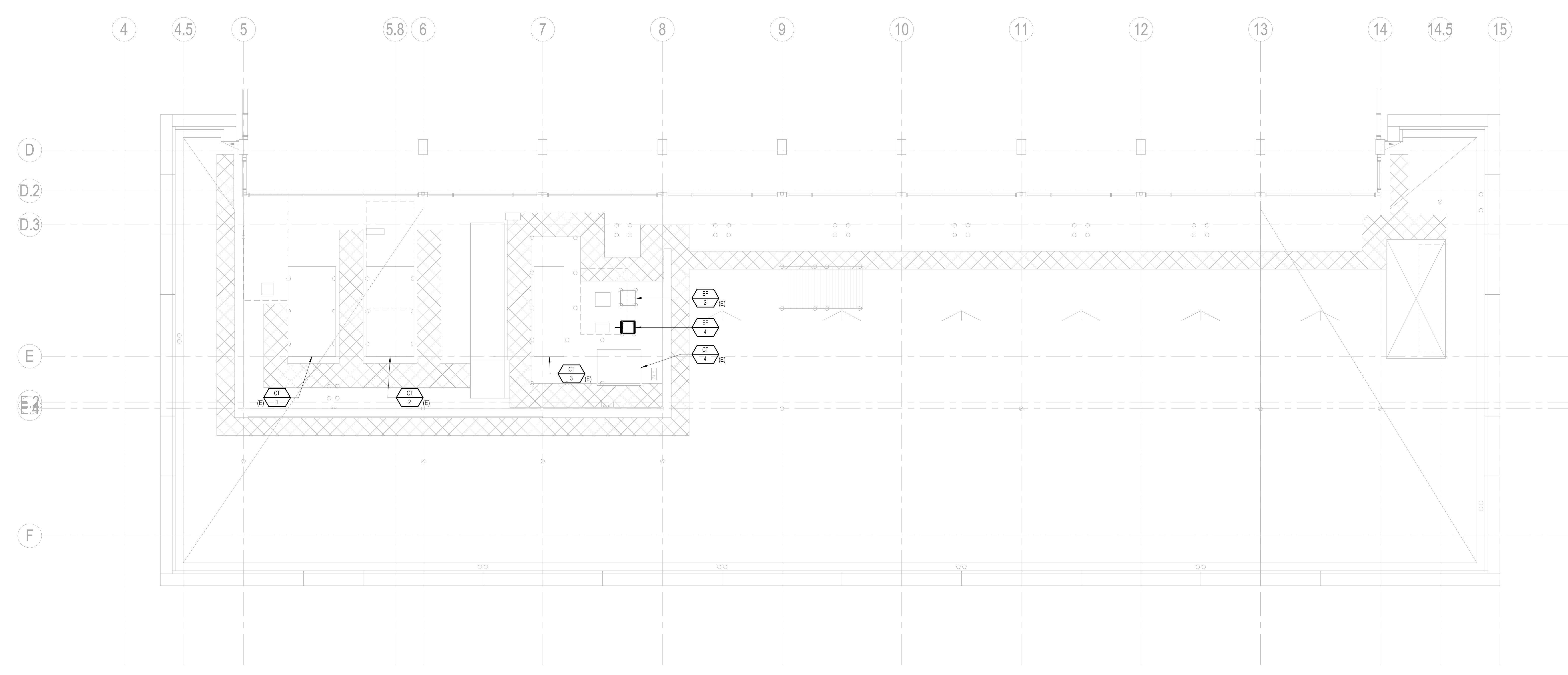


1 DEMOLITION PLAN - ROOF
1/8" = 1'-0"

PLOTTED BY: AJV ON: 10/14/2022 12:48:12 PM



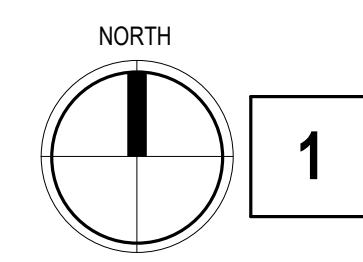
**Not For
Construction**



OSU KEC DUP DESIGN - PHASE 1
KELLEY ENGINEERING BUILDING
2500 NW MONROE AVE.
CORVALLIS, OR 97331

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UNIVERSITY

**POWER
DISTRIBUTION -
ROOF**



1

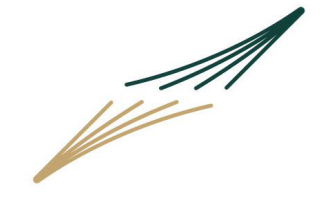
POWER DISTRIBUTION - ROOF
1/8" = 1'-0"

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: JSG
DRAWN: AJV
CHECKED: MBR

DATE: 10.14.2022
PROJECT: V015.23

E122



Not For Construction

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

SCHEDULES

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
| | | |

DESIGNED: JSG
 DRAWN: AJV
 CHECKED: MBR

DATE: 10.14.2022
 PROJECT: V015.23

E601

1 2 3 4 5 6 7

E

D

C

B

A

1 2 3 4 5 6 7

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

| TAG | DESCRIPTION | VOLTAGE | PHASE | HP | KW | FLA | FEEDER DESCRIPTION | CIRCUIT BREAKER (AMPS/POLES) | PANEL IDENTIFICATION | STARTER DIVISION | DISCONNECT DIVISION | VFD DIVISION | NOTES |
|---------|-------------------|---------|-------|----|-----|-------|---|------------------------------|----------------------|------------------|---------------------|--------------|-------|
| CH-1 | CHILLER | 480 | 3 | | 488 | 587.0 | SEE ONE-LINE DIAGRAM | 800/3 | | NA | DIV 26 | NA | |
| CH-TEMP | TEMPORARY CHILLER | 480 | 3 | | 114 | 137.1 | SEE ONE-LINE DIAGRAM | 150/3 | | NA | DIV 23 | NA | |
| EF-4 | EXHAUST FAN | 480 | 3 | 3 | | 4.8 | (3) 12 AWG CU, (1) 12 AWG GND, IN 3/4" C. | 15/3 | | NA | DIV 23 | DIV 23 | |

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 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
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ONE-LINE DIAGRAMS

DESIGNED: JSG
DRAWN: AJV
CHECKED: MBR

DATE: 10.14.2022
PROJECT: V015.23

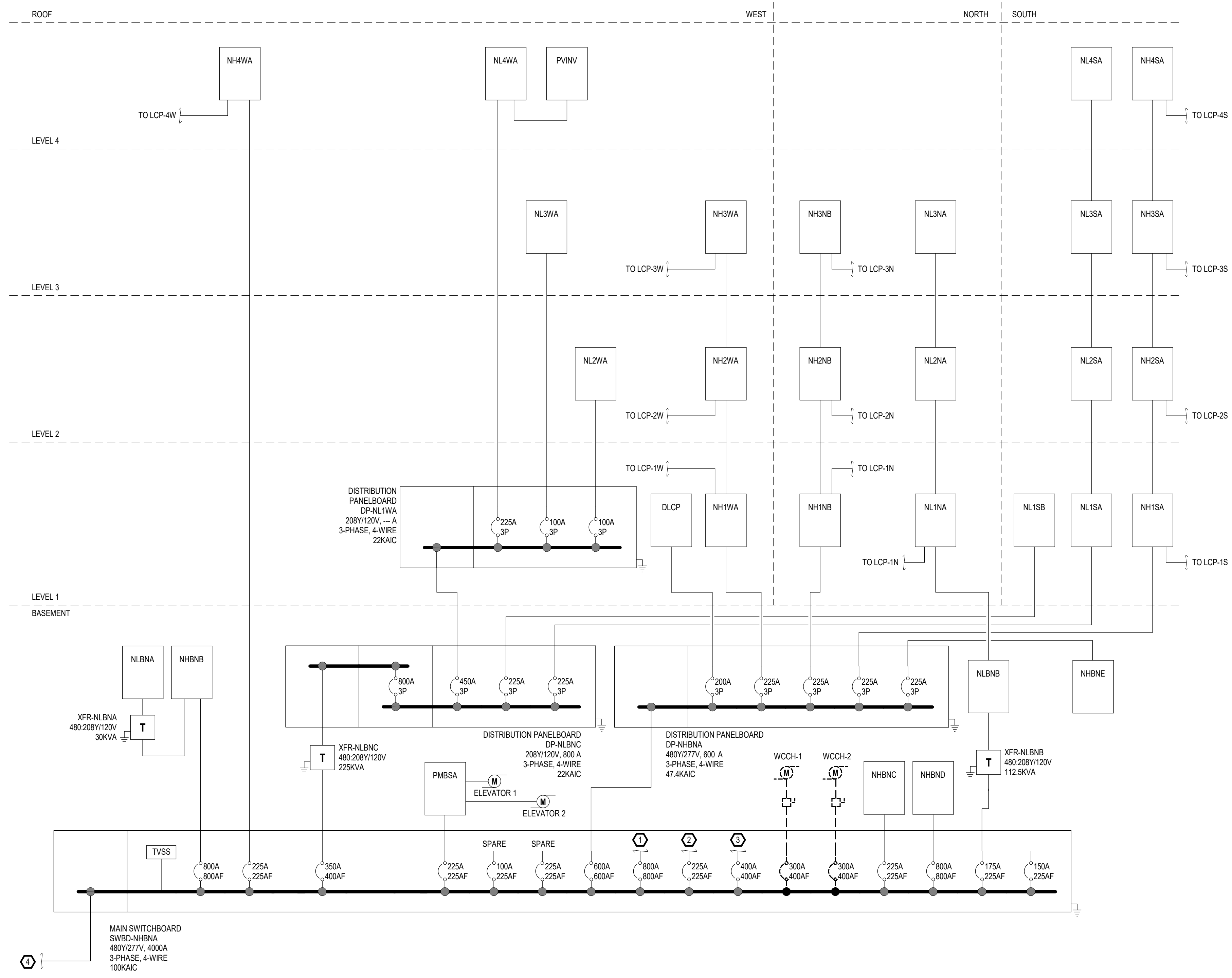
E611

REFERENCE NOTES:

- ① TO ATSHBMB
- ② TO ATSEHNA
- ③ TO ATSHBNA
- ④ TO (E) UTILITY

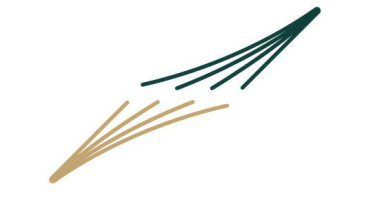
| FEEDER SCHEDULE COPPER, 3-PHASE, 3-WIRE PLUS GROUND | | | | |
|--|--------------------|------------------------------------|---------------------------------|---------------------------------|
| FEEDER TAG | NOMINAL RATING (A) | CONDUIT (NOMINAL DIAMETER, INCHES) | PHASE CONDUCTORS (AWG OR KCMIL) | GROUND CONDUCTOR (AWG OR KCMIL) |
| 20A | 20 | 0.75 | (3) 12 | 12 |
| 25A | 25 | 0.75 | (3) 10 | 10 |
| 30A | 30 | 0.75 | (3) 10 | 10 |
| 35A | 35 | 1 | (3) 8 | 10 |
| 40A | 40 | 1 | (3) 8 | 10 |
| 50A | 50 | 1 | (3) 6 | 10 |
| 60A | 60 | 1 | (3) 6 | 10 |
| 70A | 70 | 1 | (3) 4 | 8 |
| 80A | 80 | 1.25 | (3) 3 | 8 |
| 90A | 90 | 1.25 | (3) 3 | 8 |
| 100A | 100 | 1.25 | (3) 3 | 8 |
| 110A | 110 | 1.5 | (3) 2 | 8 |
| 125A | 125 | 1.5 | (3) 1 | 6 |
| 150A | 150 | 1.5 | (3) 1/0 | 6 |
| 175A | 175 | 2 | (3) 2/0 | 6 |
| 200A | 200 | 2 | (3) 3/0 | 6 |
| 225A | 225 | 2 | (3) 4/0 | 4 |
| 250A | 250 | 2.5 | (3) 250 | 4 |
| 300A | 300 | 3 | (3) 350 | 4 |
| 350A | 350 | 3 | (3) 400 | 3 |
| 400A | 400 | (2) 2.5 | (6) 3/0 | (2) 3 |
| 450A | 450 | (2) 2.5 | (6) 4/0 | (2) 2 |
| 500A | 500 | (2) 3 | (6) 250 | (2) 2 |
| 600A | 600 | (2) 3 | (6) 350 | (2) 1 |
| 800A | 800 | (3) 3 | (9) 300 | (3) 1/0 |
| 1000A | 1000 | (3) 3.5 | (9) 400 | (3) 2/0 |
| 1200A | 1200 | (4) 3 | (12) 350 | (4) 3/0 |
| 1600A | 1600 | (5) 3.5 | (15) 400 | (5) 4/0 |
| 2000A | 2000 | (6) 3.5 | (18) 400 | (6) 250 |
| 2500A | 2500 | (7) 3.5 | (21) 500 | (7) 350 |
| 3000A | 3000 | (8) 3.5 | (24) 500 | (8) 400 |

| FEEDER SCHEDULE COPPER, 3-PHASE, 4-WIRE PLUS GROUND | | | | |
|--|--------------------|------------------------------------|---|---------------------------------|
| FEEDER TAG | NOMINAL RATING (A) | CONDUIT (NOMINAL DIAMETER, INCHES) | PHASE & NEUTRAL CONDUCTORS (AWG OR KCMIL) | GROUND CONDUCTOR (AWG OR KCMIL) |
| 20B | 20 | 0.75 | (4) 12 | 12 |
| 25B | 25 | 0.75 | (4) 10 | 10 |
| 30B | 30 | 0.75 | (4) 10 | 10 |
| 35B | 35 | 1 | (4) 8 | 10 |
| 40B | 40 | 1 | (4) 8 | 10 |
| 50B | 50 | 1.25 | (4) 6 | 8 |
| 60B | 60 | 1.25 | (4) 6 | 8 |
| 70B | 70 | 1.25 | (4) 4 | 8 |
| 80B | 80 | 1.25 | (4) 3 | 8 |
| 90B | 90 | 1.5 | (4) 3 | 8 |
| 100B | 100 | 1.5 | (4) 3 | 8 |
| 110B | 110 | 1.5 | (4) 2 | 6 |
| 125B | 125 | 1.5 | (4) 1 | 6 |
| 150B | 150 | 2 | (4) 1/0 | 6 |
| 175B | 175 | 2 | (4) 2/0 | 6 |
| 200B | 200 | 2.5 | (4) 3/0 | 6 |
| 225B | 225 | 2.5 | (4) 4/0 | 4 |
| 250B | 250 | 3 | (4) 250 | 4 |
| 300B | 300 | 3.5 | (4) 350 | 2 |
| 350B | 350 | 3.5 | (4) 500 | 1 |
| 400B | 400 | (2) 2.5 | (8) 3/0 | (2) 2 |
| 450B | 450 | (2) 2.5 | (8) 4/0 | (2) 2 |
| 500B | 500 | (2) 3 | (8) 250 | (2) 1 |
| 600B | 600 | (2) 3.5 | (8) 350 | (2) 1 |
| 800B | 800 | (3) 3.5 | (12) 300 | (3) 1/0 |
| 1000B | 1000 | (3) 4 | (12) 500 | (3) 2/0 |
| 1200B | 1200 | (4) 4 | (16) 400 | (4) 3/0 |
| 1600B | 1600 | (5) 4 | (20) 500 | (5) 4/0 |
| 2000B | 2000 | (6) 4 | (24) 500 | (6) 250 |
| 2500B | 2500 | (8) 4 | (32) 500 | (8) 350 |
| 3000B | 3000 | (9) 4 | (36) 500 | (9) 400 |



1 ONE-LINE DIAGRAM - 480/277 SYSTEM DEMO
 NOT TO SCALE

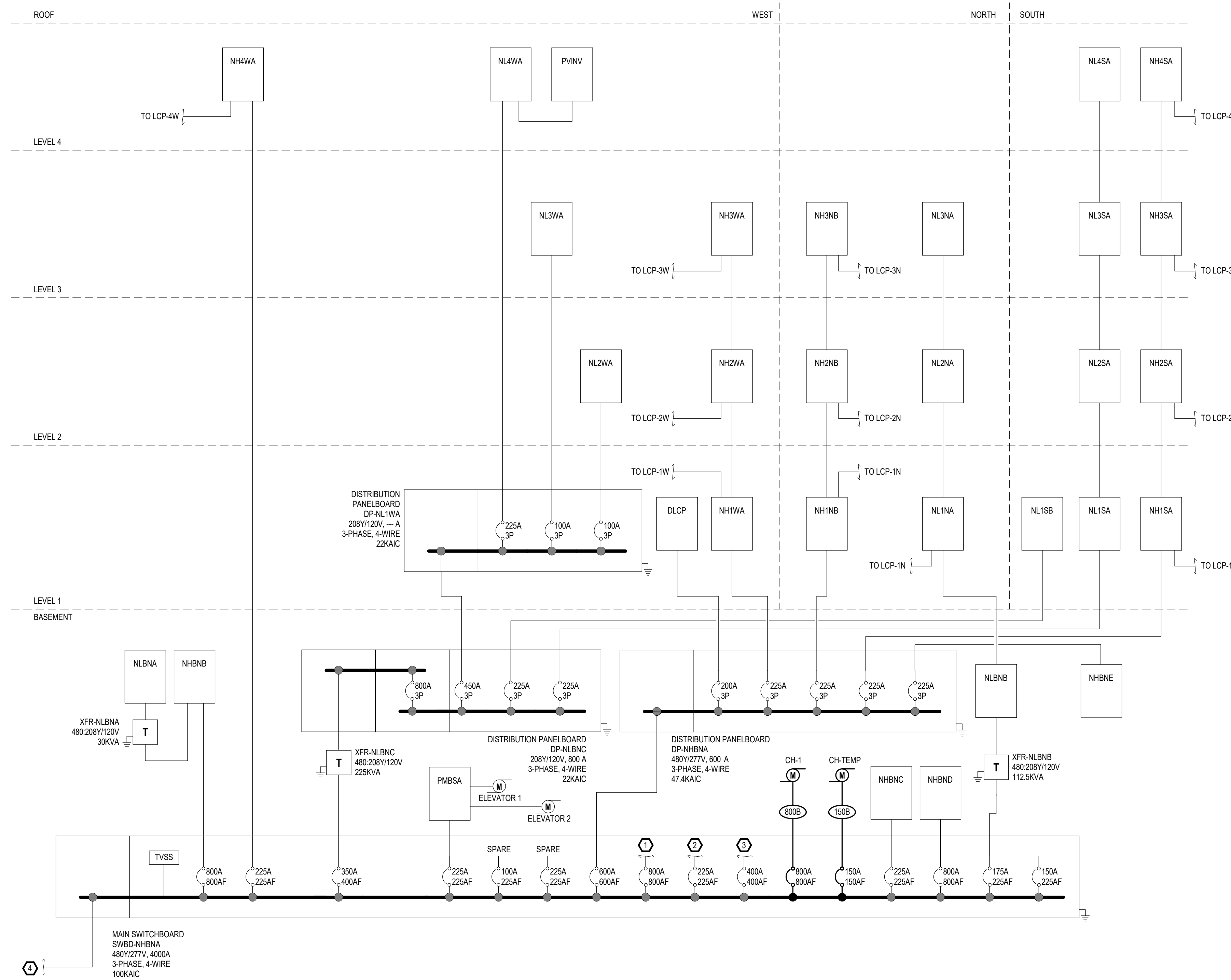
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REFERENCE NOTES:

- ① TO ATSHBMB
- ② TO ATSEHNA
- ③ TO ATSHBNA
- ④ TO (E) UTILITY

Not For Construction



| FEEDER SCHEDULE COPPER, 3-PHASE, 3-WIRE PLUS GROUND | | | | |
|--|--------------------|------------------------------------|---------------------------------|---------------------------------|
| FEEDER TAG | NOMINAL RATING (A) | CONDUIT (NOMINAL DIAMETER, INCHES) | PHASE CONDUCTORS (AWG OR KCMIL) | GROUND CONDUCTOR (AWG OR KCMIL) |
| 20A | 20 | 0.75 | (3) 12 | 12 |
| 25A | 25 | 0.75 | (3) 10 | 10 |
| 30A | 30 | 0.75 | (3) 10 | 10 |
| 35A | 35 | 1 | (3) 8 | 10 |
| 40A | 40 | 1 | (3) 8 | 10 |
| 50A | 50 | 1 | (3) 6 | 10 |
| 60A | 60 | 1 | (3) 6 | 10 |
| 70A | 70 | 1 | (3) 4 | 8 |
| 80A | 80 | 1.25 | (3) 3 | 8 |
| 90A | 90 | 1.25 | (3) 3 | 8 |
| 100A | 100 | 1.25 | (3) 3 | 8 |
| 110A | 110 | 1.5 | (3) 2 | 8 |
| 125A | 125 | 1.5 | (3) 1 | 6 |
| 150A | 150 | 1.5 | (3) 1/0 | 6 |
| 175A | 175 | 2 | (3) 2/0 | 6 |
| 200A | 200 | 2 | (3) 3/0 | 6 |
| 225A | 225 | 2 | (3) 4/0 | 4 |
| 250A | 250 | 2.5 | (3) 250 | 4 |
| 300A | 300 | 3 | (3) 350 | 4 |
| 350A | 350 | 3 | (3) 400 | 3 |
| 400A | 400 | (2) 2.5 | (6) 3/0 | (2) 3 |
| 450A | 450 | (2) 2.5 | (6) 4/0 | (2) 2 |
| 500A | 500 | (2) 3 | (6) 250 | (2) 2 |
| 600A | 600 | (2) 3 | (6) 350 | (2) 1 |
| 800A | 800 | (3) 3 | (9) 300 | (3) 1/0 |
| 1000A | 1000 | (3) 3.5 | (9) 400 | (3) 2/0 |
| 1200A | 1200 | (4) 3 | (12) 350 | (4) 3/0 |
| 1600A | 1600 | (5) 3.5 | (15) 400 | (5) 4/0 |
| 2000A | 2000 | (6) 3.5 | (18) 400 | (6) 250 |
| 2500A | 2500 | (7) 3.5 | (21) 500 | (7) 350 |
| 3000A | 3000 | (8) 3.5 | (24) 500 | (8) 400 |

| FEEDER SCHEDULE COPPER, 3-PHASE, 4-WIRE PLUS GROUND | | | | |
|--|--------------------|------------------------------------|---|---------------------------------|
| FEEDER TAG | NOMINAL RATING (A) | CONDUIT (NOMINAL DIAMETER, INCHES) | PHASE & NEUTRAL CONDUCTORS (AWG OR KCMIL) | GROUND CONDUCTOR (AWG OR KCMIL) |
| 20B | 20 | 0.75 | (4) 12 | 12 |
| 25B | 25 | 0.75 | (4) 10 | 10 |
| 30B | 30 | 0.75 | (4) 10 | 10 |
| 35B | 35 | 1 | (4) 8 | 10 |
| 40B | 40 | 1 | (4) 8 | 10 |
| 50B | 50 | 1.25 | (4) 6 | 8 |
| 60B | 60 | 1.25 | (4) 6 | 8 |
| 70B | 70 | 1.25 | (4) 4 | 8 |
| 80B | 80 | 1.25 | (4) 3 | 8 |
| 90B | 90 | 1.5 | (4) 3 | 8 |
| 100B | 100 | 1.5 | (4) 3 | 8 |
| 110B | 110 | 1.5 | (4) 2 | 6 |
| 125B | 125 | 1.5 | (4) 1 | 6 |
| 150B | 150 | 2 | (4) 1/0 | 6 |
| 175B | 175 | 2 | (4) 2/0 | 6 |
| 200B | 200 | 2.5 | (4) 3/0 | 6 |
| 225B | 225 | 2.5 | (4) 4/0 | 4 |
| 250B | 250 | 3 | (4) 250 | 4 |
| 300B | 300 | 3.5 | (4) 350 | 2 |
| 350B | 350 | 3.5 | (4) 500 | 1 |
| 400B | 400 | (2) 2.5 | (8) 3/0 | (2) 2 |
| 450B | 450 | (2) 2.5 | (8) 4/0 | (2) 2 |
| 500B | 500 | (2) 3 | (8) 250 | (2) 1 |
| 600B | 600 | (2) 3.5 | (8) 350 | (2) 1 |
| 800B | 800 | (3) 3.5 | (12) 300 | (3) 1/0 |
| 1000B | 1000 | (3) 4 | (12) 500 | (3) 2/0 |
| 1200B | 1200 | (4) 4 | (16) 400 | (4) 3/0 |
| 1600B | 1600 | (5) 4 | (20) 500 | (5) 4/0 |
| 2000B | 2000 | (6) 4 | (24) 500 | (6) 250 |
| 2500B | 2500 | (8) 4 | (32) 500 | (8) 350 |
| 3000B | 3000 | (9) 4 | (36) 500 | (9) 400 |

OSU KEC DUP DESIGN - PHASE 1

KELLEY ENGINEERING BUILDING
 2500 NW MONROE AVE.
 CORVALLIS, OR 97331

OWNER:
 OREGON STATE UNIVERSITY

ONE-LINE DIAGRAMS

MARK DATE DESCRIPTION

DESIGNED: JSG
 DRAWN: AJV
 CHECKED: MBR

DATE: 10.14.2022
 PROJECT: V015.23

E612

1 ONE-LINE DIAGRAM - 480/277 SYSTEM NEW
 NOT TO SCALE

10/14/2022 12:48:19 PM PLOTTED BY: AJV ON: 10/14/2022 12:48:19 PM