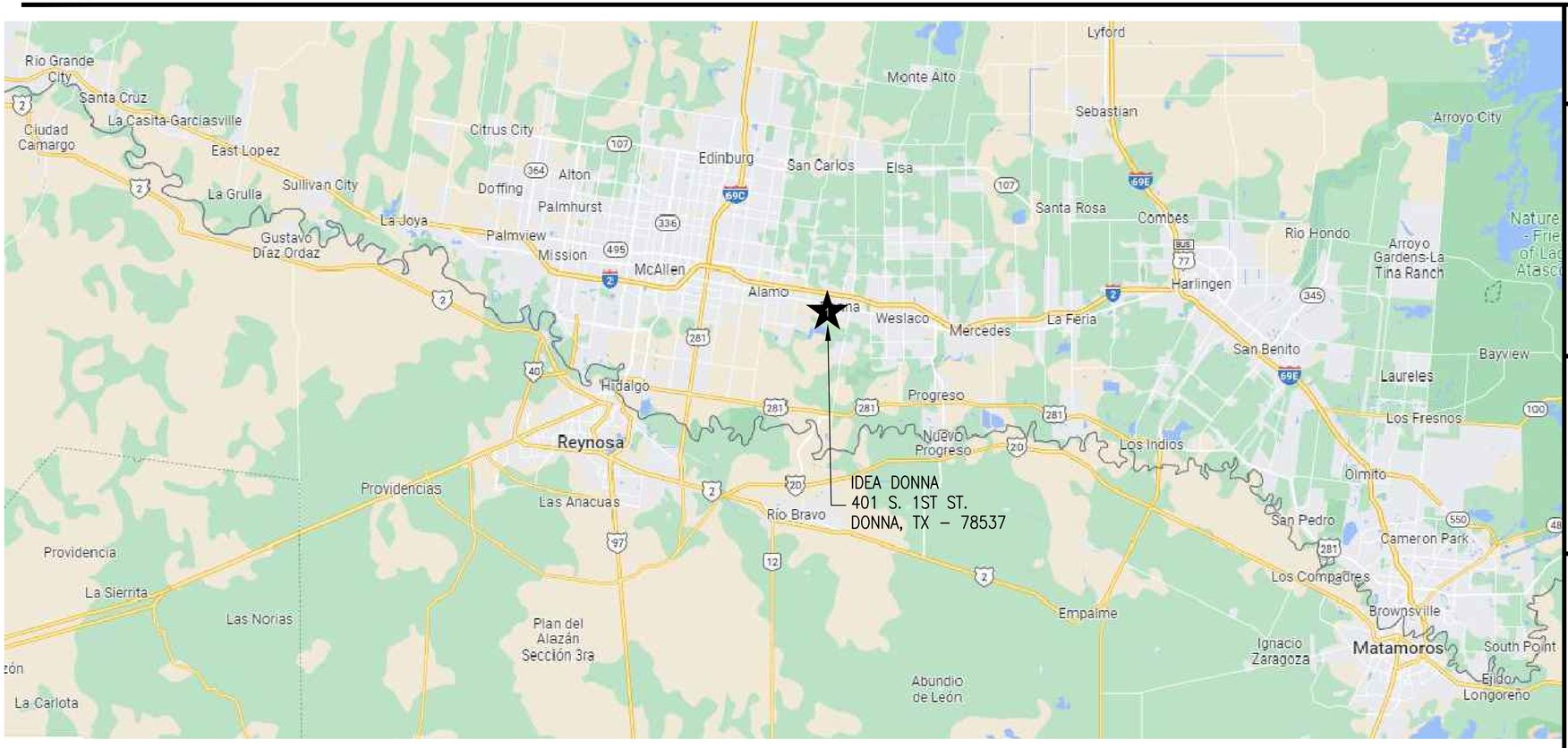
IDEA PUBLIC SCHOOLS
IDEA DONNA - MECHANICAL UPGRADES

DONNA, TEXAS



VICINITY MAP

NORTH

SCOPE OF WORK

SCOPE OF WORK: PROVIDE ALL MATERIALS AND LABOR ASSOCIATED WITH COMPLETE OPERATIONAL SYSTEMS. MAJOR ITEMS OF WORK INCLUDE, BUT ARE NOT LIMITED TO:

1. BASE BID SCOPE OF WORK INCLUDES THE FOLLOWING:
   a. REPLACEMENT OF AIR-COOLED CHILLER, PUMPS, VFDS, WALL-MOUNTED PACKAGED DX UNITS.
2. ALTERNATE # 1 SCOPE OF WORK INCLUDES THE FOLLOWING:
   a. REPLACEMENT OF HYDRONIC AIR-HANDLING UNITS, DUCT HEATERS, RELATED VFDS.
   b. CONVERSION OF SINGLE ZONE HYDRONIC AIR-HANDLING UNIT TO VAV BY ADDING MOTORIZED ZONE DAMPERS AND ZONE CONTROLS.
   c. CONTROLS UPGRADES FOR NEW VAV SYSTEMS.
3. COMMON SCOPE OF WORK FOR BOTH BASE BID AND ALTERNATE INCLUDES THE FOLLOWING:
   a. MODIFICATION OF DUCTWORK, CHILLED WATER PIPING, CONTROLS, AND ELECTRICAL SYSTEMS.
   b. TESTING, ADJUSTING AND BALANCING.
   c. CUTTING AND PATCHING AND TOUCH UP PAINTING AS REQUIRED.
   d. CONCRETE WORK AS NEEDED.
   e. ASSISTANCE WITH COMMISSIONING SERVICES PER SPECIFICATIONS.
4. ALLOWANCES: THE OWNER HAS SET ASIDE ALLOWANCES FOR UNFORESEEN CIRCUMSTANCES. SEE SECTION 012100.

DATE OF ISSUE

JANUARY 19, 2024

LIST OF DRAWINGS

EXECUTIVE COMMITTEE

COLLIN SEWELL . . . . . CHAIR
ED RIVERA . . . . . VICE-CHAIR
ERICH HOLMSTEN . . . . . TREASURER
RYAN VAUGHAN . . . . . SECRETARY

BOARD OF DIRECTORS

MICHAEL ADAMS . . . . . MEMBER
GARY LINDGREN . . . . . MEMBER
THERESA BARRERA -SHAW . . . . . MEMBER
NANETTE COCERO . . . . . MEMBER
DR. JEFF COTTRILL . . . . . CEO AND SUPERINTENDENT
CODY GRINDLE . . . . . PRESIDENT
DR. ERNIE CANTU . . . . . CHIEF SCHOOLS OFFICER

RIO GRANDE VALLEY REGIONAL BOARD

MARIA ANTONIA CHAPA
CERISE R. DE GARDUNO
SARAH GARZA
ZULIEDA LOPEZ-HABBOUCHE
ANDREA RODRIGUEZ
ALYSSA L. ROMERO, BOARD CHAIR
BOBBY SAENZ
CJ SANCHEZ
JESUS (JESSE) ZEPEDA

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED
PROFESSIONAL ENGINEER
01.19.2024

TEXAS

IDEA DONNA MECHANICAL UPGRADES

DONNA

ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET:	COVER

ABBREVIATIONS

A	AMPS	EMS	ENERGY MANAGEMENT SYSTEM	NC	NORMALLY CLOSED
ABC	ABOVE CEILING LINE	ENT.	ENTERING	NIC	NOT IN CONTRACT
ACT	ACTUATOR	EXT.	EXTERNAL OR EXTERIOR	NO	NORMALLY OPEN
AFF	ABOVE FINISHED FLOOR	EXIST./EX	EXISTING	NTS	NOT TO SCALE
AHU	AIR HANDLING UNIT	FD	FIRE DAMPER	OA	OUTSIDE AIR
B.	BOTTOM	FM	FLOW METER	PH	PHASE
BAS	BUILDING AUTOMATION SYSTEM	FS	FLOW SWITCH	P	POLE(S)
BOP	BOTTOM OF PIPE	FPI	FINS PER INCH	RA	RETURN AIR
BOTT.	BOTTOM	G.	GROUND	RAG/RG	RETURN AIR GRILLE
C.	CONDUIT OR COMMON	GA.	GAGE	RD	ROOF DRAIN
CHR	CHILLED WATER RETURN	GALV.	GALVANIZED	RM.	ROOM
CHS	CHILLED WATER SUPPLY	GPM	GALLONS PER MINUTE	RPZ	REDUCED PRESSURE ZONE
CHW	CHILLED WATER	GRND.	GROUND	SA	SUPPLY AIR
CHWP	CHILLED WATER PUMP	HB	HOSE BIBB	SD	SUPPLY AIR DIFFUSER
CR	CONDENSER WATER RETURN	HP	HORSEPOWER	SS	STAINLESS STEEL
CS	CONDENSER WATER SUPPLY	HS	HUMIDITY SENSOR	SZ	SINGLE ZONE
CLG.	CEILING OR COOLING	HVAC	HEATING, VENTILATION, & AIR CONDITIONING	TAB	TESTING & BALANCING
COMB.	COMBINATION			TS	TEMPERATURE SENSOR
CONC.	CONCRETE	LVG.	LEAVING	TSTAT	THERMOSTAT
COND.	CONDUIT	MCA	MINIMUM CIRCUIT AMPACITY	TYP.	TYPICAL
CU.	COPPER	MECH	MECHANICAL	UG	UNDERGROUND
CW	CITY WATER	MOT. STRTR.	MOTOR STARTER	UNO	UNLESS OTHERWISE NOTED
DDC	DIRECT DIGITAL CONTROLS	MOCP	MAX. OVERCURRENT PROTECTION	V	VOLTS
DMPR.	DAMPER	MS	MOTOR STARTER	VAV	VARIABLE AIR VOLUME
DISC.	DISCONNECT	MZ	MULTI-ZONE	VFD	VARIABLE FREQUENCY DRIVE
EAG/EG	EXHAUST AIR GRILLE	N/A	NOT APPLICABLE	W	WIRE

ELECTRICAL GENERAL SYMBOL LEGEND:

SYMBOL	DESCRIPTION	MNTG. HT. UNO (SEE NOTE 1)
FACP	FIRE ALARM H.V.A.C. DUCT SMOKE DETECTOR W/ SHUNT TRIP RELAY – PROVIDE BACKBOX WITH 1/2"C AND PULLWIRE. PROVIDE A REMOTE TEST SWITCH.	AS REQUIRED
	DISCONNECT SWITCH – NON FUSED	AS REQUIRED
	DISCONNECT SWITCH – FUSED	AS REQUIRED
	ELECTRICAL PANELBOARD – SURFACE MOUNTED	AS REQUIRED
— — —	UNDERGROUND RACEWAY	AS REQUIRED
———	CONCEALED RACEWAY	AS REQUIRED
	CONDUIT OR EMT HOMERUN TO PANELBOARD CONCEALED IN WALLS OR ABOVE CEILING. LONG CROSSMARKS DENOTE NUMBER OF "HOT" CONDUCTORS SHORT CROSSMARKS INDICATE NEUTRALS AND DOTS INDICATE NUMBER OF GROUND CONDUCTORS. ARROW INDICATES HOME RUN TO ELECTRICAL PANEL.	AS REQUIRED

ELECTRICAL:

1. ALL ELECTRICAL WORK SHALL BE UNDER THE MASTER ELECTRICIAN WHO PULLED THE PERMIT AND ITS JOURNEYMAN ELECTRICIANS.
2. PERFORM ALL WORK PER ADOPTED N.E.C. AND APPLICABLE STATE STANDARDS, UNLESS DRAWINGS OR SPECIFICATIONS HAVE MORE STRINGENT REQUIREMENTS.
3. UNLESS NOTED OTHERWISE, MINIMUM POWER CIRCUIT IS TO BE #12 THWN WITH #12 GROUND IN 3/4" CONDUIT, WITH THE EXCEPTION THAT ANY CIRCUIT LONGER THAN 100 FEET SHALL BE MINIMUM #10 AWG WITH #10 GROUND WIRE. CIRCUIT LONGER THAN 200 FEET SHALL BE MINIMUM #8 AWG WITH #10 GROUND WIRE MINIMUM.
4. ALL EXISTING ID NAMETAGS AND CIRCUIT IDENTIFICATION MUST BE REVISED TO REFLECT CURRENT CONDITIONS FOR ALL EQUIPMENT WHICH IS NEW, REPLACED, OR DEMOLISHED. REMOVE ID NAMETAGS FOR DEMOLISHED EQUIPMENT. REPLACE EXISTING NAMETAGS WITH NEW FOR REPLACED EQUIPMENT, IF REPLACEMENT EQUIPMENT HAS DIFFERENT NAME. PROVIDE NEW NAMETAGS FOR ALL NEW EQUIPMENT. ALL CIRCUIT BREAKER DIRECTORIES FOR PANELS IN WHICH NEW WORK TAKES PLACE ARE TO BE REPLACED WITH NEW DIRECTORIES WHICH LIST EXISTING CIRCUITS AND NEW. ALL UNUSED CIRCUITS ARE TO BE MARKED AS 'SPARE' IN THE DIRECTORIES. DIRECTORIES ARE TO BE COMPUTER GENERATED; NO HAND WRITTEN DIRECTORIES ARE ACCEPTABLE.
5. HAND-WRITTEN CIRCUIT BREAKER DIRECTORIES WILL NOT BE ACCEPTED. DIRECTORIES MUST BE COMPUTER GENERATED AND PRINTED TO REFLECT FINAL INSTALLED CONDITIONS.
6. MARK ALL J-BOXES WITH INDELIBLE INK, INDICATING POWER CIRCUITRY INFORMATION. LABEL ALL EQUIPMENT ITEMS PER SPECIFICATIONS.
7. ALL EXTERIOR RACEWAYS ABOVE GROUND SHALL BE RIGID GALVANIZED.
8. UNDER NO CIRCUMSTANCES SHALL MORE THAN THREE CIRCUITS SHARE THE SAME NEUTRAL, AND SUCH CIRCUITS MUST BE SEPARATE PHASE.
9. SINCE ELECTRICAL CHARACTERISTIC OF EQUIPMENT (SUCH AS HORSEPOWER, KW, AMPERAGE, VOLTAGE, ETC.) SUBMITTED MAY DIFFER FROM THOSE SPECIFIED IN DRAWINGS, CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH MECHANICAL AND OTHER CONTRACTORS TO ENSURE COMPATIBILITY BETWEEN ELECTRICAL AND MECHANICAL EQUIPMENT SIZES AND TYPES OF ELECTRICAL INTERFACE EQUIPMENT REQUIRED.
10. USE LONG-SWEEPS FOR ALL CHANGES IN DIRECTION ON CONDUIT RUNS.
11. ALL INTERIOR RACEWAYS SHALL BE EMT.
12. FIELD VERIFY PROJECT SITE EXISTING CONDITIONS AND ELEVATIONS PRIOR TO BEGINNING ANY WORK.
13. PHASING AND SEQUENCE OF CONSTRUCTION SHALL BE PER DRAWINGS AND SPECIFICATIONS.
14. ALL MATERIALS AND LABOR, WHETHER SPECIFICALLY INDICATED ON PLANS OR NOT, WHICH ARE NECESSARY FOR THE PROPER INSTALLATION AND FUNCTION OF THE SYSTEM SHALL BE FURNISHED BY THIS CONTRACTOR. INCLUDE ALL COSTS OF CHANGES, IF/AS REQUIRED IN BID PROPOSAL.
15. ELECTRICAL WIRING SHALL NOT BE SPLICED BELOW GRADE.
16. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND FEES ASSOCIATED WITH PROJECT, INCLUDING FEES FOR INSPECTIONS, APPLICATIONS, AND PROVISION OF NEW SERVICES.
17. CONTRACTOR WHO WILL ACTUALLY PERFORM WORK MUST APPLY FOR ALL REQUIRED PERMITS.
18. NOTIFY ENGINEER OF ANY ASPECTS OF DESIGN WHICH ARE THOUGHT TO BE IN NONCOMPLIANCE WITH APPLICABLE CODES.
19. COORDINATE ALL WORK WITH OTHER TRADES; COORDINATE SCHEDULE OF WORK WITH ALL SUB-CONTRACTORS TO ACHIEVE SMOOTH FLOW OF CONSTRUCTION.
20. SEAL AROUND ELECTRICAL RACEWAYS AT ALL WALLS AND WALL LOUVER PENETRATIONS WITH FIREPROOF CAULKING. RE: SPECS. PROVIDE FLASHING AROUND PENETRATION, BOTH INSIDE AND OUTSIDE, TO PROVIDE FINISHED LOOK.
21. CONTRACTOR SHALL REVIEW COMPLETE DOCUMENTS PRIOR TO SUBMITTAL OF PROPOSAL TO GAIN COMPLETE UNDERSTANDING OF PROJECT SCOPE, WORK BY OTHERS, AND ELECTRICAL WORK ASSOCIATED WITH OTHER DISCIPLINES.
22. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT.
23. AFFIX ID TAGS TO ALL DIVISION 26 EQUIPMENT.
24. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH MECHANICAL AND PLUMBING CONTRACTOR REGARDING EQUIPMENT SIZES AND TYPES OF ELECTRICAL INTERFACE EQUIPMENT REQUIRED.
25. FIELD VERIFY ALL CONDITIONS AND MEASURE DIMENSIONS WITHIN THE BUILDING PRIOR TO ORDERING EQUIPMENT AND/OR PROCEEDING WITH INSTALLATION.
26. ALL EQUIPMENT SHALL BE FACTORY TESTED, AND CONTRACTOR SHALL VERIFY THEIR CONDITION PRIOR TO INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR EQUIPMENT DAMAGED DURING MOVING AND INSTALLATION.
27. EQUIPMENT FOUND DEFECTIVE PRIOR TO FINAL ACCEPTANCE SHALL BE REPLACED AT NO COST TO OWNER.
28. SLEEVE ALL EXTERIOR WALL PENETRATIONS.
29. PRIOR TO ANY DEMOLITION, CONTRACTOR SHALL CONDUCT A DETAILED INSPECTION OF EXISTING CONDITIONS AND COMPARE AGAINST DEMOLITION DRAWINGS. CONTRACTOR SHALL REQUEST CLARIFICATION AS TO THE REMOVAL OF ANY ELECTRICAL COMPONENTS FOUND IN THE FIELD THAT ARE NOT SPECIFICALLY NOTED TO BE DEMOLISHED.
30. THE DESIGN INTENT IS TO REUSE TO EXTENT POSSIBLE EXISTING ELECTRICAL AND SAFETY SYSTEMS INCLUDING CIRCUIT BREAKERS, WIRING AND CONDUITS, SAFETY AND OTHER HARD WIRED INTERLOCKS, ETC. EXISTING SYSTEMS TO BE REUSED SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. SEE PLANS
31. PROVIDE ADDITIONAL SPARE MATERIALS DESCRIBED BELOW. PROVIDE PROTECTIVE COVERING FOR STORAGE & IDENTIFIED WITH LABELS DESCRIBING THE CONTENTS. INCLUDE THE INSTALLATION COST, FITTINGS AND SUPPORTS IN THE BASE BID PROPOSAL:
    A. 100 LINEAR FEET – 1/2"-3#12 & #12G
    B. 100 LINEAR FEET – 3/4"-3#10 & #10G
    C. 50 LINEAR FEET – 3" – 3#350KCMIL & #4G

EQUIPMENT:

1. FIELD VERIFY ALL CONDITIONS AND MEASURE DIMENSIONS WITHIN THE BUILDING PRIOR TO ORDERING EQUIPMENT AND/OR PROCEEDING WITH INSTALLATION.
2. ALL EQUIPMENT SHALL BE FACTORY TESTED, AND CONTRACTOR SHALL VERIFY THEIR CONDITION PRIOR TO INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR EQUIPMENT DAMAGED DURING MOVING AND INSTALLATION.
3. EQUIPMENT FOUND DEFECTIVE PRIOR TO FINAL ACCEPTANCE SHALL BE REPLACED AT NO COST TO OWNER.
4. MAINTAIN CLEARANCE AROUND ALL EQUIPMENT AS REQUIRED BY NATIONAL ELECTRIC CODE AND MANUFACTURER RECOMMENDATIONS.
5. PROVIDE SPRING HANGER TYPE VIBRATION ISOLATION DEVICES TO SUPPORT SUSPENDED, POWERED, VIBRATING EQUIPMENT. PROVIDE FLEXIBLE CONNECTORS AS REQUIRED.
6. PROVIDE TRAPPED CONDENSATE DRAIN LINES FROM ALL HVAC EQUIPMENT INCLUDING PUMPS AND TERMINATE AT NEAREST FLOOR SINK OR OTHER APPROVED RECEPTORS.
7. COMPLETELY WEATHERPROOF ALL EQUIPMENT, PIPES AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE THE BUILDING, IN MECHANICAL YARD, OR OTHERWISE EXPOSED TO WEATHER. AS A MINIMUM, WEATHERPROOFING SHALL INCLUDE, BUT IS NOT LIMITED TO THE FOLLOWING: JACKETING FOR ALL PIPING INSULATION, VALVES AND ACCESSORIES RATED FOR OUTDOOR SERVICE, ELECTRICAL ENCLOSURES NEMA 4X-SS. UNLESS OTHERWISE NOTED.
8. AFFIX ID TAGS TO ALL MECHANICAL EQUIPMENT.
9. MAKE ALL VALVES ACCESSIBLE, INCLUDING MANUAL SHUTOFF VALVES AND AUTOMATIC VALVES. THEY SHOULD BE CLOSE TO THE UNIT BEING SERVED, AND REACHABLE BY A 5'-6" PERSON STANDING ON THE FLOOR NEARBY, WITHOUT THE AID OF A LADDER. WHERE PIPING CONFIGURATION MAKES IT IMPOSSIBLE TO LOCATE SHUTOFF VALVES IN THE MANNER DESCRIBED ABOVE, OBTAIN APPROVAL FROM OWNER AND/OR ENGINEER FOR ALTERNATE LOCATION.
10. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH ELECTRICAL CONTRACTOR REGARDING EQUIPMENT SIZES AND TYPES OF ELECTRICAL INTERFACE EQUIPMENT REQUIRED.
11. DUE TO VARIATIONS IN EQUIPMENT CHARACTERISTICS BY DIFFERENT EQUIPMENT SUPPLIERS, MECHANICAL EQUIPMENT ULTIMATELY PROVIDED MAY DIFFER IN HORSEPOWER OR AMPERAGE REQUIREMENTS FROM THAT SPECIFIED IN THESE DRAWINGS. COORDINATE WITH GENERAL CONTRACTOR PRIOR TO BIDDING, AND PRIOR TO SUBMITTALS AND ORDERING EQUIPMENT, TO ENSURE THAT EQUIPMENT ELECTRICAL REQUIREMENTS ARE CONVEYED TO ELECTRICAL CONTRACTOR. IT IS SOLELY CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPATIBILITY ISSUES ARE COORDINATED.
12. PROVIDE MECHANICAL, PLUMBING, AND ELECTRICAL WORK REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION.

PIPING:

1. DRAWINGS ARE DIAGRAMMATIC IN NATURE. FOR CLARITY SAKE, MOST PIPING OFFSETS/RISES/DROPS ARE NOT SHOWN IN DRAWINGS.
2. FOR PIPE SIZES, REFER TO CONDENSER, PIPING SCHEMATIC.
3. DO NOT ROUTE ANY PIPING ABOVE ELECTRICAL EQUIPMENT. COORDINATE LAYOUT WITH OTHER TRADES SUCH AS DUCTWORK, PLUMBING, LIGHTING, ELECTRICAL, FIRE PROTECTION, ETC. PROVIDE SHOP DRAWINGS TO CLEARLY SHOW PIPING ROUTING AND COORDINATION WITH OTHER ELEMENTS. IN CASE OF CONFLICT, COORDINATE REROUTING OF UTILITIES WITH ENGINEER.
4. PROVIDE LINE SIZE MANUAL ISOLATION VALVES AT ALL EQUIPMENT AND AT ALL MAJOR PIPING TAKE OFFS. REFER TO PIPING RISER SCHEMATIC FOR VALVE LOCATION AND SIZES. INSTALL ISOLATION VALVES IN ACCESSIBLE LOCATIONS. PROVIDE ADEQUATELY SIZED ACCESS DOORS WHERE REQUIRED.
5. PROVIDE EXPANSION JOINTS PER SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS.
6. ALL PIPING WELDS MUST BE WIRE-BRUSHED AND PAINTED A MINIMUM OF 12" ON EITHER SIDE OF WELD PRIOR TO INSULATION.
7. AT LOWEST POINT IN PIPING ENTERING CHILLER BARRELS, PROVIDE 6" LONG DRAIN NIPPLES AND BALL VALVES FOR DRAINING NEW CHILLER.
8. INSULATE PER SPECIFICATIONS ALL PIPING, VALVES, FITTINGS, PUMP BODIES AND COLD SURFACES THAT ARE CAPABLE OF GENERATING CONDENSATION.
9. PRIOR TO INSTALLATION OF EQUIPMENT, VERIFY THAT MANUFACTURER RECOMMENDED AND CODE REQUIRED CLEARANCES ARE AVAILABLE.
10. INSTALL PIPES AS HIGH AS POSSIBLE TO ALLOW MAXIMUM POSSIBLE HEADROOM.
11. PROVIDE P/T TEST PORT WITHIN 6 INCHES OF EVERY PRESSURE GAGE AND THERMOWELL. SEE PIPING SCHEMATIC FOR LOCATIONS.
12. PROVIDE LONG STEM CHW VALVES TO AVOID CONFLICT WITH INSULATION.

INSULATION:

1. FIBERGLASS INSULATION MAY NOT BE USED ON ANY COLD SURFACES; ONLY APPROVED CLOSED CELL INSULATION IS ACCEPTABLE.
2. PROVIDE INSULATION ON ALL SURFACES CAPABLE OF CREATING CONDENSATION.

EXISTING CONDITIONS & COORDINATION/RENOVATION:

1. COORDINATE SCHOOL SCHEDULES, CHILLED WATER AND POWER DOWN TIMES, AND PROJECT COMPLETION DATES WITH OWNER. PERFORM WORK IN CLOSE COORDINATION WITH OWNER. MAJORITY OF WORK SHALL BE PERFORMED WHEN SCHOOL IS UNOCCUPIED, SUCH AS WEEKENDS, AFTER HOURS, HOLIDAY BREAKS OR OTHER OWNER APPROVED TIMES.
2. COORDINATE WORK AMONG ALL DISCIPLINES. IT IS NOT THE INTENT OF THESE DOCUMENTS TO DICTATE WHO MUST DO THE WORK. ALL WORK SHOWN IS THE RESPONSIBILITY OF THE (PRIME) CONTRACTOR.
3. PRIOR TO DEMOLITION WORK, SUBMIT A DETAILED DEMOLITION AND CONSTRUCTION SCHEDULE TO OWNER AND ENGINEER. DO NOT PROCEED WITH WORK UNTIL PROPOSED SCHEDULE IS APPROVED BY ALL PARTIES. PROVIDE OWNER WITH MINIMUM 10 DAYS ADVANCE NOTICE OF INTENT TO PERFORM ANY WORK WHICH WILL REQUIRE CHILLER, PLANT OR ELECTRICAL SERVICE TO BE SHUT DOWN.
4. FIELD-VERIFY EXACT LOCATIONS OF ALL EXISTING UNDERGROUND AND NEW UTILITIES, PRIOR TO CONDUCTING ANY WORK. COORDINATE WITH OWNERS PERSONNEL AND UTILITY COMPANIES. ALL EXPENSES INCURRED TO REPAIR DAMAGE CAUSED TO KNOWN UTILITIES AS A RESULT OF CONTRACTOR'S WORK SHALL BE BORNE BY THE CONTRACTOR. OWNER WILL NOT BE RESPONSIBLE FOR SUCH COSTS.
5. NOTIFY ENGINEER AND OWNER IF TEMPORARY OR PERMANENT RELOCATION OF UTILITIES IS REQUIRED.
6. COORDINATE DEMOLITION WORK WITH NEW AND TEMPORARY CONSTRUCTION WITH MINIMAL INTERRUPTION OF POWER, CHILLED WATER, HOT WATER AND OTHER UTILITIES. COORDINATE WITH OWNER AND ENGINEER FOR ANY DISRUPTION IN UTILITY SERVICES, PARTICULARLY THOSE THAT MIGHT AFFECT OCCUPANCY.
7. PROVIDE TEMPORARY UTILITY CONNECTIONS WHEN NEEDED TO MAINTAIN BUILDING IN OPERATIONAL CONDITION DURING DEMOLITION AND CONSTRUCTION.
8. CONTRACTOR SHALL NOT PROCEED WITH ANY WORK INVOLVING A CHANGE IN PROJECT SCOPE OR COST WITHOUT FIRST HAVING OBTAINED ENGINEER'S APPROVAL IN WRITING. UNLESS ENGINEER HAS AGREED TO SUCH CHANGE PRIOR TO IT BEING DONE, AND HAS AGREED THAT AN INCREASE IN COST ASSOCIATED WITH SUCH CHANGE IS WARRANTED; CONTRACTOR WILL NOT BE REIMBURSED FOR SUCH CHANGE.
9. PROVIDE LIGHTED SAFETY BARRIERS AROUND WORK AREAS AT ALL TIMES.
10. SLEEVE ALL EXTERIOR WALL AND GRADE BEAM PENETRATIONS. GRADE BEAM PENETRATIONS SHALL BE MADE WITHIN MIDDLE 1/3 OF VERTICAL SPAN OF BEAM.
11. SEAL AROUND DUCTS AND PIPES AT WALL PENETRATIONS WITH FIRE PROOF MATERIALS, PROVIDE ESCUTCHEON PLATS AND FLASHING AROUND PENETRATIONS, BOTH INSIDE AND OUTSIDE, TO PROVIDE A FINISHED LOOK.
12. PROVIDE SHOP DRAWINGS TO COORDINATE EXISTING AND NEW WORK.
13. REMOVE ALL EQUIPMENT, MATERIALS, CONTROL DEVICES, BOXES, POWER AND CONTROL WIRING, SAFETY SWITCHES, TUBING, ELECTRICAL CONDUIT, PIPING, SENSORS, ELECTRICAL DISCONNECTS, SUPPORTING DEVICES AND STRUCTURES, AND ALL RELATED AUXILIARY ITEMS ASSOCIATED WITH EQUIPMENT AND MATERIALS WHICH WILL NO LONGER BE USED AFTER THE PROJECT IS COMPLETE. PREPARE HOB SITE FOR NEW CONSTRUCTION.
14. IT IS CONTRACTOR'S RESPONSIBILITY TO REMOVE AND DISPOSE OF ALL ITEMS INDICATED TO BE REMOVED. HOWEVER, OWNER SHALL HAVE FIRST RIGHT OF REFUSAL OF ALL MATERIAL REMOVED. CONTRACTOR SHALL DISPOSE OF ALL MATERIALS WHICH THE OWNER DOES NOT WANT.
15. CONTRACTOR IS RESPONSIBLE FOR RESTORING ANY DISTURBED SURFACE TO ITS ORIGINAL CONDITION. ANY ROAD, TRAFFIC, OR OTHER PAINTED OR ERECTED SIGNS DAMAGED AS A RESULT OF WORK PERFORMED IN THOSE AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
16. CUTTING AND PATCHING OF WALLS DAMAGED IN THE REMOVAL OF ITEMS SHALL BE DONE, WHETHER OR NOT DRAWINGS SPECIFICALLY CALL FOR SUCH REPAIRS.
17. MAINTAIN PROJECT SITE FREE OF WASTE MATERIALS AND DEBRIS, AND CLEAN SITE AT END OF EACH WORK DAY TO GREATEST EXTENT POSSIBLE.

CODES, ORDINANCES AND PERMITS:

1. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND FEES ASSOCIATED WITH PROJECT, INCLUDING FEES FOR INSPECTIONS, APPLICATIONS, AND PROVISION OF NEW SERVICES.
2. PERFORM ALL WORK PER APPLICABLE VERSION OF MECHANICAL AND NATIONAL ELECTRICAL CODE, LOCAL CODES AND ORDINANCES, UNLESS DRAWINGS OR SPECIFICATIONS HAVE MORE STRINGENT REQUIREMENTS.
3. NOTIFY ENGINEER OF ANY ASPECTS OF DESIGN WHICH ARE THOUGHT TO BE IN NONCOMPLIANCE WITH APPLICABLE CODES.
4. OBTAIN APPROVAL FROM CITY FIRE DEPARTMENT AND BUILDING AND SAFETY DEPARTMENT PRIOR TO INSTALLATION OF ANY FIRE RELATED ITEMS.
5. COORDINATE PRESSURE TESTS, INSPECTIONS AND APPROVAL FOR ALL SYSTEMS WITH PERMITTING OFFICER, OWNER AND ENGINEER,

GENERAL REQUIREMENTS:

1. SUBMISSION OF PROPOSAL IS CONSIDERED AN ACKNOWLEDGEMENT THAT CONTRACTOR VISITED SITE, VERIFIED ALL EXISTING CONDITIONS, AND INCLUDED ANY MODIFICATIONS TO EXISTING AND NEW WORK REQUIRED FOR INSTALLATION OF A COMPLETE AND OPERATIONAL SYSTEM.
2. TIME OR MONEY ALLOWANCES WILL NOT BE MADE TO ACCOMMODATE CONDITIONS THAT COULD HAVE BEEN VERIFIED PRIOR TO SUBMITTING PROPOSAL, AND AT SHOP DRAWING STAGE.
3. DRAWINGS SHOWING ALL EQUIPMENT LOCATIONS, DUCT AND PIPE SIZES, ELEVATIONS, AND ELECTRICAL INFORMATION HAVE BEEN RECREATED USING DRAWINGS AND SITE SURVEYS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SITE CONDITIONS IN ORDER TO MAKE ANY NECESSARY ADJUSTMENTS, PRIOR TO ORDERING MATERIALS OR COMMENCING INSTALLATION. CHANGE ORDERS WILL NOT BE APPROVED FOR DIMENSIONAL VERIFICATIONS REQUIRING MINOR ADJUSTMENTS NEEDED TO COMPLETE INSTALLATION.
4. REFER TO SPECIFICATIONS FOR PROJECT COMPLETION DATES. PERFORM WORK IN CLOSE COORDINATION WITH OWNER. MAJORITY OF WORK SHALL BE PERFORMED AT OWNER APPROVED TIME.
5. WORK TO BE DONE UNDER ALLOWANCES BECOMES AN INTEGRAL PART OF THE WORK AND THE RESPONSIBILITY OF THE CONTRACTOR ONCE THE ALLOWANCE IS APPROVED.

CONTROLS:

1. CONTRACTOR SHALL COOPERATE AND COORDINATE WORK ACTIVITIES WITH DDC CONTROLS CONTRACTOR TO ENSURE SMOOTH TROUBLE-FREE INSTALLATION.
2. WHERE NOT SPECIFICALLY INDICATED ON PLANS, DDC CONTRACTOR IS RESPONSIBLE FOR ALL CONTROL RELAYS AND CONTACTORS, POWER TO DDC PANELS, AND OTHER CONTROL ELEMENTS. ALTHOUGH DDC CONTRACTOR MAY COORDINATE WITH OTHER TRADES TO PROVIDE MISCELLANEOUS ELECTRICAL WORK, THE FINAL RESPONSIBILITY FOR ACHIEVEMENT OF CONTROL SEQUENCES LIES WITH DDC CONTRACTOR.
3. INTEGRATE NEW CONTROLS WITH OWNER'S EXISTING ON SITE.
4. ALL REFERENCES TO CONTROLLED / MONITORED POINTS AND/OR GRAPHICS WHICH ARE ON A CURRENT CONTROL SYSTEM, AND WHICH WILL BE REMOVED DURING COURSE OF CONSTRUCTION OF THIS PROJECT, MUST BE COMPLETELY REMOVED FROM CONTROL SYSTEM SOFTWARE. CONTROL SYSTEM WIRING AND CONTROLLERS TO SUCH POINTS MUST BE REMOVED AS WELL.
5. RECOMMENDED DIVISION OF RESPONSIBILITIES BETWEEN SUB-CONTRACTORS IS AS FOLLOWS:
    a. DDC CONTRACTOR SHALL COORDINATE CONTROL WIRING BETWEEN CONTROL PANELS AND UNITARY CONTROLLERS. PROVIDE MEANS TO SUPPORT WIRING (J-HOOKS). DO NOT SUPPORT WIRING FROM EXISTING DATA OR FIRE ALARM WIRING SUPPORTS.
    b. WITH ELECTRICAL SUB CONTRACTOR, CONTROL CONTRACTOR COORDINATES 120V POWER WIRING AND CONDUIT TO NEW CONTROLLERS (AND CIRCUIT BREAKERS, IF NO SPARES EXIST).
    c. CONTROLS CONTRACTOR SUPPLIES, THERMOWELLS, ETC. TO MECHANICAL CONTRACTOR FOR INSTALLATION.
    d. CONTROLS CONTRACTOR IS RESPONSIBLE FOR:
        * THERMOWELLS, SENSORS, VALVES AND ACTUATORS.
        * EQUIPMENT CONTROLLERS, SOFTWARE, PROGRAMMING.
        * ALL NETWORK CONTROL PANELS, DDC CONTROLLERS, SOFTWARE, AND PROGRAMMING.
        * WIRING AND CONDUIT FOR CONTROL AND MONITORING DEVICES
        * CONTROL RELAYS
        * SHOP DRAWINGS PER SPECIFICATIONS
        * SYSTEM CHECK OUT, OWNER TRAINING, DDC SYSTEM WARRANTY WORK

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
108611
LICENSED
PROFESSIONAL ENGINEER
01.19.2024

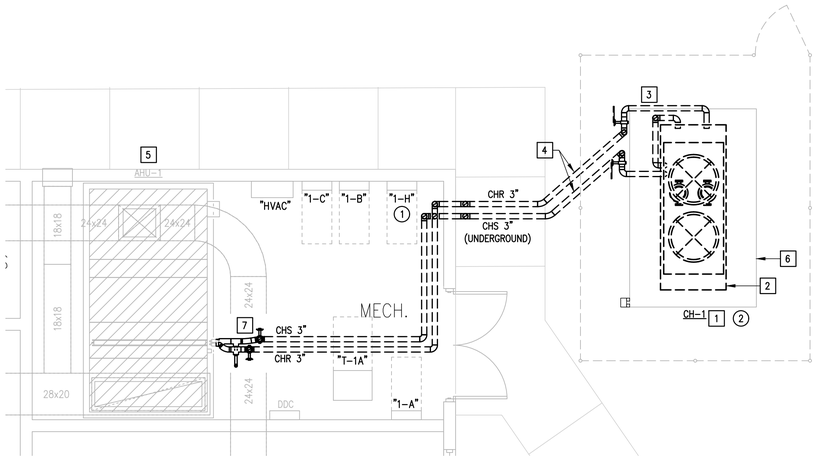
TEXAS

IDEA DONNA MECHANICAL UPGRADES

DONNA

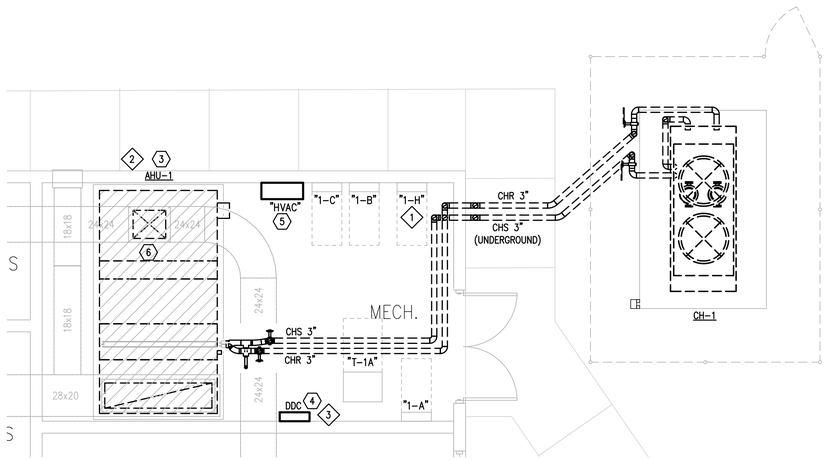
ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15598

DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET:	ME0.01



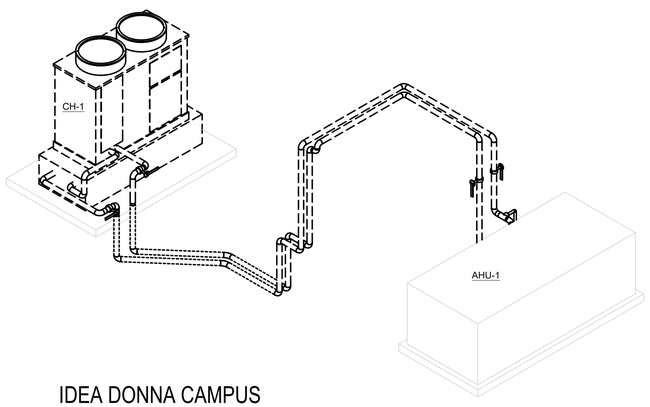
IDEA DONNA CAMPUS - BASE BID
MECHANICAL & ELECTRICAL DEMOLITION PLAN (9TH GRADE BUILDING)

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



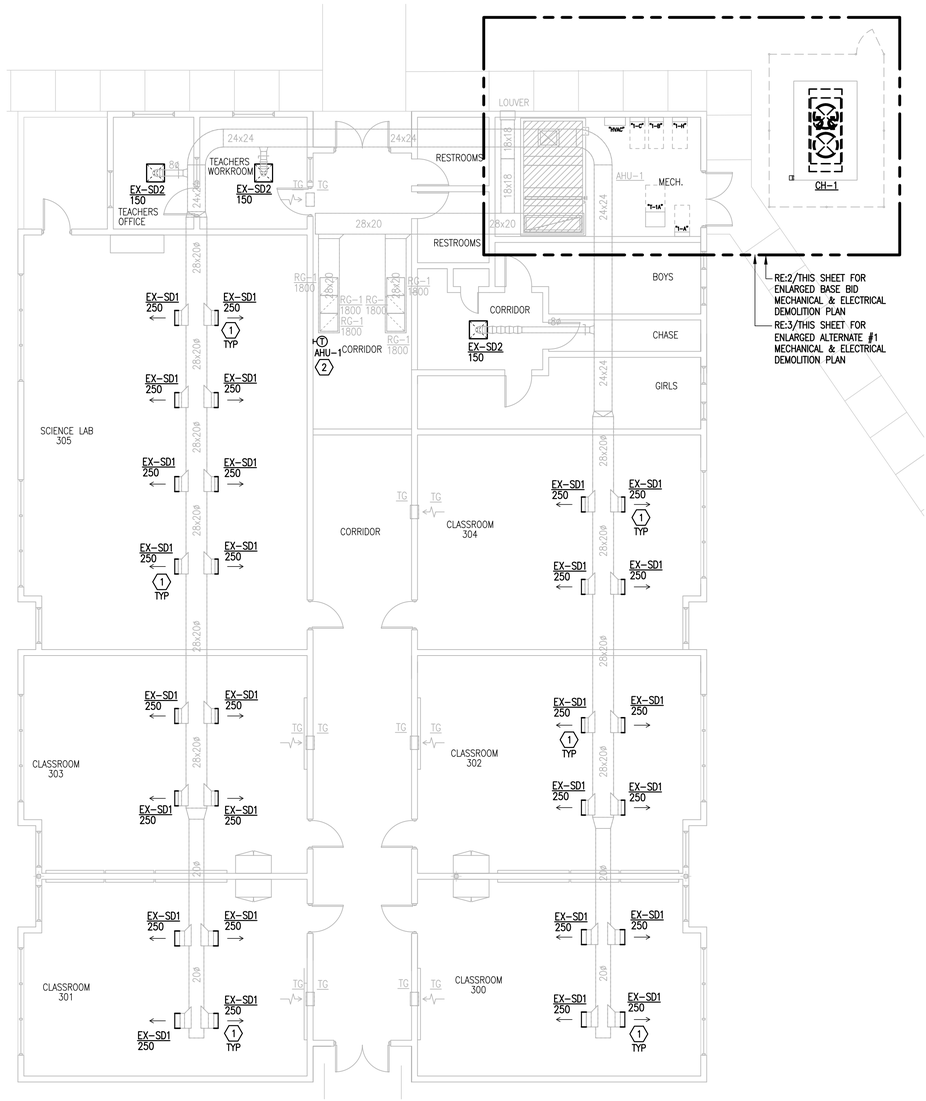
IDEA DONNA CAMPUS - ALTERNATE #1
MECHANICAL & ELECTRICAL DEMOLITION PLAN (9TH GRADE BUILDING)

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



IDEA DONNA CAMPUS
MECHANICAL DEMOLITION - ISOMETRIC VIEW (9TH GRADE BUILDING)

04 SCALE : NOT TO SCALE



IDEA DONNA CAMPUS - ALTERNATE #1
MECHANICAL & ELECTRICAL DEMOLITION PLAN (9TH GRADE BUILDING)

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

DEMOLITION GENERAL NOTES:

1. ALL DEMOLITION WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CODES INCLUDING THOSE PUBLISHED BY OSHA.
2. PROVIDE ALL DEMOLITION WORK REQUIRED FOR THE REMOVAL OF EQUIPMENT AND ASSOCIATED DEVICES. PROVIDE A COMPLETE AND OPERABLE SYSTEM UPON COMPLETION OF THE PROJECT.
3. COORDINATE DEMOLITION OF DIVISION 23 & 26 SYSTEMS AS REQUIRED WITH ALL OTHER TRADES.
4. ALL EXISTING EQUIPMENT REMOVED DURING CONSTRUCTION, THAT IS NOT TO BE REUSED, SHALL BE REMOVED FROM THE JOB SITE AND PROPERLY RETURNED TO THE OWNER, IF DESIRED BY OWNER.
5. OWNER MAY WISH TO KEEP DEMOLISHED EQUIPMENT AND MATERIALS. COORDINATE OWNER, AND DISPOSE OF EQUIPMENT AND MATERIALS THAT OWNER DOES NOT RETAIN.

MECHANICAL: BASE BID DEMOLITION KEYNOTES

1. DEMOLISH EXISTING AIR COOLED CHILLER AND ASSOCIATED CHW PIPING CONNECTIONS, ISOLATION VALVES, SPECIALTIES, AND ACCESSORIES IN THE MECHANICAL YARD AS INDICATED. PREPARE AREA FOR NEW CHILLER.
2. DEMOLISH EXISTING CHILLER BASE HOUSING STORAGE TANK, PUMPS AND ASSOCIATED CHW PIPING. PREPARE AREA FOR NEW CHILLER.
3. DEMOLISH EXISTING CHW PIPING AS SHOWN.
4. DEMOLISH EXISTING UNDER GROUND CHILLED WATER PIPING.
5. RETAIN AND REUSE EXISTING AIR HANDLING UNIT.
6. RETAIN AND REUSE EXISTING CONCRETE PAD. REFER TO NEW PLAN FOR NEW CONCRETE PAD EXTENSION.
7. DEMOLISH CHW PIPING, VALVES, AND CONNECTIONS TO AIR HANDLING UNIT. REFER TO NEW PLAN FOR NEW PLAN AND SCHEMATIC DIAGRAMS FOR NEW CONNECTIONS.

MECHANICAL: ALTERNATE #1 DEMOLITION KEYNOTES

1. RETAIN AND REUSE EXISTING AIR DEVICE. PREPARE FOR NEW MOTORIZED DAMPER AND SECTION OF NEW DUCTWORK. REFER TO NEW PLANS FOR MORE INFORMATION.
2. DEMOLISH EXISTING TEMPERATURE SENSOR THAT WILL NO LONGER BE USED. PROVIDE STAINLESS STEEL BLANK COVER PLATE. REFER TO NEW PLAN FOR NEW SENSOR LOCATIONS.
3. DEMOLISH EXISTING CENTRAL STATION AIR HANDLING UNIT. REFER TO NEW PLANS FOR MORE INFORMATION.
4. DEMOLISH EXISTING DDC PANEL. PREPARE FOR NEW DDC PANEL IN SAME LOCATION. REFER TO NEW PLANS FOR MORE INFORMATION.
5. DEMOLISH EXISTING HEATER CONTROL PANEL. REFER TO NEW PLAN FOR MORE INFORMATION.
6. PREPARE DUCT RISER AT AHU MAIN SUPPLY DUCT FOR NEW ELECTRIC DUCT HEATER. REFER TO NEW PLAN FOR MORE INFORMATION.

ELECTRICAL: BASE BID DEMOLITION KEYNOTES

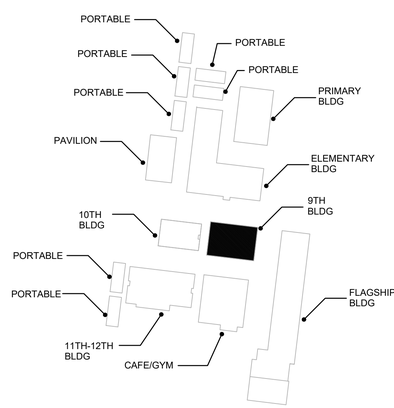
1. APPROXIMATE LOCATION OF EXISTING PANELBOARD SERVING EXISTING HVAC EQUIPMENT.
2. DISCONNECT EXISTING HVAC EQUIPMENT FOR INSTALLATION OF A NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.

ELECTRICAL: ALTERNATE #1 DEMOLITION KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING PANELBOARD SERVING EXISTING HVAC EQUIPMENT.
2. DISCONNECT EXISTING HVAC EQUIPMENT FOR INSTALLATION OF NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.
3. DISCONNECT EXISTING DDC PANEL FOR INSTALLATION OF A NEW DDC PANEL.

LEGEND:

	EXISTING PIPING TO REMAIN
	EXISTING PIPING TO BE DEMOLISHED
	EX. EQUIPMENT TO REMAIN
	EX. EQUIPMENT TO BE DEMOLISHED



KEYPLAN

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED PROFESSIONAL ENGINEER
01.19.2024

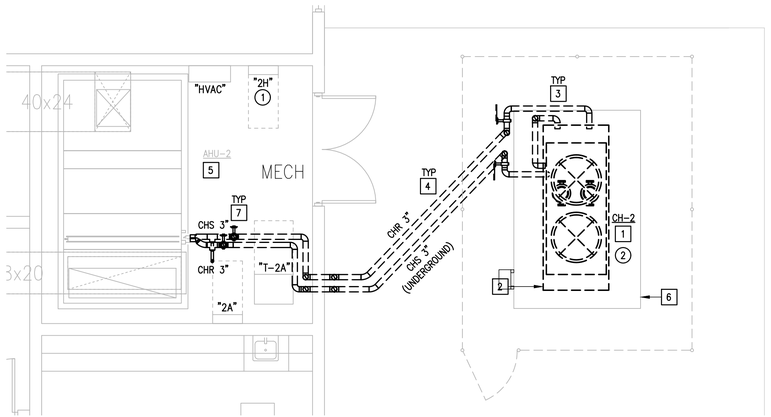
TEXAS

IDEA DONNA MECHANICAL UPGRADES

DONNA

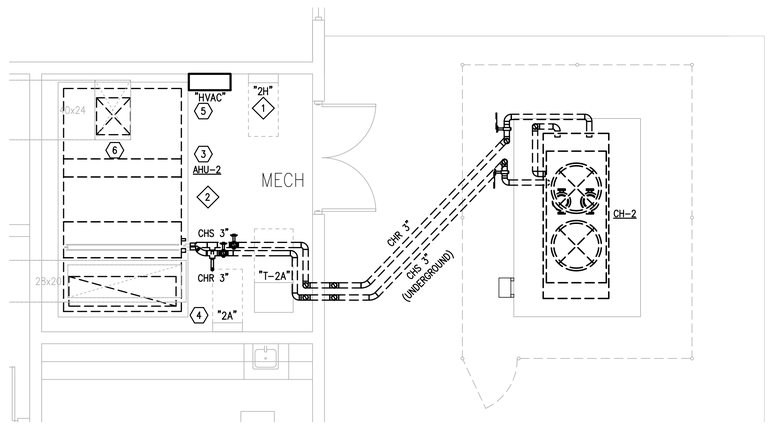
ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET:	ME1.01



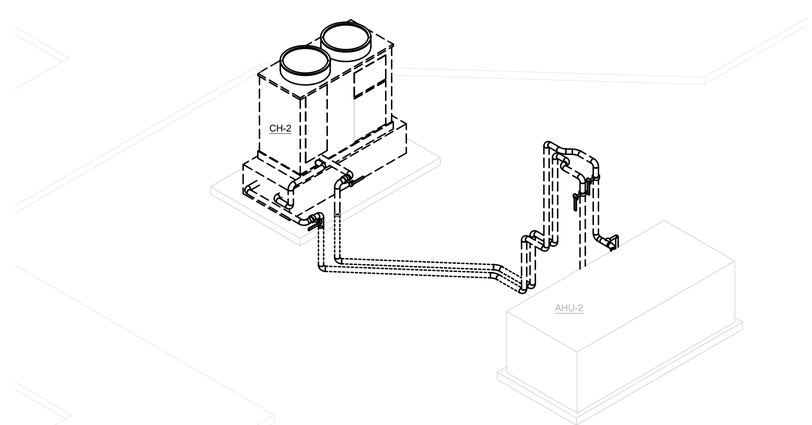
IDEA DONNA CAMPUS - BASE BID MECHANICAL DEMOLITION PLAN (PRIMARY BUILDING)

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



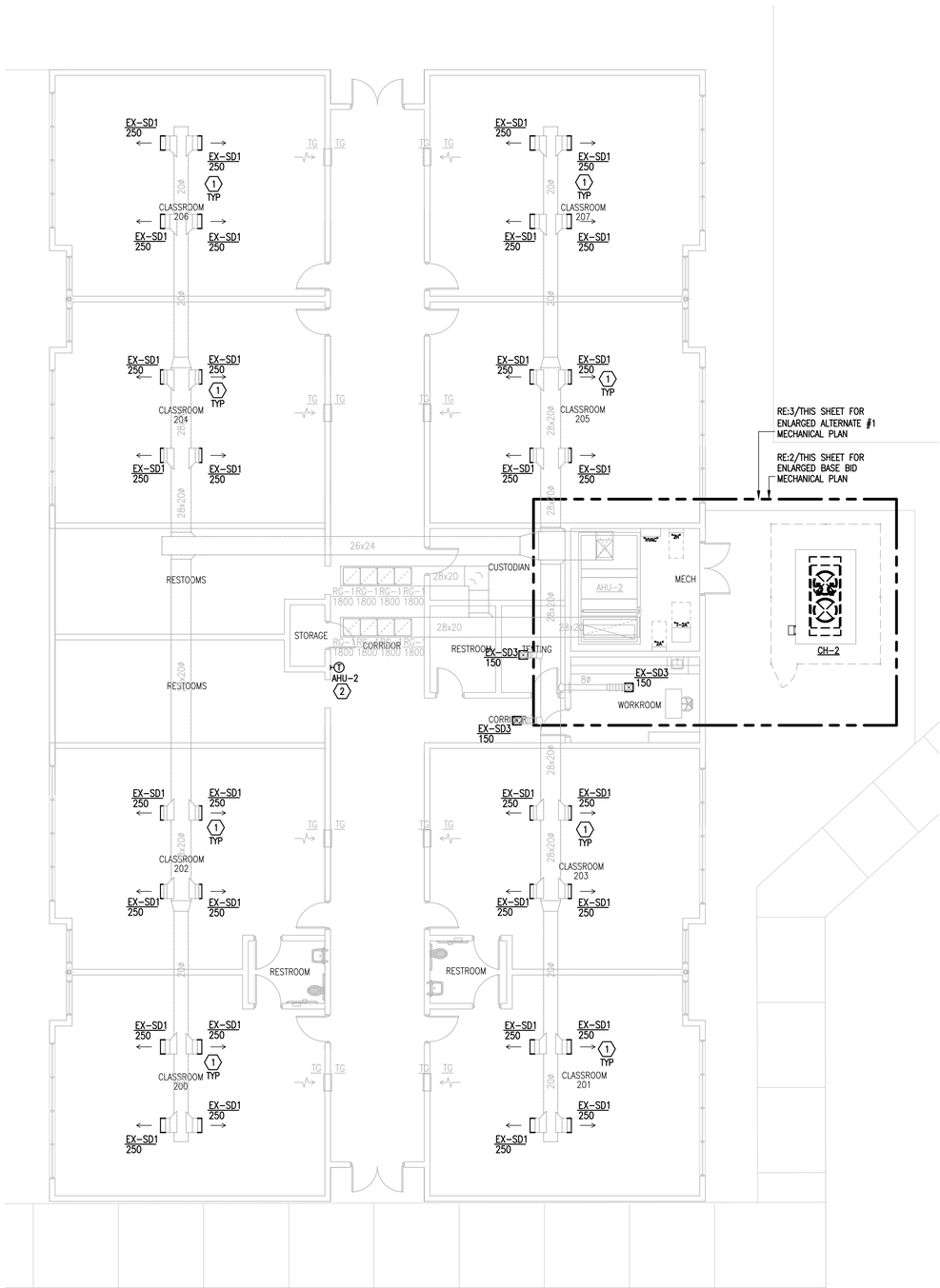
IDEA DONNA CAMPUS - ALTERNATE #1 MECHANICAL DEMOLITION PLAN (PRIMARY BUILDING)

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



IDEA DONNA CAMPUS MECHANICAL DEMOLITION - ISOMETRIC VIEW (PRIMARY BUILDING)

04 SCALE : NOT TO SCALE



IDEA DONNA CAMPUS - ALTERNATE #1 MECHANICAL DEMOLITION PLAN (9TH GRADE BUILDING)

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

DEMOLITION GENERAL NOTES:

1. ALL DEMOLITION WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CODES INCLUDING THOSE PUBLISHED BY OSHA.
2. PROVIDE ALL DEMOLITION WORK REQUIRED FOR THE REMOVAL OF EQUIPMENT AND ASSOCIATED DEVICES. PROVIDE A COMPLETE AND OPERABLE SYSTEM UPON COMPLETION OF THE PROJECT.
3. COORDINATE DEMOLITION OF DIVISION 23 & 26 SYSTEMS AS REQUIRED WITH ALL OTHER TRADES.
4. ALL EXISTING EQUIPMENT REMOVED DURING CONSTRUCTION, THAT IS NOT TO BE REUSED, SHALL BE REMOVED FROM THE JOB SITE AND PROPERLY RETURNED TO THE OWNER, IF DESIRED BY OWNER.
5. OWNER MAY WISH TO KEEP DEMOLISHED EQUIPMENT AND MATERIALS. COORDINATE OWNER, AND DISPOSE OF EQUIPMENT AND MATERIALS THAT OWNER DOES NOT RETAIN.

MECHANICAL: BASE BID DEMOLITION KEYNOTES

1. DEMOLISH EXISTING AIR COOLED CHILLER AND ASSOCIATED CHW PIPING CONNECTIONS, ISOLATION VALVES, SPECIALTIES, AND ACCESSORIES IN THE MECHANICAL YARD AS INDICATED. PREPARE AREA FOR NEW CHILLER.
2. DEMOLISH EXISTING CHILLER BASE HOUSING STORAGE TANK, PUMPS AND ASSOCIATED CHW PIPING. PREPARE AREA FOR NEW CHILLER.
3. DEMOLISH EXISTING CHW PIPING AS SHOWN.
4. DEMOLISH EXISTING UNDER GROUND CHILLED WATER PIPING.
5. RETAIN AND REUSE EXISTING AIR HANDLING UNIT.
6. RETAIN AND REUSE EXISTING CONCRETE PAD. REFER TO NEW PLAN FOR NEW CONCRETE PAD EXTENSION.
7. DEMOLISH CHW PIPING, VALVES, AND CONNECTIONS TO AIR HANDLING UNIT. REFER TO NEW PLAN FOR NEW PLAN AND SCHEMATIC DIAGRAMS FOR NEW CONNECTIONS.

MECHANICAL: ALTERNATE #1 DEMOLITION KEYNOTES

1. RETAIN AND REUSE EXISTING AIR DEVICE. PREPARE FOR NEW MOTORIZED DAMPER AND SECTION OF NEW DUCTWORK. REFER TO NEW PLANS FOR MORE INFORMATION.
2. DEMOLISH EXISTING TEMPERATURE SENSOR THAT WILL NO LONGER BE USED. PROVIDE STAINLESS STEEL BLANK COVER PLATE. REFER TO NEW PLAN FOR NEW SENSOR LOCATIONS.
3. DEMOLISH EXISTING CENTRAL STATION AIR HANDLING UNIT. REFER TO NEW PLANS FOR MORE INFORMATION.
4. DEMOLISH EXISTING DDC PANEL. PREPARE FOR NEW DDC PANEL IN SAME LOCATION. REFER TO NEW PLANS FOR MORE INFORMATION. FIELD VERIFY EXACT LOCATION.
5. DEMOLISH EXISTING HEATER CONTROL PANEL. REFER TO NEW PLAN FOR MORE INFORMATION.
6. PREPARE DUCT RISER AT AHU MAIN SUPPLY DUCT FOR NEW ELECTRIC DUCT HEATER. REFER TO NEW PLAN FOR MORE INFORMATION.

ELECTRICAL DEMOLITION KEYNOTES

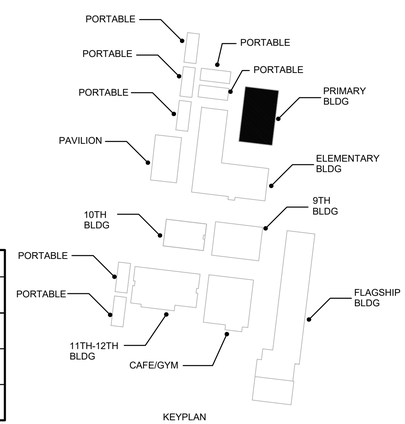
1. APPROXIMATE LOCATION OF EXISTING PANELBOARD SERVING EXISTING HVAC EQUIPMENT
2. DISCONNECT EXISTING HVAC EQUIPMENT FOR INSTALLATION OF A NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.

ELECTRICAL: ALTERNATE #1 DEMOLITION KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING PANELBOARD SERVING EXISTING HVAC EQUIPMENT.
2. DISCONNECT EXISTING HVAC EQUIPMENT FOR INSTALLATION OF NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.
3. DISCONNECT EXISTING DDC PANEL FOR INSTALLATION OF A NEW DDC PANEL.

LEGEND:

	EXISTING PIPING TO REMAIN
	EXISTING PIPING TO BE DEMOLISHED
	EX. EQUIPMENT TO REMAIN
	EX. EQUIPMENT TO BE DEMOLISHED



KEYPLAN

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED PROFESSIONAL ENGINEER
01.19.2024

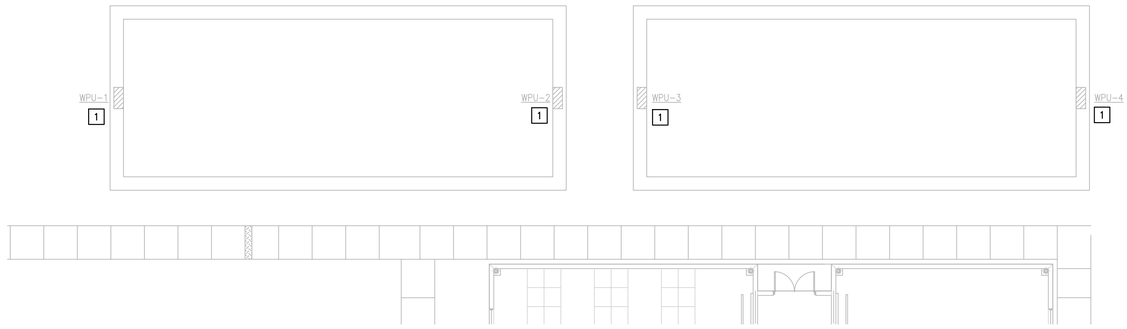
TEXAS

IDEA DONNA MECHANICAL UPGRADES

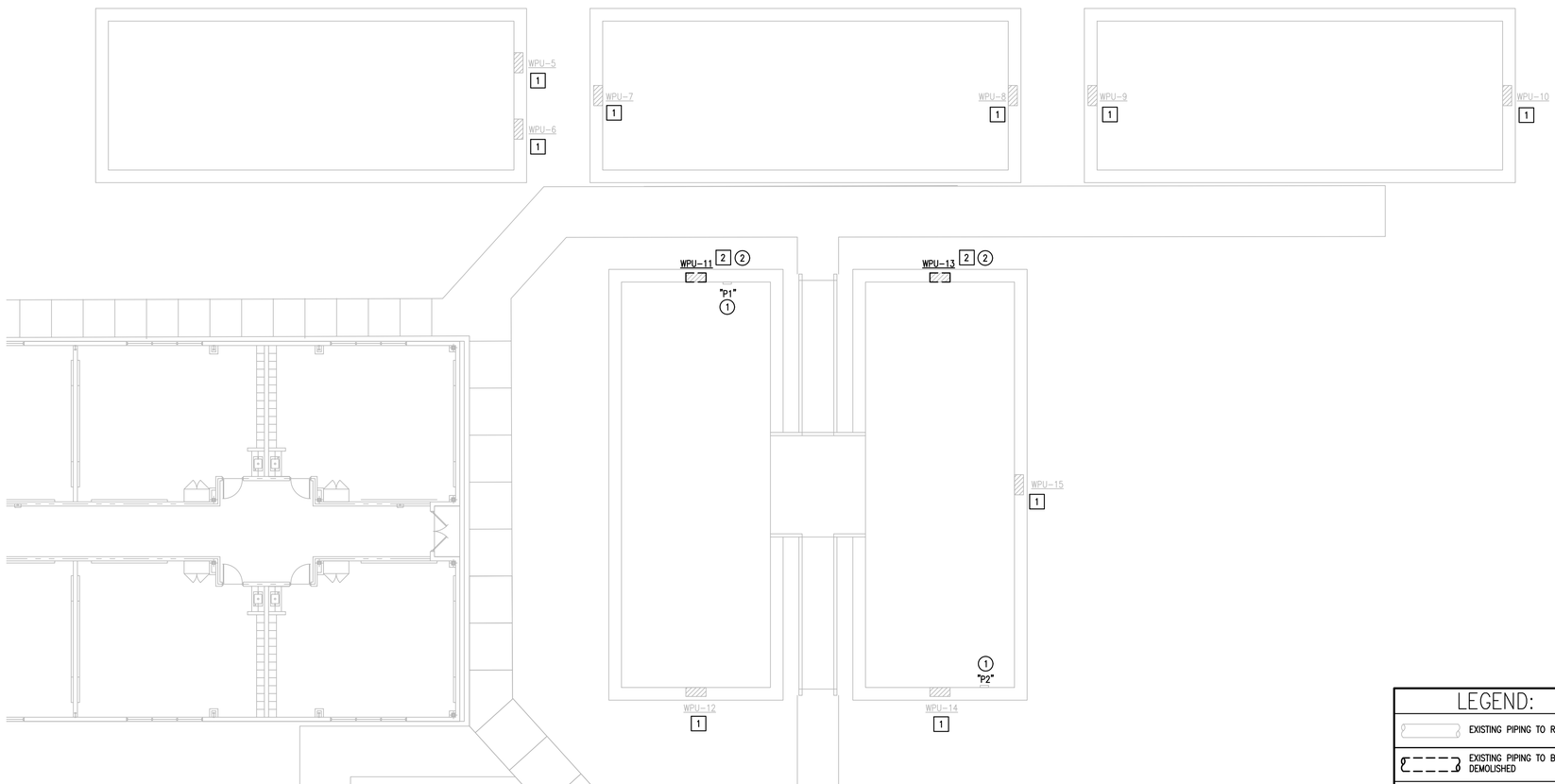
DONNA

ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET:	ME1.02



01 IDEA DONNA CAMPUS - BASE BID
MECHANICAL & ELECTRICAL DEMOLITION PLAN (PORTABLE BUILDINGS)
SCALE : 3/32" = 1'-0"



02 IDEA DONNA CAMPUS - BASE BID
MECHANICAL & ELECTRICAL DEMOLITION PLAN (PORTABLE BUILDINGS)
SCALE : 3/32" = 1'-0"

DEMOLITION GENERAL NOTES:

1. ALL DEMOLITION WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CODES INCLUDING THOSE PUBLISHED BY OSHA.
2. PROVIDE ALL DEMOLITION WORK REQUIRED FOR THE REMOVAL OF EQUIPMENT AND ASSOCIATED DEVICES. PROVIDE A COMPLETE AND OPERABLE SYSTEM UPON COMPLETION OF THE PROJECT.
3. COORDINATE DEMOLITION OF DIVISION 23 & 26 SYSTEMS AS REQUIRED WITH ALL OTHER TRADES.
4. ALL EXISTING EQUIPMENT REMOVED DURING CONSTRUCTION, THAT IS NOT TO BE REUSED, SHALL BE REMOVED FROM THE JOB SITE AND PROPERLY RETURNED TO THE OWNER, IF DESIRED BY OWNER.
5. OWNER MAY WISH TO KEEP DEMOLISHED EQUIPMENT AND MATERIALS. COORDINATE OWNER, AND DISPOSE OF EQUIPMENT AND MATERIALS THAT OWNER DOES NOT RETAIN.

MECHANICAL: BASE BID DEMOLITION KEYNOTES

1 RETAIN AND REUSE EXISTING WALL MOUNTED PACKAGED UNIT.

2 DEMOLISH EXISTING WALL MOUNTED PACKAGED UNIT. REFER TO NEW PLAN FOR MORE INFORMATION.

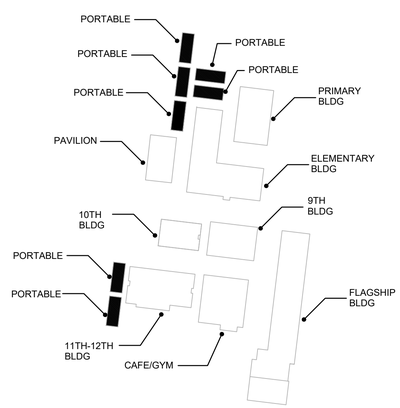
ELECTRICAL DEMOLITION KEYNOTES

(1) APPROXIMATE LOCATION OF EXISTING LOAD CENTER SERVING EXISTING HVAC EQUIPMENT.

(2) DISCONNECT EXISTING HVAC EQUIPMENT FOR INSTALLATION OF NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.

LEGEND:

	EXISTING PIPING TO REMAIN
	EXISTING PIPING TO BE DEMOLISHED
	EX. EQUIPMENT TO REMAIN
	EX. EQUIPMENT TO BE DEMOLISHED



KEYPLAN

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
108611
LICENSED
PROFESSIONAL ENGINEER
01.19.2024

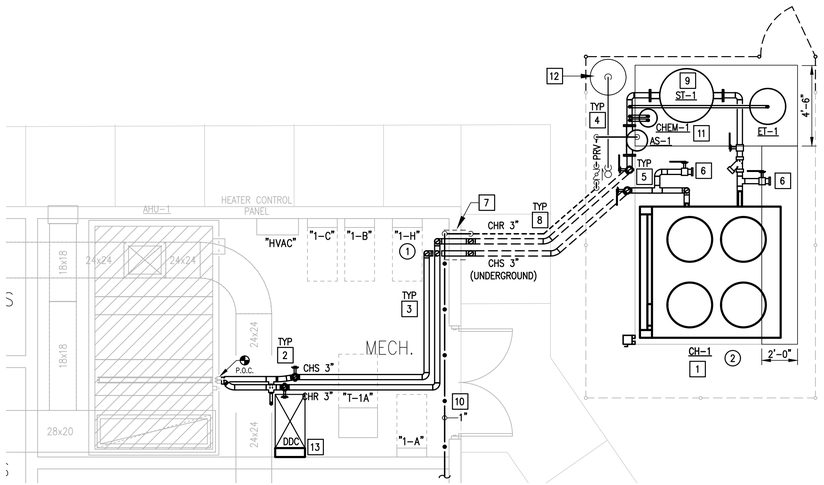
IDEA DONNA MECHANICAL UPGRADES

TEXAS

DONNA

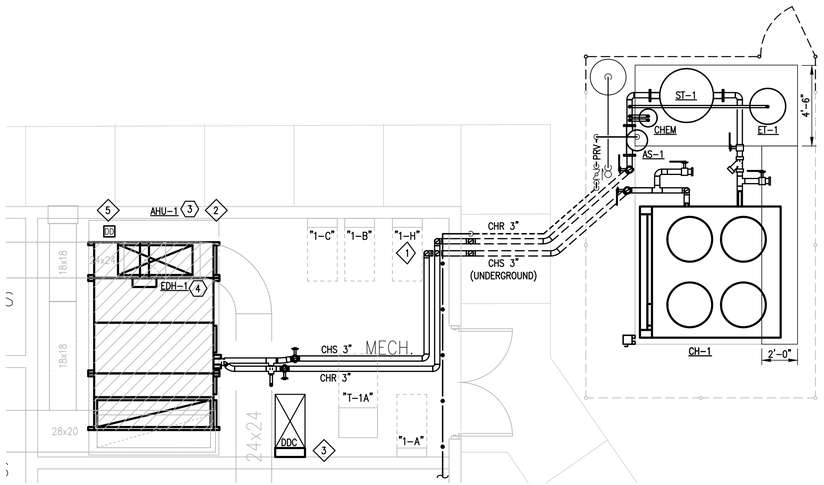
ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET:	ME1.03



IDEA DONNA CAMPUS - BASE BID
NEW ENLARGED MECHANICAL PLAN (9TH GRADE BUILDING)

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



IDEA DONNA CAMPUS - ALTERNATE #1
NEW ENLARGED MECHANICAL PLAN (9TH GRADE BUILDING)

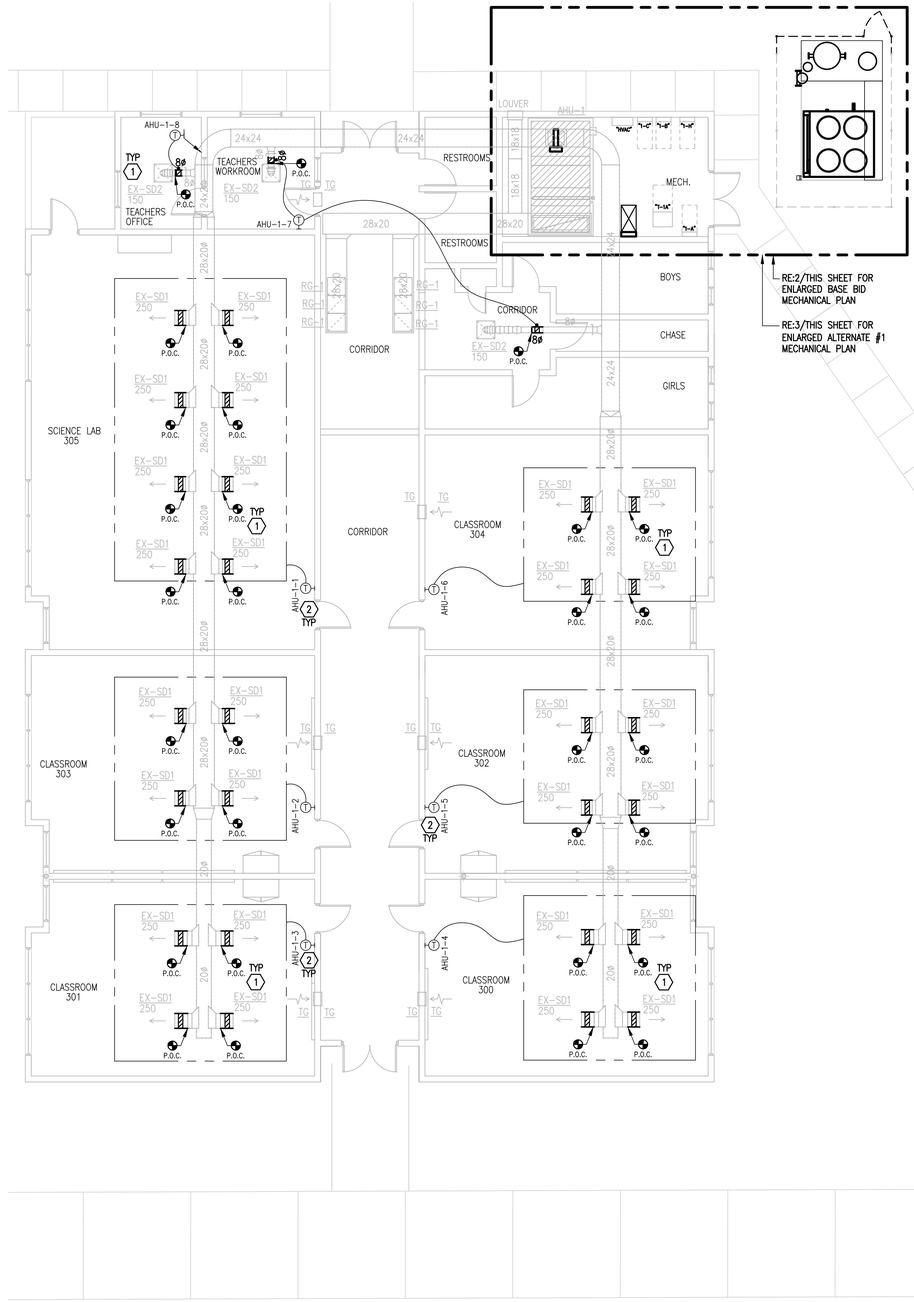
03 SCALE : 1/4" = 1'-0"

BASE BID
ELECTRICAL KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING PANELBOARD SERVING NEW HVAC EQUIPMENT.
2. CONNECT NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.

ALTERNATE #1
ELECTRICAL KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING PANELBOARD SERVING HVAC EQUIPMENT.
2. CONNECT NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.
3. CONNECT NEW DDC CONTROL PANEL. REUSE EXISTING BRANCH CIRCUIT.
4. APPROXIMATE LOCATION OF EXISTING NOTIFIER FIREVOICE-25/50 FIRE ALARM CONTROL PANEL (SEE KEY PLAN). PRIME CONTRACTORS SHALL CONTACT PRE-APPROVED SUBCONTRACTORS TO WORK ON SUCH SYSTEM AS BUT NOT LIMITED TO: SUPERIOR ALARMS (956) 793-9771.
5. PROVIDE NEW FIRE ALARM DUCT SMOKE DETECTOR.



IDEA DONNA CAMPUS - ALTERNATE #1
NEW MECHANICAL PLAN (9TH GRADE BUILDING)

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

BASE BID
MECHANICAL KEYNOTES

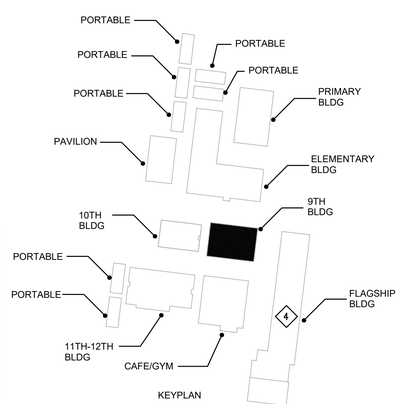
1. PROVIDE CHILLER AS SCHEDULED. MOUNT ON EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD EXTENSION AS SHOWN. REFER TO ASSOCIATED DETAIL ON DETAILS SHEET.
2. PROVIDE NEW INSULATED, PAINTED SCHEDULE 40 BLACK STEEL PIPING FOR CHILLED WATER PIPING. PROVIDE THERMOWELLS, PRESSURE GAGES, THERMOMETERS, FLOW SWITCHES, MANUAL VALVES, ANCHORS AND SUPPORTS AT INTERVALS SPECIFIED, ETC. REFER TO MECHANICAL DETAILS AND SPECIFICATIONS.
3. PROVIDE 3" CHILLED WATER PIPING AS PER SPECIFICATIONS, AND ROUTE AS SHOWN..
4. PROVIDE ALUMINUM METAL JACKETING FOR ALL CHW PIPING EXPOSED OUTDOORS.
5. PROVIDE PIPE SUPPORTS AS PER DETAIL AND SPECIFICATIONS.
6. PROVIDE CONNECTIONS FOR EMERGENCY CHILLER TIE-IN.
7. SLEEVE ALL WALL PENETRATIONS PER SPECIFICATIONS. SEAL AROUND DUCTS & PIPING AT ALL WALLS, AC ROOMS AND WALL LOUVER PENETRATIONS WITH FIRE-PROOF CAULKING. PROVIDE ESCUTCHEON PLATES AND FLASHING AROUND PENETRATION, BOTH INSIDE AND OUTSIDE TO PROVIDE A FINISH LOOK. (TYP.)
8. PROVIDE NEW UNDERGROUND CHILLED WATER PIPING AS PER SPECIFICATIONS.
9. PROVIDE STORAGE TANK, AIR SEPARATOR, EXPANSION TANK AND CHEMICAL POT FEEDER. INSTALL ON 4" HOUSEKEEPING CONCRETE PADS. PADS SHALL BE 6" LARGER ON ALL SIDES FOR ALL EQUIPMENT EXCEPT CHILLERS. PROVIDE ALUMINUM METAL JACKETING FOR AIR SEPARATOR AND TANKS LOCATED EXPOSED OUTDOORS.
10. PROVIDE MAKE UP WATER LINE 1" TO SERVE EXPANSION TANK. CONNECT TO BACKFLOW PREVENTER AND PRESSURE RELIEF VALVE. REFER TO "MAKE-UP DETAIL" ON DETAIL SHEET. COORDINATE WITH PLUMBING. CONNECT NEW 1" MAKEUP WATER LINE INTO NEAREST EXISTING 1" DOMESTIC WATER LINE.
11. COORDINATE WITH WATER TREATMENT COMPANY TO ACHIEVE SPECIFIED WATER CONDITIONING. PROVIDE NEW CHEMICAL POT FEEDER. RE: SPECIFICATIONS AND SCHEMATICS.
12. PROVIDE DRYWELL TO SERVE RELIEF LINES FROM BACKFLOW PREVENTER, AIR SEPARATOR, EXPANSION TANK, ETC. ROUTE COPPER CONDENSATE LINES TO DRYWELL. SEE ASSOCIATED DETAIL ON DETAIL SHEET.
13. PROVIDE DDC PANEL AT THIS APPROXIMATE LOCATION. REFER TO SPECIFICATION FOR DDC CONTROLS AND SEQUENCES OF OPERATION. COORDINATE PROVISION OF DDC SENSORS IN RETURN AIR INTAKE CABINET OF AIR HANDLING UNIT. COORDINATE WITH CONTROLS CONTRACTOR.

ALTERNATE #1
MECHANICAL KEYNOTES

1. PROVIDE NEW TEMPERATURE CONTROL MOTORIZED DAMPERS BEHIND EXISTING AIR DEVICES. PROVIDE DUCTWORK, DUCTWORK CONNECTIONS, AND ALL MATERIAL AND ACCESSORIES AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM WITH ZONES AS SHOWN. FIELD VERIFY SIZE OF EXISTING DUCT BRANCHES, AND SIZE OF EXISTING AIR DEVICES TO INSTALL MOTORIZED DAMPERS. FIELD VERIFY QUANTITIES OF EXISTING AIR DEVICES TO BE SERVED BY MOTORIZED DAMPERS. PROVIDE ALLOWANCE FOR PROVISION AND INSTALLATION OF MOTORIZED DAMPERS AT ALL EXISTING AIR DEVICES WHETHER SHOWN ON PLANS OR NOT.
2. PROVIDE TEMPERATURE, RH, AND CO2 SENSORS WHERE INDICATED. INSTALL 48" A.F.F. COORDINATE WITH OWNER TO MEET ADA REQUIREMENTS. PROVIDE CLEAR LOCKING COVER FOR ALL SENSORS. (TYPICAL)
3. PROVIDE CENTRAL STATION AIR HANDLING UNIT AS SCHEDULED. INSTALL ON EXISTING HOUSEKEEPING PAD. ROUTE COPPER CONDENSATE LINE TO PLUMBING RECEPTACLE AND INSULATE PER SPECIFICATIONS. DROP CHW LINES NEXT TO UNIT TO AVOID INTERFERENCE WITH MAINTENANCE ACCESS. POSITION UNIT TO ALLOW REQUIRED CLEARANCES, AND ALIGN TO MINIMIZE DUCTWORK TRANSITIONS BETWEEN UNIT OPENINGS AND TRUNK DUCTS. REFER TO AHUS VIEWS AND ELEVATIONS. COORDINATE UNIT DIMENSIONS, ORIENTATION, CONFIGURATION, AND CONNECTION LOCATIONS PRIOR TO ORDERING.
4. PROVIDE DUCT HEATER AS SCHEDULED. PROVIDE DUCTWORK, DUCTWORK CONNECTIONS, AND FITTINGS AS NECESSARY TO ACCOMMODATE NEW ELECTRIC DUCT HEATER.

LEGEND:

	EXISTING PIPING TO REMAIN
	EXISTING PIPING TO BE DEMOLISHED
	EX. EQUIPMENT TO REMAIN
	EX. EQUIPMENT TO BE DEMOLISHED



NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED
PROFESSIONAL
ENGINEER
01.19.2024

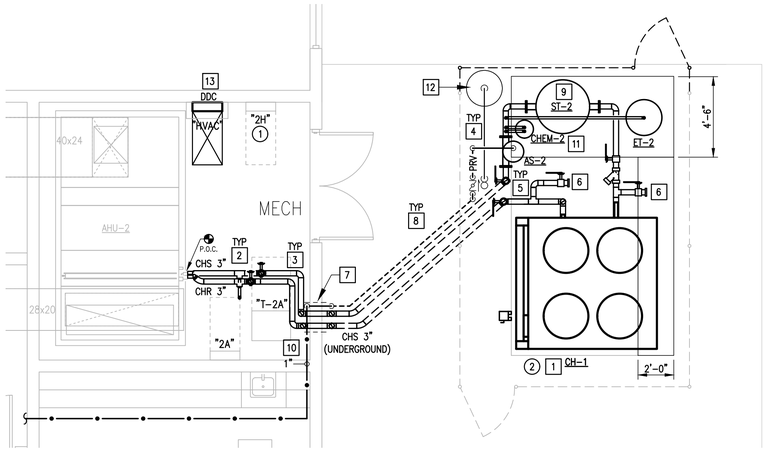
TEXAS

IDEA DONNA MECHANICAL UPGRADES

DONNA

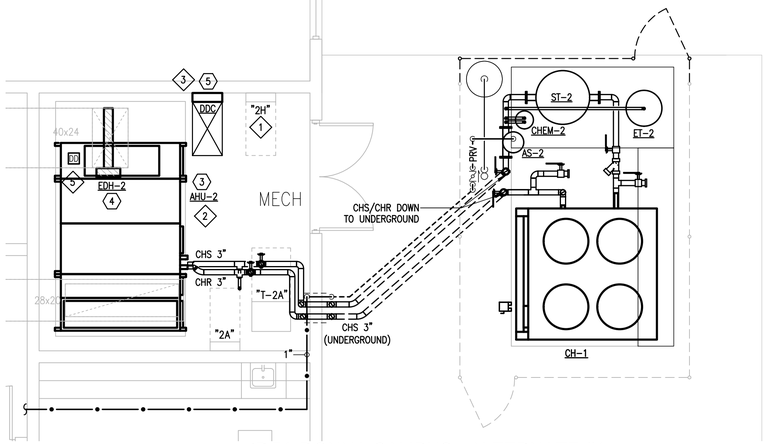
ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET	ME2.01



IDEA DONNA CAMPUS - BASE BID
NEW ENLARGED MECHANICAL PLAN (PRIMARY BUILDING)

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



IDEA DONNA CAMPUS - ALTERNATE #1
NEW ENLARGED MECHANICAL PLAN (PRIMARY BUILDING)

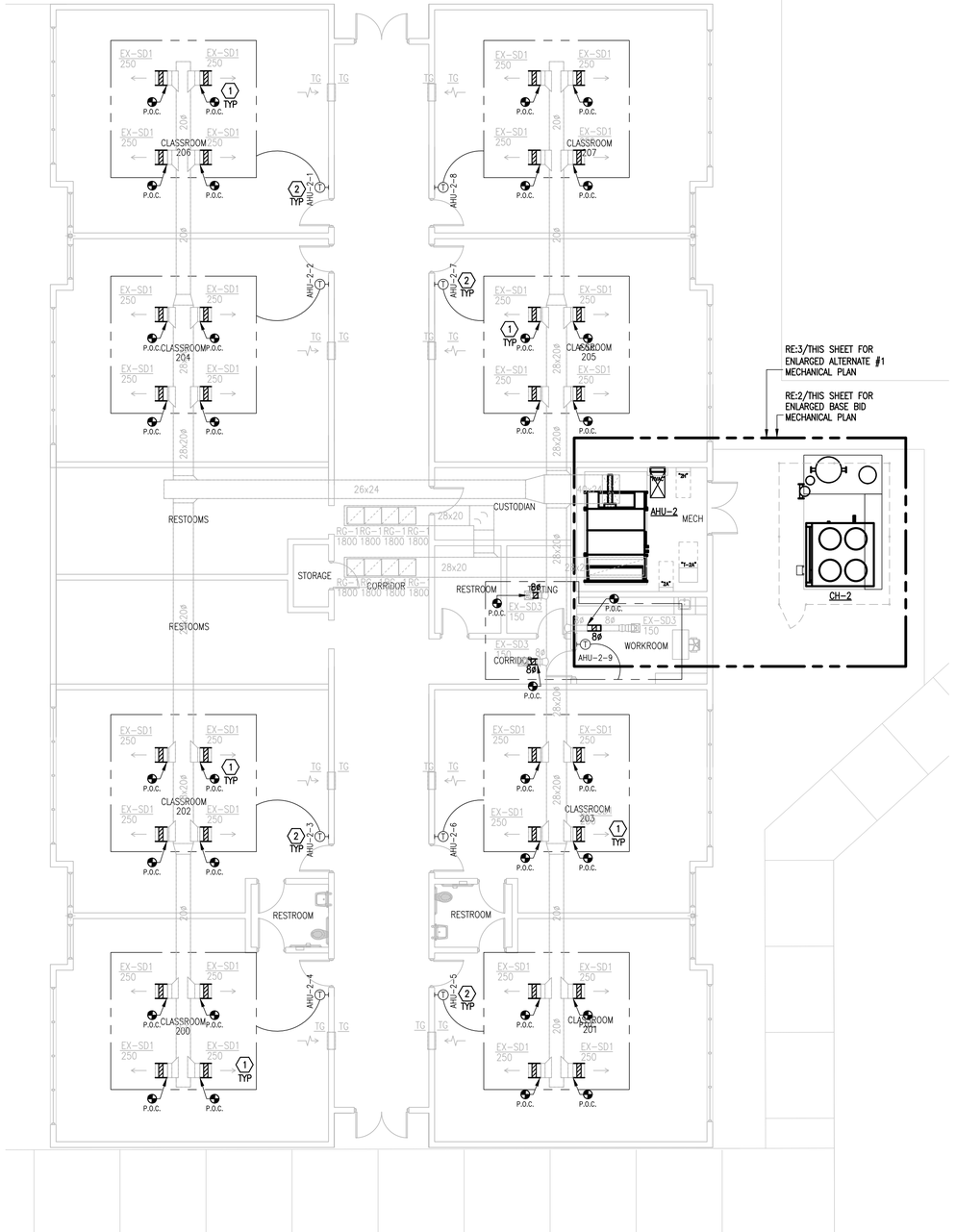
03 SCALE : 1/4" = 1'-0"

ELECTRICAL KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING PANELBOARD SERVING NEW HVAC EQUIPMENT.
2. CONNECT NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.

ALTERNATE #1
ELECTRICAL KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING PANELBOARD SERVING HVAC EQUIPMENT.
2. CONNECT NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.
3. CONNECT DDC PANEL TO EXISTING PANELBOARD "2A"; BRANCH CIRCUIT: 1/2" – 2#12 & #12G. PROVIDE A 20A/1P BREAKER IN AVAILABLE SPACE.
4. APPROXIMATE LOCATION OF EXISTING NOTIFIER FIREVOICE-25/50 FIRE ALARM CONTROL PANEL (SEE KEY PLAN). PRIME CONTRACTORS SHALL CONTACT PRE-APPROVED SUBCONTRACTORS TO WORK ON SUCH SYSTEM AS BUT NOT LIMITED TO: SUPERIOR ALARMS (956) 793-9771.
5. PROVIDE NEW FIRE ALARM DUCT SMOKE DETECTOR.



IDEA DONNA CAMPUS - ALTERNATE #1
NEW MECHANICAL PLAN (9TH GRADE BUILDING)

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

BASE BID
MECHANICAL KEYED NOTES

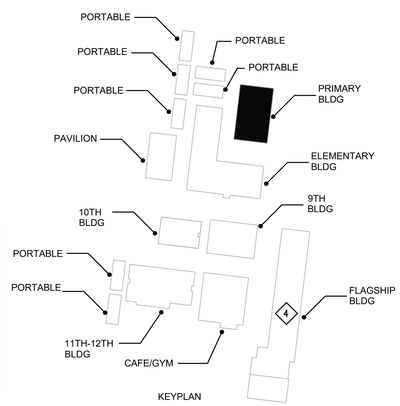
1. PROVIDE CHILLER AS SCHEDULED. MOUNT ON EXISTING CONCRETE PAD AND PROVIDE NEW CONCRETE PAD EXTENSION AS SHOWN. REFER TO ASSOCIATED DETAIL ON DETAILS SHEET.
2. PROVIDE NEW INSULATED, PAINTED SCHEDULE 40 BLACK STEEL PIPING FOR CHILLED WATER PIPING. PROVIDE THERMOWELLS, PRESSURE GAGES, THERMOMETERS, FLOW SWITCHES, MANUAL VALVES, ANCHORS AND SUPPORTS AT INTERVALS SPECIFIED, ETC. REFER TO MECHANICAL DETAILS AND SPECIFICATIONS.
3. PROVIDE 3" CHILLED WATER PIPING AS PER SPECIFICATIONS AND ROUTE AS SHOWN.
4. PROVIDE ALUMINUM METAL JACKETING FOR ALL CHW PIPING EXPOSED OUTDOORS.
5. PROVIDE PIPE SUPPORTS AS PER DETAIL AND SPECIFICATIONS.
6. PROVIDE CONNECTIONS FOR EMERGENCY CHILLER TIE-IN.
7. SLEEVE ALL WALL PENETRATIONS PER SPECIFICATIONS. SEAL AROUND DUCTS & PIPING AT ALL WALLS, AC ROOMS AND WALL LOUVER PENETRATIONS WITH FIRE-PROOF CAULKING. PROVIDE ESCUTCHEON PLATES AND FLASHING AROUND PENETRATION, BOTH INSIDE AND OUTSIDE TO PROVIDE A FINISH LOOK. (TYP.)
8. PROVIDE NEW UNDERGROUND CHILLED WATER PIPING AS PER SPECIFICATIONS.
9. PROVIDE STORAGE TANK, AIR SEPARATOR, EXPANSION TANK AND CHEMICAL POT FEEDER. INSTALL ON 4" HOUSEKEEPING CONCRETE PADS. PADS SHALL BE 6" LARGER ON ALL SIDES FOR ALL EQUIPMENT EXCEPT CHILLERS. PROVIDE ALUMINUM METAL JACKETING FOR AIR SEPARATOR AND TANKS LOCATED EXPOSED OUTDOORS.
10. PROVIDE MAKE UP WATER LINE 1" TO SERVE EXPANSION TANK. CONNECT TO BACKFLOW PREVENTER AND PRESSURE RELIEF VALVE. REFER TO "MAKE-UP DETAIL" ON DETAIL SHEET. COORDINATE WITH PLUMBING. CONNECT NEW 1" MAKEUP WATER LINE INTO NEAREST EXISTING 1" DOMESTIC WATER LINE.
11. COORDINATE WITH WATER TREATMENT COMPANY TO ACHIEVE SPECIFIED WATER CONDITIONING. PROVIDE NEW CHEMICAL POT FEEDER. RE: SPECIFICATIONS AND SCHEMATICS.
12. PROVIDE DRYWELL TO SERVE RELIEF LINES FROM BACKFLOW PREVENTER, AIR SEPARATOR, EXPANSION TANK, ETC. ROUTE COPPER CONDENSATE LINES TO DRYWELL. SEE ASSOCIATED DETAIL ON DETAIL SHEET.
13. PROVIDE DDC PANEL AT THIS APPROXIMATE LOCATION. MOUNT DDC PANEL ABOVE EXISTING HEATER CONTROL PANEL. REFER TO SPECIFICATION FOR DDC CONTROLS AND SEQUENCES OF OPERATION. COORDINATE PROVISION OF DDC SENSORS IN RETURN AIR INTAKE CABINET OF AIR HANDLING UNIT. COORDINATE WITH CONTROLS CONTRACTOR.

ALTERNATE #1
MECHANICAL KEYED NOTES

1. PROVIDE NEW TEMPERATURE CONTROL MOTORIZED DAMPERS BEHIND EXISTING AIR DEVICES. PROVIDE DUCTWORK, DUCTWORK CONNECTIONS, AND ALL MATERIAL AND ACCESSORIES AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM WITH ZONES AS SHOWN. FIELD VERIFY SIZE OF EXISTING DUCT BRANCHES, AND SIZE OF EXISTING AIR DEVICES TO INSTALL MOTORIZED DAMPERS. FIELD VERIFY QUANTITIES OF EXISTING AIR DEVICES TO BE SERVED BY MOTORIZED DAMPERS. PROVIDE ALLOWANCE FOR PROVISION AND INSTALLATION OF MOTORIZED DAMPERS AT ALL EXISTING AIR DEVICES WHETHER SHOWN ON PLANS OR NOT.
2. PROVIDE TEMPERATURE, RH, AND CO2 SENSORS WHERE INDICATED. INSTALL 48" A.F.F. COORDINATE WITH OWNER TO MEET ADA REQUIREMENTS. PROVIDE CLEAR LOCKING COVER FOR ALL SENSORS. (TYPICAL)
3. PROVIDE CENTRAL STATION AIR HANDLING UNIT AS SCHEDULED. INSTALL ON EXISTING HOUSEKEEPING PAD. ROUTE COPPER CONDENSATE LINE TO PLUMBING RECEPTACLE AND INSULATE PER SPECIFICATIONS. DROP CHW LINES NEXT TO UNIT TO AVOID INTERFERENCE WITH MAINTENANCE ACCESS. POSITION UNIT TO ALLOW REQUIRED CLEARANCES, AND ALIGN TO MINIMIZE DUCTWORK TRANSITIONS BETWEEN UNIT OPENINGS AND TRUNK DUCTS. REFER TO AHUS VIEWS AND ELEVATIONS. COORDINATE UNIT DIMENSIONS, ORIENTATION, CONFIGURATION, AND CONNECTION LOCATIONS PRIOR TO ORDERING.
4. PROVIDE DUCT HEATER AS SCHEDULED. PROVIDE DUCTWORK, DUCTWORK CONNECTIONS, AND FITTINGS AS NECESSARY TO ACCOMMODATE NEW ELECTRIC DUCT HEATER.
5. IF ALTERNATE #1 IS ACCEPTED MOUNT DDC PANEL AT THIS APPROXIMATE LOCATION AT 48" A.F.F.

LEGEND:

- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE DEMOLISHED
- EX. EQUIPMENT TO REMAIN
- EX. EQUIPMENT TO BE DEMOLISHED



KEYPLAN

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED PROFESSIONAL ENGINEER
01.19.2024

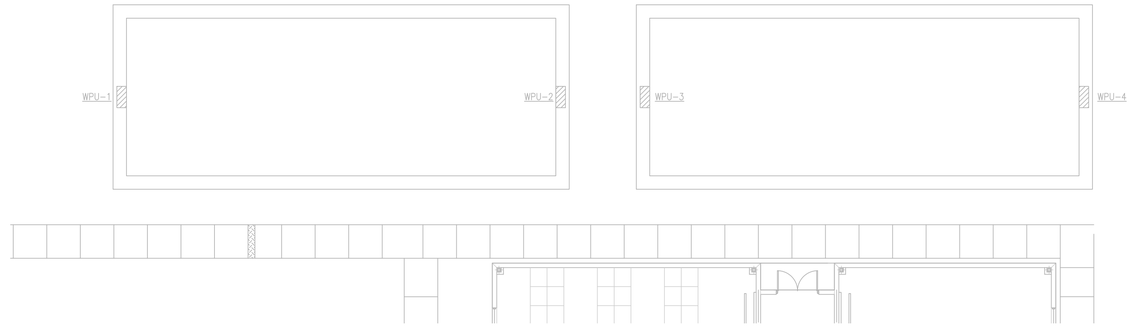
TEXAS

IDEA DONNA MECHANICAL UPGRADES

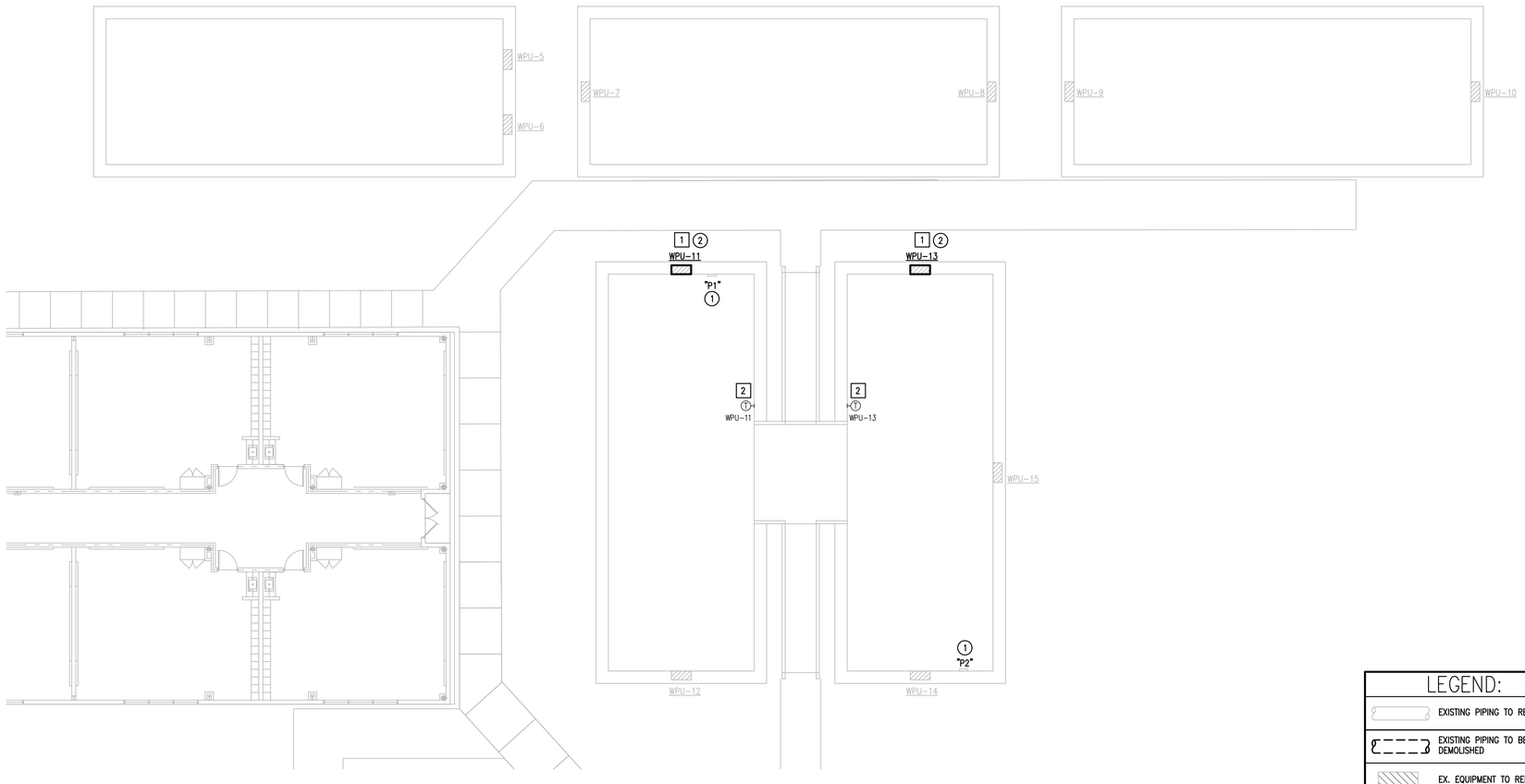
DONNA

ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX.
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET	ME2.02



01 IDEA DONNA CAMPUS - BASE BID
NEW MECHANICAL PLAN (PORTABLE BUILDINGS)
SCALE : 3/32" = 1'-0"



02 IDEA DONNA CAMPUS - BASE BID
NEW MECHANICAL PLAN (PORTABLE BUILDINGS)
SCALE : 3/32" = 1'-0"

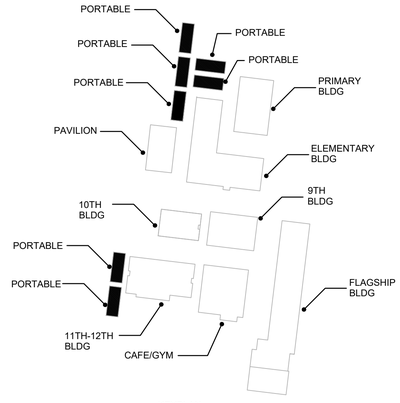
BASE BID:
MECHANICAL KEYNOTES

1. PROVIDE NEW WALL MOUNTED PACKAGED UNIT AS PER SCHEDULE.
2. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH WIFI, 5 DEG F DEADBAND CAPABILITIES, AND RH CONTROL. INSTALL 48" A.F.F. COORDINATE WITH OWNER TO MEET ADA REQUIREMENTS. PROVIDE CLEAR LOCKING COVER FOR ALL THERMOSTATS. (TYPICAL)

ELECTRICAL KEYNOTES

1. APPROXIMATE LOCATION OF EXISTING LOAD CENTER SERVING EXISTING HVAC EQUIPMENT.
2. CONNECT NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE.

LEGEND:	
	EXISTING PIPING TO REMAIN
	EXISTING PIPING TO BE DEMOLISHED
	EX. EQUIPMENT TO REMAIN
	EX. EQUIPMENT TO BE DEMOLISHED



KEYPLAN

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

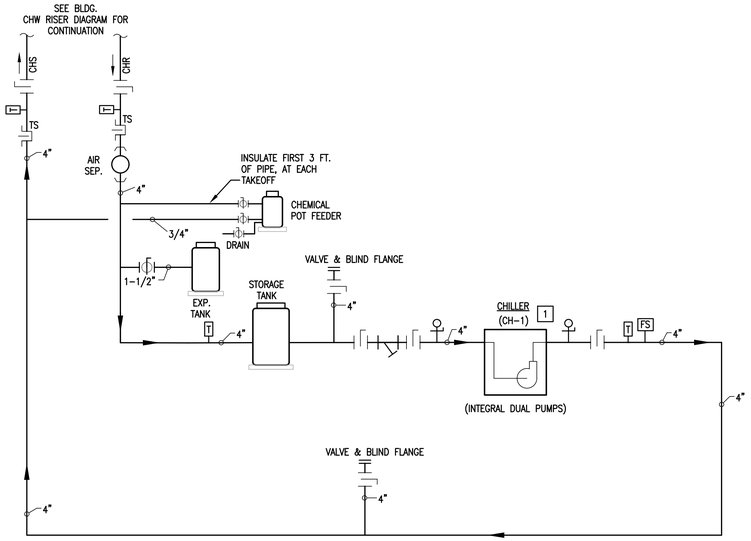
STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED
PROFESSIONAL ENGINEER
01.19.2024

IDEA DONNA MECHANICAL UPGRADES

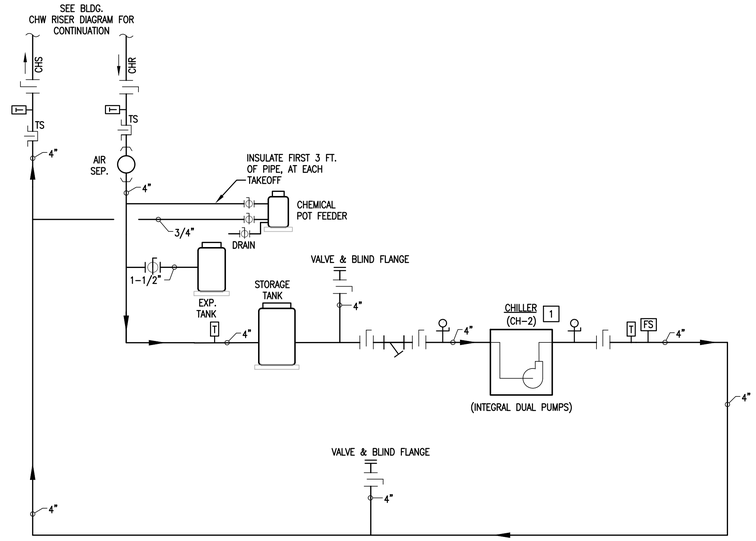
DONNA TEXAS

ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

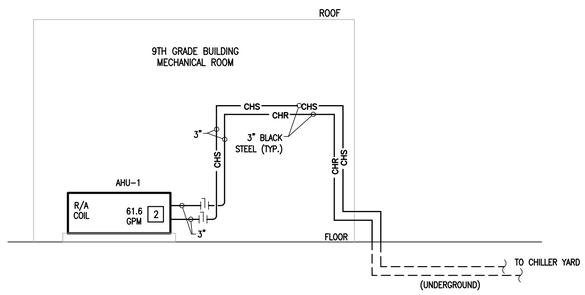
DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET:	ME2.03



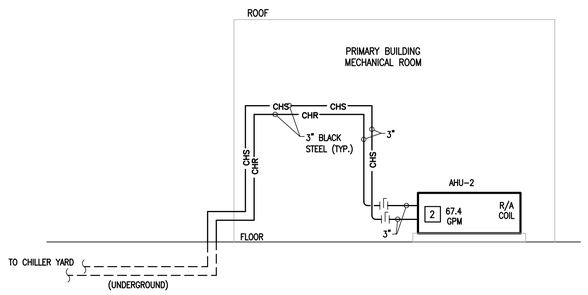
IDEA DONNA - CHILLER YARD
CHILLED WATER SCHEMATIC DIAGRAM (9TH GRADE BUILDING)
01 SCALE : NOT TO SCALE



IDEA DONNA - CHILLER YARD
CHILLED WATER SCHEMATIC DIAGRAM (PRIMARY BUILDING)
02 SCALE : 1/4" = 1'-0"



IDEA DONNA - CHILLER YARD
CHILLED WATER SCHEMATIC DIAGRAM (9TH GRADE BUILDING)
03 SCALE : NOT TO SCALE



IDEA DONNA - CHILLER YARD
CHILLED WATER SCHEMATIC DIAGRAM (PRIMARY BUILDING)
04 SCALE : 1/4" = 1'-0"

GENERAL NOTES:

1. ALL PIPING WELDS MUST BE WIRE-BRUSHED AND PAINTED A MINIMUM OF 12" ON EITHER SIDE OF WELD PRIOR TO INSULATION.
2. CLEAN AND PREPARE SURFACE OF CHILLED WATER PIPING BEFORE INSULATING. APPLY CORROSION COATING TO ALL PIPING. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
3. INSULATE PER SPECIFICATIONS ALL PIPING, VALVES, FITTINGS, PUMP BODIES AND COLD SURFACES THAT ARE CAPABLE OF GENERATING CONDENSATION. FIBERGLASS INSULATION WILL NOT BE ALLOWED.
4. PRIOR TO INSTALLATION OF EQUIPMENT, VERIFY THAT MANUFACTURER RECOMMENDED AND CODE REQUIRED CLEARANCES ARE AVAILABLE.
5. INSTALL PIPES AND DUCTS AS HIGH AS POSSIBLE TO ALLOW MAXIMUM POSSIBLE HEADROOM. MIN. 9' AFF.
6. PROVIDE P/T TEST PORT WITHIN 6 INCHES OF EVERY PRESSURE GAGE AND THERMOWELL. SEE PIPING SCHEMATIC FOR LOCATIONS.
7. REFER TO HYDRONIC PIPING SCHEMATICS FOR DETAILS.
8. FOR ALL PIPING SUPPORTS LOCATED OUTDOORS, PROVIDE THE FOLLOWING:
   A) POLYAMIDE PRIME COAT OF DEVOE PAINTS, DEVRAN 201.
   B) INTERMEDIATE TOP COAT OF DEVOE PAINTS, DEVRAN 224HS.
   C) TOP COAT OF DEVOE PAINTS, DEVTHANE 379.
9. GPM's ARE SHOWN FOR VERIFICATION PURPOSE ONLY. DO NOT USE THIS DATA FOR TAB. IN CASE OF CONFLICT, OR IF FLOW DATA DO NOT MATCH WITH THOSE FOR SCHEDULED EQUIPMENT, USE LARGER OF THE TWO.
10. REFER TO SPECIFICATIONS FOR CONTROL COMPONENTS, DEVICES, AND SENSORS TO BE COORDINATED WITH MECHANICAL WORK.
11. AT LOWEST POINT IN PIPING ENTERING CHILLER BARRELS, PROVIDE 6" LONG DRAIN NIPPLES AND BALL VALVES FOR DRAINING CHILLER.
12. MINIMUM PIPE SIZE SHALL BE 1".

KEYED NOTES:

1. REFER TO CHILLER CHILLED WATER PIPING DETAIL ON DETAIL SHEET.
2. PROVIDE 3-WAY CONTROL VALVE AT AHU. REFER TO CHILLED WATER COIL CONNECTION SCHEMATIC WITH 3-WAY VALVE ON DETAIL SHEET.
3. PROVIDE DIFFERENTIAL PRESSURE SENSOR AND MOTORIZED BYPASS VALVE. REFER TO SEQUENCE OF OPERATIONS FOR MORE INFORMATION.

LEGEND:

- AIR SEPARATOR (AS)
- AUTOMATIC VALVE
- MANUAL VALVE
- STRAINER
- FLOW METER (FM)
- PUMP SUCTION DIFFUSER (PSD)
- BALL VALVE
- WATER METER (M)
- BLIND FLANGE
- PUMP
- PUMP WITH VFD
- PRESSURE GAUGE
- NEW EQUIPMENT
- NEW PIPING
- THERMOWELL FOR DDC TEMPERATURE SENSOR (TS)
- FLOW SWITCH (FS)
- CHECK VALVE
- THERMOMETER (T)

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED
PROFESSIONAL ENGINEER
01.19.2024

TEXAS

IDEA DONNA MECHANICAL UPGRADES

DONNA

ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET:	ME3.01

AIR COOLED CHILLER SCHEDULE

MARK	CHILLER OPTIONS	SERVES	NOMINAL (TONS)	CAPACITY (TONS)	AMBIENT TEMP (F)	FLOW (GPM)	MAX PD (FT WG)	EWT (F)	LWT (F)	# OF COMPRESSORS TYPE	MIN % CAPACITY	ELEC. V-PH-HZ	MCA	MOCP	IPLV AT ARI	FULL LOAD EER AT ARI	SOUND POWER OVERALL dBA	DIMENSIONS (LxWxH) IN.	OPERATING WEIGHT (LB)	DAIKIN MODEL NUMBER
CH-1	High Efficiency Scrolls	AHU-1	40	36.2	100	62	10	56	42	4 SCROLL TYPE	25	480-3-60	94.0	110.0	16.6	10.57	85	94x88x100	4,173	AGZ040E
CH-2	High Efficiency Scrolls	AHU-2	45	40.2	100	68	10	56	42	4 SCROLL TYPE	25	480-3-60	104.0	110.0	16.68	11.18	87	94x88x100	4,319	AGZ045E

NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR CHANGES TO DESIGN RESULTING FROM SELECTION OF OTHER MANUFACTURERS EQUIPMENT.
2. LISTED CAPACITY BASED ON ACTUAL CONDITIONS LISTED ABOVE. EFFICIENCIES LISTED AT ARI CONDITIONS.
3. PROVIDE CHILLER WITH FACTORY INSTALLED HAIL GUARDS, BASE SECURITY GRILLES, LOW SOUND ACOUSTICAL PACKAGE, CONDENSER COIL COATING (E-COAT)
4. PROVIDE UNIT WITH LOW AMBIENT CONTROL TO 40°F, HIGH AMBIENT TO 125°F, ACROSS THE LINE STARTER, AND SUCTION SERVICE VALVES.
5. CONDENSER COILS SHALL HAVE MICROCHANNEL WITH FACTORY E-COATING. FIELD APPLIED COATINGS ARE NOT ALLOWED.
6. PROVIDE CHILLER WITH SINGLE POINT POWER CIRCUIT BREAKER CONNECTION, INCLUDING POWER FOR CONTROLS. CHILLER SHALL HAVE A 65,000 AMP SCWR RATING WITH DISCONNECT SWITCH.
7. PROVIDE TERMINAL BLOCK FOR POWER CONNECTION. DIV. 26 WILL PROVIDE EXTERNALLY MOUNTED NON-FUSED DISCONNECT.
8. PROVIDE FACTORY INSTALLED DUAL PUMP PACKAGE WITH CHECK VALVE, ISOLATION VALVE AND STRAINER. PROVIDE LOOSE NEMA 3R VFDS FOR BALANCING PURPOSES, MOUNTED BY MECHANICAL AND WIRED BY ELECTRICAL CONTRACTOR.
9. PROVIDE DEMAND LIMITING VIA 4-20MA INPUT FEATURE TO LIMIT MACHINE CAPACITY.
10. PROVIDE INTEGRAL PRIMARY DUAL PUMP PACKAGE WITH 70' EXTERNAL TDH.
11. PROVIDE FACTORY INSTALLED HOT GAS BYPASS.

SINGLE PATH CHW AIR HANDLER UNIT SCHEDULE - IDEA DONNA CAMPUS

MARK	TYPE	NEW SUPPLY CFM	NEW OA CFM	ESP (INCHES)	FAN QTY	MIN. HP PER FAN	FAN ELECTRICAL				CHILLED WATER COIL						ELECTRIC HEAT				MANUFACTURER & MODEL NUMBER	NOTES
							V/P/H	FLA / FAN	FAN MCA	FAN MOCP	TOTAL MBH	SENSIBLE MBH	EAT DB/WB	LAT	EWT/LWT	GPM	KW	STAGES	HEAT MCA	HEAT MOCP		
9TH GRADE BUILDING																						
AHU-1	SINGLE PATH, HORIZ	9,000	2500	2.00	2	6.30	480/3/60	7.2	16.2	20	431	245	77.8/68.4	53.0/53.0	42/56	61.6	54.0	SCR	81.0	85.0	DAIKIN CAH021GDCM	ALL
PRIMARY BUILDING																						
AHU-2	SINGLE PATH, HORIZ	9,250	3000	2.00	2	6.30	480/3/60	7.2	16.2	20	472	248	77.5/69.2	53.0/53.0	42/56	67.4	59.0	SCR	88.5	90.0	DAIKIN CAH021GDCM	ALL

NOTES:
1. MANUFACTURER AND MODEL NUMBER LISTED ARE "OR APPROVED EQUAL". SEE SPECIFICATIONS FOR APPROVED MANUFACTURERS AND SUBSTITUTION PROCEDURES.
2. ESP IS STRICTLY EXTERNAL STATIC PRESSURE AND IS IN ADDITION TO ANY FILTERS, COILS, HEATERS OR OTHER ACCESSORIES INCLUDED WITH THE AIR HANDLING UNIT.
3. MOTOR SHALL BE NON-OVERLOADING TYPE, TOTALLY ENCLOSED, PREMIUM EFFICIENCY, ECM TYPE.
4. REFER TO AHU PLANS AND ELEVATIONS.
5. PROVIDE FILTER MIXING BOX SECTION WITH 2" MERV 8 PRE-FILTER AND 4" MERV 13 AFTER FILTER , COIL SECTION, ACCESS, FAN SECTION, ELEC. HEATER WITH DOORS ACCESS SIDE FOR EACH. PROVIDE GALVANIZED FILTER PAD FRAMES/RACKS NO LONGER THAN 24" FOR MERV 8 FILTERS ONLY. SEE SPECIFICATIONS.
6. PROVIDE STAINLESS STEEL CABINET LINER IN COIL SECTION AND STAINLESS STEEL COIL CASING. EXTEND STAINLESS STEEL DRAIN PAN WITH THROUGH EXTENDED COIL SECTION.
7. CHW COILS SHALL BE 5/8" DIAMETER
8. PROVIDE MINIMUM 18" DOOR IMMEDIATELY AFTER THE COOLING COIL FOR COIL ACCESS AND ACCESS TO FAN INTAKE.
9. COILS SHALL BE MAXIMUM 8 ROWS WITH 10 FINS PER INCH OR LESS.
10. PROVIDE DAMPER IN THE TOP OF THE MIXING SECTION. COORDINATE ACTUATORS WITH DDC CONTRACTOR.
11. PROVIDE FAN ARRAY WITH FACTORY MOUNTED SINGLE POINT POWER PANEL INCLUDING HAND/OFF/AUTO SWITCH, 0-10 VDC SIGNAL INPUT, FAN FAULT TERMINAL, FUSED DISCONNECT, MOTOR CONTROL PANEL, LINE AND LOW VOLTAGE WIRING, INDIVIDUAL FAN MOTOR OVERCURRENT PROTECTION/ISOLATION SWITCH, AND POTENTIOMETER FOR MANUAL CONTROL OVERRIDE.
12. FOR AHUS SCHEDULED WITH HEATING SECTION, PROVIDE ELECTRICAL CONNECTION SEPARATE FROM FAN MOTOR. COORDINATE WITH EQUIPMENT MANUFACTURER AND ELECTRICAL CONTRACTOR.

WALL MOUNTED AC UNIT SCHEDULE

MARK	NOMINAL TONNAGE	COOLING CFM	VENT. CFM	ESP (IN.)	MIN. HP	MCA	MOCP	ELECTRICAL V/P/H	AIR IN COND. TEMP (F)	COOLING				HEATING	MININMUM EER/ IPLV	WEIGHT LBS.	NOTES	EXIST. MANUFACTURER EXIST. MODEL NUMBER	BARD MODEL NUMBER (NEW)
										TOTAL BTU/H	SENSIBLE BTU/H	EAT DB/WB	LAT DB/WB	ELEC. HEATER (KW)					
WPU-11	3	1275	125	0.15	.5	59	60	240/1/60	95	35,965	27,729	80/67	59.9/58.3	10.0	11.0	425	ALL	BARD WA372-A	BARD W36AY-A10VXXX2J
WPU-13	3	1550	125	0.15	.5	59	60	240/1/60	95	48,000	36,500	80/67	59.9/58.3	10.0	11.0	425	ALL	NATIONAL COIL COMPANY V442B15A1FDS-NB	BARD W48AY-A10VXXX2J

NOTES:
1. ELECTRICAL DISCONNECT BY DIV. 26. COORDINATE WITH ELECTRICAL CONTRACTOR.
2. PROVIDE FACTORY DIPPED E-COATED CONDENSER COIL.
3. PROVIDE 2 STEP COMPRESSOR
4. PROVIDE HOT GAS REHEAT FOR DEHUMIDIFICATION OPERATION.
5. PROVIDE MOTORIZED OUTSIDE AIR DAMPER.
6. PROVIDE PROGRAMMABLE THERMOSTAT WITH BACNET INTERFACE.
7. PROVIDE 2" MERV 13 FILTER

EQUIPMENT CONNECTION SCHEDULE:

DESIGN	NEW HP/KW	NEW MCA	NEW MOCP	EXISTING MOCP	VOLTAGE	EXISTING DISCONNECT	NEW DISCONNECT	EXISTING BRANCH CIRCUIT	NEW BRANCH CIRCUIT	POWER SOURCE
9TH GRADE BUILDING - BASE BID										
CH-1	–	94.0	110	2) 60	480V/3PHASE	4) 60A, 3PNF, 600V, NEMA 3R	5) 200A, 3PNF, 600V, NEMA 3R	1) REMOVE	1) 1.25" – 3#2 & #8G	1-H
9TH GRADE BUILDING - ALTERNATE #1										
AHU-1 (FAN)	2X6.3 HP	16.2	20	2) 15	480V/3PHASE	4) MOTOR STARTER	3) INTEGRAL DISCONNECT	3/4" – 3#10 & #10G	RETAIN EXISTING	1-H
AHU-1 (HEAT)	54 KW	64.0	90	2) 70	480V/3PHASE	4) CIRCUIT BREAKER WITHIN SIGHT	CIRCUIT BREAKER WITHIN SIGHT	REMOVE EXISTING	1.25" – 3#3 & #8G	1-H
PRIMARY BUILDING - BASE BID										
CH-2	–	104.0	110	2) 80	480V/3PHASE	4) 100A, 3PNF, 600V, NEMA 3R	5) 200A, 3PNF, 600V, NEMA 3R	1) REMOVE	1) 1.5" – 3#2 & #8G	2H
PRIMARY BUILDING - ALTERNATE #1										
AHU-2 (FAN)	2X6.3 HP	16.2	20	2) 25	480V/3PHASE	4) MOTOR STARTER	3) INTEGRAL DISCONNECT	3/4" – 3#8 & #10G	RETAIN EXISTING	2H
AHU-2 (HEAT)	59 KW	70.9	90	2) 80	480V/3PHASE	4) CIRCUIT BREAKER WITHIN SIGHT	CIRCUIT BREAKER WITHIN SIGHT	REMOVE EXISTING	1.25" – 3#3 & #8G	2H
PORTABLES										
WPU-11	10 KW	59.0	60	6) 60	240V/1PHASE	4) A/C DISCONNECT	60A, 2PNF, 240V, NEMA 3R	3/4" – 2#6 & #10G	RETAIN EXISTING	P1
WPU-13	10 KW	59.0	60	6) 60	240V/1PHASE	4) A/C DISCONNECT	60A, 2PNF, 240V, NEMA 3R	3/4" – 2#6 & #10G	RETAIN EXISTING	P2

GENERAL NOTES:
A) LOCATE EQUIPMENT MEANS OF DISCONNECT WITHIN EQUIPMENT SIGHT. DO NOT INSTALL BELOW DUCTWORK OR PLUMBING LINES.
B) PROVIDE NEW BRANCH CONNECTION FROM DISCONNECT TO EQUIPMENT. TYPICAL FOR ALL NEW HVAC EQUIPMENT.

NOTES:
1) RETAIN AND REUSE EXISTING RACEWAY.
2) REMOVE EXISTING CIRCUIT BREAKER AND PROVIDE NEW TO MATCH NEW MOCP. PROVIDE UL LISTED UNIT FROM EXISTING MANUFACTURER (EATON CUTLER-HAMMER).
3) FURNISHED BY DIV. 23. INSTALLED AND CONNECTED BY DIV. 26.
4) DISCONNECT AND REMOVE INCLUDING RELATED SUPPORT HARDWARE.
5) REMOVE EXISTING SUPPORT STRUCTURE AND PROVIDE NEW HOT-DIPPED GALVANIZED SUPPORT STRUCTURE WITH CONCRETE FOOTING.
6) RETAIN AND REUSE EXISTING CIRCUIT BREAKER.

PANELBOARD "1-H" (EXISTING): EATON CUTLER-HAMMER POW-R-LINEC, TYPE PRL-3A, 400A, 277/480V, 3ø, 4W, 35KAIC, JOB NO. SCP80091, MFGD. AT HUS, BOX CAT. YS2072, DATE 06-30-2004
PANELBOARD "2H" (EXISTING): EATON CUTLER-HAMMER POW-R-LINEC, TYPE PRL-3A, 400A, 277/480V, 3ø, 4W, 35KAIC, JOB NO. SCP80091, MFGD. AT HUS, BOX CAT. YS2072, DATE 06-30-2004

EXPANSION TANK SCHEDULE

MARK	SERVICE	TYPE	ACCEPTANCE VOLUME GALLONS	(DIAMETER) X (HEIGHT)	LOCATION	MANUFACTURER & MODEL NUMBER OR EQUAL
EXP-1	CH-1	VERTICAL DIAPHRAGM PRE-CHARGED	11.3	16" X 30"	SEE PLAN	B&G D-40 ASME
EXP-2	CH-2	VERTICAL DIAPHRAGM PRE-CHARGED	11.3	16" X 30"	SEE PLAN	B&G D-40 ASME

AIR SEPARATOR SCHEDULE

MARK	SERVICE	TYPE	MAX. FLOW GPM	(DIAMETER) X (HEIGHT)	LOCATION	MANUFACTURER & MODEL NUMBER OR EQUAL
AS-1	CH-1	VERTICAL FLANGED CENTRIFUGAL	190	14" X 27"	SEE PLAN	B&G ROLAIRTROL RL-3F
AS-2	CH-2	VERTICAL FLANGED CENTRIFUGAL	190	14" X 27"	SEE PLAN	B&G ROLAIRTROL RL-3F

FILTER FEEDER SCHEDULE

MARK	SERVICE	TYPE	ACCEPTANCE VOLUME GALLONS	(DIAMETER) X (HEIGHT)	LOCATION	MANUFACTURER & MODEL NUMBER OR EQUAL	NOTES
CHEM-1	CHILLED WATER	VERTICAL FLOOR MOUNT	7.5	10" X 31.25"	MECHANICAL YARD	NEPTUNE FTF-5HP	ALL
CHEM-2	CHILLED WATER	VERTICAL FLOOR MOUNT	7.5	10" X 31.25"	MECHANICAL YARD	NEPTUNE FTF-5HP	ALL

NOTES:
1. PROVIDE LEG SETWITH ANCHOE BOLTS NEPTUNE MODEL "FTF-LEGS" TO ELEVATE FILTER FEEDER 9".
2. PROVIDE FINE FILTER BAG, 5-MICRON RINGTOP BAG.

CHW STORAGE TANK SCHEDULE

MARK	SERVICE	TYPE	CAPACITY GALLON	(DIAMETER) X (HEIGHT)	LOCATION	MANUFACTURER & MODEL NUMBER OR EQUAL	NOTES
ST-1	CH-1	VERTICAL FLANGED INTERNAL BAFFLE	300	36" X 76"	SEE PLAN	LOCHINVAR CWB-04	ALL
ST-2	CH-2	VERTICAL FLANGED INTERNAL BAFFLE	300	36" X 76"	SEE PLAN	LOCHINVAR CWB-04	ALL

NOTES:
1. PROVIDE WITH R-12 SPRAY FOAM INSULATION AND ALUMINUM JACKET.
2. PRIOR TO ORDERING, COORDINTE UPPER OR LOWER CONNECTIONS TO AVOID CONFLICT WITH EXISTING CONDITIONS.

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED
PROFESSIONAL ENGINEER
01.19.2024

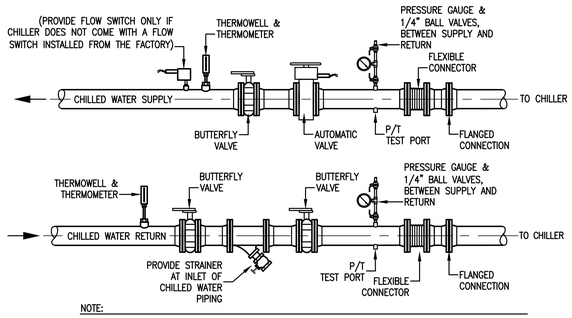
TEXAS

IDEA DONNA MECHANICAL UPGRADES

DONNA

ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

DATE: JANUARY 19, 2024
CHECKED BY: R.K.
DRAWN BY: P.M.
PROJECT NO.: 23v104
CAD FILE:
SHEET:
ME4.01

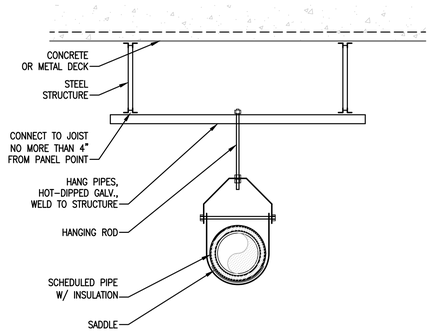


NOTE:

1. DO NOT PERFORM WELDING IN CLOSE PROXIMITY TO THE CHILLER BARRELS AND COMPRESSORS. ALL PIPING CONNECTIONS TO THE CHILLER SHALL BE FLANGED OR GROOVED TYPE.

01 CHILLER PIPING CONNECTION DETAIL

SCALE : NOT TO SCALE

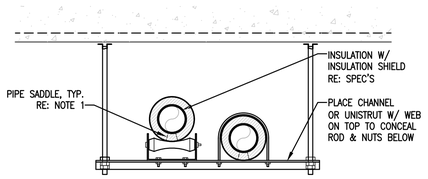


02 PIPING HANGER DETAIL

SCALE : NOT TO SCALE

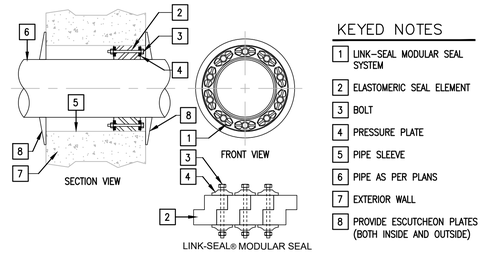
NOTES:

1. USE HARDWOOD BLOCKS FOR SADDLES ON CHILLED WATER LINES.
2. INSULATION THICKNESS SHALL BE AS SPECIFIED. SIZE HANGERS, ROLLER, & U-BOLTS FOR PIPE PLUS INSULATION.
3. PROTECT ALL INSULATION TO HANGER MATERIAL
4. CONTACTS W/ INSULATION PROTECTION.



03 PIPING HANGER DETAIL

SCALE : NOT TO SCALE



KEYED NOTES

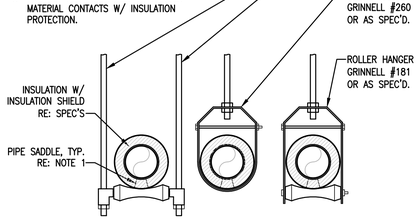
1. LINK-SEAL MODULAR SEAL SYSTEM
2. ELASTOMERIC SEAL ELEMENT
3. BOLT
4. PRESSURE PLATE
5. PIPE SLEEVE
6. PIPE AS PER PLANS
7. EXTERIOR WALL
8. PROVIDE ESCUTCHEON PLATES (BOTH INSIDE AND OUTSIDE)

04 PIPE PENETRATION AT WALL DETAIL

SCALE : NOT TO SCALE

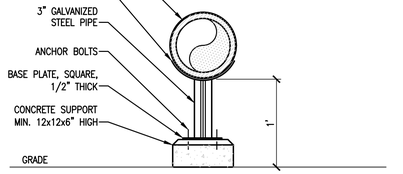
NOTES:

1. USE HARDWOOD BLOCKS FOR SADDLES ON CHILLED WATER LINES.
2. INSULATION THICKNESS SHALL BE AS SPECIFIED.
3. SIZE HANGERS, ROLLER, & U-BOLTS FOR PIPE PLUS INSULATION.
4. PROTECT ALL INSULATION TO HANGER MATERIAL CONTACTS W/ INSULATION PROTECTION.



05 PIPING HANGER DETAIL

SCALE : NOT TO SCALE

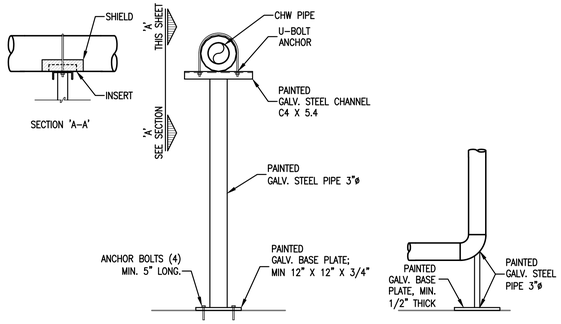


NOTE:

1. ALL STEEL EXPOSED TO EXTERIOR SHALL BE HOT DIPPED GALVANIZED & PAINTED WITH EPOXY PAINT.

06 CONCRETE PIPE SUPPORT DETAIL

SCALE : NOT TO SCALE

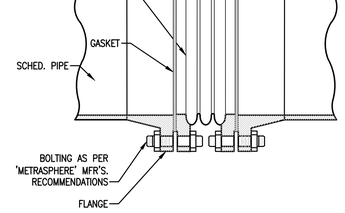


NOTES:

1. ALL EXTERIOR SUPPORT STRUCTURE SHALL HAVE 4" CONCRETE PAD UNDER BASE PLATE.
2. ALL STEEL EXPOSED TO EXTERIOR SHALL BE HOT DIPPED GALVANIZED & PAINTED WITH EPOXY PAINT.

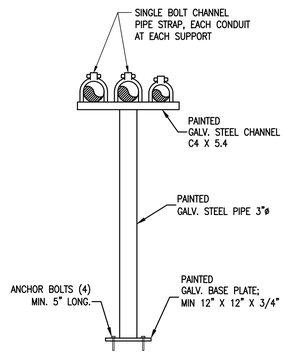
07 PIPE SUPPORT STRUCTURE

SCALE : NOT TO SCALE



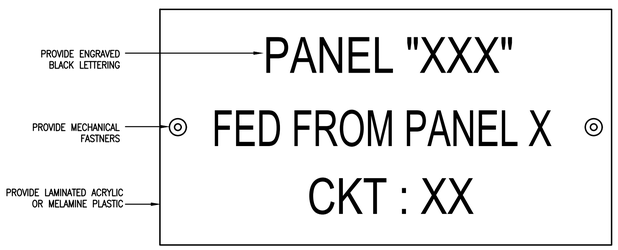
08 TYPICAL EXPANSION JOINT

SCALE : NOT TO SCALE



09 SUPPORT DETAIL FOR CONDUIT RUNS

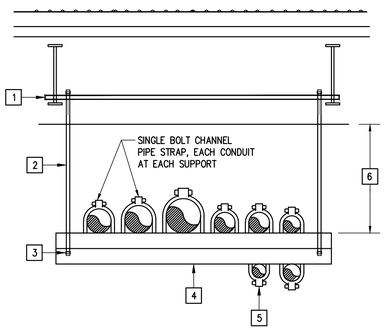
SCALE : NOT TO SCALE



NOTE: ATTACH NAMEPLATES TO ALL ELECTRICAL GEAR AS NOTED ON SECTION 260553.

10 EQUIPMENT IDENTIFICATION LABEL DETAIL

SCALE : NOT TO SCALE

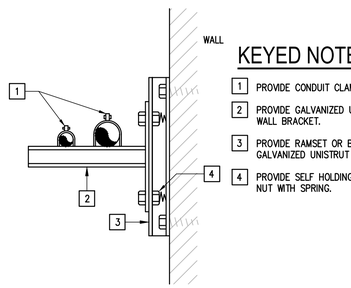


KEYED NOTES:

1. PROVIDE UNISTRUT STRUCTURAL CHANNEL SECURED TO TO JOIST AT BOTH ENDS.
2. PROVIDE 1/2" GALVANIZED ROD MINIMUM.
3. PROVIDE LOCKNUT.
4. PROVIDE GALVANIZED UNISTRUT 8'-0" O/C MAXIMUM.
5. PROVIDE 0'-1" MAXIMUM SIZE ON BOTTOM OF UNISTRUT.
6. VARIES.

11 HORIZONTAL RACEWAYS SUPPORT DETAIL

SCALE : NOT TO SCALE



KEYED NOTES:

1. PROVIDE CONDUIT CLAMPS.
2. PROVIDE GALVANIZED UNISTRUT WALL BRACKET.
3. PROVIDE RAMSET OR BOLT GALVANIZED UNISTRUT TO WALL.
4. PROVIDE SELF HOLDING CLAMPING NUT WITH SPRING.

12 RACEWAY RUNS SUPPORT DETAIL

SCALE : NOT TO SCALE

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED PROFESSIONAL ENGINEER
01.19.2024

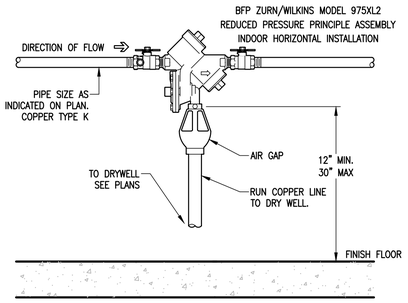
TEXAS

IDEA DONNA MECHANICAL UPGRADES

DONNA

ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED ENGINEERING FIRM
F-15998

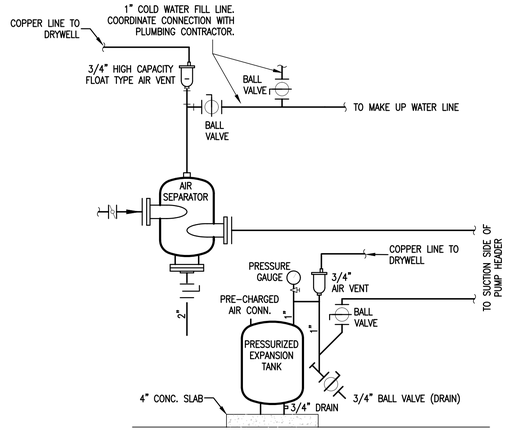
DATE:	JANUARY 19, 2024
CHECKED BY:	R.K.
DRAWN BY:	P.M.
PROJECT NO.:	23v104
CAD FILE:	
SHEET:	ME5.01



NOTE: PROVIDE INSULATION AND ALUMINUM METAL JACKETING WHEN COPPER PIPING IS EXPOSED OUTDOORS.

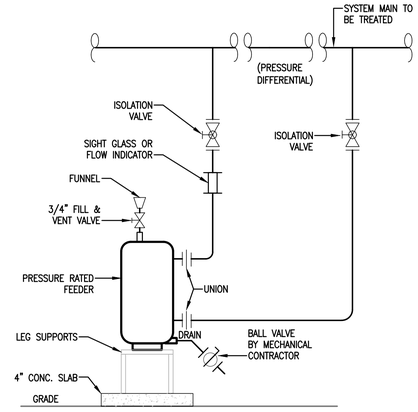
01 BACKFLOW PREVENTER DETAIL

SCALE : NOT TO SCALE



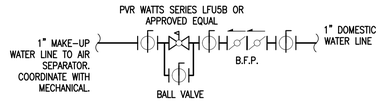
02 AIR SEPARATOR & EXPANSION TANK DETAIL

SCALE : NOT TO SCALE



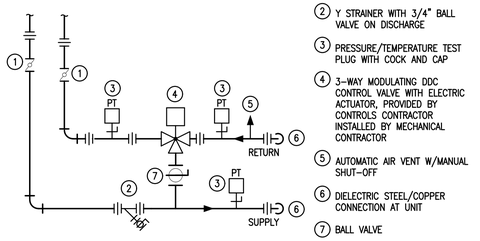
03 CHEMICAL TREATMENT POT FEEDER

SCALE : NOT TO SCALE



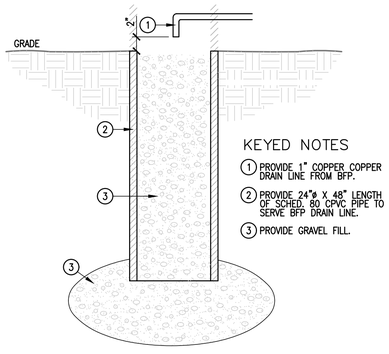
04 MAKE-UP WATER DETAIL

SCALE : NOT TO SCALE



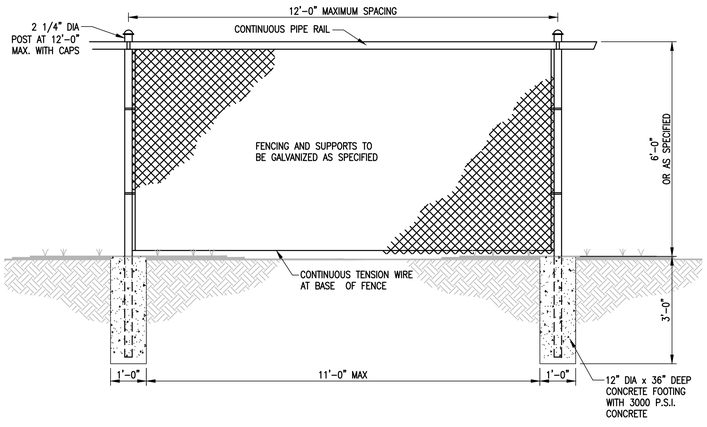
05 3-WAY VALVE CHILLED WATER COIL CONNECTION SCHEMATIC

SCALE : NOT TO SCALE



06 DRY WELL DETAIL

SCALE : NOT TO SCALE



07 CHAIN LINK FENCE ELEVATION/SECTION

SCALE : 1/2" = 1'-0"

NO:	REVISION:	BY:

RFP # 21-DCTX-0224

STATE OF TEXAS
CESAR A. GONZALEZ
106611
LICENSED PROFESSIONAL ENGINEER
01.19.2024

TEXAS

IDEA DONNA MECHANICAL UPGRADES

DONNA

ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

DATE: JANUARY 19, 2024
CHECKED BY: R.K.
DRAWN BY: P.M.
PROJECT NO.: 23v104
CAD FILE:
SHEET: ME5.02