INDIVIDUALS WARNING: ALL INTERESTED IN BIDDING ON PROJECT MUST OBTAIN THE PLANS AND SPECIFICATIONS FROM THE DEPARTMENT MANAGING THE PROJECT OR AS OTHERWISE STATED IN THE ADVERTISEMENT FOR BIDS FOR THE PROJECT. DO NOT USE THE PLANS AND SPECIFICATIONS POSTED CLERK OF THE BOARD'S ON THE WFBSITF FOR BIDDING ON PROJECT.

400 N. PEPPER AVE. COLTON, CA. 92324

SKID MOUNTED BOOSTER PUMP

PROJECT NOTES:

- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE CODES LISTED UNDER THE PROJECT DATA HEADING ON THIS SHEET. IT SHALL BE THE CONTRACTOR'S AND HIS EMPLOYEE'S RESPONSIBILITY TO BE FAMILIAR WITH ALL CODES AND ORDINANCES, CITY OR STATE, AS REQUIRED FOR THE CONSTRUCTION

- 7. ALL PENETRATIONS INTO SOUND RATED ASSEMBLIES SHALL BE SEALED WITH APPROVED RESILIENT ACOUSTIC SEALANT. ALL RECESSED ITEMS SHALL BE SEALED TO
- MAINTAIN INTEGRITY OF THE ACOUSTIC ASSEMBLY
- 18. PIPES AND CONDUITS SHALL BE SUPPORTED AND BRACED PER CBC 2019 AND ASCE REQUIRMENTS 19. ABBREVIATIONS THROUGHOUT THE DOCUMENTS ARE THOS EIN COMMON USE. THE HOSPITAL REPRESENTATIVE WILL DEFINE THE INTENT OF ANY IN QUESTION. 20. ALL DRAWINGS, THOUGH NOTED TO SCALE, ARE FOR ILLUSTRATION ONLY. THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL NOT SCALE THE DRAWINGS. ITEMS
- WRONGLY LOCATED BY DRAWING SCALING SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE THROUGH-PENETRATIONS AND MEMBRANE PENETRATIONS SHALL BE PROTECTED BY AN APPROVED PENETRATION FIRESTOP SYSTEM OR MEMBRANE PENETRATION FIRESTOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 814 OR UL 1479. WITH A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 PA) OF WATER OR AS OTHERWISE PERMITTED BY 2019 CBC, SECTION 714. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS AND MEMBRANE PENETRATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS FOR LISTED SYSTEMS. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS. MEMBRANE PENETRATION PROTECTION AND OTHER PERMITTED MEANS AND METHODS OF PENETRATION PROTECTION SHALL BE SUBMITTED TO OSHPD FIELD FIRE MARSHAL FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. PER 2019 C.B.C. SECTIONS 107.2.1 AND 714.

PROJECT DATA:

- ALL WORK SHALL COMPLY WITH THE LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS, AS ADOPTED BY THE GOVERNING AUTHORITIES:
- 2019 CALIFORNIA ADMINISTRATIVE CODE (CAC) PART 1, TITLE 24, CCR 2019 CALIFORNIA BUILDING CODE (CBC) - PART 2, TITLE 24, CCR BASED ON THE 2018 INTERNATIONAL
- 2019 CALIFORNIA ELECTRICAL CODE (CEC) PART 3, TITLE 24, CCR BASED ON THE 2017 NATIONAL
- ELECTRICAL CODE (NEC) 2019 CALIFORNIA MECHANICAL CODE (CMC) - PART 4, TITLE 24, CCR BASED ON THE 2018 UNIFORM
- MECHANICAL CODE (UMC) 2019 CALIFORNIA PLUMBING CODE (CPC) - PART 5, TITLE 24, CCR BASED ON THE 2018 UNIFORM
- PLUMBING CODE (UPC)
- CODE (IFC) 2019 CÀLIFORNIA ENERGY CODE (CEC) - PART 6, TITLE 24, CCR
- 2019 CALIFORNIA EXISTING BUILDING CODE (CEBC) PART 10, TITLE 24, CCR BASED ON 2018 INTERNTIONAL BUILDING CODE (IBC)
- 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN) PART 11, TITLE 24, CCR 2019 CALIFORNIA REFERENCED STANDARDS CODE (CRSC) - PART 12, TITLE 24, CCR

BUILDING OWNER: COUNTY OF SAN BERNARDINO

PROJECT DIRECTORY:

<u>OWNER:</u> COUNTY OF SAN BERNARDINO CONTACT: MICHAEL MAYNARD, PM

MECHANICAL:

CONTACT: HIMANSU SHAH, PE

901 VIA PIEMONTE. SUITE 400 ONTARIO, CA 91764 (909)-477-6915

STRUCTURAL:

(909)-477-6915

CONTACT: BALRAM GUPTA, SE 901 VIA PIEMONTE, SUITE 400 ONTARIO, CA 91764

TITLE SHEET PLUMBING COVERSHEET SPECIFICAITONS SPECIFICATIONS 400 N. PEPPER AVE OVERALL FIRST FLOOR PLAN - PLUMBING COLTON, CA 92324 FIRST FLOOR DEMOLITION AND REMODEL PLANS - PLUMBING (909)-771-1182 **ELEVATION VIEWS**

> REMODEL SINGLE LINE DIAGRAM OVERALL FIRST FLOOR PLAN - ELECTRICAL

DEMOLITION SINGLE LINE DIAGRAM

ELECTRICAL COVERSHEET

FIRST FLOOR DEMOLITION AND REMODEL PLANS - ELECTRICAL GRAND TOTAL: 13

SHEET INDEX

SCOPE OF WORK:

ASSEMBLY LOCATED IN THE PUMP HOUSE NORTH OF THE CENTRAL UTILITY PLANT. THIS ORIGINAL PUMP CONTROLLED BY VARIABLE FREQUENCY DRIVES TO MAINTAIN THE REQUIRED PRESSURE FOR THE ARMO CAMPUS SYSTEM. THE EXISTING BOOSTER PUMP ASSEMBLY TO REMAIN WILL BECOME A 100% REDUNDANT SYSTEM.

PROJECT NOTES:

THE INTENT OF THE CONSTRUCTION DOCUMENTS IS TO CONSTRUCT THE PROJECT IN ACCORDANCE WITH TITLES 19 AND 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED CONSTRUCTION DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 19 AND 24, CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY OSHPD BEFORE PROCEEDING WITH THE WORK.

DEFERRED APPROVALS:

BOOSTER PUMP CONTROL PANEL

BUILDING - BLDG 03

CONSTRUCTION TYPE:

EXISTING BUILDING ELEMENTS: EXTERIOR BEARING WALLS (PRECAST CONC. WALL - 3 HR RATING)

INTERIOR BEARING WALLS (NONE - 3 HR

STRUCTURAL FRAME (CONC. COLUMNS W/

CONC. BEAMS - 3 HR RATING)

INTERIOR NON-LOAD BEARING PARTITIONS (20 GA STL. STUDS - NO RATING) SHAFT ENCLOSURES (2 HR RATING)

FLOORS (CONCRETE SLAB - 2 HR RATING) ROOFS (CONCRETE SLAB - 1.5 HR RATING)



ARROWHEAD REGIONAL MEDICAL CENTER

400 N. PEPPER AVE. COLTON, CA. 92324

ISKID MOUNTED **BOOSTER PUMP**

CIP NO. IMEG PROJECT NO. BUILDING (CAFM) NO.

APN NO.

21006908.00



901 VIA PIEMONTE SUITE 400 ONTARIO, CA 91764 909.477.6915 FAX: 909.477.6916 www.imegcorp.com #21006908.00

PROFESSIONAL SEA





HCAI # S220638-36-00

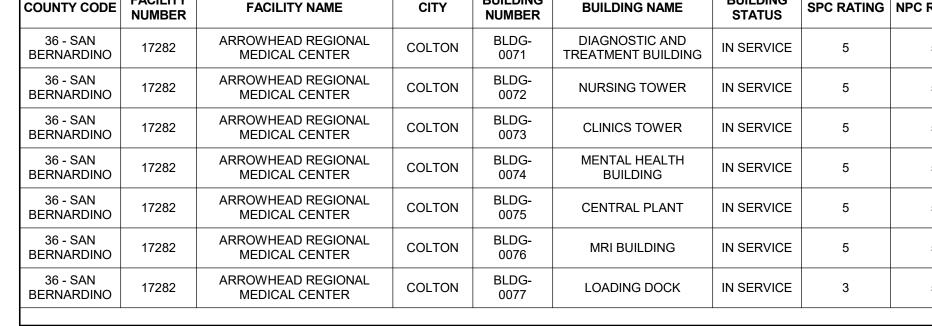
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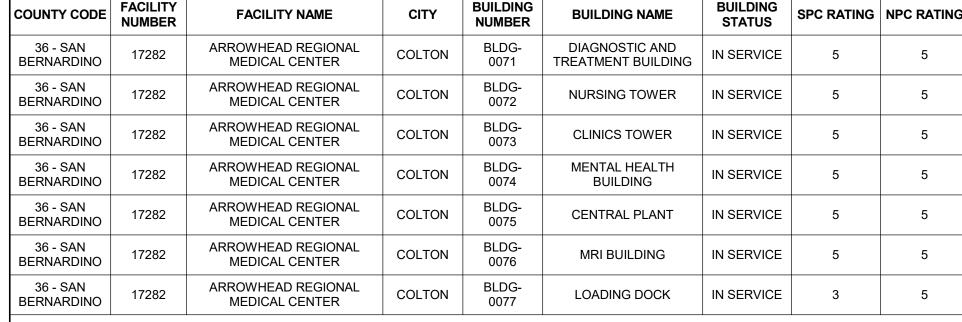
SHEET INFORMATION

TITLE SHEET

SHEET TITLE

12" = 1'-0"





SPC/NPC RATINGS OF ACUTE CARE HOSPITAL BUILDINGS AS OF 06/01/2017



BLD-0074 - MENTAL HEALTH BUILDING - BLDG 04 **BLD-0071 - DIAGNOSTIC** AND TREATMENT BUILDING - BLDG 02 BLD-0075 - CENTRAL PLANT - BLDG 05 BLD-0076 - MRI **BUILDING - BLDG 06** BLD-0072 - NURSING TOWER - BLDG 01 BLD-0077 - LOADING DOCK - BLDG 06 BLD-0073 - CLINICS

APPLICABLE CODES • 2019 CALIFORNIA ADMINISTRATIVE CODE (CAC) PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR) • 2019 CALIFORNIA BUILDING CODE (CBC) PART 2. TITLE 24. CRC. BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC) 2019 CALIFORNIA ELECTRICAL CODE (CEC) PART 3, TITLE 24, (CCR). BASED ON THE 2017 NATIONAL ELECTRICAL CODE (NEC) 2019 CALIFORNIA MECHANICAL CODE (CMC) PART 4, TITLE 24, (CCR). BASED ON THE 2018 UNIFORM MECHANICAL CODE (UMC) 2019 CALIFORNIA PLUMBING CODE (CPC) PART 5, TITLE 24, (CCR). BASED ON THE 2018 UNIFORM PLUMBING CODE (UPC) 2019 CALIFORNIA ENERGY CODE (CEC) PART 6, TITLE 24, (CCR). 2019 CALIFORNIA HISTÓRICAL BUILDING CODE (CHBC) PART 8, TITLE 24, (CCR) 2019 CALIFORNIA FIRE CODE (CFC) PART 9, TITLE 24, (CCR) BASED ON THE 2017 NATIONAL FIRE CODE (NFC) 2019 CALIFORNIA EXISTING BUILDING CODE (CEBC) PART 10, TITLE 24, (CCR) BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC) 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CAL GREEN) PART 11, TITLE 24, (CCR) 2019 CALIFORNIA REFERENCED STANDARDS CODE (CRSC)

PART 12, TITLE 24, (CCR)

TAG NAME	DESCRIPTION	MANUFACTURER AND MODEL
BP-1	BOOSTER PUMP - TRIPLEX VARIABLE SPEED PUMP SYSTEM DESIGNED TO MEET THE FOLLOWING REQUIREMENTS. SYSTEM SHALL BE SKID MOUNTED, FULLY ASSEMBLED AND TESTED AT FACTORY BY MANUFACTURER.	BOOSTER PUMP - XYLEM MODEL 92eSVN-3 STAGE VERTICAL VERTICAL
	AREA SERVED - ARMC SITE INLET PRESSURE - 10 OUTLET PRESSURE - 115 GPM - 1.500	
	VIBRATION ISOLATION TYPE - BASE ISOLATED	
	ELECTRICAL REQUIREMENTS HORSEPOWER (EACH PUMP) - 50 PUMP RPM - 3500 VOLTAGE - 480 PHASE - 3	
	FLA - 167.0 @ 460/3/60 DISCONNET BY - E.C. DISCONNECT TYPE - NON-FUSED CONTROLLER/STARTER BY - MFR	
	DIMENSIONS: 66"L X 62W" WEIGHT: 4,190 LBS	

PLUMBING ABBREVIATION KEY **DESCRIPTION:** ABBR: **EXISTING** FS FLOOR SINK HB HOSE BIBB SCCR SHORT CIRCUIT CURRENT RATING TYP **TYPICAL** LINILEGE OTHERWISE NOTES

PLUMBING SYMBOL LIST NOT ALL SYMBOLS MAY APPLY.				
SYMBOL:	DESCRIPTION:			
01111B0L				
—сw—	COLD WATER			
	PIPE CONTINUATION			
	PIPE CAP			
	PIPE DOWN			
	PIPE UP OR UP/DOWN			
—— о FD	PIPE SERVING FIXTURE ON FLOOR ABOVE (EXAMPLE: FD = FLOOR DRAIN)			
	PITCH PIPE IN DIRECTION			
	DIRECTION OF FLOW IN PIPE			
	DIELECTRIC CONNECTION			
	UNION/FLANGE			
── ₩──	SHUTOFF VALVE NORMALLY OPEN			
	SHUTOFF VALVE NORMALLY CLOSED			
	CHECK VALVE			
∻	SAFETY/RELIEF VALVE			
Ŷ	VACUUM BREAKER			
—(D)—	PUMP			
	ALIGNMENT GUIDE			

ME COMPONENT ANCHORAGE NOTES:

1. EQUIPMENT ANCHORAGE NOTE:

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC, SECTION 1617A.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13,26, AND 30.

ALL PERMANENT EQUIPMENT AND COMPONENTS.

2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARED WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTION EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.

3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENTS IS REQUIRED TO BE RETRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED DOT THE STRUCTURE. BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE. WITH THE REFERENCES NOTES ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK. PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSFERS AND LONGITUDINAL DIRECTIONS.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT

B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL, AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OF STRUCTURAL ENGINEER DELEGATE RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

2. PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS BRACING NOTE.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENT PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED INS ASCE 7-16 SECTION 13.6.5.6, 13.6.7, 13.6.8, AND 2019 CDC, SECTIONS 16167.1.24, 16167.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G. OSHPD OPM FOR 2013 OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE STAR OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP)M ELECTRICAL **DISTRIBUTION SYSTEMS (E):**

MP [] MD [] PP [] E [] OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP [] MD [X] PP [] OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM#) #0052-13.

GENERAL NOTES:

- 1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF
- 2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
- 3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
- 4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER
- 5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
- 6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF
- 7. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND
- 8. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS,
- 9. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES. 10. MAINTAIN A MINIMUM WORKING CLEARANCE OF 3'-6" IN FRONT OF ALL ELECTRICAL
- EQUIPMENT REQUIRING MAINTENANCE, INSPECTION, AND TESTING INCLUDING BUT NOT LIMITED TO PANELS, DISTRIBUTION PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, EQUIPMENT DISCONNECTS AND STARTERS. 11. MAINTAIN THE DEDICATED ELECTRICAL EQUIPMENT SPACE DEFINED BY THE WIDTH / DEPTH OF ELECTRICAL EQUIPMENT MEASURED FROM THE FLOOR TO A HEIGHT 6'-0" ABOVE THE
- EQUIPMENT OR THE STRUCTURAL CEILING, WHICHEVER IS LOWER. SYSTEMS FOREIGN TO THE ELECTRICAL DISTRIBUTION SYSTEM ARE NOT ALLOWED IN THE DEDICATED ELECTRICAL SPACE INCLUDING; PIPING, ETC. 12. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL
- EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT. 13. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

RENOVATION NOTES:

- 1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF, VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
- 2. NOT ALL EXISTING DUCTWORK AND PIPING IS SHOWN. VERIFY EXISTING CONDITIONS
- BEFORE STARTING WORK. NOTIFY ENGINEER OF ANY CONFLICTS WITH NEW WORK. 3. FIELD VERIFY THE AVAILABLE CLEARANCES FOR PIPING BEFORE FABRICATION. RISES AND
- DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS. 4. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF THEIR WORK AND
- SHALL NOTIFY THE CONSTRUCTION MANAGER PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO THEIR AREA OF WORK 5. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CUTTING, REMOVAL AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS
- CONTRACTORS SHALL NOTIFY THE GC OF AFFECTED AREAS PRIOR TO BIDDING 6. WHERE EXISTING MECHANICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, PIPING IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING MECHANICAL SYSTEMS TO ALLOW FOR INSTALLATION OF
- NEW EQUIPMENT, PIPING. 7. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. MAINTAIN ACCESS TO EXISTING MECHANICAL INSTALLATIONS THAT
- 8. OBTAIN PERMISSION FROM OWNER BEFORE SHUTTING DOWN ANY SYSTEM FOR ANY REASON. MAINTAIN SERVICE TO ALL COMPONENTS THAT ARE TO REMAIN UNTIL NEW SYSTEMS ARE INSTALLED.
- MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR TIE IN AND SWITCHOVER, DRAIN SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER BEFORE PARTIALLY OR COMPLETELY DRAINING SYSTEM. MAKE CHANGEOVER TO NEW SYSTEMS WITH MINIMUM OUTAGE.

STRUCTURAL DESIGN BASIS:

THE DESIGN IS IN ACCORDANCE WITH ASCE/SEI 7-19 (MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES? AS MODIFIED BY THE CALIFORNIA BUILDING CODE, 2019 EDITION:

RICK CATEGORY: IV

2. SEISMIC PARAMETERS & SITE COEFFICIENTS (MAPPED RESPONSE SPECTRUM AS PER 2019

SITE CLASS = D (DEFAULT) SEISMIC DESIGN CATEGORY = 2.045 g $= 0.811 \, g$ = 1.636 gSEISMIC IMPORTANCE FACTOR, I = 1.5

SEISMIC COEFFICIENTS PER ASCE 7 CH 13: BOOSTER PUMP: ap = 1.0, Rp = 2.5 PANEL BOARD: ap = 2.5, Rp = 6.0STEEL PIPES: ap = 2.5, Rp = 6.0

ROOF HT OF STRUCTURE H = 10'-8" POINT OF ATTACHMENT OF PUMP AND PANEL z = 0'-0" POINT OF ATTACHMENT OF PIPING z = 10'-8"

PLUMBING GENERAL NOTES:

- 1. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
- 2. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER LISTED IS THE
- BASIS OF DESIGN. 3. CONTRACTOR SHALL VERIFY THAT FIXTURES SUPPLIED ARE APPROVED PER ALL APPLICABLE STATE, LOCAL AND GOVERNING AUTHORITIES.
- 4. VERIFY UNDERGROUND PIPE SIZES, INVERT ELEVATIONS, AND LOCATIONS PRIOR TO BEGINNING ANY WORK.
- 5. REFER TO THE PLUMBING ROUGH-IN SCHEDULE FOR THE SIZES OF BRANCH PIPES TO
- PLUMBING FIXTURES. 6. FOR CLARITY, NOT ALL VALVES HAVE BEEN SHOWN.
- 7. EXISTING CONDITIONS ON DEMOLITION PLANS ARE PROVIDED TO INDICATE THE GENERAL SCOPE OF ITEMS TO BE REMOVED.
- 8. P.C. SHALL CUT AND PATCH EXISTING AS REQUIRED FOR NEW OR DEMOLITION WORK

PLUMBING SHEET INDEX PLUMBING COVERSHEET SPECIFICAITONS SPECIFICATIONS OVERALL FIRST FLOOR PLAN - PLUMBING FIRST FLOOR DEMOLITION AND REMODEL PLANS - PLUMBING DETAILS ELEVATION VIEWS GRAND TOTAL: 7

ARROWHEAD REGIONAL **MEDICAL CENTER**

400 N. PEPPER AVE. **COLTON, CA. 92324**

ARMC SKID MOUNTED **BOOSTER PUMP**

WBSE NO. 10.10.0722 CIP NO. IMEG PROJECT NO. 21006908.00 BUILDING (CAFM) NO. APN NO.



901 VIA PIEMONTE SUITE 400 ONTARIO, CA 91764 909.477.6915 FAX: 909.477.6916 www.imegcorp.com #21006908.00

PROFESSIONAL SEAL



CONSULTANT

REVIEWED IN ACCORDANCE WITH THE REQUIREMENTS OF T24, CCR with comments Department of Health Care Access and Information FACILITIES DEVELOPMENT DIVISION 8/19/2022, 7:12:46 AM S220638-36-00 Allen Cheng

HCAI # S220638-36-00

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> REFERENCE SCALE IN INCHES

Revision / Issue

SHEET INFORMATION **HCAI SUBMITTAL** Job Number SHEET TITLE

PLUMBING COVERSHEET

As indicated

SHEET NUMBER

THESE SPECIFICATIONS, AND ALL ITEMS REQUIRED TO MAKE ASSOCIATED PORTION OF THE MECHANICAL WORK A FINISHED AND WORKING SYSTEM.

PLUMBING WORK SHALL INCLUDE BUT IS NOT NECESSARILY LIMITED TO: REMOVING AND INSTALLING PIPE FROM AND TO THE EXISTING AND NEW BOOSTER PUMP. CONNECTING THE BOOSTER PUMP. COORDINATING THE DOWNTIME REQUIRED WHILE CHANGING THE BOOSTER PUMP SYSTEM.

ALL WORK THAT WILL PRODUCE EXCESSIVE NOISE OR INTERFERENCE WITH NORMAL BUILDING OPERATIONS, AS DETERMINED BY THE OWNER/LANDLORD, SHALL BE SCHEDULED WITH THE OWNER/LANDLORD. IT MAY BE NECESSARY TO SCHEDULE SUCH WORK DURING UNOCCUPIED HOURS. THE OWNER/LANDLORD RESERVES THE RIGHT TO DETERMINE WHEN RESTRICTED CONSTRUCTION HOURS WILL BE REQUIRED. CONTRACTOR SHALL COORDINATE WITH THE LANDLORD DURING THE BIDDING PROCESS.

ALL CONTRACTORS SHALL ESTABLISH UTILITY ELEVATIONS PRIOR TO FABRICATION AND SHALL COORDINATE THEIR MATERIAL AND EQUIPMENT WITH OTHER TRADES.

THE MECHANICAL CONTRACTOR (FIRE PROTECTION/PLUMBING/HVAC/TEMPERATURE CONTROLS CONTRACTOR)

BE RESPONSIBLE FOR ALL WIRING NOT SHOWN ON ELECTRICAL DRAWINGS BUT REQUIRED FOR MECHANICAL

VERIFY ALL EXISTING EQUIPMENT SIZES AND CAPACITIES WHERE UNITS ARE TO BE MODIFIED, MOVED, OR REPLACED. DRAWINGS AVAILABLE FOR THE ARCHITECT/ENGINEER'S EXAMINATION AT ANY NORMAL WORK CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING NEW UNITS OR TIME. REPLACEMENT UNITS.

QUALITY ASSURANCE

THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING COMPLETE AND OPERATING SYSTEMS. THE CONTRACTOR ACKNOWLEDGES AND UNDERSTANDS THAT THE CONTRACT DOCUMENTS ARE A TWO-DIMENSIONAL REPRESENTATION OF A THREE-DIMENSIONAL OBJECT, SUBJECT TO HUMAN INTERPRETATION. THIS REPRESENTATION THOROUGHLY CLEAN ALL EQUIPMENT AND SYSTEMS PRIOR TO THE OWNER'S FINAL ACCEPTANCE MAY INCLUDE IMPERFECT DATA, INTERPRETED CODES, UTILITY GUIDELINES, THREE-DIMENSIONAL CONFLICTS, AND OF THE PROJECT. CLEAN ALL FOREIGN PAINT, GREASE, OIL, DIRT, LABELS, STICKERS, ETC. FROM REQUIRED FIELD COORDINATION ITEMS. SUCH DEFICIENCIES CAN BE CORRECTED WHEN IDENTIFIED PRIOR TO ORDERING MATERIAL AND STARTING INSTALLATION. THE CONTRACTOR AGREES TO CAREFULLY STUDY AND COMPARE THE INDIVIDUAL CONTRACT DOCUMENTS AND REPORT AT ONCE IN WRITING TO THE DESIGN TEAM ANY DEFICIENCIES THE CONTRACTOR MAY DISCOVER. THE CONTRACTOR FURTHER AGREES TO REQUIRE EACH SUBCONTRACTOR TO LIKEWISE STUDY THE DOCUMENTS AND REPORT AT ONCE ANY DEFICIENCIES DISCOVERED. 22 10 00 PLUMBING PIPING

THE CONTRACTOR SHALL RESOLVE ALL REPORTED DEFICIENCIES WITH THE ARCHITECT/ENGINEER PRIOR TO AWARDING ANY SUBCONTRACTS, ORDERING MATERIAL, OR STARTING ANY WORK WITH THE CONTRACTOR'S OWN PIPE AND PIPE FITTINGS EMPLOYEES. ANY WORK PERFORMED PRIOR TO RECEIPT OF INSTRUCTIONS FROM THE DESIGN TEAM WILL BE DONE VALVES AT THE CONTRACTOR'S RISK.

ONLY PRODUCTS OF REPUTABLE MANUFACTURERS ARE ACCEPTABLE.

ALL CONTRACTORS AND SUBCONTRACTORS SHALL EMPLOY ONLY WORKERS SKILLED IN THEIR TRADES.

AND SUBCONTRACTORS MAY REQUEST ELECTRONIC MEDIA FILES OF THE CONTRACT DRAWINGS. THE ELECTRONIC LABOR REGULATIONS. CONTRACT DOCUMENTS CAN BE USED FOR PREPARATION OF SHOP DRAWINGS AND AS-BUILT DRAWINGS ONLY. THE INFORMATION MAY NOT BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT.

CODES AND STANDARDS

CONFORM TO ALL REQUIREMENTS OF HCAI, FORMERLY OSHPD, LAWS, ORDINANCES AND OTHER REGULATIONS HAVING JURISDICTION.

CONFORM TO ALL STATE CODES

IF THE CONTRACTOR NOTES, AT THE TIME OF BIDDING, THAT ANY PARTS OF THE DRAWINGS OR SPECIFICATIONS DO NOT COMPLY WITH THE CODES OR REGULATIONS, CONTRACTOR SHALL INFORM THE ARCHITECT/ENGINEER IN WRITING, REQUESTING A CLARIFICATION. IF THERE IS INSUFFICIENT TIME FOR THIS PROCEDURE, CONTRACTOR SHALL SUBMIT WITH THE PROPOSAL A SEPARATE PRICE TO MAKE THE SYSTEM COMPLY WITH THE CODES AND REGULATIONS.

ALL CHANGES TO THE SYSTEM MADE AFTER LETTING OF THE CONTRACT, TO COMPLY WITH CODES OR REQUIREMENTS OF INSPECTORS, SHALL BE MADE BY THE CONTRACTOR WITHOUT COST TO THE OWNER.

IF THERE IS A DISCREPANCY BETWEEN MANUFACTURER'S RECOMMENDATIONS AND THESE SPECIFICATIONS, THE MANUFACTURER'S RECOMMENDATIONS SHALL GOVERN.

ALL ROTATING SHAFTS AND/OR EQUIPMENT SHALL BE COMPLETELY GUARDED FROM ALL CONTACT. PARTIAL GUARDS AND/OR GUARDS THAT DO NOT MEET ALL APPLICABLE OSHA STANDARDS ARE NOT ACCEPTABLE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING THIS GUARDING IF IT IS NOT PROVIDED WITH THE EQUIPMENT

PERMITS AND FEES

PROCURE ALL APPLICABLE PERMITS AND LICENSES. ABIDE BY LOCAL AND STATE LAWS, REGULATIONS, AND ORDINANCES. PAY ALL CHARGES FOR PERMITS OR LICENSES. PAY ALL FEES AND TAXES IMPOSED BY STATE MUNICIPAL, AND OTHER REGULATORY BODIES. PAY ALL CHARGES ARISING OUT OF REQUIRED INSPECTIONS BY AN DRAIN VALVES AUTHORIZED BODY. PAY ALL CHARGES ARISING OUT OF REQUIRED CONTRACT DOCUMENT REVIEWS ASSOCIATED DRAIN VALVES SHALL BE SHUTOFF VALVES AS SPECIFIED FOR THE INTENDED SERVICE WITH WITH THE PROJECT AND AS INITIATED BY THE OWNER OR AUTHORIZED AGENCY/CONSULTANT.

WHERE APPLICABLE, ALL FIXTURES, EQUIPMENT AND MATERIALS SHALL BE LISTED BY UNDERWRITER'S LABORATORIES, INC. AND APPROVED BY FM GLOBAL.

SUBMITTALS

SUBMITTALS SHALL BE REQUIRED WHERE REQUIRED IN THE SPECIFICATIONS OR ON THE DRAWINGS. THE CONTRACTOR SHALL SUBMIT ELECTRONIC COPIES OF EACH SHOP DRAWING FOR REVIEW BY THE ARCHITECT/ENGINEER BEFORE RELEASING ANY EQUIPMENT FOR MANUFACTURE OR SHIPMENT.

THE CONTRACTOR SHALL THOROUGHLY REVIEW AND APPROVE ALL SHOP DRAWINGS BEFORE SUBMITTING THEM TO THE ARCHITECT/ENGINEER. CONTRACTOR SHALL CLEARLY MARK ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS ON ALL SUBMITTALS. ASSEMBLE ALL SUBMITTALS IN SETS BASED ON APPLICABLE SPECIFICATION SECTION. ALL SETS SHALL BE IDENTICAL AND CONTAIN AN INDEX OF THE ITEMS ENCLOSED WITH A GENERAL TOPIC 1. IRON, STEEL, AND STAINLESS STEEL CONNECTED TO EACH OTHER. DESCRIPTION ON THE COVER. WHERE MORE THAN ONE MODEL IS SHOWN ON A MANUFACTURER'S SHEET, CLEARLY 2. BRASS, COPPER, AND BRONZE CONNECTED TO EACH OTHER. INDICATE EXACTLY WHICH ITEM AND WHICH DATA IS RELEVANT TO THE WORK. REFER TO SUBSECTIONS FOR

PRODUCT DELIVERY, STORAGE, AND HANDLING

SPECIFIC SUBMITTAL REQUIREMENTS.

EXERCISE CARE IN TRANSPORTING AND HANDLING TO AVOID DAMAGE TO MATERIALS. STORE MATERIALS ON THE SITE TO PREVENT DAMAGE. KEEP MATERIALS CLEAN, DRY AND FREE FROM HARMFUL CONDITIONS. IMMEDIATELY REMOVE ANY MATERIALS THAT BECOME WET OR THAT ARE SUSPECTED OF BECOMING CONTAMINATED WITH MOLD FLANGED JOINTS (ANY SIZE): OR OTHER ORGANISMS.

KEEP ALL BEARINGS PROPERLY LUBRICATED AND ALL BELTS PROPERLY TENSIONED AND ALIGNED.

COORDINATE THE INSTALLATION OF HEAVY AND LARGE EQUIPMENT WITH THE GENERAL CONTRACTOR AND/OR OWNER. IF THE MECHANICAL CONTRACTOR DOES NOT HAVE PRIOR DOCUMENTED EXPERIENCE IN RIGGING AND LIFTING SIMILAR EQUIPMENT, HE/SHE SHALL CONTRACT WITH A QUALIFIED LIFTING AND RIGGING SERVICE THAT HAS SLEEVE_WASHER. SIMILAR DOCUMENTED EXPERIENCE. FOLLOW ALL EQUIPMENT LIFTING AND SUPPORT GUIDELINES FOR HANDLING 5. SEPARATE SLEEVES AND WASHERS MAY BE USED ONLY IF THE SLEEVES ARE MANUFACTURED FOR DOMESTIC WATER SYSTEMS ONLY, MAKE BRANCH CONNECTIONS WITH STANDARD TEE

CONTRACTOR IS RESPONSIBLE FOR MOVING EQUIPMENT INTO THE BUILDING AND/OR SITE. CONTRACTOR SHALL REVIEW SITE PRIOR TO BID FOR PATH LOCATION AND ANY REQUIRED BUILDING MODIFICATIONS TO ALLOW MOVEMENT OF EQUIPMENT. CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH OTHER TRADES.

WARRANTY

PROVIDE MINIMUM ONE-YEAR WARRANTY COMMENCING ON DATE OF FINAL ACCEPTANCE FOR ALL FIXTURES, EQUIPMENT, MATERIALS, AND WORKMANSHIP. WARRANTY REQUIREMENTS SHALL EXTEND TO CORRECTION, WITHOUT COST TO OWNER, OF ALL WORK FOUND TO BE DEFECTIVE OR NONCONFORMING TO THE CONTRACT DOCUMENTS. REFER TO SUBSECTIONS FOR ADDITIONAL WARRANTY REQUIREMENTS.

WHERE SEVERAL MANUFACTURERS' NAMES ARE GIVEN, THE MANUFACTURER FOR WHICH A CATALOG NUMBER IS GIVEN IS THE BASIS OF DESIGN AND ESTABLISHES THE QUALITY REQUIRED. EQUIVALENT EQUIPMENT MANUFACTURED BY THE OTHER NAMED MANUFACTURERS MAY BE USED. CONTRACTOR SHALL ENSURE THAT ALL ITEMS SUBMITTED BY THESE OTHER MANUFACTURERS MEET ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, AND FIT IN THE ALLOCATED SPACE. THE ARCHITECT/ENGINEER SHALL MAKE THE FINAL DETERMINATION OF WHETHER A PRODUCT IS EQUIVALENT.

ANY MATERIAL, ARTICLE OR EQUIPMENT OF OTHER UNNAMED MANUFACTURERS WHICH WILL ADEQUATELY PERFORM THE SERVICES AND DUTIES IMPOSED BY THE DESIGN AND IS OF A QUALITY EQUAL TO OR BETTER THAN THE EQUIPMENT IDENTIFIED BY THE DRAWINGS MAY BE USED IF APPROVAL IS SECURED IN WRITING FROM THE ARCHITECT/ENGINEER VIA ADDENDUM.

OBSERVATION OF WORK

IN ORDER TO PREVENT THE FINAL JOBSITE OBSERVATION FROM OCCURRING TOO EARLY, THE CONTRACTOR SHALL DURING FABRICATION AND ASSEMBLY, REMOVE SLAG AND WELD SPATTER FROM BOTH INTERNAL DISINFECTION OF DOMESTIC WATER PIPING SYSTEM REVIEW THE COMPLETION STATUS OF THE PROJECT AND CERTIFY IN WRITING THAT THE JOB IS READY FOR THE FINAL AND EXTERNAL JOINTS BY PEENING, CHIPPING AND WIRE BRUSHING. JOBSITE OBSERVATION.

22 05 00 CONT.

SUBMIT THE FOLLOWING: OPERATION AND MAINTENANCE MANUALS INCLUDING BOUND COPIES PRIOR TO BLOWING OR FLUSHING ERECTED PIPING SYSTEMS, DISCONNECT ALL OF APPROVED SHOP DRAWINGS, RECORD DOCUMENTS INCLUDING REPRODUCIBLE DRAWINGS COMPLETED IN AUTOCAD, SPARE PARTS AND EXTRA MATERIALS IN QUANTITIES SPECIFIED IN THESE SPECIFICATIONS, AND INSPECTION BY STATE BOILER INSPECTOR.

OPERATION AND MAINTENANCE MANUALS

SUBMIT AN ELECTRONIC COPY OF THE O&M MANUALS TO THE OWNER. OPERATION AND MAINTENANCE DATA SHALL CONSIST OF WRITTEN INSTRUCTIONS FOR THE CARE, MAINTENANCE, AND OPERATION OF THE EQUIPMENT AND SYSTEMS. INSTRUCTION BOOKS, CARDS, MANUALS FURNISHED WITH THE EQUIPMENT SHALL BE INCLUDED.

ALL TEXT SHALL BE SEARCHABLE AND BOOKMARKS SHALL BE USED, DIVIDING INFORMATION BY SPECIFICATION SECTION.

RECORD DOCUMENTS MAINTAIN AT THE JOB SITE A SEPARATE AND COMPLETE SET OF MECHANICAL DRAWINGS AND SPECIFICATIONS WITH ALL CHANGES MADE TO THE SYSTEMS CLEARLY AND PERMANENTLY MARKED IN COMPLETE DETAIL. MARK DRAWINGS TO INDICATE APPROVED SUBSTITUTIONS; CHANGE ORDERS, AND ACTUAL EQUIPMENT AND MATERIALS USED. ALL CHANGE ORDERS, RFI RESPONSES, CLARIFICATIONS AND OTHER SUPPLEMENTAL INSTRUCTIONS SHALL BE MARKED ON THE DOCUMENTS. RECORD DOCUMENTS THAT MERELY REFERENCE THE EXISTENCE OF THE ABOVE ITEMS ARE NOT ACCEPTABLE. RECORD CHANGES DAILY AND KEEP THE MARKED

UPON COMPLETING THE JOB, AND BEFORE FINAL PAYMENT IS MADE, PROVIDE REPRODUCIBLE DRAWINGS COMPLETED IN AUTOCAD TO THE ARCHITECT/ENGINEER.

ALL EQUIPMENT. REMOVE ALL RUBBISH, DEBRIS, ETC., ACCUMULATED DURING CONSTRUCTION FROM THE PREMISES.

SECTION INCLUDES

DOMESTIC WATER PIPING SYSTEM

QUALITY ASSURANCE VALVES: MANUFACTURER'S NAME AND PRESSURE RATING MARKED ON VALVE BODY. REMANUFACTURED VALVES ARE NOT ACCEPTABLE.

CONSTRUCTION DRAWINGS FOR THIS PROJECT HAVE BEEN PREPARED UTILIZING AUTOCAD MEP. CONTRACTORS WELDING MATERIALS AND PROCEDURES: CONFORM TO ASME CODE AND APPLICABLE STATE

WELDERS CERTIFICATION: IN ACCORDANCE WITH ANSI/ASME SEC 9 OR ANSI/AWS D1.1.

PIPING, FITTINGS, VALVES, AND FLUX FOR POTABLE WATER SYSTEMS: ALL COMPONENTS SHALL BE LEAD FREE PER FEDERAL ACT S.3874, REDUCTION OF LEAD IN DRINKING WATER ACT.

COLD WATER POTABLE AND NON-POTABLE

DESIGN PRESSURE: 175 PSI. MAXIMUM DESIGN TEMPERATURE: 200F

1. TUBING: TYPE K HARD DRAWN SEAMLESS COPPER TUBE, ASTM B88. 2. JOINTS: SOLDER WITH 100% LEAD-FREE SOLDER AND FLUX, ASTM B32. 3. FITTINGS: WROUGHT COPPER SOLDER JOINT, ANSI B16.22.

DOMESTIC WATER BUTTERFLY VALVES:

4" AND OVER. 150 PSI SATURATED STEAM. 600 PSI CWP. FULL PORT. SCREWED OR SOLDER ENDS (ACCEPTABLE ONLY IF RATED FOR SOLDERING IN LINE WITH 470F MELTING POINT OF LEAD-FREE WITHOUT DISTURBING PIPING BEYOND FINAL CONNECTIONS AND ASSOCIATED SHUTOFF SOLDER), BRONZE BODY OF A COPPER ALLOY CONTAINING LESS THAN 15% ZINC, STAINLESS STEEL BALL AND TRIM, TEFLON SEATS AND SEALS. APOLLO #77C 140, STOCKHAM #S 255-FB-P-UL BR1 R. MILWAUKEE #BA-400. WATTS. NIBCO #585-70-66. NATIONAL UTILITIES CO., RUB.

COPPER PIPE WROUGHT COPPER FITTING GROUND JOINT.

PROVIDE MEANS FOR VENTING AIR AT ALL HIGH POINTS IN THE PIPING SYSTEM AND AT ALL OTHER CUT ALL PIPE TO EXACT MEASUREMENT AND INSTALL WITHOUT SPRINGING OR FORCING POINTS WHERE AIR MAY BE TRAPPED.

ADDED 3/4" MALE HOSE THREAD OUTLET AND CAP.

CONNECTIONS BETWEEN DISSIMILAR METALS

CONNECTIONS BETWEEN DISSIMILAR METALS SHALL BE INSULATING DIELECTRIC TYPES THAT PROVIDE A WATER GAP BETWEEN THE CONNECTED METALS, AND THAT EITHER ALLOW NO METAL

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, ALL HORIZONTAL WATER AND PATH FOR ELECTRON TRANSFER OR THAT PROVIDE A WIDE WATER GAP LINED WITH A NON-CONDUCTIVE MATERIAL TO IMPEDE ELECTRON TRANSFER THROUGH THE WATER PATH.

JOINTS SHALL BE RATED FOR THE TEMPERATURE, PRESSURE, AND OTHER CHARACTERISTICS OF MAINTAIN ACCURATE GRADE WHERE PIPES PITCH OR SLOPE FOR VENTING AND DRAINAGE. THE SERVICE IN WHICH THEY ARE USED, INCLUDING TESTING PROCEDURE.

AND REQUIRE ISOLATION FROM EACH OTHER WITH THE FOLLOWING EXCEPTIONS: 3. BRASS OR BRONZE VALVES AND SPECIALTIES CONNECTED TO STEEL, IRON, OR STAINLESS STEEL IN CLOSED SYSTEMS. WHERE TWO OR MORE BRASS OR BRONZE ITEMS OCCUR TOGETHER, USE ECCENTRIC REDUCING FITTINGS ON HORIZONTAL RUNS WHEN CHANGING SIZE OF PIPES THEY SHALL BE CONNECTED WITH BRASS NIPPLES.

DIELECTRIC PROTECTION IS REQUIRED AT CONNECTIONS TO EQUIPMENT OF A MATERIAL DIFFERENT THAN THE PIPING.

WASHERS MINIMUM 1/8" THICK.

1. USE 1/8"MINIMUM THICKNESS, NON-CONDUCTIVE, FULL-FACE GASKETS 2. EMPLOY ONE-PIECE MOLDED SLEEVE-WASHER COMBINATIONS TO BREAK THE ELECTRICAL PATH THROUGH THE BOLTS.

4. INSTALL STEEL WASHERS ON BOTH SIDES OF FLANGES TO PREVENT DAMAGE TO THE

TO EXACT LENGTHS AND INSTALLED CAREFULLY SO THE SLEEVES MUST EXTEND PARTIALLY PAST OR CROSS FITTINGS OF THE TYPE REQUIRED FOR THE SERVICE. EACH STEEL WASHER WHEN TIGHTENED 6. ACCEPTABLE MANUFACTURERS: EPCO, CENTRAL PLASTICS, PIPELINE SEAL AND INSULATOR, F. REDUCERS ARE GENERALLY NOT SHOWN. WHERE PIPE SIZES CHANGE AT TEE, THE TEE H. MALONEY, OR CALPICO.

VALVE CONNECTIONS

PROVIDE ALL CONNECTIONS TO MATCH PIPE JOINTS. VALVES SHALL BE SAME SIZE AS PIPE UNLESS NOTED OTHERWISE.

INSTALLATION PREPARATION

INSTALL ALL PRODUCTS PER MANUFACTURER'S RECOMMENDATIONS. REAM PIPE AND TUBE ENDS. 2. MAIN MUST BE 2 1/2" OR LARGER. REMOVE BURRS. BEVEL PLAIN END FERROUS PIPE. REMOVE SCALE AND DIRT, ON INSIDE AND OUTSIDE, BEFORE ASSEMBLY. CONNECT TO EQUIPMENT WITH FLANGES OR UNIONS. USE ONLY PIPING MATERIALS RATED FOR THE MAXIMUM TEMPERATURE OF THE APPLICATION, E.G., DO NOT USE PVC FOR DISHWASHER DRAINAGE OR PIPING THAT RECEIVES BOILER BLOWDOWN.

COLD WATER - POTABLE AND NON-POTABLE: 1. TEST PIPES AS DESCRIBED IN THE 2019 CPC

CLEANING PIPING

BEFORE ASSEMBLING PIPE SYSTEMS, REMOVE ALL LOOSE DIRT, SCALE, OIL AND OTHER FOREIGN NON ACID TYPE. MATTER ON INTERNAL OR EXTERNAL SURFACES BY MEANS CONSISTENT WITH GOOD PIPING PRACTICE SUBJECT TO APPROVAL OF THE ARCHITECT/ENGINEER'S REPRESENTATIVE. BLOW CHIPS SOLDER END VALVES MAY BE INSTALLED DIRECTLY IN THE PIPING SYSTEM IF THE ENTIRE AND BURRS FROM MACHINERY OR THREAD CUTTING OPERATION OUT OF PIPE BEFORE ASSEMBLY. WIPE CUTTING OIL FROM INTERNAL AND EXTERNAL SURFACES.

22 10 00 PLUMBING PIPING

INSTRUMENTATION AND EQUIPMENT, OPEN WIDE ALL VALVES, AND BE CERTAIN ALL STRAINER SCREENS ARE IN PLACE.

GENERAL INSTALLATION REQUIREMENTS

PROVIDE DIELECTRIC CONNECTIONS BETWEEN DISSIMILAR METALS. ROUTE PIPING IN ORDERLY MANNER AND MAINTAIN GRADIENT. INSTALL TO CONSERVE BUILDING SPACE GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR EQUIPMENT. SLOPE WATER PIPING AND ARRANGE TO DRAIN AT LOW POINTS.

WHERE PIPE SUPPORTS ARE WELDED TO STRUCTURAL BUILDING FRAMING, SCRAPE, BRUSH CLEAN, AND APPLY ONE COAT OF ZINC RICH PRIMER TO WELDS. SEAL PIPES PASSING THROUGH EXTERIOR WALLS WITH A WALL SEAL PER SECTION 22 05 29. PROVIDE SCHEDULE 40 GALVANIZED SLEEVE AT LEAST 2 PIPE SIZES LARGER THAN THE PIPE.

ALL NON-POTABLE OUTLETS SHALL BE CLEARLY MARKED WITH A PERMANENTLY AFFIXED LAMINATED SIGN WITH 3/8" HIGH LETTERING SAYING "NON-POTABLE WATER NOT FOR HUMAN CONSUMPTION." SIGN SHALL HAVE BLACK LETTERING ON A YELLOW BACKGROUND.

INSTALLATION REQUIREMENTS IN ELECTRICAL ROOMS: 1. DO NOT INSTALL PIPING OR OTHER EQUIPMENT ABOVE ELECTRICAL SWITCHBOARDS OR PANELBOARDS. THIS INCLUDES A DEDICATED SPACE EXTENDING 25 FEET FROM THE FLOOR TO THE STRUCTURAL CEILING WITH WIDTH AND DEPTH EQUAL TO THE EQUIPMENT.

VALVES/FITTINGS AND ACCESSORIES:

ROOM WITHOUT ISOLATING ANY OTHER ROOM OR PORTION OF THE BUILDING. INDIVIDUAL FIXTURE ANGLE STOPS DO NOT MEET THIS REQUIREMENT. EXCEPTION: BACK-TO-BACK ROOMS IN NO MORE THAN TWO ADJACENT ROOMS. [SPECIFIER: REQUIRED IN ILLINOIS, GOOD PRACTICE IN OTHER STATES.]

1. INSTALL SHUTOFF VALVES THAT PERMIT THE ISOLATION OF EQUIPMENT/FIXTURES IN EACH

2. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.

3. PROVIDE ACCESS DOORS FOR CONCEALED VALVES AND FITTINGS. 4. INSTALL VALVE STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.

5. PROVIDE ONE PLUG VALVE WRENCH FOR EVERY TEN PLUG VALVES 2" AND SMALLER, MINIMUM OF ONE. PROVIDE EACH PLUG VALVE 2 1/2" AND LARGER WITH A WRENCH WITH SET

PIPE ERECTION AND LAYING

CAREFULLY INSPECT ALL PIPE, FITTINGS, VALVES, EQUIPMENT AND ACCESSORIES BEFORE INSTALLATION. ANY ITEMS THAT ARE UNSUITABLE, CRACKED OR OTHERWISE DEFECTIVE SHALL BE REMOVED FROM THE JOB IMMEDIATELY.

ALL PIPE, FITTINGS, VALVES, EQUIPMENT AND ACCESSORIES SHALL HAVE FACTORY APPLIED MARKINGS, STAMPINGS, OR NAMEPLATES WITH SUFFICIENT DATA TO DETERMINE THEIR CONFORMANCE WITH SPECIFIED REQUIREMENTS.

EXERCISE CARE AT EVERY STAGE OF STORAGE, HANDLING, LAYING AND ERECTING TO PREVENT ENTRY OF FOREIGN MATTER INTO PIPING, FITTINGS, VALVES, EQUIPMENT AND ACCESSORIES. DO NOT INSTALL ANY ITEM THAT IS NOT CLEAN

UNTIL SYSTEM IS FULLY OPERATIONAL, ALL OPENINGS IN PIPING AND EQUIPMENT SHALL BE KEPT CLOSED EXCEPT WHEN ACTUAL WORK IS BEING PERFORMED ON THAT ITEM OR SYSTEM. CLOSURES SHALL BE PLUGS, CAPS, BLIND FLANGES OR OTHER ITEMS SPECIFICALLY DESIGNED AND INTENDED FOR THIS PURPOSE. MAKE CHANGES IN DIRECTION OF PIPES ONLY WITH FITTINGS OR PIPE BENDS. CHANGES IN SIZE ONLY WITH FITTINGS. DO NOT USE MITER FITTINGS, FACE OR FLUSH BUSHINGS, OR STREET ELBOWS. ALL FITTINGS SHALL BE OF THE LONG RADIUS TYPE, UNLESS OTHERWISE

PROVIDE FLANGES OR UNIONS AT ALL FINAL CONNECTIONS TO EQUIPMENT, TRAPS AND

ARRANGE PIPING AND CONNECTIONS SO EQUIPMENT SERVED MAY BE TOTALLY REMOVED

USE FULL AND DOUBLE LENGTHS OF PIPE WHEREVER POSSIBLE.

SHOWN ON THE DRAWINGS OR SPECIFIED.

UNLESS OTHERWISE INDICATED, INSTALL ALL PIPING, INCLUDING SHUTOFF VALVES AND EQUIPMENT AT LINE SIZE WITH REDUCTION IN SIZE BEING MADE ONLY AT CONTROL VALVE OR

EXCEPT IN THE CASE OF EXPANSION LOOPS WHERE COLD SPRINGING IS INDICATED ON THE DRAWINGS.

UNLESS OTHERWISE INDICATED, BRANCH TAKE OFFS SHALL BE FROM TOP OF MAINS OR HEADERS AT EITHER A 45 OR 90 ANGLE FROM THE HORIZONTAL PLANE FOR AIR LINES, AND FROM TOP, BOTTOM OR SIDE FOR LIQUIDS.

DRAINING AND VENTING

COMPRESSED AIR LINES, INCLUDING BRANCHES, SHALL PITCH 1" IN 40 FEET12 TO LOW POINTS FOR COMPLETE DRAINAGE, REMOVAL OF CONDENSATE AND VENTING.

NO PIPES SHALL HAVE POCKETS DUE TO CHANGES IN ELEVATION.

ALUMINUM, IRON, STEEL, BRASS, COPPER, BRONZE, AND STAINLESS STEEL ARE COMMONLY USED PROVIDE DRIP LEGS AT LOW POINTS AND AT THE BASE OF ALL RISERS IN COMPRESSED AIR PIPES. DRIP LEGS SHALL BE FULL LINE SIZE ON PIPES THROUGH 4" AND AT LEAST 4", BUT NOT LESS THAN HALF LINE SIZE OVER 4". DRIP LEGS SHALL BE 12" MINIMUM LENGTH, CAPPED WITH A REDUCER TO A DRAIN VALVE.

> FOR PROPER DRAINAGE AND VENTING. INSTALL COMPRESSED AIR AND GRAVITY DRAIN PIPES WITH BOTTOM OF PIPE AND ECCENTRIC REDUCERS IN A CONTINUOUS LINE; ALL OTHER LIQUID LINES WITH TOP OF PIPE AND ECCENTRIC REDUCERS IN A CONTINUOUS LINE.

PROVIDE AIR VENTS AT HIGH POINTS AND WHEREVER ELSE REQUIRED TO ELIMINATE AIR IN ALL WATER PIPING SYSTEMS.

INSTALL AIR VENTS IN ACCESSIBLE LOCATIONS. IF NECESSARY TO TRAP AND VENT AIR IN A 3. SLEEVE-WASHERS ARE REQUIRED ON ONE SIDE ONLY, WITH SLEEVES MINIMUM 1/32" THICK AND REMOTE LOCATION, INSTALL A 1/8" PIPE FROM THE TAPPING LOCATION TO AN ACCESSIBLE LOCATION AND TERMINATE WITH A VENTING DEVICE.

BRANCH CONNECTIONS

SHALL BE THE SIZE OF THE LARGEST PIPE SHOWN CONNECTING TO IT.

BRANCH CONNECTIONS FROM HEADERS AND MAINS MAY BE CUT INTO BLACK STEEL PIPE USING FORGED WELD ON FITTINGS.

FORGED WELD-ON FITTINGS ARE LIMITED AS FOLLOWS: 1. MUST HAVE AT LEAST SAME PRESSURE RATING AS THE MAIN.

3. BRANCH LINE IS AT LEAST TWO PIPE SIZES UNDER MAIN SIZE.

JOINING OF PIPE SOLDER JOINTS

MAKE UP JOINTS WITH 100% LEAD-FREE SOLDER, ASTM B32. CUT TUBING SO ENDS ARE PERFECTLY SQUARE AND REMOVE ALL BURRS INSIDE AND OUTSIDE. THOROUGHLY CLEAN SOCKETS OF FITTINGS AND ENDS OF TUBING TO REMOVE ALL OXIDE, DIRT AND GREASE JUST PRIOR TO SOLDERING. APPLY FLUX EVENLY, BUT SPARINGLY, OVER ALL SURFACES TO BE JOINED. HEAT JOINTS UNIFORMLY SO SOLDER WILL FLOW TO ALL MATED SURFACES. WIPE EXCESS SOLDER, LEAVING A UNIFORM FILLET AROUND CUP OF FITTING. FLUX SHALL BE

VALVE IS SUITABLE FOR USE WITH 470F MELTING POINT SOLDER. REMOVE DISCS AND SEALS DURING SOLDERING IF THEY ARE NOT SUITABLE FOR 470F.

DISINFECT WATER PIPE PER CPC 2019

ARROWHEAD REGIONAL MEDICAL CENTER

400 N. PEPPER AVE **COLTON. CA. 92324**

ARMC SKID MOUNTED BOOSTER PUMP

WBSE NO. CIP NO. IMEG PROJECT NO. BUILDING (CAFM) NO. APN NO.



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REFERENCE SCALE IN INCHES

Revision / Issue

SHEET INFORMATION HCAI SUBMITTAL

SPECIFICAITONS

Job Numbe

Checked

SHEET TITLE

A. PRESSURE BOOSTER SYSTEM

- QUALITY ASSURANCE
- A. PRODUCTS AND INSTALLATION OF SPECIFIED PRODUCTS SHALL CONFORM TO RECOMMENDATIONS AND REQUIREMENTS OF THE FOLLOWING ORGANIZATIONS:
- 1. AMERICAN GAS ASSOCIATION (AGA).
- 2. NATIONAL SANITATION FOUNDATION (NSF).
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME). 4. NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS
- 5. NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION (NEMA).
- 6. UNDERWRITERS' LABORATORIES (UL).

B. PERFORM WORK IN ACCORDANCE WITH STATE OF CALIFORNIA PLUMBING CODES AND MUNICIPALITY OF LOCAL AREA STANDARDS.

1. SUBMITTALS

A. SUBMIT SHOP DRAWINGS UNDER PROVISIONS OF SECTION 22 05 00.

B. INCLUDE DIMENSION DRAWINGS OF BOOSTER PUMP INDICATING COMPONENTS AND CONNECTIONS TO OTHER EQUIPMENT AND PIPING.

C. INCLUDE DIMENSIONS OF TANKS, TANK LINING METHODS, ANCHORS, ATTACHMENTS, LIFTING POINTS, TAPPINGS, AND DRAINS.

D. FOR EQUIPMENT CONNECTED TO AN ELECTRIC POWER SOURCE, SUBMIT SHORT CIRCUIT RATING (SCCR) OF INTEGRATED UNIT.

E. SUBMIT MANUFACTURER'S INSTALLATION INSTRUCTIONS INCLUDING CONTROL AND ELECTRICAL POWER/CONTROLS WIRING DIAGRAMS.

F. SUBMIT MANUFACTURER'S CERTIFICATE THAT PRESSURE VESSELS MEET OR EXCEED SPECIFIED REQUIREMENTS.

G. SUBMIT OPERATION, MAINTENANCE, AND INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY, AND SERVICE DEPOT LOCATION AND TELEPHONE NUMBER.

H. SUBMIT CERTIFICATION THAT PRESSURE BOOSTER SYSTEM ACCESSORIES, AND COMPONENTS WILL WITHSTAND SEISMIC FORCES DEFINED WITH HCAI(OSHPD) OSP

- 1. DIMENSIONED OUTLINE DRAWINGS OF EQUIPMENT UNIT: IDENTIFY CENTER OF GRAVITY AND LOCATE AND DESCRIBE MOUNTING AND ANCHORAGE PROVISIONS.
- 2. DETAILED DESCRIPTION OF EQUIPMENT ANCHORAGE DEVICES ON WHICH THE CERTIFICATION IS BASED AND THEIR INSTALLATION REQUIREMENTS.

I. MANUFACTURER SHALL PROVIDE SPECIAL SEISMIC CERTIFICATION PER OSHPD CAN 2-1708A.5 WITH SUBMITTAL. SUBMITTALS WITHOUT CERTIFICATION WILL BE RETURNED AND NOT REVIEWED.

- 1. DELIVERY, STORAGE, AND HANDLING
- A. PROVIDE TEMPORARY INLET AND OUTLET CAPS. MAINTAIN CAPS IN PLACE UNTIL INSTALLATION.

PART 2 - PRODUCTS

2.1 PRESSURE BOOSTER SYSTEMS

- A. PACKAGED PRESSURE BOOSTING SYSTEM SHALL BE COMPLETELY FACTORY ASSEMBLED, RUN-TESTED, AND SHIPPED TO SITE AS AN INTEGRAL UNIT ASSEMBLED ON A STEEL SKID INCLUDING PUMPS, MOTORS, VALVES STAINLESS STEEL SUCTION AND DISCHARGE MANIFOLDS. ALL INTERCONNECTING PIPING. WIRING, VARIABLE FREQUENCY DRIVES WITH LOGIC AND POWER CONTROLS. SIZE AND CAPACITY SHALL BE AS SCHEDULED ON THE DRAWINGS.
- B. SHUTOFF VALVES SHALL BE PROVIDED ON THE SUCTION AND DISCHARGE OF EACH PUMP. SILENT SPRING- LOADED CHECK VALVES SHALL BE INSTALLED ON THE DISCHARGE OF EACH PUMP.
- C. PRESSURE GAUGES SHALL BE PROVIDED ON THE FRONT COVER OF THE CONTROL PANEL INDICATING SYSTEM SUCTION AND DISCHARGE PRESSURE. PRESSURE GAUGES SHALL BE 4-1/2 INCH (15 MM) DIAMETER, GRADE 1A, HAVING 1% TOTAL RANGE SPAN ACCURACY AND INSTALLED WITH SHUTOFF VALVE AND PRESSURE SNUBBER AT GAUGE CONNECTION TO SYSTEM PIPING. ALL SKID-MOUNTED COMPONENTS SHALL BE FACTORY FINISHED WITH ENAMEL PAINT. INDIVIDUAL PUMPS, MOTORS, VARIABLE FREQUENCY DRIVES, AND CHECK VALVES SHALL BE SERVICEABLE WITH THE BOOSTER SYSTEM IN OPERATION, AND ALL COMPONENTS SHALL BE SUITABLE FOR THE MAXIMUM SYSTEM WORKING PRESSURE.
- D. SYSTEM SHALL INCLUDE **THREE VERTICAL** MOUNTED PUMPS WITH ANSI FLANGED OR NPT THREADED CONNECTIONS, REPLACEABLE CASING WEAR RINGS, AND HYDRAULICALLY BALANCED IMPELLERS. PUMPS SHALL BE CAST IRON, BRONZE OR STAINLESS STEEL FITTED CONSTRUCTION WITH REPLACEABLE SHAFT SLEEVES AND MECHANICAL SEALS SUITABLE FOR 175 PSIG (1,207 KPA) WORKING PRESSURE.
- E. PRESSURE REGULATING VALVES TO CONTROL SYSTEM PRESSURE AT THE UNIT ARE NOT ALLOWED PER ASHRAE 90.1.
- F. EACH PUMP SHALL INCLUDE A PRESSURE RELIEF VALVE, SET TO RELIEVE 15 PSI (103 KPA) ABOVE THE HIGH LIMIT PRESSURE SWITCH SETTING, WHICH SHALL BE PIPED TO A FLOOR DRAIN BY THE INSTALLING CONTRACTOR.
- G. PROVIDE EACH PUMP WITH A PREMIUM EFFICIENT TOTALLY ENCLOSED FAN-COOLED MOTOR LABELED FOR USE WITH VARIABLE FREQUENCY DRIVES (VFDS) AND SIZED FOR OPERATION AT ANY POINT OF THE PUMP CURVE, INCLUDING PUMP RUN-OUT (NON-OVERLOADING OPERATION).
- H. PROVIDE AND MOUNT ON THE SYSTEM SKID THREE VFDS SUITABLE FOR VARIABLE TORQUE APPLICATIONS. MINIMUM ACCEPTABLE VFD FULL LOAD/FULL SPEED EFFICIENCY SHALL BE 97%, WITH A FUNDAMENTAL POWER FACTOR OF 0.98. VFDS SHALL MEET THE FOLLOWING:
- 1. PULSE WIDTH MODULATED (PWM).
- 2. STARTS INTO ROTATING LOAD.
- 3. OVERCURRENT PROTECTION.
- 4. ADJUSTABLE CARRIER SWITCHING FREQUENCY OF UP TO 8 KHZ. 5. KEYPAD OPERATOR DEVICE OR TOUCHSCREEN THAT INCLUDES THE
- a. 2-LINE BACKLIT DISPLAY.

FRONT PANEL COVER.

- b. POWER ON AND ALARM/FAULT INDICATORS
- c. HAND-OFF-AUTO SWITCH ON VFD FRONT PANEL COVER d. WHEN SWITCHED TO "AUTO" OPERATION, THE VFDS SHALL FOLLOW THE
- SIGNAL FROM THE CONTROL PANEL LOGIC SECTION. e. WHEN SWITCHED TO "HAND", THE VFD SPEED IS DETERMINED BY THE SETTING OF THE MANUAL SPEED ADJUSTMENT LOCATED ON THE VFD
- f. AUTOMATIC VFD SHUTDOWN FOR ELECTRICAL FAULT g. AUTOMATIC RESTART AFTER ELECTRICAL POWER IS RESTORED FROM A
- LOSS OF POWER h. SERVICE DIAGNOSTICS WITH FAULT HISTORY LOG.

SECTION 22 30 00 - PLUMBING EQUIPMENT CONT.

- I. PROVIDE A HIGH LIMIT PRESSURE SWITCH COMPATIBLE WITH THE SYSTEM CONTROLS, TEMPERATURE, AND PRESSURE REQUIREMENTS. THE PRESSURE SWITCH SHALL BE MOUNTED AND WIRED ON THE CONTROL PANEL, WITH SENSING LINE CONNECTED TO THE SYSTEM DISCHARGE MANIFOLD. THE HIGH LIMIT PRESSURE SWITCH SHALL SHUT DOWN THE SYSTEM IF THE SYSTEM PRESSURE IS MORE THAN 30 PSI (207 KPA) ABOVE THE NORMAL OPERATING PRESSURE.
- J. PROVIDE A PRESSURE SENSOR/TRANSMITTER, SHIPPED LOOSE FOR FIELD INSTALLATION, THAT PROVIDES A MODULATING OUTPUT COMPATIBLE WITH THE SYSTEM CONTROLS. THE PRESSURE SENSOR/TRANSMITTER SHALL BE USED TO CONTROL BOOSTER PUMP VFDS TO MAINTAIN A CONSTANT SYSTEM PRESSURE
- K. PROVIDE A FACTORY-MOUNTED PRESSURE SENSOR/TRANSMITTER IN THE DISCHARGE HEADER THAT PROVIDES A MODULATING OUTPUT COMPATIBLE WITH THE SYSTEM CONTROLS. THE PRESSURE SENSOR/TRANSMITTER SHALL BE USED TO CONTROL BOOSTER PUMP VFDS TO MAINTAIN A CONSTANT SYSTEM PRESSURE. CONTROL LOGIC SHALL BE CAPABLE OF ADJUSTING THE PRESSURE SETPOINT USING A SYSTEM PRESSURE DROP ALGORITHM BASED ON REAL-TIME FLOW DATA.
- L. USE OF A SINGLE PRESSURE SENSOR/TRANSMITTER TO CONTROL SYSTEM PRESSURE AND HIGH LIMIT PRESSURE CUTOFF IS NOT ACCEPTABLE. BOTH THE HIGH LIMIT PRESSURE SWITCH AND THE PRESSURE SENSOR/TRANSMITTER SHALL BE SEPARATELY WIRED BACK TO THE BOOSTER PUMP CONTROL PANEL.
- M. THE LEAD PUMP SHALL RUN ONLY AS NECESSARY TO MAINTAIN SYSTEM PRESSURE AND WILL BE AUTOMATICALLY CONTROLLED BY MEANS OF A PRESSURE SENSOR/TRANSMITTER AND CONTROL PROGRAMMING TO PREVENT SHORT
- N. IF THE LEAD PUMP IS UNABLE TO MAINTAIN SYSTEM PRESSURE AT THE PRESSURE SENSOR/TRANSMITTER, THE LAG PUMP WILL BE CALLED ON AFTER A TIME DELAY AND WILL OPERATE IN PARALLEL WITH THE LEAD PUMP IN ACCORDANCE WITH CONTROL PROGRAMMING. WHEN A LOW OR NO-FLOW CONDITION IS REACHED. THE CONTROLS WILL SHUT DOWN THE LAG PUMP IF RUNNING AND ACCELERATE THE LEAD PUMP TO CHARGE THE SYSTEM AND HYDRO-PNEUMATIC TANK TO 20 PSI ABOVE NORMAL OPERATING PRESSURE. THEN SHUT THE LEAD PUMP DOWN AND ALTERNATE. SHOULD ANY PUMP FAIL TO OPERATE, THE NEXT PUMP IN SEQUENCE SHALL START AUTOMATICALLY.
- O. PROVIDE, MOUNT AND WIRE ON THE SKID A PROGRAMMABLE LOGIC CONTROLLER IN A NEMA 1 ENCLOSURE. THE CONTROLLER SHALL INTERFACE THE SIGNALS FROM THE SENSORS TO THE VFDS AND SHALL PROVIDE A STABILIZED RESPONSE TO SPEED UP OR SLOW DOWN THE PUMP OR ADD ADDITIONAL PUMPS TO MEET SYSTEM REQUIREMENTS. THE CONTROLLER SHALL PROVIDE SETPOINT CONTROL THAT CAN BE CHANGED BY A KEYPAD ENTRY ON THE CONTROL FACEPLATE. THE CONTROLLER SHALL HAVE AN ALPHA/NUMERIC DISPLAY, PID FUNCTIONS AND BOTH SYSTEM AND CONTROLLER SELF-DIAGNOSTICS. CONTROLLER SHALL BE PROVIDED WITH DUAL FUNCTION PID LOOP FOR STARTUP MODE AND NORMAL OPERATION. STARTUP MODE SHALL PROVIDE A QUICK RESPONSE FROM SHUTDOWN AND NORMAL OPERATION IS TUNED TO ELIMINATE HUNTING. CONTROLLER SHALL HAVE A REAL-TIME CALENDAR/CLOCK AND MEMORY TRANSFER CARTRIDGE.
- P. PROVIDE A UL LISTED CONTROL PANEL IN A NEMA 1 ENCLOSURE, FACTORY MOUNTED AND WIRED ON THE STEEL SKID. THE PANEL SHALL BE FURNISHED WITH INDIVIDUAL PUMP DISCONNECTS WITH THROUGH-THE-DOOR HANDLES, PUMP RUN LIGHTS, H-O-A SELECTOR SWITCHES, 120-VOLT FUSED CONTROL TRANSFORMER, AND NECESSARY RELAYS, TIMERS AND A PROGRAMMABLE CONTROLLER WITH PUMP START, STOP AND SEQUENCE CONTROLS.
- Q. THE CONTROLLER SHALL BE CAPABLE OF OUTPUTTING SYSTEM PRESSURE AND A GENERAL ALARM SIGNAL TO THE BUILDING AUTOMATION SYSTEM.
- R. NON-MERCURY LOW PRESSURE CONTROL TO STOP PUMP OPERATION IF INCOMING WATER PRESSURE DROPS TO ATMOSPHERIC.
- S. SIZE AND CAPACITY SHALL BE AS SCHEDULED ON THE DRAWINGS.
- T. MANUFACTURERS:
- 1. GOULDS
- GRUNDFOS

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL ALL ITEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- 3.2 PRESSURE BOOSTER INSTALLATION
- A. PROVIDE STARTUP BY FACTORY AUTHORIZED START-UP TECHNICIAN.
- B. MOUNT PRESSURE SENSOR/TRANSMITTER USED TO CONTROL PRESSURE BOOSTER PUMP VFDS REMOTE FROM BOOSTER PUMP SKID NEAR THE MOST REMOTE CRITICAL PLUMBING FIXTURE AS INDICATED ON THE DRAWINGS, AND WIRE SIGNAL DIRECTLY BACK TO PRESSURE BOOSTER CONTROL PANEL. PRESSURE SENSOR/TRANSMITTER SIGNAL SHALL NOT INTERFACE WITH OR BE TRANSMITTED ACROSS ANY BUILDING INFORMATION SYSTEM NETWORK. PROVIDE SIGNAL AMPLIFIERS OR REPEATERS AS REQUIRED TO ENSURE PROPER CONTROL
- C. PROVIDE FOUR (4) HOURS OF INSTRUCTION AND ORIENTATION TO THE OWNER'S MAINTENANCE STAFF BY FACTORY TRAINED PERSONNEL. SYSTEM WALK-THROUGH, INCLUDING PROGRAMMING OF ANY SYSTEM CONTROLLERS, SHALL BE INCLUDED IN
- D. SUPPORT PIPING ADJACENT TO PUMPS SO THAT NO WEIGHT IS CARRIED BY PUMP CASINGS. PROVIDE SUPPORTS UNDER ELBOWS ON 4" AND LARGER.
- E. ENSURE PUMPS OPERATE AT SPECIFIED FLUID TEMPERATURES WITHOUT VAPOR BINDING OR CAVITATION, ARE NON-OVERLOADING IN PARALLEL OR INDIVIDUAL OPERATION, AND OPERATE WITHIN 25% OF MIDPOINT OF PUBLISHED MAXIMUM EFFICIENCY CURVE.
- F. PUMPS SHALL BE FACTORY ALIGNED. IF ALIGNMENT IS NOT SATISFACTORY, AS DETERMINED BY THE ARCHITECT/ENGINEER, MANUFACTURER SHALL PROVIDE A FACTORY TRAINED REPRESENTATIVE TO FIELD ALIGN THE SHAFTS.
- G. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, MOUNT ALL PUMP SKIDS ON 4" HIGH CONCRETE PADS AND ANCHOR FRAMES TO PADS WITH CAST-IN-PLACE
- H. ALL PUMP SKIDS SHALL BE GROUTED IN. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR GROUTING.
- I. INSTALL ON VIBRATION ISOLATORS AS SCHEDULED ON DRAWINGS.
- J. COORDINATE INSTALLATION TO ENSURE MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES ARE MET.

END OF SECTION

ARROWHEAD REGIONAL MEDICAL CENTER

400 N. PEPPER AVE. COLTON, CA. 92324

ARMC SKID MOUNTED BOOSTER PUMP

WBSE NO. CIP NO. IMEG PROJECT NO. BUILDING (CAFM) NO. APN NO.

10.10.0722 21006908.00



901 VIA PIEMONTE SUITE 400 ONTARIO, CA 91764 909.477.6915 FAX: 909.477.6916 www.imegcorp.com # 21006908.00

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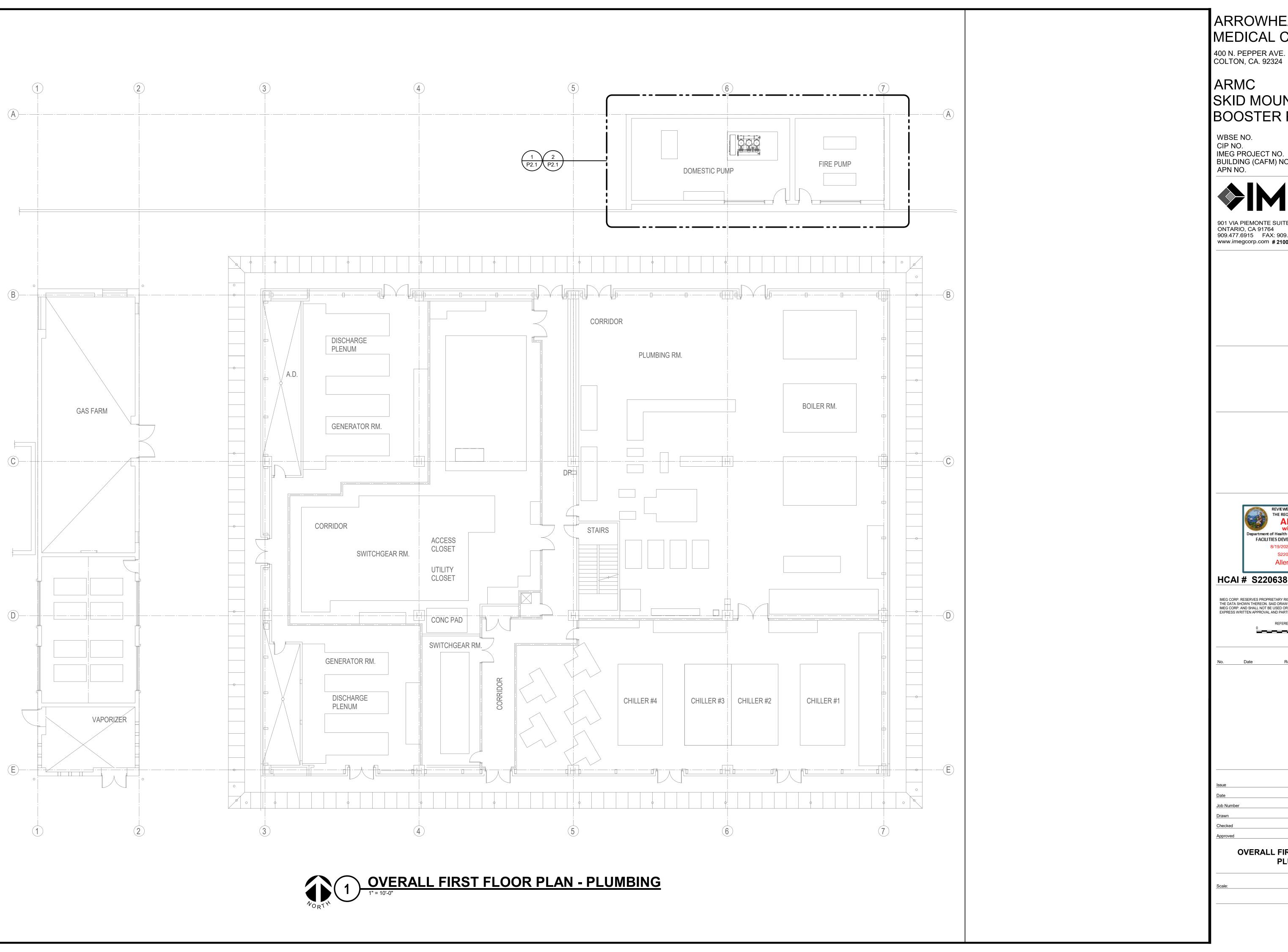
> REFERENCE SCALE IN INCHES

Revision / Issue

SHEET INFORMATION **HCAI SUBMITTAL** 05/10/2022 Job Number Checked Checker Approved

SPECIFICATIONS

SHEET TITLE



ARROWHEAD REGIONAL MEDICAL CENTER

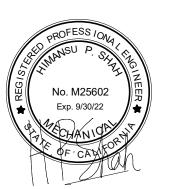
SKID MOUNTED **BOOSTER PUMP**

IMEG PROJECT NO. BUILDING (CAFM) NO.

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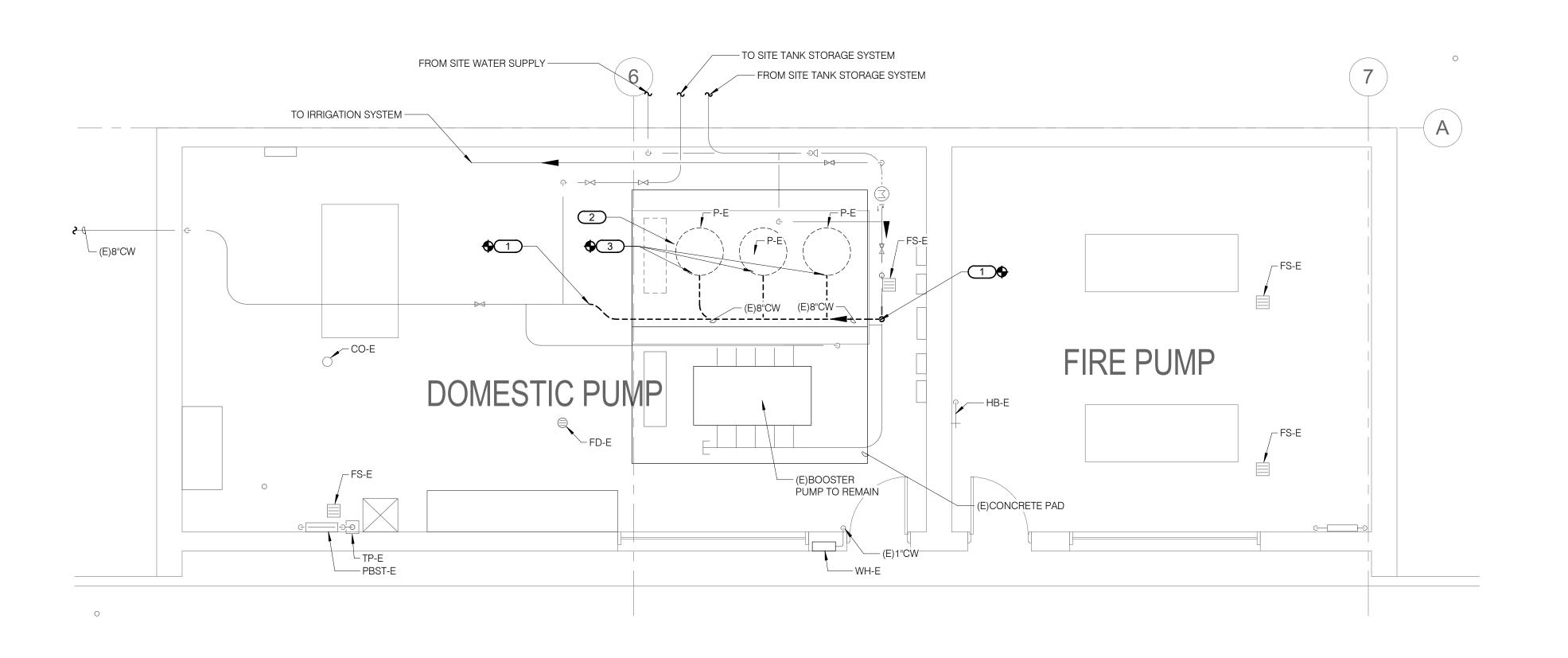
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SHEET INFORMATION

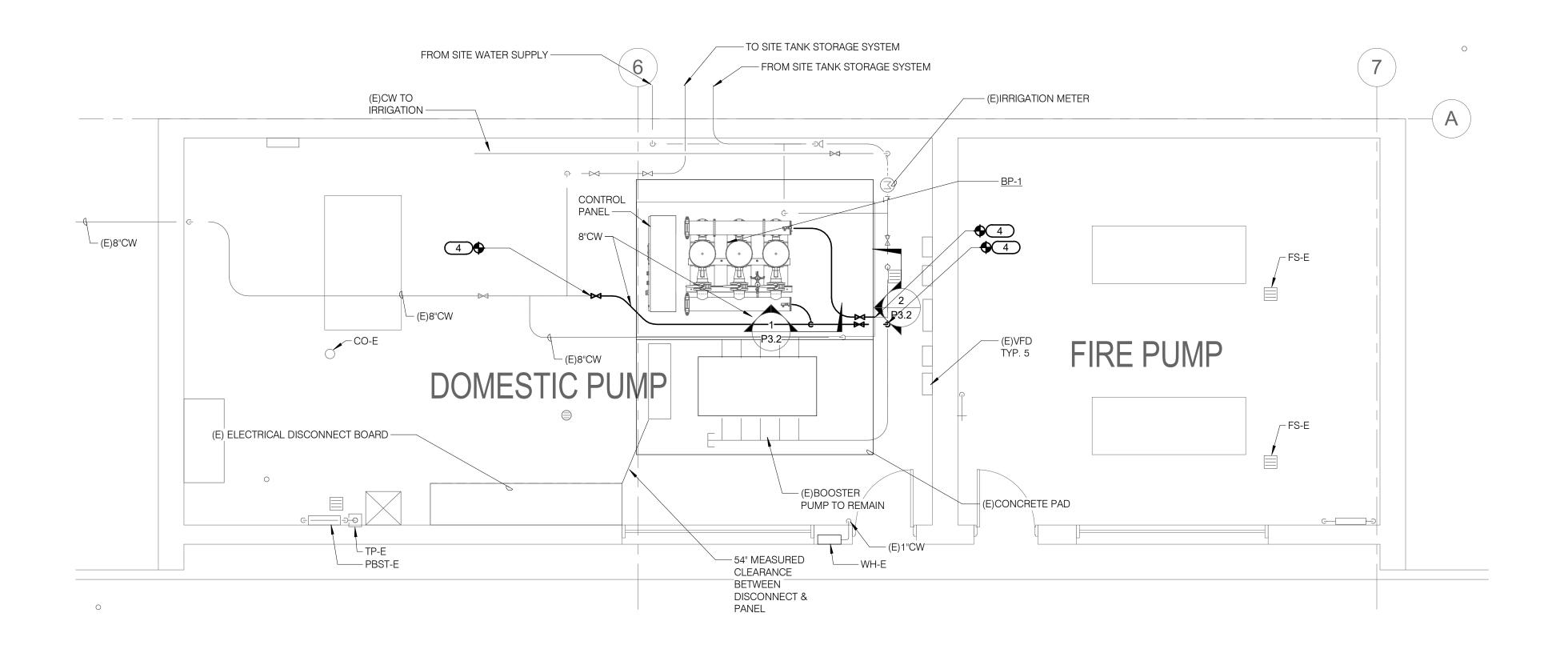
OVERALL FIRST FLOOR PLAN -**PLUMBING**

1" = 10'-0"

SHEET NUMBER



DEMOLITION FIRST FLOOR - PLUMBING 1/4" = 1'-0"



REMODEL FIRST FLOOR - PLUMBING

1/4" = 1'-0"

KEY NOTES #

- DISCONNECT AND SAFE OFF 8" COPPER WATER PIPES.
 REMOVE EXISTING SKID MOUNTED BOOSTER PUMP. DISCONNECT AND SAFE OFF FROM EXISTING UTITLITIES.
- 3. DISCONNECT AND REMOVE WATER PIPE BETWEEN SAFED OFF SECTIONS.
 4. INSTALL NEW SOV AT POINT OF CONNECTION TO EXISTING 8" CW MAIN.
- MEDICAL CENTER
 400 N. PEPPER AVE.
 COLTON, CA. 92324

ARMC SKID MOUNTED BOOSTER PUMP

ARROWHEAD REGIONAL

WBSE NO. CIP NO. IMEG PROJECT NO. BUILDING (CAFM) NO. APN NO. 10.10.0722 *** 21006908.00 ***



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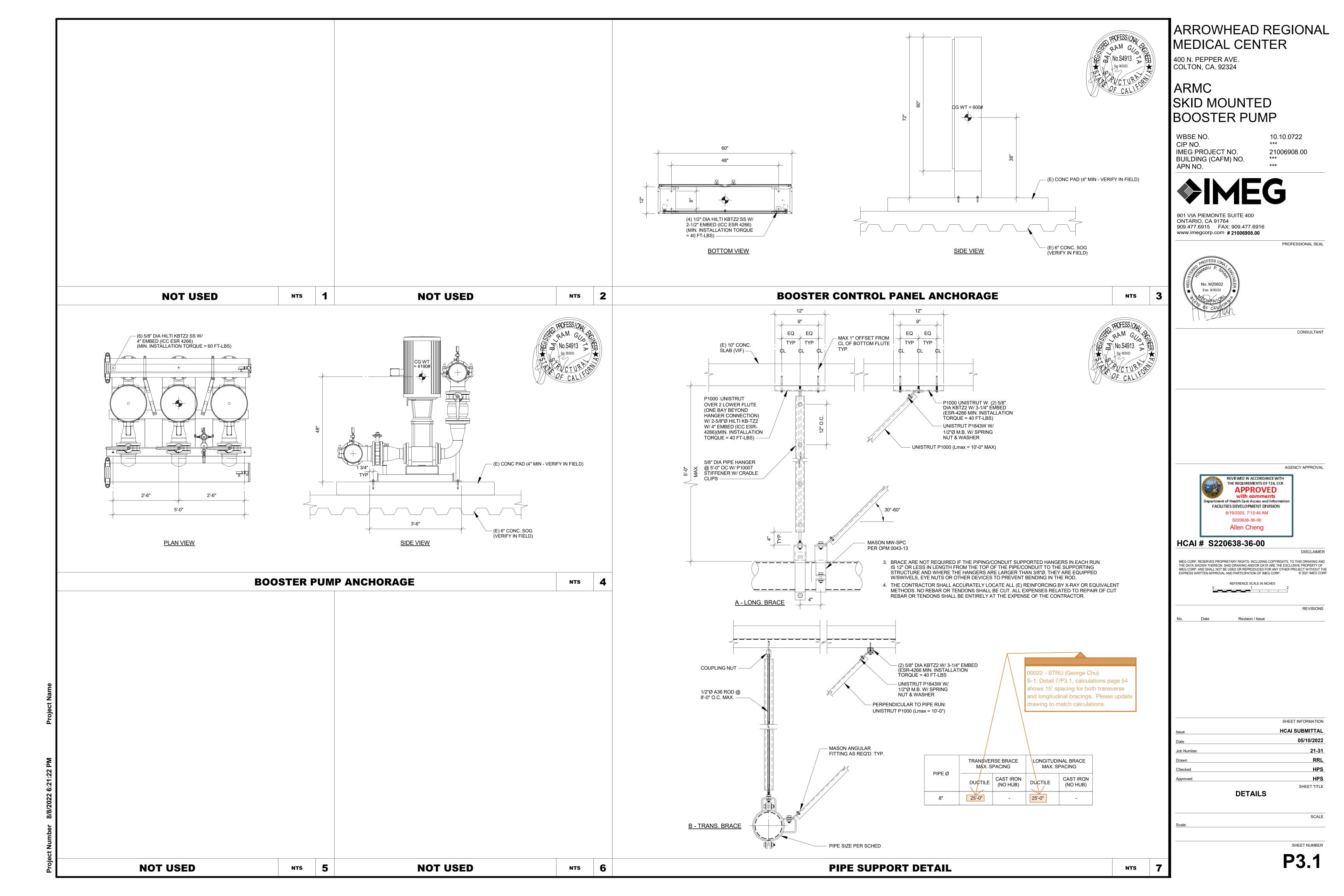
05/10/2022
umber 21-31
Author
ed Checker

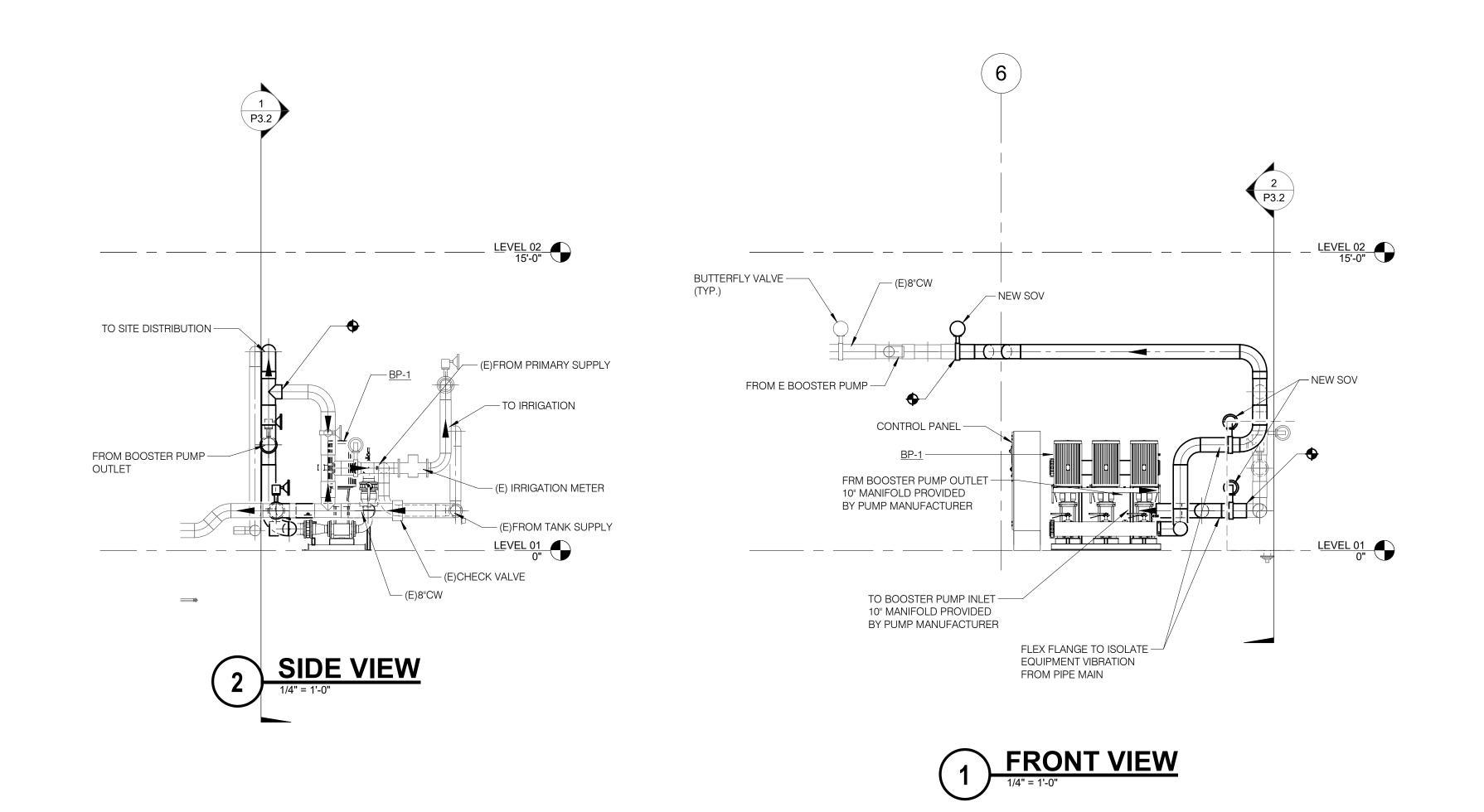
FIRST FLOOR DEMOLITION AND REMODEL PLANS - PLUMBING

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

SHEET NUMBER

P2.1





ARROWHEAD REGIONAL MEDICAL CENTER

400 N. PEPPER AVE. COLTON, CA. 92324

ARMC SKID MOUNTED BOOSTER PUMP

WBSE NO. CIP NO. IMEG PROJECT NO. BUILDING (CAFM) NO. APN NO. 10.10.0722 *** 21006908.00 *** ***



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 Issue
 HCAI SUBMITTAL

 Date
 05/10/2022

 Job Number
 21-31

 Drawn
 Author

 Checked
 Checker

 Approved
 Approver

ELEVATION VIEWS

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

P3 2

SHEET NUMBER

SHEET TITLE

AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA) NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) AMERICAN STANDARD ASSOCIATION (ASA) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) AMERICAN NATIONAL STANDARD INSTITUTE (ANSI) CALIFORNIA ELECTRICAL CODE (CEC) - 2019 EDITION INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE) ALL LOCAL CODES HAVING JURISDICTION. WHERE THE CODES HAVE DIFFERENT LEVELS OF REQUIREMENTS, THE MOST

STRINGENT CODE SHALL APPLY.

THE CONTRACTOR SHALL VISIT THE SITE INCLUDING ALL AREAS INDICATED ON THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE

HIMSELF WITH THE EXISTING CONDITIONS, AND BY SUBMITTING HIS BID, ACCEPTS THE CONDITIONS UNDER WHICH HE SHALL BE REQUIRED TO PERFORM HIS WORK.

- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS AND ADDENDA, HE SHALL CHECK THE CONTRACT DOCUMENTS OF THE OTHER TRADES AND DETERMINE HIS RESPONSIBILITIES. FAILURE TO DO SO SHALL NOT RELEASE THE CONTRACTOR FROM DOING THE WORK IN COMPLETE ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, CHARGES, AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF ALL WORK. INCLUDING ALL COUNTY AND LOCAL GOVERNMENTAL AGENCIES. CHARGES BY STATE,
- THE CONTRACTOR SHALL PROVIDE AND KEEP UP-TO-DATE A COMPLETE RECORD SET OF DRAWINGS. THESE PRINTS SHALL BE CORRECTED DAILY AND SHOW EVERY CHANGE FROM THE ORIGINAL DRAWINGS. THIS SET OF DRAWINGS SHALL BE KEPT ON THE JOB SITE AND SHALL BE USED ONLY AS A RECORD SET. UPON COMPLETION OF THE WORK, A SET OF REPRODUCIBLE CONTRACT DRAWINGS SHALL BE OBTAINED FROM THE ENGINEER ALL CHANGES AS NOTED ON THE RECORD SET OF DRAWINGS SHALL BE INCORPORATED THEREON WITH BLACK INK IN A NEAT, LEGIBLE, UNDERSTANDABLE AND PROFESSIONAL
- IN SOME INSTANCES, IT MAY BE NECESSARY TO DEFER WORK IN CERTAIN AREAS AND LOCATIONS UNTIL SUCH TIME AS EXISTING FACILITIES CAN BE TEMPORARILY OR PERMANENTLY REARRANGED BY THE OWNER. THEREFORE, WHENEVER IT BECOMES NECESSARY FOR THE CONTRACTOR TO PERFORM WORK UNDER THIS CONTRACT IN EXISTING AREAS IN WHICH THE OWNER'S WORK IS BEING PERFORMED, THE CONTRACTOR SHALL ADVISE AND THE OWNER RELATIVE TO THIS REQUIREMENT AND SHALL FOLLOW CLOSELY THE DIRECTIVE ISSUED BY THE ARCHITECT INSOFAR AS TIME AND PROCEDURE ARE CONCERNED. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL PREMIUM TIME TO WHICH HE MAY BE SUBJECTED FOR PERFORMING WORK IN SUCH PROCEDURE AND AT SUCH TIMES AS MAY BE NECESSARY TO CAUSE THE LEAST INTERFERENCE WITH THE OPERATIONS OF THE OWNER.
- ALL INTERRUPTIONS OF ELECTRICAL, SIGNAL AND COMMUNICATION SYSTEMS SHALL BE KEPT TO A MINIMUM. WHEN AN INTERRUPTION IS NECESSARY THE SHUTDOWN SHALL BE COORDINATED WITH THE OWNER 14 CALENDER DAYS PRIOR TO THE OUTAGE. ANY OVERTIME PAY SHALL BE INCLUDED IN THE CONTRACTOR'S BID. WORK IN EXISTING SWITCHBOARDS OR PANELBOARDS SHALL BE COORDINATED WITH THE OWNER PRIOR TO REMOVING ACCESS PANELS OR DOORS.
- SHOP DRAWINGS SHALL BE SUBMITTED WITHIN TEN DAYS AFTER AWARD OF THE CONTRACT. THE CONTRACTOR SHALL SUBMIT EIGHT COPIES OF A COMPLETE LIST OF ALL MATERIALS AND EQUIPMENT INCLUDING MANUFACTURER AND MODEL NUMBER PROPOSED FOR THE JOB. SHOP DRAWINGS SHALL INCLUDE JOB DESCRIPTION. ARCHITECT AND ENGINEER IDENTIFICATION, AND ALL DATA WITH CAPACITIES, SIZES, DIMENSIONS, CATALOG NUMBERS AND MANUFACTURERS' BROCHURES.
- AFTER ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS HAVE BEEN FULLY COMPLETED, REPRESENTATIVES OF THE OWNER WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION OF EACH REPRESENTATIVE. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.
- THE CONTRACTOR SHALL FURNISH A ONE YEAR WRITTEN GUARANTEE OF MATERIALS AND WORKMANSHIP FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER.
- ROUTE EXPOSED CONDUIT AND CONDUIT ABOVE CEILING SPACES PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.
- THE CONTRACTOR SHALL LOCATE ELECTRICAL EQUIPMENT AND BOXES, IN ACCESSIBLE CEILING SPACE OR PROVIDE AN ACCESS PANEL FOR INACCESSIBLE CEILING SYSTEMS. ACCESS DOORS SHALL BE A MINIMUM DIMENSION OF 24"x26". ACCESS DOORS LOCATIONS SHALL SUIT ACCESSIBILITY AND CONSTRUCTION CONDITIONS. ACCESS DOORS SHALL HAVE A FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED.
- WHENEVER A DISCREPANCY ARISES ON THE CONTRACT DOCUMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIAL AND SERVICES TO THE STRICTER CONDITION OR HIGHER QUALITY OR QUANTITY.
- ALL RECESSED POWER, LIGHTING, AND SIGNAL EQUIPMENT MOUNTED IN FIRE RATED CEILINGS OR WALLS SHALL BE ENCLOSED WITH AN APPROVED UL LISTED ENCLOSURE CARRYING THE SAME FIRE RATING.
- STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE UNLESS NOTED OTHERWISE. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.
- MAXIMUM NUMBER OF CONDUCTORS IN OUTLET OR JUNCTION BOXES SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE, ARTICLE 314-16, BUT IN NO CASE SHALL CONTAIN MORE THAN THE FOLLOWING NUMBER OF #12 AWG CONDUCTORS FOR THE SIZE OF BOX INDICATED. THE MINIMUM SIZE OUTLET OR JUNCTION BOX PERMITTED IN A WALL IS FOUR INCHES SQUARE BY 1-1/2" DEEP.

4"SQ. BY 1-1/2" D = 9 CONDUCTORS = 13 CONDUCTORS 4"SQ. BY 2-1/8" D

4 11/16"SQ. BY 1-1/2" D = 11 CONDUCTORS = 18 CONDUCTORS 4 11/16"SQ. BY 2-1/8" D

ALL OUTLET BOXES CONTAINING MORE THAN ONE DEVICE SHALL BE GANGED. TWO DEVICES DOUBLE GANGED, MINIMUM.

THE EXACT LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL ELEVATIONS, DETAILS, OR SECTIONS PRIOR TO INSTALLATION. ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE RECESSED IN WALLS UNLESS NOTED OTHERWISE. OUTLETS NOT INDICATED ON ARCHITECTURAL ELEVATIONS SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ROUGH-IN. MOUNT ELECTRICAL DEVICES AT THE FOLLOWING HIEGHTS UNLESS NOTED OTHERWISE:

WALL SWITCH CONVENIENCE RECEPTACLE TELEPHONE/DATA OUTLETS OUTLETS AND ALL **SWITCHES AT COUNTERS**

+4'-0" SET VERTICALLY TO TOP OF BOX +1'-6" SET VERTICALLY TO BOTTOM OF BOX +1'-6" SET VERTICALLY TO BOTTOM OF BOX ABOVE COUNTERS WITHOUT SPLASHES OR CENTERED IN SPLASH SET HORIZONTALLY

- DRAWINGS ARE DIAGRAMMATIC ONLY. ROUTING OF RACEWAYS SHALL BE AT THE OPTION OF THE CONTRACTOR UNLESS NOTED OTHERWISE AND SHALL BE COORDINATED WITH OTHER SECTIONS. DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ARCHITECTURAL, STRUCTURAL, CIVIL, OR MECHANICAL ITEMS OR FEATURES.
- THE EQUIPMENT GROUNDING CONDUCTOR SHOWN ON CONDUIT RUNS SHALL RUN CONTINUOUS FROM PANEL TO LAST OUTLET. THIS WIRE SHALL BE PIGTAILED IN EACH OUTLET FOR CONNECTION TO BOX AND DEVICE SO THAT IF DEVICE IS REMOVED, GROUND WILL NOT BE INTERRUPTED. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED GREEN CONDUCTORS - ALTERNATE METHODS OF IDENTIFICATION SHALL NOT
- ALL CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM SIZE, TYPE THHN/THWN THERMOPLASTIC, 600 VOLT, 75 DEGREES CELSIUS WET AND 90 DEGREES CELSIUS DRY AND UL LISTED UNLESS NOTED OTHERWISE. CONDUCTORS #12 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #10 AWG AND LARGER SHALL BE STRANDED.
- RECEPTACLES SHALL BE HOSPITAL GRADE, 20 AMP, NEMA 5-20R GROUNDING TYPE HUBBELL, OR EQUAL. COLOR. EMERGENCY RECEPTACLES SHALL BE RED IN COLOR.
- SWITCHES SHALL BE 20 AMP, 120/277 VOLT RATED SILENT TYPE SPECIFICATION GRADE HUBBELL OR EQUAL BY PASS & SEYMOUR OR GENERAL ELECTRIC. COLOR TO MATCH EXISTING TYPE EMERGENCY SWITCHES SHALL BE RED IN COLOR.
- DEVICE PLATES SHALL BE STAINLESS STEEL FOR THE NUMBER OF GANGS AND TYPE OF OPENINGS NECESSARY, HUBBELL OR EQUAL BY PASS & SEYMOUR OR GENERAL ELECTRIC. COLOR SHALL BE SELECTED BY ARCHITECT. EMERGENCY RECEPTACLE PLATES SHALL BE RED IN COLOR. NORMAL AND EMERGENCY DEVICE PLATES SHALL BE ENGRAVED WITH PANEL AND CIRCUIT NUMBER.
- RIGID GALVANIZED STEEL CONDUIT SHALL BE USED FOR ALL EXPOSED INSTALLATION AND SHALL BE FULL WEIGHT THREADED TYPE ALUMINUM OR STEEL. ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED IN WALLS OR CEILING SPACES WHERE NOT SUBJECT TO MECHANICAL DAMAGE. PVC COATED RIGID GALVANIZE CONDUIT SHALL BE USED FOR POWER IN OR BELOW CONDUCTOR SLAB. PVC SCH 40 CONDUIT SHALL BE USED FOR LOW VOLTAGE IN OR BELOW CONDUIT SLAB. FLEXIBLE STEEL CONDUIT SHALL BE USED AT FIXTURE AND OUTLET CONNECTIONS WITH NO RUNS LONGER THAN SIX FEET. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED IN ALL CONDUIT RUNS.
- RIGID GALVANIZED STEEL CONDUIT FITTINGS SHALL BE THREADED AND THOROUGHLY GALVANIZED. ELECTRICAL METALLIC TUBING (EMT) CONDUIT FITTINGS SHALL BE STEEL, RAINTIGHT THREADLESS COMPRESSION TYPE, DIÉ CAST, SET SCREW, OR INDENTER TYPES ARE NOT ACCEPTABLE. FLEXIBLE STEEL CONDUIT FITTINGS SHALL BE MALLEABLE IRON CLAMP, SQUEEZE TYPE OR STEEL TWIST-IN TYPE WITH INSULATED THROAT. SET SCREW TYPE IS NOT ACCEPTABLE.
- FURNISH AND INSTALL POWER PANELBOARDS AS INDICATED ON THE DRAWINGS. PANELBOARDS SHALL COMPLY WITH NEMA STANDARD FOR PANELBOARDS AND

SPECIFICATION W-P-115A. PANELBOARDS SHALL BE COMPLETE WITH COPPER BUS AND 40 DEGREE CELSIUS THERMAL MAGNETIC BOLT-ON TYPE CIRCUIT BREAKERS AND

- OSP CERTIFICATION AS INDICATED ON DRAWINGS. PANELBOARDS SHALL BE EATON, SQUARED OR EQUAL BY SIEMENS. ONDUITS TO BE INSTALLED IN ACCORDANCE WITH MASON OPM #0043-13 PRE-APPROVED ANCHORAGE AND BRACING SYSTEM.
- WHERE MULTI-HOMERUNS ARE INDICATED ON DRAWINGS INDICATION THE SAME PANELBOARD CIRCUIT NUMBER, PROVIDE JUNCTION BOX ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRES TO CIRCUIT BREAKERS.
- ALL PANEL BOARD CIRCUIT DIRECTORIES ARE TO TYPE WRITTEN AND UPDATED PER THE NEW
- RUN ALL CONDUITS CONCEALED IN WALL AND CEILING UNLESS NOTED OTHERWISE. CUT/PATCH/PAINT EXISTING WALL AND CEILING AS REQUIRED.
- ALL BRANCH CIRCUITS SERVING PATIENT CARE AREAS SHALL BE PROVIDED WITH AN EFFECTIVE GROUND-FAULT CURRENT PATH BY PROVIDING GREEN INSULATED GROUND CONDUCTOR IN ALL METAL CONDUIT RUNS. THE GROUND TERMINALS OF ALL RECEPTACLES AND ALL NON-CURRENT-CARRING CONDUCTIVE SURFACES OF FIXED ELECTRICAL EQUIPMENT LIKELY TO BECOME ENERGIZED THAT ARE SUBJECT TO PERSONAL CONTACT, OPERATING AT OVER 100 VOLTS, SHALL BE CONNECTED TO AN INSULATED COPPER EQUIPMENT GROUNDING CONDUCTOR. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH TABLE 250.122 AND INSTALLED IN METAL RACEWAY WITH THE BRANCH CIRCUIT CONDUCTORS SUPPLYING THESE RECEPTACLES OR FIXED EQUIPMENT PER CEC 517.13 (A) &
- UTILITY PENETRATIONS OF ANY KIND IN FIRE AND SMOKE PARTITIONS AND CEILING ASSEMBLIES. SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED MATERIAL SECURELY

STEEL ELECTRICAL OUTLET BOXES WHICH DO NOT EXCEED 16 SQUARE INCHES IN AREA, NEED NOT BE PROTECTED IN ONE HOUR OR TWO HOUR FIRE RATED WALLS, PARTITIONS CEILINGS, OR AREA SEPARATION UNLESS THEY:

OCCUR ON OPPOSITE SIDES OF THE WALL WITHIN 24 INCH HORIZONTAL DISTANCE OF ONE ANOTHER. IN THIS CASE, ONLY ONE OUTLET BOX NEED TO PROTECTED BY AN APPROVED FIRESTOP MATERIAL OR DETAIL TO CORRECT THIS CONDITION.

OCCUR IN COMBINATION WITH OUTLET BOXES OF ANY SIZE SUCH THAT THE AGGREGATE AREA OF UNPROTECTED OUTLET BOXES EXCEEDS 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA. IN THIS CASE, ONLY A SUFFICIENT NUMBER OF OUTLET BOXES NEED BE PROTECTED BY AN APPROVED MATERIAL OR DETAIL TO DECREASE THE AGGREGATE AREA OF UNPROTECTED UTILITY BOXES TO LESS THAN 100 SQUARE INCHES IN ANY 100 SQUARE FEET

STEEL ELECTRICAL OUTLET BOXES WHICH EXCEED 16 SQUARE INCHES IN AREA. AND ALL OTHER STEL UTILITY OUTLET BOXES REGARDLESS OF SIZE, SHALL BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL AS LISTED OR EQUAL.

FIRESTOPPING MATERIALI:

MPP-1 MOLDABLE PUTTY PADS 3M CONTRACTOR PRODUCTS MINNEAPOLIS, MN 3M TEST REPORT NO. 1167 DATED AUGUST 21, 1987

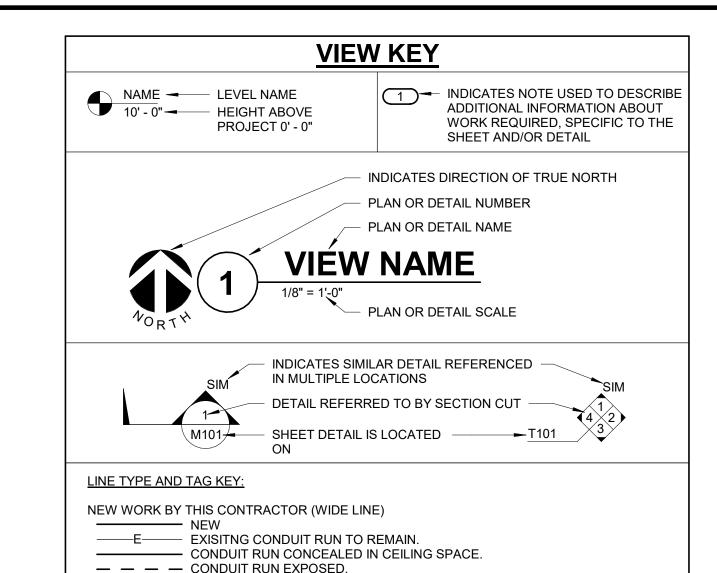
OF WALLL.

FSP FIRESTOP PUTTY PADS HEVI-DUTY NELSON PRODUCTS TULSA, OK

> FLAMESAFE FSP 1077 FIRESTOP PADS INTERNATIONAL PROTECTIVE COATINGS OAKHURST, NJ

STEEL UTILITY BOXES WHICH EXCEED 100 SQUARE INCHES IN AREA SHALL BE PROTECTED BY ENCASEMENT.

UTILITY AND ELECTRICAL OUTLETS OR BOXES SHALL BE SECURELY FASTENED TO THE STUD OF FRAMING OF THE WALL, PARTITION OR CEILING ASSEMBLY. THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT SO THAT THE CLEARANCE BETWEEN THE BOX AND THE GYPSUM BOARD DOES NOT EXCEED 1/8 INCH. IN SMOKE WALLS OR PARTITIONS, THE 1/8 INCH CLEARANCE SHALL BE FILLED WITH AN APPROVED FIRE-RATED SEALANT.



	ELECTRICAL ABBREVIATION KEY
ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
С	CONDUIT
GFI	GROUND FAULT INTERRUPTER
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
SV	SOLENOID VALVE

APPLICABLE CODES

 2019 CALIFORNIA ADMINISTRATIVE CODE (CAC) PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)

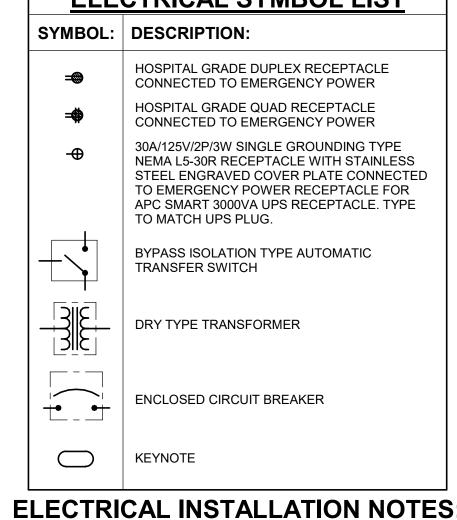
UNLESS OTHERWISE NOTED

TYPICAL

——EX—— REWIRE EXISTING CONDUIT RUN

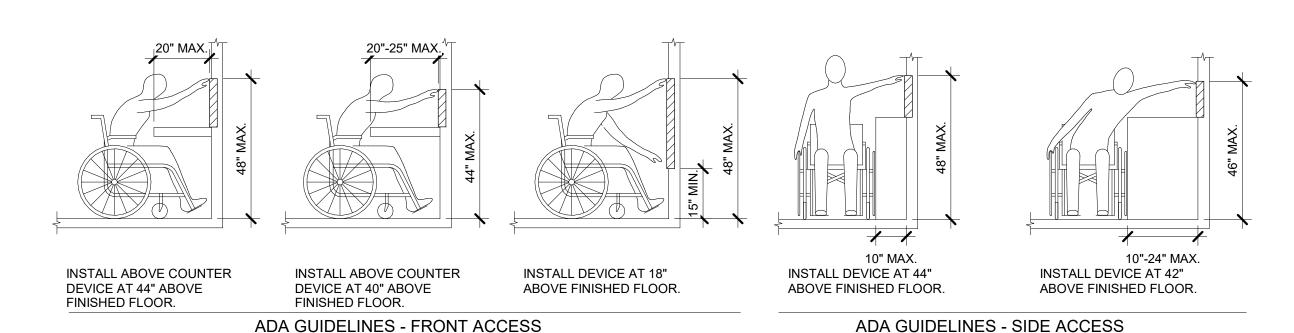
- 2019 CALIFORNIA BUILDING CODE (CBC) PART 2, TITLE 24, CRC. BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC)
- 2019 CALIFORNIA ELECTRICAL CODE (CEC) PART 3, TITLE 24, (CCR). BASED ON THE 2017 NATIONAL ELECTRICAL CODE (NEC)
- 2019 CALIFORNIA MECHANICAL CODE (CMC) PART 4, TITLE 24, (CCR).
- BASED ON THE 2018 UNIFORM MECHANICAL CODE (UMC) 2019 CALIFORNIA PLUMBING CODE (CPC) PART 5, TITLE 24, (CCR).
- BASED ON THE 2018 UNIFORM PLUMBING CODE (UPC) 2019 CALIFORNIA ENERGY CODE (CEC)
- PART 6, TITLE 24, (CCR).
- 2019 CALIFORNIA HISTORICAL BUILDING CODE (CHBC) PART 8, TITLE 24, (CCR)
- 2019 CALIFORNIA FIRE CODE (CFC) PART 9, TITLE 24, (CCR) BASED ON THE 2017 NATIONAL FIRE CODE (NFC)
- 2019 CALIFORNIA EXISTING BUILDING CODE (CEBC)
- PART 10, TITLE 24, (CCR) BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC)
- 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CAL GREEN)
- PART 12, TITLE 24, (CCR)
- PART 11, TITLE 24, (CCR) 2019 CALIFORNIA REFERENCED STANDARDS CODE (CRSC)

ELECTRICAL SYMBOL LIST SYMBOL: DESCRIPTION: JUNCTION BOX FLOOR BOX - DUPLEX RECEPTACLE SURFACE MOUNTED PANEL \bigcirc_{F} EXISTING EQUIPMENT TO REMAIN. EXISTING EQUIPMENT TO BE REMOVED. VFD VARIABLE FREQUENCY DRIVE CIRCUIT BREAKER CONDUIT HOME RUN TO PANEL. PROVIDE DEDICATED NEUTRAL FOR EACH 120V CIRCUIT. ALL CONDUITS RUN SHALL CONTAIN GROUND **ELECTRICAL SYMBOL LIST**



- 1. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO THE ADA GUIDELINES FOR ALL CONFIGURATION DETAILS ON THIS PAGE FOR ADDITIONAL INFORMATION.
- 2. CIRCUIT NUMBERS ARE SHOWN FOR CIRCUIT IDENTIFICATION. CIRCUITING SHALL AGREE WITH NUMBERING ON THE PANEL PROVIDED. COMMON NEUTRALS MAY NOT BE USED FOR BRANCH CIRCUITS. BALANCE THE LOAD ON PANEL AS EVENLY AS POSSIBLE BETWEEN EACH
- 3. EMERGENCY POWER BRANCH WIRING FOR FEEDERS AND BRANCH CIRCUITS SHALL BE ROUTED IN SEPARATE RACEWAY, JUNCTION BOXES, PULL BOXES, AND CABINETS. WIRING FOR EACH BRANCH SHALL BE INDEPENDENT FROM OTHER BRANCHES, INCLUDING THE
- NORMAL BRANCH. 4. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF
- THROUGH-PENETRATION FIRESTOPS. 5. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL CEILING MOUNTED DEVICES AND EQUIPMENT WITH LUMINAIRES, SPRINKLER, AND CEILING DIFFUSERS. CENTER ALL DEVICES IN CEILING TILE PATTERN. SMOKE DETECTORS AND OCCUPANCY/VACANCY SENSORS SHALL
- BE LOCATED NO CLOSER THAN 3 FEET TO AN AIR SUPPLY DIFFUSER OR RETURN GRILLE. 6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR
- SFALED INTO OPENINGS. 7. CONTRACTOR SHALL REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF ELECTRICAL WORK. CONTRACTOR SHALL REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.

	ELECTRICAL SHEET INDEX	
E0.1	ELECTRICAL COVERSHEET	
E0.2	DEMOLITION SINGLE LINE DIAGRAM	
E0.3	REMODEL SINGLE LINE DIAGRAM	
E1.0	OVERALL FIRST FLOOR PLAN - ELECTRICAL	
E2.1	FIRST FLOOR DEMOLITION AND REMODEL PLANS - ELECTRICAL	
CDAND TOTAL	• 5	



ADA STANDARDS FOR ACCESSIBLE DESIGN

ARROWHEAD REGIONAL MEDICAL CENTER 400 N. PEPPER AVE COLTON, CA. 92324 ARMC SKID MOUNTED **BOOSTER PUMP**

WBSE NO. 10.10.0722 CIP NO. IMEG PROJECT NO. 21006908.00 BUILDING (CAFM) NO.



901 VIA PIEMONTE SUITE 400 ONTARIO, CA 91764 909.477.6915 FAX: 909.477.6916 www.imegcorp.com # 21006908.00

> PROFESSIONAL SEAL No. M25602 Lic. E16934 Exp. 9/30/22 Exp. 6-30-2023

CONSULTANT



HCAI # S220638-36-00

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> REFERENCE SCALE IN INCHES

Revision / Issue

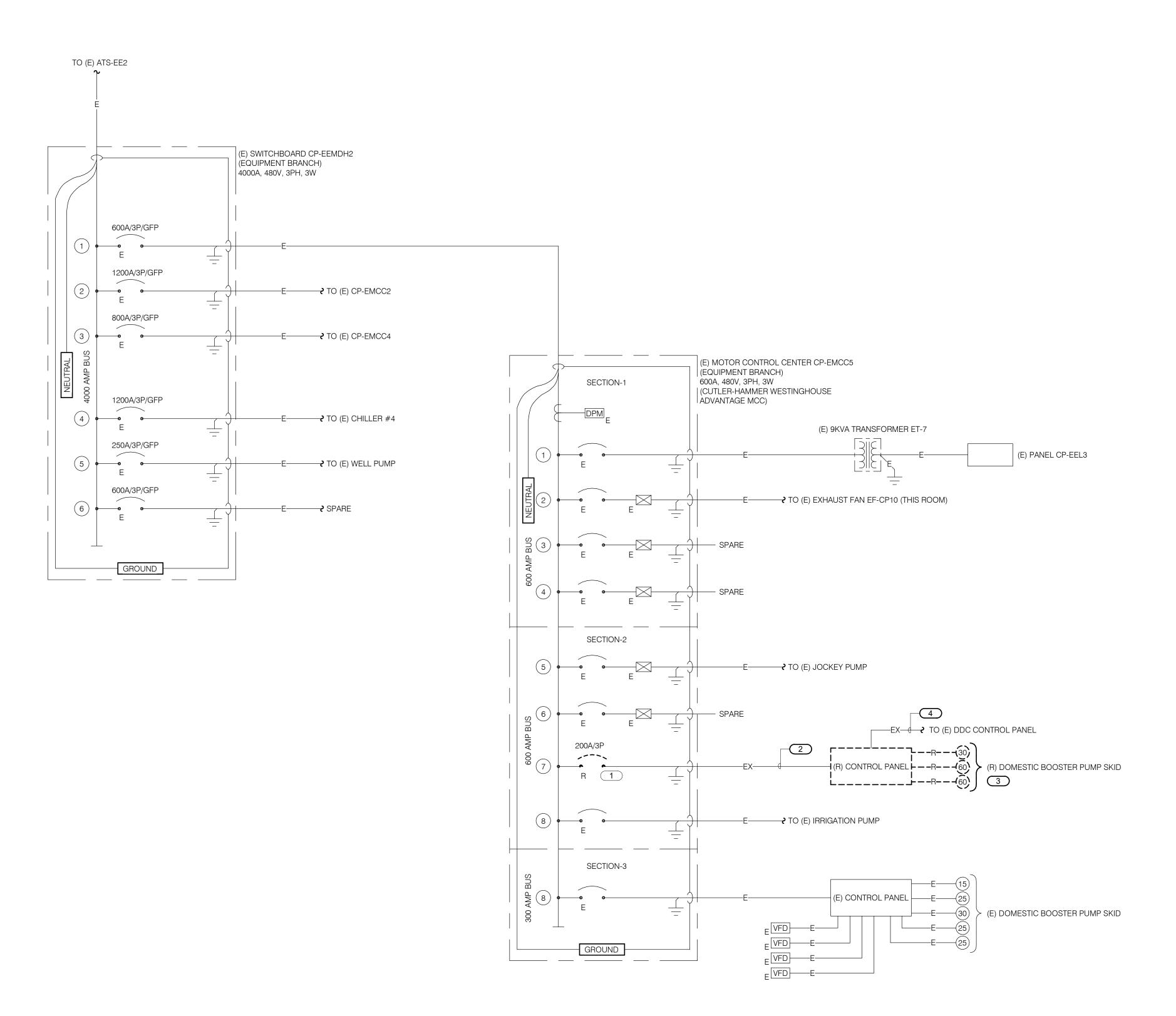
SHEET INFORMATION **HCAI SUBMITTAL** 05/10/2022 21-31 Job Number Checked SHEET TITLE

ELECTRICAL COVERSHEET

SHEET NUMBER

SCALE

As indicated





KEYNOTES:

- 1. REMOVE EXISTING BREAKER.
- 2. PULLOUT CONDUCTORS AND RE-WIRING EXISTING 3" CONDUIT RUN. REMOVE PORTION OF CONDUIT (SEAL TIGHT STEEL FLEX CONDUIT) AND PROTECT REMAINING CONDUIT.
- 3. EXISTING BOOSTER PUMP SKID TO BE REMOVED BY PLUMBING CONTRACTOR.
- 4. PULLOUT CONTROL CABLE FROM EXISTING 2" CONDUIT AND REMOVE PORTION OF CONDUIT TO CONTROL PANEL.

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ARMC SKID MOUNTED BOOSTER PUMP

WBSE NO. CIP NO. IMEG PROJECT NO. BUILDING (CAFM) NO. APN NO.



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PROFESSIONAL SEAL

10.10.0722

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0 1 2

REVISIONS

No. Date Revision / Issue

SHEET INFORMATION
HCAI SUBMITTAL

05/10/2022
ber 21-31
PDP

NCI

DEMOLITION SINGLE LINE DIAGRAM

SCALE scale: 12" = 1'-0"

E0.2

SHEET NUMBER

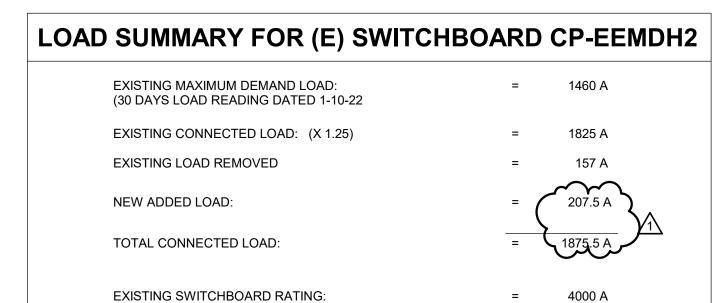
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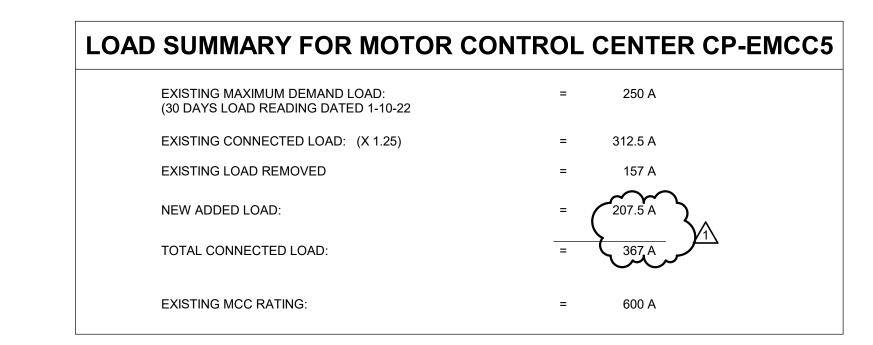
ect Number 8/8/2022 6:21:30 P



- PROVIDE NEW MATCHING BREAKER WITH SAME MANUFACTURER AND AIC
- 2. PULL 350MCM & 1#2 GND. IN EXISTING 3" CONDUIT.

 3. PROVIDE 4'-0" LONG SEAL TIGHT STEEL FLEX CONDUIT FROM FINAL CONNECTION TO CONTROL PANEL.
- 4. NEW DOMESTIC BOOSTER PUMP SKID. REFER TO PLUMBING DRAWINGS.
- 5. EXTEND EXISTING 2" CONDUIT AND PULL NEW CONTROL CABLES.





REMODEL SINGLE LINE DIAGRAM

—EX—←→ TO (E) DDC CONTROL PANEL

(E) MOTOR CONTROL CENTER CP-EMCC5

| (CUTLER-HAMMER WESTINGHOUSE

(EQUIPMENT BRANCH)

600A, 480V, 3PH, 3W

ADVANTAGE MCC)

SECTION-1

SPARE

SECTION-3

GROUND

ISC = 22.3A

(E) 9KVA TRANSFORMER ET-7

—E——E TO (E) EXHAUST FAN EF-CP10 (THIS ROOM)

N) CONTROL PANEL WITH

PROVIDED BY THE MANUFACTURER. ISC = 21.7A

AIC = 30KAIC TO (E) IRRIGATION PUMP

MAIN NON-FUSED DISCONNECT AND DISCONNECT FOR EACH VFD

(E) CONTROL PANEL |--

AIC = 30KAIC

(E) PANEL CP-EEL3

(N) DOMESTIC BOOSTER PUMP SKID (FLA = 167A)

> (E) DOMESTIC BOOSTER PUMP SKID

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ARMC SKID MOUNTED BOOSTER PUMP

WBSE NO. CIP NO. IMEG PROJECT NO. BUILDING (CAFM) NO.

10.10.0722 21006908.00



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08/03/22 BACK CHECK NO.1

SHEET INFORMATION **HCAI SUBMITTAL**

REMODEL SINGLE LINE DIAGRAM

12" = 1'-0"

E0.3

TO (E) ATS-EE2

600A/3P/GFP

1200A/3P/GFP

800A/3P/GFP

1200A/3P/GFP

250A/3P/GFP

600A/3P/GFP

(E) SWITCHBOARD CP-EEMDH2

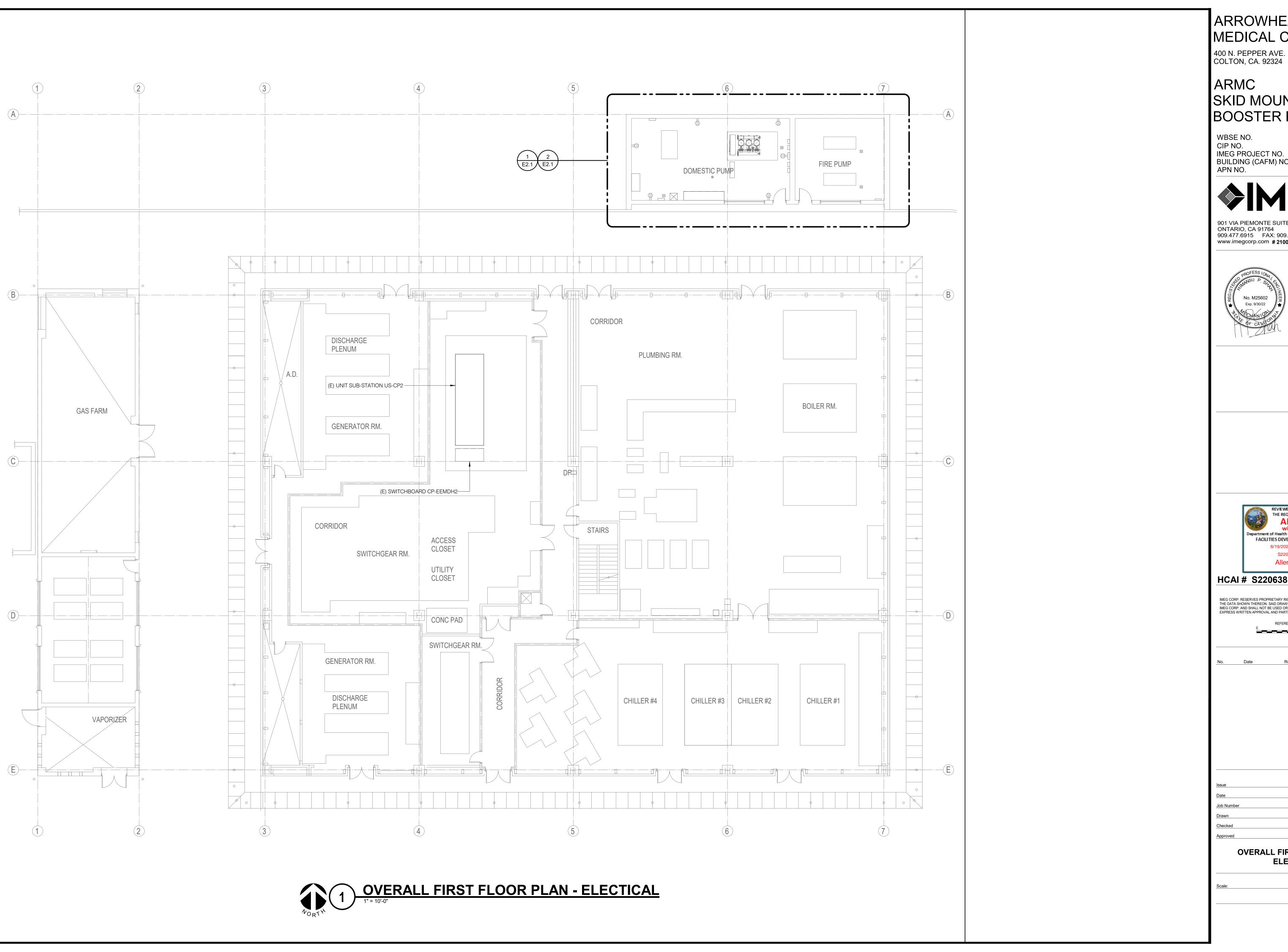
—E——**?** TO (E) CP-EMCC2

—E——₹ TO (E) CHILLER #4

—E——→ TO (E) WELL PUMP

—E——₹ SPARE

(EQUIPMENT BRANCH)



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SKID MOUNTED **BOOSTER PUMP**

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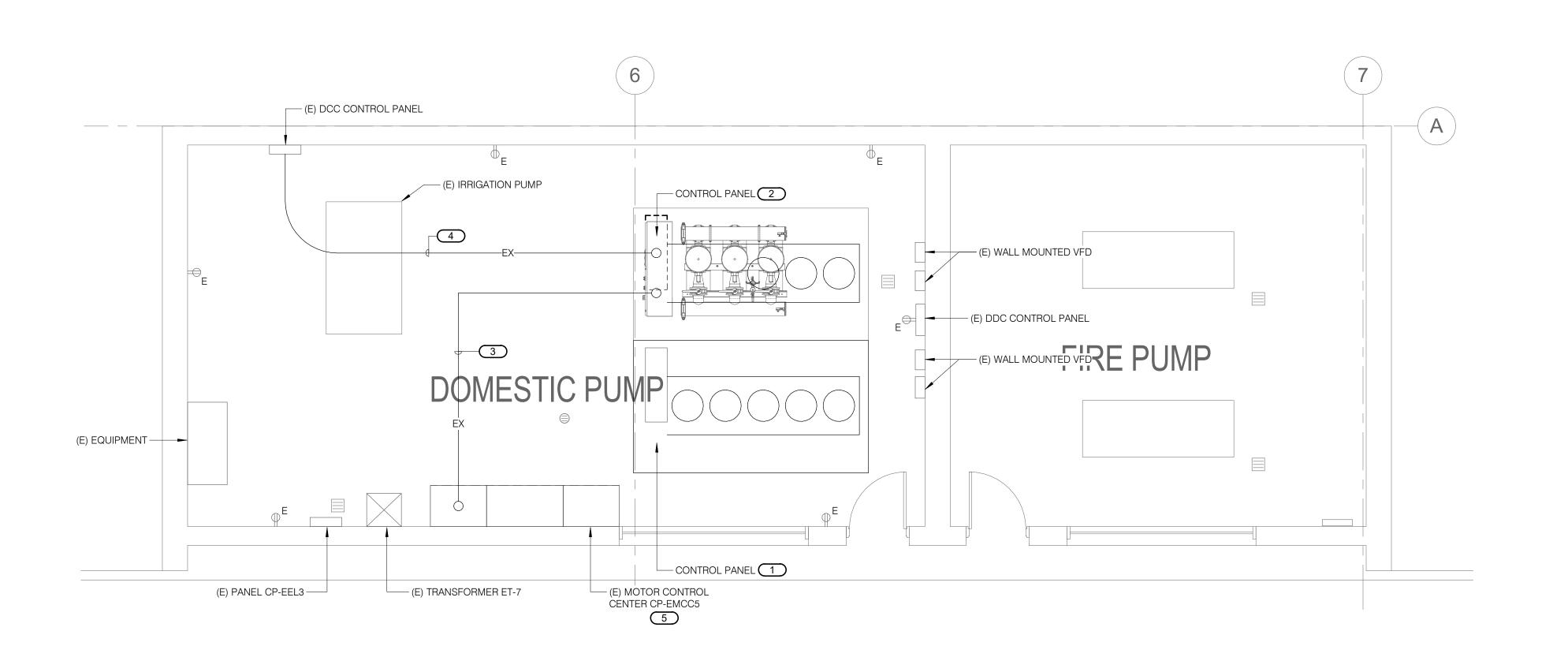
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SHEET INFORMATION

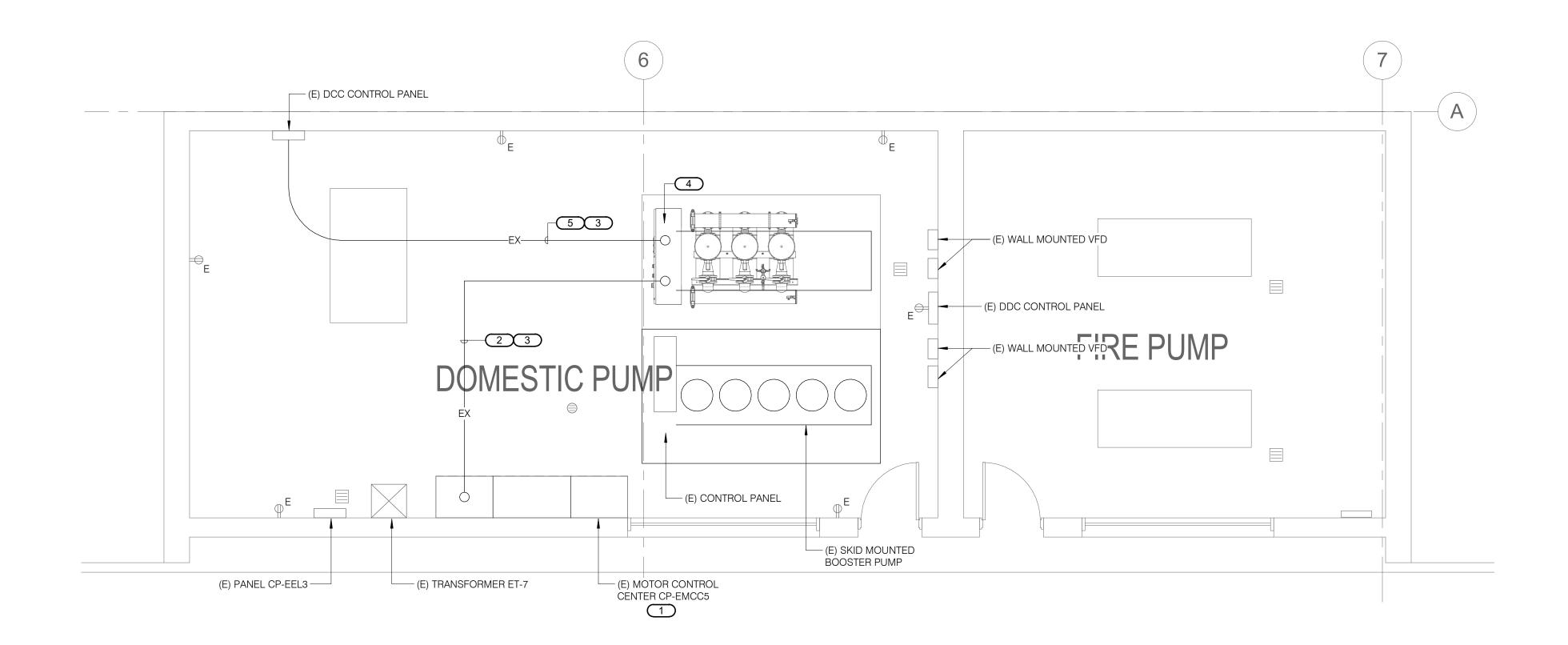
OVERALL FIRST FLOOR PLAN -**ELECTRICAL**

1" = 10'-0"

SHEET NUMBER E1.0



DEMOLITION FIRST FLOOR - ELECTRICAL



REMODEL FIRST FLOOR - ELECTRICAL

DEMOLITION KEYNOTES:

- 1. EXISTING SKID MOUNTED DOMESTIC BOOSTER PUMP SYSTEM TO REMAIN.
- 2. EXISTING SKID MOUNTED DOMESTIC BOOSTER PUMP SYSTEM TO BE REMOVED BY PLUMBING CONTRACTOR.
- 3. PULLOUT CONDUCTORS AND RE-WIRING EXISTING 3" CONDUIT RUN. REMOVE PORTION OF CONDUIT (SEAL TIGHT STEEL FLEX CONDUIT) AND PROTECT REMAINING CONDUIT.
- 4. PULLOUT CONTROL CABLE FROM EXISTING 2" CONDUIT AND REMOVE PORTION OF CONDUIT TO CONTROL PANEL.
- 5. REPLACE EXISTING BREAKER FOR SKID MOUNTED BOOSTER PUMP.

ARMC SKID MOUNTED BOOSTER PUMP

MEDICAL CENTER

ARROWHEAD REGIONAL

WBSE NO. CIP NO. IMEG PROJECT NO. BUILDING (CAFM) NO. APN NO.

400 N. PEPPER AVE.

COLTON, CA. 92324

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REVISIONS

SHEET INFORMATION **HCAI SUBMITTAL**

FIRST FLOOR DEMOLITION AND **REMODEL PLANS - ELECTRICAL**

SHEET NUMBER

1/4" = 1'-0"

E2.1

REMODEL KEYNOTES: #

- PROVIDE NEW MATCHING BREAKER WITH SAME MANUFACTURER AND AIC
- 2. PULL 3#4/0 & 1#4 GND. IN EXISTING 3" CONDUIT.
- 3. PROVIDE 4'-0" LONG SEAL TIGHT STEEL FLEX CONDUIT FROM FINAL CONNECTION TO CONTROL PANEL.
- 4. NEW DOMESTIC BOOSTER PUMP SKID. REFER TO PLUMBING DRAWINGS.
- 5. EXTEND EXISTING 2" CONDUIT AND PULL NEW CONTROL CABLE.