

WORK SCOPE ITEMS

- FURNISH AND INSTALL AUTOMATIC FUEL OIL TRANSFER PUMP SET, FOP-2, TO SERVE THE EXISTING CENTRAL PLANT ABSORPTION CHILLERS, EXISTING FUEL OIL PUMP SET, FOP-1 (SHOWN ON PLANS) IS TO REMAIN IN SERVICE TO TRANSFER OIL TO THE EXISTING BOILERS, ONLY. (CURRENTLY FOP-1 SERVES BOTH THE BOILERS AND THE CHILLERS). PUMP SKID SHALL BE COMPLETELY FACTORY FABRICATED AND TESTED, COMPLETE WITH ALL SHUT-OFF VALVES, RELIEF VALVES, PIPING CONNECTIONS, GAUGES, DRAIN PAN, CONTROL PANEL, ETC., WITH DESIGN BASIS AS FOLLOWS:
 - MOTOR POWER: 208 VOLT/3Ø/60Hz
 - CONTROL CIRCUIT POWER: 120 VAC (STEP DOWN TRANSFORMER INCLUDED)
 - SERVICE: No. 2 FUEL OIL
 - PUMP(S): TWO (2) BI-ROTATIONAL, POSITIVE DISPLACEMENT TYPE WITH CAST IRON HOUSINGS AND SELF ADJUSTING MECHANICAL SEALS
 - MOTORS: BASE-MOUNTED, O.D.P. CONSTRUCTION
 - STRAINERS: TWO (2) SIMPLEX STRAINERS WITH 40 MESH BASKETS
 - DESIGN BASIS: PREFERRED UTILITIES MODEL ATPS-105-208-504-BAS, DESIGNED TO TRANSFER 282 GPH OF No. 2 FUEL OIL AGAINST A DISCHARGE PRESSURE OF 50 PSIG WITHIN A FUEL TRANSFER LOOP APPLICATION.
 - CONTROLS: SKID MOUNTED CONTROL PANEL SHALL BE PRE-WIRED AND TESTED, WITH "HAND-OFF-AUTO" SWITCH, LCD INTERFACE, LEAD/LAG PUMP SELECTION/STATUS, ALARM STATUS ON DISPLAY, AUTOMATIC PRIME AND SUCTION LINE INTEGRITY TESTING AND CAPABILITY OF BEING CONTROLLED VIA CENTRAL PLANT CONTROL SYSTEM.
 - OPTIONAL EQUIPMENT: DRIP PAN MOUNTED LEAK DETECTION SWITCH SUITABLE FOR HYDROCARBON SERVICE, BUILDING AUTOMATION SYSTEM (BAS) DISCRETE OUTPUT CONTACTS.
- FURNISH AND INSTALL ALL FUEL OIL SUPPLY (FOS), FUEL OIL RETURN/RELIEF (FOR) PIPING AS SIZED AND SHOWN ON THE DRAWINGS FOR A COMPLETE AND OPERABLE ABSORPTION CHILLER FUEL OIL TRANSFER SYSTEM. PIPING SHALL BE SCHEDULE 80 CARBON STEEL, ASTM A-53 GRADE B WITH 300# CLASS MALLEABLE IRON THREADED FITTINGS PER ANSI B13.3. PREPARE ALL THREADED JOINTS WITH "GASOLINA SOFT SET" THREAD COMPOUND INSTALLED PER MANUFACTURERS RECOMMENDATIONS. UNIONS SHALL BE UNIDIRECTIONAL-FLOW TYPE WITH SPIRAL WOUND GASKETED SEATS WITH GRAPHOL FILLER, NO APPROVED EQUAL.
- CAP EXISTING ABANDONED-IN-PLACE FOR LINE PREVIOUSLY SERVING ABSORPTION CHILLERS (SEE DEMO ITEM 1).
- RUN FUEL OIL TRANSFER PIPING BRANCHES FROM MAIN TO VALVED CONNECTION POINTS AT CHILLERS CH-1, CH-2 AND CH-3, AS SHOWN.
- FURNISH AND INSTALL BACKPRESSURE REGULATING VALVE IN FOS/R LOOP AS SHOWN. VALVE SHALL BE SUITABLE FOR No. 2 FUEL OIL SERVICE AND THE FLOW AND PRESSURES INDICATED. BASIS OF DESIGN IS PREFERRED UTILITIES MODEL V, 1" NPT THREAD ENDS, 250 LB. CAST IRON BODY, DIAPHRAGM OPERATED, BALANCED GAGE AND HARDENED STAINLESS STEEL TRIM. PROVIDE PRESSURE GAUGES WITH COCKS ON THE INLET AND OUTLET SIDE OF THE VALVE IN ORDER TO ADJUST PRESSURE DIFFERENTIAL DURING COMMISSIONING OF THE SYSTEM.

DEMOLITION NOTES

- REMOVE AND LEGALLY DISPOSE OF (E) FOS PIPING TO CHILLERS AND FOR MANIFOLD DRAIN LINE (AS INDICATED) AT FOS/R MANIFOLDS. CAP OFF ALL CONNECTIONS TO ACTIVE FUEL OIL PIPING SERVING THE BOILERS. THE BOILER FUEL OIL IS TO REMAIN IN SERVICE THROUGHOUT THE EXTENT OF THIS INSTALLATION WORK AND ANY REQUIRED SHUTDOWNS SHALL BE COORDINATED AND SCHEDULED WITH THE COLLEGE IN ADVANCE.
- REMOVE AND LEGALLY DISPOSE OF (E) FOS/R LOOP PIPING SERVING ABSORPTION CHILLER AND BRANCH CONNECTIONS TO CHILLERS TO THE EXTENT INDICATED IN THE DRAWINGS. CAP OFF ALL CONNECTIONS TO EXISTING BOILER FUEL OIL TRANSFER PIPING LOOP. THE BOILER FUEL OIL IS TO REMAIN IN SERVICE THROUGHOUT THE EXTENT OF THIS INSTALLATION WORK AND ANY REQUIRED SHUTDOWNS SHALL BE COORDINATED AND SCHEDULED WITH THE COLLEGE IN ADVANCE.

WORK PHASING NOTES

- WORK SHALL BE PERFORMED IN CLOSE CONJUNCTION WITH CHILLER/BOILER PLANT STAFF. THE OWNER, THE ENGINEER AND THE DAILY OPERATIONS OF THE PLANT, THE CHILLERS AND BOILERS ARE TO BE RUN UNINTERRUPTED THROUGHOUT THE DURATION OF THIS PROJECT.
- IN ORDER TO BE CONSIDERED FOR BIDDING, ALL CONTRACTORS SHALL SUBMIT A DETAILED WORK PLAN AND SCHEDULE OF THE WORK ENTAILLED, THE ANTICIPATED PHASING MEASURES REQUIRED TO KEEP THE PLANT IN CONTINUOUS AND UNINTERRUPTED OPERATION, EQUIPMENT LEAD TIMES, ETC., FOR THIS PROJECT.
- ALL WORK IS TO BE DONE DURING NORMAL BUSINESS HOURS.

GENERAL NOTES

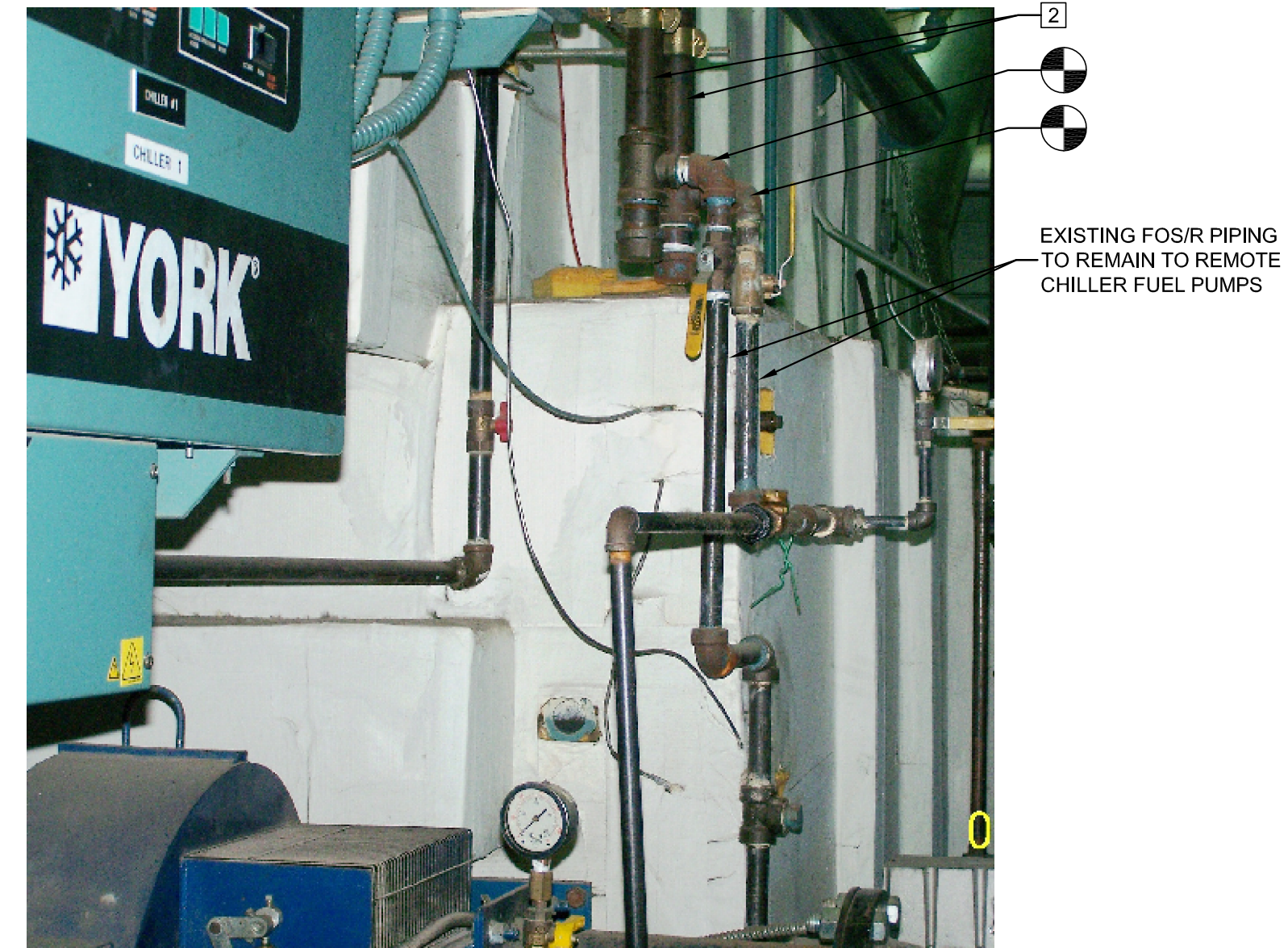
- FURNISH AND INSTALL ACCESSIBLE BALL VALVES AT ALL SYSTEM HIGH POINTS FOR MANUAL VENTING CAPABILITY. VALVES SHALL BE PIPED TO FLOOR LEVEL FOR MANUAL VENT RECLAIM OF PRODUCT DURING VENTING PROCESS.
- PROVIDE SIX (6) COPIES OF SHOP DRAWINGS AND SUBMITTALS FOR ALL MATERIALS AND EQUIPMENT BEING USED IN THIS PROJECT. WORK SHALL NOT PROCEED WITHOUT WRITTEN APPROVAL OF THE OWNER / ENGINEER. SUBMITTALS SHALL INCLUDE:
 - SHOP DRAWINGS DRAWN TO SCALE, INCLUDING PIPE SIZES, LOCATIONS, ELEVATIONS, SUPPORT LOCATIONS AND DETAILS, MAJOR EQUIPMENT, VALVES, FUEL OIL SPECIALTIES, ETC.
 - FUEL OIL PUMP SET
 - ELECTRICAL WIRING DIAGRAMS
 - CONTROLS AND INSTRUMENTS
 - PIPE, FITTINGS, VALVES AND PIPING/FUEL OIL SPECIALTIES
 - UNIONS
 - TESTING PROCEDURES AND RESULTS
 - OPERATION & MAINTENANCE MANUAL
- TEST ALL PIPING TO 1.5 TIMES ITS NORMAL OPERATING PRESSURE FOR A PERIOD OF 24 HOURS USING AIR AS A MEDIUM AND SOAP SOLUTION TO DETECT JOINT LEAKAGE. PROVIDE WRITTEN REPORT OF TESTING FOR REVIEW AND APPROVAL AS A REGULAR SUBMITTAL ITEM.
- CONTRACTOR SHALL MAINTAIN A MARKED-UP COPY OF THE PLANS ON-SITE AT ALL TIMES. AT SUBSTANTIAL COMPLETION, SUBMIT AS-BUILT DRAWINGS INCORPORATING ALL FIELD CHANGES FOR APPROVAL AND OWNERS RECORD COPY AS A SUBMITTAL ITEM.
- THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE AND VERIFY ALL PIPE ROUTING AND LOCATIONS PRIOR TO THE WORK.
- THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO REFLECT EVERY DIMENSION FITTING, TRANSITION, CHANGE IN DIRECTION, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL FIELD CONDITIONS ENCOUNTERED AND CHANGES TO SYSTEM LAYOUTS AS A RESULT.
- ALL PERSONS ENGAGED IN IN DEMOLITION (TORCH USE) AND WELDING MUST BE CERTIFIED BY THE CITY OF NEW YORK FOR WELDING AND FIREWATCH CAPABILITIES.
- ANY OIL DRAINED FROM THE EXISTING SYSTEM DURING DEMOLITION, CONSTRUCTION AND START-UP OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR FOR STORAGE, REMOVAL FROM SITE AND LEGAL DISPOSAL. OIL MAY NOT BE RETURNED TO THE EXISTING FUEL OIL STORAGE TANKS UNDER ANY CIRCUMSTANCE.
- ALL MATERIALS BROUGHT ONTO THE SITE BY THE CONTRACTOR MUST BE ACCOMPANIED BY CORRESPONDING MANUFACTURER'S SAFETY DATA SHEETS (MSDS) FOR RECORD BY THE OWNER AND REFERENCE ACCESS BY THE CONTRACTOR'S WORK CREW. ALL MATERIALS BROUGHT TO THE SITE MUST BE REMOVED BY THE CONTRACTOR AFTER PROJECT COMPLETION.
- CONTRACTOR SHALL PROVIDE AN ANTICIPATED WORK SCHEDULE TO OWNER WITH THE BID. THE SCHEDULE SHOULD INCLUDE ALL PHASES OF THE WORK TO BE DONE AS WELL AS ALL SUBCONTRACTORS WORKING UNDER THIS CONTRACT.
- LABEL ALL PIPING WITH THE APPROPRIATE SERVICE DESIGNATION AT MINIMUM ONCE IN EACH ROOM THAT PIPING IS ROUTED THROUGH. USE LABELS MATCHING FACILITY STANDARD (i.e., 1" WHITE LETTERS ON GREEN BACKGROUND). LABELS SHALL BE SELF-ADHESIVE TYPE OR APPROVED EQUAL.
- COORDINATE WITH TC REGARDING POLICY OF DAILY WORK SITE CLEANUP, DUST CONTROL, DELIVERY OF MATERIALS, DAILY HOT-WORK PERMITS, ADVANCED NOTICE FOR LOUD AND DISRUPTIVE WORK AND SECURITY / SIGN-IN REQUIREMENTS.
- CONTRACTOR SHALL WARRANTEE ALL WORKMANSHIP FOR A PERIOD OF ONE-YEAR FROM THE SUBMITTAL OF THE FINAL APPROVE SET OF O&M MANUALS TO THE OWNER. ALL MATERIALS SHALL BE SUBJECT TO THE MANUFACTURER'S WARRANTEE PERIOD, BUT FOR NOT LESS THAN A PERIOD OF ONE-YEAR FROM THE FINAL O&M SUBMISSION DATE.

SYMBOLS

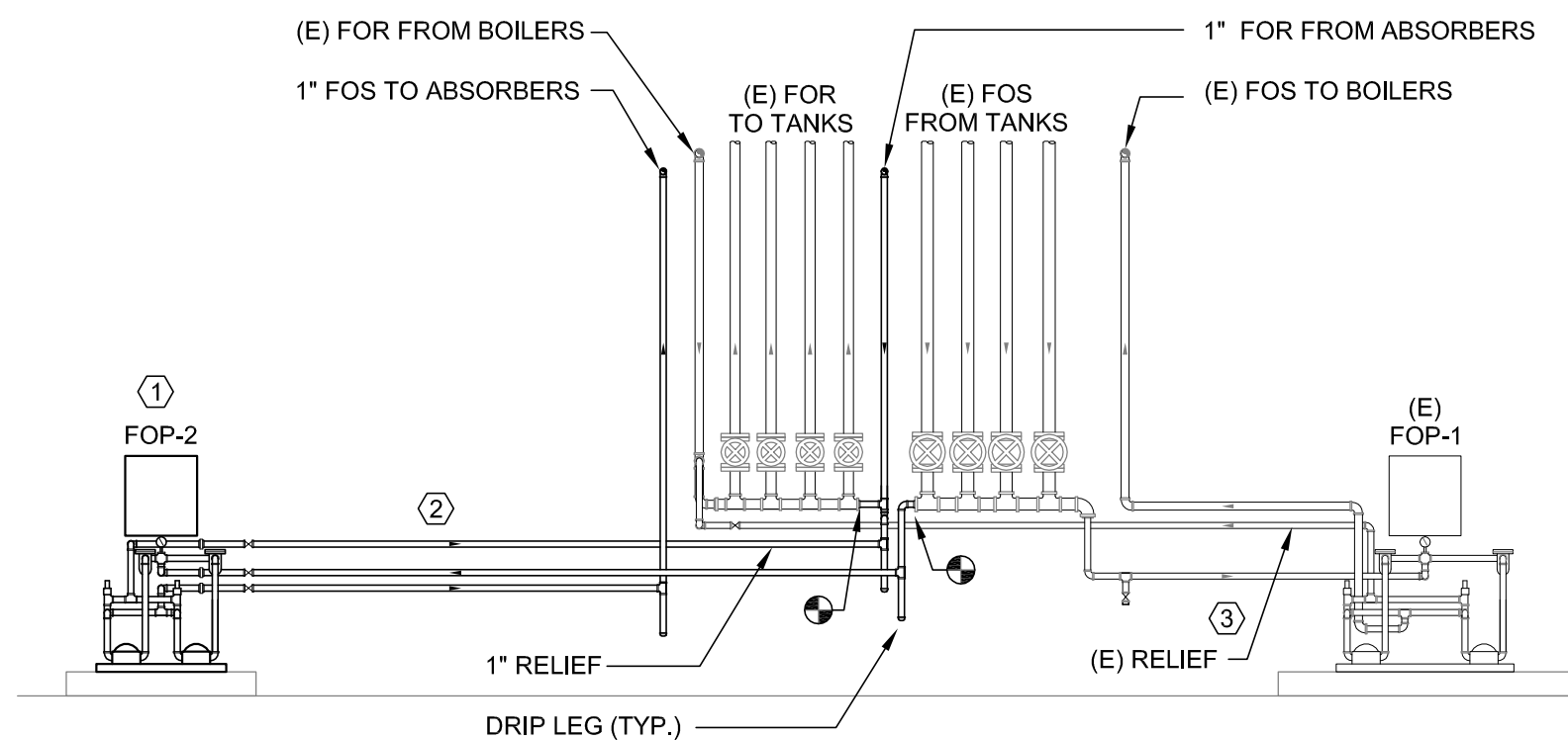
- POINT OF CONNECTION TO EXISTING
- DEMOLITION WORK ITEM
- WORK ITEM
- EXTENT OF DEMOLITION
- SUPPLY PIPING
- RETURN PIPING
- PRESSURE RELIEF PIPING
- ELBOW / TEE DOWN
- ELBOW / TEE UP
- SHUT-OFF VALVE (BALL OR GLOBE)
- PLUG/BALL VALVE
- CHECK VALVE
- BACKPRESSURE REGULATING VALVE

ABBREVIATIONS

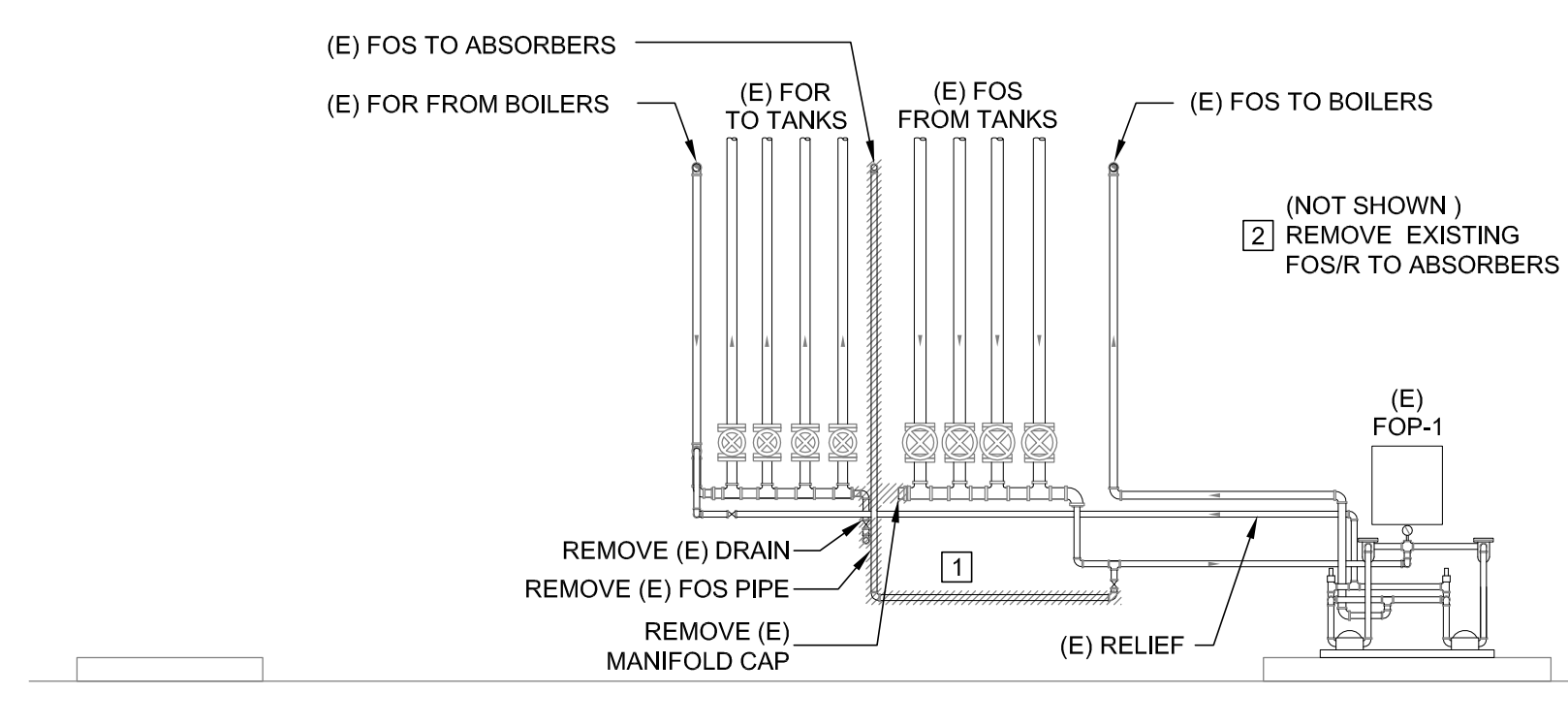
- HP HORSEPOWER
- (E) EXISTING
- FOR FUEL OIL RETURN/RELIEF
- FOS FUEL OIL SUPPLY
- GPH GALLONS PER HOUR
- PSIG POUNDS/SQUARE INCH (GAGE)
- TYP TYPICAL
- V.I.F. VERIFY IN FIELD



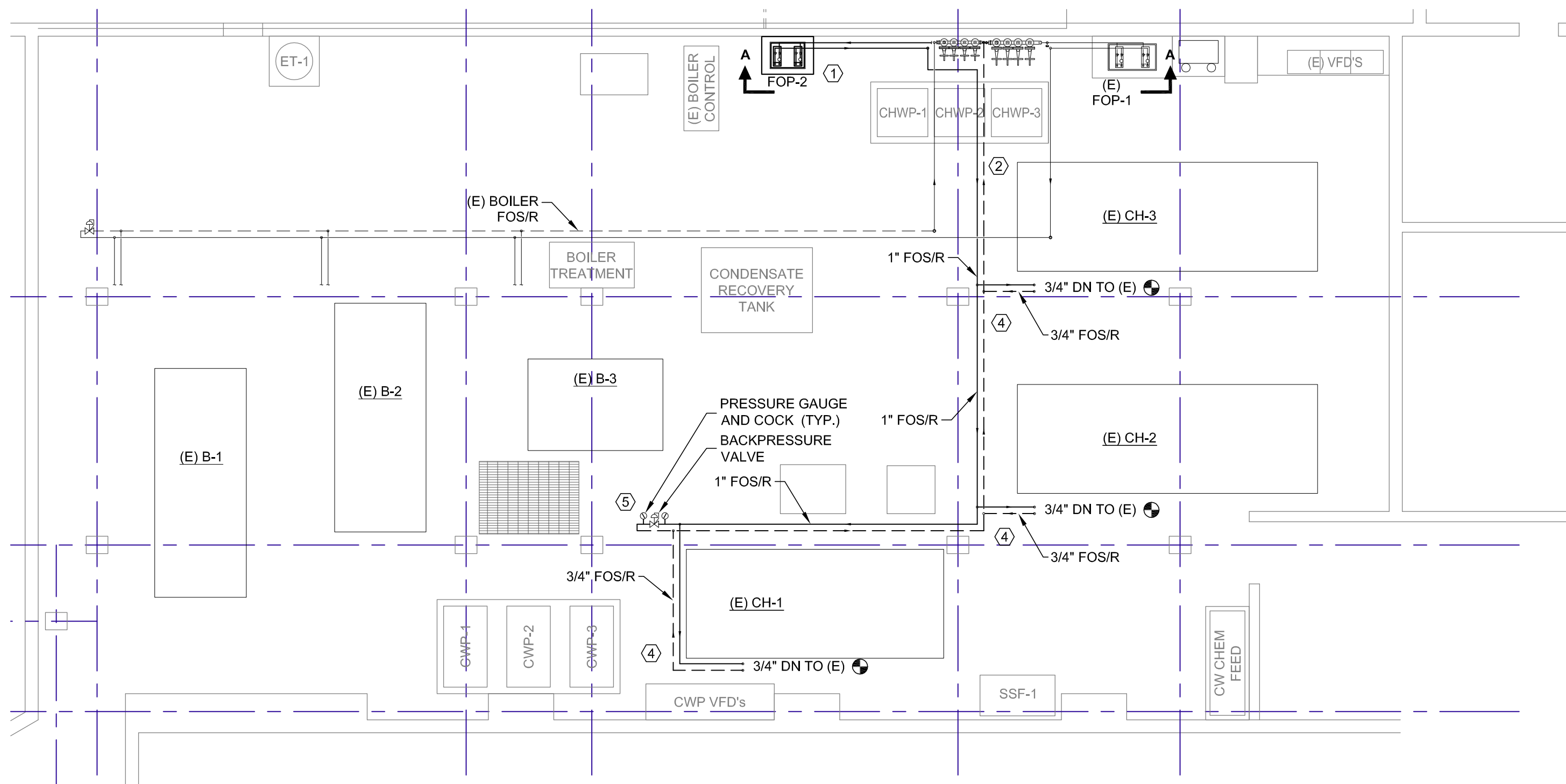
4 TYPICAL CHILLER CONNECTION DETAIL
SCALE: N.T.S.



3 FUEL OIL SYSTEM DETAIL ELEVATION A-A
SCALE: 1/2" = 1'-0"



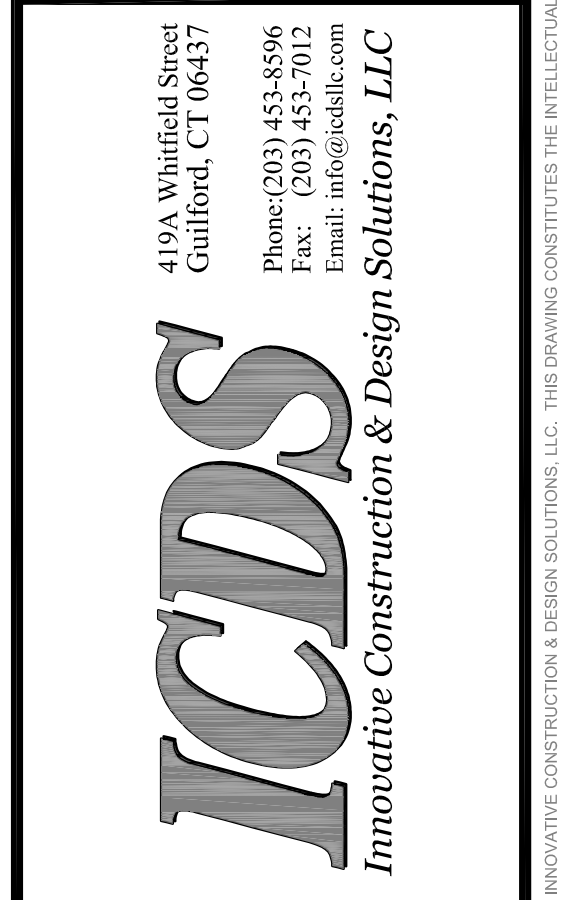
2 EXIST FUEL OIL SYSTEM DETAIL ELEVATION A-A
SCALE: 1/2" = 1'-0"



1 EXISTING CENTRAL PLANT FUEL OIL SYSTEM PART PLAN
SCALE: 1/8" = 1'-0"

Rev.	Date	Description

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SAMPLE DESIGN DRAWING SOMEWHERE, USA

FUEL OIL SYSTEM UPGRADES
BOILER ROOM EQUIPMENT LAYOUT

Project No.: -	Drawn By: kje
Date: --/--	Design By: KJE
Scale: AS NOTED	Check By: SDF

Drawing No.:
FO-1