



1

VICINITY MAP



CRW
ENGINEERING GROUP, LLC
3940 ARCTIC BLVD., SUITE 300
PRINCETON, ALASKA 99571
PHONE: (907) 582-3232
#AEC1882-AK

STATE OF ALASKA
Karl R. Hilber
REG. NO. 177099
PROFESSOR OF ENGINEERING

PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

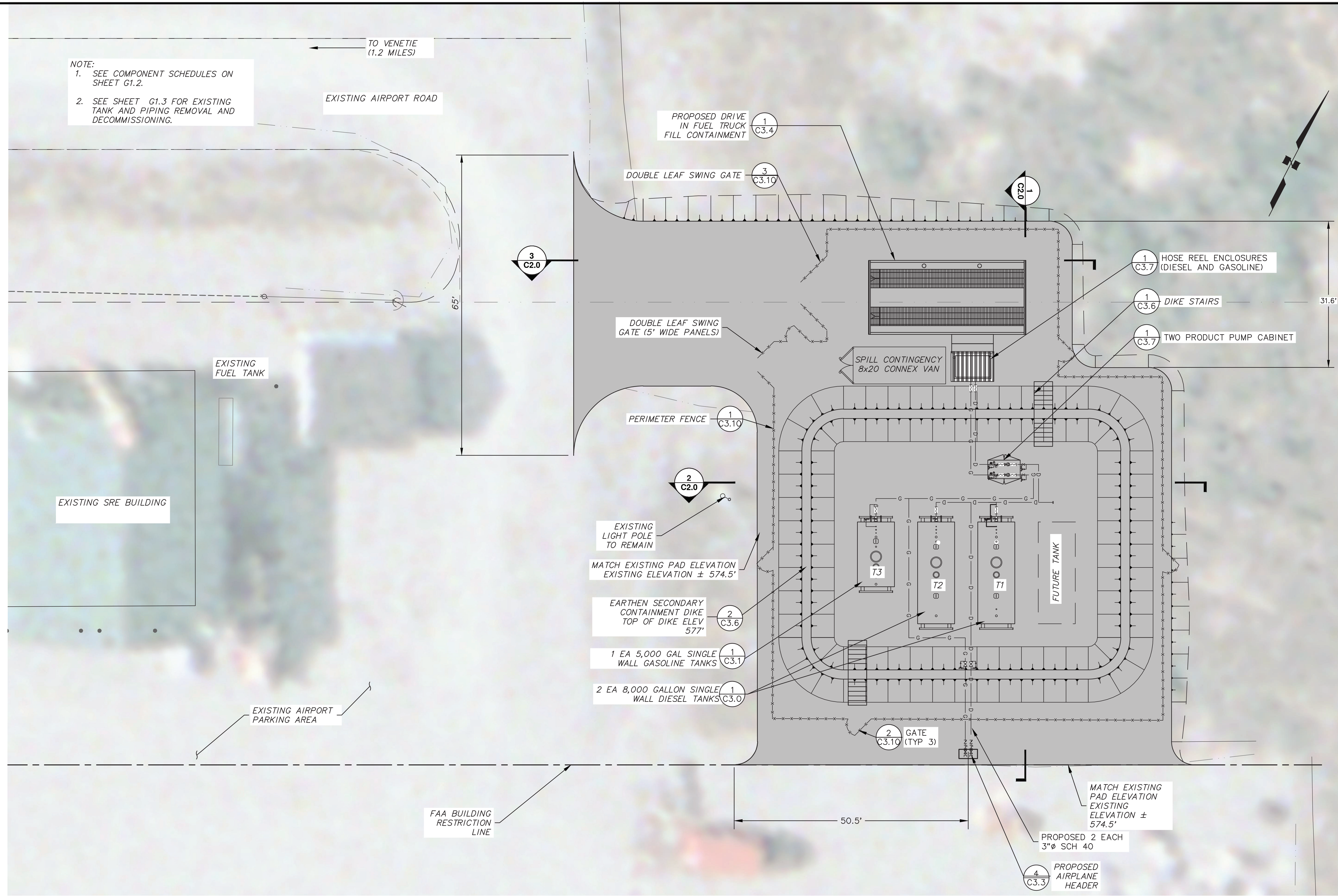
PROJECT NO. -	VENETIE, ALASKA
STATUS: ISSUED FOR CONSTRUCTION	POWER SYSTEM UPGRADE
DATE: NOV 2021	VICINITY MAP

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

SHEET NO. **C1.0**

File: \\10-stor01\vbasa\30416.00_Venetie_BFU_RPSU_Project\001_CADD_2019\01_Working_Sat\01_Civil\30416.00_Site_Plan-Tank_Farm.dwg PLOT DATE: 11/2/2021 1:38 PM



NOTE:
 1. SEE COMPONENT SCHEDULES ON SHEET G1.2.
 2. SEE SHEET G1.3 FOR EXISTING TANK AND PIPING REMOVAL AND DECOMMISSIONING.

TO VENETIE (1.2 MILES)

EXISTING AIRPORT ROAD

PROPOSED DRIVE IN FUEL TRUCK FILL CONTAINMENT

DOUBLE LEAF SWING GATE

DOUBLE LEAF SWING GATE (5' WIDE PANELS)

PERIMETER FENCE

EXISTING LIGHT POLE TO REMAIN

MATCH EXISTING PAD ELEVATION EXISTING ELEVATION ± 574.5'

EARTHEN SECONDARY CONTAINMENT DIKE TOP OF DIKE ELEV 577'

1 EA 5,000 GAL SINGLE WALL GASOLINE TANKS

2 EA 8,000 GALLON SINGLE WALL DIESEL TANKS

GATE (TYP 3)

MATCH EXISTING PAD ELEVATION EXISTING ELEVATION ± 574.5'

PROPOSED 2 EACH 3"Ø SCH 40

PROPOSED AIRPLANE HEADER

HOSE REEL ENCLOSURES (DIESEL AND GASOLINE)

DIKE STAIRS

TWO PRODUCT PUMP CABINET

SPILL CONTINGENCY 8x20 CONNEX VAN

FUTURE TANK

FAA BUILDING RESTRICTION LINE

EXISTING FUEL TANK

EXISTING SRE BUILDING

EXISTING AIRPORT PARKING AREA



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 COMMUNITY TANK FARM SITE PLAN
 PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	HOR. -
VER. -	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

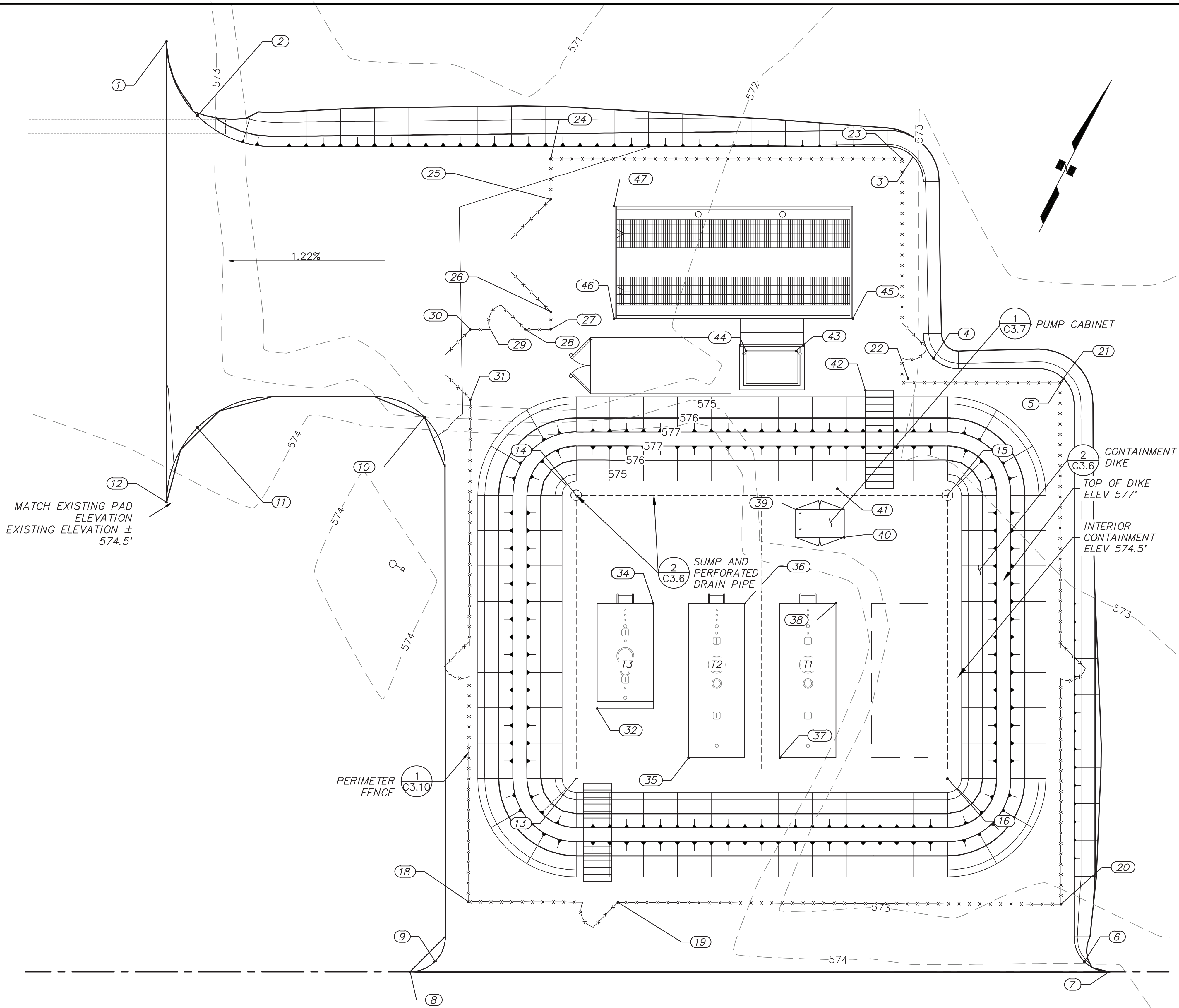
SHEET NO. **C1.1**

1 VILLAGE OF VENETIE TANK FARM SITE PLAN



File: J:\JobsData\30416.00_Venetie\01_CADD_2018\01_Working_Sets\01_Civil\30416.00_TANK_FARM_GRADING_PLAN.dwg PLOT DATE: 11/2/2021 11:13 AM

GRADING POINT TABLE				
POINT	EASTING	NORTHING	ELEVATION	LOCATION
1	1586048.6291'	4754910.2384'	573.724'	EDGE OF DRIVEWAY
2	1586057.4175'	4754902.8514'	573.728'	PAD CORNER, R =15'
3	1586150.4797'	4754944.5957'	574.163'	PAD CORNER, R =5'
4	1586166.3024'	4754920.4914'	574.386'	PAD CORNER, R =5'
5	1586184.1042'	4754926.4388'	574.496'	PAD CORNER, R =5'
6	1586224.9378'	4754854.1900'	574.152'	PAD CORNER, R =5'
7	1586228.7504'	4754854.5203'	574.073'	PAD CORNER, R =5'
8	1586140.4639'	4754808.6927'	574.436'	PAD CORNER, R =5'
9	1586142.9268'	4754811.6241'	574.441'	PAD CORNER, R =5'
10	1586105.8736'	4754879.6437'	573.716'	PAD CORNER, R =10'
11	1586077.8860'	4754863.4507'	573.845'	PAD CORNER, R =15'
12	1586078.8770'	4754852.0131'	574.100'	EDGE OF DRIVEWAY
13	1586148.7386'	4754843.9718'	574.500'	DIKE CORNER, R= 9'
14	1586130.1408'	4754879.7713'	574.500'	DIKE CORNER, R= 9'
15	1586177.0535'	4754904.1423'	574.500'	DIKE CORNER, R= 9'
16	1586195.6512'	4754868.3427'	574.500'	DIKE CORNER, R= 9'
18	1586143.1826'	4754821.3431'	574.434'	FENCE CORNER
19	1586162.1467'	4754831.0870'	574.482'	FENCE CORNER
20	1586218.2244'	4754859.8999'	574.363'	FENCE CORNER
21	1586183.8759'	4754925.7167'	574.500'	FENCE CORNER
22	1586164.4009'	4754916.3074'	574.439'	FENCE CORNER
23	1586149.2402'	4754943.6507'	574.169'	FENCE CORNER
24	1586104.8703'	4754920.6007'	573.957'	FENCE CORNER
25	1586107.5295'	4754915.4819'	574.048'	FENCE CORNER
26	1586114.9083'	4754901.2777'	574.300'	FENCE CORNER
27	1586116.0753'	4754899.0740'	574.340'	FENCE CORNER
28	1586112.8120'	4754897.3787'	574.322'	FENCE CORNER
29	1586108.4198'	4754895.0970'	574.216'	FENCE CORNER
30	1586105.9239'	4754893.7649'	574.068'	FENCE CORNER
31	1586110.5339'	4754884.8909'	574.060'	FENCE CORNER
32	1586146.8126'	4754854.1868'	574.5	TANK CORNER
33	1586146.9904'	4754871.1825'	574.5	TANK CORNER
34	1586146.9904'	4754871.1825'	574.5	TANK CORNER
35	1586161.5742'	4754853.9669'	574.5	TANK CORNER
36	1586158.5314'	4754877.1777'	574.5	TANK CORNER
37	1586173.1104'	4754859.9599'	574.5	TANK CORNER
38	1586170.0676'	4754883.1707'	574.5	TANK CORNER
39	1586158.7223'	4754892.3655'	574.5	PUMP CABINET
40	1586166.7781'	4754892.0429'	574.5	PUMP CABINET
41	1586162.6964'	4754897.7412'	574.5	STAIR
42	1586159.7920'	4754912.0088'	574.488'	STAIR
43	1586148.4298'	4754912.4161'	574.423'	HOSE REEL CORNER
44	1586142.1273'	4754909.1420'	574.423'	HOSE REEL CORNER
45	1586153.5078'	4754920.2516'	574.374'	TRUCK CONTAINMENT
46	1586123.3362'	4754904.5776'	574.343'	TRUCK CONTAINMENT



1

COMMUNITY TANK FARM GRADING



PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	I
SEWER GRID	I

VENETIE, ALASKA
POWER SYSTEM UPGRADE
TANK FARM GRADING PLAN

PROJECT NO. -
ISSUED FOR CONSTRUCTION

DATE: NOV 2021

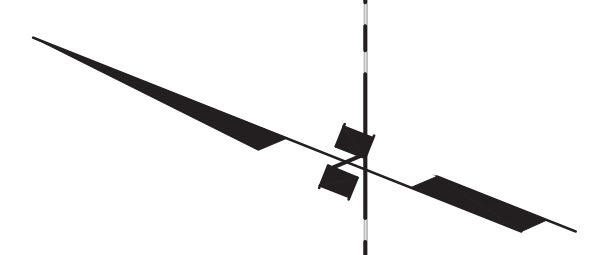
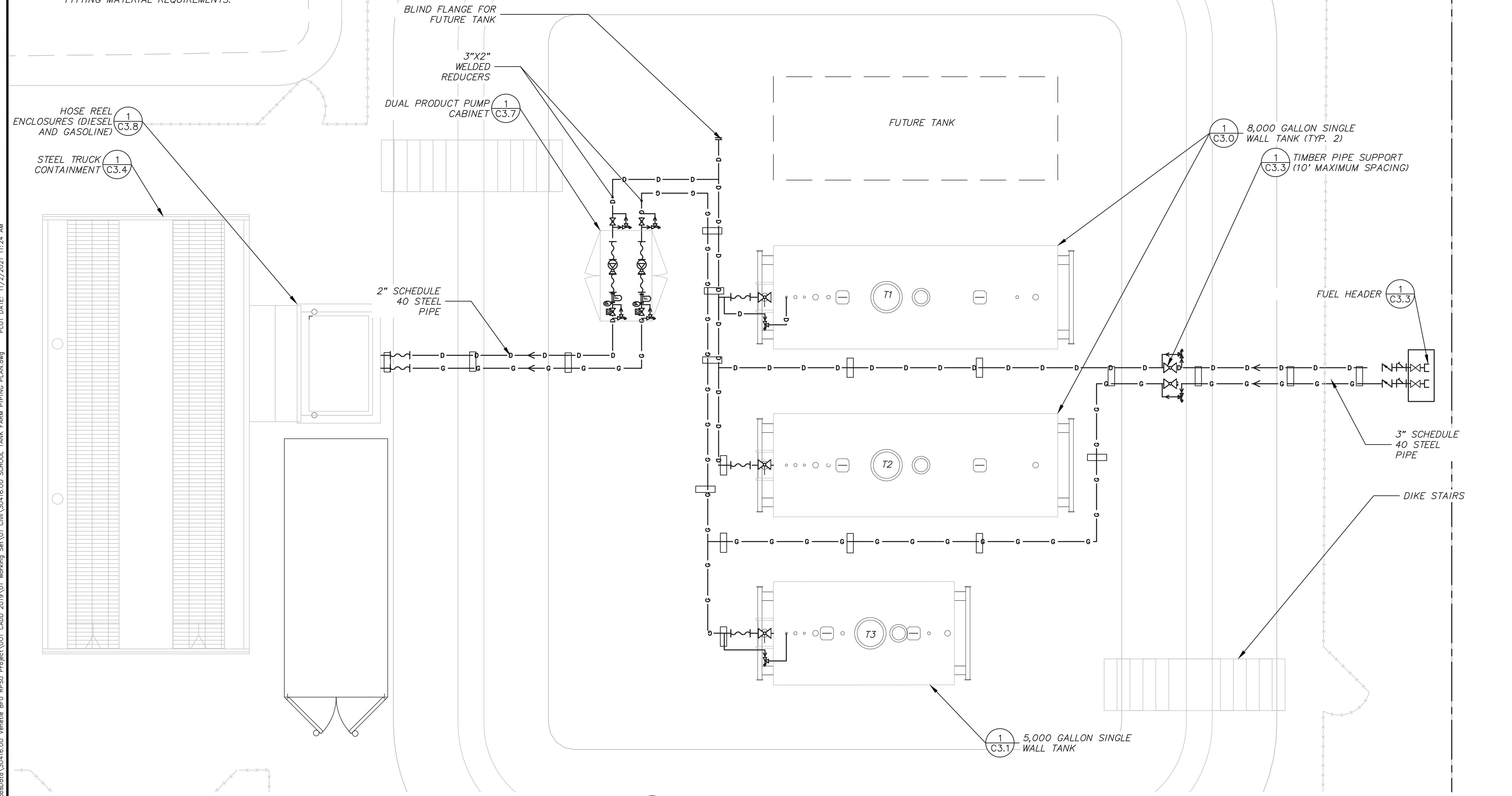
REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	1" = 10'
HOR. VER.	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

SHEET NO.
C1.2

File: J:\JobsData\30416.00_Venetie_BFU_RFSU_Project\001_CADD_2019\01_Working_Set\01_Civil\30416.00_SCHOOL_TANK_FARM_PIPING_PLAN.dwg PLOT DATE: 11/2/2021 11:24 AM

- NOTES:**
1. NOT ALL TANK APPURTENANCES ARE SHOWN ON THIS SHEET. SEE TANK DETAILS.
 2. SEE SHEET G1.1 FOR SYMBOL LEGEND.
 3. SEE SPECIFICATIONS FOR PIPING AND FITTING MATERIAL REQUIREMENTS.



1

PIPING PLAN
SCALE: GRAPHIC



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
TANK FARM PIPING PLAN

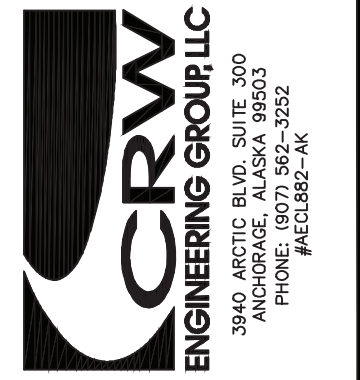
PROJECT NO. -
STATUS: ISSUED FOR CONSTRUCTION
DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

SHEET NO.
C1.3

NOTE:
 1. SEE COMPONENT SCHEDULES ON SHEET G1.4.
 2. SEE SHEET G1.3 FOR EXISTING TANK AND PIPING REMOVAL AND DECOMMISSIONING.



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

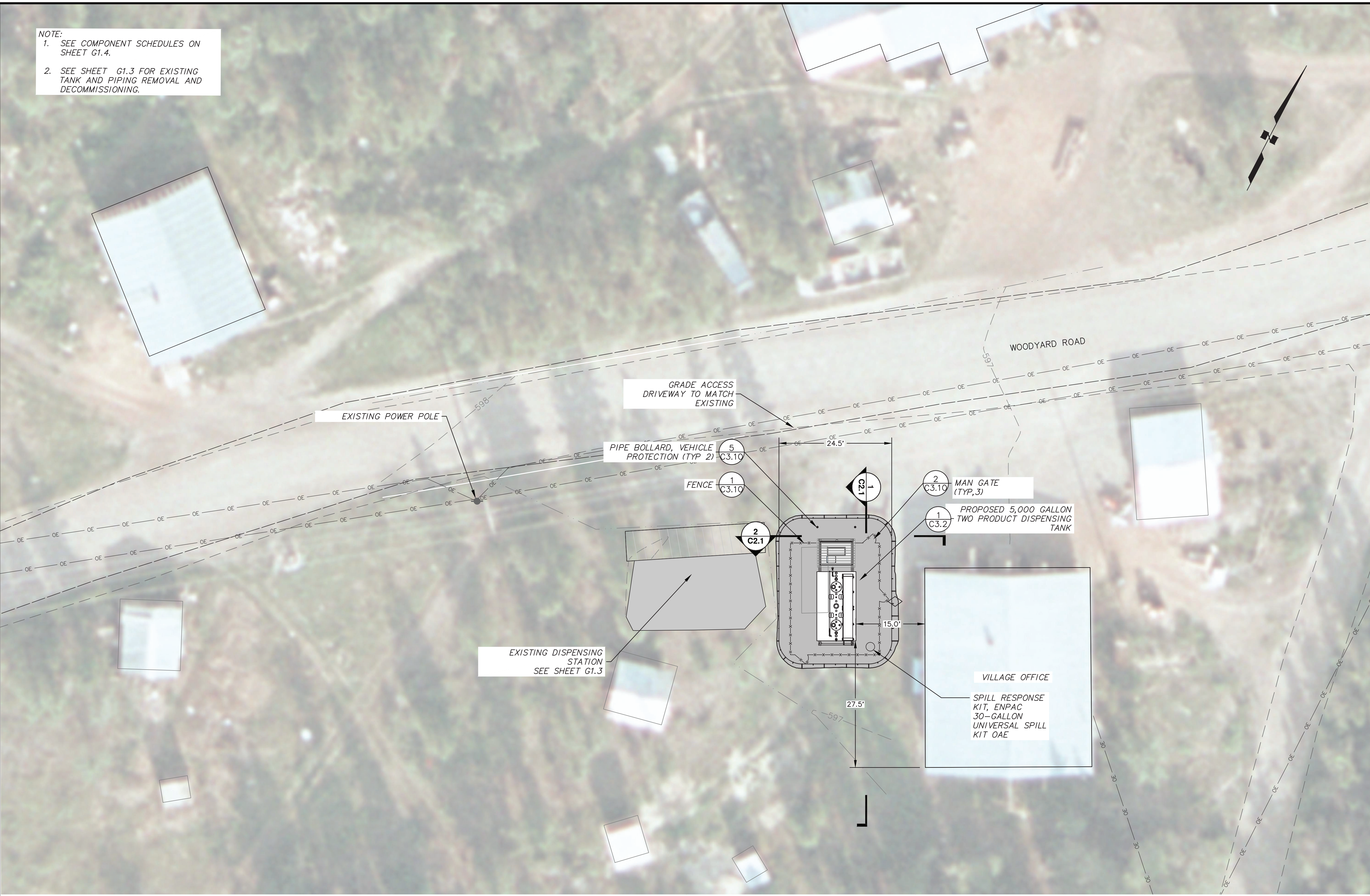
VENETIE, ALASKA
POWER SYSTEM UPGRADE
 RETAIL DISPENSING FACILITY SITE PLAN
 PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	HOR. -
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

SHEET NO. **C1.4**

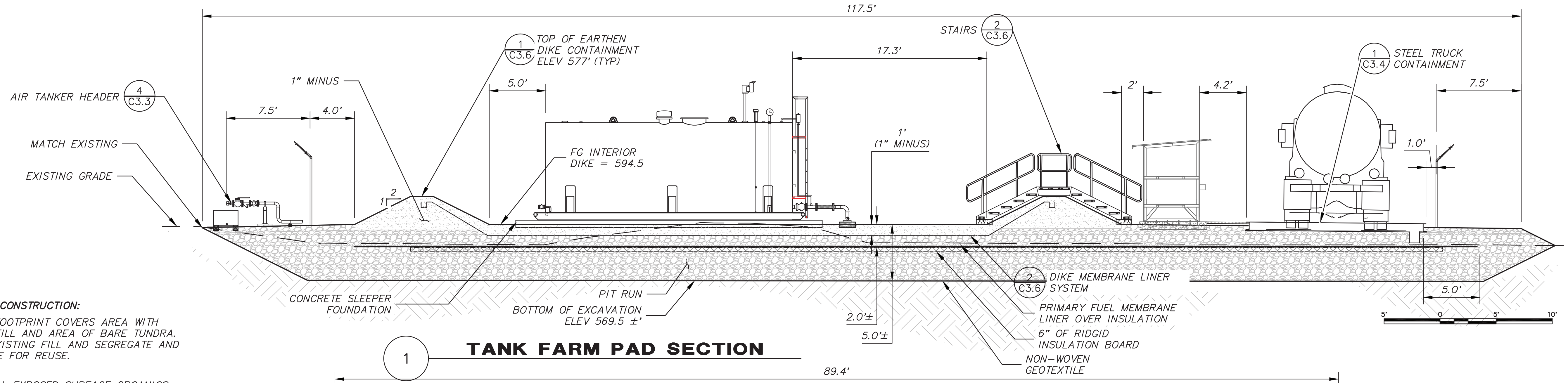
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1 RETAIL DISPENSING STATION SITE PLAN

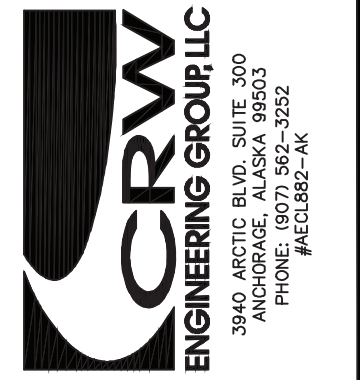
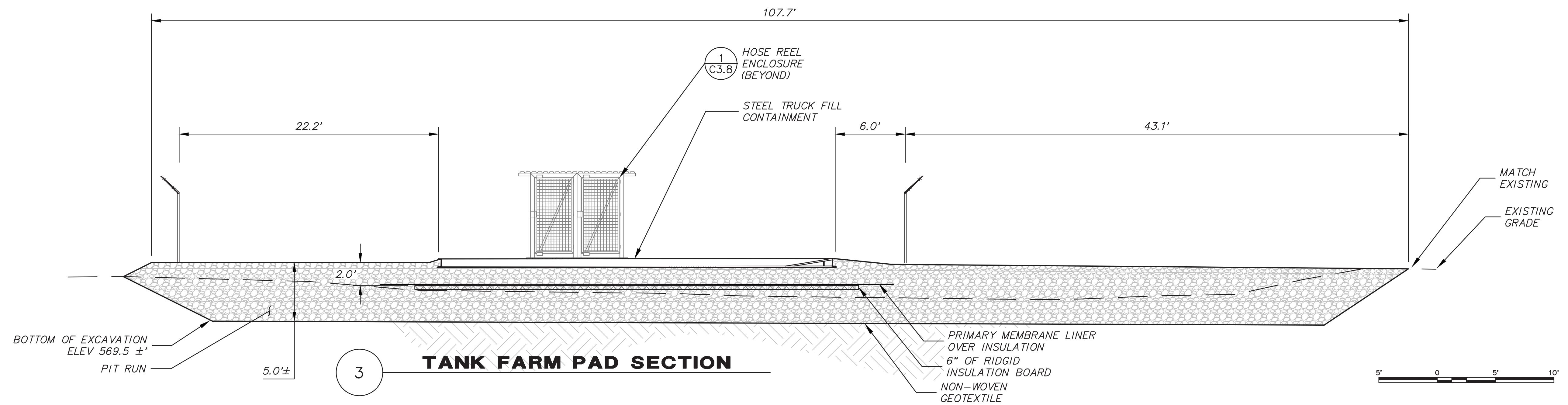
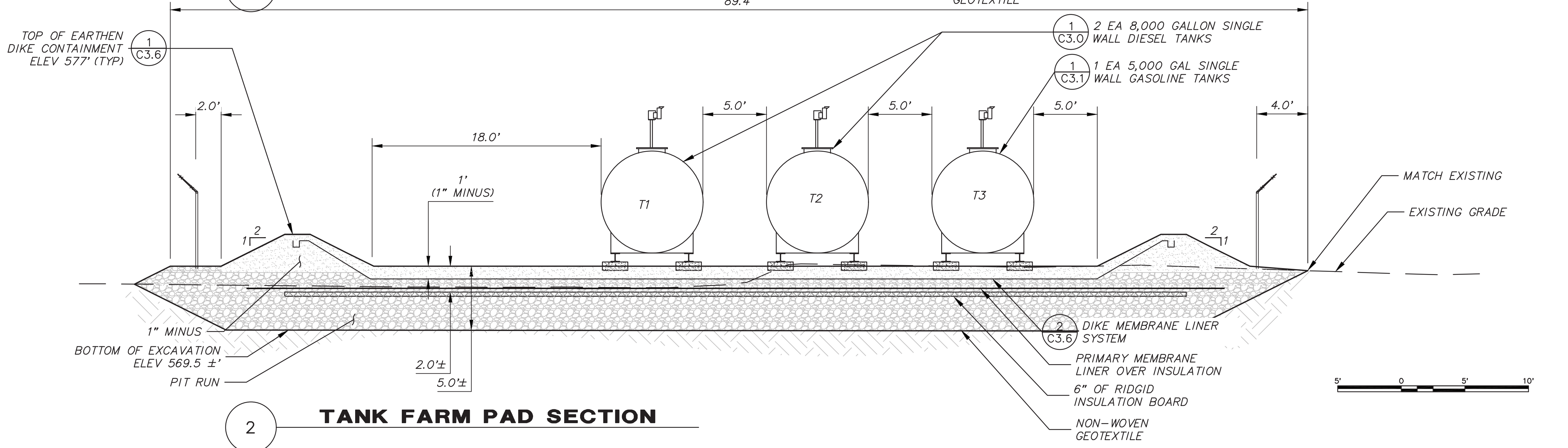


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SEQUENCE OF CONSTRUCTION:

1. FACILITY FOOTPRINT COVERS AREA WITH EXISTING FILL AND AREA OF BARE TUNDRA. REMOVE EXISTING FILL AND SEGREGATE AND STOCK PILE FOR REUSE.
2. REMOVE ALL EXPOSED SURFACE ORGANICS AND ORGANIC SILTS BENEATH PAD FOOTPRINT TO EXPOSE COMPETENT MINERAL SILTS (ORGANIC SILT LAYER TYPICALLY 2-3 FT THICK). MINERAL SILTS ARE MOISTURE SENSITIVE. WORK IN INCLEMENT WEATHER AT CONTRACTORS RISK.
3. OVER EXCAVATE AS REQUIRED TO REMOVE DEEPER POCKETS OF ORGANICS/SILTS AS REQUIRED AND DIRECTED BY THE ENGINEER.
4. SCARIFY EXPOSED MINERAL SILTS 8" DEEP THEN PROOF COMPACT TO 95% MAX DRY DENSITY.
5. INSTALL NON-WOVEN GEOTEXTILE FABRIC.
6. PLACE AND COMPACT CLASSIFIED FILL MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS.
7. INSTALL RIGID BOARD INSULATION AND MEMBRANE LINER SYSTEM SHOWN. COVER LINER WITH GEOTEXTILE. TOP OF LINER ELEV = 572.5' ±
8. CONSTRUCT LINED DIKES TANK SLEEPER FOUNDATIONS AND PLACE TANKS.



PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	I
SEWER GRID	I

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 COMMUNITY TANK FARM SECTIONS

PROJECT NO. -
 BY KRH
 DATE 11/1/21
 REV 0

ISSUED FOR CONSTRUCTION

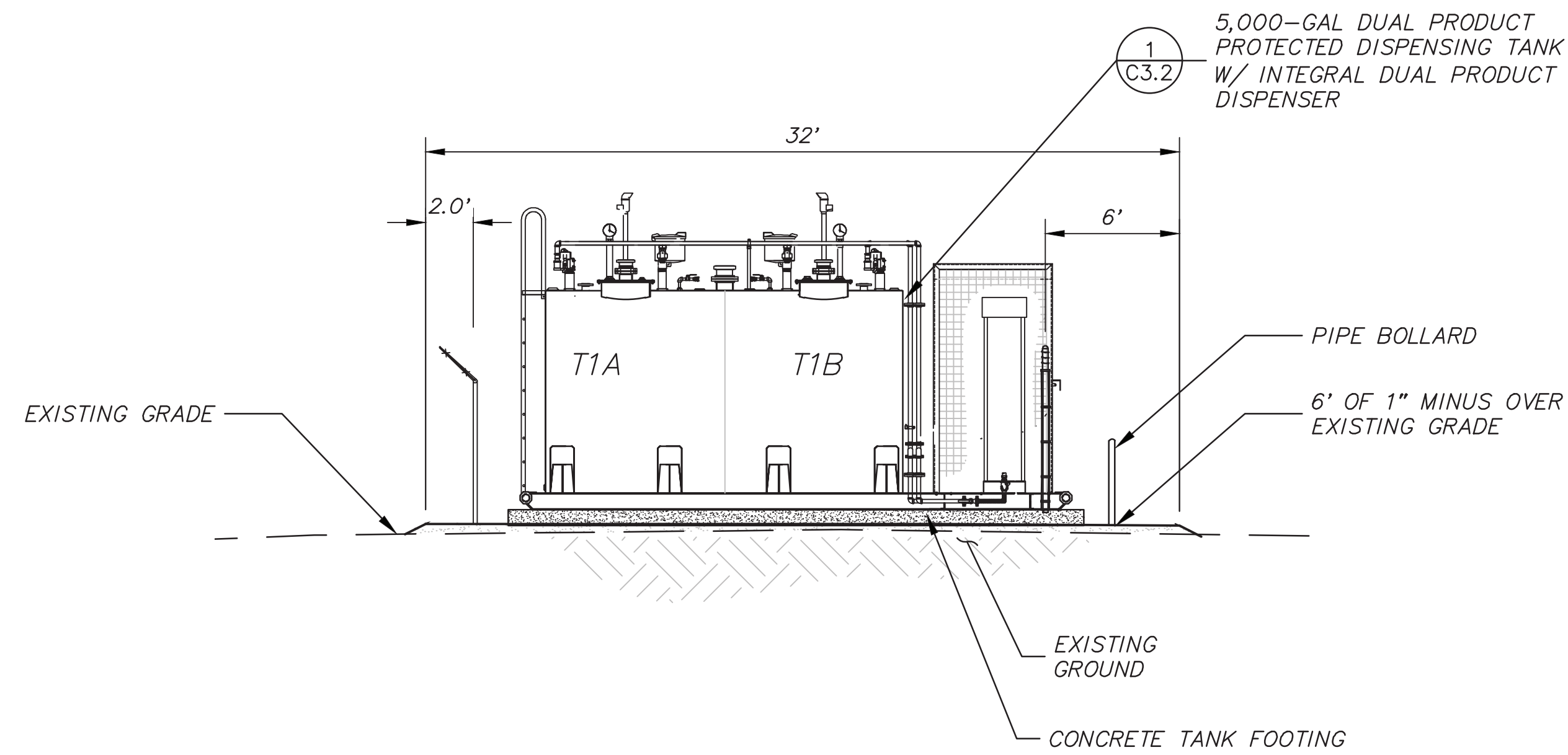
DATE: NOV 2021

STATUS: ISSUED FOR CONSTRUCTION

SCALE	HOR.	VER.	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY

SHEET NO. **C2.0**

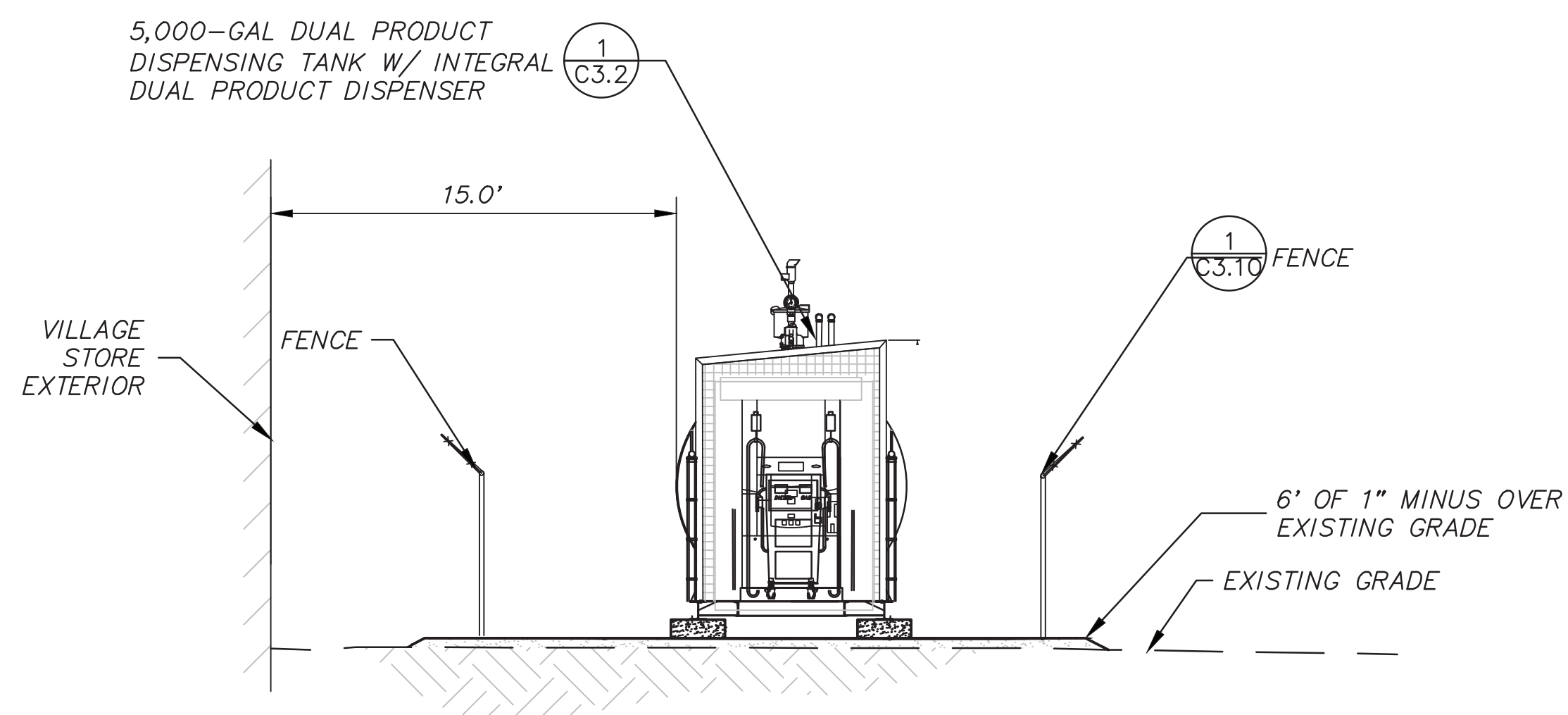
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1

RETAIL DISPENSING TANK SECTION

SCALE: GRAPHIC



2

RETAIL DISPENSING TANK SECTION

SCALE: GRAPHIC



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 RETAIL DISPENSING SITE SECTIONS
 PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	-
HOR. VER.	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

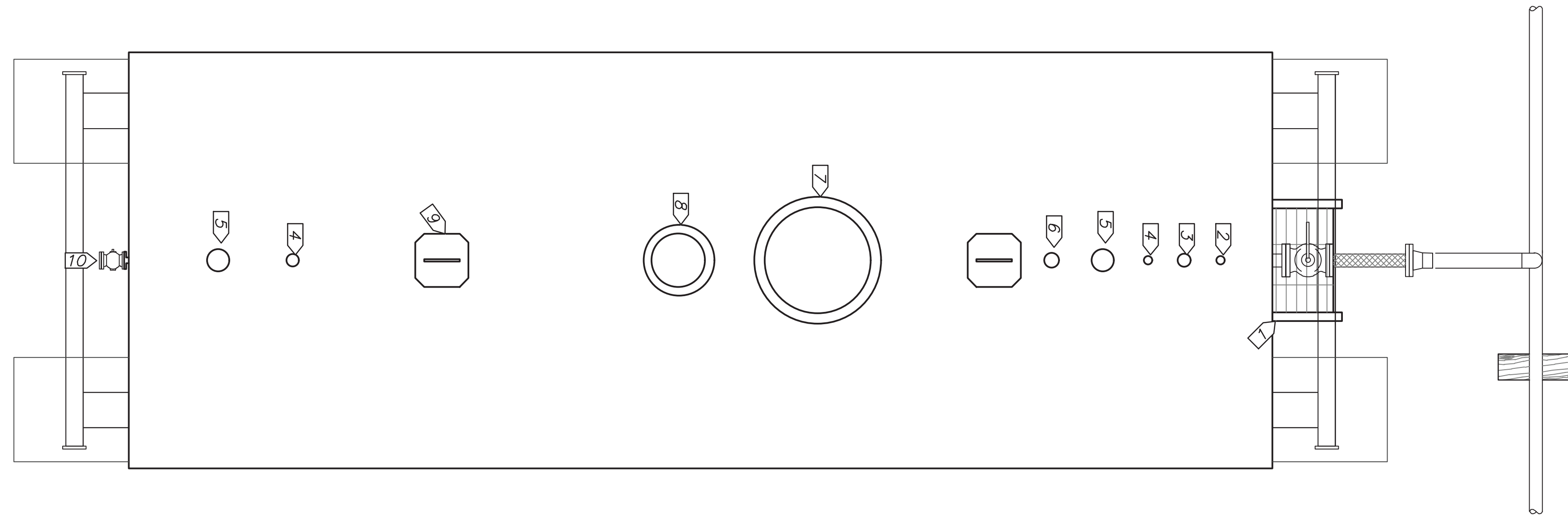
SHEET NO.
C2.1

SPECIFIC NOTES:

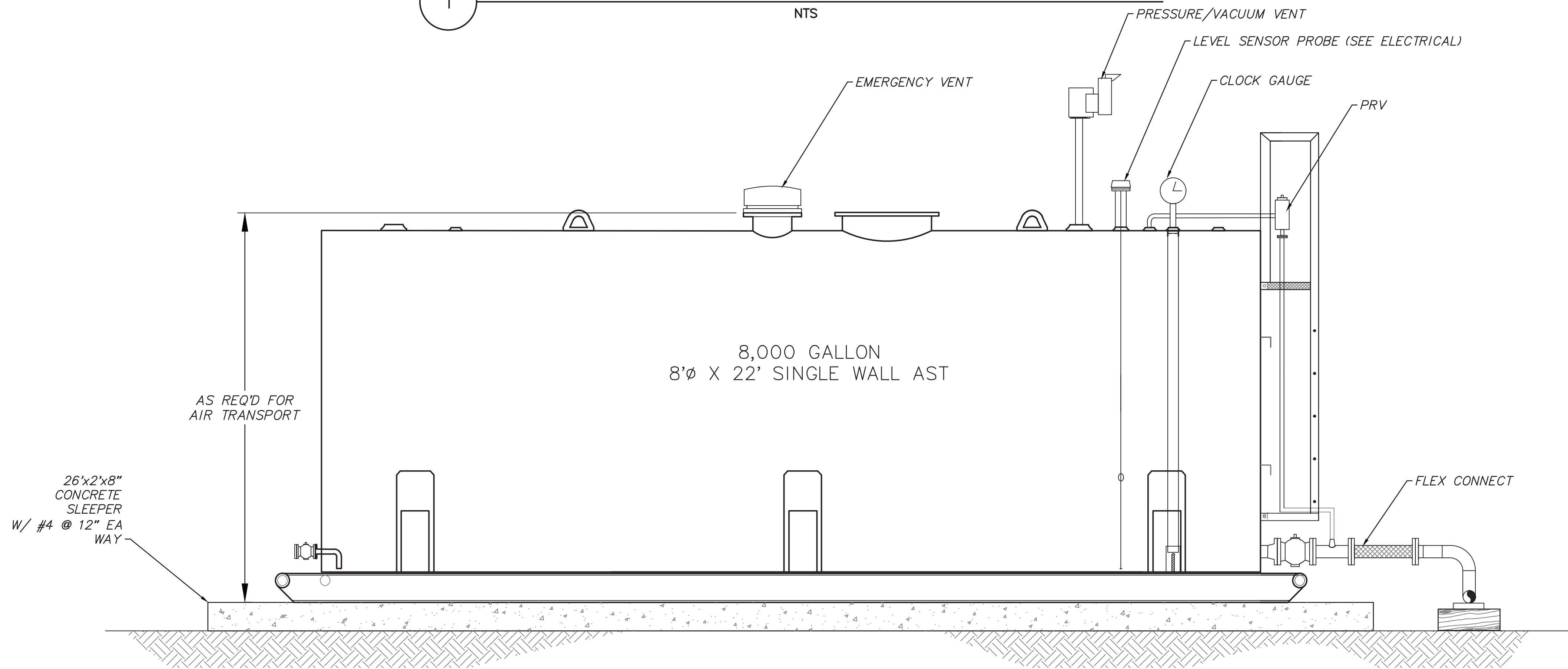
- 1 ACCESS LADDER
- 2 2" NPT THREADED TANK OPENING - GAUGE HATCH
- 3 3" NPT THREADED TANK OPENING - GAUGE CLOCK PORT
- 4 2" NPT THREADED TANK OPENING - SPARE
- 5 4" NPT THREADED TANK OPENING - SPARE
- 6 3" NPT THREADED TANK OPENING - COMBINATION VENT
- 7 24" TANK ACCESS HATCH W/COVER
- 8 10" FLANGED E-VENT
- 9 PHOENIX FORGE LIFT LUG
- 10 1" ANSI#300 R.F - FLANGED WATER DRAW

NOTES:

- THE PROPOSED TANK IS A NOMINAL 8,000 GALLON 8'x22' UL 142 LISTED TANK. CONTRACTOR SHALL COORDINATE WITH AIR FREIGHT PROVIDER PRIOR TO TANK PROCUREMENT TO CONFIRM TANK DIMENSIONS AND WEIGHT ARE COMPATIBLE WITH AIR SHIPPING.
- CONTRACTOR SHALL FURNISH AND INSTALL ALL VALVES, NORMAL VENTS, EMERGENCY VENTS, LEVEL GAUGES, SAMPLE HATCHES, FLOATS, PLUGS AND OTHER APPURTENANCES NOTED ON THE DESIGN DRAWINGS.
- INSTALL PRESSURE RELIEF VALVE (PRV) ASSEMBLIES IN LOCATIONS INDICATED ON PIPING PLAN.
- ALL REQUIRED PENETRATIONS, STANDOFFS, PIPE SUPPORTS, ETC., SHALL BE BOLT ON OR FACTORY INSTALLED. FIELD WELDING ON TANKS IS PROHIBITED.



PLAN - 8,000 GALLON DOUBLE WALL TANK



END ELEVATION - 8,000 GALLON DOUBLE WALL TANK

File: \\10-share01\vbasesData\30416.00_Venetie_BFU_RPSJ_Project\001_CADD_2019\01_Working_Sat\01_Civil\30416.00_DETAILS_TANK.dwg PLOT DATE: 11/2/2021 12:35 PM



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 8,000 GALLON SINGLE WALL TANK DETAILS

PROJECT NO. -
 BY KRH
 DATE 11/1/21
 REV 0

STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

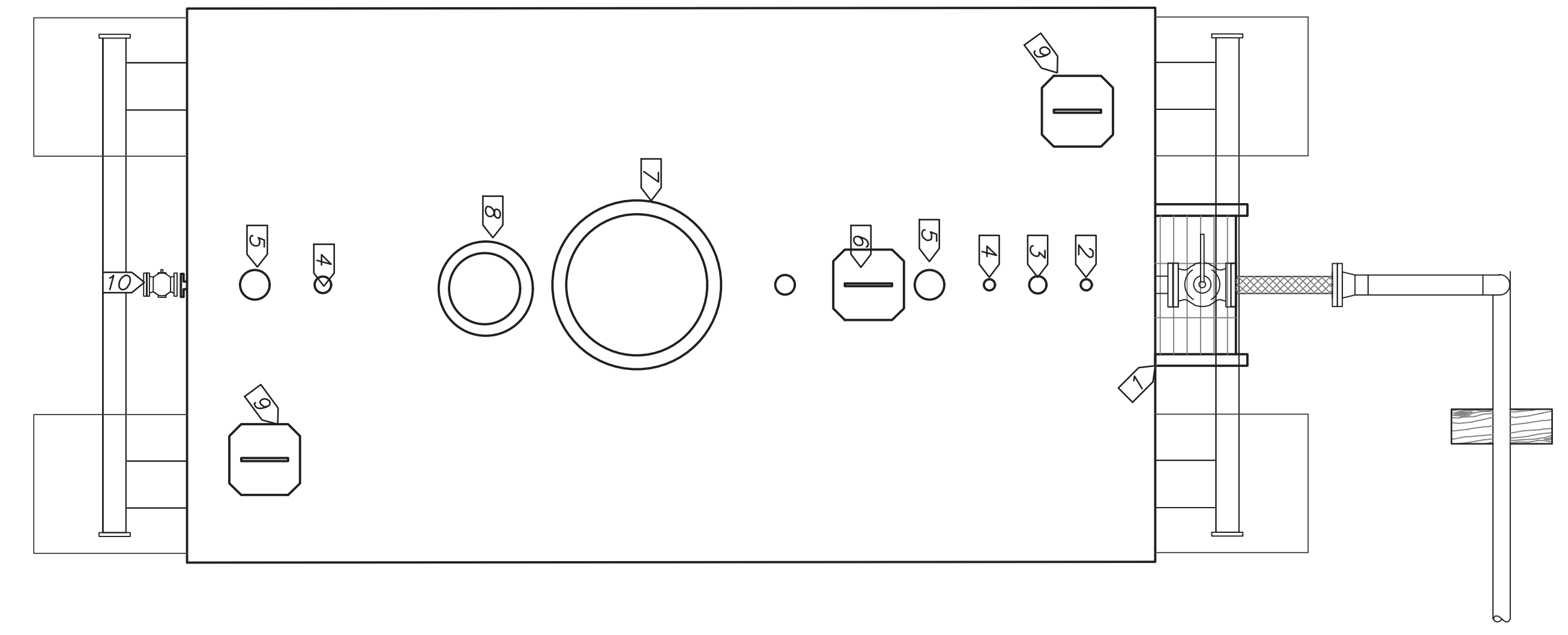
REV	DATE	DESCRIPTION
0	11/1/21	ISSUED FOR CONSTRUCTION

SCALE	-
HOR. VER.	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

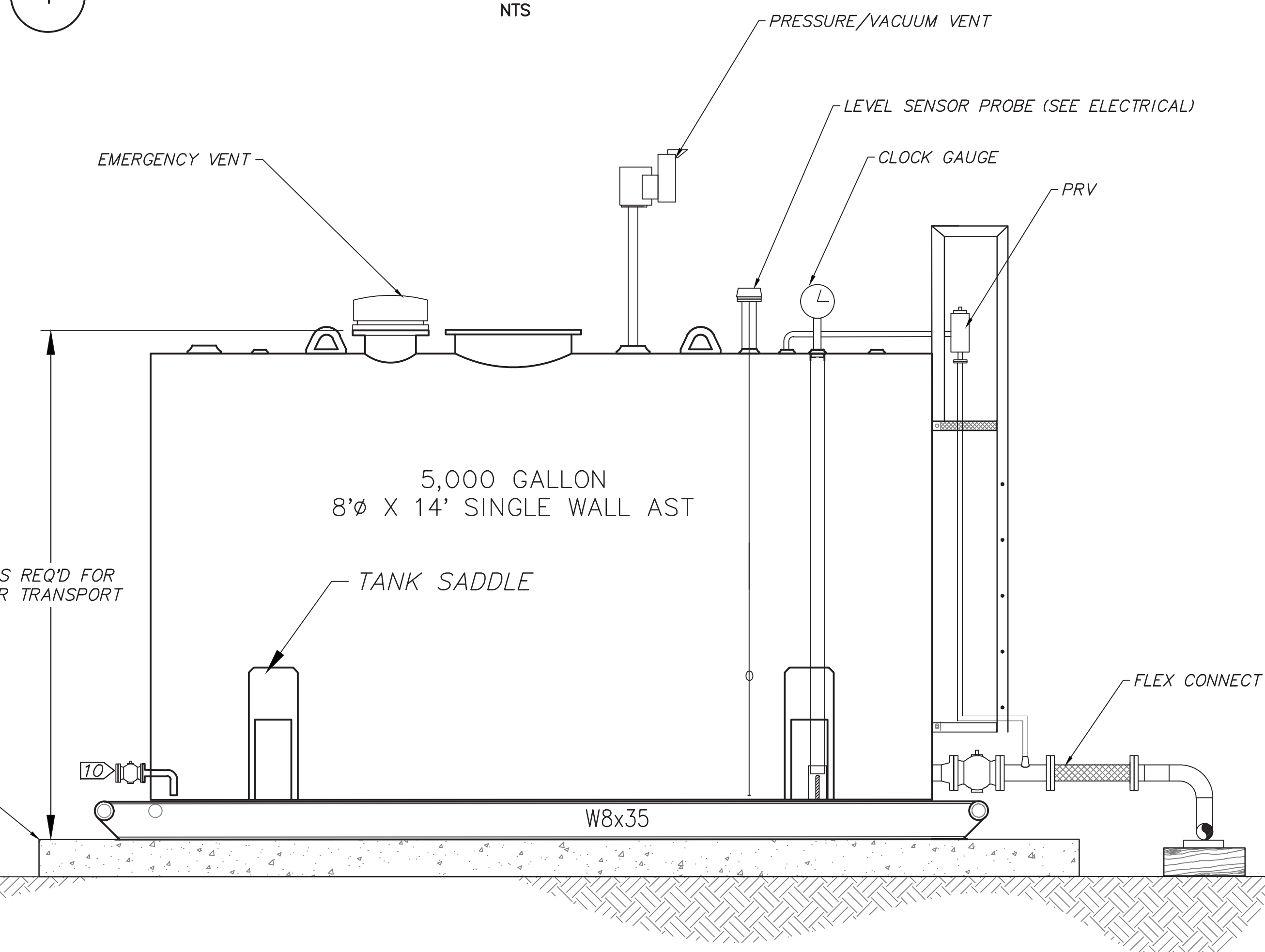
SHEET NO.
C3.0

SPECIFIC NOTES:

- 1 ACCESS LADDER
- 2 2" NPT THREADED TANK OPENING – GAUGE HATCH
- 3 3" NPT THREADED TANK OPENING – GAUGE CLOCK PORT
- 4 2" NPT THREADED TANK OPENING – SPARE
- 5 4" NPT THREADED TANK OPENING – SPARE
- 6 3" NPT THREADED TANK OPENING – COMBINATION VENT
- 7 24" TANK ACCESS HATCH W/COVER
- 8 10" FLANGED E-VENT
- 9 PHOENIX FORGE LIFT LUG
- 10 1" ANSI#300 R.F – FLANGED WATER DRAW



1 PLAN - 5,000 GALLON DOUBLE WALL TANK



2 END ELEVATION - 5,000 GALLON DOUBLE WALL TANK

NOTES:

1. THE PROPOSED TANK IS A NOMINAL 5,000 GALLON 8'Øx15' UL 142 LISTED TANK. CONTRACTOR SHALL COORDINATE WITH AIR FREIGHT PROVIDER PRIOR TO TANK PROCUREMENT TO CONFIRM TANK DIMENSIONS AND WEIGHT ARE COMPATIBLE WITH AIR SHIPPING.
2. CONTRACTOR SHALL FURNISH AND INSTALL ALL VALVES, NORMAL VENTS, EMERGENCY VENTS, LEVEL GAUGES, SAMPLE HATCHES, FLOATS, PLUGS AND OTHER APPURTENANCES NOTED ON THE DESIGN DRAWINGS.
3. INSTALL PRESSURE RELIEF VALVE (PRV) ASSEMBLIES IN LOCATIONS INDICATED ON PIPING PLAN.
4. ALL REQUIRED PENETRATIONS, STANDOFFS, PIPE SUPPORTS, ETC., SHALL BE BOLT ON OR FACTORY INSTALLED. FIELD WELDING ON TANKS IS PROHIBITED.

File: \\10-stor01\vbasaData\30416.00 Venetie BEU Project\001 CAD 2019\01 Working Set\01 Civil\30416.00 DETAILS TANK.dwg PLOT DATE: 11/2/2021 1:18 PM



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 5,000 GALLON SINGLE WALL TANK DETAILS
 PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

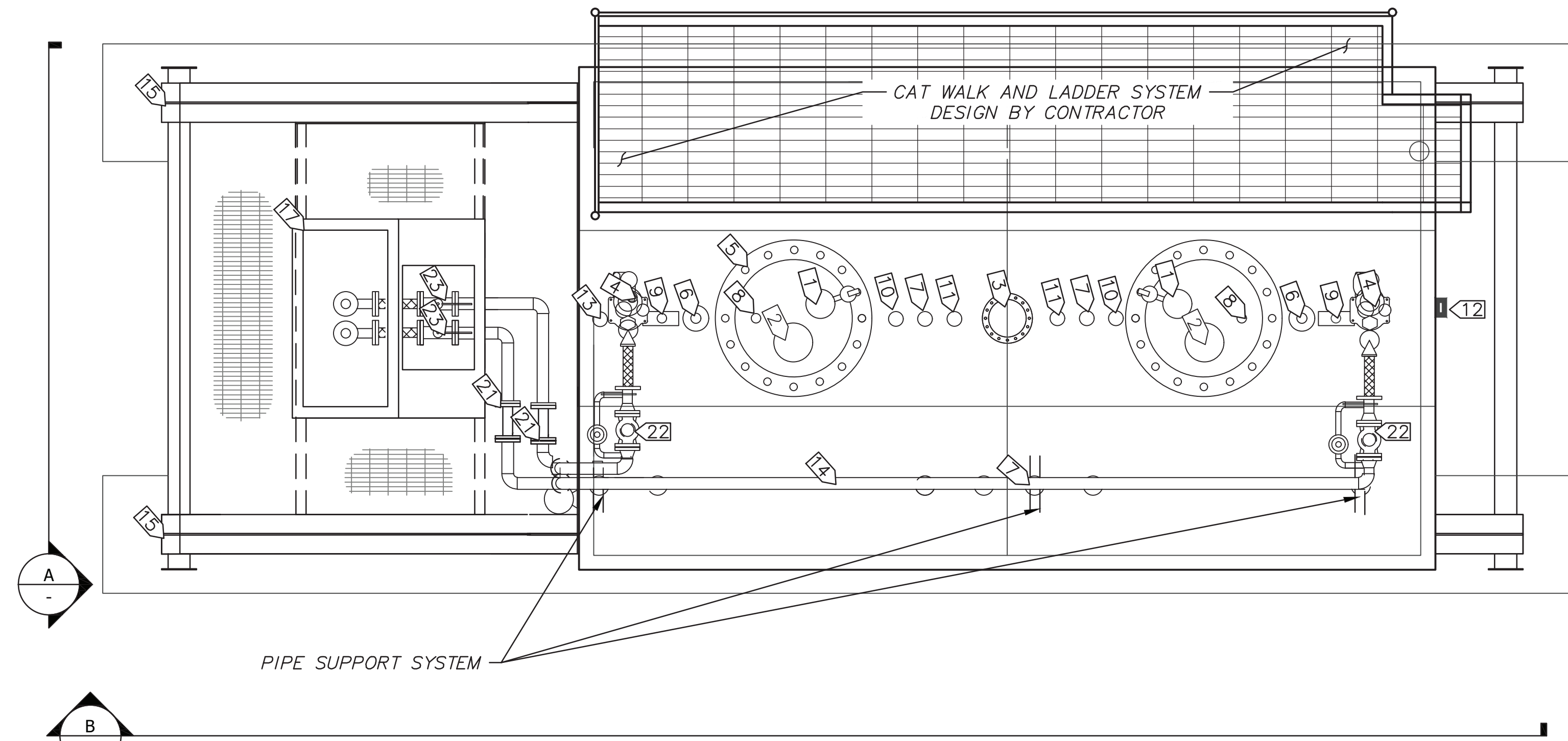
SHEET NO. **C3.1**

SPECIFIC NOTES:

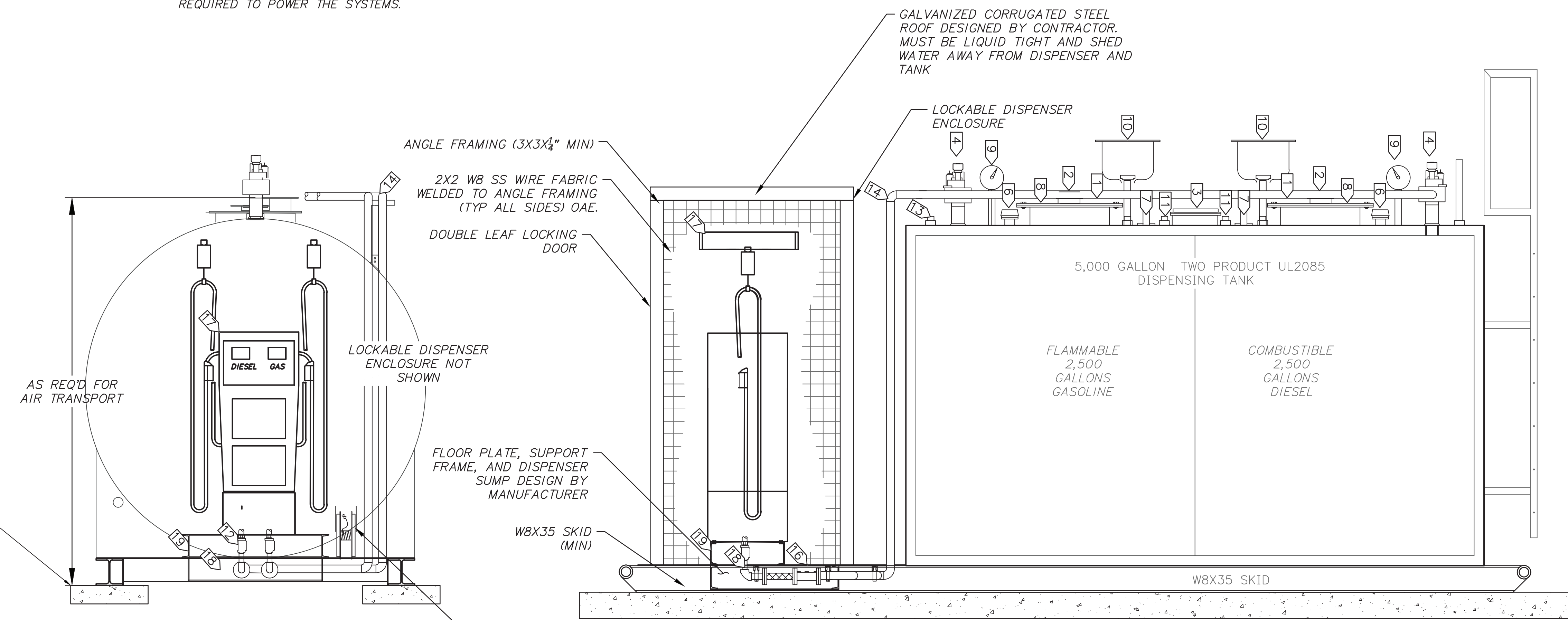
- 1 3" FPT - PRESSURE VACUUM VENT W/ WHISTLE ALARM
- 2 6" FLANGED - PRIMARY E-VENT
- 3 8" FLANGED - SECONDARY E-VENT
- 4 4" FPT - SUBMERSIBLE PUMP
- 5 24" MANHOLE
- 6 3" FLANGED - FLOATS (BY OTHERS)
- 7 2" FPT - WATER DRAW
- 8 2" FPT - SPARE
- 9 2" FPT - CLOCK GAUGE
- 10 4" FPT - 6 GALLON FILL BUCKET W/ FILL LIMITER AND DROP TUBE
- 11 4" FPT - SPARE
- 12 SHEAR VALVE
- 13 2" FPT - GAUGE HATCH
- 14 2" SCHEDULE 80 STEEL PIPING
- 15 SKID EXTENSIONS
- 16 DISPENSER FLOOR PLATE
- 17 DUAL PRODUCT DISPENSER
- 18 DISPENSER CONNECTIVE PIPING
- 19 CONTAINMENT SUMP
- 20 PIPE SUPPORT (NOT USED)
- 21 2" STRAINER
- 22 2" BALL VALVE WITH 1" PRV
- 23 ISOLATION BALL VALVE

NOTES:

- 1. FURNISH AND INSTALL ONE (1) NEW, 5,000-GALLON NOMINAL VOLUME, UL-2085 LISTED, PROTECTED, DOUBLE WALL, DUAL PRODUCT, HORIZONTAL, SKID MOUNTED ABOVEGROUND STORAGE TANK FOR DIESEL AND GASOLINE SERVICE. THE TANK SHALL INCLUDE AN INTEGRAL RETAIL DISPENSING SYSTEM INCLUDING DUAL PRODUCT DISPENSER, PUMPS, PIPING, VALVES AND OTHER CODE REQUIRED APPURTENANCES AS DESCRIBED IN THE MEMORANDUM OF AGREEMENT BETWEEN THE AEA AND STATE FIRE MARSHAL, AND AS DESCRIBED IN THE PROJECT SPECIFICATIONS AND SHOWN ON THE DRAWINGS.
- 2. CONTRACTOR SHALL COORDINATE WITH AIR FREIGHT PROVIDER PRIOR TO TANK PROCUREMENT TO CONFIRM TANK DIMENSIONS AND WEIGHT ARE COMPATIBLE WITH AIR SHIPPING. THIS MAY REQUIRE PARTIAL DISASSEMBLY FOR SHIPMENT AND FIELD ERECTION.
- 3. DRAWINGS ARE DIAGRAMMATICAL AND DO NOT INCLUDE ALL REQUIRED ELEMENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM. MAXIMUM OUTER DIMENSIONS AND FINISHED WEIGHTS SHALL BE COMPATIBLE WITH AIR FREIGHT SHIPPING REQUIREMENTS. NON-TANK ELEMENTS MAY BE CONTRACTOR-DESIGNED AS BOLT ON TO ALLOW FOR PARTIAL DISASSEMBLY FOR SHIPPING PURPOSES.
- 4. THE DRAWINGS SHOW THE DESIRED FUNCTIONALITY AND GENERAL LAYOUT OF THE PROPOSED SYSTEMS. THE INTENT IS NOT TO SHOW EVERY REQUIRED COMPONENT BUT TO PROVIDE THE CONTRACTOR WITH SUFFICIENT INFORMATION TO PREPARE SHOP DRAWINGS FOR FINAL REVIEW AND APPROVAL PRIOR TO FABRICATION. IT IS ASSUMED THAT THE CONTRACTOR HAS ESTABLISHED METHODS FOR FABRICATING INTEGRAL TANK / DISPENSING SYSTEMS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUPPLEMENT THE SCHEMATIC DRAWINGS AS NECESSARY TO PROVIDE A FULLY FUNCTIONAL, CODE COMPLIANT SYSTEM.
- 5. CONTRACTOR SHALL INTEGRATE REQUIRED SUPPORTS, STAND OFFS, ETC AS NECESSARY TO FACILITATE THE FIELD INSTALLATION OF ELECTRICAL CONDUIT, CONDUCTOR, AND DEVICES REQUIRED TO POWER THE SYSTEMS.



1 PLAN - 5,000 GALLON DOUBLE WALL PROTECTED TANK
SCALE: NTS



A END VIEW
SCALE: NTS

B SECTION - 5,000 GALLON DOUBLE WALL PROTECTED TANK
SCALE: NTS

File: \\10-share01\vb\share01\30416.00_Venetie_BFU_RPSJ_Project\001_CADD_2019\01_Working_Sat\01_Civil\30416.00_DETAILS_5k_TANK.dwg PLOT DATE: 11/2/2021 3:13 PM



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

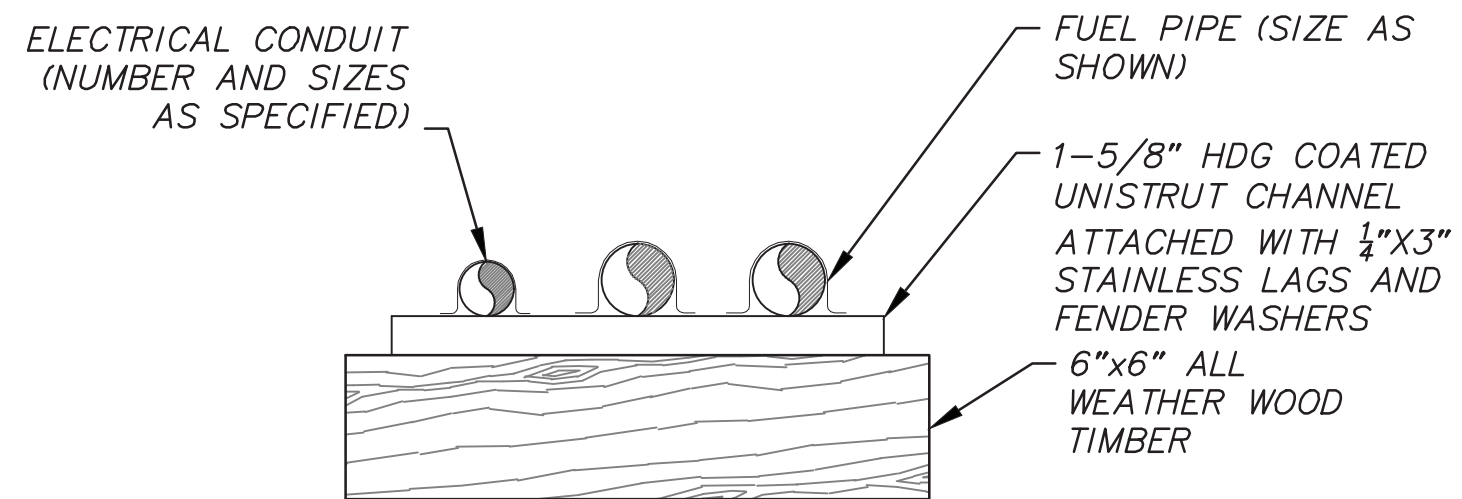
VENETIE, ALASKA
POWER SYSTEM UPGRADE
5,000 GALLON TWO PRODUCT DISPENSING TANK DETAILS

PROJECT NO. -
BY KRH
DATE 11/1/21
DESCRIPTION ISSUED FOR CONSTRUCTION

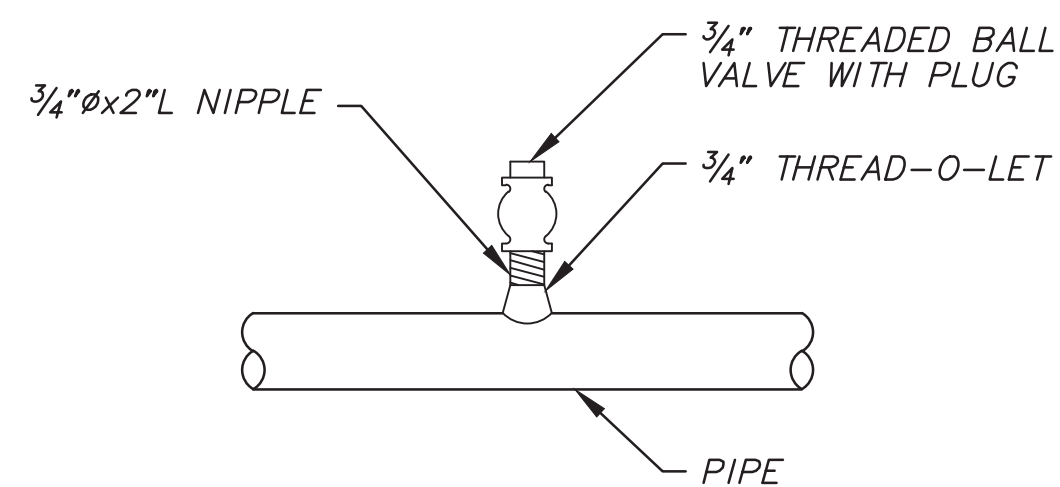
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HOR. -
VER. -
DESIGNED BY -
DRAWN BY -
CHECKED BY -
APPROVED BY -

STATUS: ISSUED FOR CONSTRUCTION
DATE: NOV 2021

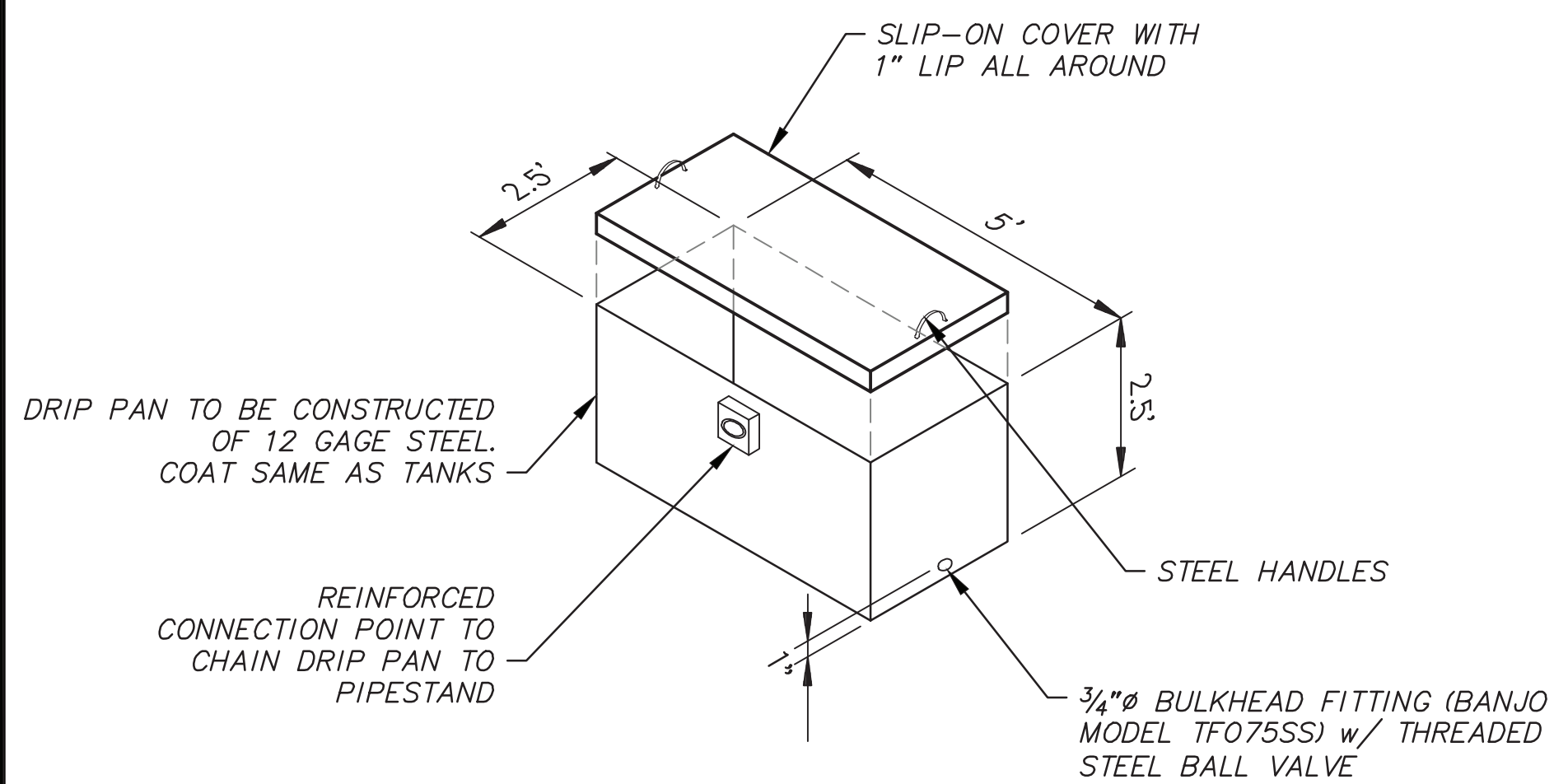
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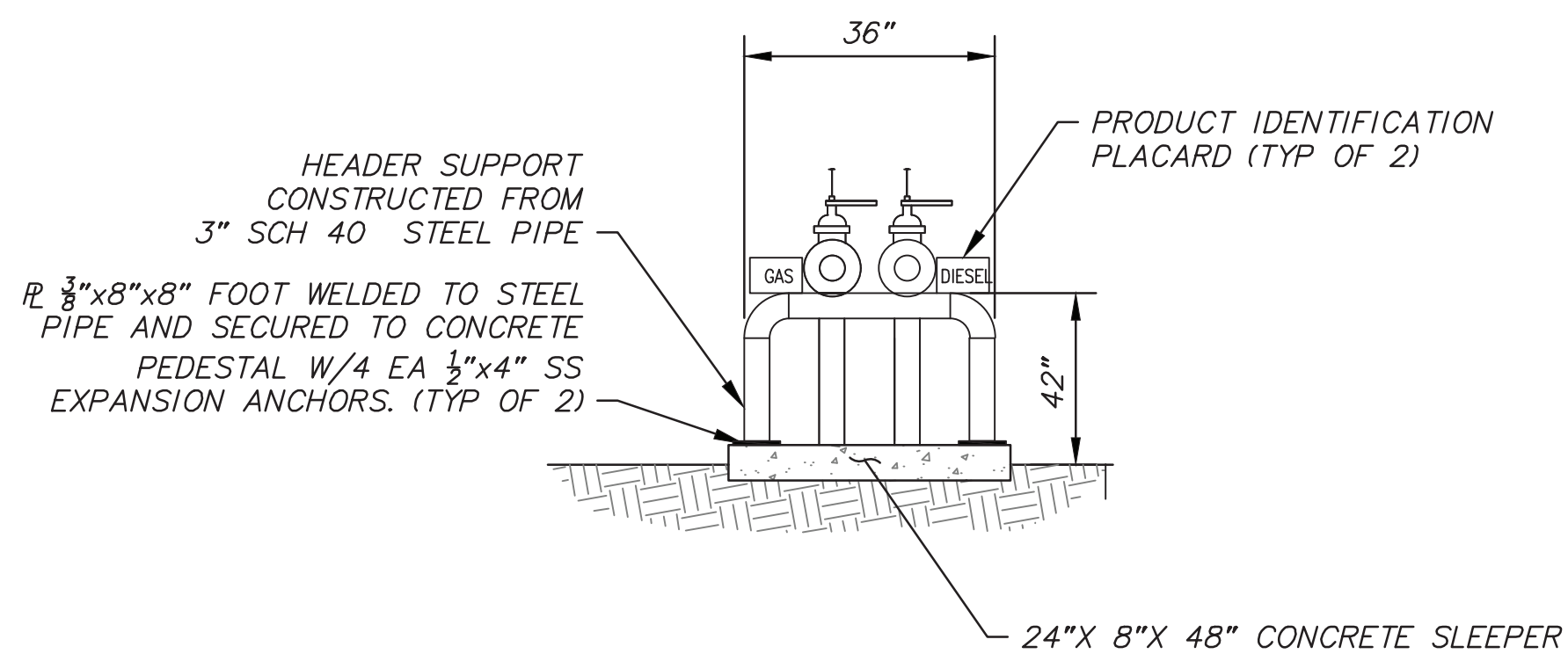
1 **TIMBER PIPE SUPPORT**
SCALE: NTS



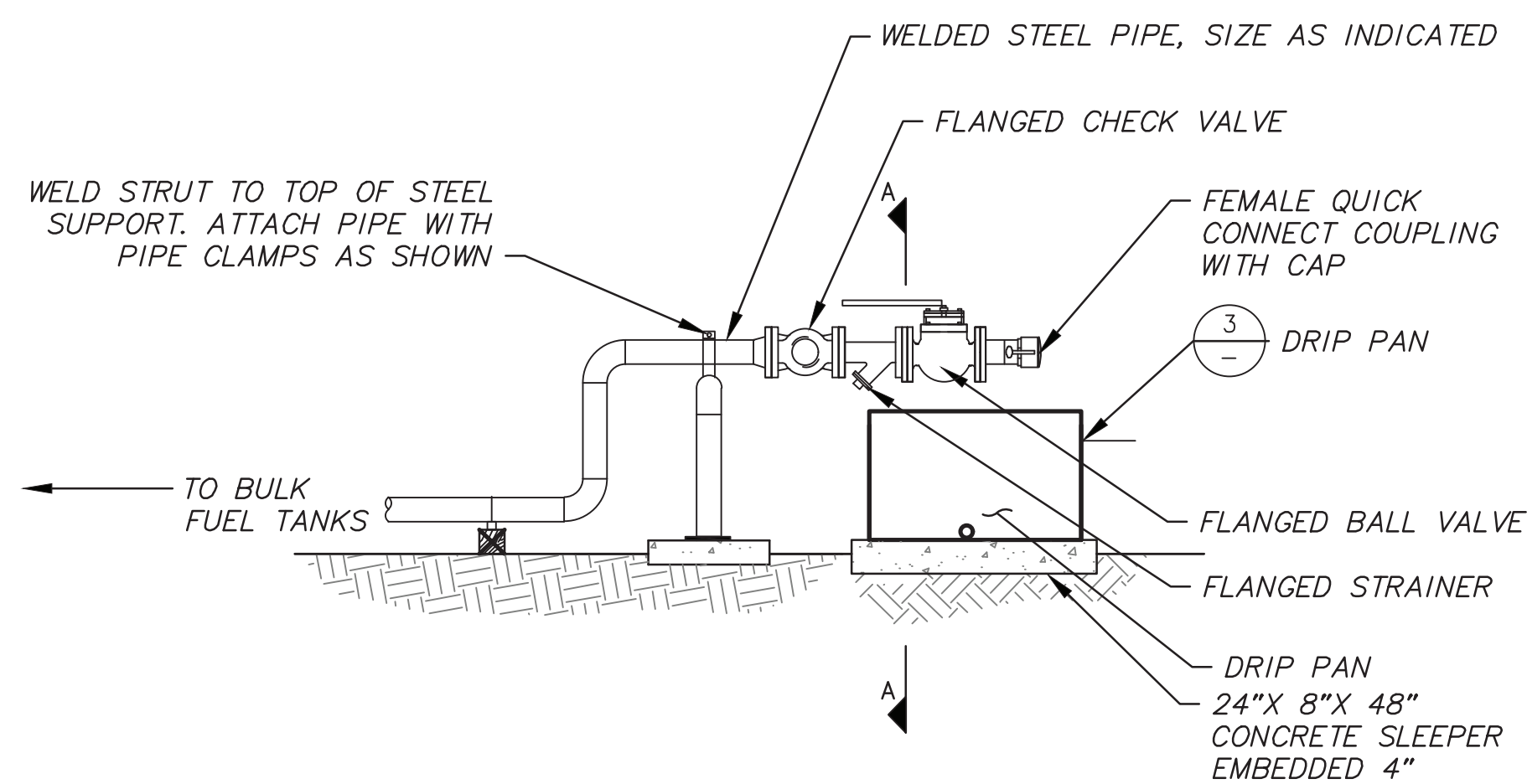
2 **PRESSURE TEST PORT**
SCALE: NTS



3 **DRIP PAN**
SCALE: NTS



SECTION A-A



4 **AIR TANKER HEADER**
SCALE: NTS

File: \\10-share01\JobsData\30416.00_Venetie_BFU_RPSJ_Project\001_CADD_2019\01_CADD_2019\01_Working_Sat\01_Civil\30416.00_DETAILS_FUEL_PIPING.dwg PLOT DATE: 11/2/2021 2:42 PM



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

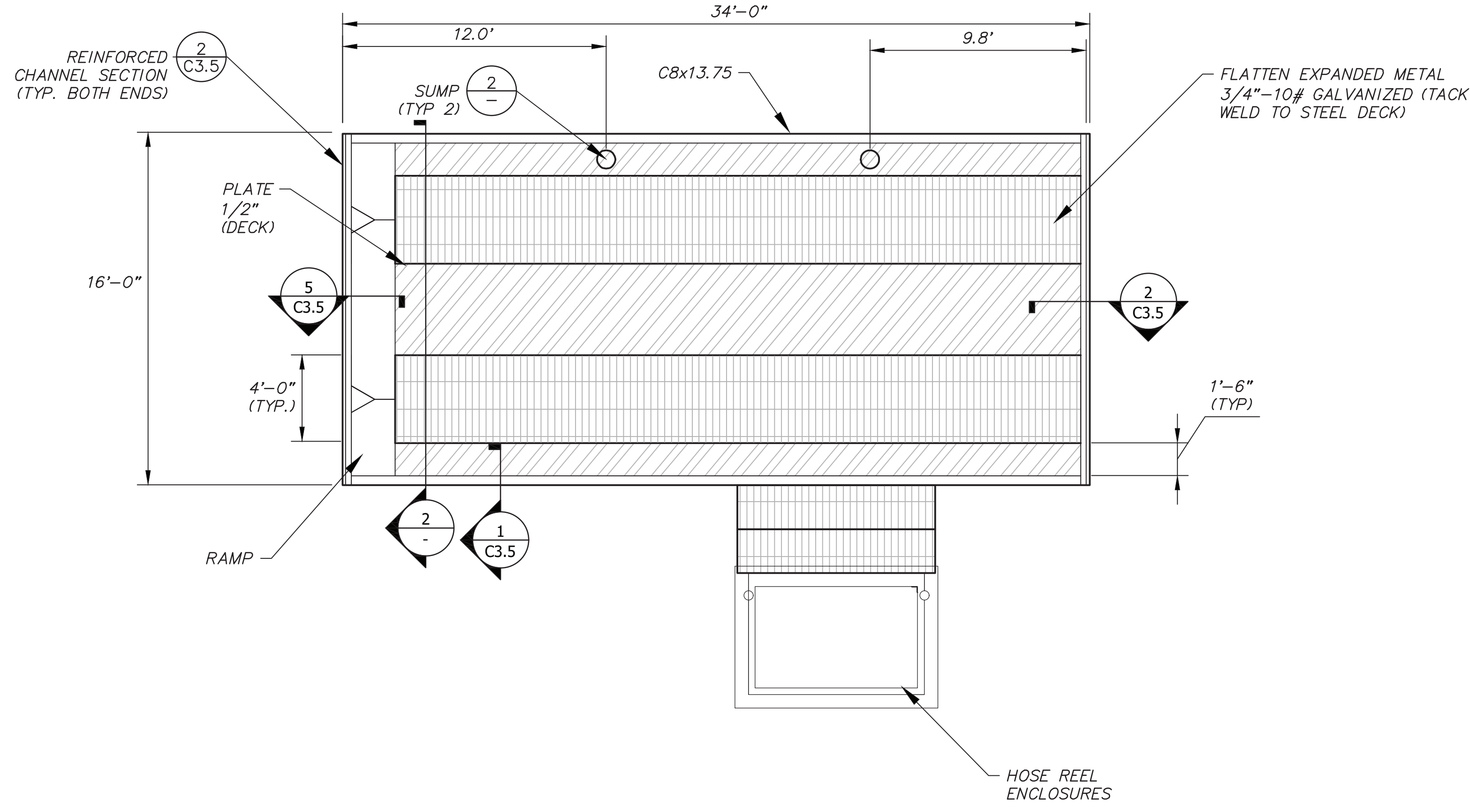
VENETIE, ALASKA
POWER SYSTEM UPGRADE
FUEL PIPING DETAILS

PROJECT NO. -
STATUS: ISSUED FOR CONSTRUCTION
DATE: NOV 2021

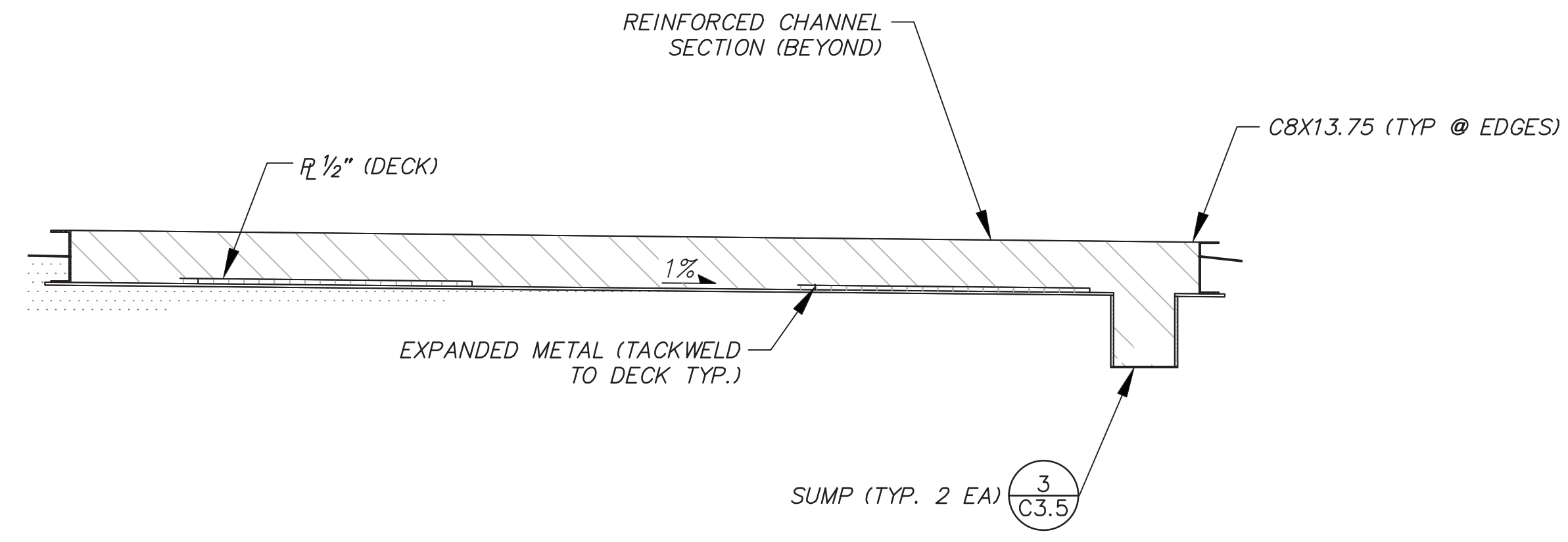
REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	-
HOR. VER.	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

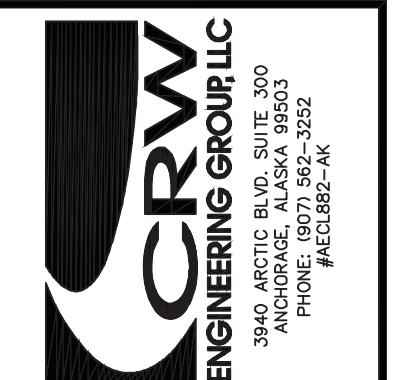
SHEET NO.
C3.3



1 **DRIVE IN TRUCK CONTAINMENT PLAN**
SCALE: NTS



2 **DRIVE IN TRUCK CONTAINMENT SECTION VIEW**
SCALE: NTS



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

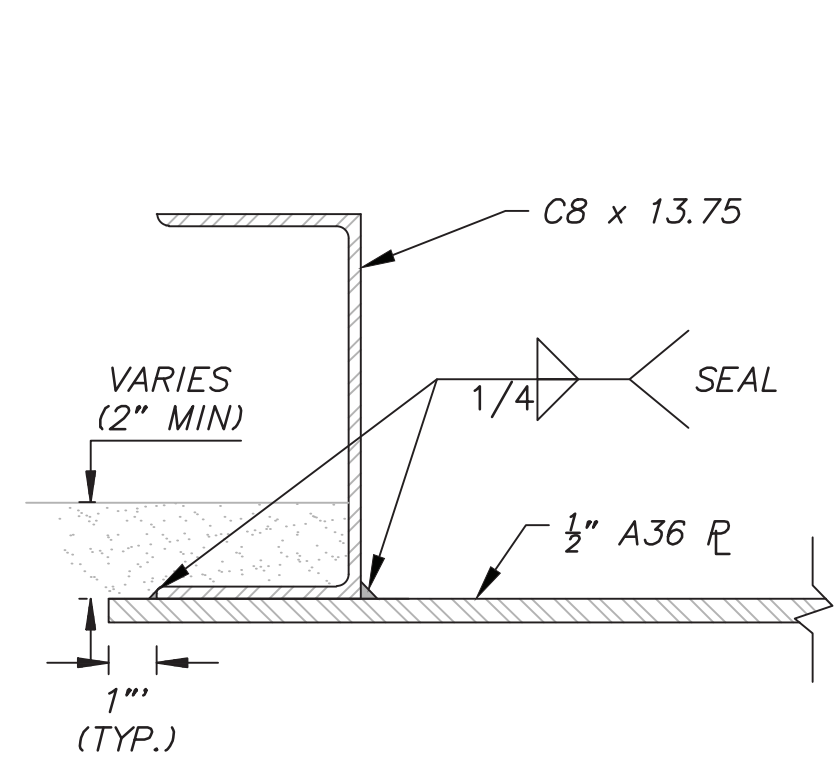
VENETIE, ALASKA
POWER SYSTEM UPGRADE
TRUCK CONTAINMENT DETAILS

PROJECT NO: -
STATUS: ISSUED FOR CONSTRUCTION
DATE: NOV 2021

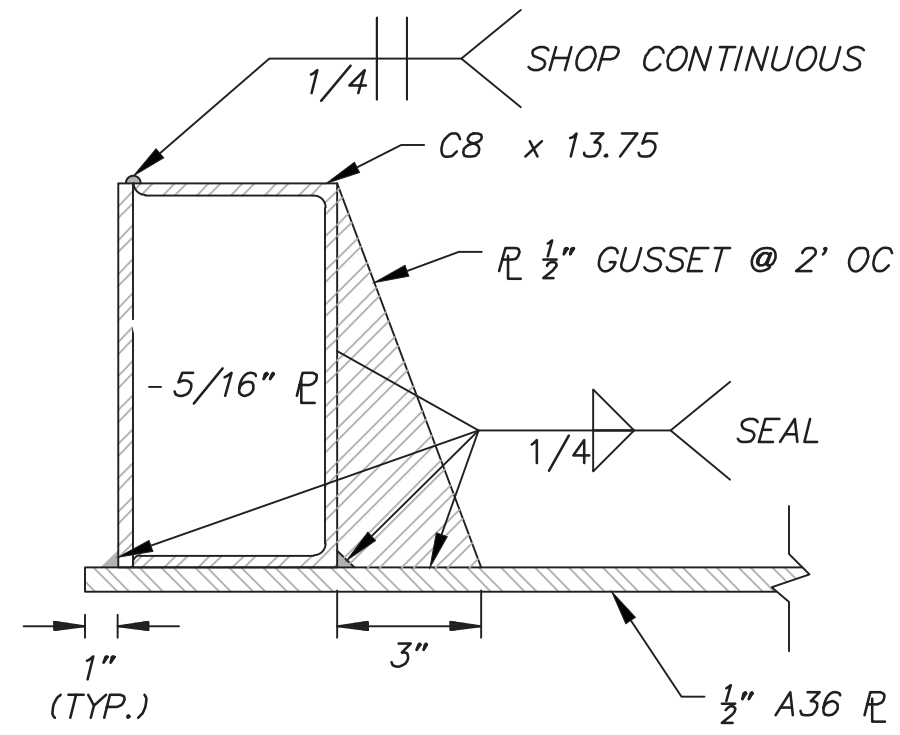
REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	HOR - VER -
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
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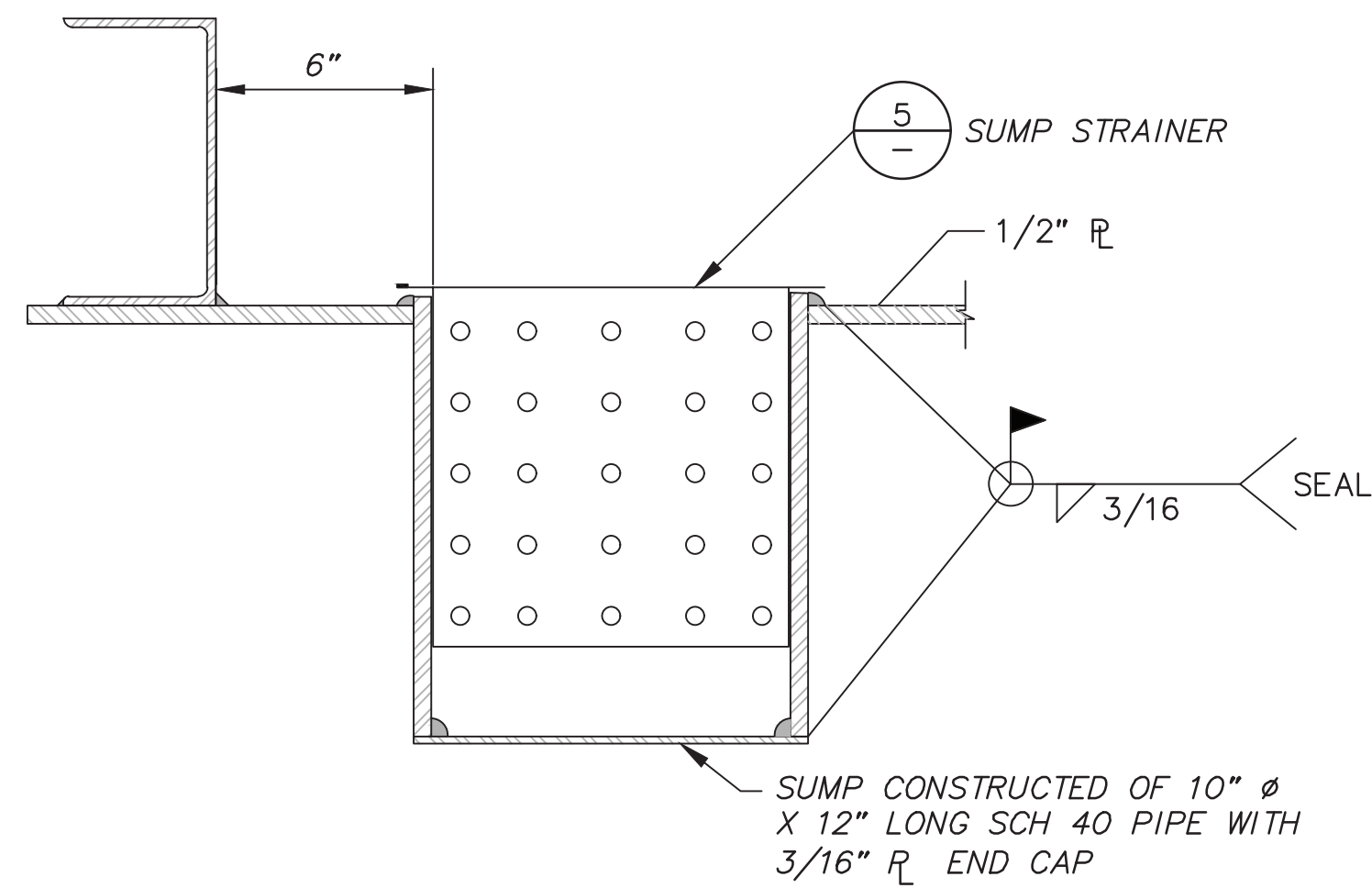
SHEET NO.
C3.4



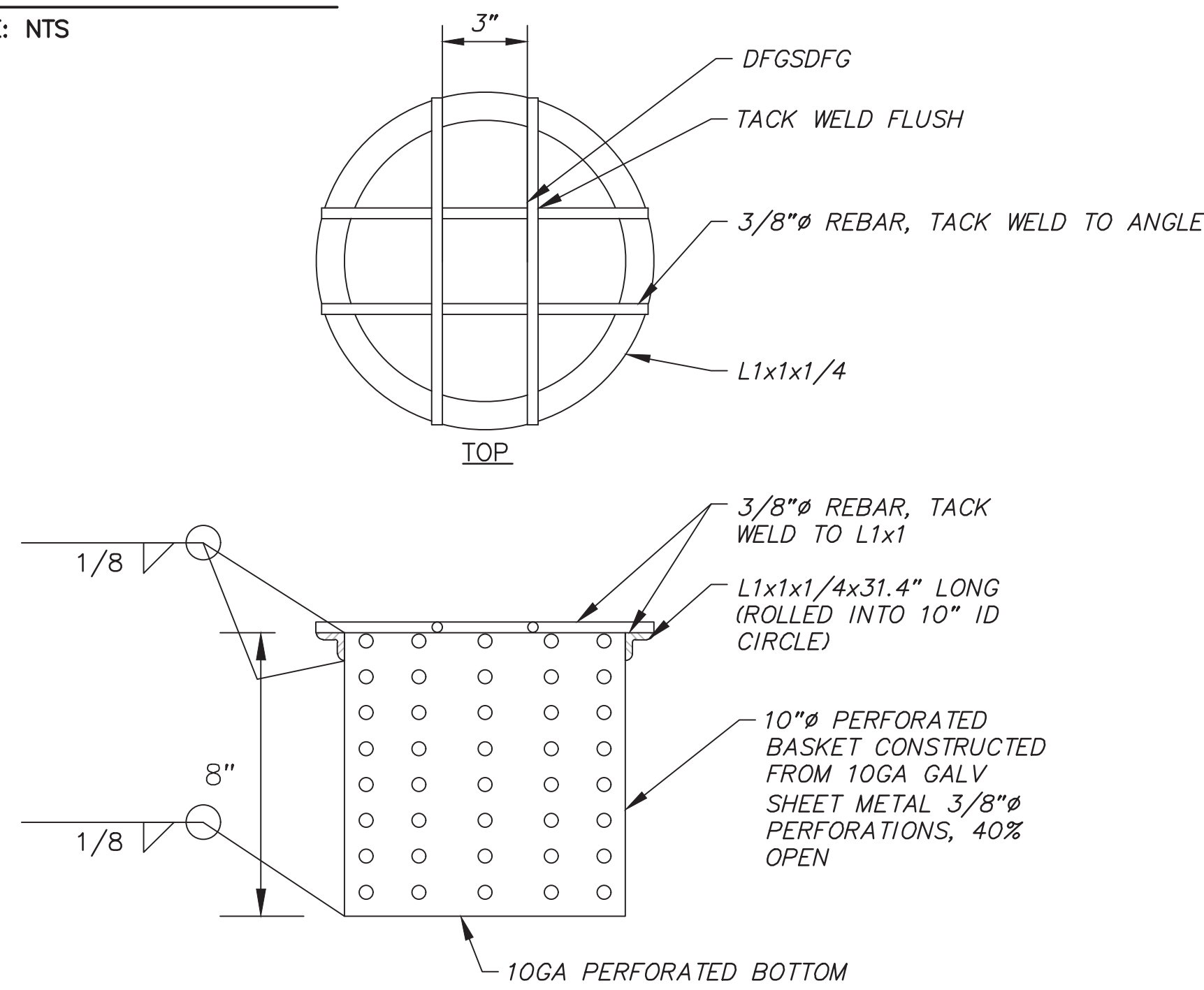
1 CHANNEL CURB - CROSS SECTION
SCALE: NTS



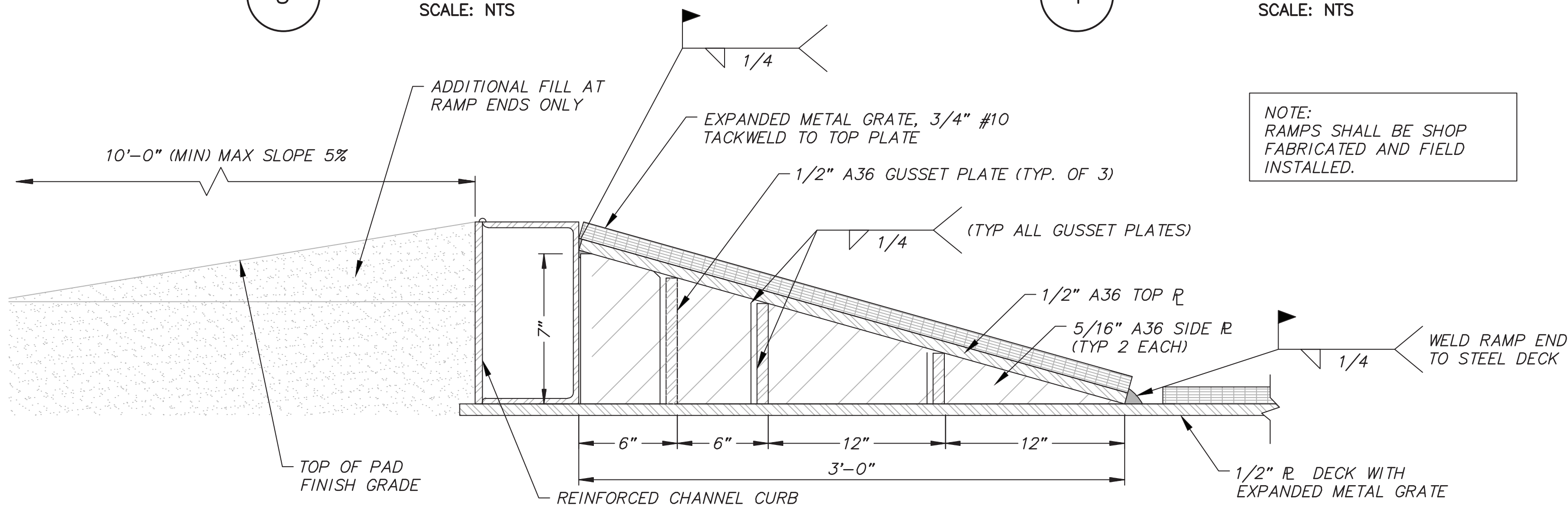
2 REINFORCED CHANNEL CURB - CROSS SECTION
SCALE: NTS



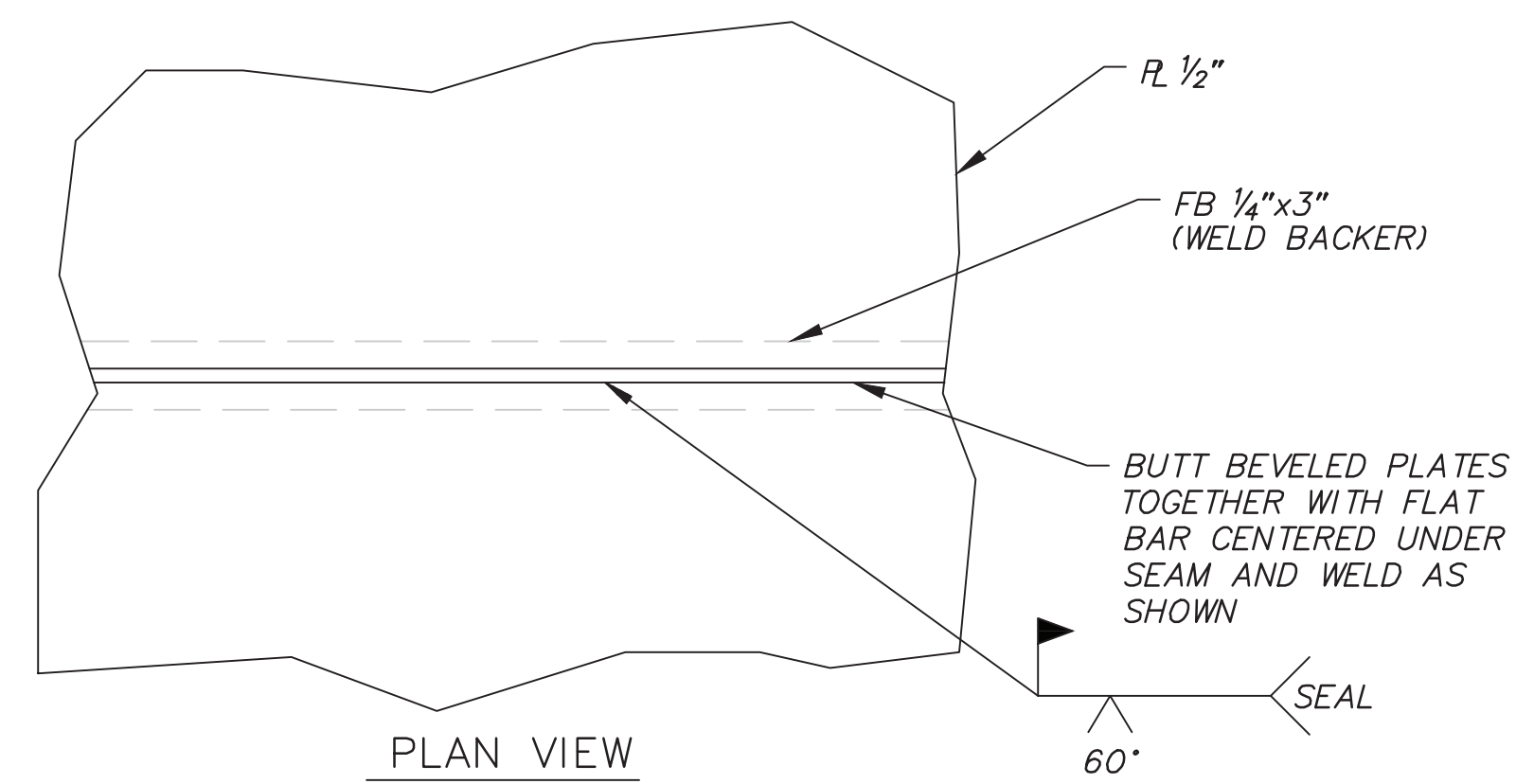
3 SUMP DETAIL
SCALE: NTS



4 STRAINER DETAIL
SCALE: NTS



5 RAMP - CROSS SECTION
SCALE: NTS



6 FIELD PLATE SEAM WELD DETAIL
SCALE: NTS

File: \\10-share01\JobsData\30416.00 Venetie BFU RFSU Project\CADD 2019\01 Working Set\01 Civil\30416.00 DETAILS TRUCK CONTAINMENT.dwg PLOT DATE: 11/2/2021 2:49 PM



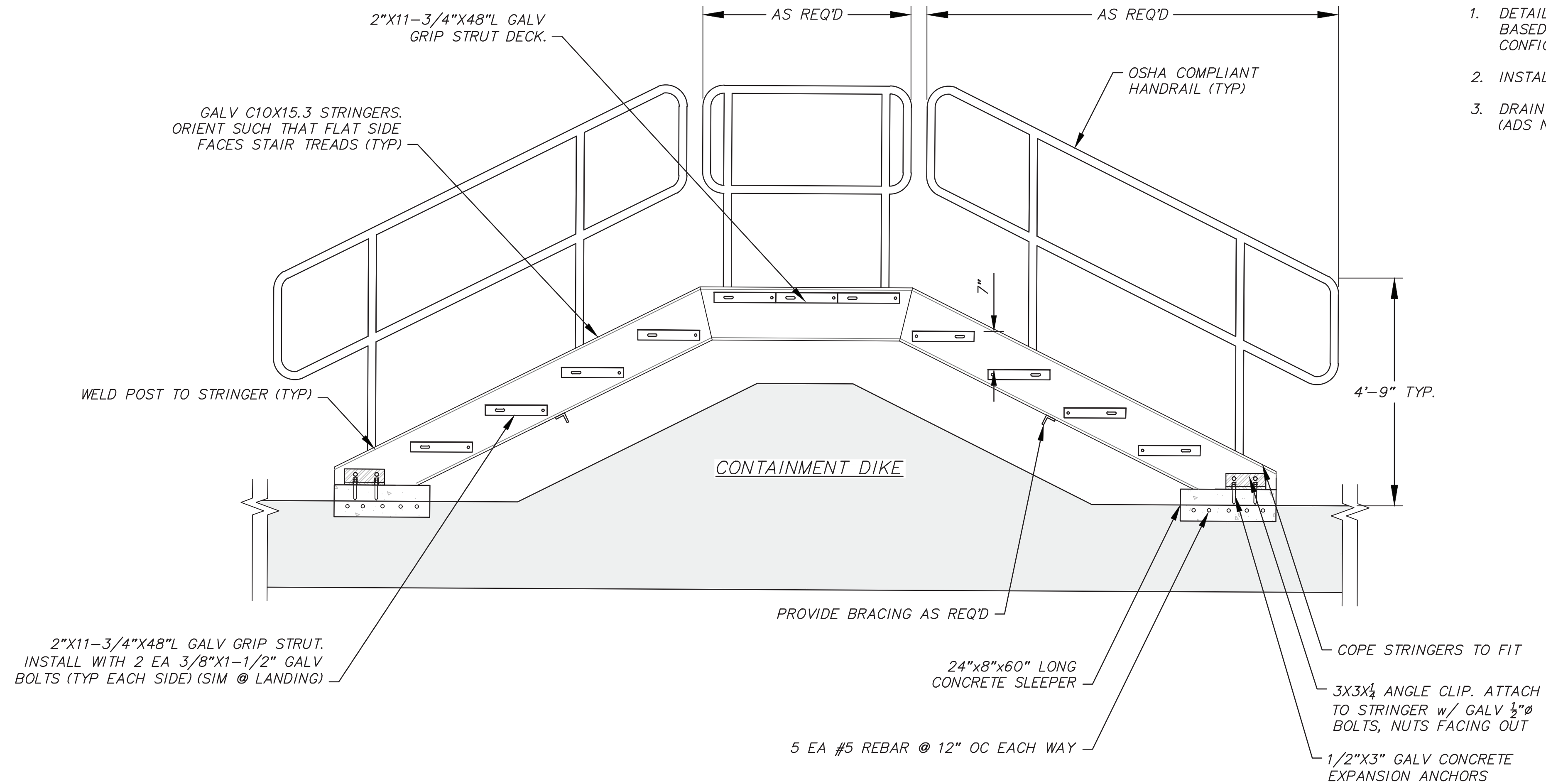
PROJECT NO. 30416.00	CITY GRID -	WATER GRID -	SEWER GRID -
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VENETIE, ALASKA	DATE: NOV 2021
POWER SYSTEM UPGRADE	ISSUED FOR CONSTRUCTION
TRUCK CONTAINMENT DETAILS	

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

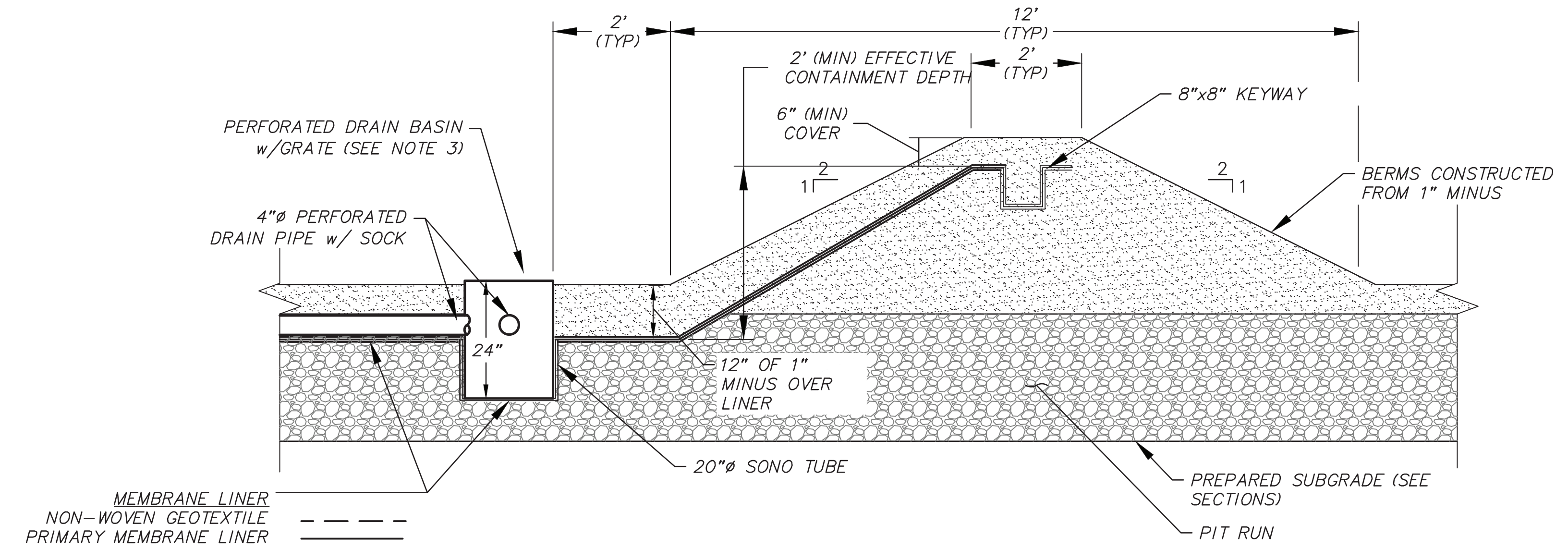
SHEET NO. **C3.5**

File: \\10-stare01\ssd\01_Venetic\30416.00_Venetic\BPU\Project\001_CADD\2019\01_Working_Sat\01_Civil\30416.00_DETAILS\DIKE AND STAIR DETAILS.dwg PLOT DATE: 11/2/2021 2:51 PM



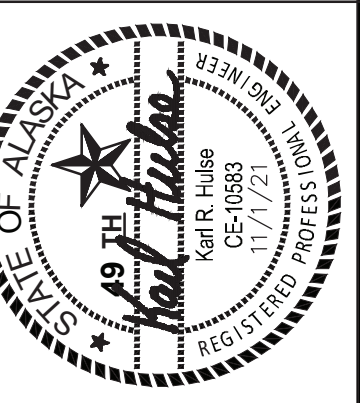
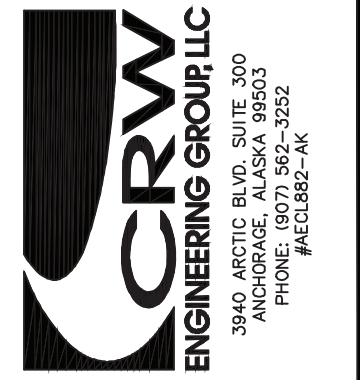
1 GENERALIZED DIKE STAIR DETAIL
NTS

- NOTES:**
1. DETAILS ON THIS SHEET ARE GENERALIZED. SPAN & LENGTH OF DIKE STAIRS WILL VARY BASED ON DIFFERING DIKE DIMENSIONS. SUBMIT SHOP DRAWINGS FOR EACH STAIR CONFIGURATION TO ENGINEER FOR REVIEW IAW SPECIFICATIONS.
 2. INSTALL DRAINAGE PIPE DIRECTLY ON TOP OF GEOTEXTILE ABOVE LINER.
 3. DRAIN BASIN SHALL BE PERFORATED 18" Ø X 18" DEEP AND SHALL INCLUDE TOP GRATE (ADS NYLOPLAST OAE). DEPRESS LINER APPROXIMATE 6" BELOW DRAIN BASIN AS SHOWN.



- NOTE:**
1. INSTALL DRAINAGE PIPE DIRECTLY ON TOP OF GEOTEXTILE ABOVE LINER.
 2. HEAT WELD 19"Ø x 12" DEEP LINER SUMP TO LINER FOLLOWING MANUFACTURERS INSTRUCTIONS. SET WITHIN 20"Ø SONO TUBE AS SHOWN.
 3. DRAIN BASIN SHALL BE PERFORATED, 18"Ø x 24" DEEP AND SHALL INCLUDE TOP GRATE (ADS NYROPLAST OAE).

2 DIKE, LINER & SUMP DETAIL
NTS



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
DIKE & STAIR DETAILS

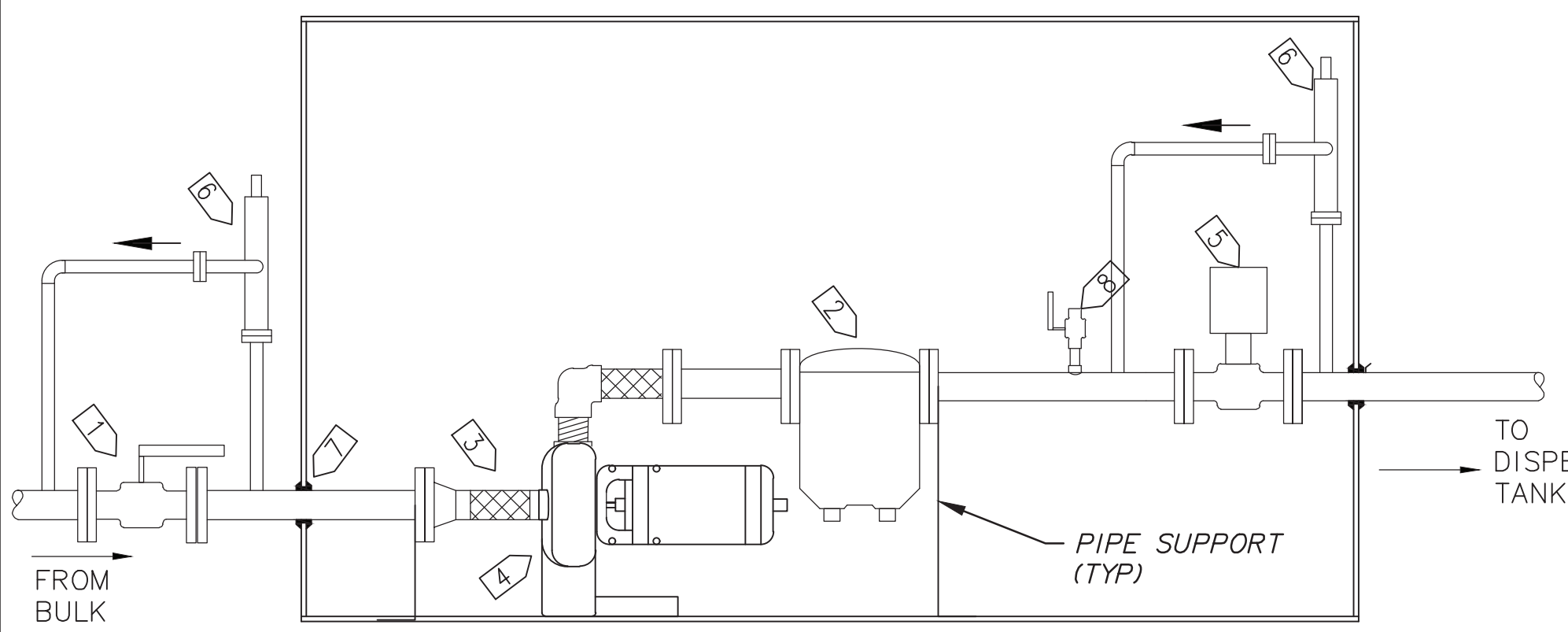
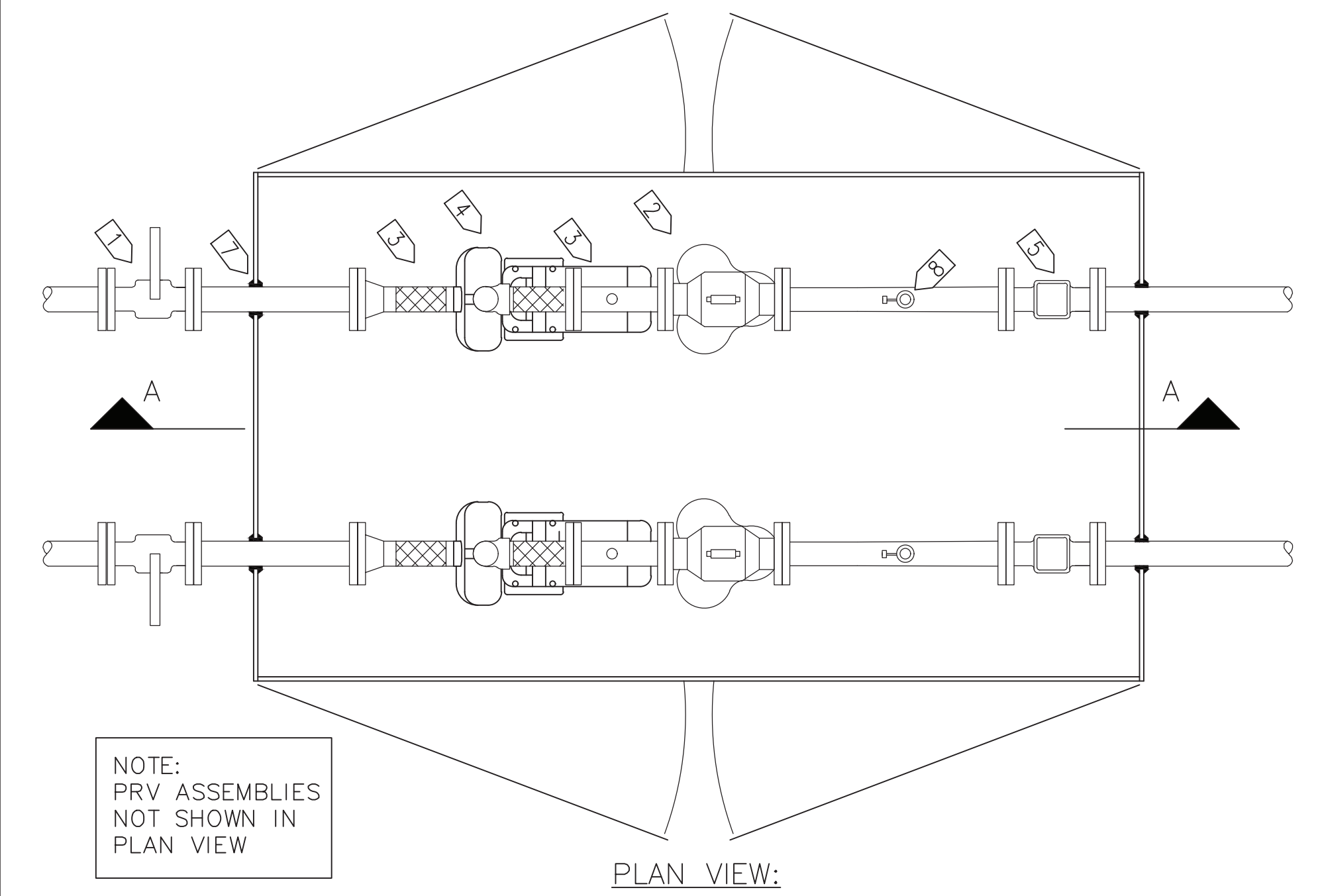
PROJECT NO. -
ISSUED FOR CONSTRUCTION
DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

SHEET NO. **C3.6**

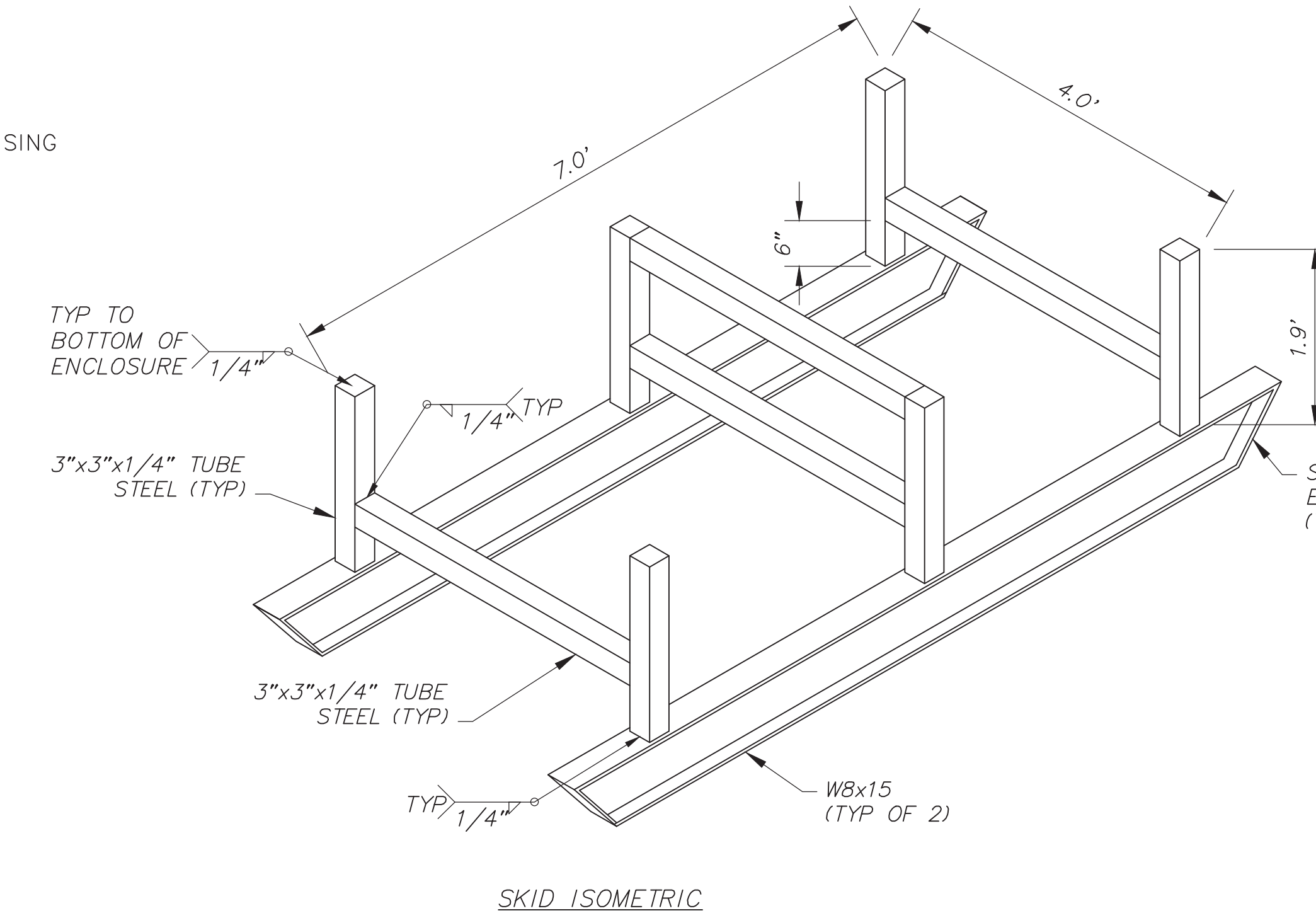
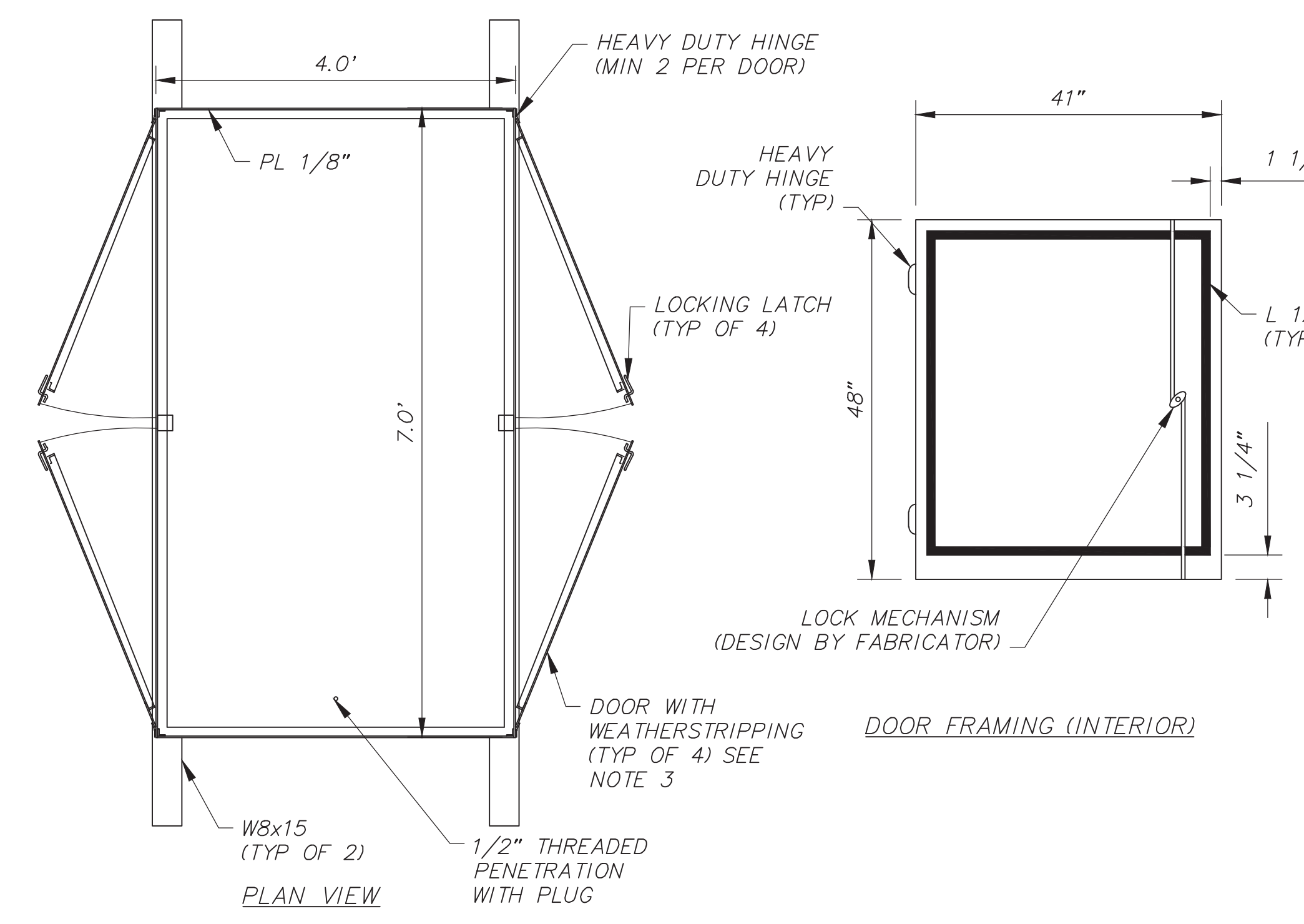
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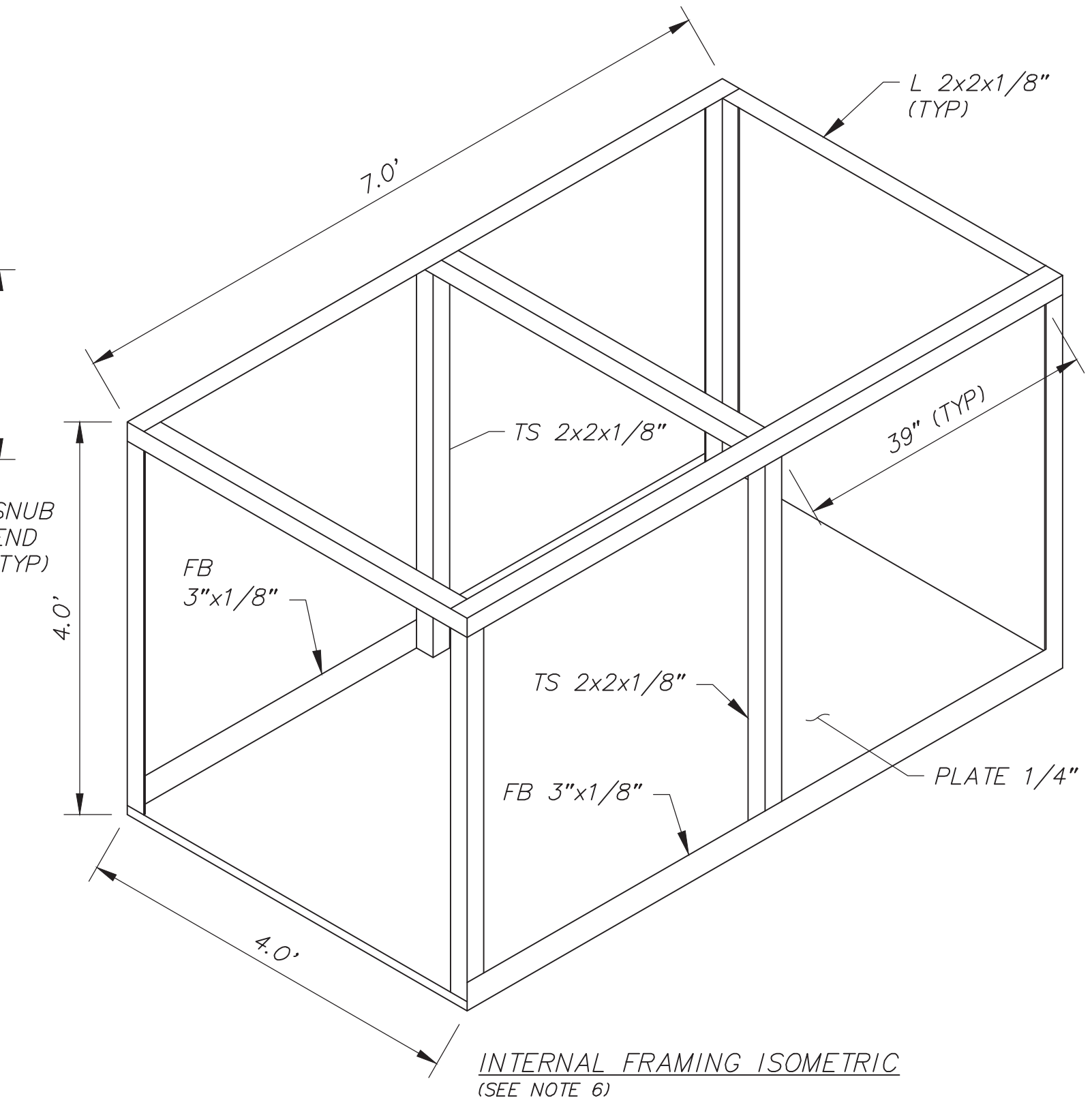
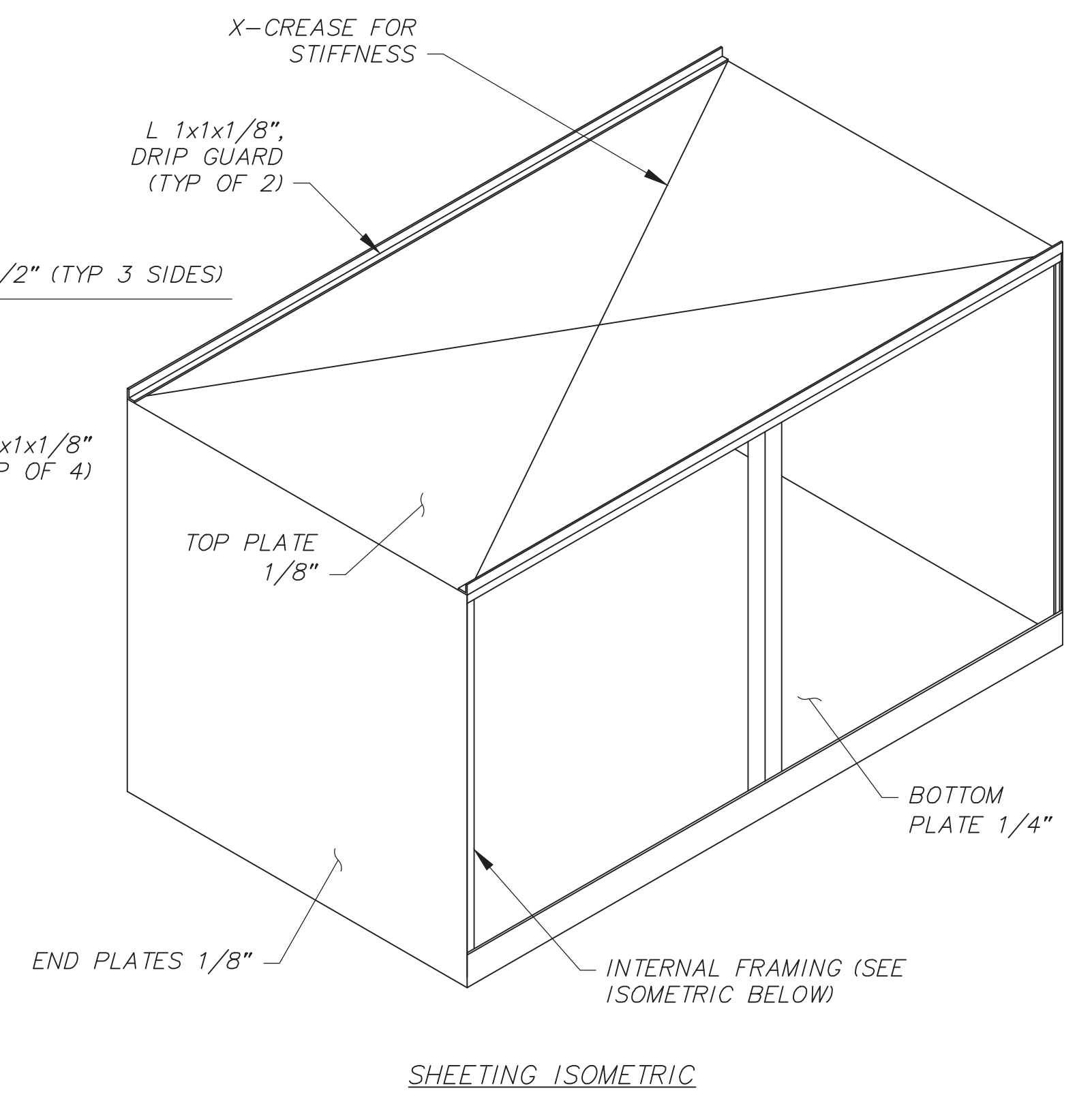
- SECTION A-A:
- 1 2" BALL VALVE
 - 2 FILTER
 - 3 FLEX FITTING
 - 4 TRANSFER PUMP
 - 5 2" MOTORIZED BALL VALVE
 - 6 PRESSURE RELIEF VALVE
 - 7 ENVIROFLEX PENETRATION BOOT (TYP)
 - 8 PRESSURE TEST CONNECTION (C3.3 - FUEL PIPING DETAILS)

PUMP CABINET
SCALE: NTS

- NOTES:**
- THE DESIGN, FABRICATION, AND ERECTION OF ALL STRUCTURAL STEEL COMPONENTS SHALL COMPLY WITH THE CURRENT CODE OF STANDARD PRACTICE OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. ALL WELDING TO BE DONE IN ACCORDANCE WITH THE CURRENT CODE OF AMERICAN WELDING SOCIETY.
 - MAKE ALL CONNECTIONS WITH CONTINUOUS FILLET OR BUTT WELDS. ROUND ALL CORNERS & SHARP EDGES AFTER FABRICATION.
 - ALL SEAMS SHALL BE CONTINUOUSLY WELDED, AND WATER-TIGHT, UNLESS OTHERWISE NOTED. ADHESIVE BACK WEATHERSTRIPPING (PEMCO PK33 OAE) SHALL BE INSTALLED AROUND EACH DOOR. SET DOOR HINGES TO ALLOW FOR THICKNESS OF COATING AND WEATHERSTRIPPING.
 - PAINT INTERIOR AND EXTERIOR OF CABINET TO MATCH TANKS.
 - CABINET FABRICATOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER PRIOR TO FABRICATION FOR REVIEW AND APPROVAL.
 - CABINET MAY BE CONSTRUCTED WITH INTERNAL FRAMING AS SHOWN OR A COMBINATION OF FRAMING AND BENT SECTIONS. CABINET SHALL BE WEATHER TIGHT, HAVE A LIQUID TIGHT DRIP PAN AND HAVE ADEQUATE STRENGTH FOR A 100 PSF ROOF LOAD.



PUMP CABINET FABRICATION DETAILS
SCALE: NTS



CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 582-3232
#AECUB2-AK

STATE OF ALASKA
Professional Engineer
Karl R. Huber
CE-10583
11/17/2019
REG. EXPIRES 11/17/2023

PROJECT NO.	30416.00
CITY GRID	
WATER GRID	
SEWER GRID	

VENETIE, ALASKA
POWER SYSTEM UPGRADE
PUMP CABINET DETAILS

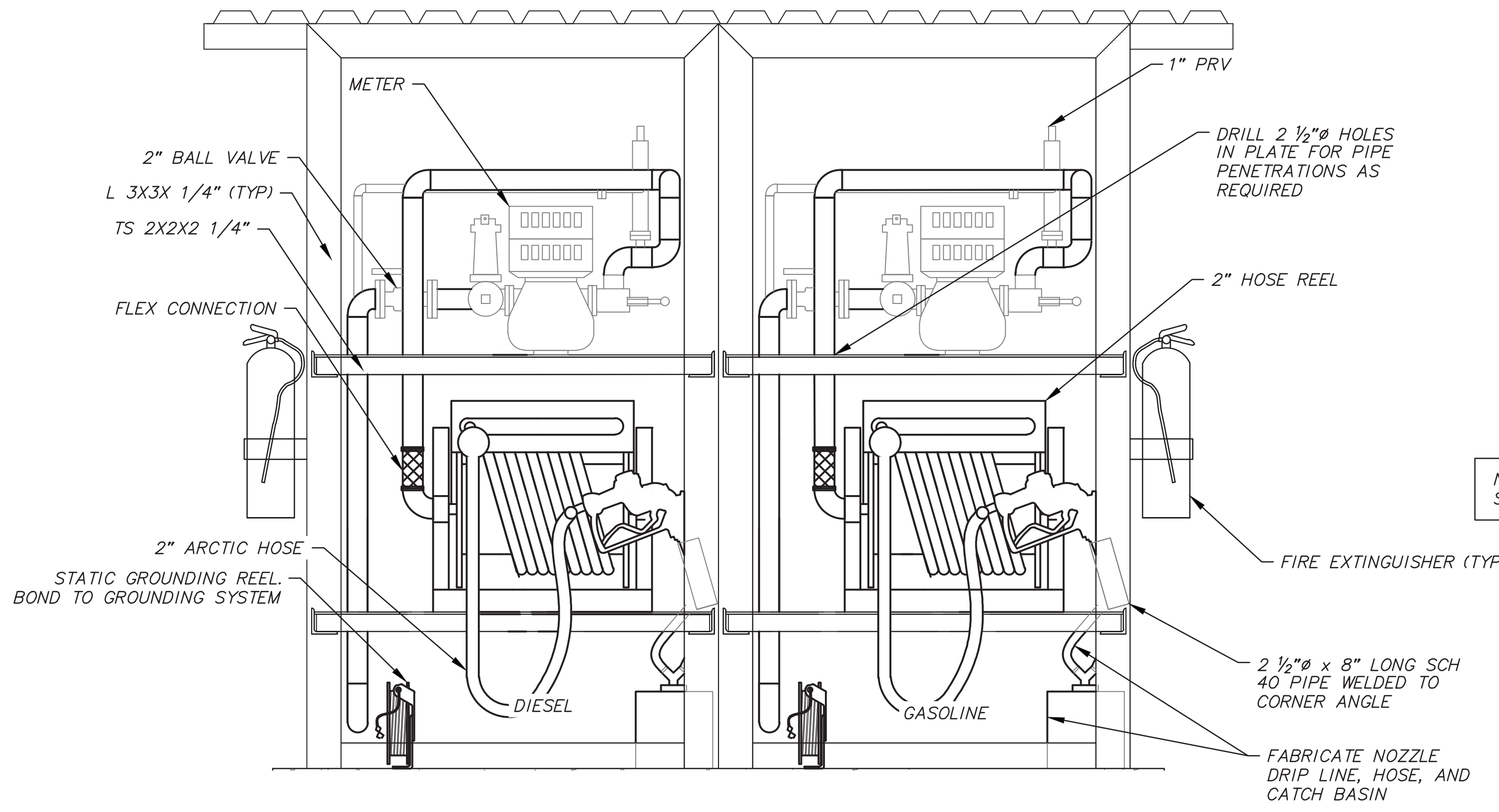
PROJECT NO. -
BY KRH
DATE 11/1/21
REV 0
ISSUED FOR CONSTRUCTION

DATE: NOV 2021
STATUS: ISSUED FOR CONSTRUCTION

SCALE	HOR.	VER.	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY

SHEET NO.

File: \\10-stored1_VobsData\30416.00_Venetie_BFU_RPSJ_Project\001_CADD_2019\01_Working_Sat\01_Civil\30416.00_DETAILS_HOSE_REEL_ENCLOSURE.dwg PLOT DATE: 11/2/2021 2:59 PM

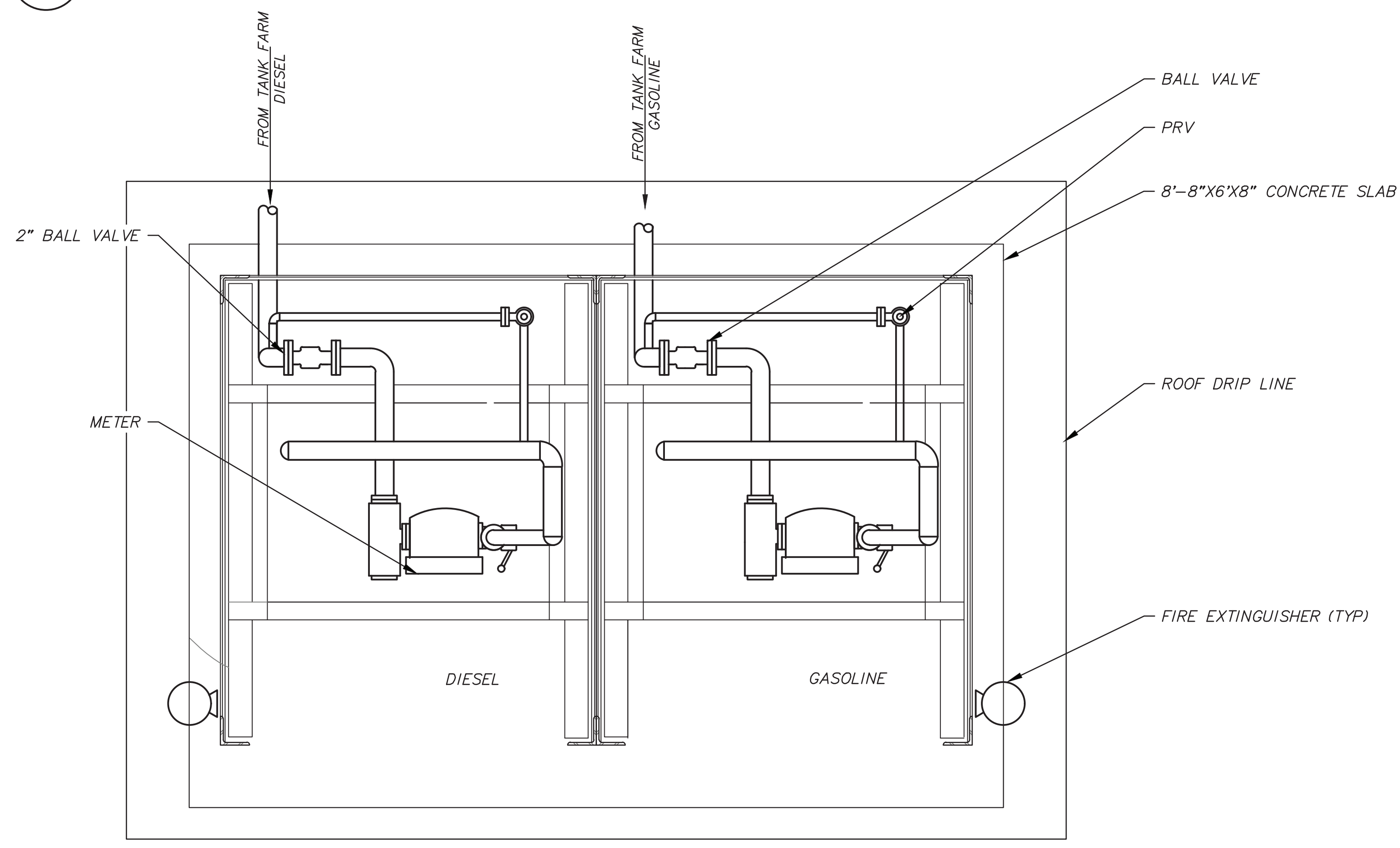


GENERAL NOTES:

1. THE DESIGN, FABRICATION, AND ERECTION OF ALL STRUCTURAL STEEL COMPONENTS SHALL COMPLY WITH THE CURRENT CODE OF STANDARD PRACTICE OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. ALL WELDING TO BE DONE IAW THE CURRENT CODE OF AMERICAN WELDING SOCIETY.
2. MAKE ALL CONNECTIONS WITH CONTINUOUS FILLET OR BUTT WELDS. ROUND ALL CORNERS & SHARP EDGES AFTER FABRICATION.
3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER PRIOR TO FABRICATION FOR REVIEW AND APPROVAL.
4. ALL STEEL TO BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.

NOTE: DOORS NOT SHOWN IN THIS VIEW

1 BULK TRANSFER ENCLOSURE MECHANICAL (ELEVATION)
SCALE: NTS



2 BULK TRANSFER ENCLOSURE MECHANICAL (PLAN VIEW)
SCALE: NTS



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA	DATE: NOV 2021
POWER SYSTEM UPGRADE	
HOSE REEL ENCLOSURE DETAILS	
STATUS: ISSUED FOR CONSTRUCTION	

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	-
HOR. VER.	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

SHEET NO. **C3.8**

File: \\10-stare01\JobsData\30416.00_Venetie_BFU_RPSJ_Project\001_CADD_2019\01_Working_Sat\01_Civil\30416.00_DETAILS_HOSE_REEL_ENCLOSURE.dwg PLOT DATE: 11/2/2021 3:00 PM

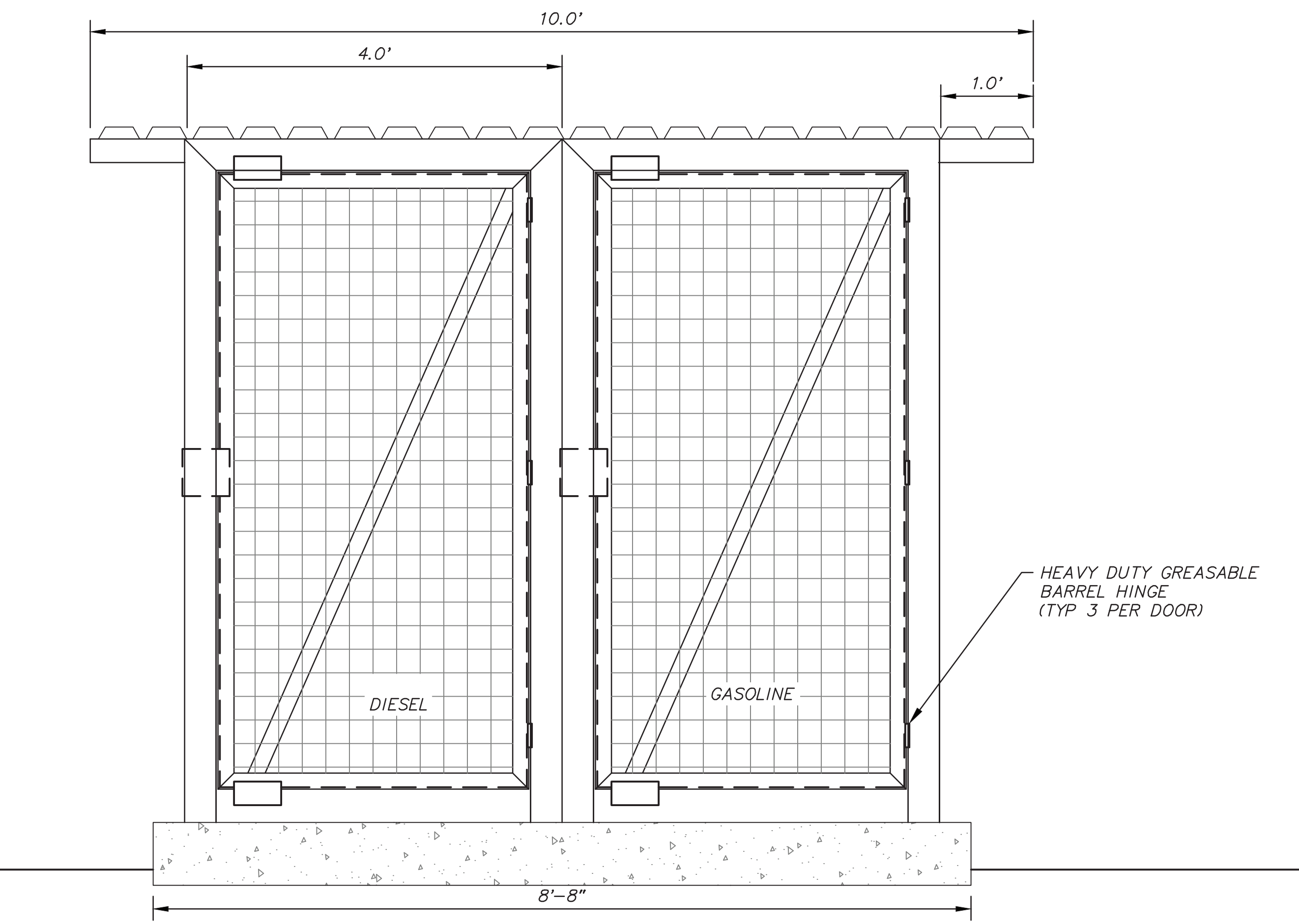
PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
HOSE REEL DETAILS

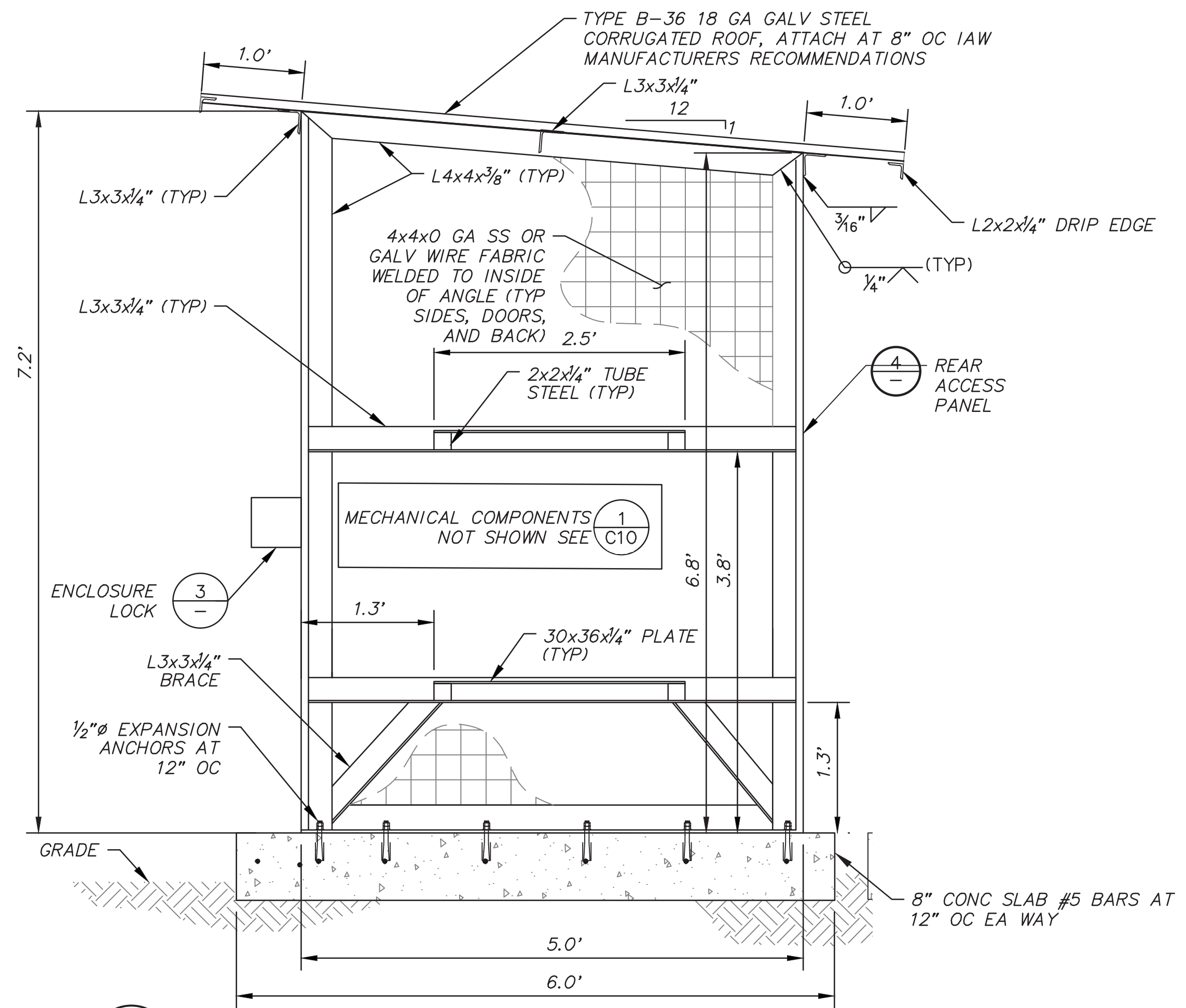
PROJECT NO. -
ISSUED FOR CONSTRUCTION
STATUS: ISSUED FOR CONSTRUCTION
DATE: NOV 2021

REV	DATE	DESCRIPTION
0	11/1/21	ISSUED FOR CONSTRUCTION

SCALE	1" = 1'-0"
HOR. VER.	- -
DESIGNED BY	BY
DRAWN BY	BY
CHECKED BY	BY
APPROVED BY	BY

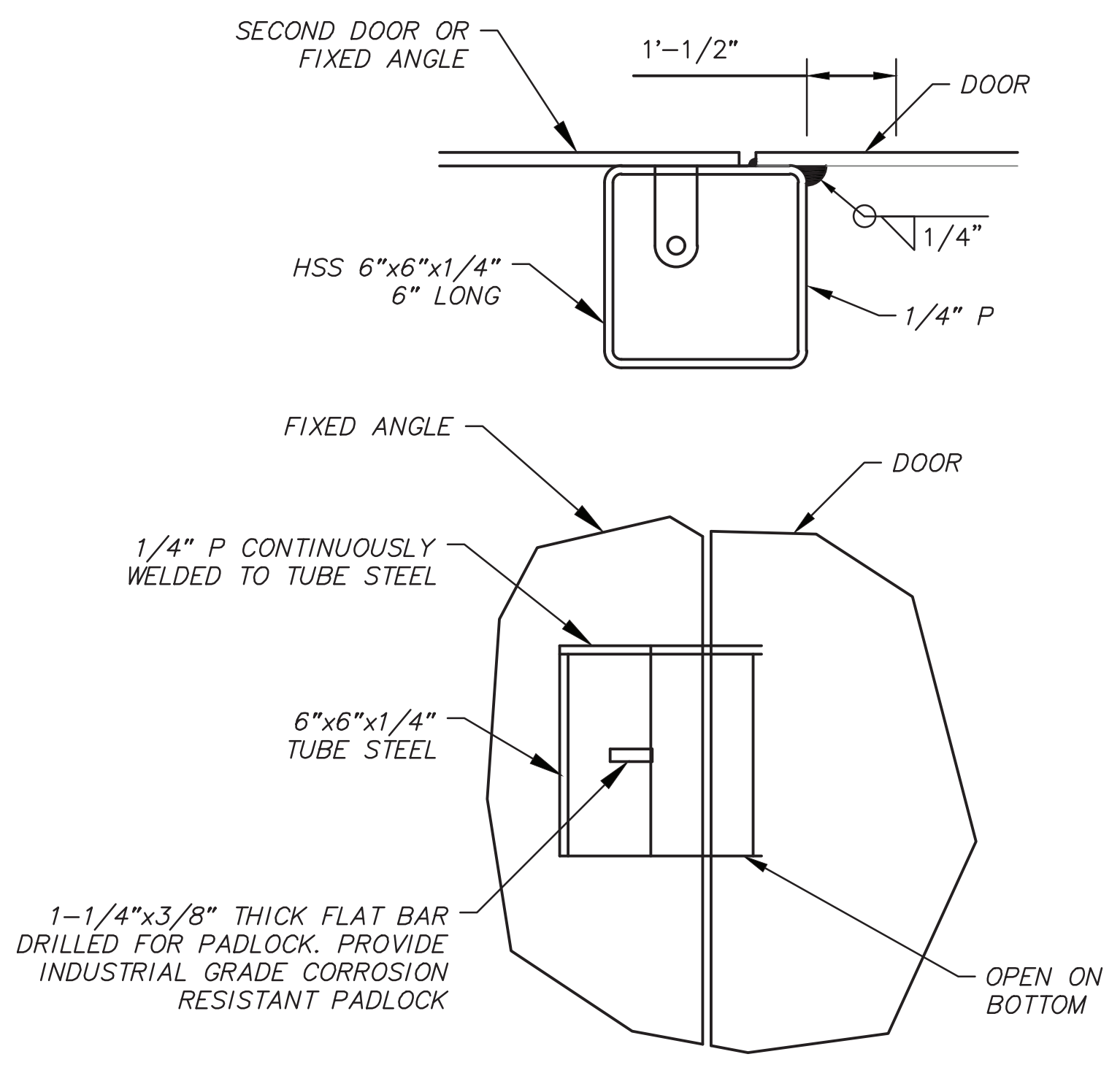


1 BULK TRANSFER ENCLOSURE (FRONT ELEVATION)
SCALE: NTS

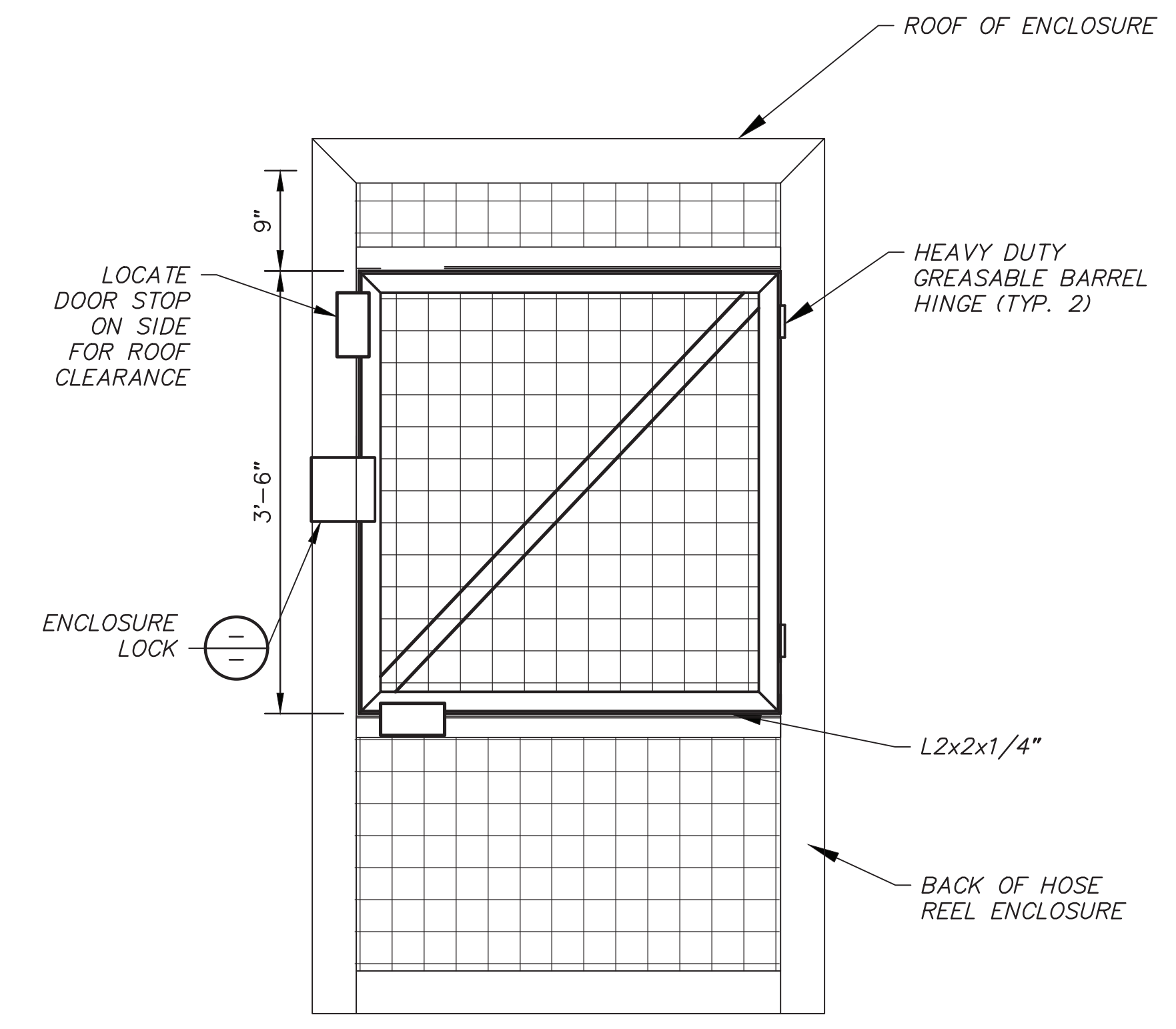


2 BULK TRANSFER ENCLOSURE (SECTION)
SCALE: NTS

- GENERAL NOTES:**
- SEE SHEET C3.9 FOR ADDITIONAL ENCLOSURE FABRICATION DETAILS AND DIMENSIONS.
 - ALL STEEL TO BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
 - THE DESIGN, FABRICATION, AND ERECTION OF ALL STRUCTURAL STEEL COMPONENTS SHALL COMPLY WITH THE CURRENT CODE OF STANDARD PRACTICE OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. ALL WELDING TO BE DONE IAW THE CURRENT CODE OF AMERICAN WELDING SOCIETY.
 - MAKE ALL CONNECTIONS WITH CONTINUOUS FILLET OR BUTT WELDS. ROUND ALL CORNERS & SHARP EDGES AFTER FABRICATION.
 - CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER PRIOR TO FABRICATION FOR REVIEW AND APPROVAL.

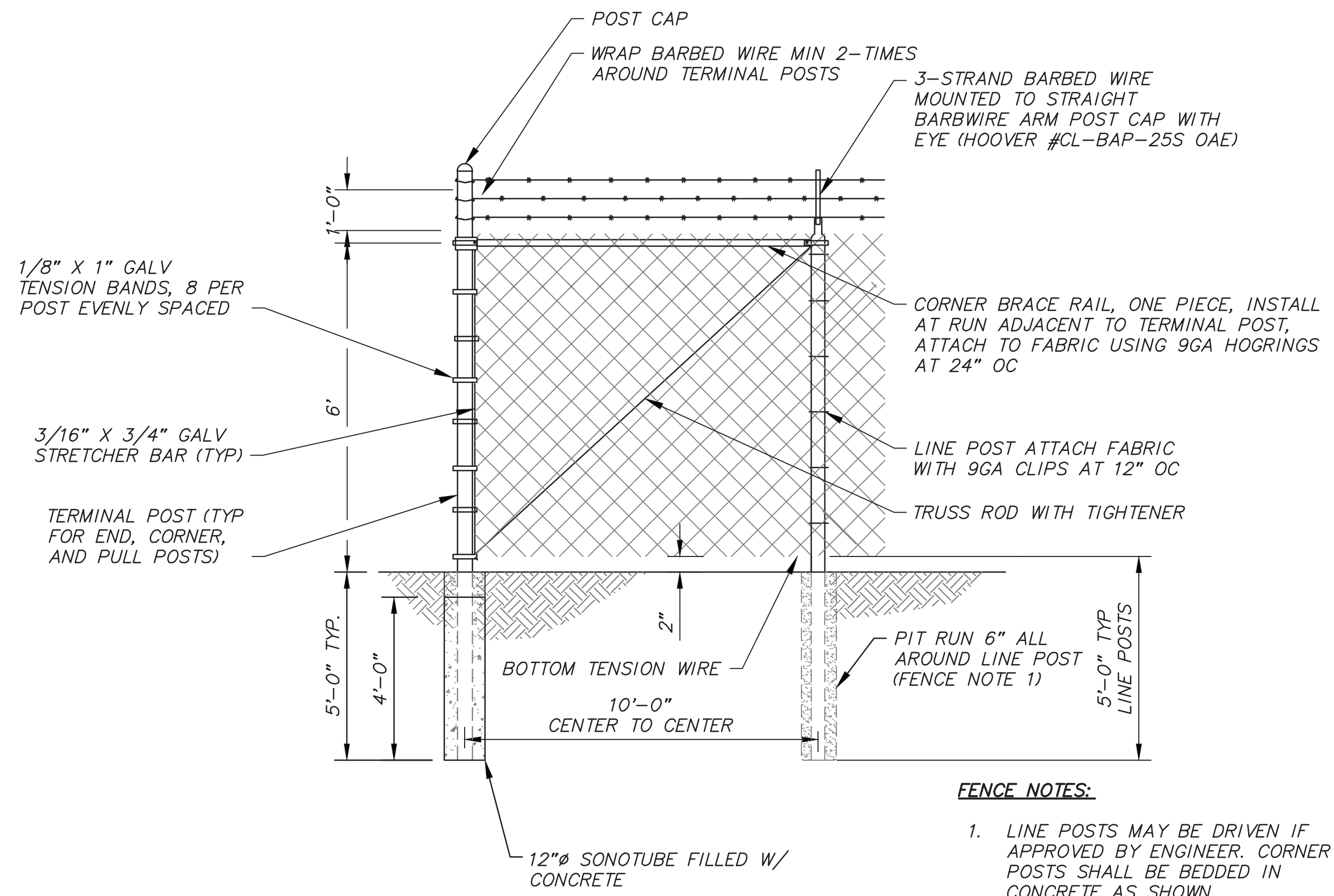


3 ENCLOSURE LOCK
SCALE: NTS



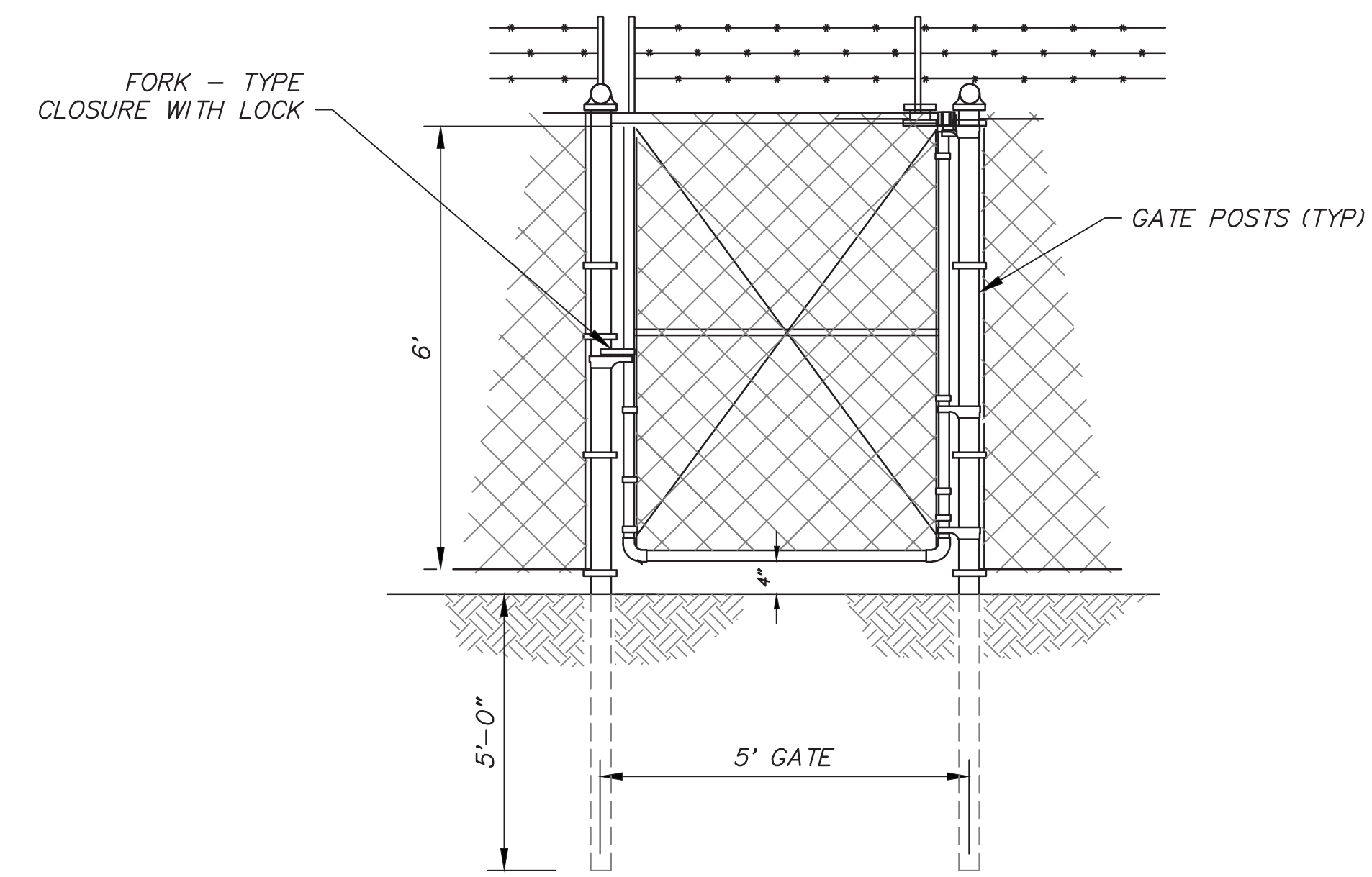
4 REAR ACCESS PANEL
SCALE: NTS

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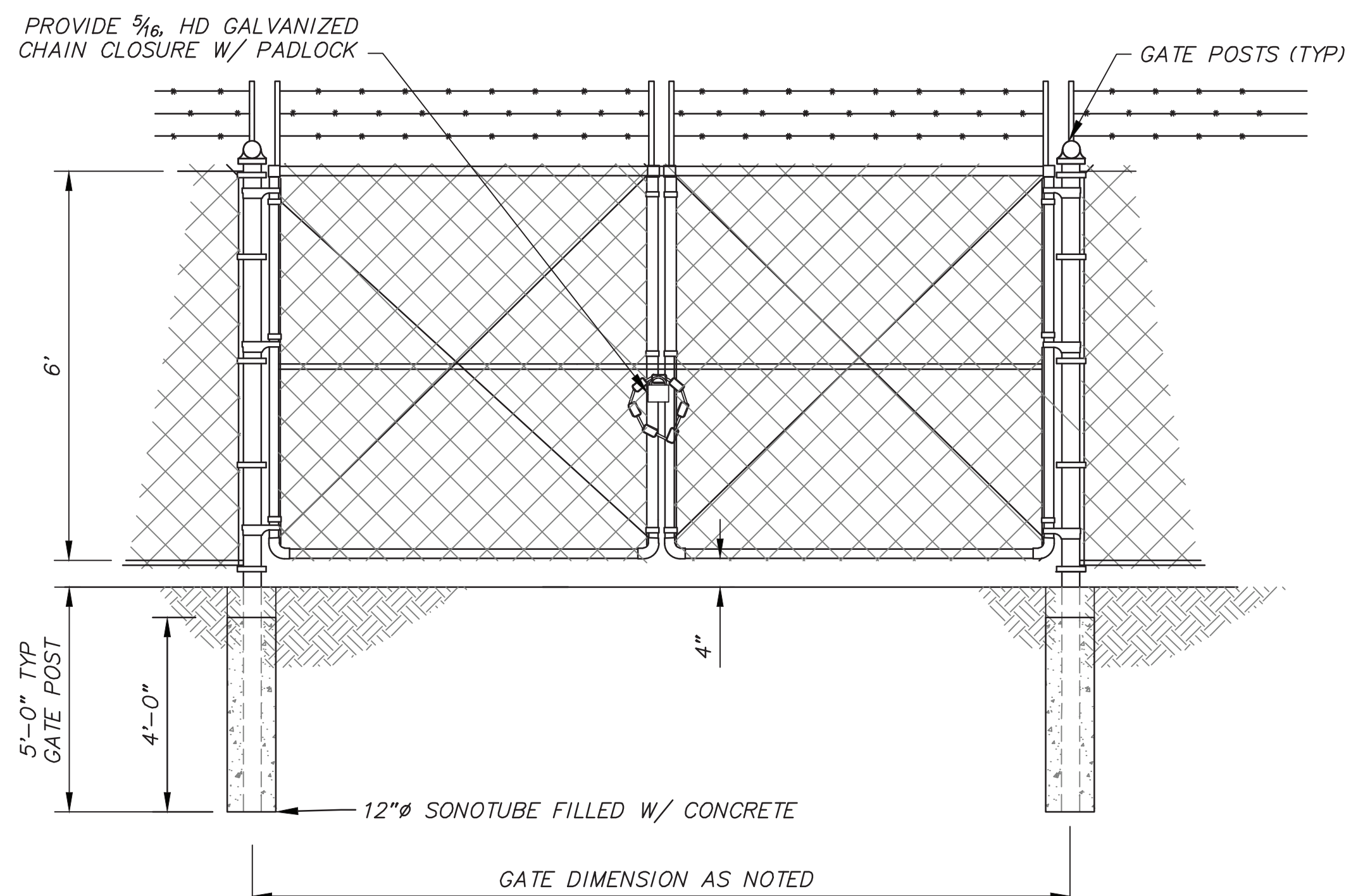


FENCE NOTES:
 1. LINE POSTS MAY BE DRIVEN IF APPROVED BY ENGINEER. CORNER POSTS SHALL BE BEDDED IN CONCRETE AS SHOWN.

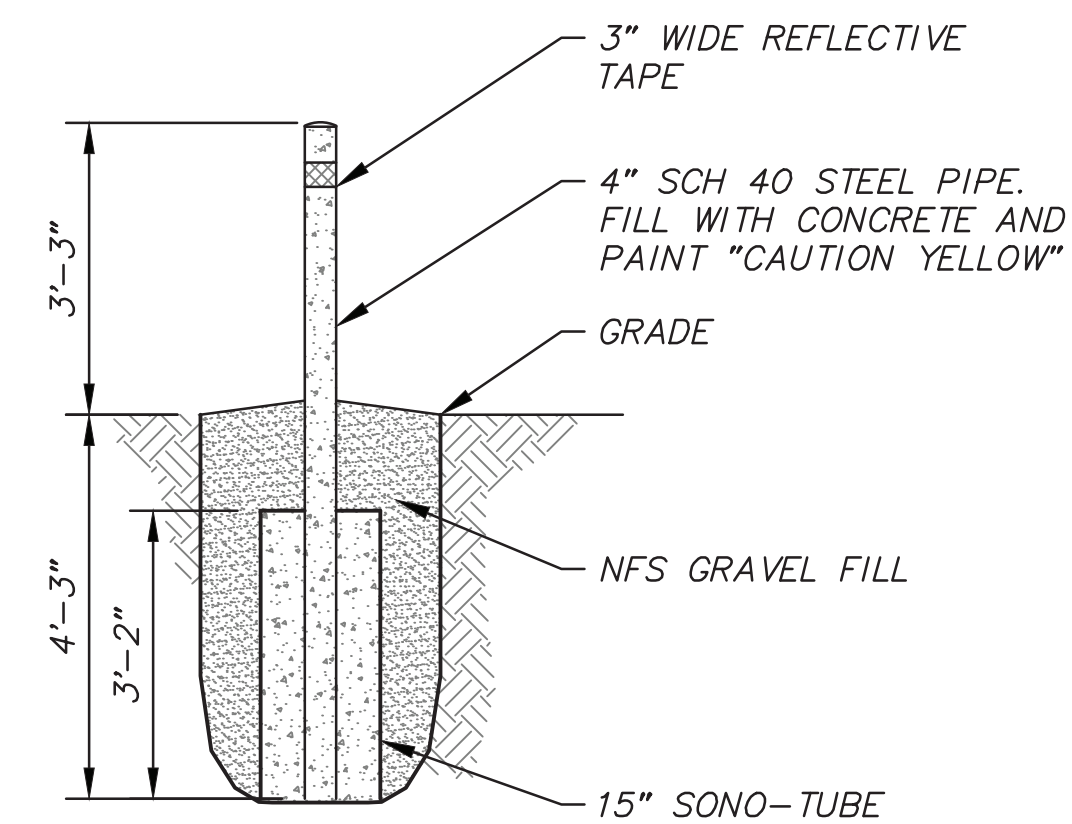
1 **FENCE DETAIL**
 SCALE: NTS



2 **MAN GATE DETAIL**
 SCALE: NTS



4 **DOUBLE SWING GATE DETAIL (SIZE AS NOTED)**
 SCALE: NTS



5 **PIPE BOLLARD DETAIL**
 SCALE: NTS



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 FENCE DETAILS
 PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/21	ISSUED FOR CONSTRUCTION	KRH

SCALE	-
HOR. VER.	-
DESIGNED BY	-
DRAWN BY	-
CHECKED BY	-
APPROVED BY	-

LEGEND

	BUS		MOTOR OVERLOAD
	EXPOSED CONDUIT		FIELD MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
	CONDUIT/CABLE RUN UNDERGROUND OR IN CONCRETE		INSTRUMENT DEVICE LOCATION (SEE TAG)
	HOMERUN TO PANEL "X", CIRCUITS NO. Y AND Z CONDUIT RUNS NOT DEFINED ARE 1/2" C with 3#12.		NORMALLY OPEN CONTACT
	GROUND		NORMALLY CLOSED CONTACT
	CONDUIT RUN - CHANGE IN ELEVATION		PILOT LIGHT R=RED, B=BLUE, A=AMBER, G=GREEN
	GROUND ROD		RELAY COIL
	LIQUID-TIGHT FLEXIBLE CONDUIT		TIME DELAY RELAY CONTACTS NORMALLY CLOSED TIMED OPEN XXX= DESCRIPTION YYY=RELATED COIL & CONTACT # ZZZ=COIL RUNG
	MOTOR, HP AS SHOWN, SINGLE PHASE, "F" = FRACTIONAL		TIME DELAY RELAY CONTACTS NORMALLY OPEN TIMED CLOSED XXX= DESCRIPTION YYY=RELATED COIL & CONTACT # ZZZ=COIL RUNG
	SHEET NOTE "X"		TIME DELAY RELAY CONTACTS NORMALLY OPEN TIMED OPEN XXX= DESCRIPTION YYY=RELATED COIL & CONTACT # ZZZ=COIL RUNG
	ELECTRICAL EQUIPMENT TAG "X"		FLOAT OPERATED SWITCH, NORMALLY CLOSED
	PANELBOARD		FLOAT OPERATED SWITCH, NORMALLY OPEN
	DISCONNECT SWITCH		PUSHBUTTON NORMALLY CLOSED, MOMENTARY CONTACT
	TRANSFORMER		PUSHBUTTON NORMALLY OPEN, MOMENTARY CONTACT
	KILOWATT-HOUR METER		MOTORIZED VALVE
	125V DUPLEX GROUND FAULT INTERRUPT WEATHER PROOF RECEPTACLE, NEMA CONFIGURATION 5 - 20R		NORMALLY CLOSED FLOAT SWITCH
	LUMINAIRE SWITCH		

	JUNCTION BOX OR FITTING
	CONDUIT TEE
	FUSE, X=SIZE IN AMPS
	MOLDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES THERMAL/MAGNETIC UON
	CONTROL PANEL
	SINGLE POLE SWITCH 120/277V 20A
	SEAL-OFF FITTING
	PHOTO ELECTRIC CONTROL
	INSTRUMENT DEVICE LOCATION (SEE TAG)
	MUSHROOM HEAD, EMERGENCY PUSHBUTTON
	REMOTE OPERATOR FOR CONTROL PANEL
	PUSH TO TEST PILOT LIGHT X= LENS TINT
	TERMINAL - X = CONTRACTOR DERIVED NUMBERING
	STROBE ALARM
	HAND-OFF-AUTO SWITCH

ABBREVIATIONS

A	AMPERE
AEA	ALASKA ENERGY AUTHORITY
AFF	ABOVE FINISH FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
bCU	BARE COPPER
C	CONDUCTOR
C	CONDUIT
C1D1	CLASS 1, DIVISION 1
C1D2	CLASS 1, DIVISION 2
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
DWG	DRAWING
EA	EACH
ESD	EMERGENCY SHUTDOWN
EXP	EXPLOSION PROOF
FVNR	FULL VOLTAGE NON-REVERSING, THERMAL MAGNETIC OCP
G	GROUND CONDUCTOR
GFI	GROUND FAULT INTERRUPTING
H	HOT CONDUCTOR
HOA	HAND OFF AUTO
HP	HORSEPOWER
KVA	KILO-VOLT-AMPERES
KW	KILOWATT
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
LTG	LIGHTING
MAX	MAXIMUM
MCM	THOUSAND CIRCULAR MILLS
MIN	MINIMUM
MV	MOTORIZED VALVE
N	NEUTRAL CONDUCTOR
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
NTS	NOT TO SCALE
OCF	OVERCURRENT PROTECTION
P	POLE
RCP	RECEPTACLE
RMC	RIGID METAL CONDUIT, GALVANIZED
SIG	SIGNAL CONDUCTOR
SL	SWITCH LEG
SS	STAINLESS STEEL
TWSH	TWISTED/SHIELDED CONDUCTOR
TYP	TYPICAL
U/G	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT-AMPERES
WP	WEATHER PROOF
XFMR	TRANSFORMER

FIXTURE SCHEDULE

SYMBOL	LAMP SIZE	MOUNTING	DESCRIPTION	MANUFACTURER
	50W LED	35' CLASS 5 POLE	TANK FARM POLE MOUNTED LIGHT, 50W LED WITH 3' MOUNTING ARM, -40F RATED	POWER SECURE ENERGYLITE: SECURELITE SL3 8H SS 730 STD 1PS 7Z MGY ZT1 WITH MACLEAN S-2-2.5 MAST ARM
	25W LED	SURFACE MOUNT	VAPORTITE L.E.D AREA LIGHT SURFACE MOUNT. CLASS 1, DIV. 2.	CROUSE HINDS: V2LCA3/UNV1 WITH J-BOX VXFT20

ELECTRICAL EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	MANUFACTURER
1	EMERGENCY SHUTOFF SWITCH. NEMA 4 DIE-CAST ALUMINUM ENCLOSURE, 2-1/4" DIA. RED MUSHROOM HEAD MAINTAINED CONTACT PUSH BUTTON WITH 1 EA. NC CONTACT, 10A RATED.	ALLEN BRADLEY 800T-FX6D4 WITH 800T-1T2 ENCLOSURE & 800T-N247R HEAD
2	LIGHT SWITCH AND RECEPTACLE. COMPLETE WITH 20A, 125V DUPLEX GFCI RECEPTACLE, 20A SINGLE POLE SWITCH. INSTALL IN CAST MULTI-GANG FD BOX WITH WEATHERPROOF COVER.	P&S 2095TRWRI RECEPTACLE P&S PS20AC1-1 SWITCH RED DOT 2CCTG COVER RED DOT 2IH4-2 BOX
3	LOCKABLE SWITCH. NEMA 4, 7, 9 EXPLOSION PROOF CONSTRUCTION WITH 3/4" FEED THRU HUB, 4PST, 250V, 20A.	KILLARK
4	THREE POSITION FLOAT ACTIVATED LEVEL SWITCH, 316 SS STEM, 2" 316 SS FLOAT, 2" NPT BUSHING, 1/2" NPT CONDUIT ENTRY, EXPLOSION PROOF CONSTRUCTION, LISTED FOR CLASS 1, DIVISION 1, GROUP D, 120VAC, 100W MAX SWITCHING POWER. PROVIDE FLOAT ACTIVATED SWITCHES AT DIMENSIONS BASED ON APPROVED SHOP DRAWINGS. CONTRACTOR SHALL VERIFY ACTUAL TANK DIMENSIONS AND SUBMIT SWITCH DIMENSIONS TO CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO ORDERING.	CUSTOM SWITCHES, INC. MODEL LS-1900 TYPE 7 OR APPROVED EQUAL. CONTRACTOR TO VERIFY CUSTOM PROBE LENGTHS PRIOR TO ORDERING. SEE DESCRIPTION.
5	FOUR POSITION FLOAT ACTIVATED LEVEL SWITCH, 316 SS STEM, 2" 316 SS FLOAT, 2" NPT BUSHING, 1/2" NPT CONDUIT ENTRY, EXPLOSION PROOF CONSTRUCTION, LISTED FOR CLASS 1, DIVISION 1, GROUP D, 120VAC, 100W MAX SWITCHING POWER. PROVIDE FLOAT ACTIVATED SWITCHES AT DIMENSIONS BASED ON APPROVED SHOP DRAWINGS. CONTRACTOR SHALL VERIFY ACTUAL TANK DIMENSIONS AND SUBMIT SWITCH DIMENSIONS TO CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO ORDERING.	CUSTOM SWITCHES, INC. MODEL LS-1900 TYPE 7 OR APPROVED EQUAL. CONTRACTOR TO VERIFY CUSTOM PROBE LENGTHS PRIOR TO ORDERING. SEE DESCRIPTION.

File: J:\JobsData\30416.00_Venetie_BFU_Project\01_CADD_2019\01_Working_Sets\03_Electrical\BFU\30416.00_NOTES_LEGEND_AND_ABBREVIATIONS.dwg PLOT DATE: 11/1/2021 3:50 PM



PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	I
SEWER GRID	I

VENETIE, ALASKA	DATE: NOV 2021
POWER SYSTEM UPGRADE	ISSUED FOR CONSTRUCTION
NOTES LEGEND AND ABBREVIATIONS	

SCALE	REV	DATE	DESCRIPTION	BY	CHKD
1"=10'	0	11/1/2021	ISSUED FOR CONSTRUCTION	MM	

ELECTRICAL SPECIFICATION

SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT AS REQUIRED FOR FINAL DESIGN, FABRICATION AND INSTALLATION OF THE FUEL SYSTEM POWER, LIGHTING, AND CONTROLS AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS ON ALL OF THE DRAWINGS.

STANDARDS, CODES AND REGULATIONS: CONTRACTOR SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), INTERNATIONAL BUILDING CODE (IBC), AND INTERNATIONAL FIRE CODE (IFC) INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES.

DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC., UNLESS SPECIFICALLY DIMENSIONED. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS, SPECIFICATIONS, GOVERNING CODES AND/OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ENGINEER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK THAT WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN BUILDINGS AND STRUCTURES. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN. PROVIDE AS-BUILT SHOP DRAWINGS OF EACH OF THE FUEL SYSTEM CONTROL PANELS. PROVIDE FULL SIZE HARD COPY AND DRAWING FILES IN AUTOCAD V2013 ON CD.

WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM TO APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES (U/L) STANDARDS.

SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE BOUND IN HARD COVER, LOOSE-LEAF BINDERS SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS.

SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE ALLOWED, SUBSTITUTIONS WILL BE REVIEWED USING THE CRITERIA/MANUFACTURERS DATA OF THE SPECIFIED COMPONENT.

OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER'S PERSONNEL. DESCRIBE IN THE MANUALS THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FORM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER'S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC. PROVIDE A NON-PASSWORD PROTECTED PDF FILE OF EACH MANUAL IN ITS ENTIRETY ON A CD IN ADDITION TO THE REQUIRED HARD COPIES.

WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST DURING THE WARRANTY PERIOD.

PERMITS: SECURE AND PAY FOR ALL CONSTRUCTION RELATED FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES AND ALL LOCAL UTILITY COMPANIES.

REFERENCE SYMBOLS: THE ELECTRICAL "LEGEND" ON THE DRAWINGS IS A STANDARDIZED VERSION, AND ALL SYMBOLS SHOWN MAY NOT BE USED. USE THE "LEGEND" AS A REFERENCE FOR THE SYMBOLS USED ON THE DRAWINGS.

IDENTIFICATION: PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH BLACK LETTERS ON A WHITE BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT, LOADS SERVED AND AS NOTED ON THE DRAWINGS. LETTER HEIGHTS SHALL BE 1/8 INCH FOR INDIVIDUAL SWITCHES, MOTOR STARTERS AND LOADS SERVED AND 1/4 INCH ON PANELBOARDS. SECURE NAMEPLATES TO EQUIPMENT FRONTS USING SCREWS, RIVETS OR ADHESIVES.

CONDUITS: MARK ALL CONDUITS ENTERING OR LEAVING PANELBOARDS/CONTROL PANELS WITH AN INDELIBLE BLACK MARKER WITH THE CIRCUIT NUMBERS OF THE CIRCUITS CONTAINED INSIDE.

JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. MARK ALL OTHER SPECIAL SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS.

CONDUIT: ALL EXTERIOR WIRING SHALL BE INSTALLED IN GALVANIZED RIGID STEEL OR INTERMEDIATE METAL RACEWAY UNLESS OTHERWISE NOTED. ALL INTERIOR, DRY LOCATION, WIRING SHALL BE INSTALLED IN ELECTRICAL METAL CONDUIT. ALL FITTINGS, CONNECTORS, BOXES, ETC., SHALL BE APPROVED FOR USE AS A GROUNDING MEANS. UTILIZE SHORT EXTENSIONS (36 INCHES MAXIMUM) OF FLEXIBLE LOW TEMPERATURE, LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT FOR CONNECTION OF ALL MOTORS AND OTHER EQUIPMENT SUBJECT TO VIBRATION AND WHERE CONDUITS TRANSITION BETWEEN STRUCTURES OR ON RISERS FROM BELOW GRADE TO IN NON-HAZARDOUS AND CLASS I, DIVISION 2 AREAS. USE EXPLOSION-PROOF FLEXIBLE COUPLINGS FOR CONNECTIONS IN CLASS I, DIVISION 1 HAZARDOUS LOCATIONS. PAINT ALL EXPOSED RACEWAYS TO MATCH THE SURFACE TO WHICH IT IS ATTACHED OR CROSSES. OTHERWISE PAINT INDUSTRIAL GRAY. COMPLETELY AND THOROUGHLY SWAB RACEWAY SYSTEM BEFORE INSTALLING CONDUCTORS. ALL UNDERGROUND CONDUIT SHALL BE BURIED A MINIMUM OF 18" BELOW FINISHED GRADE.

CONDUCTORS: CONDUCTORS SHALL BE COPPER, SOLID OR STRANDED, WITH TYPE XHHW-2 INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG. MINIMUM CONTROL CIRCUIT CONDUCTOR SIZE SHALL BE #14 AWG. PULL ALL CONDUCTORS INTO THE RACEWAY AT THE SAME TIME. USE UL LISTED WIRE-PULLING LUBRICANT FOR PULLING #4 AWG AND LARGER WIRES. COLOR CODE CONDUCTORS AS FOLLOWS: 480V SYSTEMS: BROWN (L1), YELLOW (L2), 120/240 VOLT SYSTEMS: BLACK (L1), RED (L2), WHITE (N) AND GREEN OR BARE (G). USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600-VOLT RATED HEAT SHRINK TUBING.

CIRCUIT BREAKERS: MOLDED CASE CIRCUIT BREAKERS SHALL BE BOLT-ON THERMAL MAGNETIC TRIP TYPE WITH COMMON TRIP HANDLE FOR ALL POLES.

LIGHTING EQUIPMENT: PROVIDE ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE "FIXTURE SCHEDULE". PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED, WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC.

EQUIPMENT CONNECTIONS: PROVIDE WIRING AND CONNECTION TO EQUIPMENT REQUIRING ELECTRICAL POWER BUT SPECIFIED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS. EQUIPMENT SHALL INCLUDE BUT IS NOT LIMITED TO MOTORS, PUMPS, DISPENSING EQUIPMENT, ETC. REVIEW EQUIPMENT SUBMITTAL FROM THE OTHER TRADES PRIOR TO INSTALLATION AND ELECTRICAL ROUGH-IN. VERIFY LOCATION, SIZE, TYPE OF CONNECTIONS, AND THAT EQUIPMENT IS READY FOR ELECTRICAL CONNECTION. MAKE WIRING CONNECTIONS IN CONTROL PANEL OR IN WIRING COMPARTMENT OF PRE-WIRED EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROVIDE INTERCONNECTING WIRING AND DISCONNECTS WHERE REQUIRED.

DISCONNECT SWITCHES: PROVIDE 250V HEAVY DUTY NON-FUSIBLE QUICK-MAKE, QUICK BREAK, LOAD INTERRUPTER, ENCLOSED KNIFE SWITCHES WITH EXTERNALLY OPERABLE HANDLE INTERLOCKED TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION, HANDLE LOCKABLE IN OFF POSITION.

PENETRATIONS OF HAZARDOUS LOCATIONS: ALL ELECTRICAL PENETRATIONS OF HAZARDOUS LOCATION BOUNDARIES SHALL BE PROVIDED WITH SEAL-OFF FITTINGS AS REQUIRED BY NEC ARTICLES 500 & 501.

MOTOR STARTERS: PROVIDE FULL VOLTAGE STARTING, NON-REVERSING, MAGNETIC TYPE MOTOR STARTERS, IEC RATED, AC GENERAL-PURPOSE, CLASS A, WITH MAGNETIC CONTROLLER FOR INDUCTION MOTORS RATED IN HORSEPOWER. OVERLOAD RELAY SHALL BE NON-AMBIENT SENSITIVE. PROVIDE TWO FIELD CONVERTIBLE CONTACTS IN ADDITION TO SEAL-IN CONTACT. INSTALL MOTOR CONTROL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. SELECT AND INSTALL HEATER ELEMENTS OR SET ADJUSTABLE OVERLOADS IN MOTOR STARTERS TO MATCH INSTALLED MOTOR CHARACTERISTICS.

MOTOR DATA: PROVIDE NEATLY TYPED LABEL INSIDE EACH MOTOR STARTER OR CONTROL PANEL ENCLOSURE DOOR IDENTIFYING MOTOR(S) SERVED, NAMEPLATE HORSEPOWER, FULL LOAD AMPERES, CODE LETTER, SERVICE FACTOR, AND VOLTAGE/PHASE RATING.

EQUIPMENT MOUNTING: PROVIDE ALL BRACING AS REQUIRED TO SECURELY MOUNT ENCLOSURES, FIXTURES AND DEVICES. UNLESS OTHERWISE NOTED USE GALVANIZED HARDWARE AND GALVANIZED FORMED STEEL COMPONENTS SUCH AS UNISTRUT OR EQUAL. WHEN BOLTING TO STRUCTURE, VERIFY THAT THE ORIGINAL STRUCTURAL AND PERFORMANCE (I.E. WATER TIGHT) CHARACTERISTICS ARE MAINTAINED.

ENCLOSURE RATING: UNLESS NOTED OTHERWISE, ENCLOSURES, JUNCTION BOXES AND OTHER EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE -

EXTERIOR, NON HAZARDOUS - NEMA 4X NONMETALLIC
 EXTERIOR, HAZARDOUS - NEMA 7 (CLASS 1, GROUP D) AND NEMA 4 OR 4X
 INTERIOR - NEMA 12



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 ELECTRICAL SPECIFICATIONS
 PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	WMM

SCALE	-
HOR. VER.	-
DESIGNED BY	SAB
DRAWN BY	SAB
CHECKED BY	WMM
APPROVED BY	-

SHEET NO.
E2.0

CONTROL SPECIFICATION

CONTROLS

FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT AS REQUIRED FOR FINAL DESIGN, FABRICATION AND INSTALLATION OF THE CONTROLS AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS ON ALL OF THE DRAWINGS.

STANDARDS, CODES AND REGULATIONS: CONTRACTOR SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), AND NFPA 79 AND UL 508A.

SUBMITTALS

PRODUCT DATA: INCLUDE MANUFACTURER'S TECHNICAL LITERATURE FOR EACH CONTROL DEVICE. INDICATE DIMENSIONS, CAPACITIES, PERFORMANCE CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, FINISHES FOR MATERIALS, AND INSTALLATION AND STARTUP INSTRUCTIONS FOR EACH TYPE OF PRODUCT INDICATED.
EACH CONTROL DEVICE LABELED WITH SETTING OR ADJUSTABLE RANGE OF CONTROL.

SHOP DRAWINGS: SUBMITTAL DRAWINGS SHALL BE PREPARED AND SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION. SUBMITTAL FORMAT SHALL BE BASED ON A 22X34 SIZE SHEET WITH EITHER VENDOR'S OR PROJECT BORDER. HARD COPY SUBMITTALS SHALL BE 1/2 SIZE (11X17) ON BOND PAPER AND A SINGLE COPY OF A ".PDF" FILE AND A .DWG FILE IN AUTOCAD 2010 WITH CTB FILE FOR PRINTING. ELECTRONIC MEDIA SHALL BE SUBMITTED ON CD FORMATTED FOR READING ON INTEL-BASED PC'S (NOT MAC). DATA TO BE INCLUDED ON THE SUBMITTAL DRAWINGS INCLUDE:

DIMENSIONED OPERATOR DOOR AND BACK PANEL LAYOUT SHOWING ALL COMPONENTS.

BILL OF MATERIALS WITH MANUFACTURER AND RELEVANT PART NUMBERS.

SCHEMATIC DIAGRAM. POWER, SIGNAL, AND CONTROL WIRING.

DIFFERENTIATE BETWEEN MANUFACTURER-INSTALLED AND FIELD-INSTALLED WIRING.

DETAILS OF CONTROL PANEL FACES, INCLUDING CONTROLS, INSTRUMENTS, AND LABELING.

TERMINAL ASSIGNMENTS WITH ALL EXTERNAL COMPONENT TERMINATIONS SHOWN.

DETAIL EQUIPMENT ASSEMBLIES AND INDICATE DIMENSIONS, WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, COMPONENTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION.

WRITTEN DESCRIPTION OF SEQUENCE OF OPERATION.

MAINTENANCE DATA INCLUDE THE FOLLOWING:

MAINTENANCE INSTRUCTIONS AND LISTS OF SPARE PARTS FOR EACH TYPE OF CONTROL DEVICE. INTERCONNECTION WIRING DIAGRAMS WITH IDENTIFIED AND NUMBERED SYSTEM COMPONENTS AND DEVICES.

STEP-BY-STEP PROCEDURES INDEXED FOR EACH OPERATOR FUNCTION. INSPECTION PERIOD, CLEANING METHODS, CLEANING MATERIALS RECOMMENDED, AND CALIBRATION TOLERANCES. CALIBRATION RECORDS AND LIST OF SET POINTS.

PROJECT RECORD DOCUMENTS: SUBMIT ALL CUT-SHEETS, O&M INFORMATION AND INSTRUCTIONS IN EITHER MS WORD (.DOC) OR ADOBE (.PDF) FORMAT ON CD FORMATTED FOR USE ON INTEL-BASED PC'S.

QUALITY ASSURANCE: ALL CONTROL/ALARM PANELS PROVIDED FOR THIS PROJECT SHALL BE LISTED OR LABELED AS AN ELECTRICAL ASSEMBLY BY AN AGENCY ACCEPTABLE TO THE STATE OF ALASKA DEPARTMENT OF LABOR - MECHANICAL INSPECTIONS DIVISION. CONSTRUCTION SHALL PROCEED ONLY AFTER THE OWNER APPROVES THE REQUIRED SUBMITTALS.

AS-BUILT DRAWINGS: UPON RECEIPT OF APPROVED SUBMITTALS AND AFTER CONSTRUCTION OF THE PANEL(S), PREPARE AS-BUILT DRAWINGS USING THE APPROVED SUBMITTAL FILES. SUBMIT 3 SETS OF FULL SIZE DRAWINGS ENCLOSED WITHIN EACH PANEL AND A CD WITH A COPY OF AUTOCAD FILES (22X34 DRAWING SIZE) OF THE SUBMITTAL DRAWINGS EDITED TO AS-BUILT STATUS. PROVIDE ONE CD FOR EACH PANEL.

O&M MATERIAL: PROVIDE AS-BUILT VERSIONS OF PROJECT RECORD DOCUMENTS, CURRENT PRICE AND SOURCE FOR ALL REPLACEABLE COMPONENTS (I.E. PLUG-IN RELAYS, PILOT LIGHT LAMPS, ETC). IF A COMMON COMPONENT IS USED IN SEVERAL PANELS, A SINGLE CUT SHEET/DESCRIPTOR IS ACCEPTABLE IF ALL APPLICABLE PANELS ARE ANNOTATED ON THE SUBMITTAL. ALL PREPARED O&M MATERIAL SHALL BE TYPED IN MS WORD OR SCANNED AND CONVERTED TO .PDF FORMAT. O&M DATA CAN BE FURNISHED ON THE SAME CD WITH AS-BUILT DWGS.

PRODUCTS

CONTROL PANEL: ENCLOSURES SHALL BE NEMA 4X NON-METALLIC. CONTROL PANEL ENCLOSURE INTERIOR SHALL BE PROVIDED WITH A STEEL BACK PANEL FOR MOUNTING OF CONTROL AND POWER DISTRIBUTION COMPONENTS. HOFFMAN OR EQUAL.

WIRE MARKERS: SHALL CONSIST OF WHITE OR YELLOW, SLIP-ON ELASTIC SLEEVES SIZED TO TIGHTLY GRIP THE WIRE INSULATION AND MARKED IN BLOCK PRINTING WITH THE LETTERS OR NUMBERS TO IDENTIFY THE CIRCUIT.

TERMINAL BLOCKS: SHALL BE ALLEN BRADLEY 1492 SERIES OR EQUAL. POWER TERMINATIONS FOR SUPPLY AND MOTOR LOADS A MINIMUM RATING OF 600 VOLTS AC AND 35 AMPSCONTROL AND SENSOR TERMINALS SHALL BE DETERMINED BY THE MANUFACTURER AND BASED ON UPSTREAM OVER CURRENT PROTECTION, FAULT DUTY ETC. WHEN INDIVIDUAL DEVICES OR COMPONENT TERMINAL BLOCKS ARE ENCOUNTERED WITH SCREW TERMINALS, TERMINATION SHALL BE BY SLIP ON SPADE TONGUE INSULATED COMPRESSION TERMINATORS.

NAMEPLATES: SHALL BE INSTALLED PLUMB AND PARALLEL TO THE LINES OF DOORS OR STRUCTURE TO WHICH THEY ARE ATTACHED. A NAMEPLATE SHALL BE PROVIDED FOR EACH PANEL. IT SHALL BE 2"X6" MINIMUM SIZE WITH 1/2 INCH MINIMUM ENGRAVED LETTERS. THE ENGRAVING SHALL BE AS SHOWN ON THE DRAWINGS FOR THE IDENTIFICATION OF EACH PANEL.

PANEL COMPONENTS SHALL BE AS LISTED UNDER THE COMPONENT SCHEDULE.

INSTALLATION

CONTROL PANELS: SHALL BE FACTORY OR SHOP FABRICATED UNITS COMPLETELY ASSEMBLED, WIRED AND TESTED IN THE PRESENCE OF AN OWNER REPRESENTATIVE BEFORE SHIPMENT TO THE JOB SITE. PANEL CONSTRUCTION SHALL, IN GENERAL, MEET APPLICABLE NEMA AND IEEE STANDARDS. THE PANELS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS OF AND BEAR THE LABEL OF AN ACCREDITED NATIONALLY RECOGNIZED TESTING LABORATORY.

THE ASSEMBLED PANEL SHALL BE MEGERGED AND TESTED TO BE FREE FROM GROUNDS AND SHORTS. ALL CONTROLLERS, CIRCUITS AND INTERLOCKS SHALL BE RUNG OUT AND TESTED TO ASSURE THAT THEY FUNCTION CORRECTLY BEFORE THE PANEL IS SHIPPED. REVISE ALL DRAWINGS UPON COMPLETION OF THE WORK TO SHOW "AS SHIPPED" CONDITION OF THE PANEL. AFTER COMPLETION OF SHOP ASSEMBLY AND TESTING, PANELS SHALL BE ENCLOSED IN HEAVY-DUTY POLYETHYLENE ENVELOPES OR SECURED SHEETING TO PROVIDE COMPLETE PROTECTION FROM DUST AND MOISTURE. DEHUMIDIFIERS SHALL BE PLACED INSIDE THE POLYETHYLENE COVERING. THE EQUIPMENT SHALL THEN BE SKID-MOUNTED FOR FINAL TRANSPORT. SHIPPING WEIGHT SHALL BE SHOWN ON SHIPPING TAGS, TOGETHER WITH INSTRUCTIONS FOR UNLOADING, TRANSPORTING, STORING, AND HANDLING ON JOB SITE.

WIRING DUCT: SHALL BE PROVIDED FOR WIRING WITHIN THE PANEL ENCLOSURE INCLUDING ALL FIELD WIRING. WIRING WITHIN THE PANEL SHALL BE LABELED WITH WIRE NUMBERS AND RUN IN WIRING DUCT NEATLY TIED AND BUNDLED WITH TIE WRAPS OR SIMILAR MATERIALS. LINE VOLTAGE (120 VOLT OR HIGHER) WIRING IN PANELS SHALL BE CLASS C STRANDED COPPER CONDUCTOR #14AWG, WITH TYPE MTW OR SIS INSULATION. COLOR CODING OF INSULATION SHALL BE:

BLACK: UNGROUNDED LINE, LOAD, AND CONTROL CONDUCTORS AT LINE VOLTAGE.

RED: UNGROUNDED AC CONTROL CONDUCTORS, AT LESS THAN LINE VOLTAGE.

BLUE: UNGROUNDED DC CONTROL CONDUCTORS.

YELLOW: UNGROUNDED CONTROL CIRCUIT CONDUCTORS THAT MAY REMAIN ENERGIZED WHEN THE MAIN DISCONNECTING MEANS IS IN THE OFF POSITION. THESE CONDUCTORS SHALL BE YELLOW THROUGHOUT THE ENTIRE CIRCUIT, INCLUDING WIRING IN THE CONTROL PANEL AND THE EXTERNAL FIELD WIRING.

WHITE OR NATURAL GRAY: GROUNDED CIRCUIT CONDUCTOR.

WHITE WITH BLUE STRIPE: GROUNDED (CURRENT-CARRYING) DC CIRCUIT CONDUCTORS.

WIRING WHICH IS AN INTERNAL PART OF A DEVICE AND IS NOT CONNECTED TO EXTERNAL TERMINAL BLOCKS MAY BE WIRED USING THE MANUFACTURER'S STANDARD WIRE DESIGNATIONS. WIRE WHICH CONNECTS TO EXTERNAL CIRCUITS, TO TERMINAL BLOCKS, OR THE NUMBERS SHOWN ON THE ELEMENTARY WIRING DIAGRAMS SHALL IDENTIFY OTHER DEVICES THAT ARE CONNECTED TO EXTERNAL CIRCUITS. EVERY WIRE TERMINATION, INCLUDING ALL JUMPERS, SHALL BE IDENTIFIED WITH WIRE MARKERS. WIRE MARKERS SHALL BE INSTALLED OVER WIRE TERMINATORS OR DIRECTLY ADJACENT TO THEM. MARKERS SHALL BE ARRANGED TO PERMIT READING OF IDENTIFICATION.

TERMINAL BLOCKS SHALL BE PROVIDED FOR THE TERMINATION OF POWER AND CONTROL WIRING. WHERE MULTIPLE TERMINAL BLOCKS ARE SHOWN FOR A GIVEN WIRE NUMBER, ADDITIONAL BLOCKS SHALL BE PROVIDED AND JUMPERED AS NECESSARY TO PROVIDE TERMINAL SPACES FOR EACH INDIVIDUAL OUTGOING WIRE. TERMINAL STRIPS SHALL BE MOUNTED ON A FLAT STEEL CHANNEL OR STRUT WHICH RAISES THEM TO THE LEVEL OF THE ADJACENT WIRE GUTTERS (2 INCH TO 3 INCH ABOVE BACKPLATE). PROVIDE SPACE FOR A MINIMUM OF 10 PERCENT ADDITIONAL CONTROL WIRING TERMINAL BLOCKS ON EACH SIDE.

NAMEPLATES SHALL BE PROVIDED FOR ALL RELAYS, TIMERS, TRANSFORMERS, FUSES, TERMINAL BLOCK, SWITCHES MOUNTED INTERNALLY, AND OTHER COMPONENTS THAT ARE MOUNTED TO THE INTERNAL MOUNTING PANEL. THESE NAMEPLATES SHALL BE SIZED TO THE SCALE OF THE DEVICE TO WHICH THEY REFER. THE ENGRAVING SHALL BE AS SHOWN FOR THE DEVICE ON THE ELEMENTARY WIRING DIAGRAMS.

OPERATION: AFTER THE PANEL INSTALLATION HAS BEEN INSPECTED AND APPROVED, VENDOR SHALL VERIFY AND DEMONSTRATE TO THE PROJECT MANAGER, OR HIS DESIGNATED REPRESENTATIVE, PROPER OPERATION OF EACH FUNCTION AS DESCRIBED IN THESE SPECIFICATIONS.

EACH FUNCTION WILL BE TESTED - SIMULATED INPUTS AND OR FAILURES WILL BE USED WHERE THE ACTUAL CONDITIONS ARE NOT POSSIBLE (I.E. OVERLOAD TRIP). ANY DISCREPANCY NOTED SHALL BE CORRECTED AND PROPER FUNCTION DEMONSTRATED TO PROJECT MANAGER OR DESIGNATED REPRESENTATIVE.



PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	MM
SEWER GRID	I

PROJECT NO. -
VENETIE, ALASKA
POWER SYSTEM UPGRADE
CONTROL SPECIFICATIONS
DATE: NOV 2021
STATUS: ISSUED FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	MM

SCALE	-
HOR. VER.	-
DESIGNED BY	SAB
DRAWN BY	SAB
CHECKED BY	-
APPROVED BY	I

SHEET NO.
E3.0

PANEL SCHEDULE

COMMUNITY TANK FARM MAIN		120/240VAC			1Ø, 3 Wire		60A		
PANEL LOCATION: AIRPORT		MLO/MCB			NEMA 3R		10,000 AIC		
POLE	AMP TRIP	LOAD DESCRIPTION	POLE KVA	A Ø	B Ø	POLE KVA	LOAD DESCRIPTION	AMP TRIP	POLE
1	30/2	TRANSFER PUMP GAS	1.3	1.7		0.4	LIGHTING	20/1	2
3			1.3		2.6	1.3	TRANSFER PUMP DIESEL	30/2	4
5	20/1	CP-1	1.0	2.3		1.3			6
7					0.0				8
9				0.0					10
			4.0	2.6			TOTAL KVA =	6.6	
							AMPS =	27.5	

LOAD CALCULATIONS:

TOTAL LOAD = 6.6 KVA
@240/120 = 28 A

SHORT CIRCUIT CURRENT CALCULATIONS:

MAX AVAILABLE SHORT CIRCUIT CURRENT: 2033 A @ METER/MAIN
: 1911 A @ DISCONNECT

ASSUMED %Z = 1.8%
15 KVA TRANSFORMER

PROVIDE PLACARDS AT METER/MAIN, AND DISCONNECT WITH RELEVANT INFORMATION

PANEL SCHEDULE

DISPENSER MAIN		120/240VAC			1Ø, 3 Wire		60A		
PANEL LOCATION: VILLAGE STORE		MLO/MCB			NEMA 3R		10,000 AIC		
POLE	AMP TRIP	LOAD DESCRIPTION	POLE KVA	A Ø	B Ø	POLE KVA	LOAD DESCRIPTION	AMP TRIP	POLE
1	30/2	DISPENSER	1.7	1.7					2
3				1.7		1.7			4
5	20/1	LIGHTING	0.1	1.1		1.0	CP-2	20/1	6
7					0.0				8
9				0.0					10
			2.8	1.7			TOTAL KVA =	4.5	
							AMPS =	18.8	

LOAD CALCULATIONS:

TOTAL LOAD = 4.5 KVA
@240/120 = 19 A

SHORT CIRCUIT CURRENT CALCULATIONS:

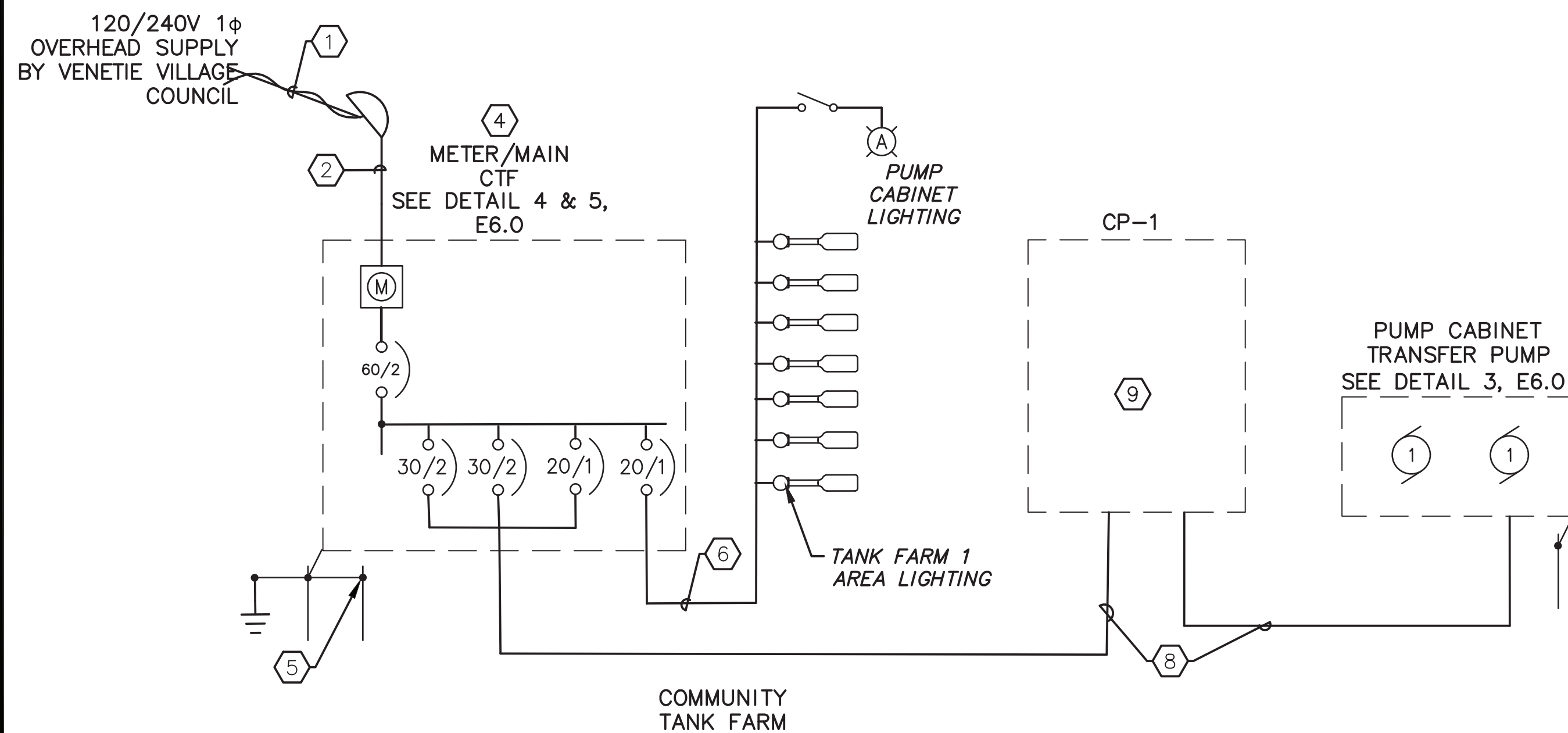
MAX AVAILABLE SHORT CIRCUIT CURRENT: 1889 A @ METER/MAIN
: 1745 A @ DISCONNECT

ASSUMED %Z = 1.8%
15 KVA TRANSFORMER

PROVIDE PLACARDS AT METER/MAIN, AND DISCONNECT WITH RELEVANT INFORMATION

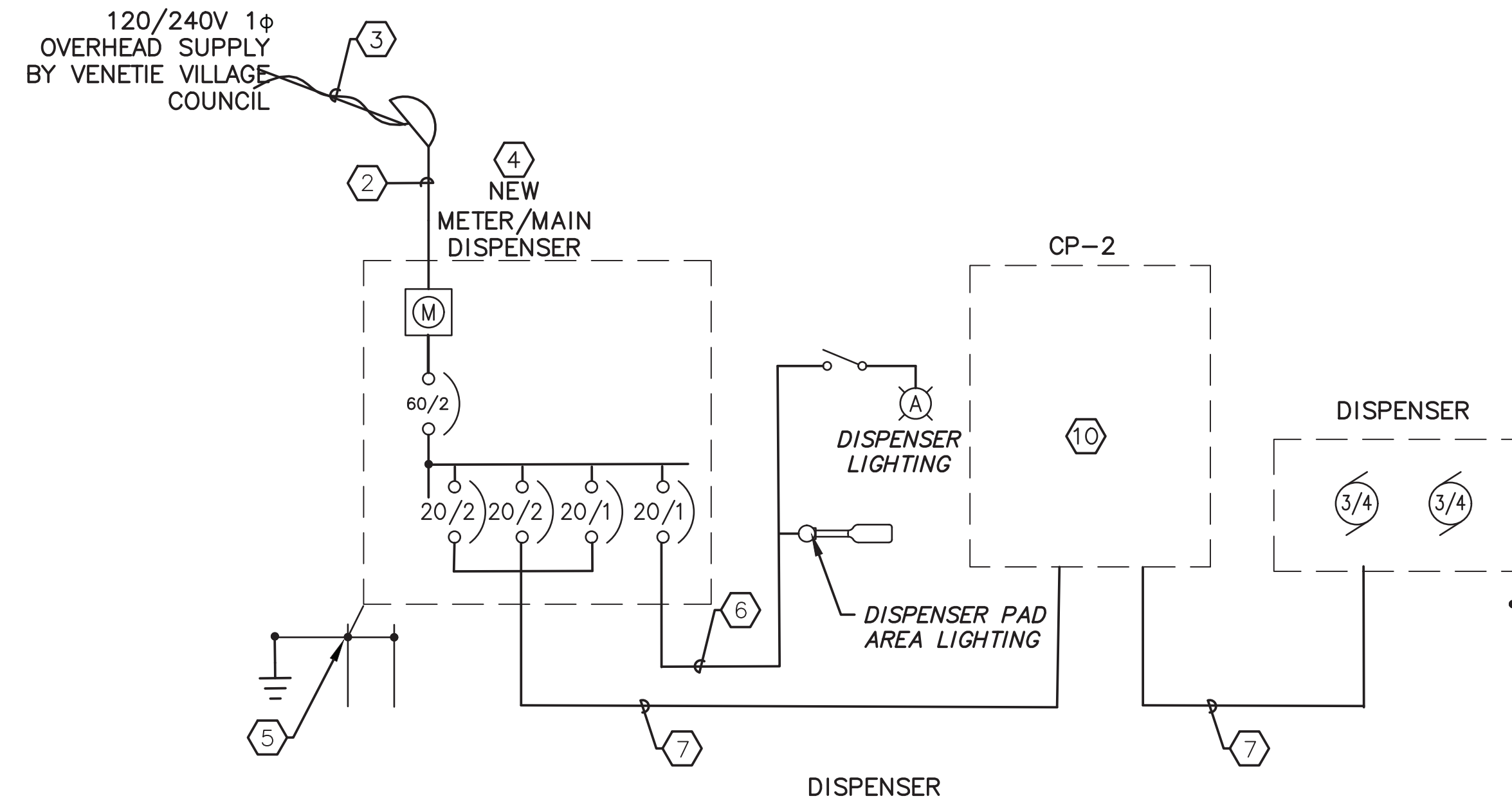
NOTES

- 1 COORDINATE CTF SERVICE WITH LOCAL UTILITY.
- 2 2" GRC RISER WITH WEATHER HEAD SUPPORT 24" ON CENTER CONSISTING OF (3)#6 (2H,G).
- 3 COORDINATE RETAIL DISPENSER SERVICE WITH LOCAL UTILITY.
- 4 60/2 METER MAIN, 120/240V, SINGLE-PHASE, NEMA 3R. PROVIDE CIRCUITS PER SCHEDULE. SEE CTF PANEL SCHEDULE AND DISPENSER PANEL SCHEDULE ABOVE RESPECTIVELY.
- 5 PROVIDE (2) 3/4"x10' RODS AT LEAST 6' APART AND CONNECTED TO NEW SERVICE WITH #4 COPPER. TIE TO GROUND GRID.
- 6 1/2" C WITH (3)#12, (H, N, G)
- 7 3/4" C, (4)#10(H), (2)#10(G), (2)#12. COORDINATE DISPENSER POWER LOCATION W/APPROVED SHOP DRAWINGS.
- 8 3/4" C WITH (6)#10(H), (1)#10(G).
- 9 SEE SHEETS E8.0-E8.3 FOR CONTROLS AT CTF.
- 10 SEE SHEETS E9.0-E9.2 FOR CONTROLS AT DISPENSER.



POWER ONE-LINE

SCALE: NTS



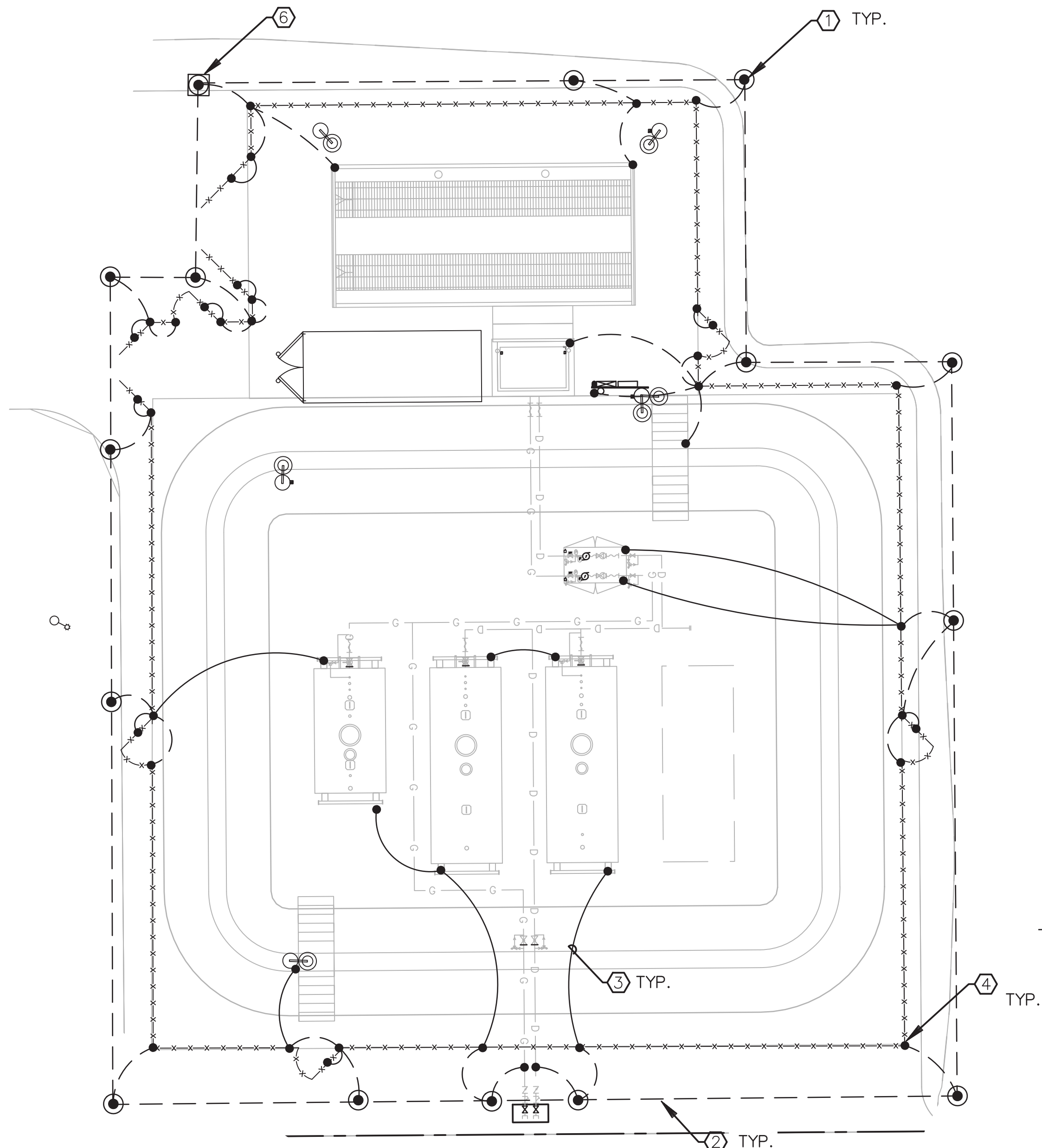
DISPENSER

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	MM

SCALE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
-	SAB	SAB	MM	-

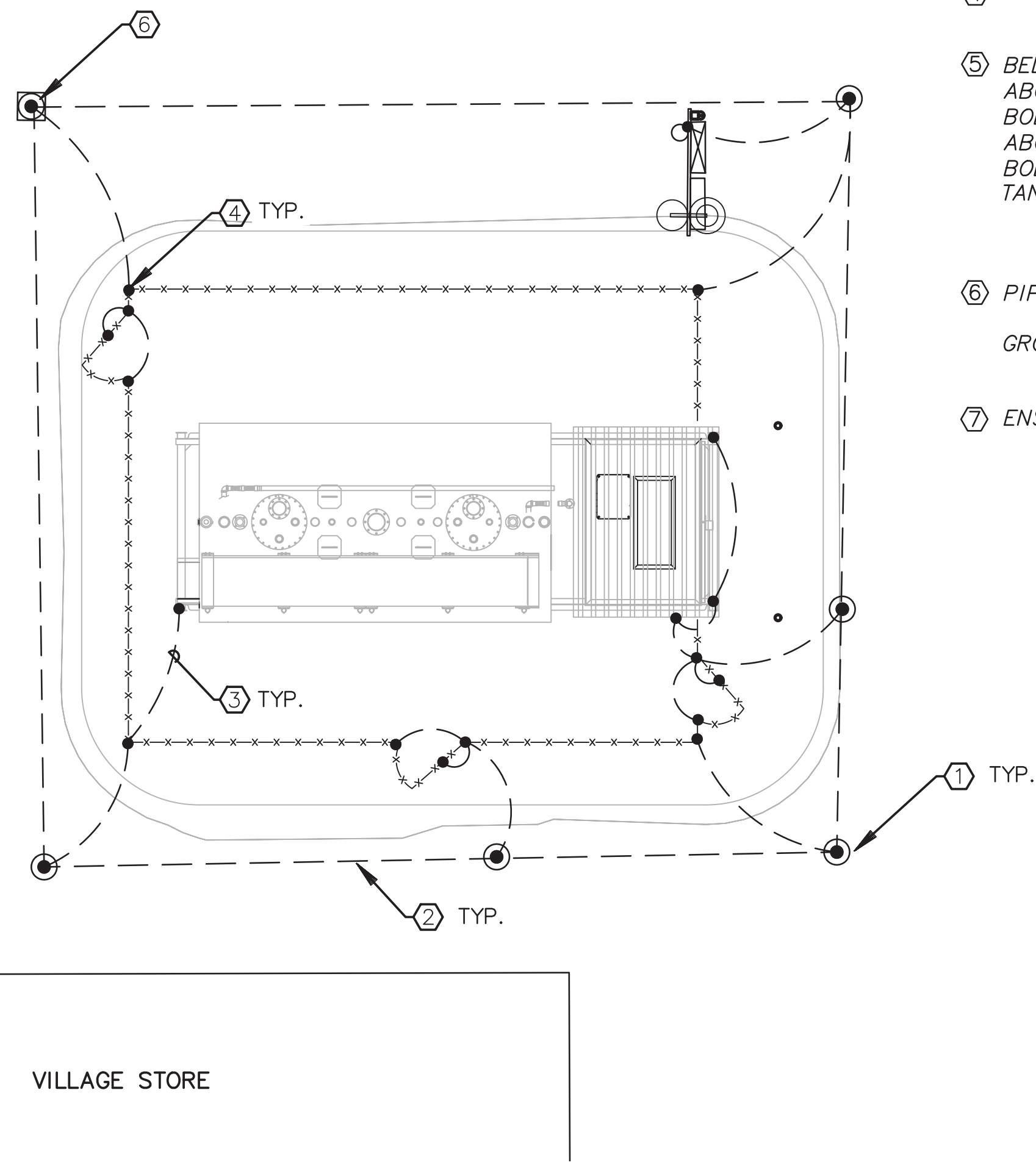
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File: J:\JobsData\30416.00_Venetie_BFU_Project\01_CADD_2019\01_Working_Sets\Electrical\BFU\30416.00_GROUNDING_PLAN.dwg PLOT DATE: 11/1/2021 3:51 PM



1 COMMUNITY TANK FARM GROUNDING PLAN

SCALE: GRAPHIC



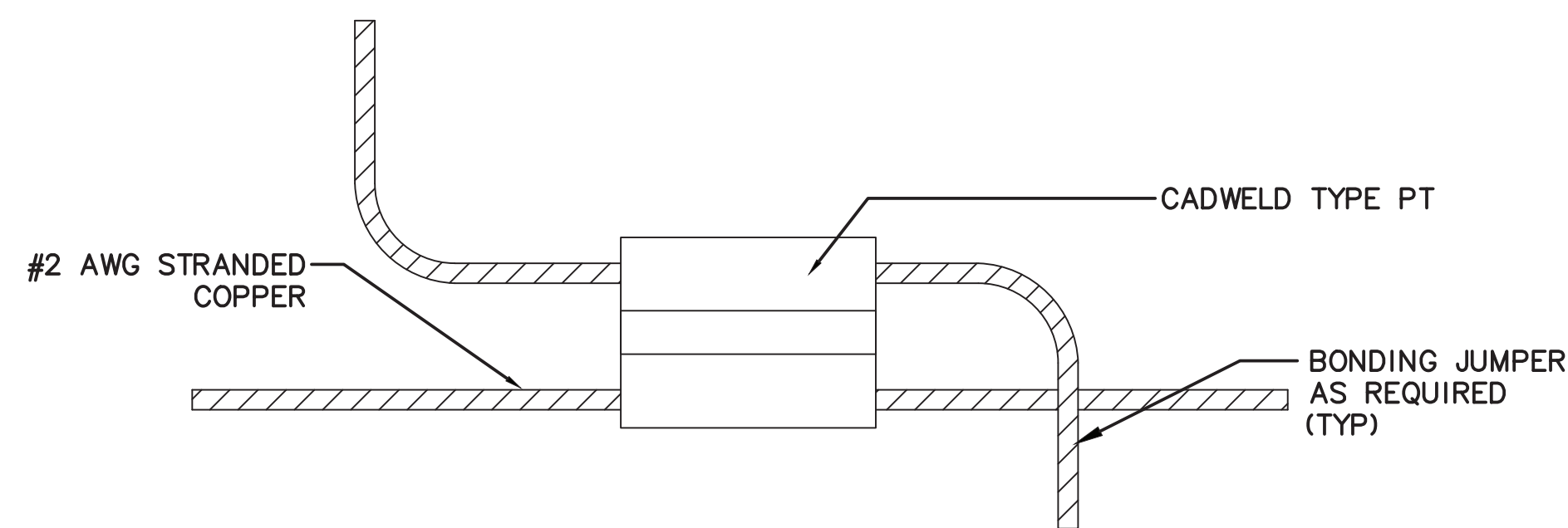
2 DISPENSER GROUNDING PLAN

SCALE: GRAPHIC



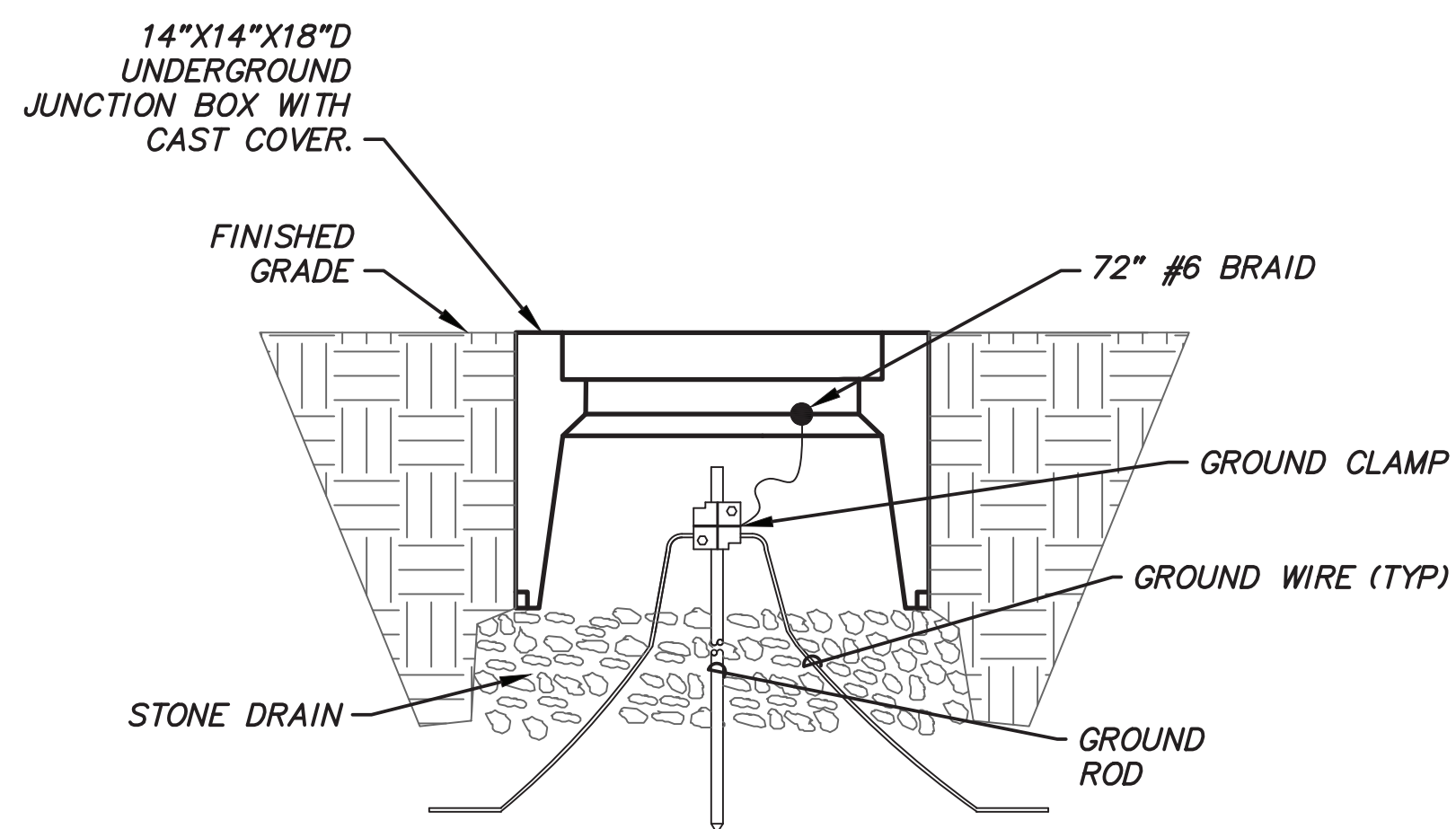
NOTES

- ① 3/4"X10' COPPER CLAD GROUND ROD.
- ② #2 bCU GROUND RING BURIED MIN 30" BELOW GRADE.
- ③ #4 bCU GROUND TO TANKS.
- ④ EXTEND #6 GROUND TO ALL CORNERS AND WHERE SHOWN.
- ⑤ BELOW GRADE BOND: EXOTHERMIC WELDMENT
ABOVE GRADE BOND: FENCEPOST/STAIRS, SPLIT BOLT
ABOVE GRADE BOND: DISPENSER/PANELS, SPLIT BOLT
TANK SKID: EXOTHERMIC WELDMENT, DO NOT WELD TO TANK, TOUCH UP AND PAINT/GALVANIZE AREA AFFECTED WHEN WELD IS COMPLETE.
- ⑥ PIPELINE: APPROVED PIPE GROUNDING CLAMP
GROUND TEST POINT, SEE 4/THIS SHEET FOR DETAILS.
- ⑦ ENSURE GROUND REEL IS CONNECTED TO GROUNDING SYSTEM.



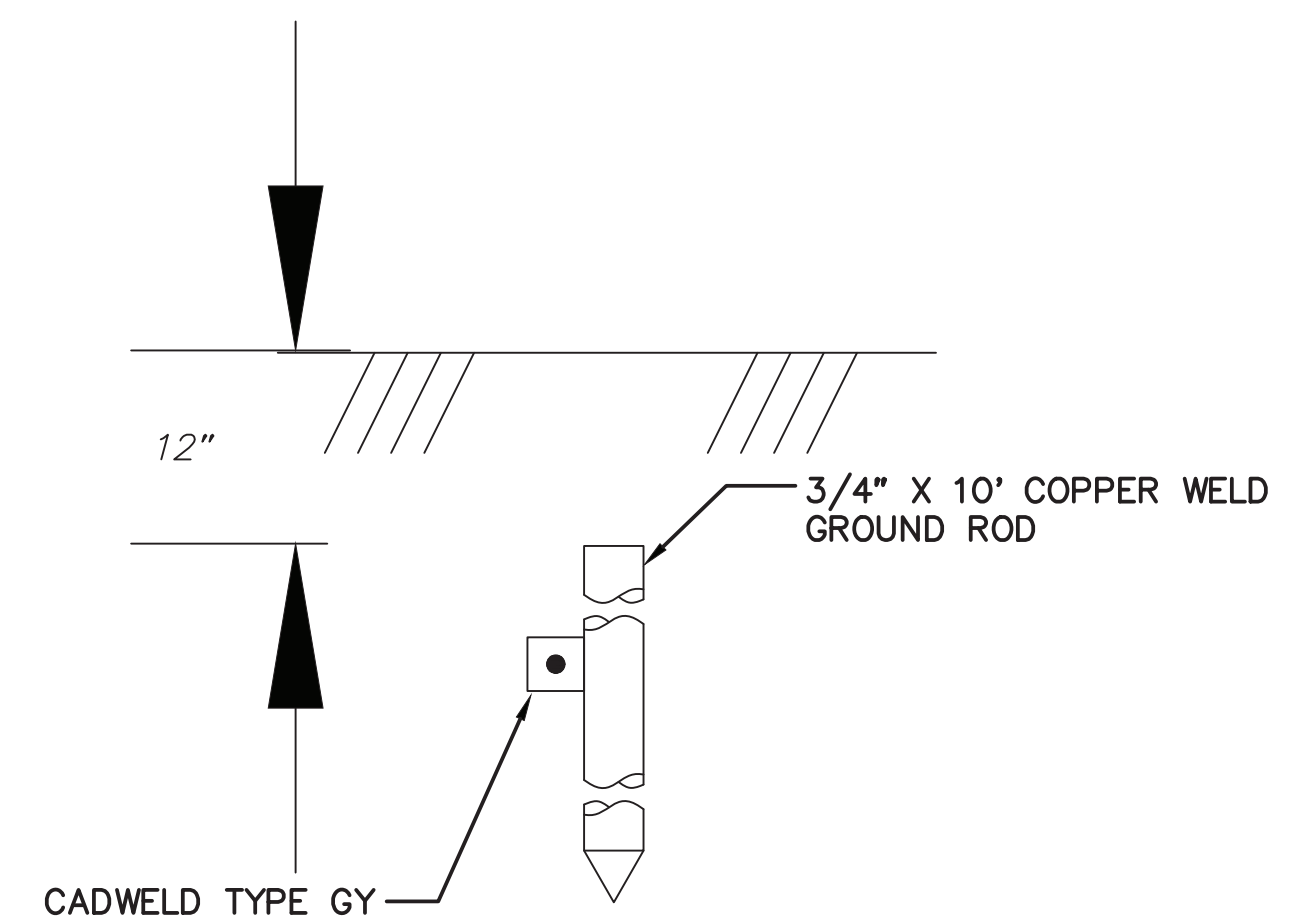
3 GROUND RING CONNECTION

SCALE: NTS



4 GROUND TEST POINT ELEVATION

SCALE: NTS



5 GROUND ROD CONNECTION

SCALE: NTS



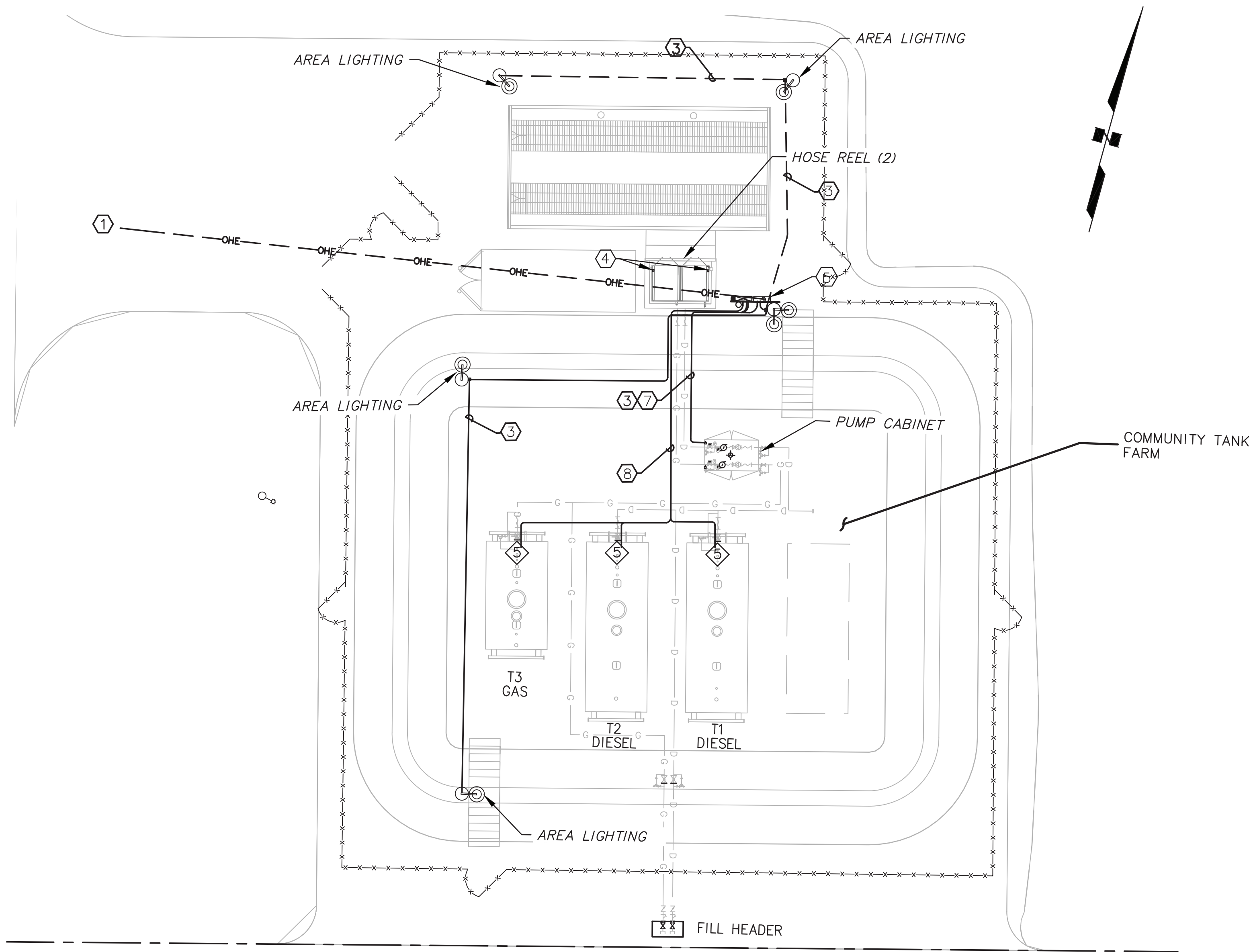
PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 GROUNDING PLAN
 PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

SCALE	HOR.	VER.	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
-	-	-	SAB	SAB	MMM	-

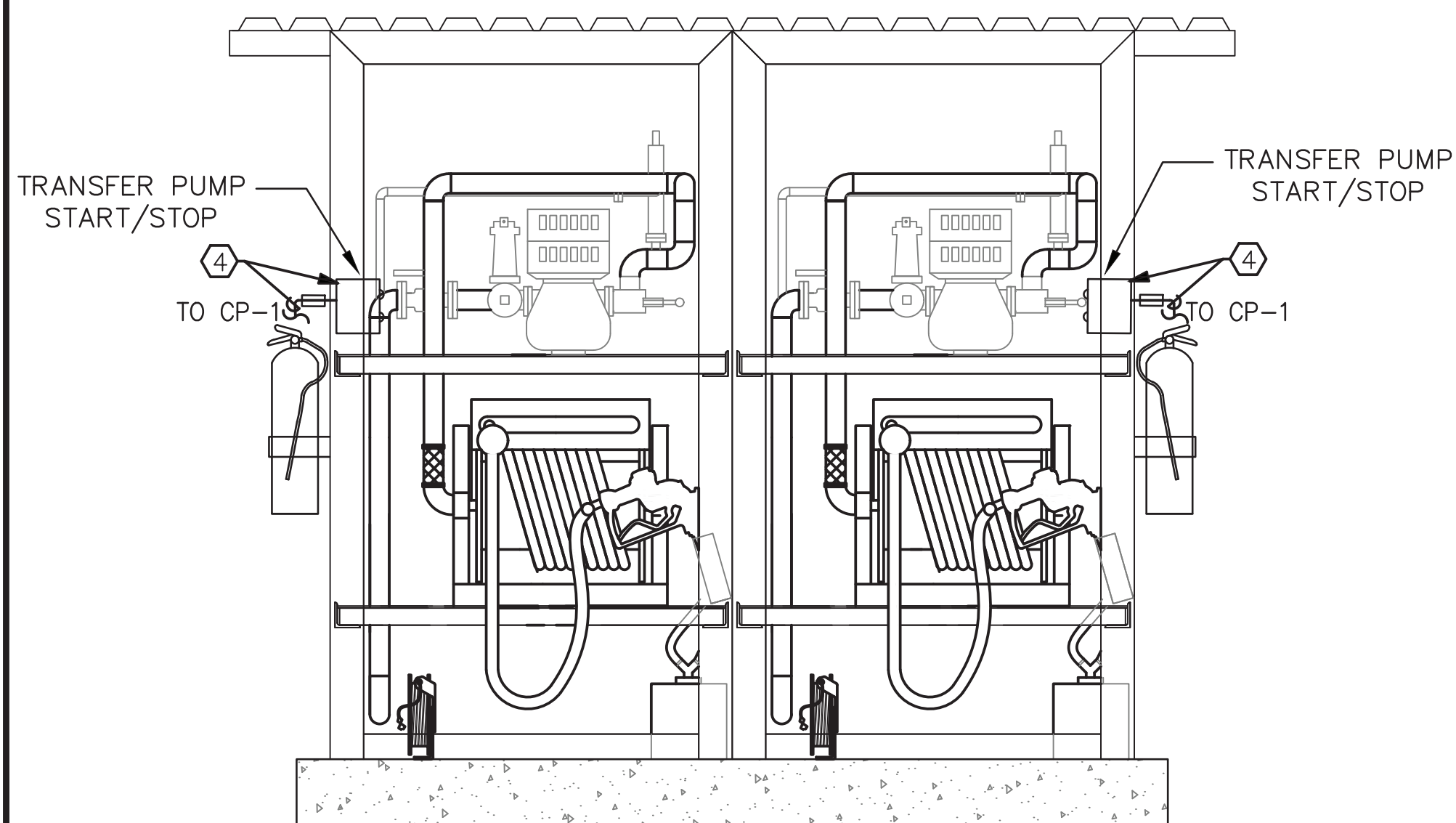
SHEET NO.
E5.0

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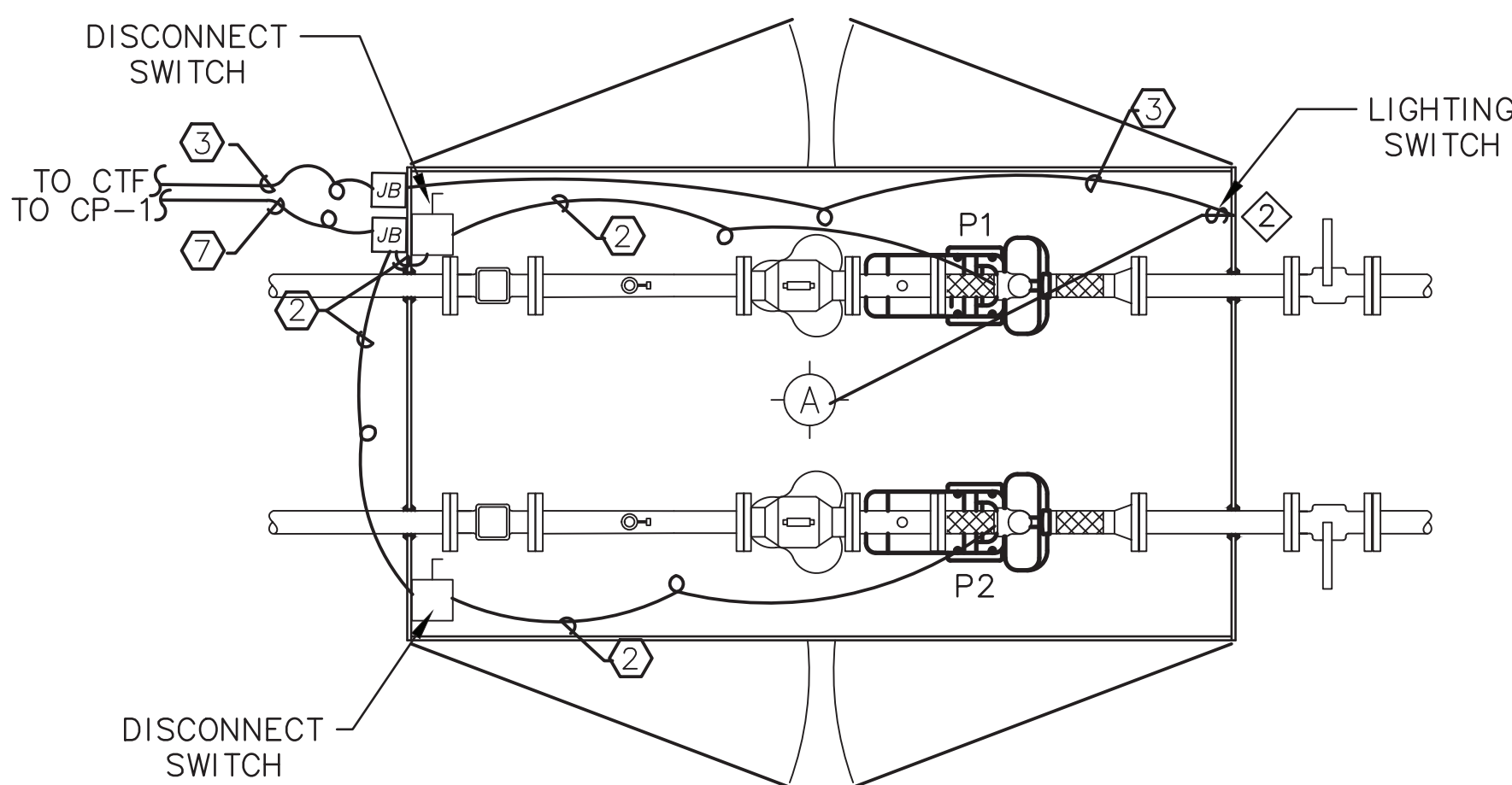
COMMUNITY TANK FARM POWER PLAN

SCALE: GRAPHIC



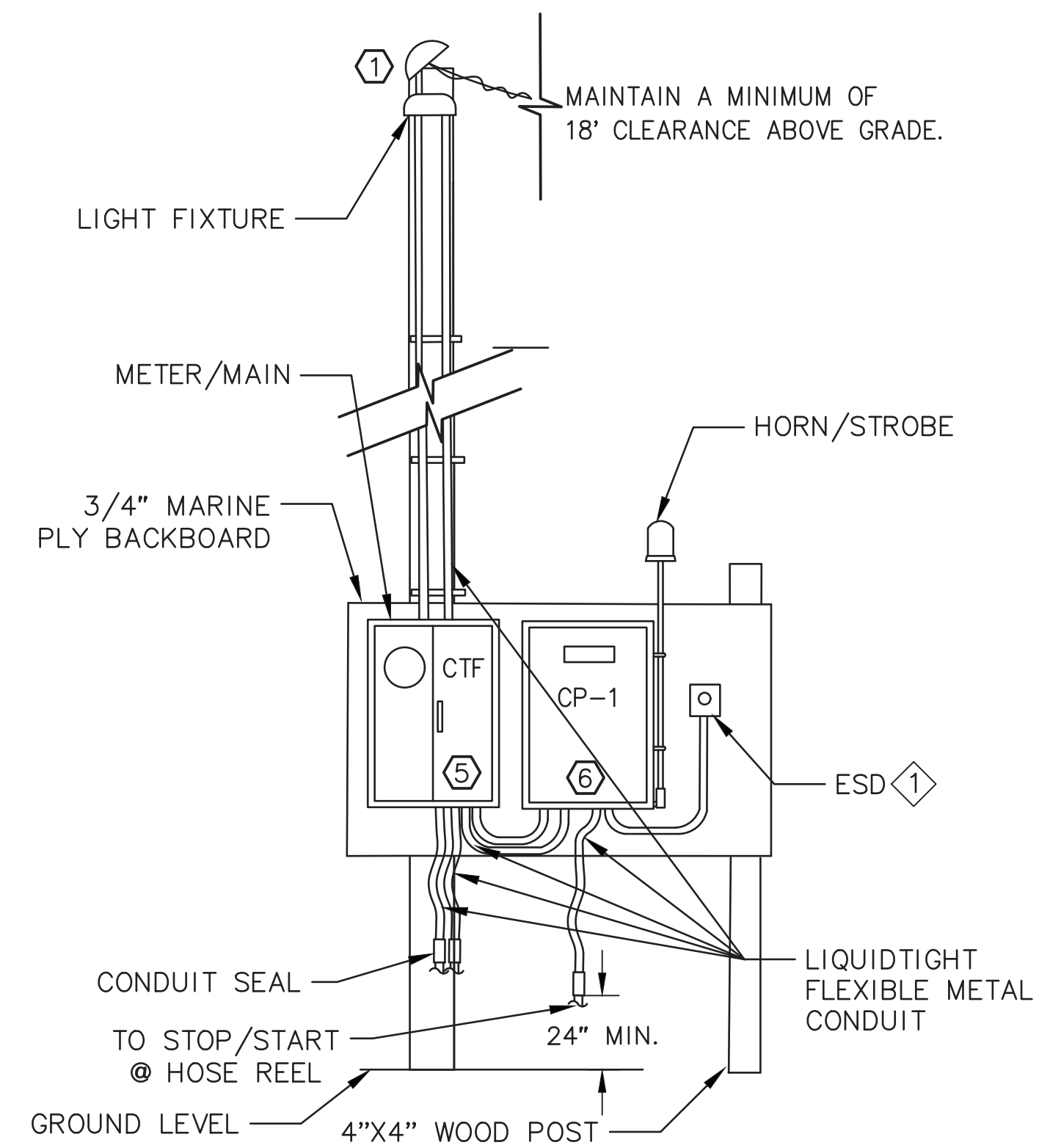
HOSE REEL DETAIL

SCALE: NTS



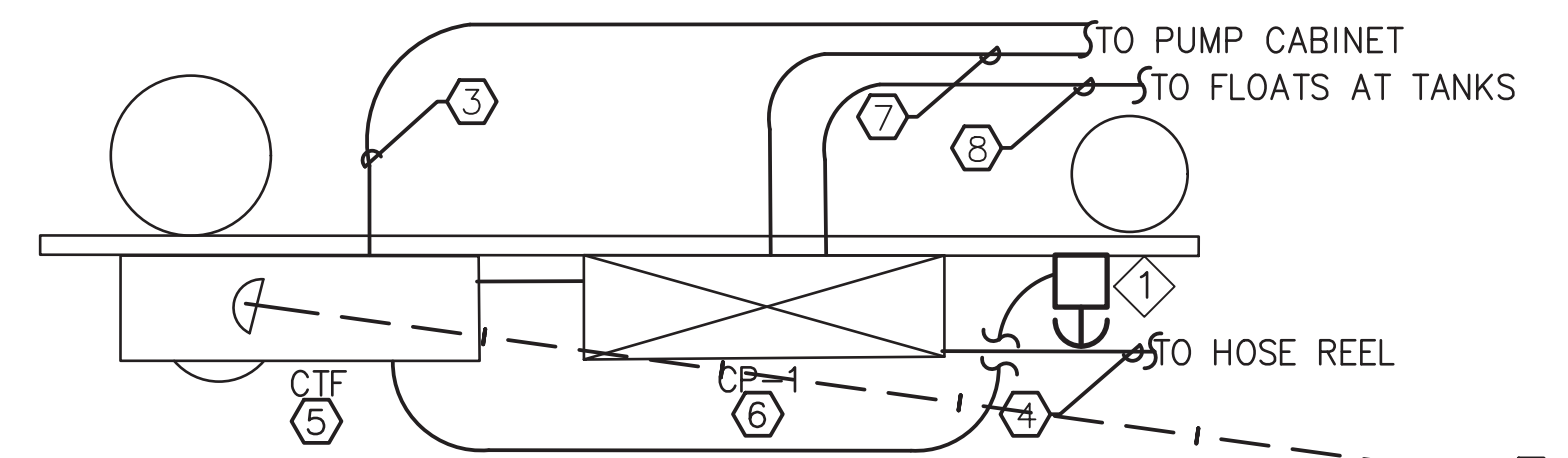
PUMP CABINET DETAIL

SCALE: NTS



PANEL RISER CTF DETAIL

SCALE: NTS



CTF PANEL & RISER PLAN VIEW

SCALE: NTS

NOTES

- ① SERVICE DROP BY UTILITY, SEE POWER ONE-LINE SHEET E1.4 AND DETAIL 5 THIS SHEET.
- ② 3/4" C, (2)#10, (1)#10G
- ③ SEE NOTE 6, E4.0
- ④ PROVIDE START/STOP CONTROL IN A NEMA 4 1/2" C, (3)#12
- ⑤ NEMA 4X DEADFRONT METER/MAIN. SEE SHEET E4.0 FOR METER/MAIN POWER AND PANEL SCHEDULE.
- ⑥ SEE SHEET E8.0 FOR CONTROL PANEL.
- ⑦ SEE NOTE 8, E4.0
- ⑧ 1/2" C, (3)#12



PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	I
SEWER GRID	I

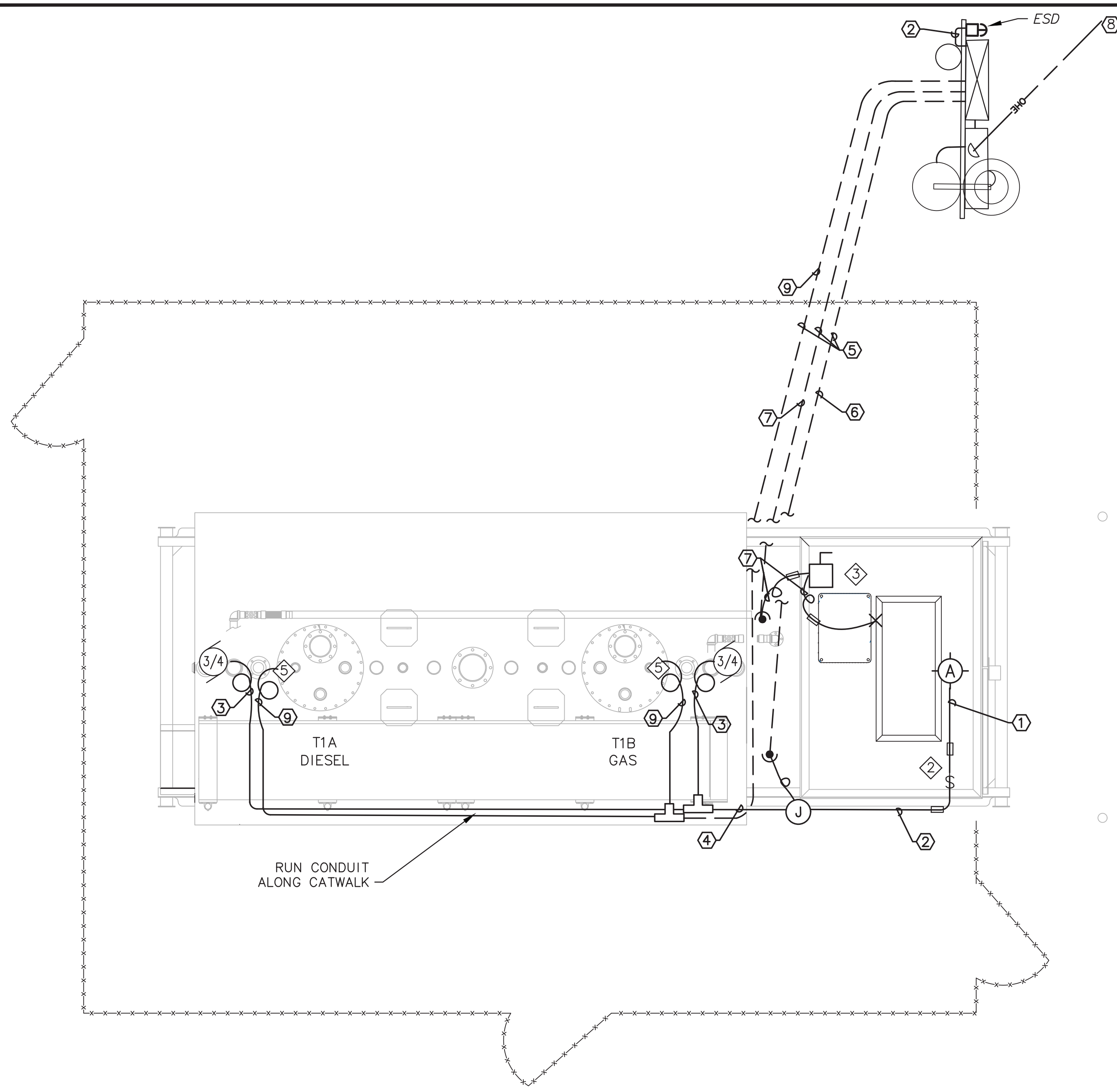
VENETIE, ALASKA
POWER SYSTEM UPGRADE
 POWER PLAN - COMMUNITY TF

PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION
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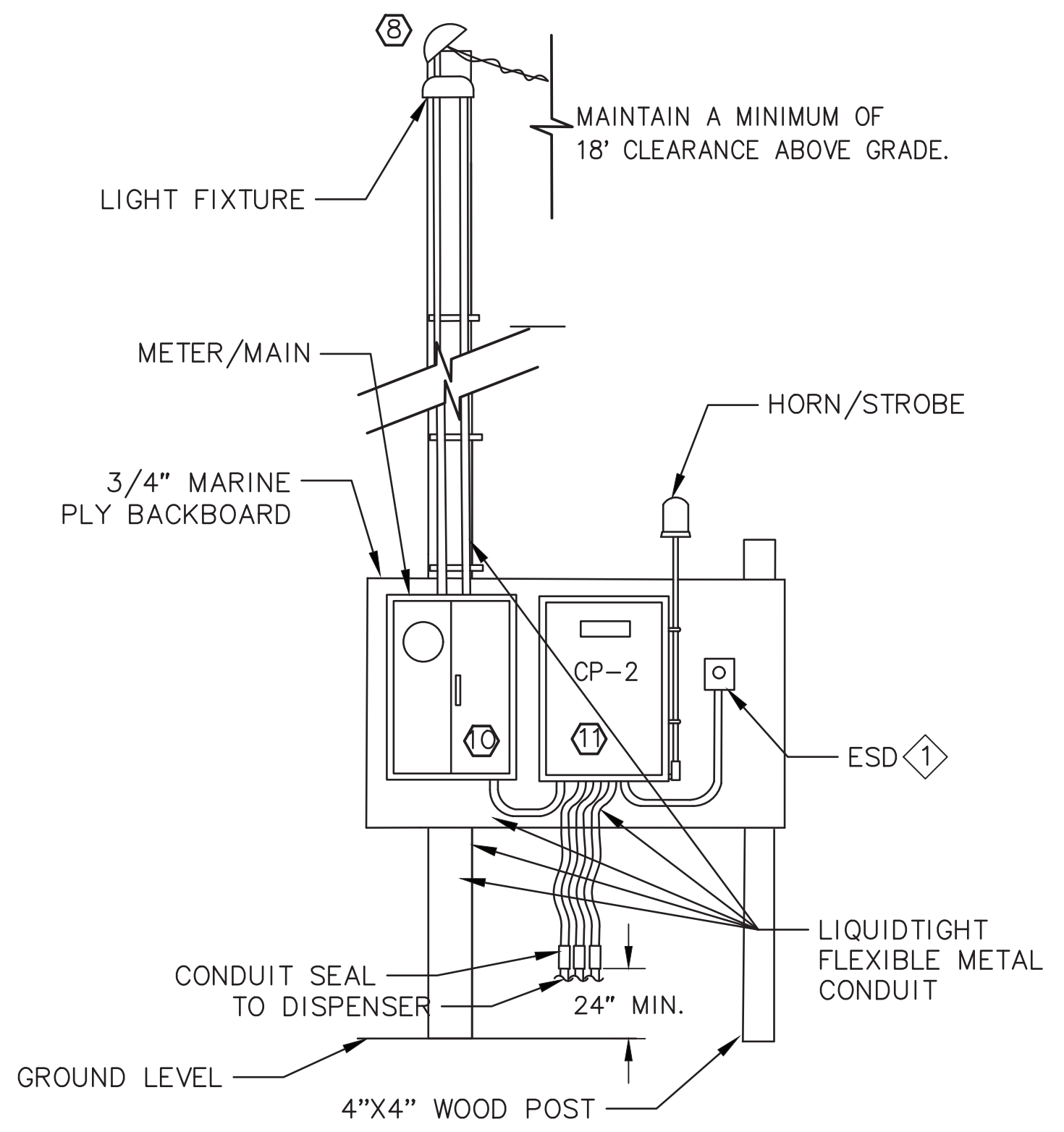
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HOR. VER.	-
DESIGNED BY	SAB
DRAWN BY	SAB
CHECKED BY	MM
APPROVED BY	I

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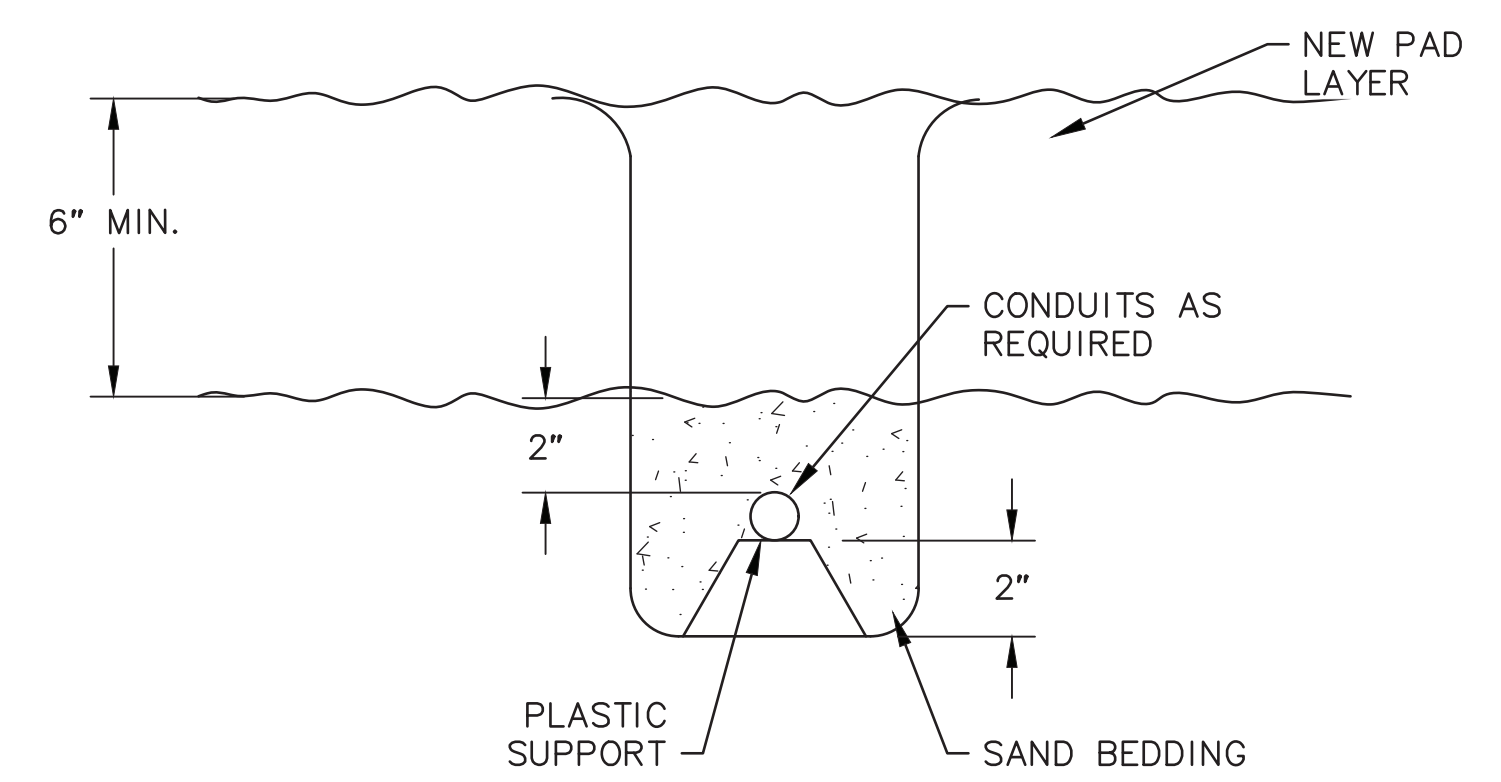
DISPENSER POWER PLAN

SCALE: GRAPHIC



PANEL RISER DISPENSER DETAIL

SCALE: NTS



BURIED CONDUIT DETAIL

SCALE: GRAPHIC

NOTES

- ① 1/2" C, (3) #10 (N, SWITCHLEG, G)
- ② 1/2" C, (3) #10 (H, N, G)
- ③ 1/2" C, (3) #10 (2PUMP, G)
- ④ 3/4" C, (5) #10 (4PUMP, G)
- ⑤ PLASTIC COATED RMC. SEE DETAIL 2 THIS SHEET.
- ⑥ 3/4" C, (9) #10 (4 PUMP, 2H, 2N, G)
- ⑦ 3/4" C, (7) #12, (H, N, G) DISPENSER POWER, (2SIGNAL, 2N) DISPENSER PUMP CONTROL.
- ⑧ SERVICE DROP BY UTILITY, SEE POWER ONE-LINE SHEET E4.0.
- ⑨ 1/2" C, (2) #12.
- ⑩ NEMA 4X DEADFRONT METER/MAIN. SEE SHEET E4.0 FOR METER/MAIN POWER AND PANEL SCHEDULE.
- ⑪ SEE SHEET E9.0 FOR CONTROL PANEL.



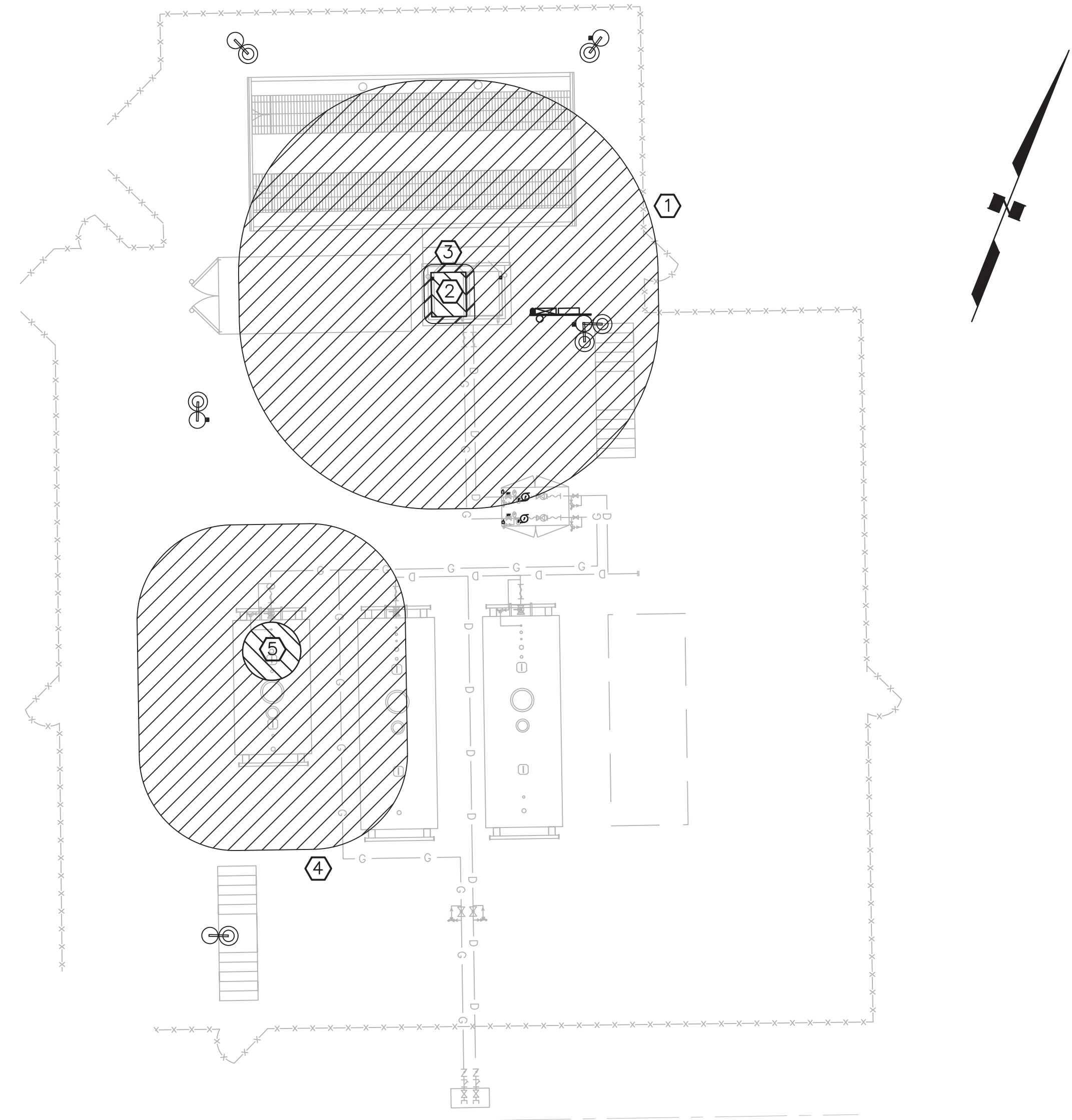
PROJECT NO.	30416.00
CITY GRID	
WATER GRID	
SEWER GRID	

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 POWER PLAN - DISPENSER
 PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION	BY	REVISION
0	11/1/2021	ISSUED FOR CONSTRUCTION	MM	

SCALE	1" = 1'
HOR. VER.	-
DESIGNED BY	SAB
DRAWN BY	SAB
CHECKED BY	MM
APPROVED BY	

File: J:\JobsData\30416.00 Venetie BFU Project\01 CADD 2019\01 Working Set\03 Electrical\BFU\30416.00 TANK FARM AREA CLASSIFICATION.dwg PLOT DATE: 11/1/2021 3:51 PM



TANK FARM AREA CLASSIFICATION PLAN

SCALE: GRAPHIC



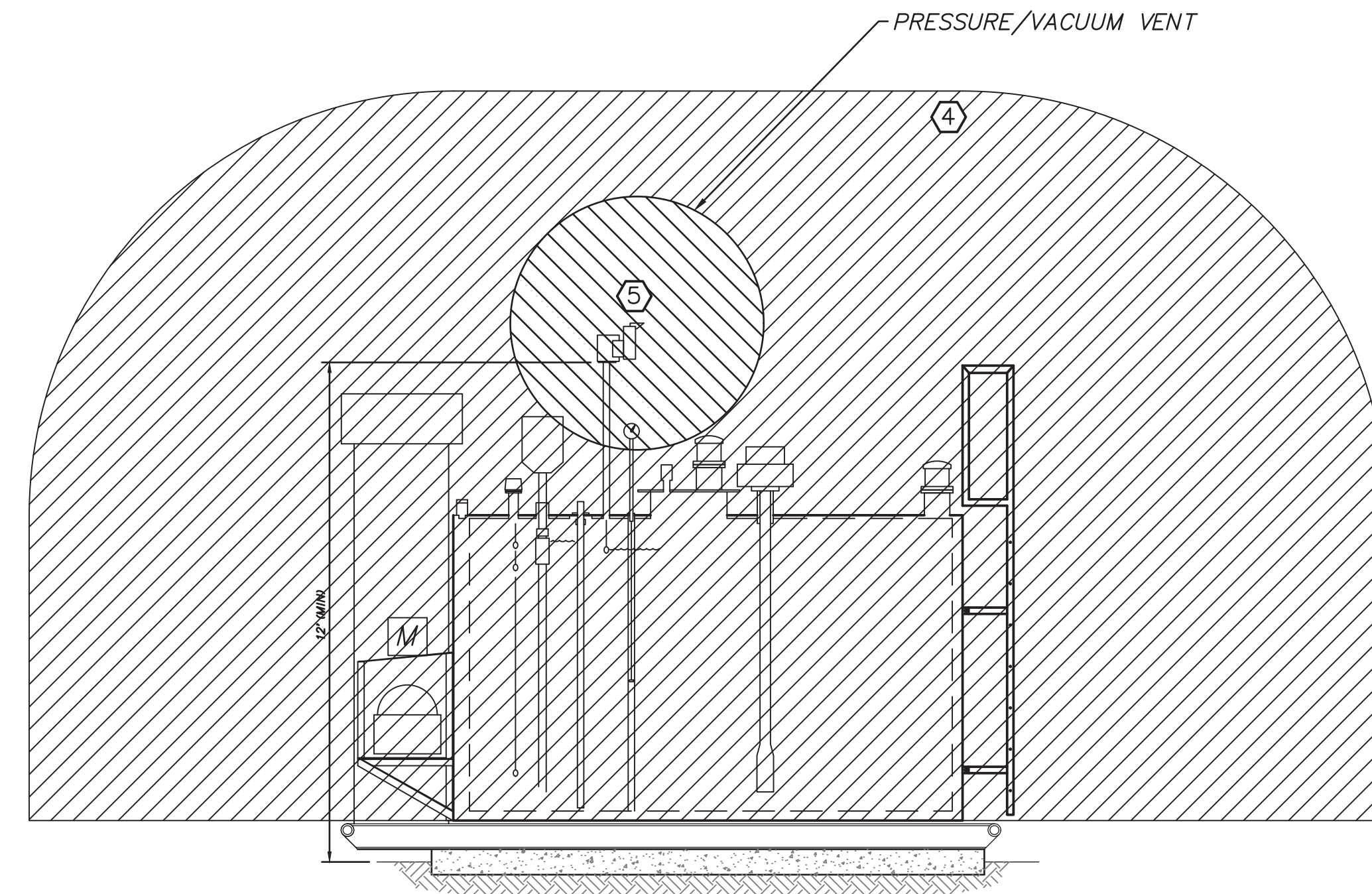
1

CLASSIFICATION LEGEND

- CLASS 1, DIVISION 1
- CLASS 1, DIVISION 2

NOTES

- ① THE AREA 18" ABOVE GRADE WITHIN 20' DISPENSER IS CLASS 1, DIVISION 2 RATED.
- ② THE AREA INSIDE THE HOSE REEL IS CLASS 1, DIVISION 1 RATED.
- ③ THE AREA WITHIN 18" OF HOSE REEL IS CLASS 1, DIVISION 2 RATED.
- ④ THE AREA WITHIN 10' OF TANK IS A CLASS 1 DIVISION 2 LOCATION.
- ⑤ THE AREA WITHIN 3' OF THE VENT IS A CLASS 1 DIVISION 1 LOCATION.

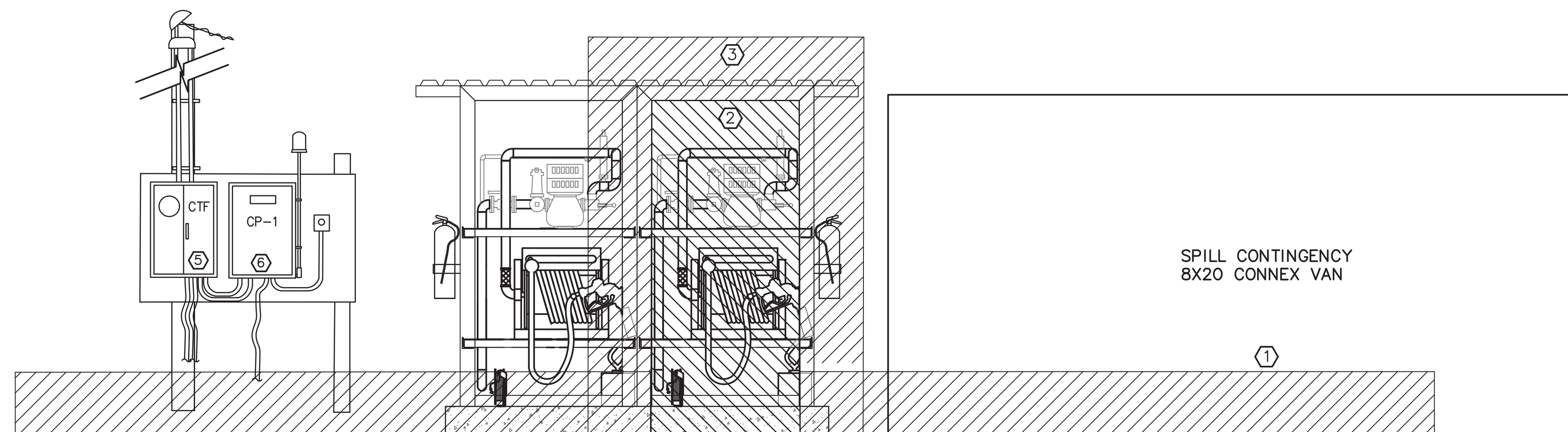


TANK AREA CLASSIFICATION PLAN

SCALE: GRAPHIC



3



HOSE REEL CLASSIFICATION PLAN

SCALE: GRAPHIC



2



PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

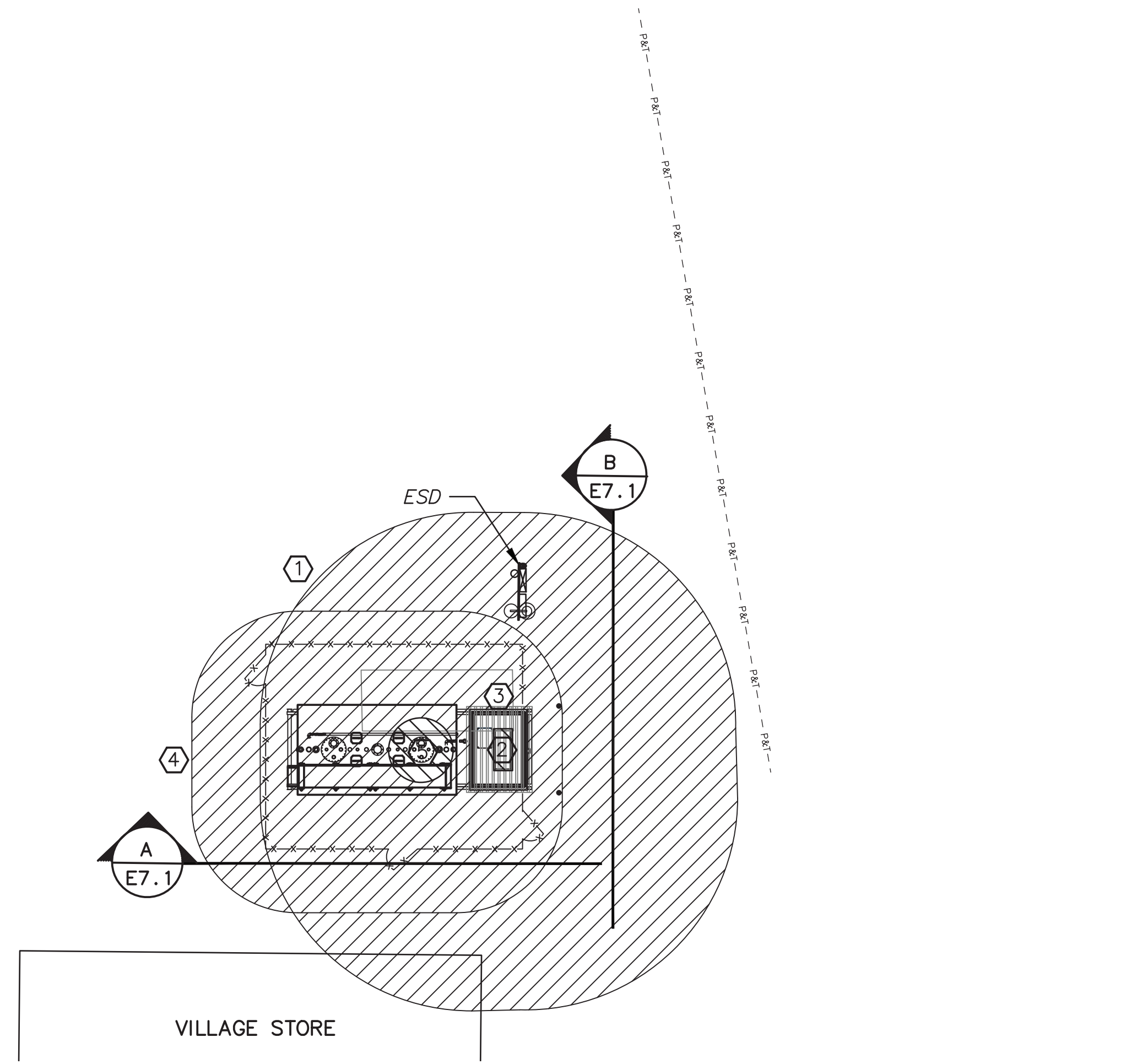
VENETIE, ALASKA
POWER SYSTEM UPGRADE
 AREA CLASSIFICATION
 PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	MM

SCALE	-
HOR. VER.	-
DESIGNED BY	SAB
DRAWN BY	SAB
CHECKED BY	MM
APPROVED BY	-

SHEET NO. **E7.0**

File: J:\JobsData\30416.00 Venetie BFU Project\001_CADD_2019\01 Working Set\03 Electrical\BFU\30416.00_DISPENSER_AREA_CLASSIFICATION.dwg PLOT DATE: 11/1/2021 3:51 PM



DISPENSER AREA CLASSIFICATION PLAN

SCALE: GRAPHIC

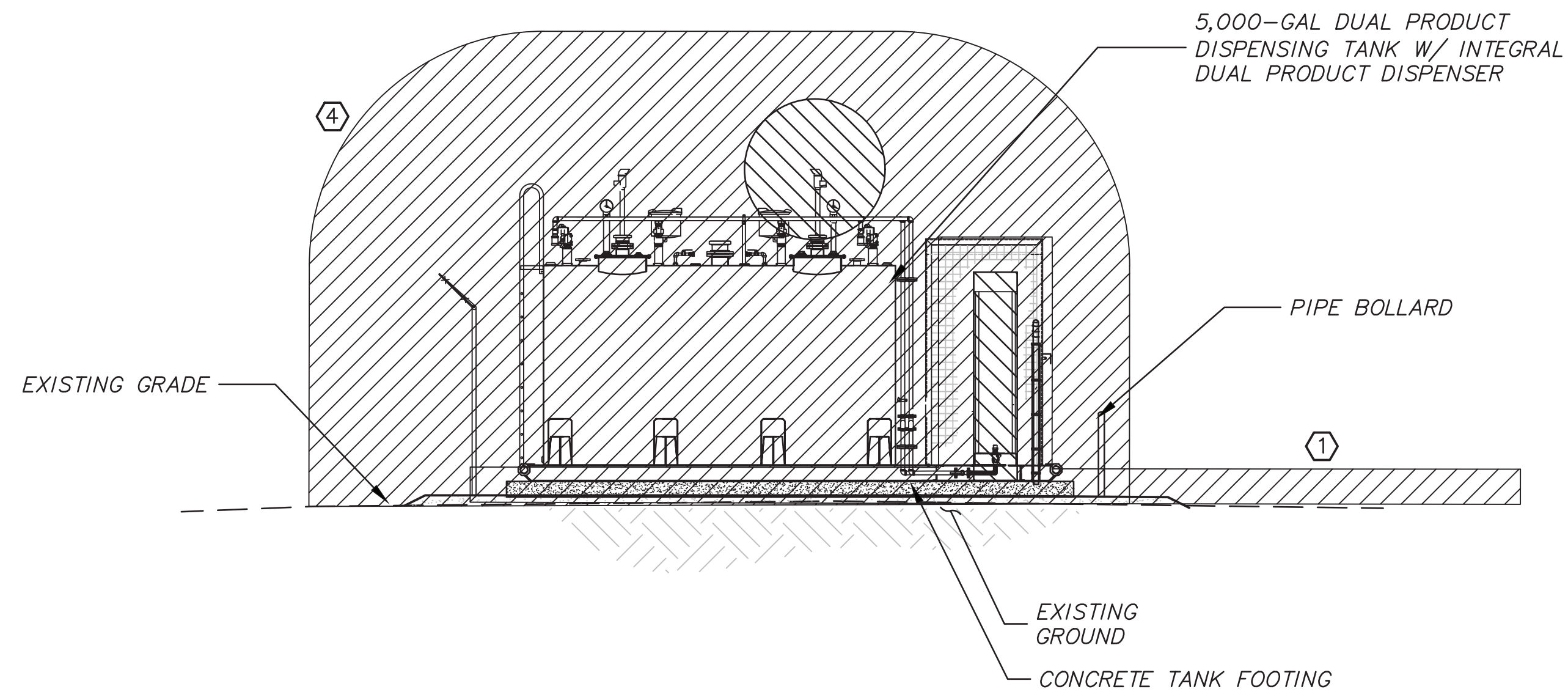


NOTES

- ① THE AREA 18" ABOVE GRADE WITHIN 20' DISPENSER IS CLASS 1, DIVISION 2 RATED.
- ② THE AREA INSIDE THE DISPENSER AND INSIDE AND BELOW THE PAN BASIN IS CLASS 1, DIVISION 1 RATED.
- ③ THE AREA WITHIN 18" OF DISPENSER IS CLASS 1, DIVISION 2 RATED.
- ④ THE AREA WITHIN 10' OF TANK IS A CLASS 1 DIVISION 2 LOCATION.
- ⑤ THE AREA WITHIN 3' OF THE VENT IS A CLASS 1 DIVISION 1 LOCATION.

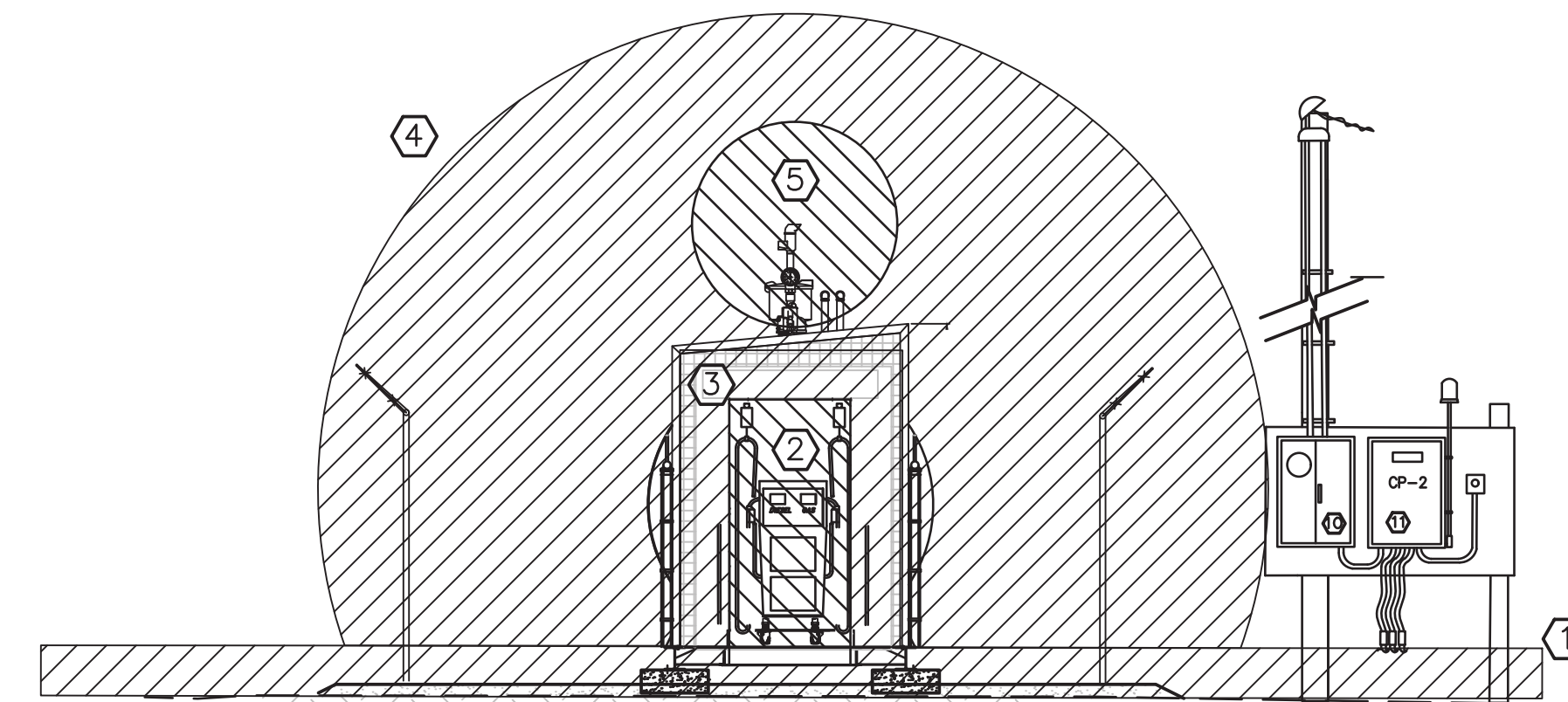
CLASSIFICATION LEGEND

- CLASS 1, DIVISION 1
- CLASS 1, DIVISION 2



DISPENSER AREA CLASSIFICATION PLAN

SCALE: GRAPHIC



DISPENSER AREA CLASSIFICATION PLAN

SCALE: GRAPHIC



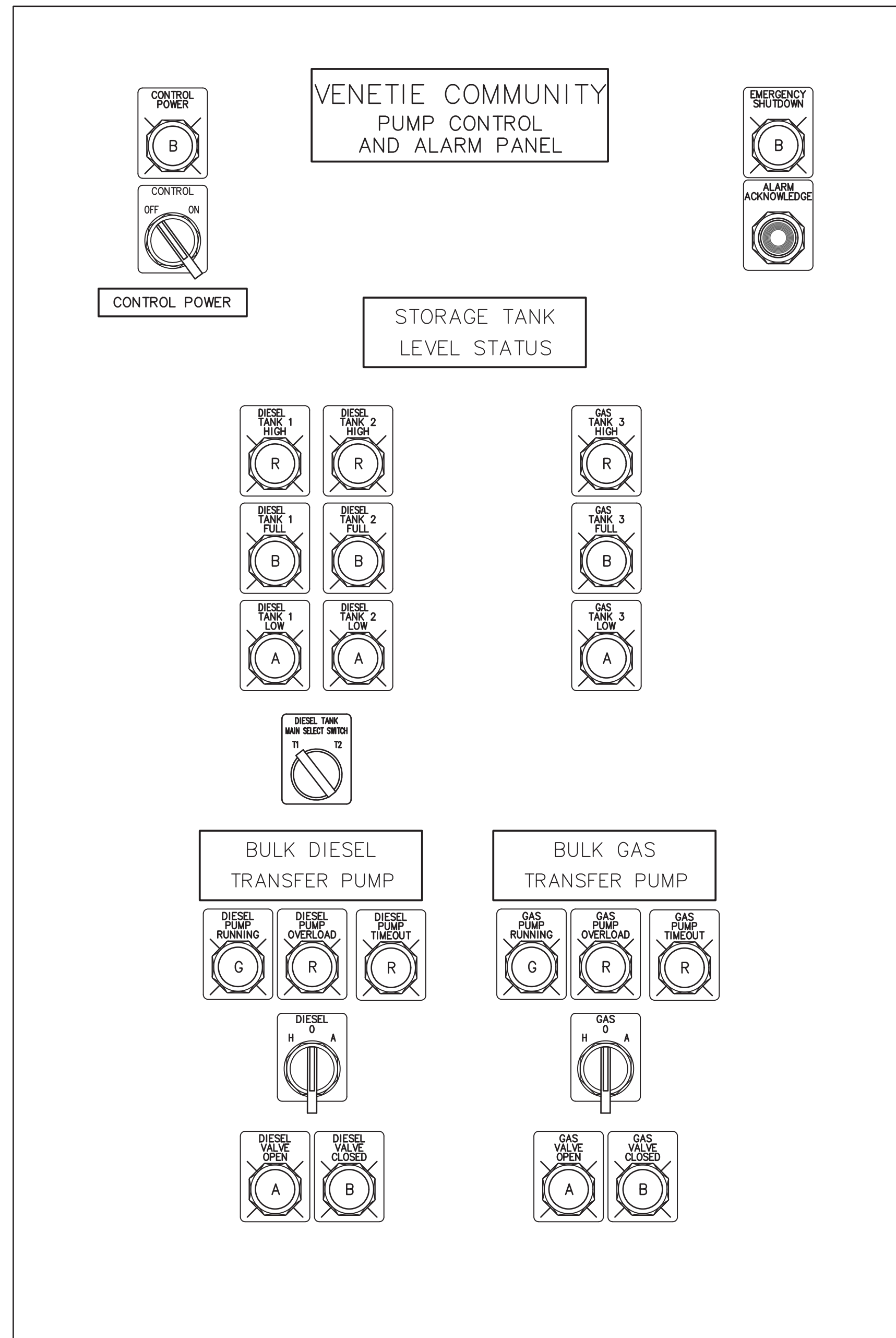
PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA	DATE: NOV 2021
POWER SYSTEM UPGRADE	
DISPENSER AREA CLASSIFICATION	
STATUS: ISSUED FOR CONSTRUCTION	

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	MM

SCALE	-
HOR. VER.	-
DESIGNED BY	SAB
DRAWN BY	SAB
CHECKED BY	MM
APPROVED BY	-

SHEET NO. **E7.1**



VENETIE COMMUNITY CONTROL PANEL CP-1

SCALE: NTS

1

CONTROL PANEL NARRATIVE

The Venetie Community control panel provides power, monitoring and control of the Bulk fuel transfer hose reels.

The bulk tank levels are monitored and displayed on the inner operator door of the deadfront control panel. Controls include the ability to disable the pumps when not in use while the alarms remain in effect.

An Emergency Shut Down button is provided that will cause any running pump to stop and close any open motorized valve and sound an alarm.

The two diesel tanks are monitored by floats that will display CRITICAL HIGH, FULL and LOW LEVEL. A fourth float will shut down the transfer pump when levels reach the point where cavitation would begin, preventing the pump from running dry. A selector switch will be used to identify which pump is being drawn from allowing one tank to be in the LOW LOW mode and still permit the other tank to be drawn from (until it too becomes LOWLOW).

The gasoline tank also has floats with the same indications and functions.

OPERATION

In HAND, the transfer pumps will run regardless of the status of tank level floats. This allows maintenance and testing and in the event of control failure can be operated manually. THE HAND position is spring loaded so unattended operation is not allowed.

In AUTO, the pumps are controlled by START/STOP switches located in their respective hose reel cabinets. To draw fuel, the operator will attach the ground cable to the vehicle, set the quantity desired on the auto valve, insert the nozzle and press START.

When the set amount of fuel is transferred, the s auto valve will close and the operator will press the STOP button to shut down the pump. A timer circuit is provided so that the pump will shut down after a pre-set time should the operator fail to press STOP. If the time out occurs before the desired amount of fuel is delivered, the operator will press START again and pumping will resume.

Tank CRITICALHIGH and the ESD switch all produce audible and visible alarms when engaged. All alarms, including pump RUN, FAIL and TIMEOUT status signals are displayed on the front panel as well as pump valve position (OPEN or CLOSED).

An ALARM ACKNOWLEDGE button will silence the audible alarm but the lights will remain on until the condition causing the alarm is removed. Even if the panel is in ALARM, the audible portion will be engaged on any subsequent alarm indications.

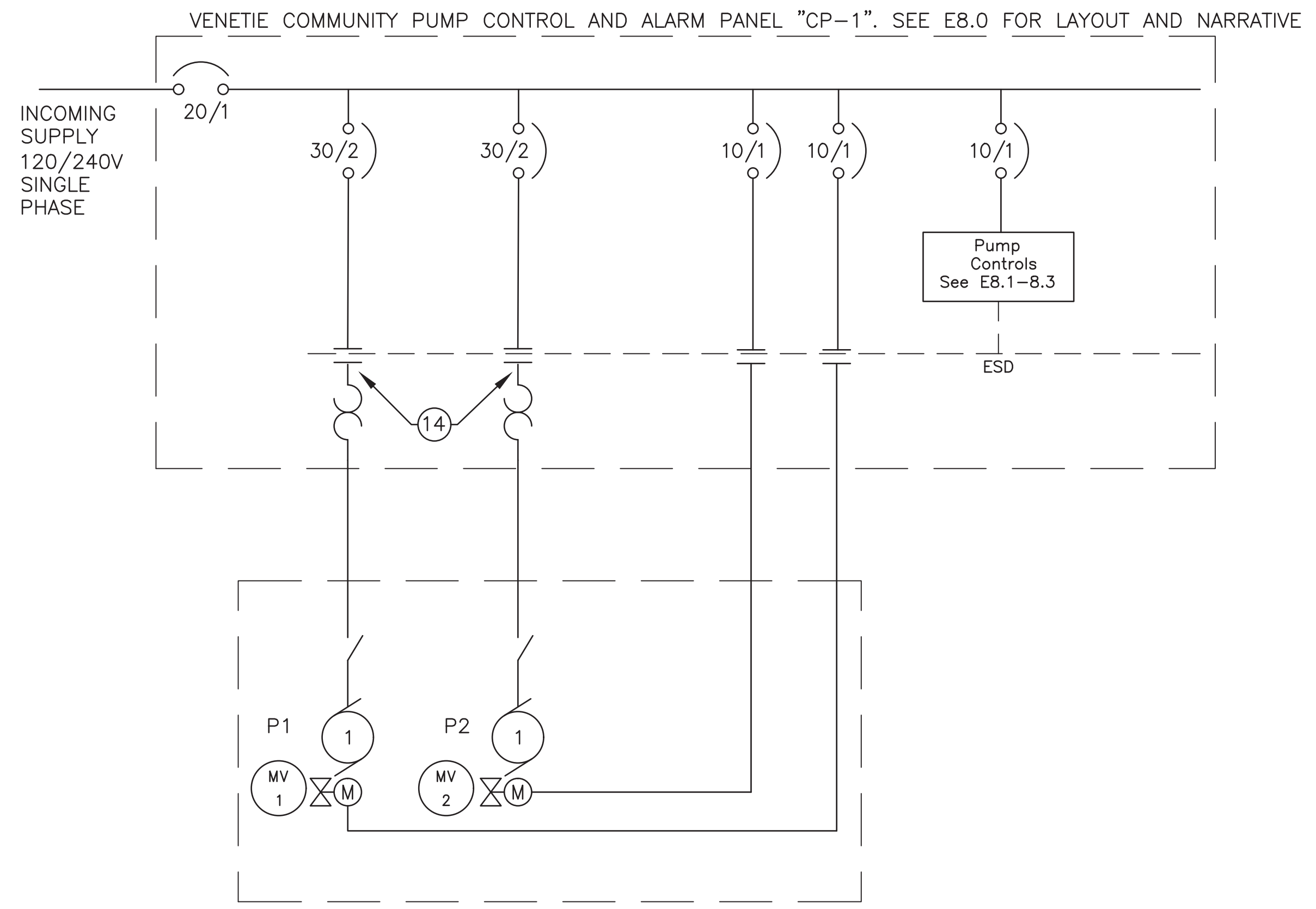
PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	I
SEWER GRID	I

VENETIE, ALASKA	DATE: NOV 2021
POWER SYSTEM UPGRADE	
VENETIE COMMUNITY CONTROL PANEL LAYOUT	
PROJECT NO. -	
STATUS: ISSUED FOR CONSTRUCTION	

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	WMM

SCALE	—
HOR. VER.	—
DESIGNED BY	WMM
DRAWN BY	DAJ
CHECKED BY	WMM
APPROVED BY	—

File: J:\JobsData\30416.00_Venetie_BFU_Project\001_CADD_2019\01_Working_Sets\03_Electrical\BFU\30416.00_CONTROL_PANEL_LADDER.dwg PLOT DATE: 11/1/2021 3:52 PM



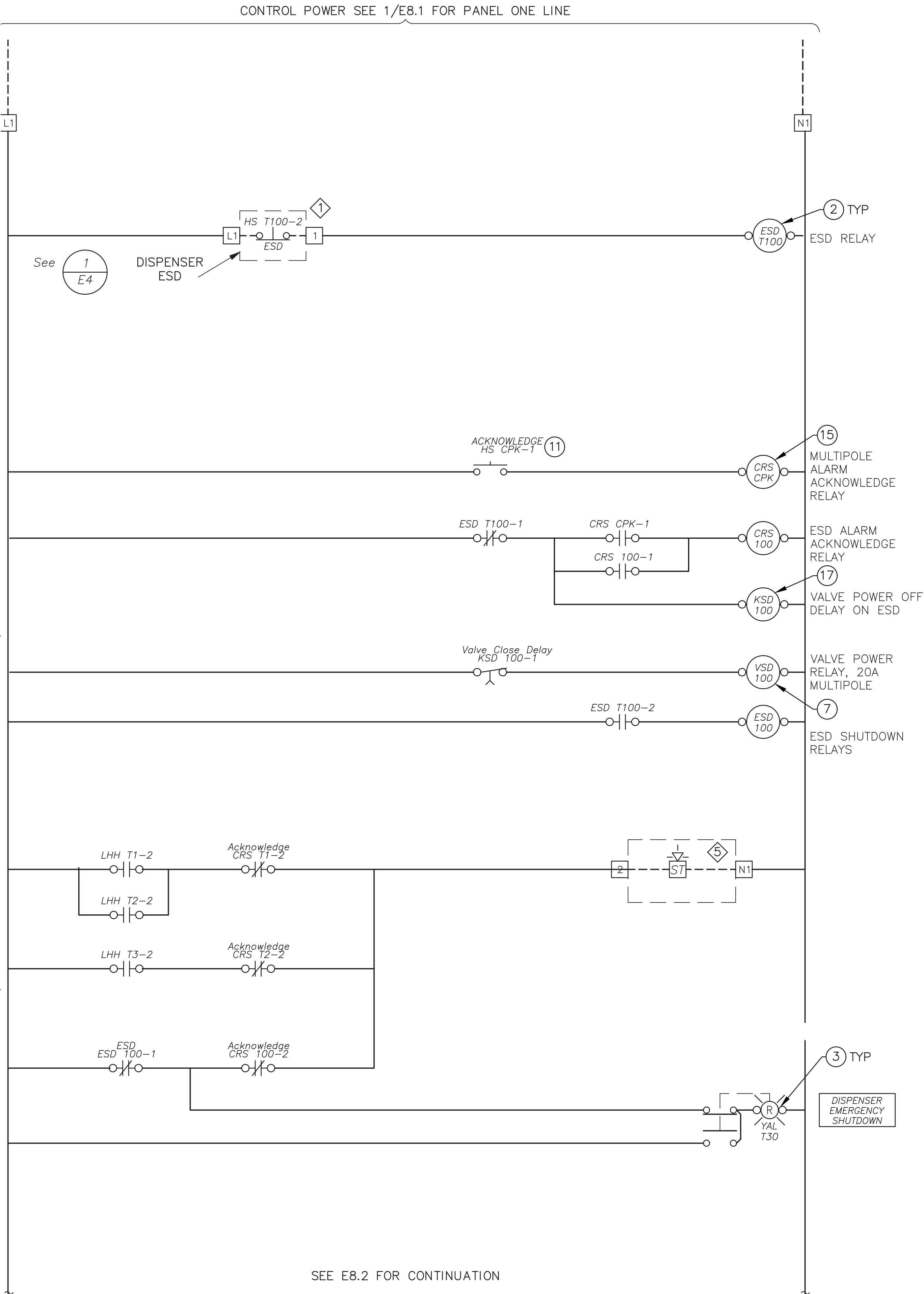
1 CP-1 POWER ONE-LINE
SCALE: NTS

PANEL TERMINATIONS

L1	N1	L1	L1	N1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	P1	P1	P2	P2
LAIDER 120V	LAIDER NEUTRAL	T1	T2	T3	HORN/STROBE	HS-T100	LSHA T1	LSL T1	LSLA T1	LSH T1	LSL T1	LSLA T1	LSH T1	LSL T1	LSLA T1	DIESEL HOSE REEL STOP	DIESEL HOSE REEL RUN	DIESEL HOSE REEL OPEN	MV-1 HEATER	MV-1 OPEN	MV-1 CLOSE	MV-1 NEUTRAL	DIESEL HOSE REEL STOP	DIESEL HOSE REEL RUN	DIESEL HOSE REEL OPEN	LSHA T3	LSL T3	LSLA T3	GAS HOSE REEL STOP	GAS HOSE REEL RUN	GAS HOSE REEL OPEN	MV-2 HEATER	MV-2 OPEN	MV-2 CLOSE	MV-2 NEUTRAL	DIESEL HOSE REEL STOP	DIESEL HOSE REEL RUN	DIESEL HOSE REEL OPEN	GAS DISP. RELAY	GAS DISP. RELAY

FIELD TERMINATIONS

2 CP-1 WIRE LIST
SCALE: NTS



SEE E8.2 FOR CONTINUATION



PROJECT NO.	30416.00
CITY GRID	
WATER GRID	
SEWER GRID	

VENETIE, ALASKA
POWER SYSTEM UPGRADE
VENETIE COMMUNITY CONTROL PANEL SCHEMATICS 1

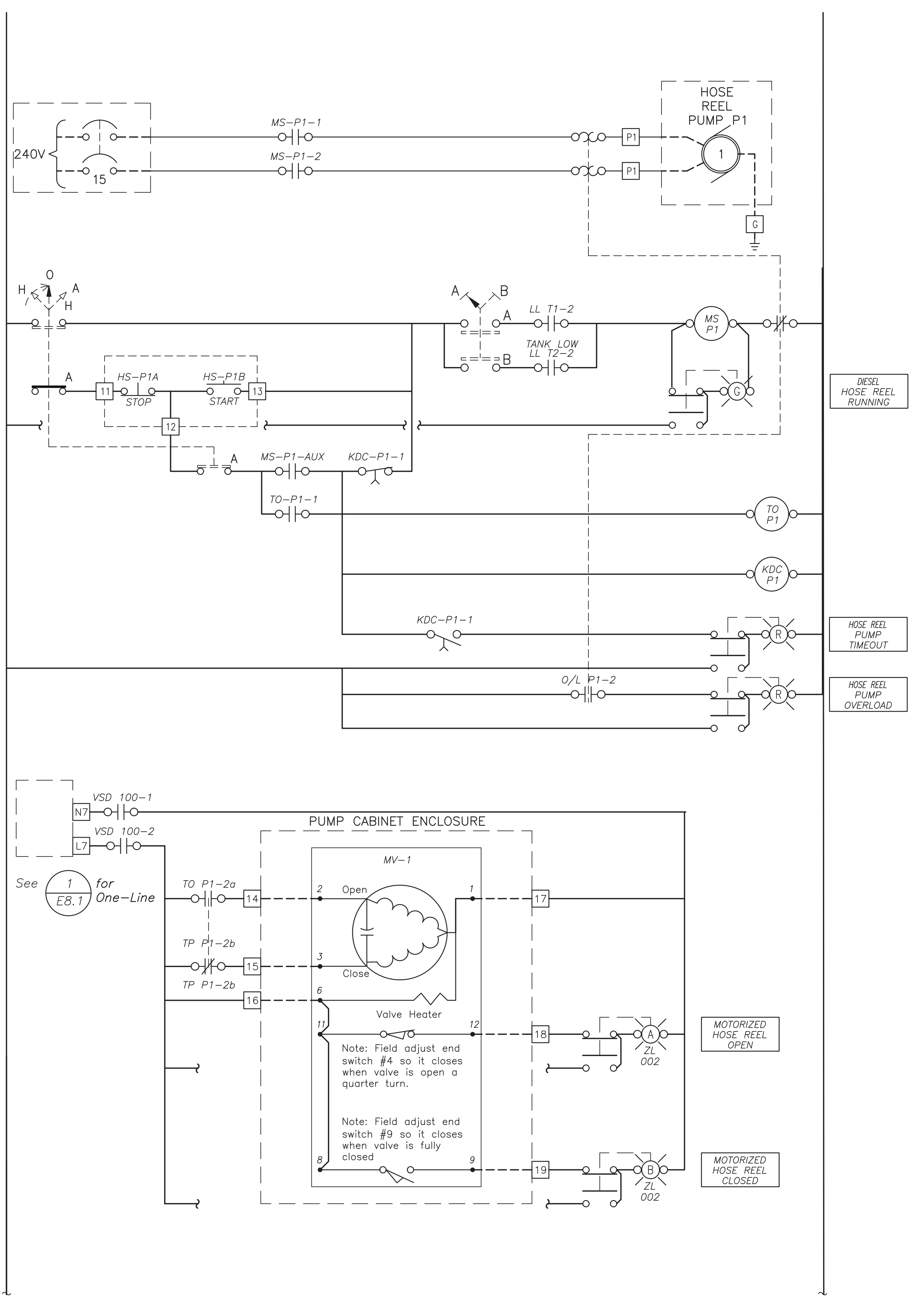
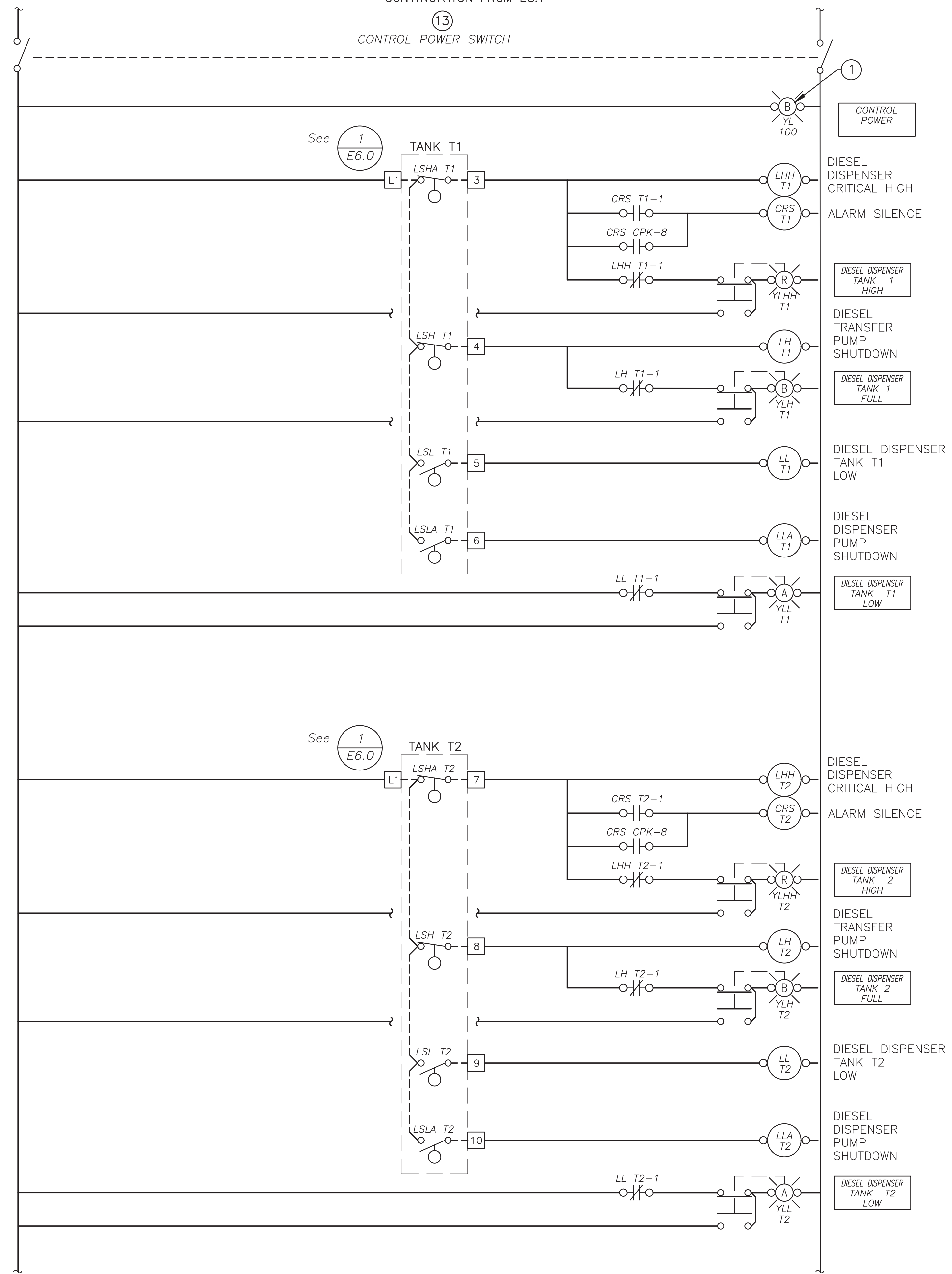
PROJECT NO. -
STATUS: ISSUED FOR CONSTRUCTION
DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	WMM

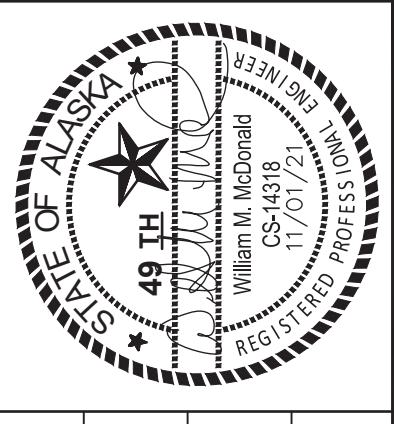
SCALE	1" = 1'
DESIGNED BY	WMM
DRAWN BY	DAJ
CHECKED BY	WMM
APPROVED BY	

File: J:\JobsData\30416.00_Venetie_BFU_RPSU_Project\01_CADD_2019\01_Working_Sets\Electrical\BFU\30416.00_CONTROL_PANEL_LADDER.dwg PLOT DATE: 11/1/2021 3:52 PM

CONTINUATION FROM E8.1
 (13)
 CONTROL POWER SWITCH



SEE E8.3 FOR CONTINUATION



PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	I
SEWER GRID	I

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 VENETIE COMMUNITY CONTROL PANEL SCHEMATICS 2

PROJECT NO. -
 BY WMM
 DATE 11/1/2021
 ISSUED FOR CONSTRUCTION

STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

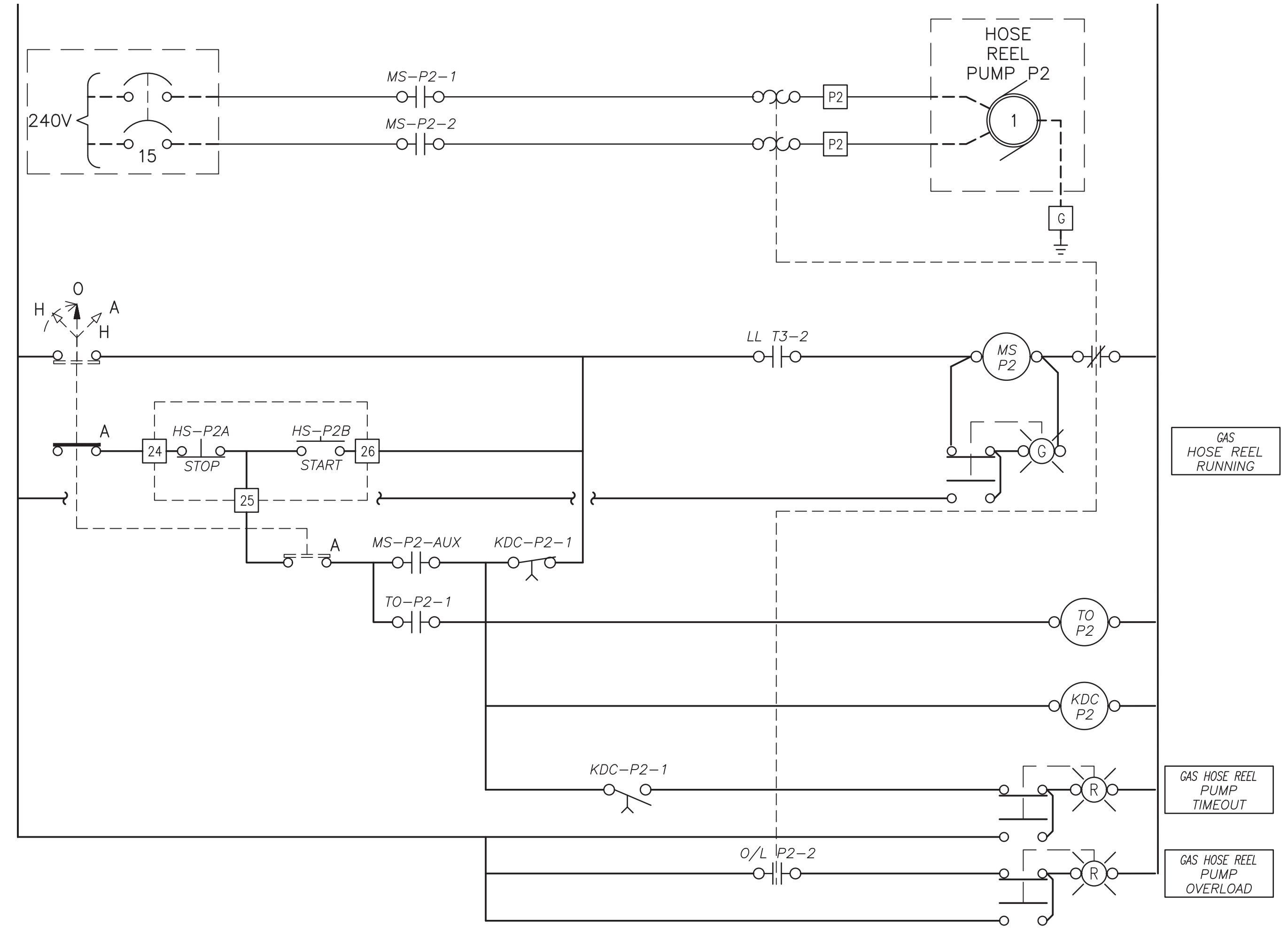
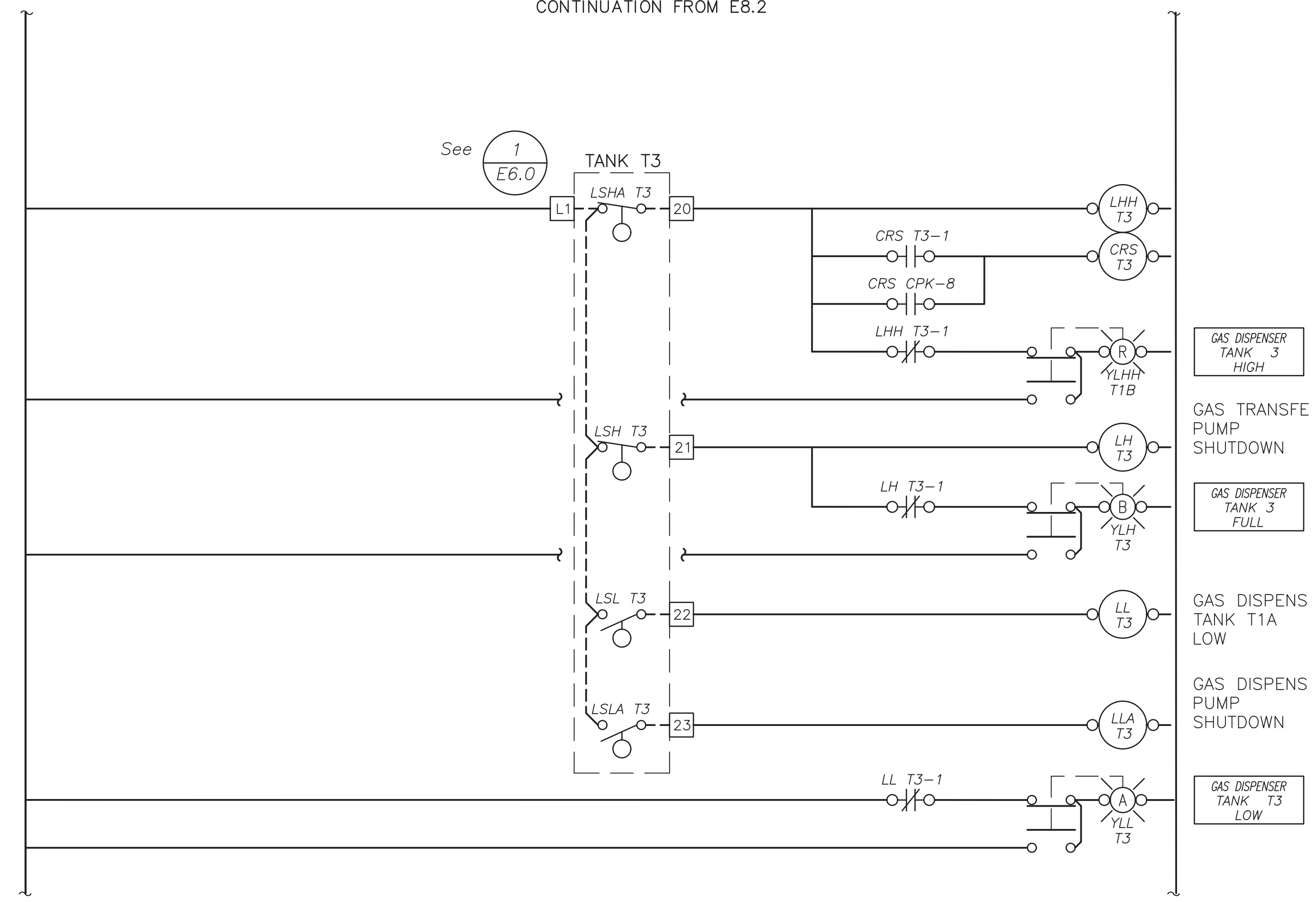
REV	DATE	DESCRIPTION
0	11/1/2021	ISSUED FOR CONSTRUCTION

SCALE -
 HOR. -
 VER. -
 DESIGNED BY WMM
 DRAWN BY DAJ
 CHECKED BY WMM
 APPROVED BY -
 SHEET NO.

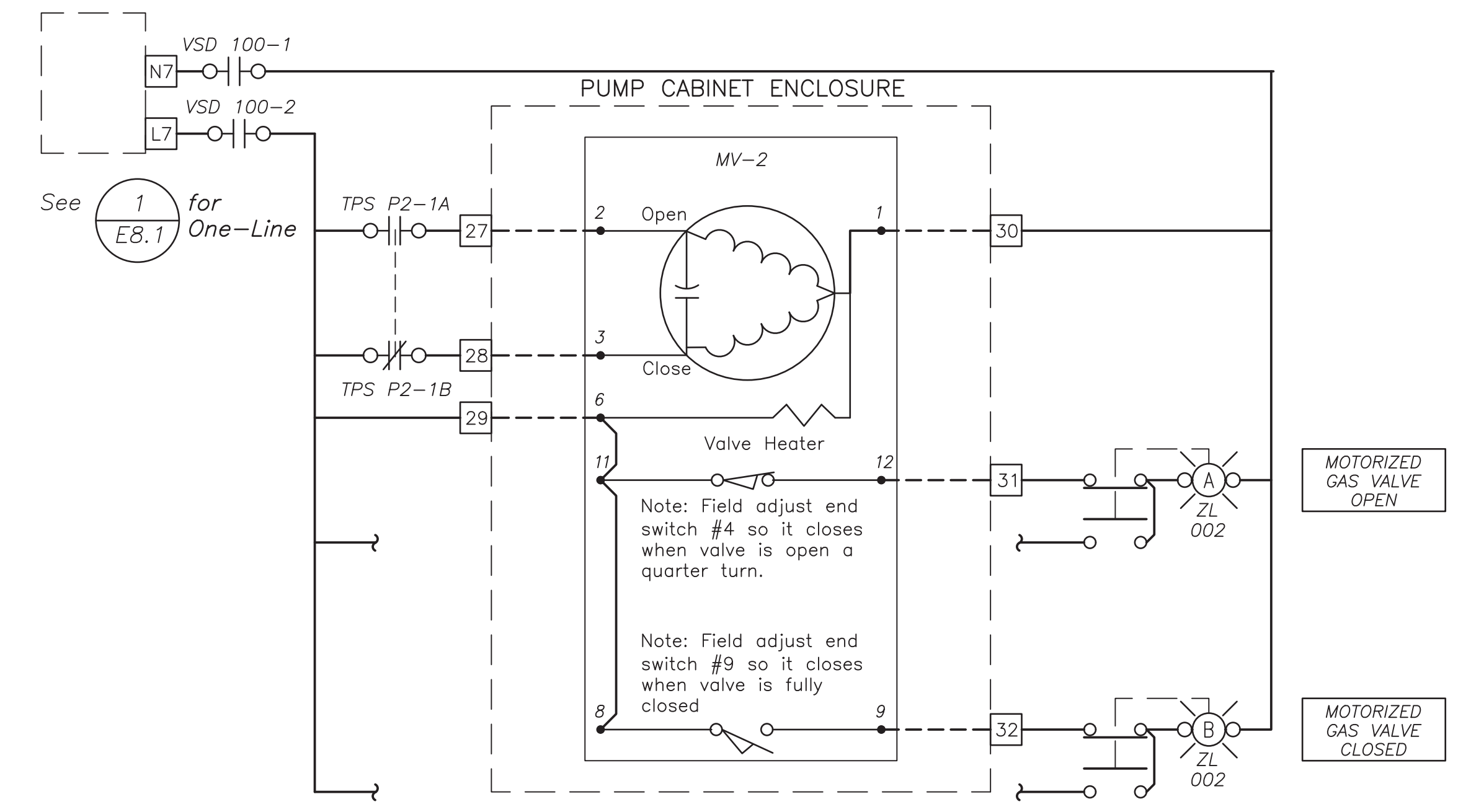
E8.2

File: J:\JobsData\30416.00_Venetie_BFU_RFSU_Project\001_CADD_2019\01_Working_Set\03_Electrical\BFU\30416.00_CONTROL_PANEL_LADDER.dwg PLOT DATE: 11/1/2021 3:52 PM

CONTINUATION FROM E8.2



ESD enabled circuit continues on line



PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	I
SEWER GRID	I

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 VENETIE COMMUNITY CONTROL PANEL SCHEMATICS 3

REV	DATE	DESCRIPTION	BY
0	9/29/21	95% DESIGN DRAWINGS	KRH

SCALE	---
DESIGNED BY	---
DRAWN BY	---
CHECKED BY	---
APPROVED BY	---

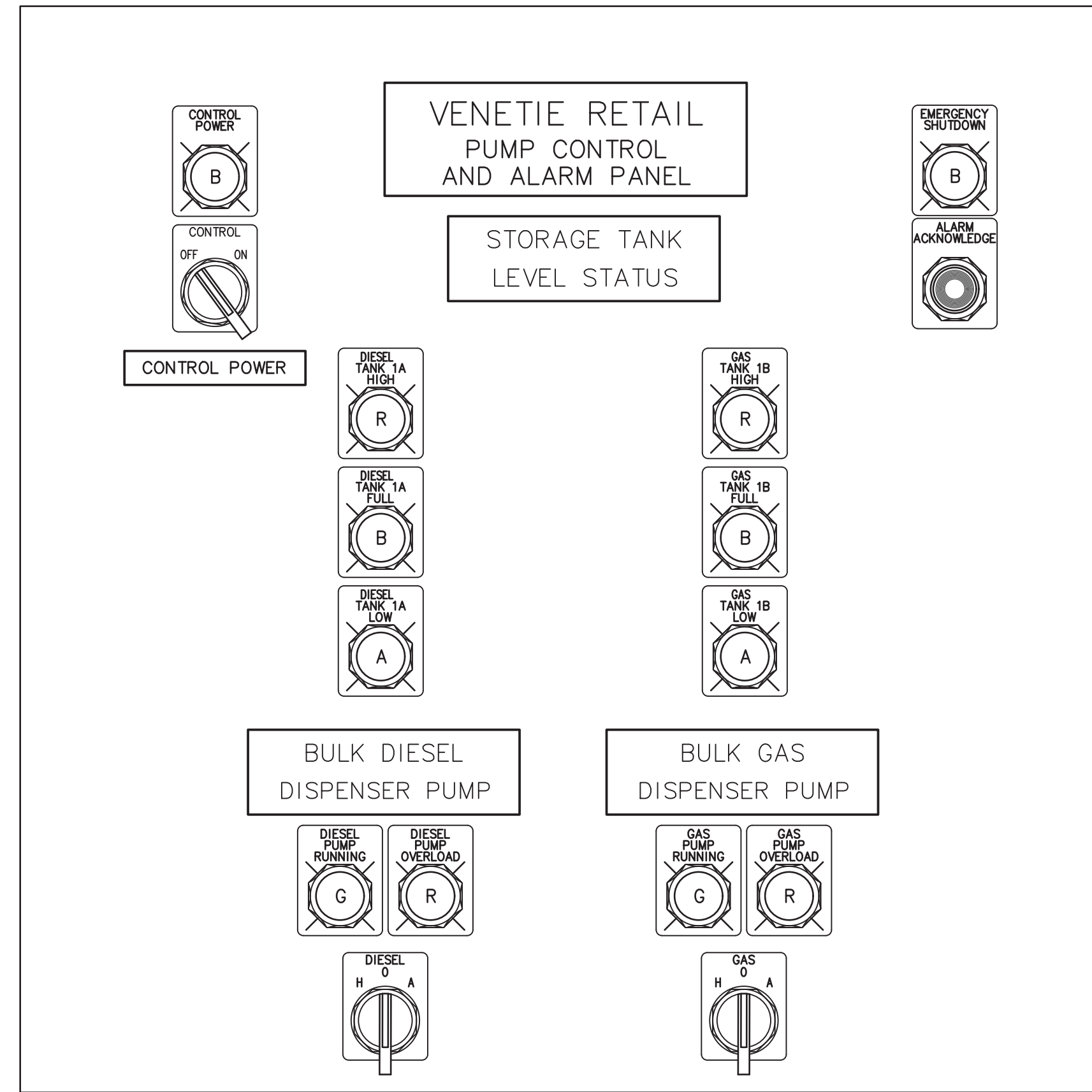
SHEET NO. **E8.3**

STATUS: ISSUED FOR CONSTRUCTION DATE: NOV 2021

1

RETAL CONTROL PANEL

SCALE: NTS



RETAL CONTROL PANEL NARRATIVE

The RETAIL control panel provides power, monitoring and control of the dispenser pumps and monitors tank levels. IT provides pump power and an emergency shut down alarm as well as tank level indications

The tank levels are monitored and displayed on the inner operator door of the deadfront control panel. Controls include the ability to disable the pumps when not in use while the alarms remain in effect.

An Emergency Shut Down button is provided that will cause any running pump to stop.

The dispenser tanks (GAS and DIESEL) are monitored by floats that will display CRITICAL HIGH, FULL and LOW LEVEL. A fourth float will shut down the transfer pump when levels reach the point where cavitation would begin, preventing the pump from running dry.

OPERATION

In HAND, the fuel pumps will run regardless of the status of tank level floats. This allows maintenance testing.

In AUTO, the pumps are controlled by dispenser "hook" switches located in the respective hose saddles. Pump operation is controlled by the dispenser.

Tank CRITICAL HIGH and the ESD switch all produce audible and visible alarms when engaged. All alarms, including pump RUN, FAIL status signals are displayed on the front panel as well as pump valve position (OPEN or CLOSED).

An ALARM ACKNOWLEDGE button will silence the audible alarm but the lights will remain on until the condition causing the alarm is removed. Even if the panel is in ALARM, the audible portion will be engaged on any subsequent alarm indications.



PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	I
SEWER GRID	I

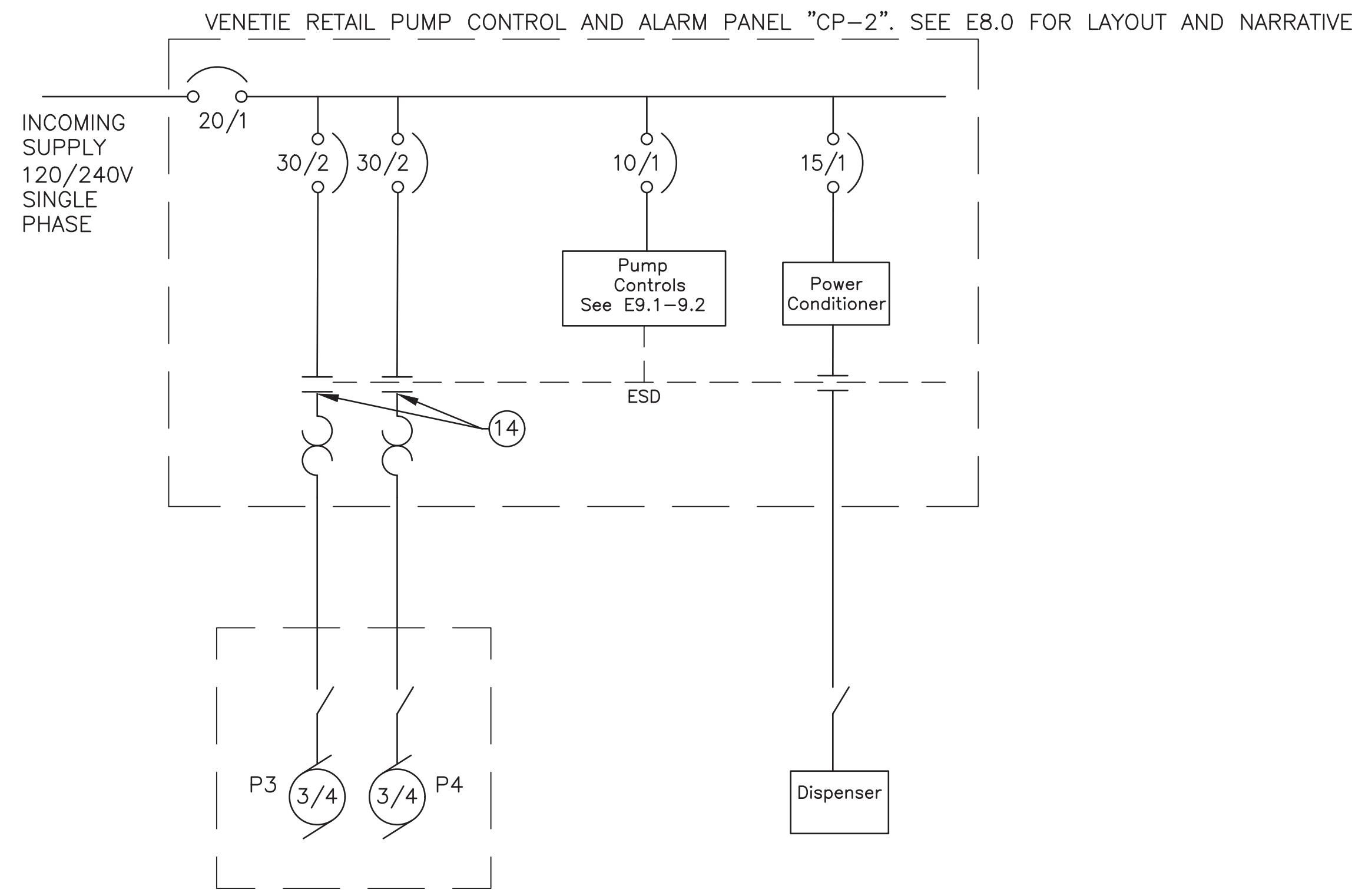
VENETIE, ALASKA	DATE: NOV 2021
POWER SYSTEM UPGRADE	
RETAL CONTROL PANEL	
PROJECT NO. -	
STATUS: ISSUED FOR CONSTRUCTION	

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	WMM

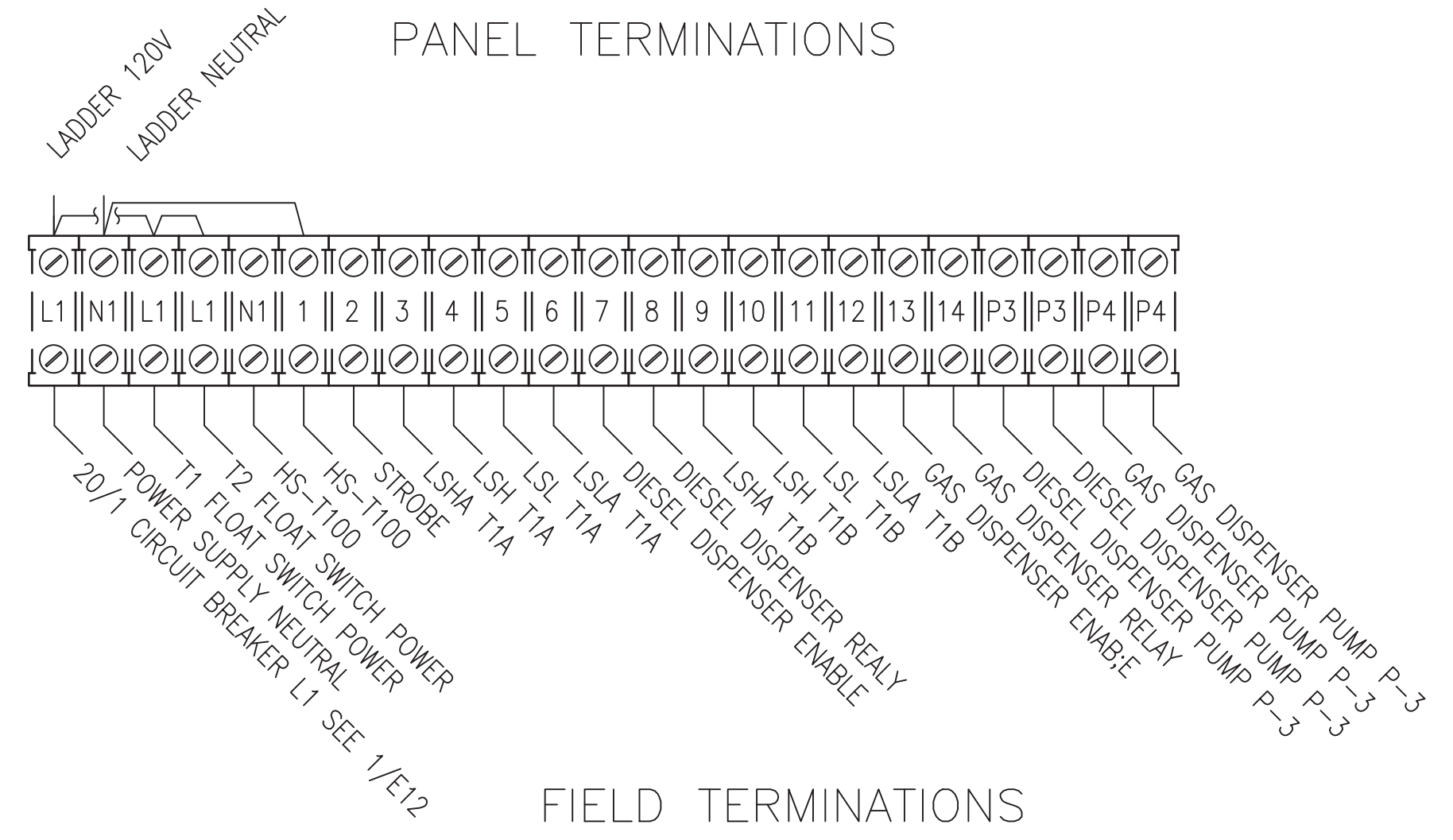
SCALE	—
HOR. VER.	—
DESIGNED BY	WMM
DRAWN BY	DAJ
CHECKED BY	WMM
APPROVED BY	—

SHEET NO. **E9.0**

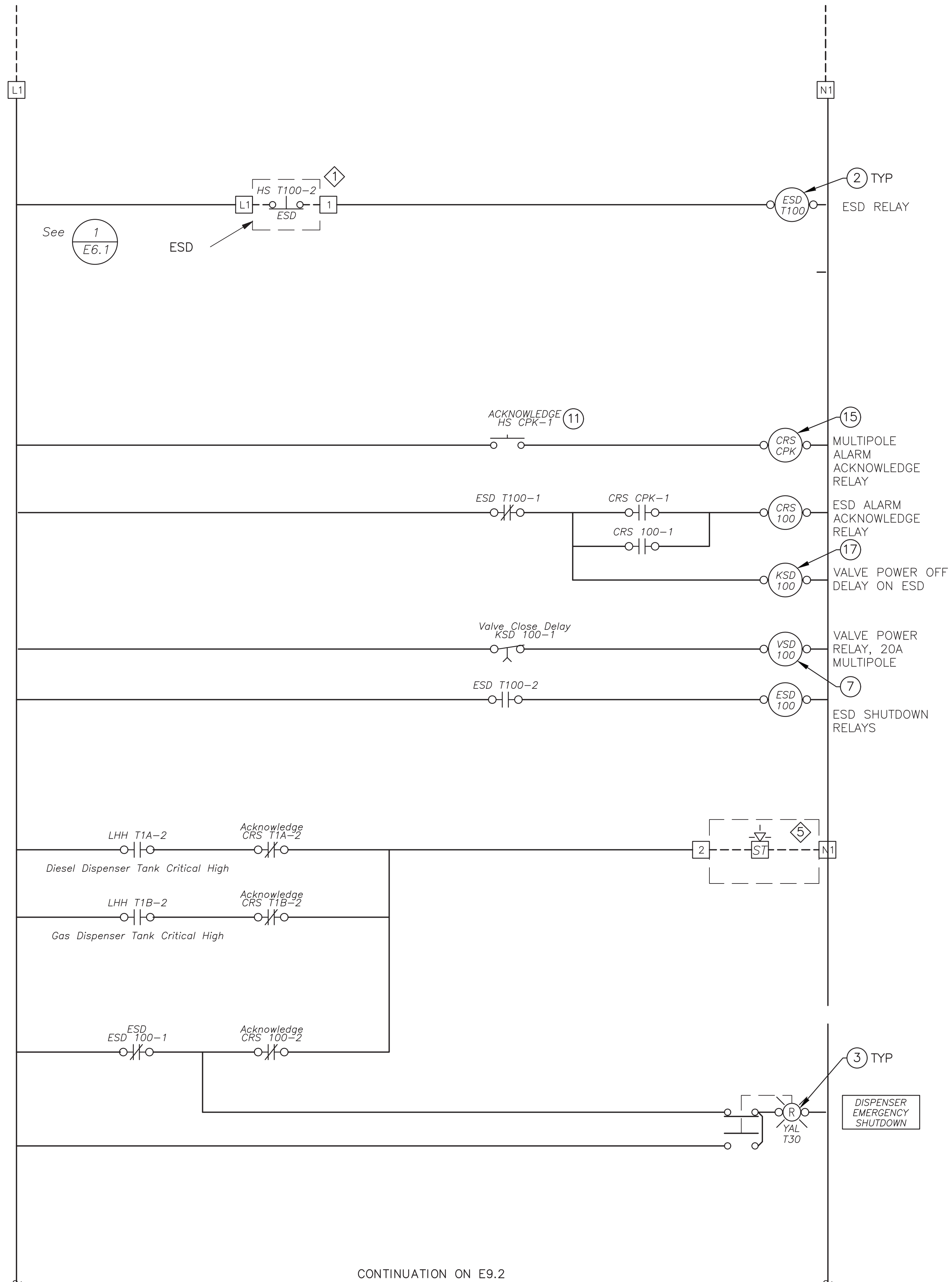
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1 CP-2 POWER ONE-LINE
SCALE: NTS



2 CP-2 WIRE LIST
SCALE: NTS



CONTINUATION ON E9.2



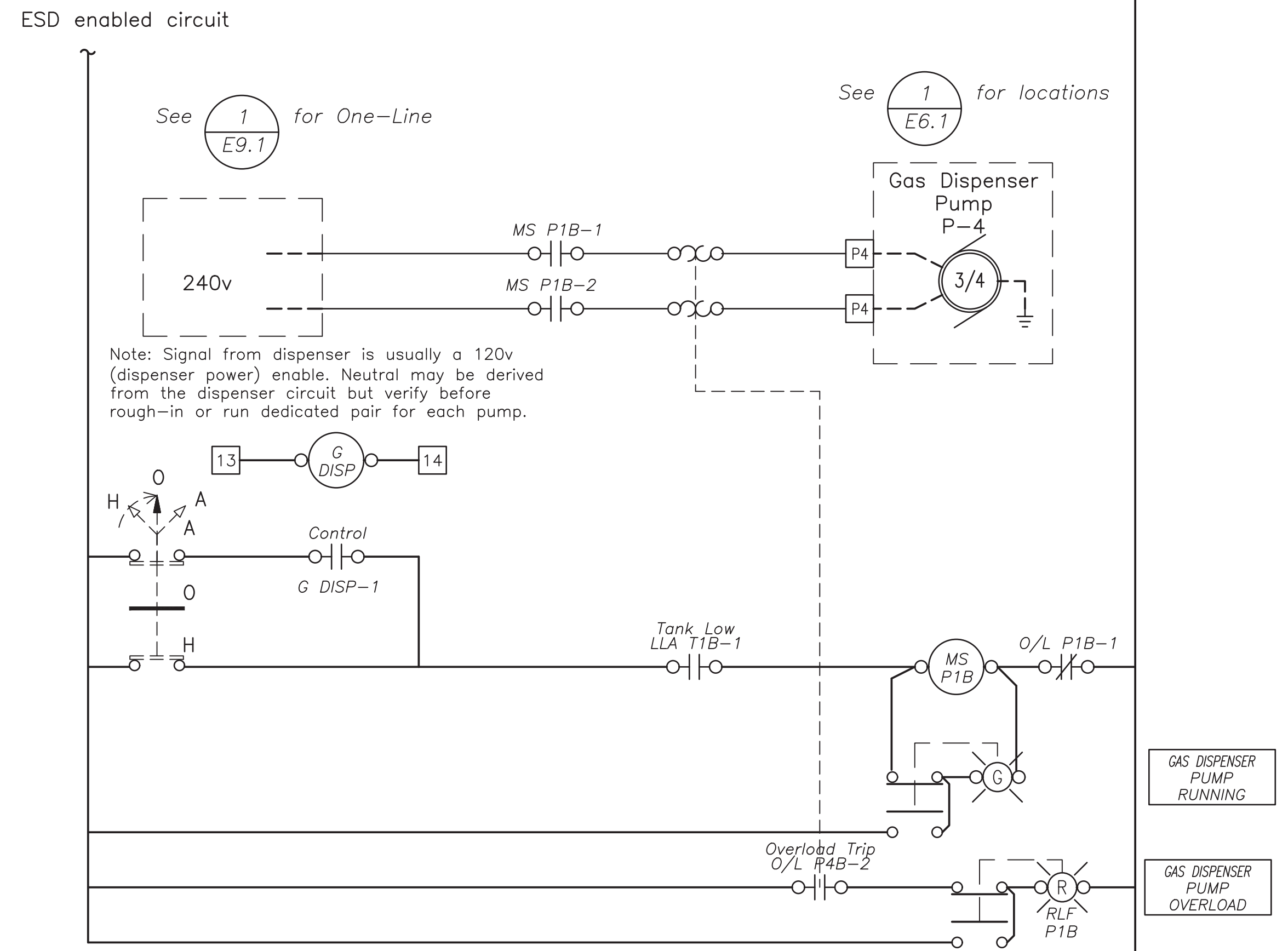
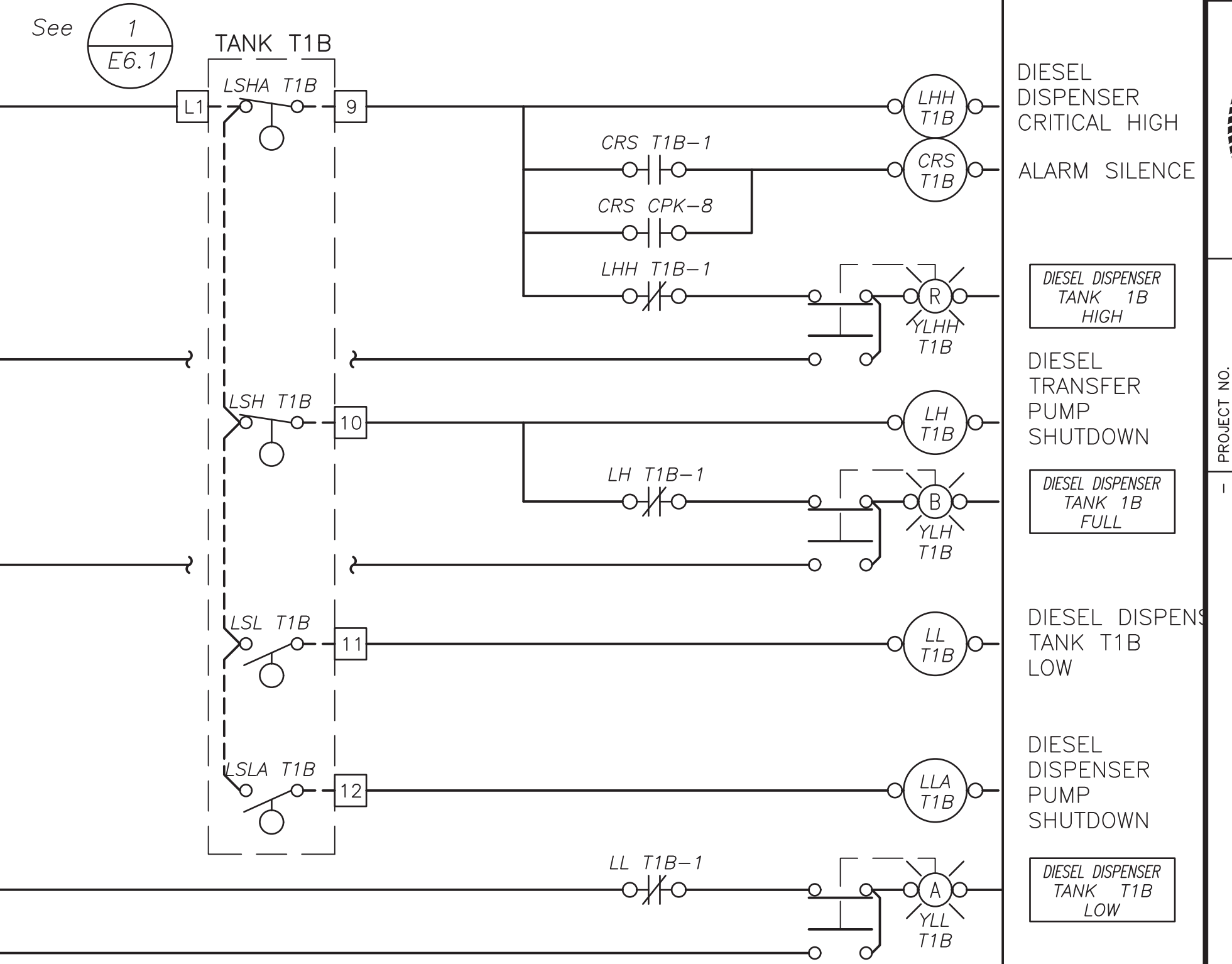
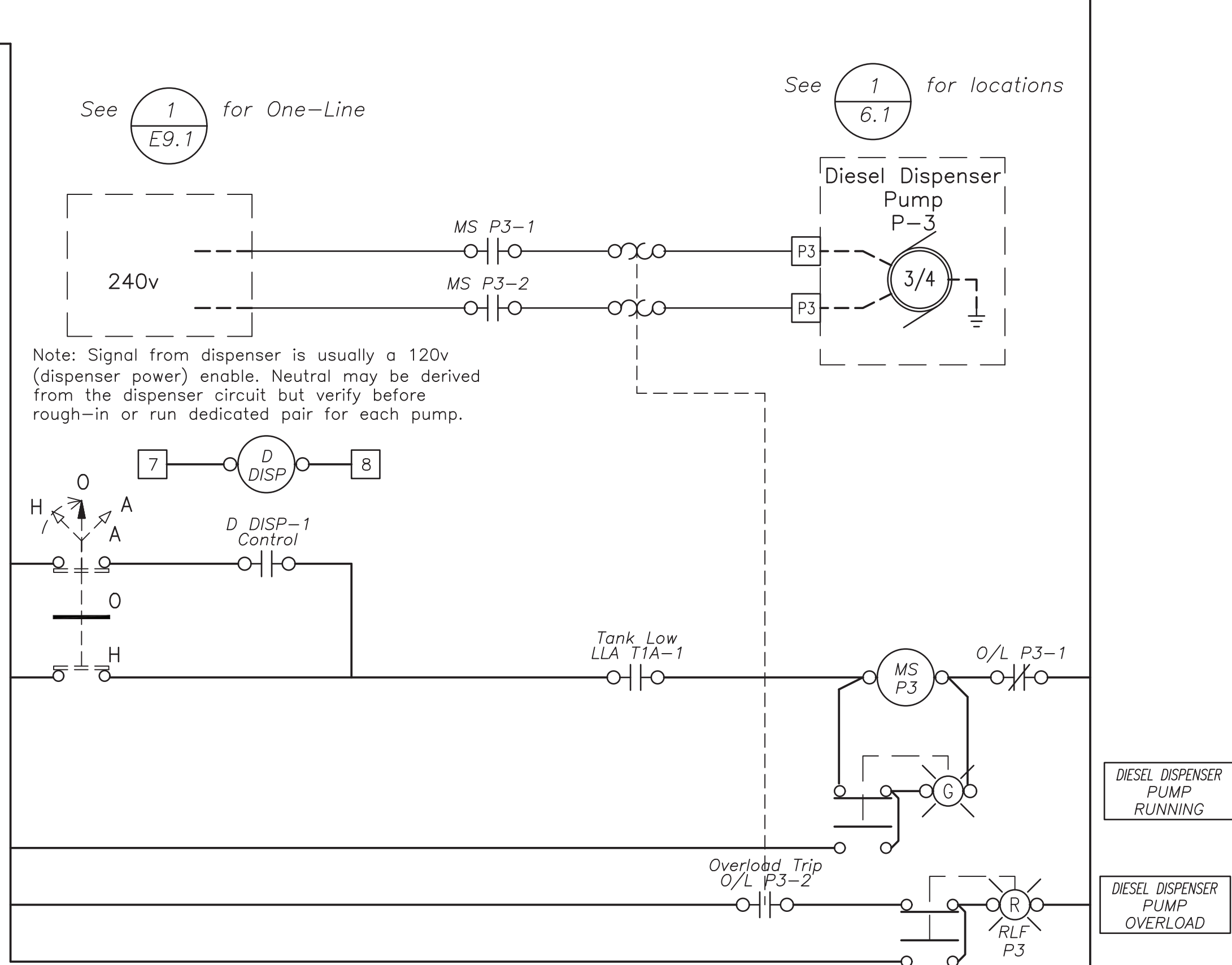
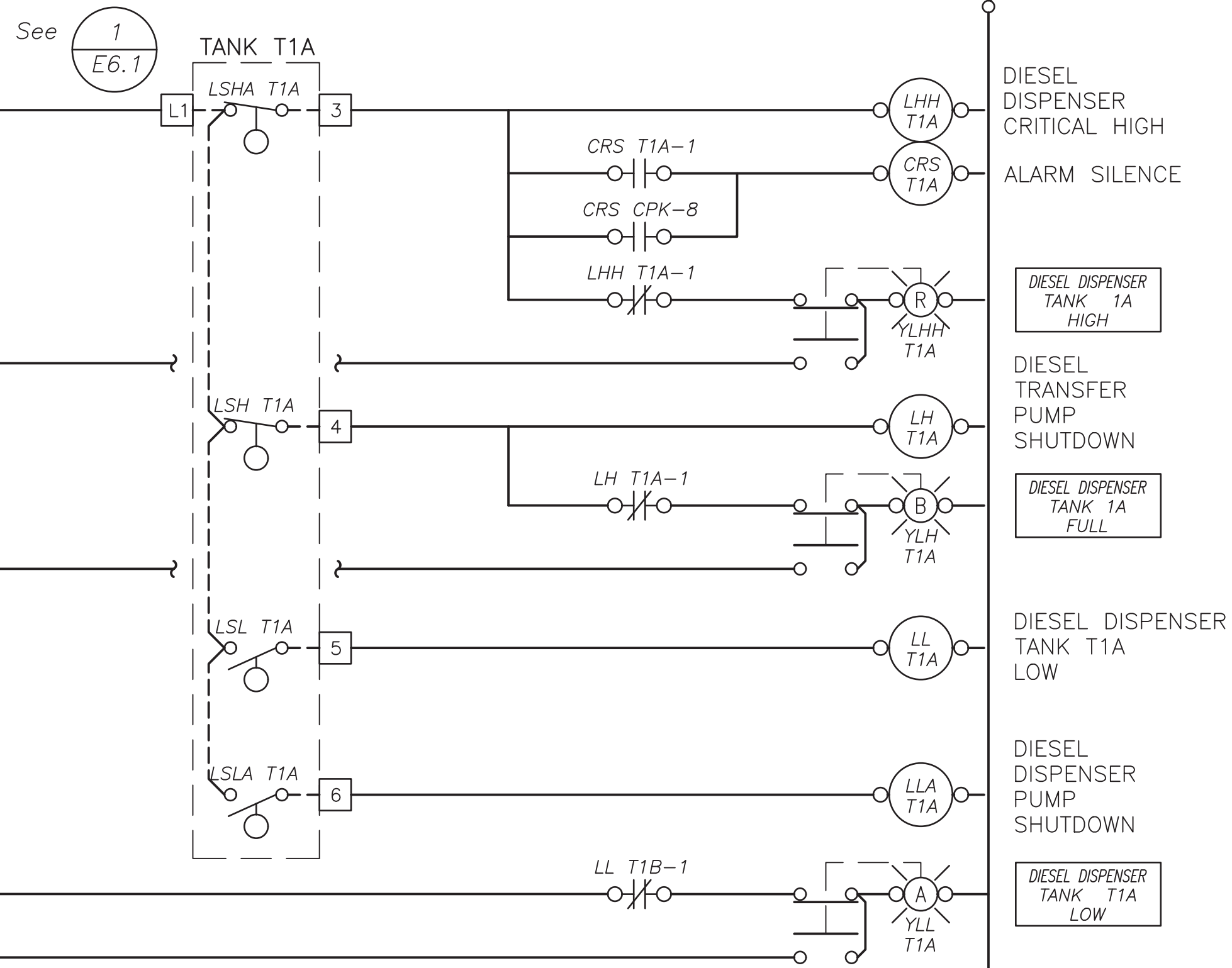
PROJECT NO.	30416.00
CITY GRID	-
WATER GRID	-
SEWER GRID	-

VENETIE, ALASKA
POWER SYSTEM UPGRADE
RETAIL CONTROL PANEL SCHEMATICS 1
PROJECT NO. -
STATUS: ISSUED FOR CONSTRUCTION
DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	WMM

SCALE	-
DESIGNED BY	WMM
DRAWN BY	DAJ
CHECKED BY	WMM
APPROVED BY	-

CONTINUATION FROM E9.1



File: J:\JobsData\30416.00 Venetie BFU RPSU Project\01 CADD 2019\01 Working Set\03 Electrical\BFU\30416.00 Retail Control Panel Ladder.dwg PLOT DATE: 11/1/2021 3:52 PM



PROJECT NO.	30416.00
CITY GRID	I
WATER GRID	I
SEWER GRID	I

VENETIE, ALASKA
POWER SYSTEM UPGRADE
 RETAIL CONTROL PANEL SCHEMATICS 2

PROJECT NO. -
 STATUS: ISSUED FOR CONSTRUCTION
 DATE: NOV 2021

REV	DATE	DESCRIPTION	BY
0	11/1/2021	ISSUED FOR CONSTRUCTION	WMM

SCALE	VER.	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
		WMM	DAJ	WMM	

SHEET NO. **E9.2**