STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

LOCATION MAP

VICINITY MAP

DRAWING INDEX

CONSTRUCTION DOCUMENTS

MARCH 16, 2017

OWNER

ALASKA ENERGY AUTHORITY
813 W NORTHERN LIGHTS BLVD
ANCHORAGE, ALASKA 99503
TELEPHONE: 907-771-3000

CIVIL ENGINEER
MECHANICAL ENGINEER

UMIAQ
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ANCHORAGE, ALASKA 99518
TELEPHONE: 907-677-8220

GEOTECHNICAL ENGINEER

GOLDER ASSOCIATES
2121 ABBOTT RD, SUITE 100
ANCHORAGE, ALASKA 99507
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ELECTRICAL ENGINEER

RSA ENGINEERING
670 W FIREWEED LN, SUITE 200
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ALASKA ENERGY AUTHORITY

UMIAQ
6700 Arctic Spur Road · Anchorage, AK 99518 · (907)677-8220

STATE OF ALASKA AIDEA/AEA
KIPNUK BULK FUEL UPGRADES
CONSTRUCTION DOCUMENTS
MARCH 16, 2017 – UMIAQ PROJECT NO. 70183.15

FILE: M:\Design\Engineering\PROJECTS\70183.15 Kipnuk BFU Design & CA\DESIGN\Drawings\CIVIL\70183.15 Cover Sheet.dwg
PRINTED: 03/21/2017 16:48 David.Hardy LAYOUT: Layout 1 XREFS: None IMAGES: GOOGLE EARTH IMAGE - 01.JPG

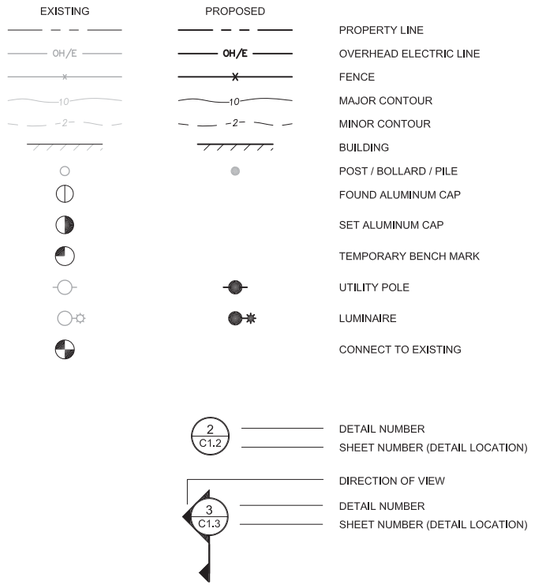
GENERAL NOTES

1. FLOOD DATA IS BASED ON FLOOD ELEVATION INVESTIGATION CONDUCTED BY LCMF (NOW UMIAQ) IN 2007. THE FLOOD OF RECORD WAS DETERMINED TO BE 100.0 FEET, BASED ON CORRESPONDENCE WITH ELDERS AND OTHERS IN THE COMMUNITY.
2. FOUNDATION DESIGN IS BASED ON THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT BY DUANE MILLER & ASSOCIATES, DATED JULY 25, 2007.
3. PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST STATE OF ALASKA ADOPTED EDITION OF THE INTERNATIONAL FIRE CODE, THE INTERNATIONAL MECHANICAL CODE, THE INTERNATIONAL BUILDING CODE, AND THE NATIONAL ELECTRICAL CODE INCLUDING STATE OF ALASKA AMENDMENTS. COMPLY WITH ALL APPLICABLE STATE AND FEDERAL REGULATIONS.
4. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL FEATURES OF THE REQUIRED WORK. PROVIDE ALL LABOR, EQUIPMENT AND MATERIALS REQUIRED FOR A COMPLETE SYSTEM. VERIFY EXISTING FIELD CONDITIONS PRIOR TO STARTING CONSTRUCTION. IMMEDIATELY CONTACT THE ENGINEER FOR CLARIFICATION OF QUESTIONABLE ITEMS OR APPARENT CONFLICTS.
5. INSTALL ALL MATERIAL AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS, AND INSTALLATION DRAWINGS UNLESS INDICATED OTHERWISE.
6. PERFORM WORK WITH SKILLED CRAFTSMEN SPECIALIZING IN THE REQUIRED WORK. INSTALL ALL MATERIALS IN A NEAT, ORDERLY, AND SECURE FASHION, AS REQUIRED BY THESE SPECIFICATIONS AND COMMONLY RECOGNIZED STANDARDS OF GOOD WORKMANSHIP.
7. MARK UP DESIGN DRAWINGS TO REFLECT FIELD CHANGES THROUGHOUT CONSTRUCTION. TURN OVER "RED LINE" CONSTRUCTION DRAWINGS TO ENGINEER AT COMPLETION OF THE PROJECT.
8. NOT ALL UTILITIES MAY BE SHOWN ON THE PLANS. FIELD LOCATE ALL EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION. PROTECT UTILITIES AT ALL TIMES DURING CONSTRUCTION, REPAIR ANY DAMAGE IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANIES REQUIREMENTS.
9. PROVIDE AND MAINTAIN ALL SIGNS, BARRICADES AND WARNING LIGHTS AND OTHER PROTECTIVE DEVICES NECESSARY FOR SAFETY.
10. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH U.S. ENVIRONMENTAL PROTECTION AGENCY, ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND STATE & FEDERAL OCCUPATIONAL HEALTH AND SAFETY REGULATIONS.
11. COORDINATE WORK REQUIRED BY THIS PROJECT WITH OTHER CONTRACTORS IN THE AREA, HIS SUBCONTRACTORS, THE OWNER, STATE AND FEDERAL AUTHORITIES.
12. SCHEDULE AND COORDINATE DEMOLITION AND NEW CONSTRUCTION ACTIVITIES SUCH THAT COMPLETE AND OPERABLE BULK FUEL STORAGE, DISPENSING AND TRANSFER SYSTEMS ARE MAINTAINED AT ALL TIMES. ALL OUTAGES SHALL BE COORDINATED A MINIMUM OF 14 DAYS IN ADVANCE WITH THE RESPECTIVE ENTITY.
13. PROTECT RIVER BANKS FROM DAMAGE WHILE OFFLOADING AND LOADING MATERIALS, EQUIPMENT, AND OTHER FREIGHT. USE RIG MATS OR OTHER MEANS TO SPREAD LOADS ON RIVER BANKS.
14. "BY RPSU" MEANS SPECIFIED ON THE RPSU DRAWINGS AND PROVIDED UNDER THE RPSU PORTION OF THIS PROJECT.
15. PROVIDE TANK FARM SIGNAGE PER THE INTERNATIONAL FIRE CODE AND AS SHOWN ON THE DRAWINGS.
16. PROVIDE SPILL RESPONSE MATERIALS AS INDICATED IN THE SPECIFICATION SECTION - 33 52 13.43 "SPILL RESPONSE EQUIPMENT".
17. NO WELDING WILL BE ALLOWED ON FUEL TANK OR OTHER COATED STEEL FABRICATIONS AFTER APPLICATION OF FIELD OR SHOP APPLIED COATINGS.

BID SCHEDULE NOTES

1. BASE BID: INCLUDES MINOR GRADING AROUND PILES INSTALLED PER THE STRUCTURAL DRAWINGS TO PREVENT PONDING. ALSO INCLUDED ARE GRATED WALKWAYS, SUMPS, FENCING, AND ALL OTHER WORK ASSOCIATED WITH THE TANK FARM PLATFORM AND CONTAINMENT STRUCTURE INSTALLED BY THE BASE BID.
2. ADDITIVE ALTERNATE #1: INCLUDES THE GASOLINE MARINE HEADER, PIPELINE, AND ASSOCIATED PIPE SUPPORTS. PIPE SUPPORTS PROVIDED FOR THE MARINE HEADER PIPELINE SHALL BE SIZED TO ACCOMMODATE FUTURE PIPING AND CONDUITS REQUIRED BY ADDITIVE ALTERNATE #2 IN THE LOCATIONS AND CONFIGURATIONS SHOWN.
3. ADDITIVE ALTERNATE #2: INCLUDES THE DISPENSING ENCLOSURE FOUNDATION, SUPPLY PIPELINES, ELECTRICAL CONDUITS AND PIPE SUPPORTS, OR THE ADDITION OF THE DISPENSER PIPELINES AND CONDUITS TO THE COMMON SUPPORTS THAT WERE PROVIDED BY ADDITIVE ALTERNATE #1.
4. SEE SPECIFICATIONS SECTION 01 11 13 SUMMARY OF WORK FOR FURTHER CLARIFICATION ON BID ALTERNATES.

LEGEND



ABBREVIATIONS

AEA	ALASKA ENERGY AUTHORITY
ALT	ALTERNATE
APPROX	APPROXIMATE
ACI	AMERICAN CONCRETE INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BFU	BULF FUEL UPGRADE
BP	BEGINNING OF PROJECT
DET	DETAIL
DIA, Ø	DIAMETER
E	EAST / EASTING
EA	EACH
ELEV	ELEVATION
EP	END OF PROJECT
EXIST	EXISTING
EG	EXISTING GRADE
FF	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
GALV	GALVANIZED
HDG	HOT DIP GALVANIZED
KLP	KIPNUK LIGHT PLANT
KTC	KIPNUK TRIBAL COUNCIL
KLTD	KUGKAKTLIK LIMITED
LKSD	LOWER KUSKOKWIM SCHOOL DISTRICT
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
N	NORTH / NORTHING
NVK	NATIVE VILLAGE OF KIPNUK
NTS	NOT TO SCALE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OC	ON CENTER
OD	OUTSIDE DIAMETER
P/L	PROPERTY LINE
PI	POINT OF INTERSECTION
PT	POINT
REQ'D	REQUIRED
RPSU	RURAL POWER SYSTEM UPGRADE
SHT	SHEET
STA	STATION
TBM	TEMPORARY BENCH MARK
TYP	TYPICAL
UHMWP	ULTRA HIGH MOLECULAR WEIGHT PLASTIC

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS	
REV	DATE / DESCRIPTION

VERIFY SCALES
0 ——— 1"
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CHECKED BY: DBH
JOB NUMBER: 70183.15

DRAWING TITLE:
GENERAL NOTES AND LEGEND

C0.0

SHEET | OF 41

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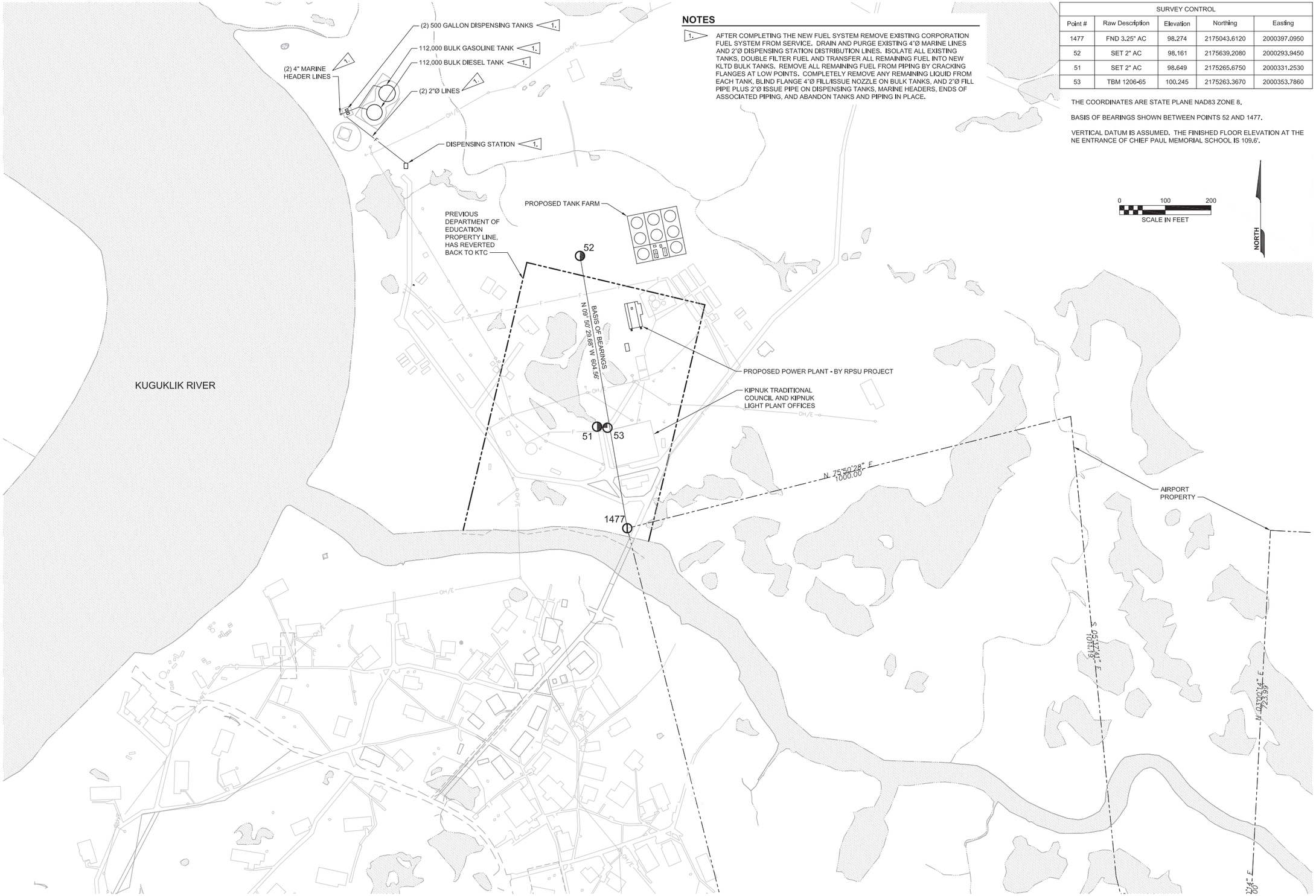

NOTES

1. AFTER COMPLETING THE NEW FUEL SYSTEM REMOVE EXISTING CORPORATION FUEL SYSTEM FROM SERVICE. DRAIN AND PURGE EXISTING 4"Ø MARINE LINES AND 2"Ø DISPENSING STATION DISTRIBUTION LINES. ISOLATE ALL EXISTING TANKS, DOUBLE FILTER FUEL AND TRANSFER ALL REMAINING FUEL INTO NEW KLTD BULK TANKS. REMOVE ALL REMAINING FUEL FROM PIPING BY CRACKING FLANGES AT LOW POINTS. COMPLETELY REMOVE ANY REMAINING LIQUID FROM EACH TANK, BLIND FLANGE 4"Ø FILL/ISSUE NOZZLE ON BULK TANKS, AND 2"Ø FILL PIPE PLUS 2"Ø ISSUE PIPE ON DISPENSING TANKS, MARINE HEADERS, ENDS OF ASSOCIATED PIPING, AND ABANDON TANKS AND PIPING IN PLACE.

SURVEY CONTROL				
Point #	Raw Description	Elevation	Northing	Easting
1477	FND 3.25" AC	98.274	2175043.6120	2000397.0950
52	SET 2" AC	98.161	2175639.2080	2000293.9450
51	SET 2" AC	98.649	2175265.6750	2000331.2530
53	TBM 1206-65	100.245	2175263.3670	2000353.7860

THE COORDINATES ARE STATE PLANE NAD83 ZONE 8.

BASIS OF BEARINGS SHOWN BETWEEN POINTS 52 AND 1477.

VERTICAL DATUM IS ASSUMED. THE FINISHED FLOOR ELEVATION AT THE NE ENTRANCE OF CHIEF PAUL MEMORIAL SCHOOL IS 109.6'.

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KIPNUK, ALASKA

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STATE OF ALASKA 49 TH
David Blaine Hardy
CE-14480
REGISTERED PROFESSIONAL ENGINEER

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SURVEY CONTROL & SELECTIVE DEMOLITION

C0.1

SHEET | OF 41

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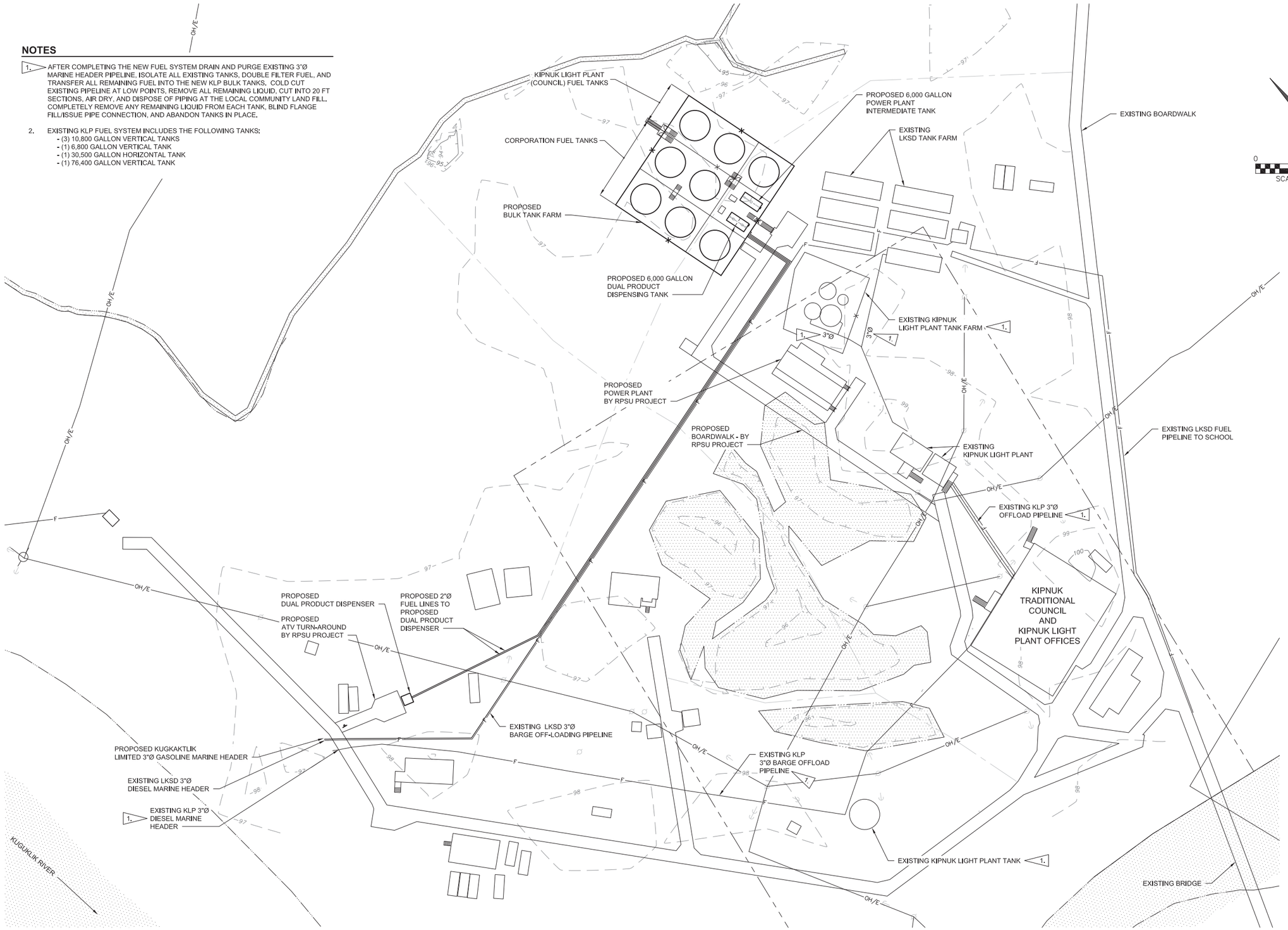
NOTES

1. AFTER COMPLETING THE NEW FUEL SYSTEM DRAIN AND PURGE EXISTING 3"Ø MARINE HEADER PIPELINE, ISOLATE ALL EXISTING TANKS, DOUBLE FILTER FUEL, AND TRANSFER ALL REMAINING FUEL INTO THE NEW KLP BULK TANKS. COLD CUT EXISTING PIPELINE AT LOW POINTS, REMOVE ALL REMAINING LIQUID, CUT INTO 20 FT SECTIONS, AIR DRY, AND DISPOSE OF PIPING AT THE LOCAL COMMUNITY LAND FILL. COMPLETELY REMOVE ANY REMAINING LIQUID FROM EACH TANK, BLIND FLANGE FILL/ISSUE PIPE CONNECTION, AND ABANDON TANKS IN PLACE.

2. EXISTING KLP FUEL SYSTEM INCLUDES THE FOLLOWING TANKS:
   - (3) 10,800 GALLON VERTICAL TANKS
   - (1) 6,800 GALLON VERTICAL TANK
   - (1) 30,500 GALLON HORIZONTAL TANK
   - (1) 76,400 GALLON VERTICAL TANK



1 C1.1 **PROJECT LAYOUT PLAN**

SCALE: 1" = 40'

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David Blaine Hardy
CE-14480
REGISTERED PROFESSIONAL ENGINEER

UMIAQ Design & Municipal Services, LLC / AECL1316

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DRAWING TITLE:
PROJECT LAYOUT PLAN

C1.1

SHEET OF 41

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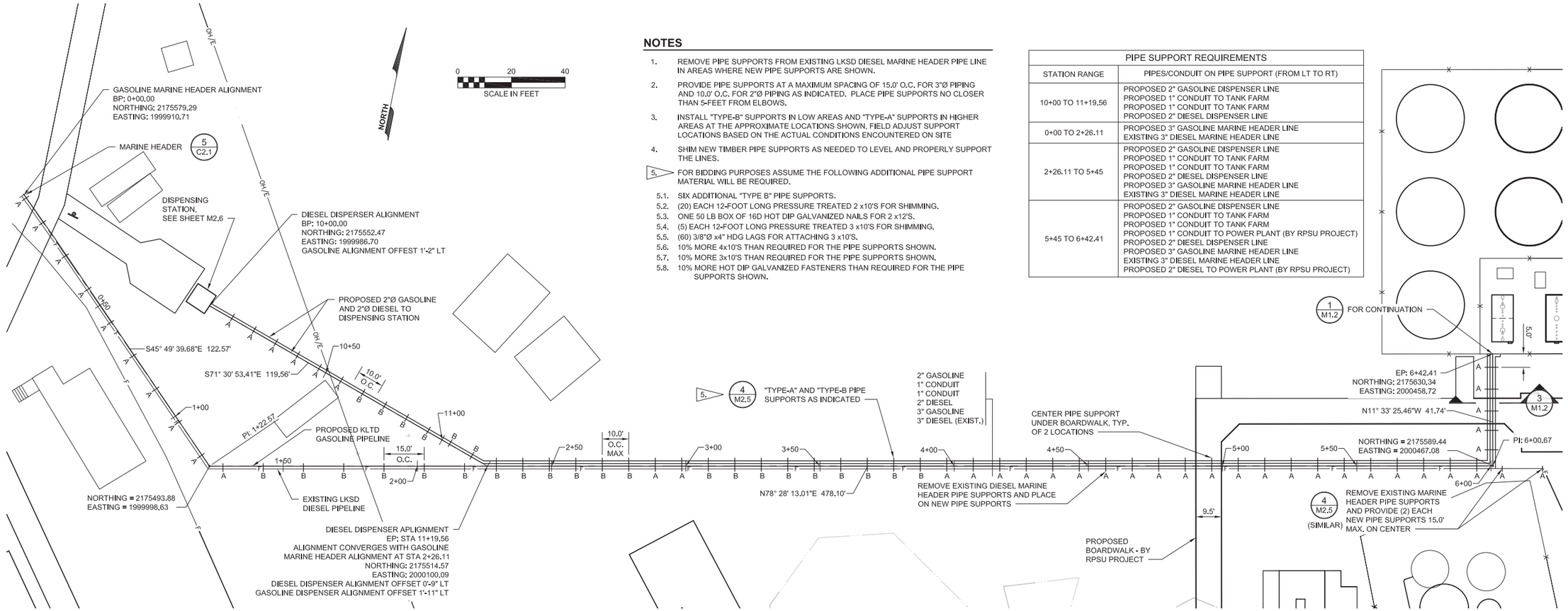
NOTES

1. REMOVE PIPE SUPPORTS FROM EXISTING LKSD DIESEL MARINE HEADER PIPE LINE IN AREAS WHERE NEW PIPE SUPPORTS ARE SHOWN.
2. PROVIDE PIPE SUPPORTS AT A MAXIMUM SPACING OF 15.0' O.C. FOR 3"Ø PIPING AND 10.0' O.C. FOR 2"Ø PIPING AS INDICATED. PLACE PIPE SUPPORTS NO CLOSER THAN 5-FEET FROM ELBOWS.
3. INSTALL "TYPE-B" SUPPORTS IN LOW AREAS AND "TYPE-A" SUPPORTS IN HIGHER AREAS AT THE APPROXIMATE LOCATIONS SHOWN, FIELD ADJUST SUPPORT LOCATIONS BASED ON THE ACTUAL CONDITIONS ENCOUNTERED ON SITE
4. SHIM NEW TIMBER PIPE SUPPORTS AS NEEDED TO LEVEL AND PROPERLY SUPPORT THE LINES.

5. FOR BIDDING PURPOSES ASSUME THE FOLLOWING ADDITIONAL PIPE SUPPORT MATERIAL WILL BE REQUIRED.

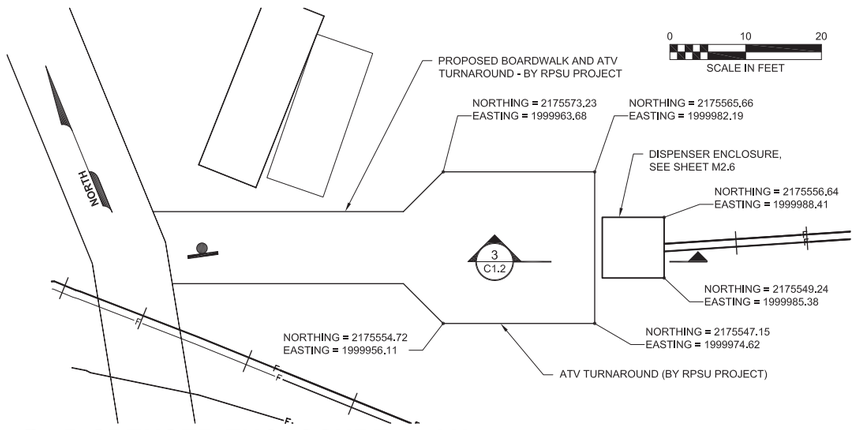
5.1. SIX ADDITIONAL "TYPE B" PIPE SUPPORTS.
5.2. (20) EACH 12-FOOT LONG PRESSURE TREATED 2 x10'S FOR SHIMMING.
5.3. ONE 50 LB BOX OF 16D HOT DIP GALVANIZED NAILS FOR 2 x12'S.
5.4. (5) EACH 12-FOOT LONG PRESSURE TREATED 3 x10'S FOR SHIMMING.
5.5. (60) 3/8"Ø x4" HDG LAGS FOR ATTACHING 3 x10'S.
5.6. 10% MORE 4x10'S THAN REQUIRED FOR THE PIPE SUPPORTS SHOWN.
5.7. 10% MORE 3x10'S THAN REQUIRED FOR THE PIPE SUPPORTS SHOWN.
5.8. 10% MORE HOT DIP GALVANIZED FASTENERS THAN REQUIRED FOR THE PIPE SUPPORTS SHOWN.

PIPE SUPPORT REQUIREMENTS	
STATION RANGE	PIPES/CONDUIT ON PIPE SUPPORT (FROM LT TO RT)
10+00 TO 11+19.56	PROPOSED 2" GASOLINE DISPENSER LINE PROPOSED 1" CONDUIT TO TANK FARM PROPOSED 1" CONDUIT TO TANK FARM PROPOSED 2" DIESEL DISPENSER LINE
0+00 TO 2+26.11	PROPOSED 3" GASOLINE MARINE HEADER LINE EXISTING 3" DIESEL MARINE HEADER LINE
2+26.11 TO 5+45	PROPOSED 2" GASOLINE DISPENSER LINE PROPOSED 1" CONDUIT TO TANK FARM PROPOSED 1" CONDUIT TO TANK FARM PROPOSED 2" DIESEL DISPENSER LINE PROPOSED 3" GASOLINE MARINE HEADER LINE EXISTING 3" DIESEL MARINE HEADER LINE
5+45 TO 6+42.41	PROPOSED 2" GASOLINE DISPENSER LINE PROPOSED 1" CONDUIT TO TANK FARM PROPOSED 1" CONDUIT TO TANK FARM PROPOSED 1" CONDUIT TO POWER PLANT (BY RPSU PROJECT) PROPOSED 2" DIESEL DISPENSER LINE PROPOSED 3" GASOLINE MARINE HEADER LINE EXISTING 3" DIESEL MARINE HEADER LINE PROPOSED 2" DIESEL TO POWER PLANT (BY RPSU PROJECT)



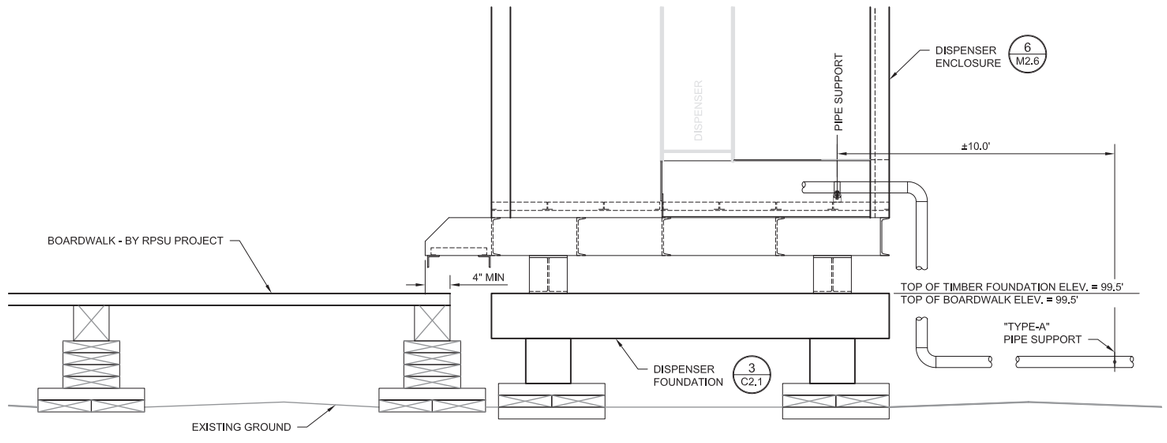
1 C1.2 PIPE SUPPORT LOCATIONS

SCALE: 1" = 20'



2 C1.2 DISPENSER ENCLOSURE PLAN

SCALE: 1" = 10'



3 C1.2 DISPENSER FOUNDATION ELEVATION

SCALE: 3/4" = 1' - 0"

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REVISIONS REV	DATE	DESCRIPTION

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STATE OF ALASKA 49 TH
David Blaine Hardy
3/16/2017
CE-14480
REGISTERED PROFESSIONAL ENGINEER

UMIAQ Design & Municipal Services, LLC / AECL1316

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PROPOSED PIPELINE ALIGNMENTS

C1.2

SHEET | OF 41

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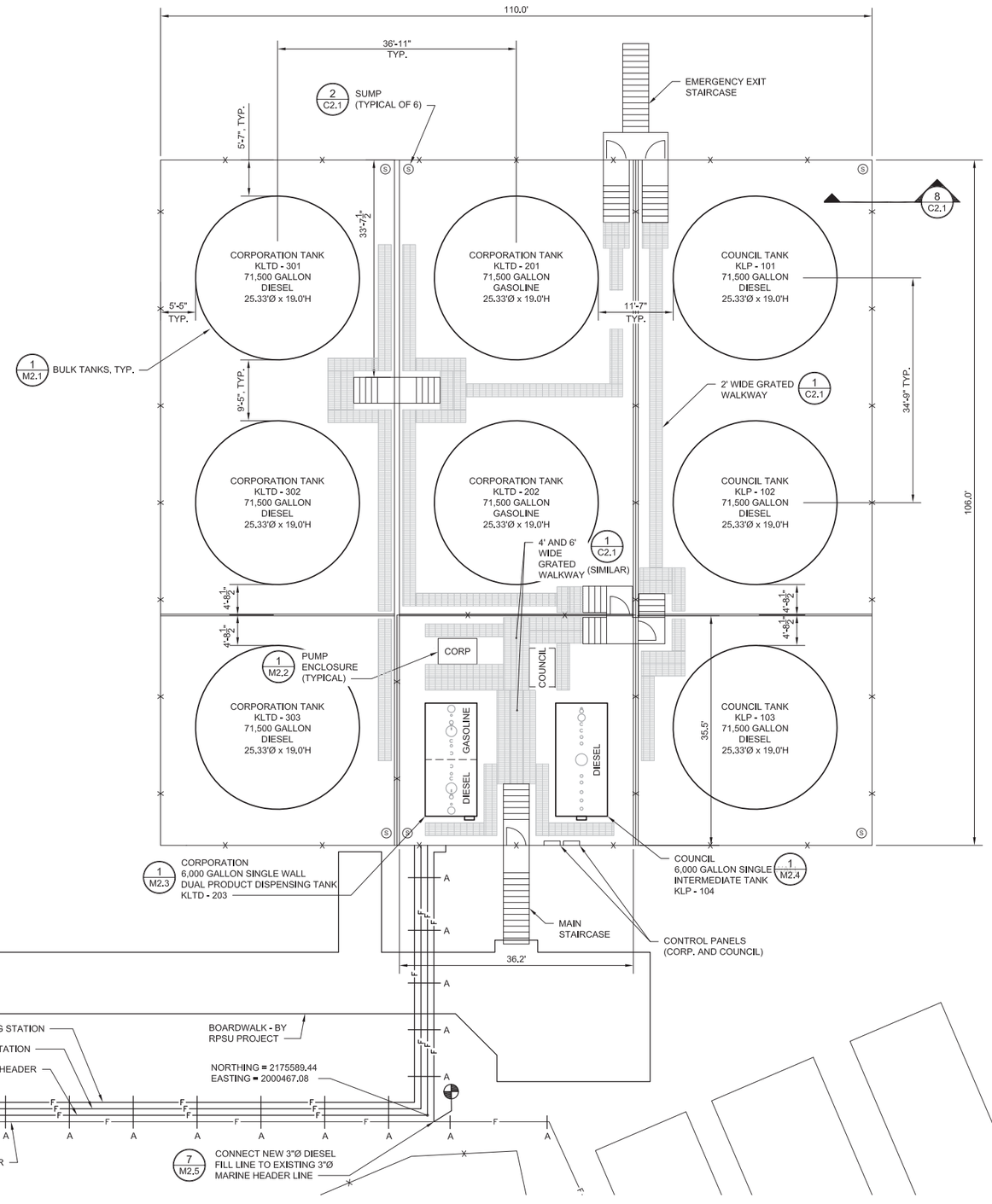
KIPNUK LIGHT PLANT PROPOSED TANK SCHEDULE:		
TANK	CAPACITY (GALLONS)	PRODUCT
KLP-101	71,500	DIESEL
KLP-102	71,500	DIESEL
KLP-103	71,500	DIESEL
KLP-104	6000	DIESEL

KUGKAKTLIK LTD. PROPOSED TANK SCHEDULE		
TANK	CAPACITY (GALLONS)	PRODUCT
KLTD - 201	71,500	GASOLINE
KLTD - 202	71,500	GASOLINE
KLTD - 203	3,000/3,000	DIESEL/GAS
KLTD - 301	71,500	DIESEL
KLTD - 302	71,500	DIESEL
KLTD - 303	71,500	DIESEL



1 C1.3 TANK FARM LAYOUT PLAN

SCALE: 1" = 10'

FILE: M:\Design\Engineering\PROJECTS\70183.15 Kipnuk BFU Design & CA\DESIGN\Drawings\CIVIL\70183.15 C1.2-1.3 Tank Farm Layout Plan.dwg
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DRAWING TITLE:
TANK FARM LAYOUT PLAN

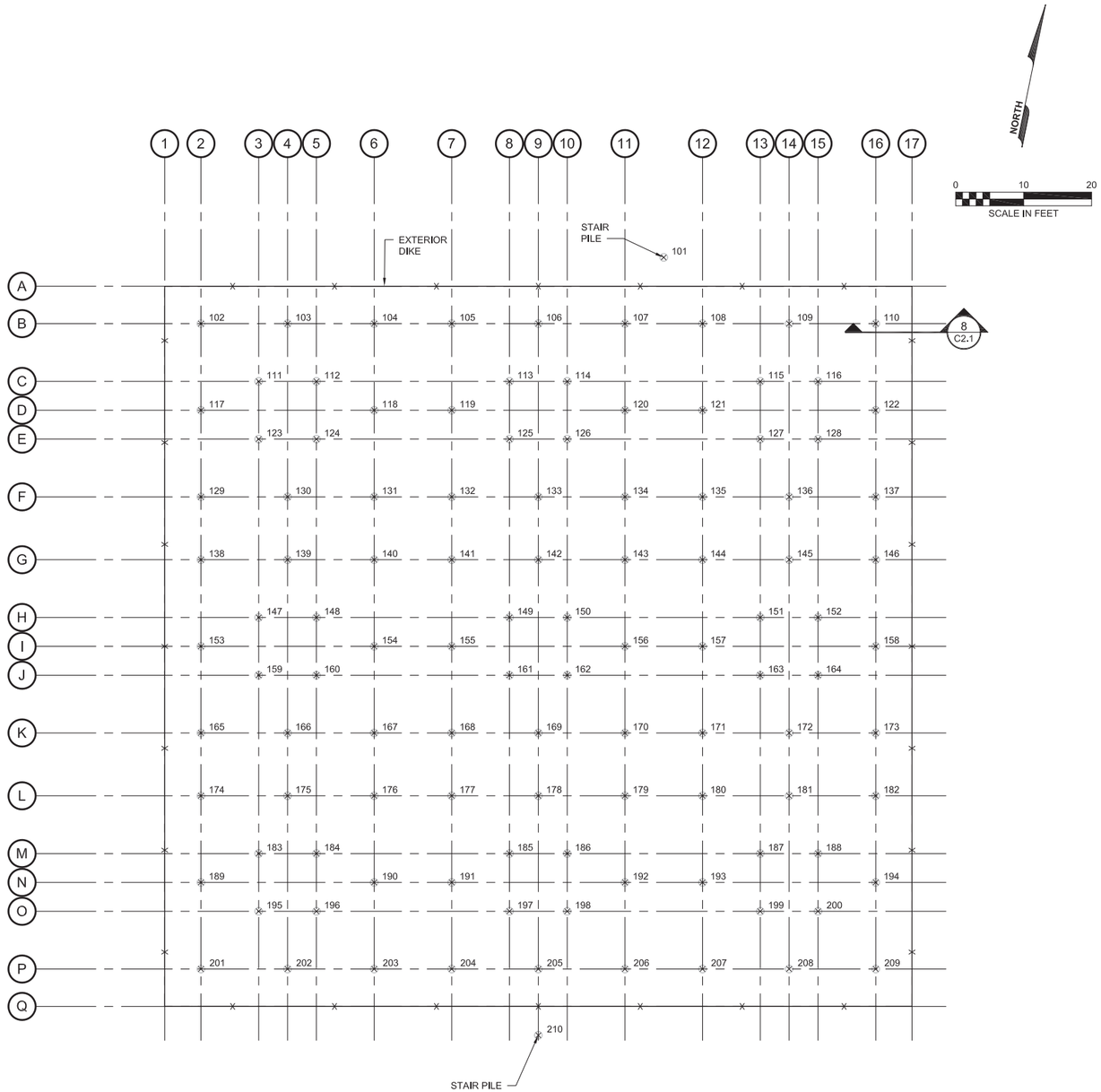
C1.3

SHEET OF 41

PILE LOCATION TABLE		
POINT #	NORTHING	EASTING
101	2175744.80	2000468.17
165	2175662.57	2000415.45
109	2175738.95	2000488.21
102	2175721.60	2000403.38
103	2175724.16	2000415.87
104	2175726.71	2000428.37
105	2175729.00	2000439.55
106	2175731.55	2000452.04
107	2175734.11	2000464.53
108	2175736.39	2000475.72
110	2175741.50	2000500.70
111	2175714.98	2000413.41
112	2175716.68	2000421.74
113	2175722.37	2000449.58
114	2175724.07	2000457.91
115	2175729.77	2000485.75
116	2175731.47	2000494.08
117	2175709.11	2000405.94
118	2175714.22	2000430.92
119	2175716.51	2000442.10
120	2175721.61	2000467.09
121	2175723.90	2000478.27
122	2175729.01	2000503.26
123	2175706.65	2000415.12
124	2175708.35	2000423.44
125	2175714.04	2000451.28
126	2175715.75	2000459.61
127	2175721.44	2000487.45
128	2175723.14	2000495.78
129	2175696.62	2000408.49
130	2175699.17	2000420.98
131	2175701.73	2000433.47
132	2175704.01	2000444.66
133	2175706.57	2000457.15
134	2175709.12	2000469.64
135	2175711.41	2000480.83
136	2175713.96	2000493.32
137	2175716.52	2000505.81
138	2175687.56	2000410.34
139	2175690.11	2000422.84
140	2175692.66	2000435.33
141	2175694.95	2000446.51
142	2175697.51	2000459.00
143	2175700.06	2000471.50
144	2175702.35	2000482.68
145	2175704.90	2000495.17
146	2175707.46	2000507.66
147	2175680.93	2000420.37
148	2175682.63	2000428.70
149	2175688.33	2000456.54

PILE LOCATION TABLE		
POINT #	NORTHING	EASTING
150	2175690.03	2000464.87
151	2175695.72	2000492.71
152	2175697.43	2000501.04
153	2175675.06	2000412.90
154	2175680.17	2000437.88
155	2175682.46	2000449.07
156	2175687.57	2000474.05
157	2175689.86	2000485.23
158	2175694.96	2000510.22
159	2175672.60	2000422.08
160	2175674.31	2000430.41
161	2175680.00	2000458.25
162	2175681.70	2000466.57
163	2175687.39	2000494.41
164	2175689.10	2000502.74
166	2175665.13	2000427.94
167	2175667.68	2000440.44
168	2175669.97	2000451.62
169	2175672.52	2000464.11
170	2175675.08	2000476.60
171	2175677.36	2000487.79
172	2175679.92	2000500.28
173	2175682.47	2000512.77
174	2175653.51	2000417.31
175	2175656.06	2000429.80
176	2175658.62	2000442.29
177	2175660.91	2000453.47
178	2175663.46	2000465.97
179	2175666.01	2000478.46
180	2175668.30	2000489.64
181	2175670.86	2000502.13
182	2175673.41	2000514.63
183	2175646.89	2000427.34
184	2175648.59	2000435.66
185	2175654.28	2000463.50
186	2175655.98	2000471.83
187	2175661.68	2000499.67
188	2175663.38	2000508.00
189	2175641.02	2000419.86
190	2175646.13	2000444.84
191	2175648.41	2000456.03
192	2175653.52	2000481.01
193	2175655.81	2000492.20
194	2175660.92	2000517.18
195	2175638.56	2000429.04
196	2175640.26	2000437.37
197	2175645.95	2000465.21
198	2175647.66	2000473.54
199	2175653.35	2000501.38
200	2175655.05	2000509.70

PILE LOCATION TABLE		
POINT #	NORTHING	EASTING
201	2175628.53	2000422.41
202	2175631.08	2000434.91
203	2175633.64	2000447.40
204	2175635.92	2000458.58
205	2175638.48	2000471.07
206	2175641.03	2000483.57
207	2175643.32	2000494.75
208	2175645.87	2000507.24
209	2175648.43	2000519.73
210	2175628.92	2000473.03



1 C1.4 **PILE LAYOUT PLAN**

SCALE: 1" = 10'

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS		
REV	DATE	DESCRIPTION

VERIFY SCALES
0 ——— 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA 49 TH
David Blaine Hardy
CE-14480
REGISTERED PROFESSIONAL ENGINEER

UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DBH
CHECKED BY: DBH
JOB NUMBER: 70183.15

DRAWING TITLE:
PILE LAYOUT PLAN

C1.4

SHEET OF 41

FILE: M:\Design\Engineering\PROJECTS\70183.15 Kipnuk BFU Design & CA\DESIGN\Drawings\CIVIL\70183.15 C1.4 Pile Layout Plan.dwg
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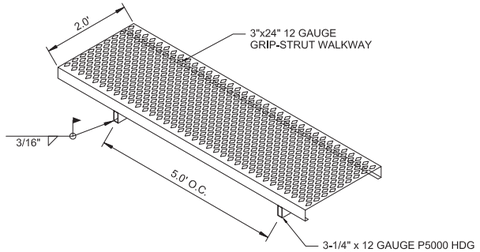
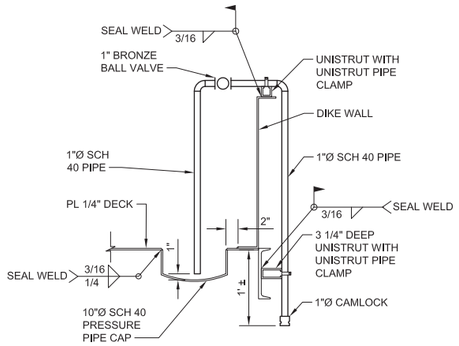


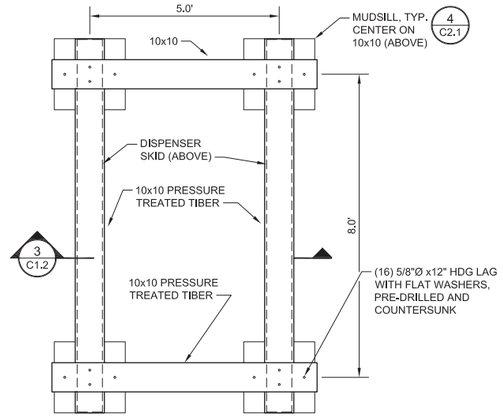
1 C2.1 GRATED WALKWAY

SCALE: NTS



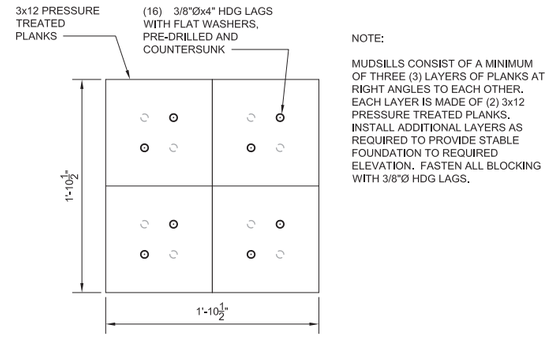
2 C2.1 SUMP DETAIL

SCALE: 1" = 1'



3 C2.1 DISPENSER FOUNDATION

SCALE: 1" = 2'

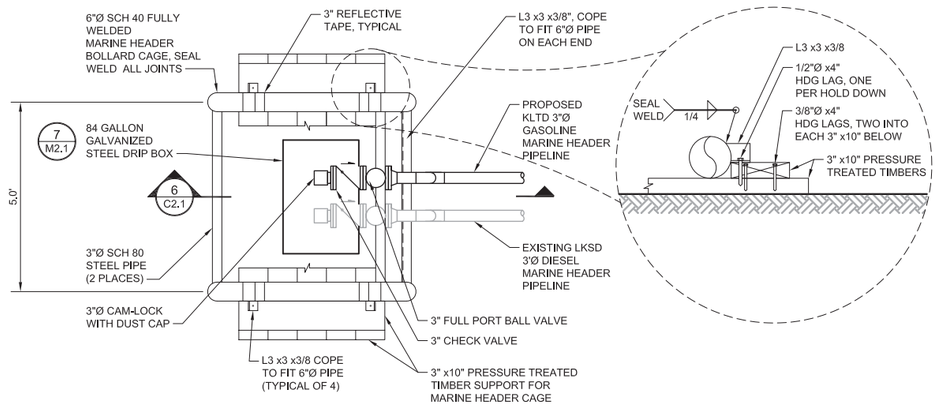


NOTE:

MUDSILLS CONSIST OF A MINIMUM OF THREE (3) LAYERS OF PLANKS AT RIGHT ANGLES TO EACH OTHER. EACH LAYER IS MADE OF (2) 3x12 PRESSURE TREATED PLANKS. INSTALL ADDITIONAL LAYERS AS REQUIRED TO PROVIDE STABLE FOUNDATION TO REQUIRED ELEVATION. FASTEN ALL BLOCKING WITH 3/8"Ø HDG LAGS.

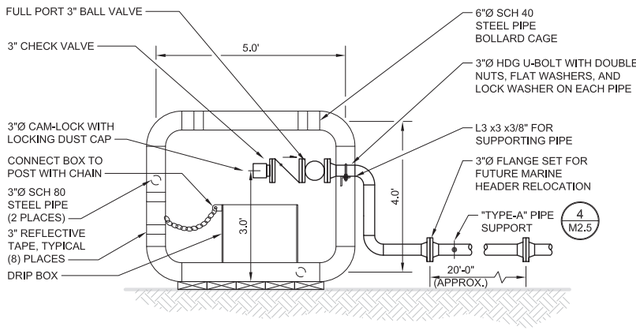
4 C2.1 MUDSILL DETAIL

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



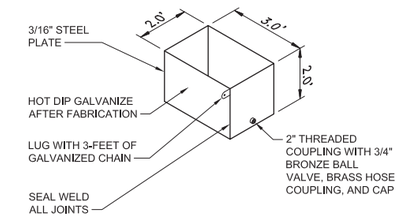
5 C2.1 MARINE HEADER DETAIL - PLAN

SCALE: 1" = 2'



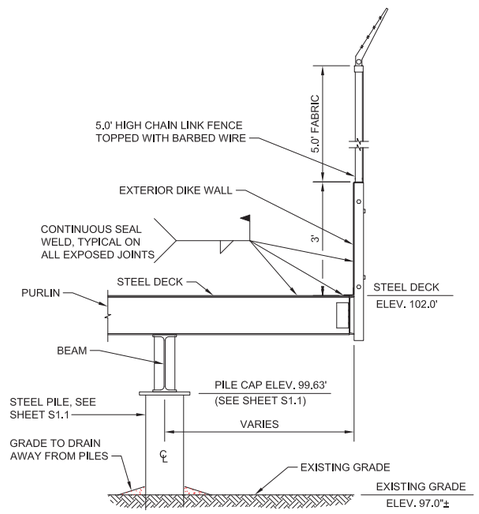
6 C2.1 MARINE HEADER DETAIL - SECTION

SCALE: 1" = 2'



7 C2.1 DRIP BOX DETAIL

SCALE: 1" = 3'



8 C2.1 DIKE WALL SECTION

SCALE: 1" = 2'

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KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS REV	DATE	DESCRIPTION

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STATE OF ALASKA 49TH
David Blaine Hardy
CE-14480
REGISTERED PROFESSIONAL ENGINEER

UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DBH
CHECKED BY: DBH
JOB NUMBER: 70183.15

DRAWING TITLE:
DETAILS

C2.1

SHEET | OF 41

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PRINTED: 03/21/2017 17:12 David.Hardy LAYOUT: C2.1 XREFS: 70183.15 TITLE BLOCK.DWG IMAGES: HARDY 3-16-17.TIF OEN 03-16-2017.JPG

SCHEDULE AND LEGEND

VALVE & PUMP TAG SCHEDULE

VALVE & PUMP TAGS - 3"x5"x.08" ALUMINUM, 3/16" HOLES IN ALL FOUR CORNERS, BLACK GERBER THERMAL TRANSFER FILM PRINTED LETTERS ON GERBER 220 HIGH PERFORMANCE VINYL BACKGROUND, COLOR AS INDICATED, ONE SIDE ONLY. WARNING LIGHTS OR EQUAL.

INSTALLATION - SECURE EACH TAG TIGHT TO VALVE, PIPE, OR DEVICE WITH STAINLESS STEEL CABLE TIES THROUGH ALL FOUR CORNERS.

TOMATO RED (KLTD - UNLEADED GASOLINE)

11 "NORMALLY CLOSED, OPEN ONLY FOR BARGE DELIVERY"
12 "NORMALLY CLOSED, OPEN ONLY FOR TANK FILL AND ISSUE"
13 "A-1, ACTUATED BALL VALVE FOR TP-1"
14 "TP-1, TRANSFER PUMP FOR CORPORATION DISPENSING TANK FILL"
15 "NORMALLY OPEN, CLOSE ONLY FOR MAINTENANCE"
16 "NORMALLY CLOSED, PRESSURE TEST CONNECTION"
17 "NORMALLY CLOSED, TANK BOTTOM LEAK DETECTION PIPE"

BEIGE (KLTD - FUEL OIL)

21 "NORMALLY CLOSED, OPEN ONLY FOR BARGE DELIVERY TO KLTD TANKS"
22 "NORMALLY CLOSED, OPEN ONLY FOR TANK FILL AND ISSUE"
23 "A-2, ACTUATED BALL VALVE FOR TP-2"
24 "TP-2, TRANSFER PUMP FOR CORPORATION DISPENSING TANK FILL"
25 "NORMALLY OPEN, CLOSE ONLY FOR MAINTENANCE"
26 "NORMALLY CLOSED, PRESSURE TEST CONNECTION"
27 "NORMALLY CLOSED, TANK BOTTOM LEAK DETECTION PIPE"

APPLE GREEN (KLP - FUEL OIL)

31 "NORMALLY CLOSED, OPEN ONLY FOR BARGE DELIVERY"
32 "NORMALLY CLOSED, OPEN FOR KLP AND KLTD BARGE DELIVERY"
33 "NORMALLY CLOSED, OPEN ONLY FOR TANK FILL AND ISSUE"
34 "A-3, ACTUATED BALL VALVE FOR DP-1"
35 "DP-1 DISTRIBUTION PUMP FOR COUNCIL TANK FILL"
36 "NORMALLY OPEN, CLOSE ONLY FOR MAINTENANCE"
37 "A-4, ACTUATED BALL VALVE FOR POWER PLANT DAY TANK FILL"
38 "NORMALLY CLOSED, PRESSURE TEST CONNECTION"
39 "NORMALLY CLOSED, TANK BOTTOM LEAK DETECTION PIPE"

VIOLET (LKSD - FUEL OIL)

41 "NORMALLY CLOSED, OPEN ONLY FOR BARGE DELIVERY TO LKSD TANKS"

WARNING SIGN & INFORMATIONAL PLACARD SCHEDULE:

WARNING SIGNS & INFORMATIONAL PLACARDS - PROVIDE ALL SIGNS INDICATED IN THE SCHEDULE BELOW, QUANTITY & LOCATION AS INDICATED ON DRAWINGS. ALL SIGNS SHALL BE 0.08" ALUMINUM PLATE,10"x14" UNLESS INDICATED OTHERWISE OR REQUIRED TO BE LARGER FOR SPECIFIED LETTER SIZE. PROVIDE 3/16" HOLES IN ALL FOUR CORNERS. WHITE NON-REFLECTIVE VINYL BACKGROUND, 3M 3650-10, WITH 3M SERIES 225 HIGH PERFORMANCE VINYL LETTERS, ONE SIDE ONLY. WARNING LIGHTS OR EQUAL.

WARNING SIGNS - RED LETTERING ON WHITE BACKGROUND.

A "DANGER - FLAMMABLE, NO SMOKING" (3" HIGH 1/2" STROKE LETTERS-24"x18")
B "IN CASE OF SPILL CALL DEC 1-800-478-9300"
C "DANGEROUS CARGO, NO VISITORS, NO SMOKING, NO OPEN LIGHTS" (3" HIGH 1/2" STROKE LETTERS - 36"x24")
D "DISPENSING INTO UNAPPROVED CONTAINERS PROHIBITED"
E "STOP YOUR MOTOR"
F "FUEL SYSTEM EMERGENCY SHUT OFF" (6"X12")
G "IN CASE OF FIRE OR SPILL TURN OFF MAIN BREAKER"

INFORMATIONAL PLACARDS - BLACK LETTERING ON WHITE BACKGROUND.

H "CLOSE & LOCK BULK TANK MAIN VALVES AFTER EACH TRANSFER"
I "TURN OFF CONTROL PANEL POWER EACH NIGHT"
J "PRIOR TO FILLING BULK TANKS CEASE TRANSFER OPERATIONS"
K "DISPENSING NOT PERMITTED WHILE DISPENSING TANK BEING FILLED"
L
1. DISCHARGE YOUR STATIC ELECTRICITY BEFORE FUELING BY TOUCHING A METAL SURFACE AWAY FROM THE NOZZLE.
2. TO PREVENT STATIC CHARGE, DO NOT REENTER YOUR VEHICLE WHILE GASOLINE IS PUMPING.
3. IF A FIRE STARTS, DO NOT REMOVE NOZZLE ---- BACK AWAY IMMEDIATELY.
4. IT IS UNLAWFUL AND DANGEROUS TO DISPENSE GASOLINE INTO UNAPPROVED CONTAINERS.
5. NO FILLING OF PORTABLE CONTAINERS IN OR ON A MOTOR VEHICLE. PLACE CONTAINER ON GROUND BEFORE FILLING.

INSTALLATION - QUANTITY AND LOCATION OF SIGNS IS SHOWN ON PIPING SCHEMATIC ON SHEET M1.1. ATTACH TO FENCING WITH HOG RINGS OR STAINLESS STEEL CABLE TIES. ATTACH TO STRUCTURES WITH STAINLESS STEEL SCREWS, LAGS OR BOLTS.

ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE
ADEC	ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
API	AMERICAN PETROLEUM INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
AWPA	AMERICAN WOOD PRESERVERS ASSOCIATION
AWS	AMERICAN WELDING SOCIETY
BFU	BULK FUEL UPGRADE
BOP	BOTTOM OF PIPE
BTM	BOTTOM
BTU	BRITISH THERMAL UNITS
℄	CENTER LINE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
DFT	DRY FILM THICKNESS
DIA	DIAMETER
DP	DISTRIBUTION PUMP
EG	EXISTING GRADE
ELEV	ELEVATION
EPA	ENVIRONMENTAL PROTECTION AGENCY
F	FAHRENHEIT
FG	FINISH GRADE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FPT	FEMALE PIPE THREAD
FT	FEET
GA	GAUGE
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
HDG	HOT DIP GALVANIZED
HP	HORSEPOWER
HR	HOUR
IAW	IN ACCORDANCE WITH
IF	INSULATING FLANGE
KLTD	KUGKAKTLIK LIMITED
KLP	KIPNUK LIGHT PLANT
KTC	KIPNUK TRADITIONAL COUNCIL
L	ANGLE IRON
LB	POUND
LF	LINEAR FEET
LKSD	LOWER KUSKOKWIM SCHOOL DISTRICT
MAX	MAXIMUM
MECH	MECHANICAL
MIL	0.001 INCH
MIN	MINIMUM
MO.	MODEL
MPT	MALE PIPE THREAD
N.C.	NORMALLY CLOSED
NFS	NON-FROST SUSCEPTIBLE
N.O.	NORMALLY OPEN
NO.	NUMBER
NPS	NOMINAL PIPE SIZE
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OZ	OUNCE
₹	STEEL PLATE
PS	PIPE SUPPORT
PSF	POUND PER SQUARE FOOT
PSIG	POUND PER SQUARE INCH GAUGE
PT	PRESSURE TREATED
ROW	RIGHT OF WAY
RPSU	RURAL POWER SUPPLY UPGRADE
SCH	SCHEDULE
SIM	SIMILAR
SS	STAINLESS STEEL
SSPC	STEEL STRUCTURES PAINTING COUNCIL
STA	STATION
STD	STANDARD
SY	SQUARE YARD
TP	TRANSFER PUMP
TS	TUBE STEEL
TYP	TYPICAL
UHMWP	ULTRA HIGH MOLECULAR WEIGHT PLASTIC
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
W/	WITH
WP	WORKING PRESSURE
Ø	DIAMETER

BID SCHEDULE NOTES:

1. BASE BID: INCLUDES COUNCIL BULK STORAGE TANKS AND APPURTENANCES, DIESEL MARINE HEADER PIPING AND VALVE MANIFOLDS, BULK TANK MANIFOLD PIPING, DISTRIBUTION PUMP ENCLOSURE AND EQUIPMENT, AND POWER PLANT INTERMEDIATE TANK AND APPURTENANCES. ALL BULK TANK FARM SIGNAGE WILL BE PROVIDED AS PART OF THE BASE BID, PLUS SIGNAGE ASSOCIATED WITH THE COUNCIL FUEL SYSTEM.

2. ADDITIVE ALTERNATE #1: INCLUDES CORPORATION BULK STORAGE TANKS AND APPURTENANCES, GASOLINE MARINE HEADER, GASOLINE AND DIESEL BULK TANK MANIFOLD PIPING, AND ASSOCIATED SIGNAGE. THIS WORK ALSO INCLUDES BLIND FLANGES FOR FUTURE TRANSFER PUMP CONNECTIONS IF ADDITIVE ALTERNATE #2 IS NOT AWARDED.

3. ADDITIVE ALTERNATE #2: INCLUDES CORPORATION DISPENSING TANK, TRANSFER PUMP ENCLOSURES, DISPENSING STATION ENCLOSURE, ALL ASSOCIATED EQUIPMENT AND APPURTENANCES, ASSOCIATED MANIFOLD PIPING, DISPENSING STATION PIPELINES, AND ASSOCIATED SIGNAGE.

4. THE PIPING SCHEMATIC ON SHEET M1.1 HAS BEEN CLOUDED AND ANNOTATED TO DELINEATE WORK INCLUDED IN THE BASE BID, ADDITIVE ALTERNATE #1, AND ADDITIVE ALTERNATE #2.

5. SEE SPECIFICATIONS SECTION 01 11 13 SUMMARY OF WORK FOR FURTHER CLARIFICATION ON BID ALTERNATES.

LEGEND

- FLANGED BALL VALVE
- FLANGED CHECK VALVE
- FLANGED FLEX FITTING
- FLANGED EXPANSION JOINT
- VERTICAL TRANSITION (PIPE UP)
- VERTICAL TRANSITION (PIPE DOWN)
- ACTUATED BALL VALVE
- CAM LOCK COUPLING
- HOSE REEL
- EXTENT OF REMOVAL
- CONNECT TO EXISTING
- METER
- FLOW DIRECTION
- FLANGE CONNECTION
- FLANGE W/ BLIND
- UNION
- HIGH LEVEL VALVE
- FLANGED Y-STRAINER (MESH SIZE)
- FLANGED BASKET STRAINER (MESH SIZE)
- FUSIBLE VALVE
- REDUCER
- FILTER
- PRESSURE GAUGE (0-150 PSI) OR PRESSURE VACUUM GAUGE (-30" HG-100 PSI)
- TRANSFER OR DISTRIBUTION PUMP
- SUBMERSIBLE PUMP
- POPPET TYPE CHECK VALVE
- SHEAR VALVE
- FOOT VALVE
- DOUBLE BLOCK AND BLEED VALVE
- PLAN / ELEVATION — PRESSURE RELIEF VALVE, SYMBOL INDICATES DIRECTION OF FLOW
- ANTI-SIPHON VALVE

PUMP SCHEDULE

LABEL	FUNCTION	STYLE	MOTOR	DESIGN POINT
TP-1	CORPORATION GASOLINE TRANSFER PUMP	CENTRIFUGAL	1HP, 240V/1PH	40 GPM @ 36 FT
TP-2	CORPORATION DIESEL TRANSFER PUMP	CENTRIFUGAL	1HP, 240V/1PH	40 GPM @ 36 FT
SP-1	CORPORTATION GASOLINE DISPENSING	SUBMERSIBLE	3/4 HP, 240V/1PH	10 GPM @ 80 FT
SP-2	CORPORATION DIESEL DISPENSING	SUBMERSIBLE	3/4HP, 240V/1PH	10 GPM @ 80 FT
DP-1	COUNCIL DISTRIBUTION PUMP	CENTRIFUGAL	2HP, 240V/1PH	80 GPM @ 70 FT

KIPNUK LIGHT PLANT PROPOSED TANK SCHEDULE

TANK	CAPACITY (GALLONS)	PRODUCT
KLP-101	71,500	DIESEL
KLP-102	71,500	DIESEL
KLP-103	71,500	DIESEL
KLP-104	6000	DIESEL

KUGKAKTLIK LTD. TANK SCHEDULE

TANK	CAPACITY (GALLONS)	PRODUCT
KLTD - 201	71,500	GASOLINE
KLTD - 202	71,500	GASOLINE
KLTD - 203	3,000/3,000	DIESEL/GAS
KLTD - 301	71,500	DIESEL
KLTD - 302	71,500	DIESEL
KLTD - 303	71,500	DIESEL

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES
KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS	
REV	DATE
	DESCRIPTION

VERIFY SCALES
0 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA 49TH
Glen M. Oen
3/16/2017
ME-8296
REGISTERED PROFESSIONAL ENGINEER
UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DBH
CHECKED BY: DBH
JOB NUMBER: 70183.15

DRAWING TITLE:
SCHEDULES AND LEGEND

M0.1

SHEET 9 OF 41

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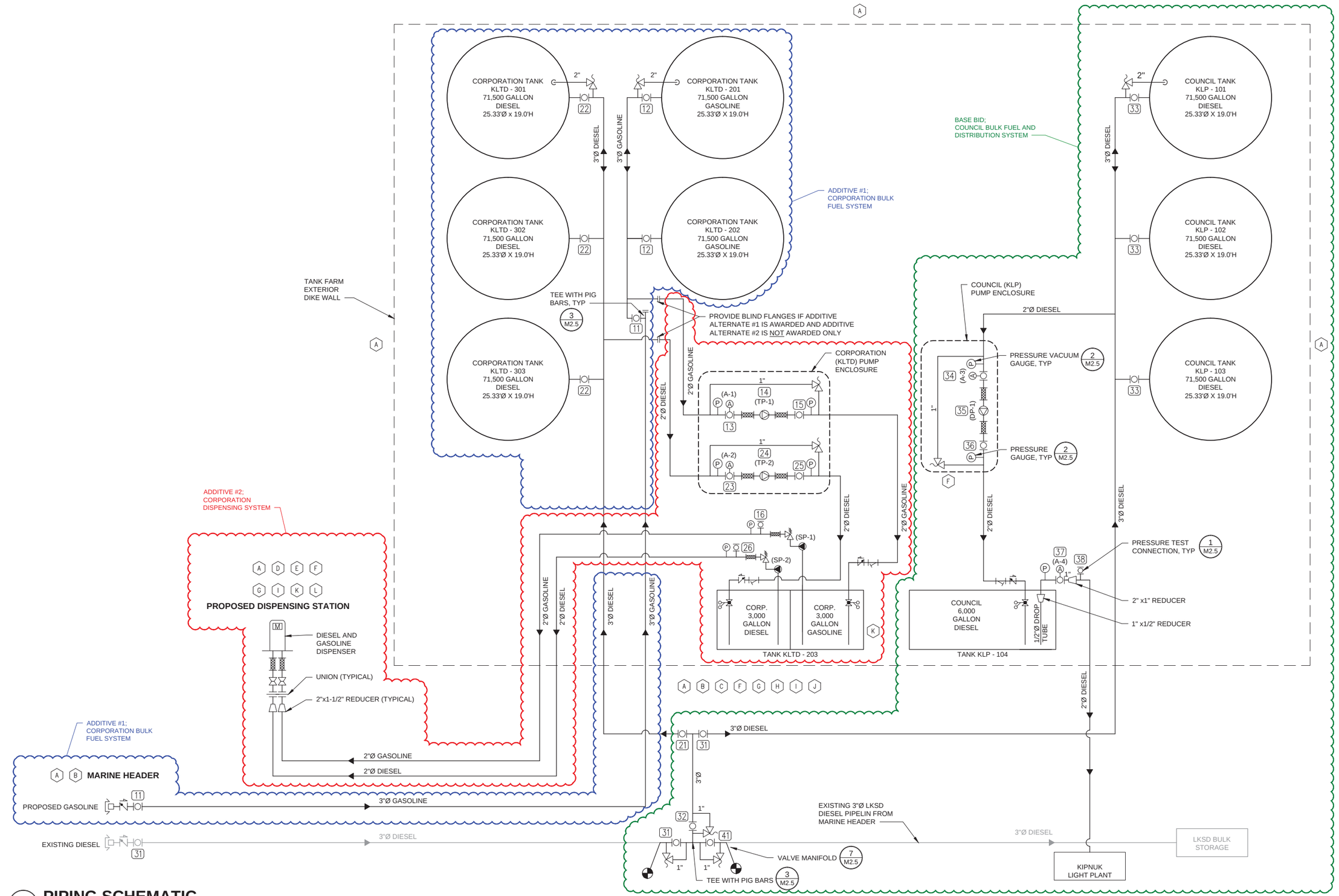

1 M1.1 **PIPING SCHEMATIC**

SCALE: NTS

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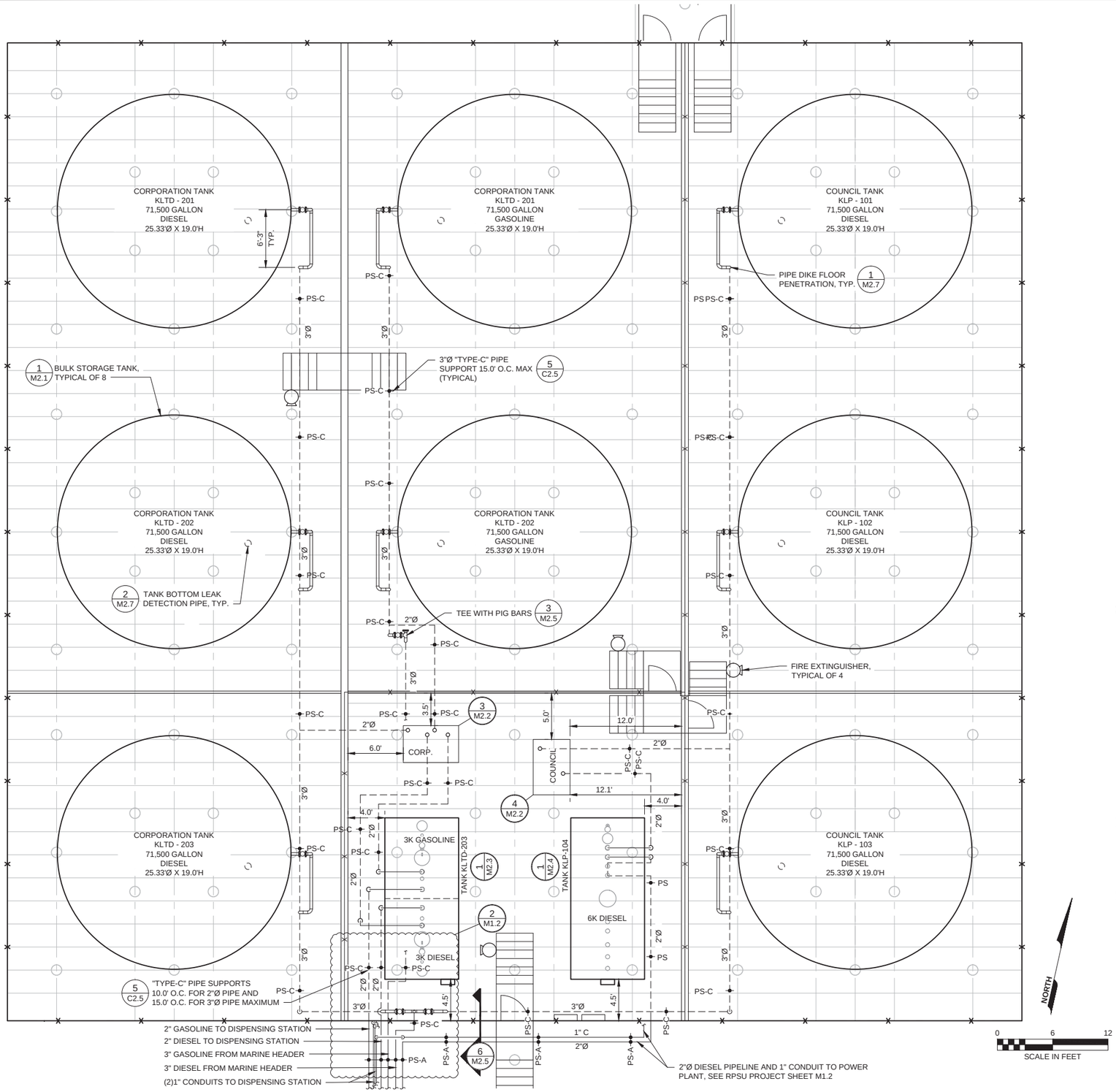
DRAWING TITLE:
PIPING SCHEMATIC

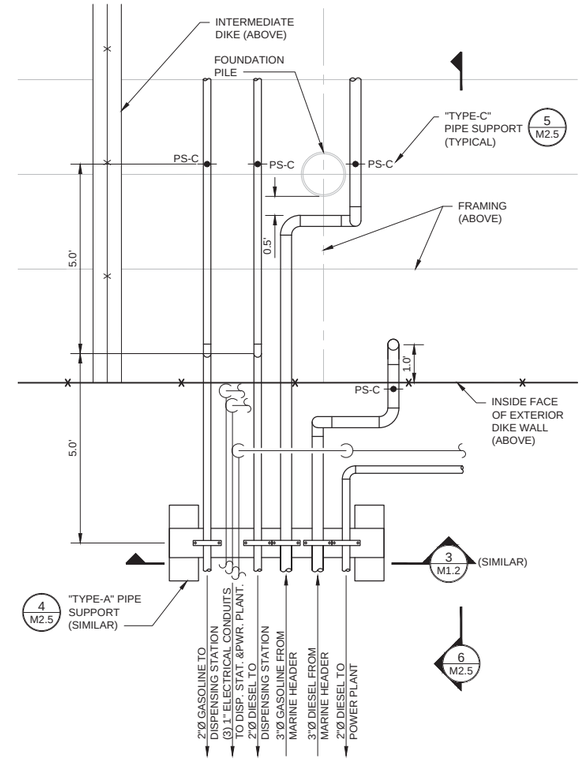
M1.1

SHEET 10 OF 41



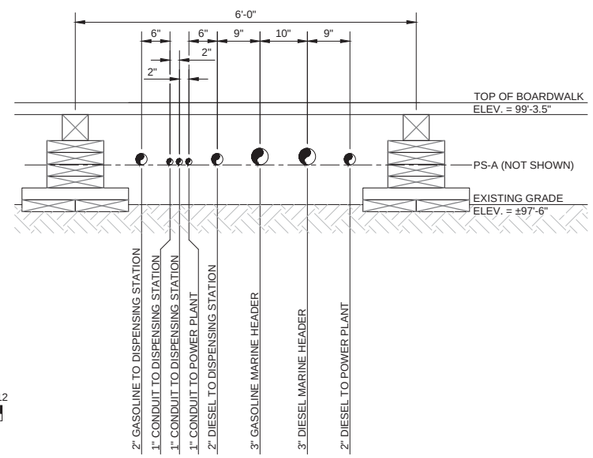
1 M1.2 TANK FARM PIPING PLAN

SCALE: 1" = 6'



2 M1.2 BELOW DECK PIPING PLAN

SCALE: 1" = 2'



3 M1.2 SECTION AT BOARDWALK

SCALE: 3/4" = 1'-0"

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REGISTERED PROFESSIONAL ENGINEER

UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DBH
CHECKED BY: DBH
JOB NUMBER: 70183.15

DRAWING TITLE:
TANK FARM LAYOUT AND PIPING PLAN

M1.2

SHEET 11 OF 41

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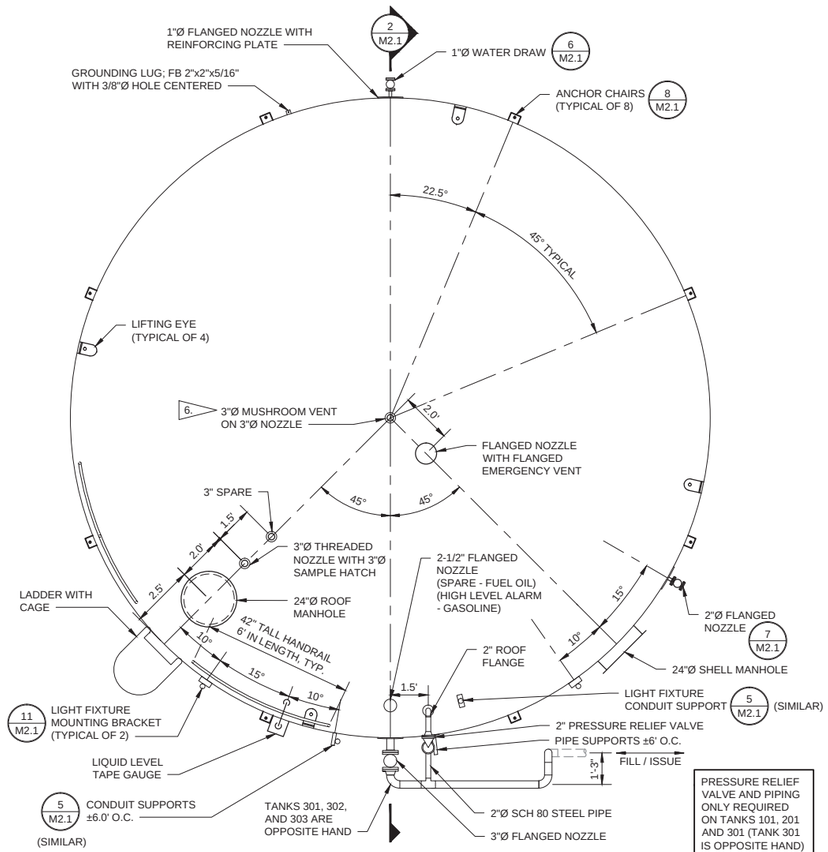
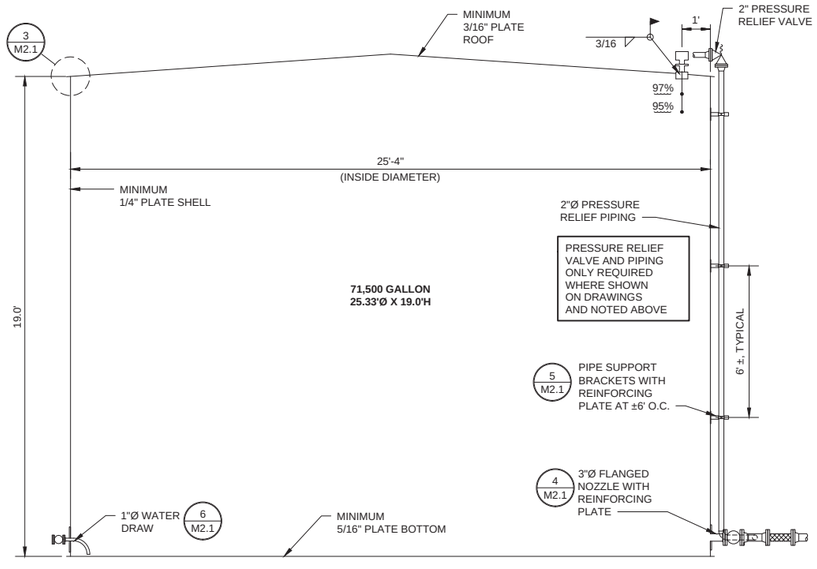


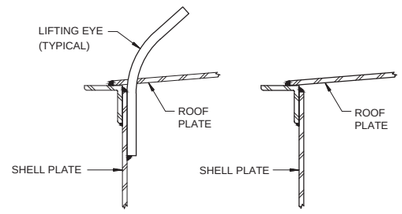
1 M2.1 ROOF LAYOUT PLAN

SCALE: 1" = 3'



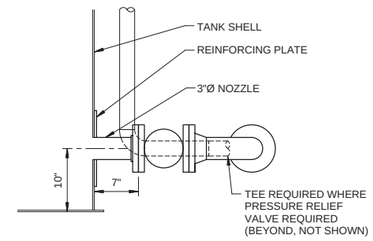
2 M2.1 TANK SECTION

SCALE: 1" = 3'



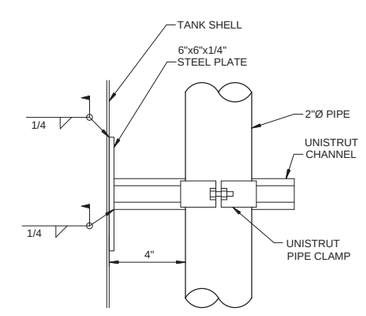
3 M2.1 ROOF CONNECTION DETAILS

SCALE: N.T.S.



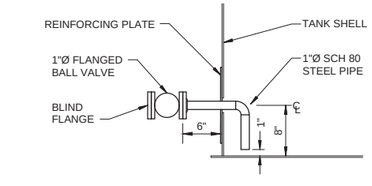
4 M2.1 FILL/ISSUE DETAIL

SCALE: N.T.S.



5 M2.1 PIPE SUPPORT DETAIL

SCALE: N.T.S.

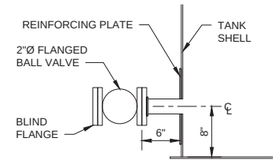


6 M2.1 WATER DRAW DETAIL

SCALE: N.T.S.

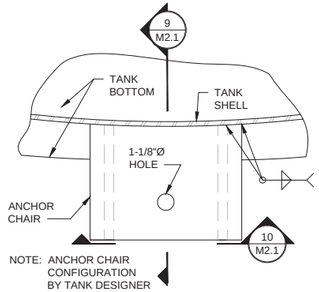
CONTROL LOGIC:

1. CRITICAL HIGH LEVEL SWITCH: ACTIVATES CRITICAL HIGH LEVEL ALARM WHEN LIQUID REACHES 97% OF TANK CAPACITY.
2. HIGH LEVEL SWITCH: ACTIVATES HIGH LEVEL ALARM WHEN LIQUID LEVEL REACHES 95% OF TANK CAPACITY.



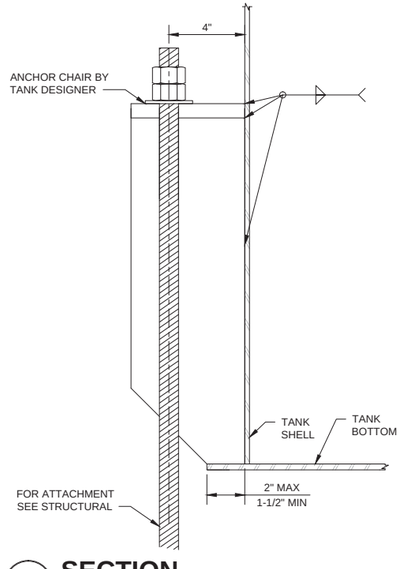
7 M2.1 AUXILIARY NOZZLE

SCALE: 1" = 1'



8 M2.1 ANCHOR CHAIR - PLAN VIEW

SCALE: 3" = 1'-0"

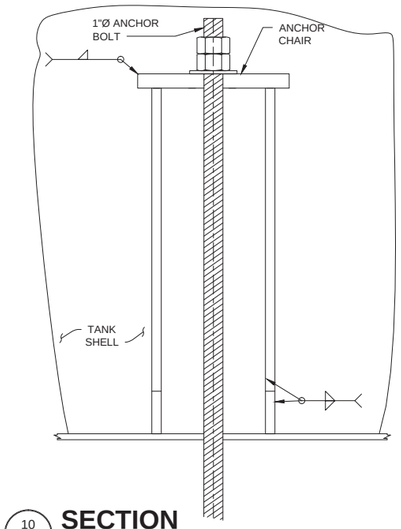


9 M2.1 SECTION

SCALE: 3" = 1'-0"

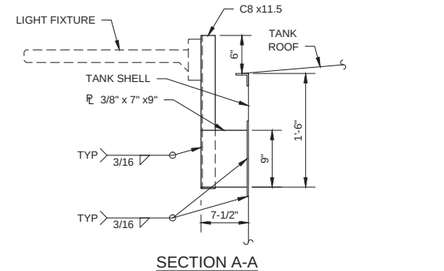
NOTES:

1. TANK IS TO BE DESIGNED, CONSTRUCTED, TESTED, AND INSPECTED IN ACCORDANCE WITH API 650. ALL WELDING, PLATE THICKNESSES, AND MEMBERS ARE TO BE SIZED BY THE CONTRACTOR'S TANK DESIGNER.
2. ALL TANKS ARE TO BE LABELED IN ACCORDANCE WITH THE INTERNATIONAL FIRE CODE CHAPTER 34 AS TO PRODUCT STORED AND STORAGE CAPACITY. PROVIDE NFPA 704 PLACARDING, TANK DEPTH-TO-VOLUME CHART, AND OTHER SIGNAGE AS SPECIFIED.
3. HYDROSTATICALLY TEST ALL TANKS AFTER INSTALLATION IN ACCORDANCE WITH API 650.
4. SHOP FABRICATED TANK COATINGS: TANK EXTERIOR INCLUDING MANHOLES, NOZZLES, PIPE AND CONDUIT SUPPORTS, AND PIPING SHALL BE SAND BLASTED TO SSPC SP-10 (NEAR WHITE BLAST), PRIMED WITH DEVOE CATHA-COAT 302H (3-4 MILS DFT), HAVE A DEVOE BAR-RUST 236 INTERMEDIATE COATING (4-6 MILS DFT), AND A DEVOE DEVTHANE 389 TOP COAT (2-3 MILS DFT) IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. COLOR SHALL BE WHITE.
5. ALL PIPING ATTACHED TO AND PROVIDED WITH TANK SHALL BE SCHEDULE 40 WITH WELDED JOINTS UNLESS OTHERWISE SHOWN.
6. ALL GASOLINE TANKS SHALL BE EQUIPPED WITH A PRESSURE/ VACUUM VENT IN PLACE OF THE MUSHROOM VENT. VENT TO HAVE THREADED CONNECTION, CAST LOW COPPER ALUMINUM BODY, SET TO OPEN AT 1/2 OZ/SQ-IN PRESSURE OR VACUUM. SHAND AND JURS MODEL 94020-13-01-01-05, OR APPROVED EQUAL.
7. LIFTING EYES ARE REQUIRED FOR SHOP FABRICATED TANKS.

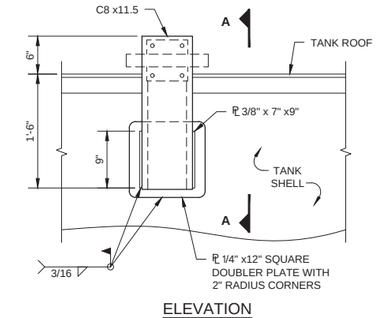


10 M2.1 SECTION

SCALE: 3" = 1'-0"



SECTION A-A



ELEVATION

11 M2.1 LIGHT FIXTURE BRACKET

SCALE: 1" = 1'-0"

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS REV	DATE	DESCRIPTION

VERIFY SCALES
0 ——— 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA 49 TH
Glen M. Oen
3/16/2017
ME-8296
REGISTERED PROFESSIONAL ENGINEER
UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DBH
CHECKED BY: DBH
JOB NUMBER: 70183.15

DRAWING TITLE:
VERTICAL TANK DETAILS

M2.1

SHEET 12 OF 41

FILE: M:\Design\Engineering\PROJECTS\70183.15 Kipnuk BFU Design & CA\DESIGN\Drawings\MECH\70183.15 M2.1 BFU 71K Vertical Tank.dwg
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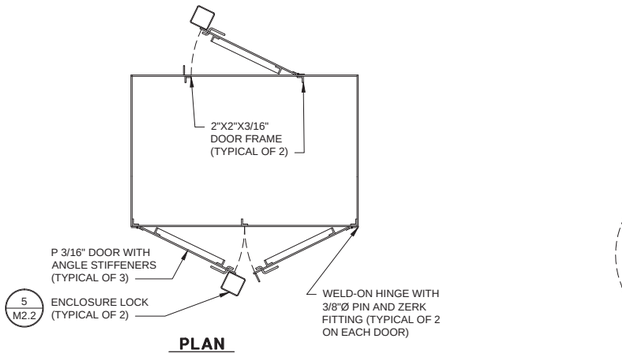
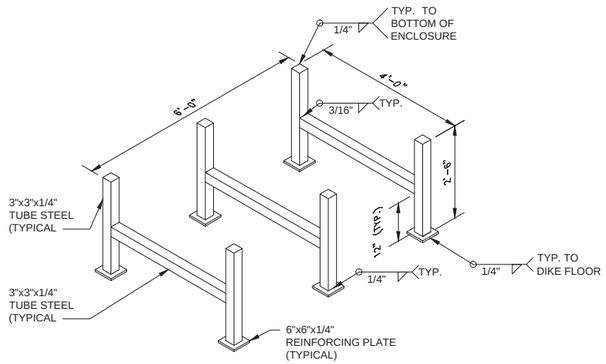
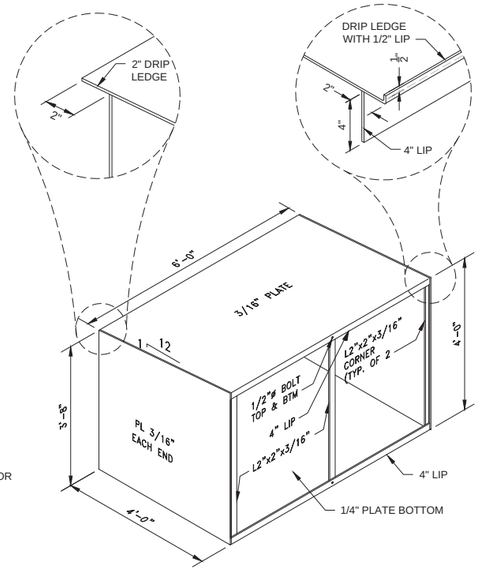
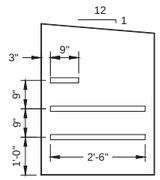


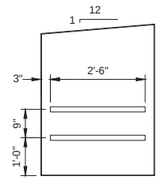
PLAN







SECTION A-A



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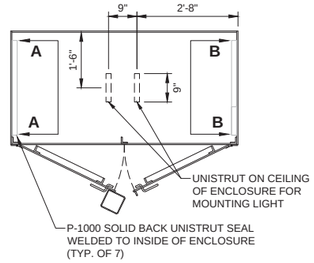


PLAN

PUMP ENCLOSURE

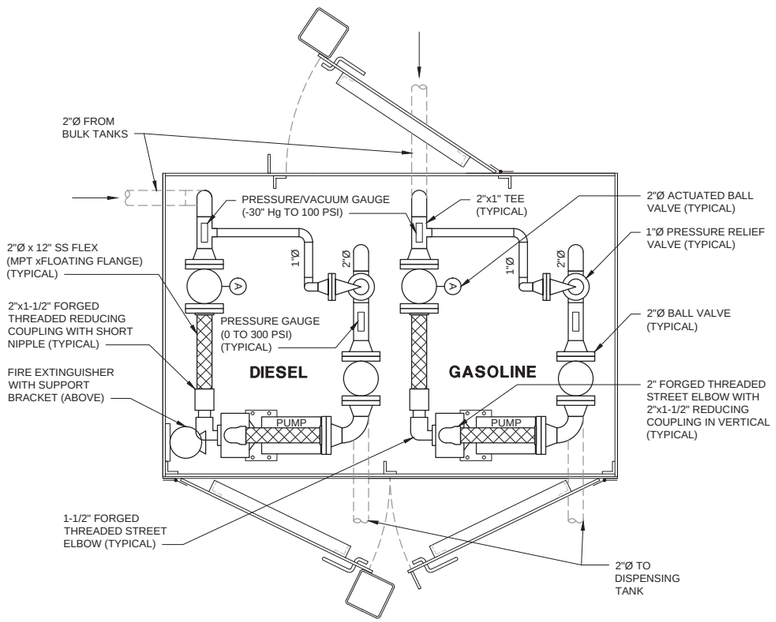
NOTES

1. ALL CONNECTIONS SHALL BE CONTINUOUSLY WELDED UNLESS OTHERWISE NOTED.
2. ENCLOSURE SHALL BE WELDED TO BASE LEGS (TYPICAL OF 6).
3. ENCLOSURE SHALL BE FROM A36 STEEL.
4. ENCLOSURE COATING: INTERIOR AND EXTERIOR OF ENCLOSURE, AND ENCLOSURE BASE SHALL BE SAND BLASTED TO SSPC-SP-10 (NEAR WHITE). FINISHED COLOR SHALL BE WHITE. PROVIDE ONE GALLON OF TOUCH-UP PAINT. COAT WITH THE FOLLOWING SYSTEM:

   PRIMED WITH DEVOE CATHA-COAT 302H (3-4 MILS DFT), INTERMEDIATE COATED WITH DEVOE BAR RUST 233H (4-6 MILS DFT), AND TOP COATED WITH DEVOE DEVTHANE 389 (2-3 MILS DFT).
5. CONTINUOUSLY WELD ALL SECTIONS OF PLATE AT CORNERS.
6. BOTTOM 4" OF ENCLOSURE FLOOR SHALL BE LIQUID TIGHT. PROVIDE TWO 1-1/4"Ø THREADED DRAIN PLUGS IN THE BOTTOM OF ENCLOSURE.
7. REINFORCE FLOOR FOR MOUNTING ALL EQUIPMENT AND PIPE SUPPORTS. PROVIDE INVERTED CHANNELS WELDED TO THE BOTTOM OF ENCLOSURE WITH 3" MINIMUM CLEARANCE BETWEEN BOTTOM OF ENCLOSURE AND CHANNEL FOR ACCESS TO MOUNTING BOLTS. PUMP MOTORS TO BE 4.0" ABOVE BOTTOM OF ENCLOSURE.
8. ENCLOSURE FABRICATOR SHALL SUBMIT SHOP DRAWINGS.
9. SHOP FABRICATE ENCLOSURE WITH ALL PIPING, EQUIPMENT AND SUPPORTS INSTALLED INSIDE ENCLOSURE. PRESSURE TEST AND ASSEMBLE ALL PIPING PRIOR TO APPLYING COATINGS.

1 M2.2 PUMP ENCLOSURE STRUCTURE DETAILS

SCALE: 1" = 2'

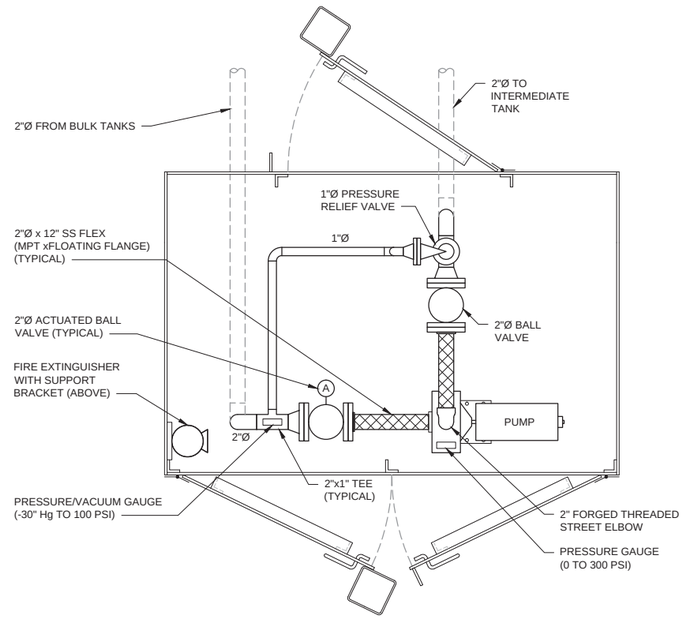


3 M2.2 CORPORATION PUMP ENCLOSURE DETAIL

SCALE: 1" = 1'

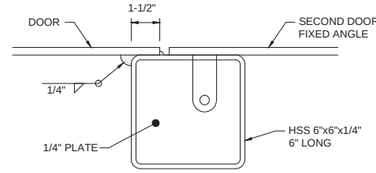
2 M2.2 PUMP ENCLOSURE CONDUIT SUPPORT DETAIL

SCALE: 1" = 2'

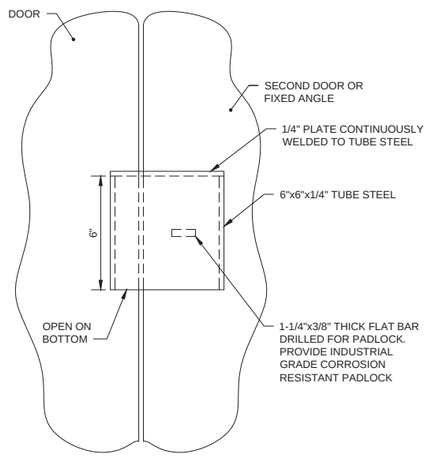


4 M2.2 COUNCIL PUMP ENCLOSURE DETAIL

SCALE: 1" = 1'



PLAN



5 M2.2 ENCLOSURE LOCK DETAIL

SCALE: 1" = 4"

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES
KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS REV	DATE	DESCRIPTION

VERIFY SCALES
0 ——— 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA 49 TH
Glen M. Oen
3/16/2017
ME-8296
REGISTERED PROFESSIONAL ENGINEER
UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DBH
CHECKED BY: DBH
JOB NUMBER: 70183.15

DRAWING TITLE:
PUMP ENCLOSURE DETAILS

M2.2

SHEET 13 OF 41

FILE: M:\Design\Engineering\PROJECTS\70183.15 Kipnuk BFU Design & CA\DESIGN\Drawings\MECH\70183.15 M2.2 Enclosure Details.dwg
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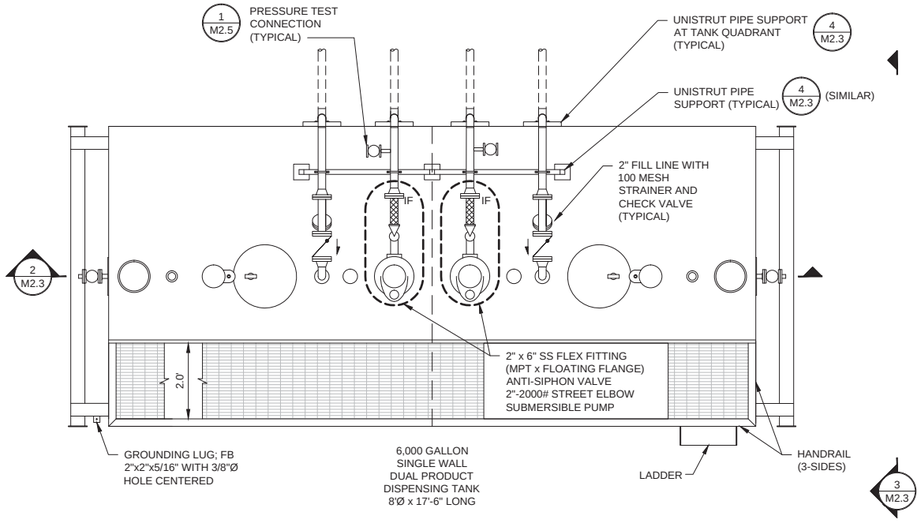
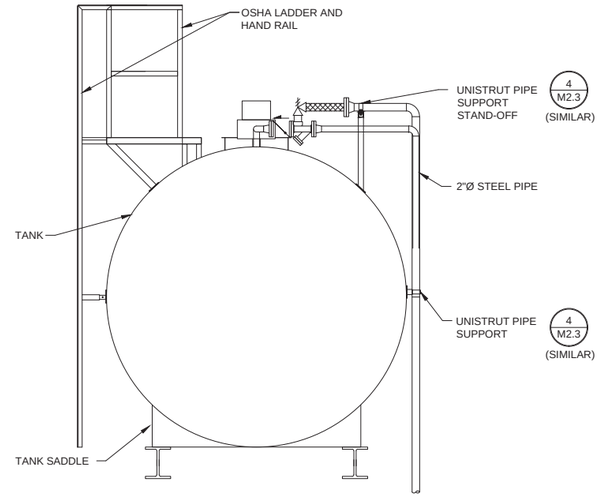


1 M2.3 6,000 GALLON DUAL PRODUCT DISPENSING TANK - PLAN

SCALE: 1" = 2'



3 M2.3 6,000 GALLON DUAL PRODUCT DISPENSING TANK - END VIEW

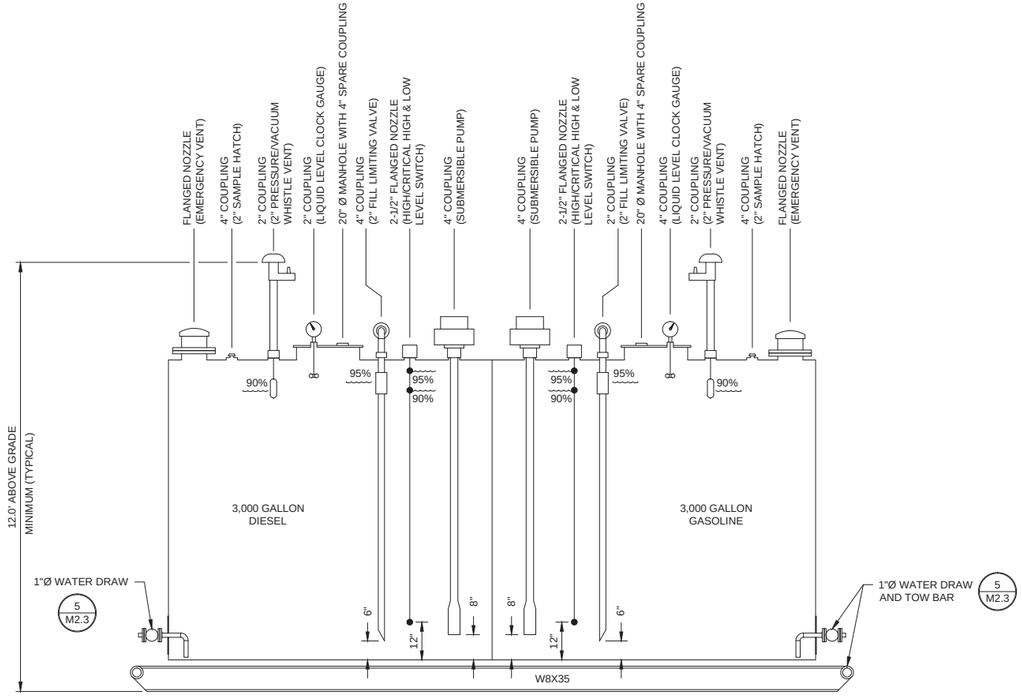
SCALE: 1" = 2'

NOTES:

1. TANK SHALL BE SHOP FABRICATED, DESIGNED, CONSTRUCTED, TESTED, AND INSPECTED IN ACCORDANCE WITH UL STANDARD 142.
2. TANK IS TO BE LABELED IN ACCORDANCE WITH THE INTERNATIONAL FIRE CODE CHAPTURE 22, AND CHAPTER 34 AS TO PRODUCT STORED AND STORAGE CAPACITY. PROVIDE NFPA 704 PLACARDING, TANK DEPTH-TO-VOLUME CHART, AND OTHER SIGNAGE AS SPECIFIED.
3. PRESSURE TEST ALL TANKS AFTER INSTALLATION IN ACCORDANCE WITH THE INTERNATIONAL FIRE CODE AND UL STANDARD 142.
4. TANK COATINGS: TANK EXTERIOR INCLUDING SADDLES, SKIDS, PIPE AND CONDUIT SUPPORTS, AND PIPING SHALL BE SAND BLASTED TO SSPC SP-10 (NEAR WHITE BLAST), PRIMED WITH DEVOE CATHA-COAT 302H (3-4 MILS DFT), HAVE A DEVOE BAR-RUST 236 INTERMEDIATE COATING (4-6 MILS DFT), AND A DEVOE DEVTHANE 389 TOP COAT (2-3 MILS DFT) IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. COLOR SHALL BE WHITE.
5. ALL PIPING ATTACHED TO AND PROVIDED WITH TANK SHALL BE SCHEDULE 40 WITH WELDED JOINTS UNLESS OTHERWISE SHOWN.
6. LIFTING EYES ARE REQUIRED FOR TANK.

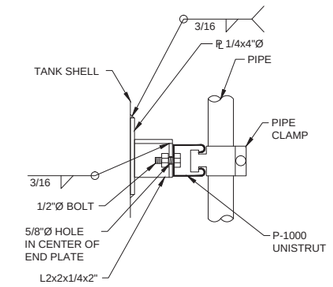
CONTROL LOGIC:

1. CRITICAL HIGH LEVEL SWITCH: SHUTS OFF CORPORATION TRANSFER PUMP AND ACTIVATES CRITICAL HIGH LEVEL ALARM WHEN LIQUID REACHES 95% OF TANK CAPACITY.
2. HIGH LEVEL SWITCH: SHUTS OFF CORPORATION TRANSFER PUMP AND ACTIVATES HIGH LEVEL ALARM WHEN LIQUID LEVEL REACHES 90% OF TANK CAPACITY.
3. LOW LEVEL SWITCH: SHUTS OFF SUBMERSIBLE PUMP WHEN LIQUID LEVEL DROPS TO 12 INCHES ABOVE BOTTOM OF TANK.
4. TRANSFER PUMP: SHUTS OFF VIA MANUALLY OPERATED SWITCH, TIMER, OR HIGH / CRITICAL HIGH LEVEL FLOAT SWITCH.
5. SUBMERSIBLE PUMP: TURNED ON BY NOZZLE HANG-UP SWITCH ON DISPENSER. TURNED OFF BY NOZZLE HANG-UP SWITCH OR BY LOW LEVEL FLOAT SWITCH.



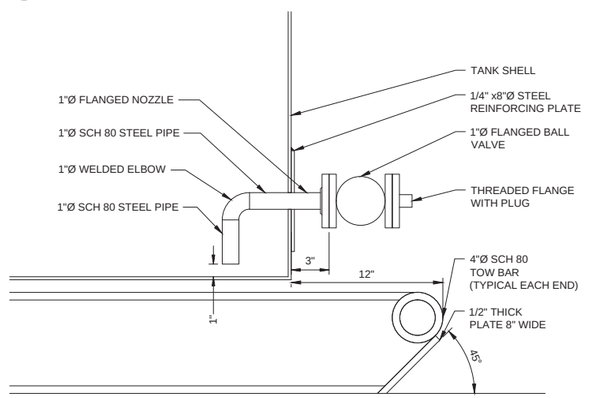
2 M2.3 6,000 GALLON DUAL PRODUCT DISPENSING TANK - INTERIOR SECTION

SCALE: 1" = 2'



4 M2.3 UNISTRUT PIPE SUPPORT

SCALE: 1" = 2'



5 M2.3 WATER DRAW AND TOW BAR DETAIL

SCALE: 1" = 2'

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS REV	DATE	DESCRIPTION

VERIFY SCALES
0 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA 49 TH
Glen M. Oen
3/16/2017
ME-8296
REGISTERED PROFESSIONAL ENGINEER

UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DBH
CHECKED BY: DBH
JOB NUMBER: 70183.15

DRAWING TITLE:
DUAL PRODUCT DISPENSING TANK

M2.3

SHEET 14 OF 41

FILE: M:\Design\Engineering\PROJECTS\70183.15 Kipnuk BFU Design & CA\DESIGN\Drawings\MECH\70183.15 M2.3 BFU 6,000 Gallon Dual Product Tank.dwg
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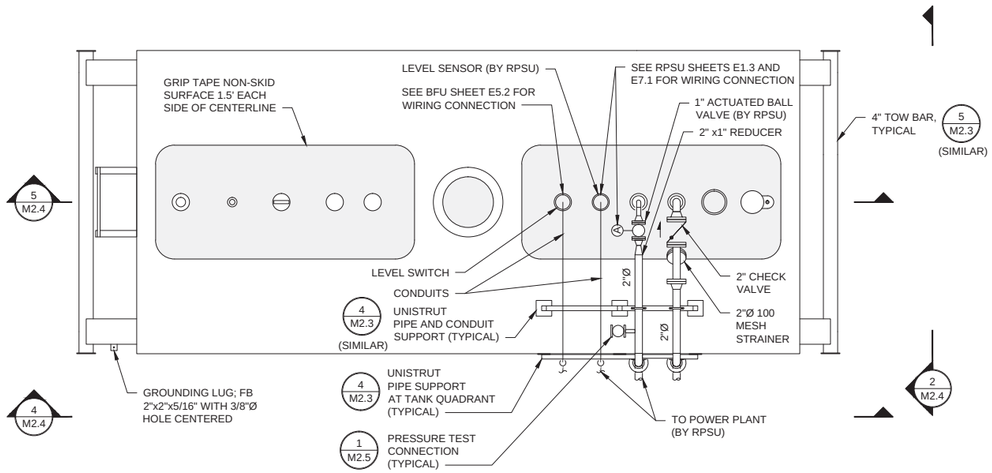
CONTROL LOGIC:

1. CRITICAL HIGH LEVEL SWITCH: SHUTS OFF COUNCIL TRANSFER PUMPS AND ACTIVATES CRITICAL HIGH LEVEL ALARM WHEN LIQUID REACHES 95% OF TANK CAPACITY.
2. HIGH LEVEL SWITCH: SHUTS OFF COUNCIL TRANSFER PUMPS AND ACTIVATES HIGH LEVEL ALARM WHEN LIQUID LEVEL REACHES 90% OF TANK CAPACITY.

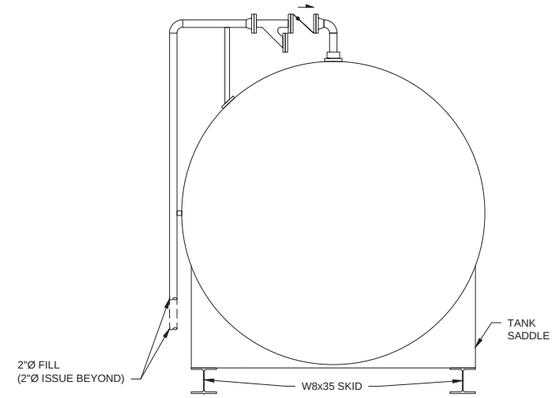
NOTES:

1. TANK SHALL BE SHOP FABRICATED, DESIGNED, CONSTRUCTED, TESTED, AND INSPECTED IN ACCORDANCE WITH UL STANDARD 142.
2. TANK IS TO BE LABELED IN ACCORDANCE WITH THE INTERNATIONAL FIRE CODE CHAPTER 34 AS TO PRODUCT STORED AND STORAGE CAPACITY. PROVIDE NFPA 704 PLACARDING, TANK DEPTH-TO-VOLUME CHART, AND OTHER SIGNAGE AS SPECIFIED.
3. PRESSURE TEST ALL TANKS AFTER INSTALLATION IN ACCORDANCE WITH THE INTERNATIONAL FIRE CODE AND UL STANDARD 142.
4. TANK COATINGS: TANK EXTERIOR INCLUDING SADDLES, SKIDS, PIPE AND CONDUIT SUPPORTS, AND PIPING SHALL BE SAND BLASTED TO SSPC SP-10 (NEAR WHITE BLAST), PRIMED WITH DEVOE CATHA-COAT 302H (3-4 MILS DFT), HAVE A DEVOE BAR-RUST 236 INTERMEDIATE COATING (4-6 MILS DFT), AND A DEVOE DEVTHANE 389 TOP COAT (2-3 MILS DFT) IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. COLOR SHALL BE WHITE.
5. ALL PIPING ATTACHED TO AND PROVIDED WITH TANK SHALL BE SCHEDULE 40 WITH WELDED JOINTS UNLESS OTHERWISE SHOWN.
6. LIFTING EYES ARE REQUIRED FOR TANK



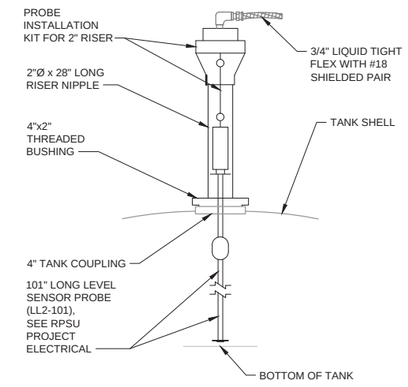
1 M2.4 6,000 GALLON TANK - PLAN

SCALE: 1" = 2'



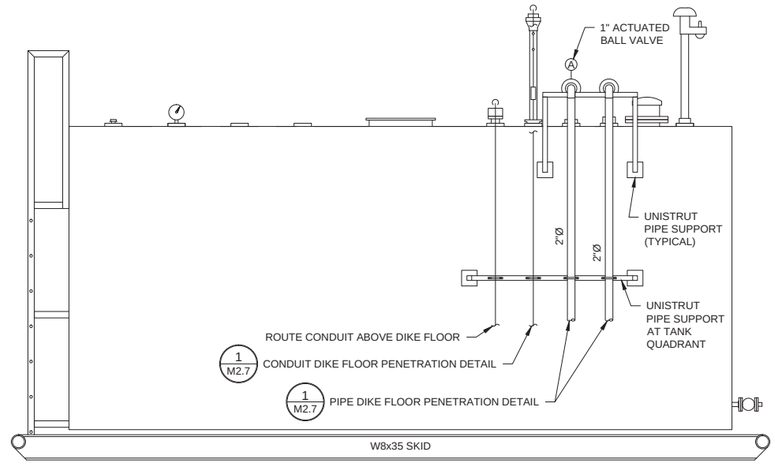
2 M2.4 6,000 GALLON TANK - END VIEW

SCALE: 1" = 2'



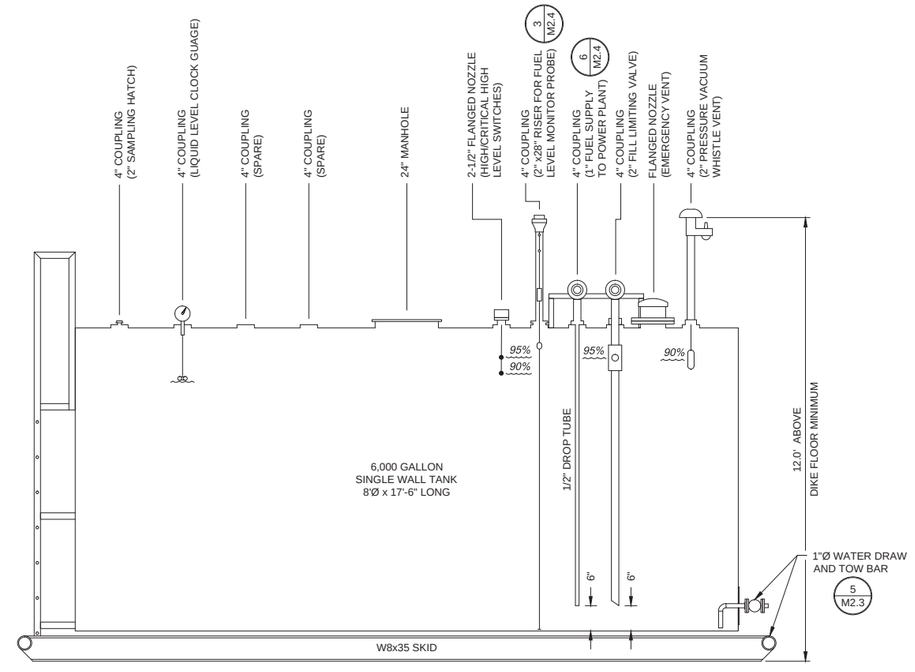
LEVEL SENSOR PROBE INSTALLTION

3 M2.4 SCALE: NONE



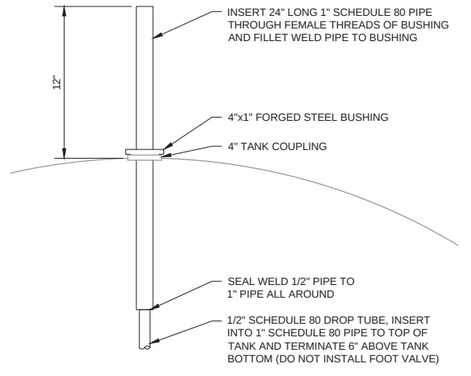
4 M2.4 6,000 GALLON TANK - EXTERIOR SECTION

SCALE: 1" = 2'



5 M2.4 6,000 GALLON TANK - INTERIOR SECTION

SCALE: 1" = 2'



DROP TUBE DETAIL

6 M2.4 SCALE: NONE

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

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REVISIONS REV	DATE	DESCRIPTION

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THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

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REGISTERED PROFESSIONAL ENGINEER

UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DBH
CHECKED BY: DBH
JOB NUMBER: 70183.15

DRAWING TITLE:
POWER PLANT
INTERMEDIATE TANK

M2.4

SHEET 15 OF 41

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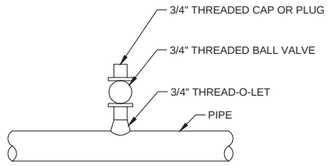
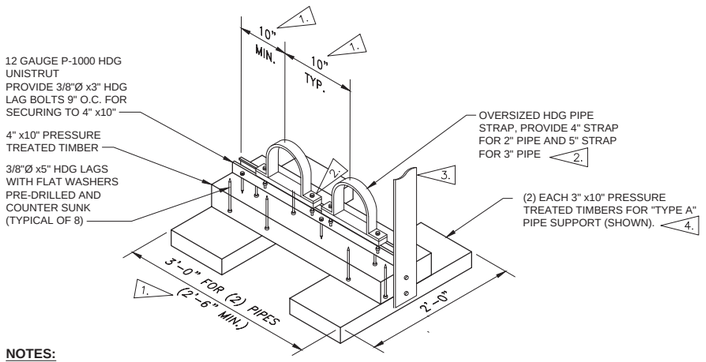


1 M2.5 PRESSURE GAUGE

SCALE: 2" = 1'

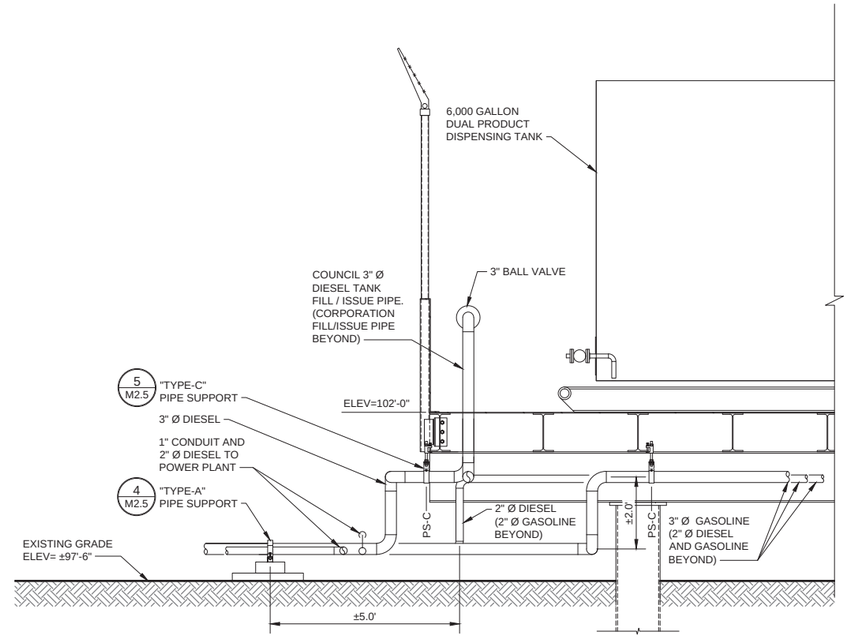


NOTES:

1. PROVIDE ADDITIONAL PIPE STRAPS FOR MORE THAN TWO PIPES AND INCREASE PIPE SUPPORT WIDTH. PIPE SUPPORT SPACING SHOWN IS FOR (2) 3"Ø PIPES, SEE DETAIL 3 / SHEET M1.2 FOR SPACING FOR OTHER PIPE SIZES AND CONDUIT. THE MINIMUM PIPE SUPPORT WIDTH IS 2'-6" FOR ONE PIPE.
2. UNISTRUT P2558 SERIES HDG PIPE STRAPS WITH 3/4" THICK UHMWP PIPE SLIDE PAD ATTACHED TO UNISTRUT CHANNEL WITH 3/8"Ø HDG PIPE STRAP BOLTS. PROVIDE 3/4" x1-3/4" CARBON BLACK UHMWP PIPE SLIDE PADS IN PRE-CUT LENGTHS PRE-DRILLED FOR EACH SIZE PIPE STRAP. ATTACH ELECTRICAL CONDUITS WITH UNISTRUT P1100 SERIES HDG CONDUIT CLAMPS.
3. FLEXIBLE MARKER: CARSONITE CTFM-072-04 YELLOW TUFF-FLEX MARKER WITH RSD30-12-02 YELLOW REFLECTORS APPLIED TO THE TOP OF THE MARKER, OR EQUAL. ATTACH MARKER TO TIMBER PIPE SUPPORTS WITH TWO 1/4" X2" HOT DIP GALVANIZED LAG BOLT WITH FLAT WASHER.
4. "TYPE-A" PIPE SUPPORT IS DETAILED. FOR "TYPE-B" SUPPORTS PROVIDE (2) 2'-0" LONG PRESSURE TREATED TIMBERS ON EACH SIDE OF SUPPORT FASTENED TOGETHER WITH (4) 3/8"Ø x4" HDG LAGS WITH FLAT WASHERS, PRE-DRILLED AND COUNTERSUNK.
   - 4.1 "TYPE-A" PIPE SUPPORTS ARE ±8" HIGH
   - 4.2 "TYPE-B" PIPE SUPPORTS ARE ±11" HIGH
   - 4.3 LOCATE "TYPE-A" SUPPORTS IN HIGHER AREAS AND "TYPE B" SUPPORTS IN LOWER AREAS. PROVIDE ADDITIONAL PRESSURE TREATED BLOCKING TO LEVEL PIPE SUPPORTS AND MAINTAIN UNIFORM SLOPE. FASTEN LAYERS WITH 6" CERAMIC COATED WOOD SCREWS.

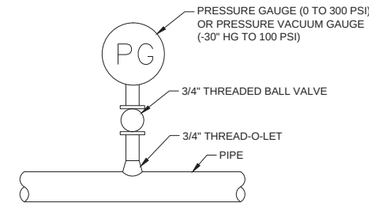
4 M2.5 "TYPE-A" PIPE SUPPORT ("TYPE-B" SIMILAR)

SCALE: NONE



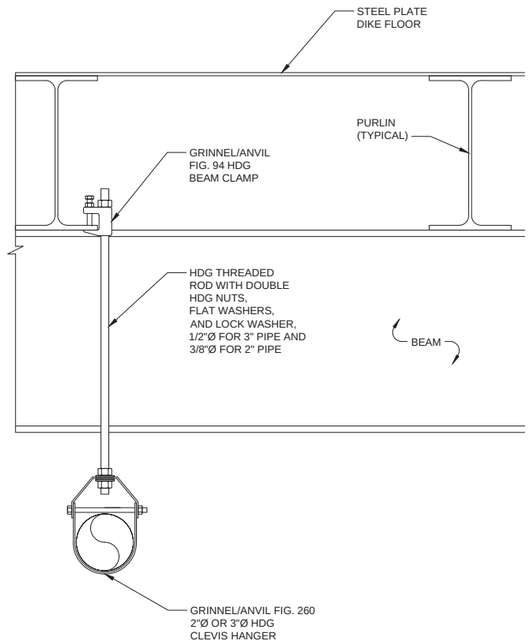
6 M2.5 TANK FARM MARINE HEADER SECTION

SCALE: 1" = 2'



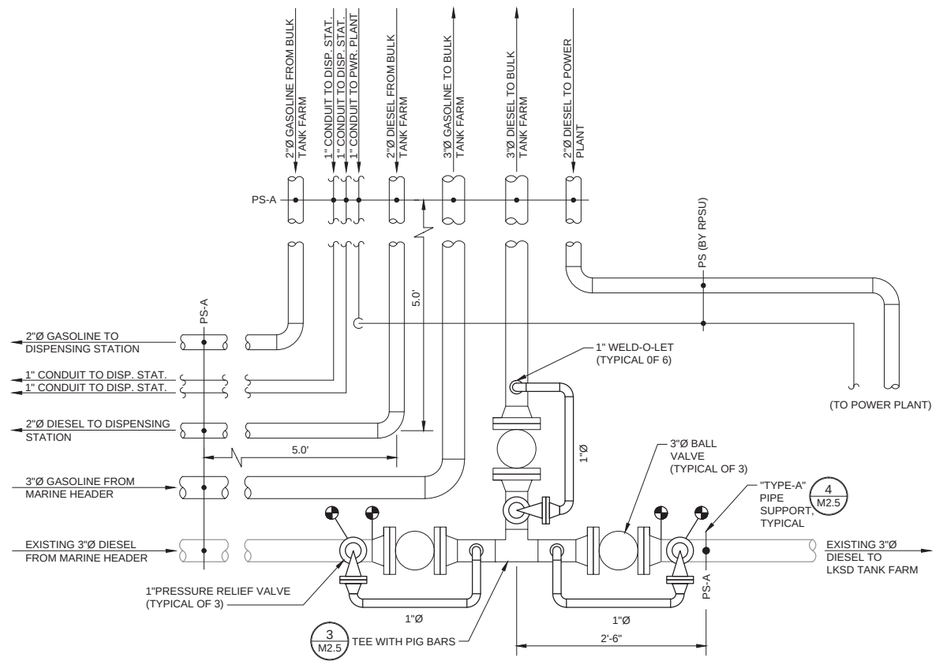
2 M2.5 PRESSURE TEST CONNECTION

SCALE: 2" = 1'



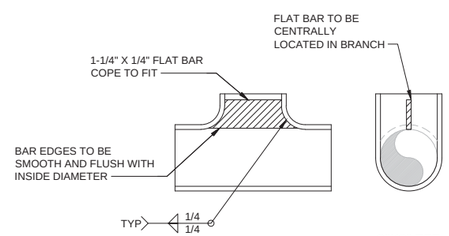
5 M2.5 "TYPE C" PIPE SUPPORT

SCALE: N.T.S.



7 M2.5 EXISTING DIESEL PIPELINE TIE-IN

SCALE: 1" = 1'



3 M2.5 TEE WITH PIG BARS

SCALE: 3" = 1'

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KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS REV	DATE	DESCRIPTION

VERIFY SCALES
0 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA 49TH
Glen M. Oen
ME-8296
REGISTERED PROFESSIONAL ENGINEER

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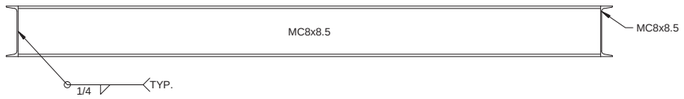


1 M2.6 PLATFORM FRAMING ELEVATION

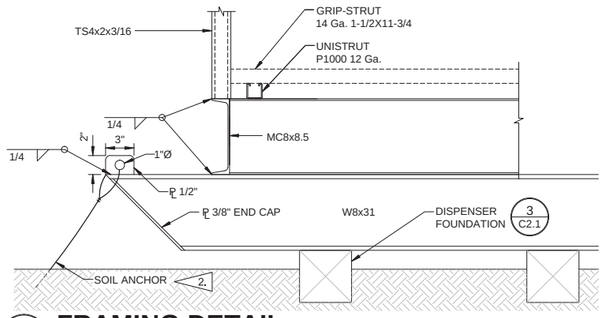
SCALE: 1" = 1'

1 M2.6 PLATFORM FRAMING PLAN

SCALE: 1" = 2'

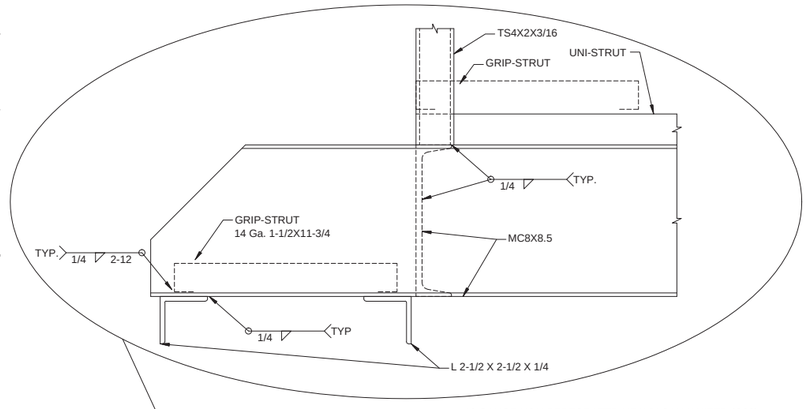
NOTES

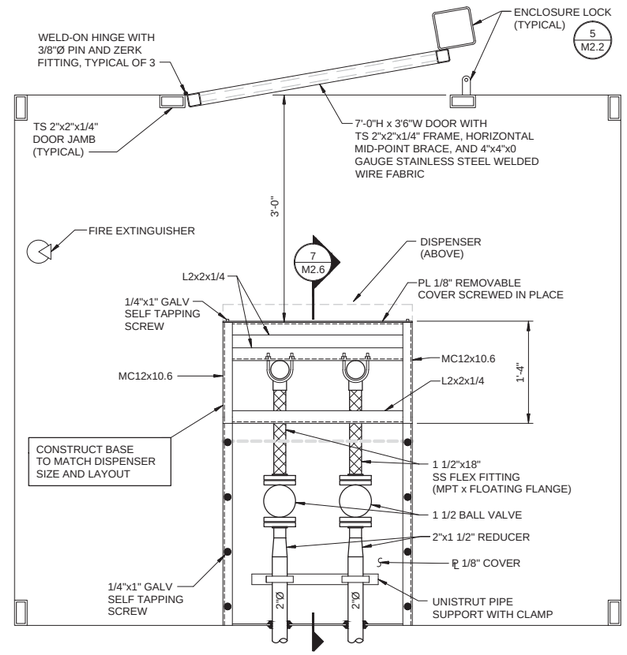
1. SET SHEAR VALVE WITH PLANE OF SHEAR AT TOP OF DISPENSER MOUNT. BOLT SHEAR VALVE TO 2" x2" x1/4" ANGLE WITH MANUFACTURE SUPPLIED BOLTS.
2. SOIL ANCHORS: DUCKBILL MODEL 88-DB1 OR APPROVED EQUAL. PROVIDE ADDITIONAL 1/4"Ø GALVANIZED STEEL CABLE, REQUIRED HARDWARE AND EMBED SOIL ANCHORS 10 FT INTO GROUND AT 45° ANGLE PER MANUFACTURES INSTRUCTIONS. REMOVE SLACK AND TIGHTEN CABLE BY HAND AFTER INSTALLATION.
3. SUBMIT SHOP DRAWINGS PRIOR TO FABRICATION.
4. CANOPY STRUCTURE CAN HAVE EITHER WELDED CONNECTIONS AS DETAILED OR HAVE STANDARD AISC BOLTED CONNECTIONS WITH HOT DIP GALVANIZED HARDWARE.
5. COAT STRUCTURE AND DISPENSER BASE WITH DEVOE CATHA-COAT 302H PRIMER (3-4 MILS DFT), AND DEVOE BAR RUST 233H INTERMEDIATE COAT (4-6 MILS DFT), DEVOE DEVTHANE 389 TOP COAT (2-3 MILS DFT), OR APPROVED EQUAL. TOP COATING COLOR SHALL BE WHITE. SAND BLAST PER SSPC SP-10 (NEAR WHITE BLAST) PRIOR TO APPLICATION OF COATINGS. APPLY COATING IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
6. PROVIDE FABRICATED ALUMINUM CATCH PAN FOR FUELING SMALL PORTABLE CONTAINERS, 2.0'W x3.0'L WITH 2.0" HIGH SIDE WALLS AND FULLY WELDED LIQUID TIGHT SEAMS. PROVIDE 3/4" NPT DRAIN WITH THREADED BRONZE BALL VALVES WITH STAINLESS STEEL TRIM AND THREADED PLUG ON SIDE WALL AT CORNER ON 3.0' SIDE.



4 M2.6 FRAMING DETAIL

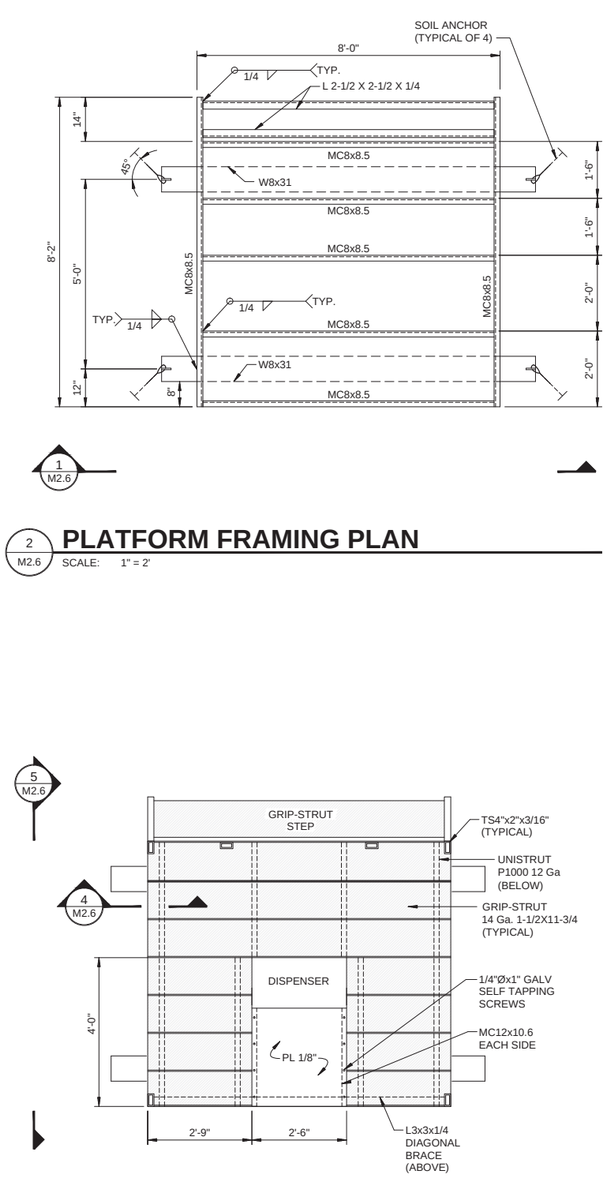
SCALE: 1 1/2" = 1'





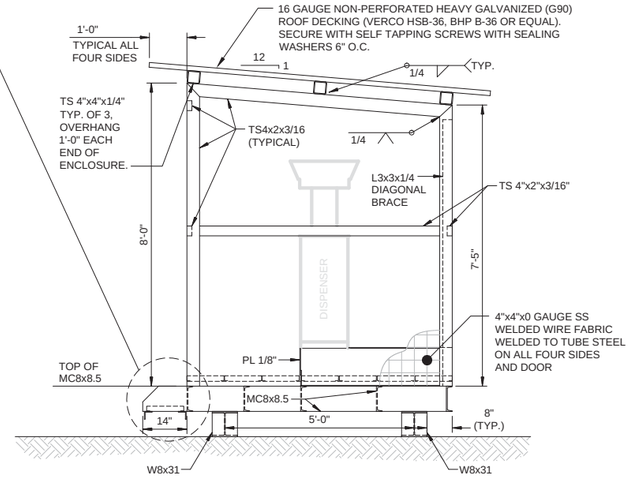
6 M2.6 DISPENSER ENCLOSURE PLAN

SCALE: 1" = 1'



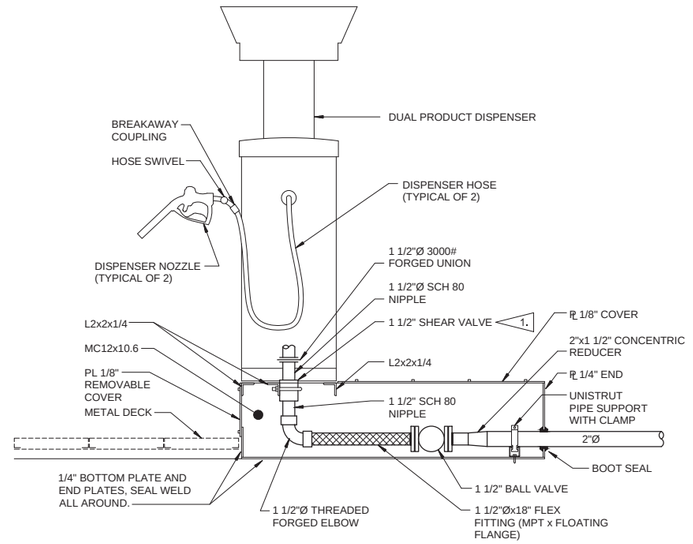
3 M2.6 PLATFORM DECKING PLAN

SCALE: 1" = 2'



5 M2.6 DISPENSER ENCLOSURE ELEVATION

SCALE: 1" = 2'



7 M2.6 DISPENSER ELEVATION

SCALE: 1" = 1'

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KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

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STATE OF ALASKA 49TH
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ME-8296
REGISTERED PROFESSIONAL ENGINEER
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DRAWING TITLE:
DISPENSER ENCLOSURE DETAILS

M2.6

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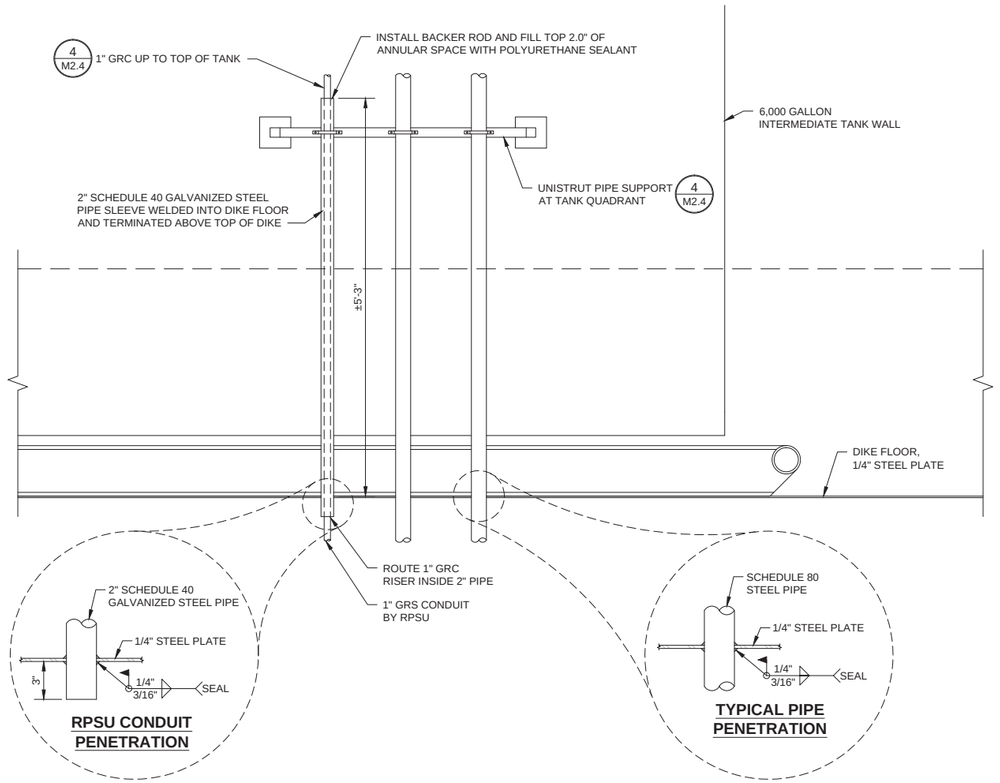
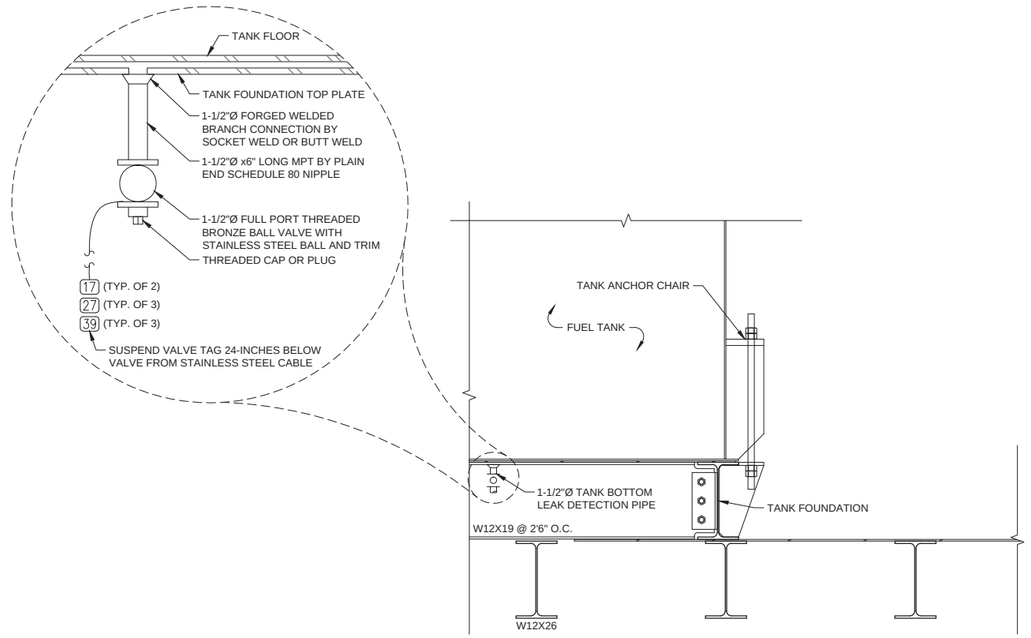


1 M2.7 TYPICAL DIKE FLOOR PENETRATION DETAILS (PIPE AND RPSU CONDUIT)

SCALE: 1" = 2'



2 M2.7 TANK BOTTOM LEAK DETECTION PIPE

SCALE: 1" = 1'

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STRUCTURAL NOTES

1. PROJECT STRUCTURAL SCOPE:

   STRUCTURAL DESIGN OF STEEL PLATFORM STRUCTURE SUPPORTING (8) 26 FOOT DIAMETER FUEL STORAGE TANKS, STEEL SECONDARY CONTAINMENT AND INTERMEDIATE CONTAINMENT WALLS, AND STRUCURAL DESIGN OF STEEL FABRICATED PLATFORM ACCESSWAYS. TANK FOUNDATIONS ARE DESIGNED TO SUPPORT TANK REACTIONS TO BE PROVIDED BY THE TANK DESIGNER/MANUFACTURER.

2. DESIGN LOADS:

   A. BUILDING CODE: 2009 INTERNATIONAL BUILDING CODE (IBC)
   ASCE 7-05, MIN. DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
   API 650, WELDED STEEL TANKS FOR OIL STORAGE, TWELFTH EDITION

   B. LIVE LOADS: (IBC TABLE 1607.1)

ACCESS PLATFORMS/EXITS	100 PSF OR 2,000 POUND POINT

   C. SNOW LOADS: (IBC SECTION 1603.1,3)

GROUND SNOW LOAD, Pg =	40 PSF
COEFFICIENT OF EXPOSURE, Ce =	1.0
SNOW IMPORTANCE FACTOR, Is =	1.1
THERMAL COEFFICIENT, Ct =	1.2
DESIGN ROOF SNOW LOAD, Pf =	40 PSF MINIMUM UNIFORM SNOW LOAD
UNBALANCED SNOW LOADING CRITERIA:	
DRIFT FROM TANK ON PLATFORM	90 PSF TAPERED TO 35 OVER 12 FEET
SLIDING FROM TANK ON PLATFORM	ADD'L 30 PSF PLATFORM

   D. WIND LOADS: (IBC SECTION 1603.1.4):

BASIC WIND SPEED (3-SEC GUST), V3 =	130 MPH
WIND IMPORTANCE FACTOR, Iw =	1.15
EXPOSURE CLASSIFICATION =	EXPOSURE C
INTERNAL PRESSURE COEFFICIENT, GCpi	0.0
DESIGN WIND PRESSURE:	44.4 PSF

   E. SEISMIC LOADING (IBC SECTION 1615):

OCCUPANCY CATEGORY =	III
SPECTRAL RESPONSE COEFFICIENTS	
SHORT PERIOD RESPONSE ACCELERATION,	Sds = 0.125 g
ONE SECOND PERIOD RESPONSE ACCELERATION,	Sd1 = 0.126 g
SEISMIC SITE CLASS =	D
SEISMIC DESIGN CATEGORY =	B
SEISMIC IMPORTANCE FACTOR, Ie =	1.25
BASIC SEISMIC FORCE RESISTANCE SYSTEM =	CANTILEVERED COLUMN FOUNDATION - PLATFORM DESIGN
RESPONSE MODIFICATION COEFFICIENT =	1.5
SYSTEM OVERSTRENGTH FACTOR =	1.25
DEFLECTION AMPLIFICATION FACTOR =	1.25

   F. TANK DESIGN:

   THE FUEL TANK DESIGN SHALL BE BY THE TANK MANUFACTURER'S ENGINEER AND IS REQUIRED TO BE SUBMITTED TO THE ENGINEER OF RECORD. THE CONTRACTOR SHALL SUBMIT SIGNED TANK CALCULATIONS AND SHOP DRAWINGS PREPARED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF ALASKA. THE TANK DESIGN, SHOP DRAWINGS, AND CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD PRIOR TO STEEL SHOP DRAWINGS AND FABRICATION.

3. GENERAL

   A. ALL WORK IS TO BE IN ACCORDANCE WITH THE 2009 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC), STATE OF ALASKA CODE AMENDMENTS, AND GOOD STANDARD PRACTICE. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THESE DRAWINGS WITH THE CIVIL, PROCESS, AND ELECTRICAL SHEETS FOR OPENING SIZES, PROPER LOCATION OF SUPPORTS AND PENETRATIONS, AND LOCATION OF PIPING AND ELECTRICAL ITEMS NOT SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO SPECIFICATIONS AND DRAWINGS FOR DETAILED MATERIAL AND EXECUTION REQUIREMENTS.

   B. PRIOR TO STARTING ANY WORK OR FABRICATION, THE CONTRACTOR SHALL COORDINATE ALL DIMENSIONS AMONG THE DRAWINGS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, SITE CONDITIONS, SPECIFICATIONS, AND THESE NOTES SHALL BE REPORTED TO THE ENGINEER.

   C. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL OSHA AND DOSH SAFETY STANDARDS. THE CONTRACTOR IS IN CHARGE OF ALL SAFETY MATTERS ON AND AROUND THE JOB SITE. PROVIDE TEMPORARY ERECTION BRACING AND SHORING AS REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL PHASES OF THE CONSTRUCTION.

4. QUALITY ASSURANCE:

   A. SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH IBC SECTION 1704. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF AN INDEPENDENT, QUALIFIED SPECIAL INSPECTOR. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION:
      CONTINUOUS INSPECTION OF PILE DRIVING/INSTALLATION
      PERIODIC INSPECTION AND TESTING OF STRUCTURAL BOLTED CONNECTIONS.
      PERIODIC INSPECTION OF FIELD AND FACTORY SINGLE PASS FILLET WELDS LESS THEN 5/16".
      CONTINUOUS INSPECTION OF ALL OTHER FIELD AND FACTORY WELDING.

   B. SPECIAL INSPECTION IS IN ADDITION TO THE CONTRACTOR'S REQUIRED QUALITY CONTROL INSPECTIONS AND TESTING. THE CONTRACTOR'S QUALITY CONTROL INSPECTIONS AND TESTING SHALL OCCUR PRIOR TO SPECIAL INSPECTION AND REPORTS SHALL BE AVAILABLE TO THE SPECIAL INSPECTOR.

5. PILE FOUNDATION SYSTEM:

   A. THE DRIVEN STEEL PILE FOUNDATION HAS BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT ENTITILED, "GEOTECHNICAL INVESTIGATION AND ENGINEERING RECOMMENDATIONS, KIPNUK BULK FUEL AND POWERPLANT FACILITY, KIPNUK, ALASKA" DATED JULY 25, 2007 CONDUCTED BY DUANE MILLER AND ASSOCIATES AND UPDATED BY THE DESIGN RECOMMENDATION MEMO ENTITLED, "GEOTECHNICAL RECOMMENDATIONS, ALASKA ENERGY AUTHORITY KIPNUK BULK FUEL FACILITY - KIPNUK , ALASKA" DATED JUNE 16, 2016 DEVELOPED BY GOLDER ASSOCIATES, INC.

   B. MINIMUM PILE DESIGN REQUIREMENTS:

SUSTAINED LOADS	
VERTICAL PILE LOAD CAPACITY	76.0 KIPS
SHORT TERM LOAD	
VERTICAL PILE LOAD CAPACITY	82.0 KIPS
HORIZONTAL PILE LOAD CAPACITY	2.50 KIPS
(LOADED AT PILE TIP, 4.5' ABOVE GRADE)	

   C. THE CONTRACTOR SHALL BE RESPONSIBLE TO ACCURATELY LAY OUT THE CONTROL POINTS FOR ALL WORK ON THE SITE. PILE LOCATIONS SHALL BE ESTABLISHED UNDER THE DIRECTION OF A SURVEYOR REGISTERED IN THE STATE OF ALASKA. THE BASIS OF HORIZONTAL CONTROL IS SHOWN ON SHEET C0.1. ELEVATIONS PROVIDED ARE BASED ON THE CONTOUR INTERVALS SHOWN ON SHEET C1.1 AND SHALL BE FIELD VERIFIED.

   D. PLATFORM SUPPORT PILES SHALL BE 14 INCH DIAMETER X 0.50 INCH WALL DRIVEN STEEL PIPE PILES CONFORMING TO ASTM A252, GRADE 2. PILES SHALL BE DRIVEN CLOSED ENDED WITH AN IMPACT HAMMER CAPABLE OF INSTALLING THE PILES WITHOUT DAMAGE TO THE PILES. PILE SPLICES SHALL BE LOCATED AT LEAST 20 FEET BELOW THE GROUND SURFACE UNLESS OTHERWISE APPROVED BY THE ENGINEER. REFER TO THE PILE INSTALLATION DETAILS AND PROJECT SPECIFICATIONS FOR DETAILED PILE INSTALLATION REQUIREMENTS.

   E. THE TANK FARM PILES SHALL BE INSTALLED A MINIMUM DEPTH OF 55 FEET BELOW THE SURFACE OF THE TUNDRA.

   F. PILE INSTALLATION TOLERANCES: THE PILES SHALL BE DRIVEN SUCH THAT THE PILE CAPS ARE WITHIN +-2" PARALLEL ALONG THE BEAMS AND +-1/2" PERPENDICULAR TO THE BEAMS HORIZONTALLY AND 0.1' VERTICALLY FROM THE LOCATION AND ELEVATIONS NOTED ON THE DRAWINGS. PLUMBNESS SHALL BE WITHIN 1 INCH IN 10 FEET FROM VERTICAL. NOTIFY THE ENGINEER FOR ALL PILES DRIVEN OUTSIZE THE ABOVE TOLERANCES PRIOR TO CONTINUING OR INCORPORATING CORRECTIVE MEASURES.

   G. PILES SHALL BE COATED WITH 3M SCOTCHKOTE 6233 FUSION BONDED EPOXY (16 MILS DFT) IN THE ACTIVE LAYER IN ACCORDANCE WITH THE PILE DETAIL AND PILE SPECIFICATION.

   H. VEHICLES AND EQUIPMENT SHALL NOT BE OPERATED ON UNFROZEN NATIVE VEGETATION WITHOUT AN APPROVED METHOD OF PROTECTION. ALL TRAFFIC WILL BE RESTRICTED TO THE EXISTING IMPROVED AREAS DURING THE PERIOD OF THAW. DURING MONTHS WHEN THE ACTIVE LAYER IS THAWED, EXTREME CARE SHALL BE UTILIZED TO AVIOD DISTURBANCE OF THE RELATIVELY THIN TUNDRA MANTLE.

   I. INSTALL PILING IN ACCORDANCE TO THE FOUNDATION PLAN AND THE TYPICAL PILE INSTALLATION DETAILS PROVIDED ON THE DRAWINGS.

   J. SPECIAL INSPECTION IS REQUIRED DURING PILE INSTALLATION PER IBC SECTION 1704.8. THE CONTRACTOR SHALL PROVIDE CONTINUOUS INSPECTION DURING PILE INSTALLATION. RECORD PILE EMBEDMENT DEPTH, PILE LENGTH, BLOW COUNTS PER FT, HAMMER TYPE, HAMMER ENERGY, AND PILE CUT-OFF AT EACH PILE LOCATION.

6. STRUCTURAL STEEL:

   A. THE DESIGN, FABRICATION, AND ERECTION OF ALL STRUCTURAL STEEL SHALL COMPLY WITH THE CODE OF STANDARD PRACTICE OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.

   B. ALL STRUCTURAL STEEL SHALL BE ASTM A992 FOR WIDE FLANGE SECTIONS, ASTM A36 FOR MISCELLANEOUS SHAPES, A572, GR 50 FOR PLATE, A500 GRADE B FOR HOLLOW STRUCTURAL STEEL TUBING, AND A53 GRADE B FOR STEEL PIPE.

   C. ANCHOR RODS: 1" DIAMETER ASTM F1554-36 ALL THREAD ANCHORS, HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153.

   D. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH THE CURRENT CODE OF THE AMERICAN WELDING SOCIETY, MINIMUM WELD SHALL BE 3/16". USE AWS 5.1 E70XX ELECTRODES. ALL WELDERS UTILIZED ON THE PROJECT SHALL BE CERTIFIED FOR THE WELD AND POSITION IN THE LAST 12 MONTHS PRIOR TO CONDUCTING ANY WELDING.

   E. ALL METAL TO METAL CONNECTIONS SHALL BE EQUAL TO AISC STANDARD CONNECTIONS, OR AS DETAILED, USING A325 HIGH STRENGTH BOLTS (N BEARING TYPE CONNECTIONS). TIGHTEN HIGH-STRENGTH BOLTS WITH PROPERLY CALIBRATED WRENCHES OR BY TURN-OF-THE-NUT-METHOD USING MATCH MARKING TECHNIQUE. ALL CONNECTIONS, UNLESS OTHERWISE SHOWN, SHALL HAVE MAXIMUM NUMBER OF 3/4" BOLTS USING STANDARD GAUGES AND CLEARANCES

   F. FABRICATE ALL HOLLOW STRUCTURAL STEEL SECTIONS WITH ENCLOSED END CAPS.

   G. FIELD MODIFICATION OF STRUCTURAL STEEL MEMBERS IS NOT PERMITTED WITHOUT PRIOR APPROVAL BY THE ENGINEER.

   H. ALL STAIRS, HANDRAILS, PLATFORMS AND SUPPORTS, LANDINGS, GRATING PANELS, AND METAL FABRICATIONS SPECIFIED OR INDICATED IN THE DRAWINGS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123 TO 2.0 OZ/SF. ALL OTHER STEEL FABRICATIONS SHALL BE SHOP PRIMED TO RECEIVE FIELD INSTALLED COATING SYSTEM AS SPECIFIED.

   I. GRIP STRUT GRATING PANELS: 2" X 14 GAUGE, 11-3/4" WIDE, 5 DIAMOND GALVANIZED GRIP STRUT GRATING OR EQUIVALENT. PROVIDE GALVANIZED GRIP STRUT ANCHORING DEVICES AND 5/16" BOLTS, MINIMUM OF (2) PER EACH PANEL END. TOUCH UP CUT PANEL EDGES WITH COLD ZINC GALVANIZING.

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6700 Arctic Spur Road Anchorage, AK 99518 (907) 677-8220

STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES
KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS	
REV	DATE	DESCRIPTION

VERIFY SCALES
0 ——— 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA
49 TH
Derek W. Hopewell
SE-13298
05/21/17
REGISTERED STRUCTURAL ENGINEER

UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DWH
CHECKED BY: DWH
JOB NUMBER: 70183.15

DRAWING TITLE:
STRUCTURAL NOTES

S0.1

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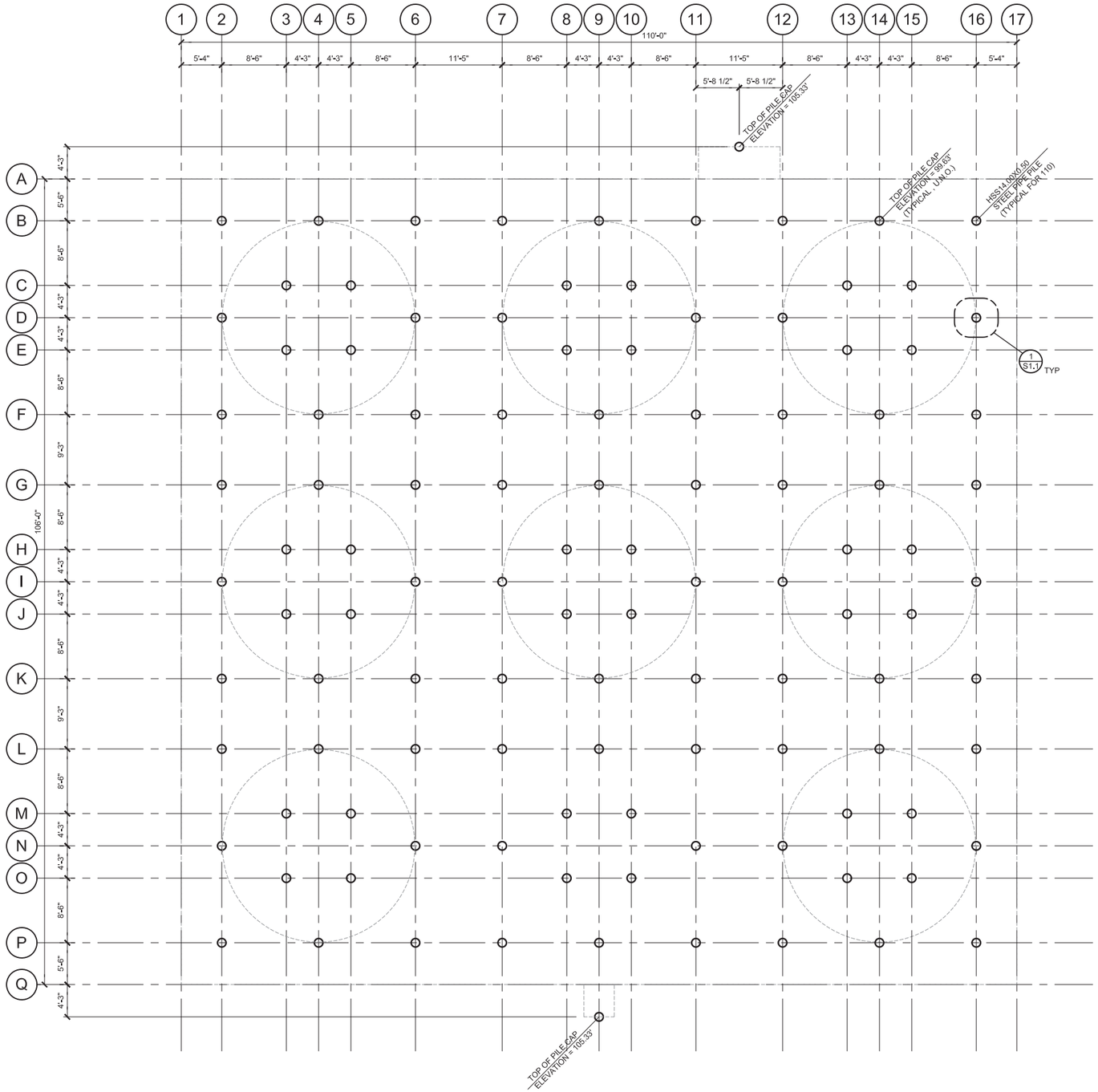


PILE FOUNDATION NOTES

1. THE DRIVEN STEEL PILE FOUNDATION SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS OF GOLDER AND ASSOCIATES. THE PILE DESIGN SHALL BE VERIFIED WITH A LOAD TEST IN ACCORDANCE WITH ASTM D5780-10 PRIOR TO CONSTRUCTION.

   MINIMUM PILE DESIGN REQUIREMENTS:

   PILE VERTICAL LOAD = 82 KIPS
   PILE LATERAL LOAD = 2.5 KIPS (APPLIED AT TOP OF PILE)

2. THE CONTRACTOR SHALL BE RESPONSIBLE TO ACCURATELY LAY OUT THE CONTROL POINTS FOR ALL THE WORK ON THE SITE. PILE LOCATIONS SHALL BE ESTABLISHED UNDER THE DIRECTION OF A SURVEYOR REGISTERED IN THE STATE OF ALASKA, COORDINATES ARE BASED ON A LOCAL COORDINATE SYSTEM. THE BASIS OF HORIZONTAL SURVEY CONTROLS IS SHOWN ON THE CIVIL DRAWINGS SHEET C0.1. ELEVATIONS ARE BASED ON THE CONTOUR ELEVATIONS SHOWN ON SHEET C1.1 AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

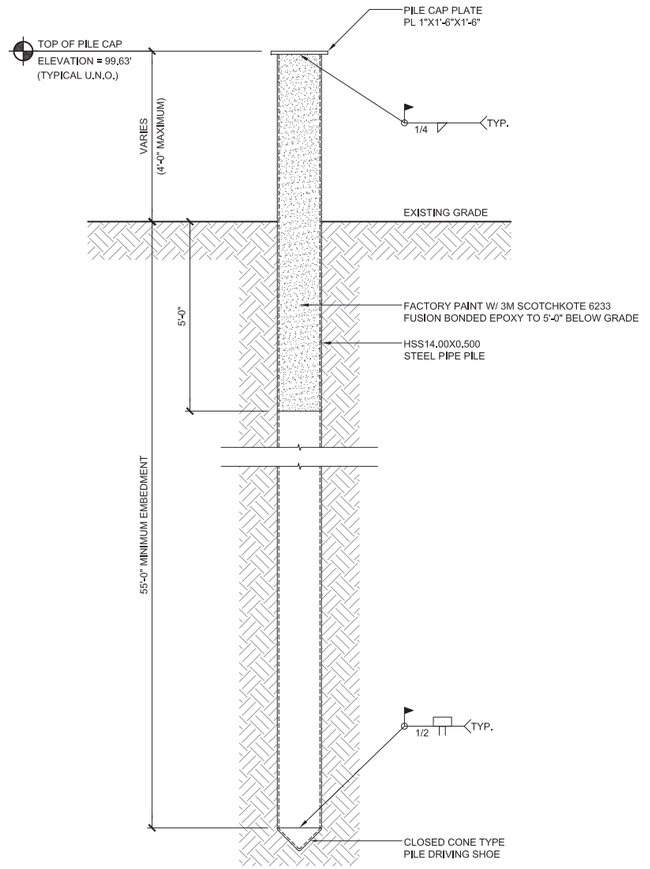
3. VEHICLES OR EQUIPMENT MAY NOT BE OPERATED ON UNFROZEN NATIVE VEGETATION WITHOUT AN APPROVED METHOD OF PROTECTION. ALL TRAFFIC WILL BE RESTRICTED TO THE ESTABLISHED ROADS DURING THIS PERIOD OF THAW. DURING THE MONTHS WHEN THE ACTIVE LAYER IS THAWED, EXTREME CARE MUST BE UTILIZED TO AVOID DISTURBANCE OF THE RELATIVELY THIN TUNDRA MANTLE. IF THAWED GROUND OVER FOUR FEET DEEP OR SUBSURFACE ICE IS ENCOUNTERED AT THE SURFACE, STOP WORK ON THAT PILE AND NOTIFY THE ENGINEER IMMEDIATELY. ANY DEPRESSIONS OR PONDS IN THE IMMEDIATE AREA OF THE PROPOSED STRUCTURE SHALL BE FILLED TO PREVENT WATER FROM PONDING BENEATH THE BUILDING AND AROUND THE PILING.

4. DRIVEN STEEL PILES SHALL BE 14" Ø X 0.500" HSS PIPE, ASTM A252, GRADE 2, INSTALLED IN ACCORDANCE WITH THE TYPICAL PILE DETAIL 1/S1.1. PILES SHALL BE DRIVEN WITH AN IMPACT HAMMER CAPABLE OF INSTALLING THE PILES WITHOUT DAMAGE TO THE PILES. FACTORY PILE SPLICES MUST BE LOCATED AT THE LOWER THIRD OF THE PILE. FIELD PILE SPLICES ARE NOT PERMITTED. CONTACT THE ENGINEER PRIOR TO MODIFYING ANY PILES OR STRUCTURAL STEEL IN THE FIELD.

5. PILE INSTALLATION TOLERANCES: THE PILES SHALL BE DRIVEN SUCH THAT THE PILE CAPS ARE ± 2" PARALLEL ALONG THE BEAMS AND ± 1/2" PERPENDICULAR TO THE BEAMS HORIZONTALLY AND ± 1" VERTICALLY FOR THE LOCATION SHOWN. PLUMBNESS SHALL BE LESS THAN 1" PER 10'-0" FROM VERTICAL. NOTIFY THE ENGINEER FOR ANY PILES DRIVEN OUTSIDE THE ABOVE TOLERANCES PRIOR TO CORRECTIVE ACTION.

6. PILES SHALL BE COATED WITH 3M SCOTCHKOTE 6233 FUSION BONDED EPOXY ACCORDING TO THE PAINTING AND COATING SPECIFICATION.

7. PILE CAP ELEVATIONS FOR THE TANK PLATFORM = 99.63' UNLESS NOTED OTHERWISE ON PILE LAYOUT PLAN.



PILE LAYOUT PLAN

1/8" = 1'-0"

1/S1.1 TYPICAL PILE DETAIL

1/2" = 1'-0"

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STATE OF ALASKA, AIDEA/AEA
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KIPNUK, ALASKA

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Derek W. Hopewell
Derek W. Hopewell
SE 13298
05/21/17
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DRAWING TITLE:
PILE LAYOUT PLAN AND PILE DETAIL

S1.1

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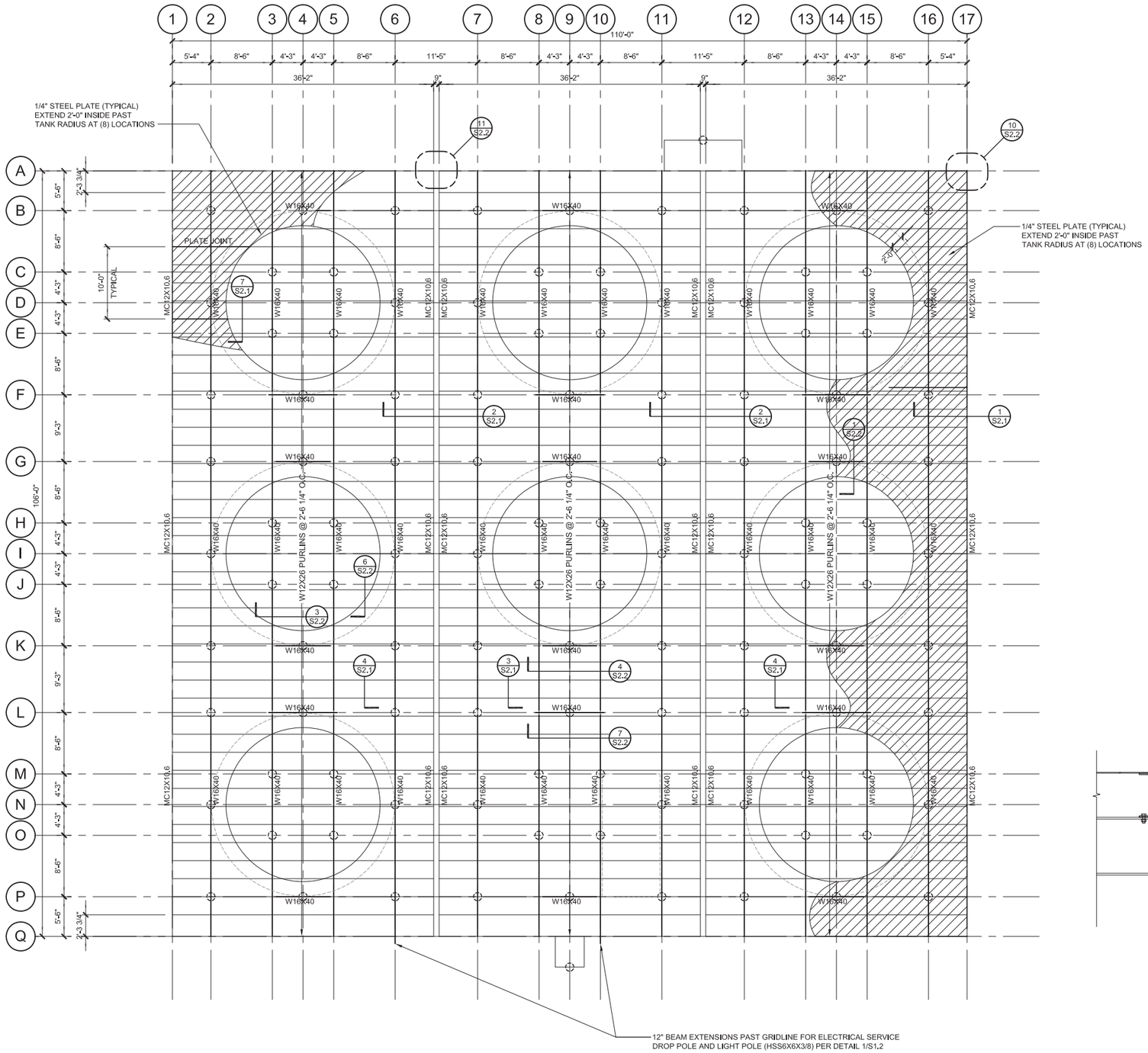
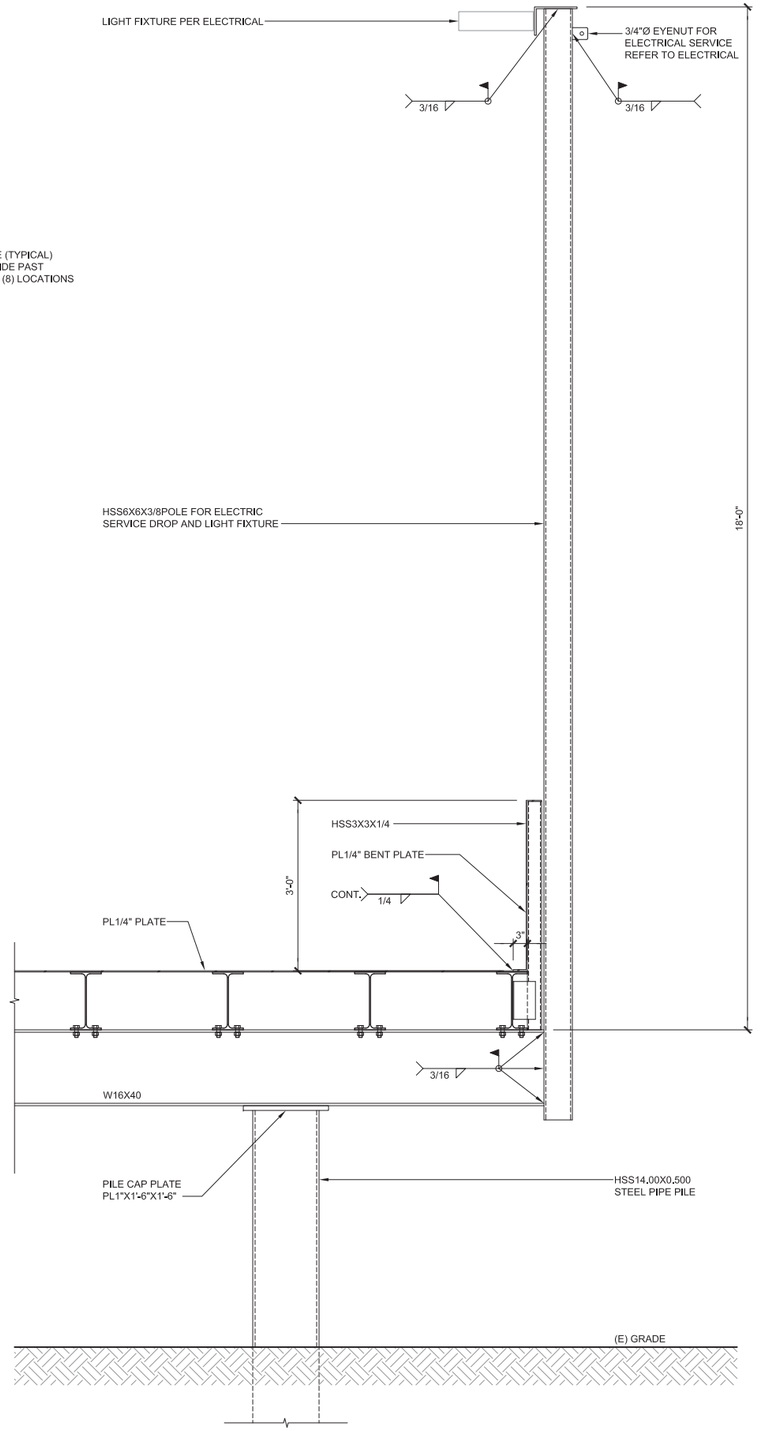


PLATFORM FRAMING PLAN

2 — 1/8" = 1'-0"



ELECTRICAL SERVICE DROP AND LIGHT POLE DETAIL

1 / S1.2 — 3/4" = 1'-0"

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DRAWING TITLE:
PLATFORM FRAMING PLAN

S1.2

SHEET | OF

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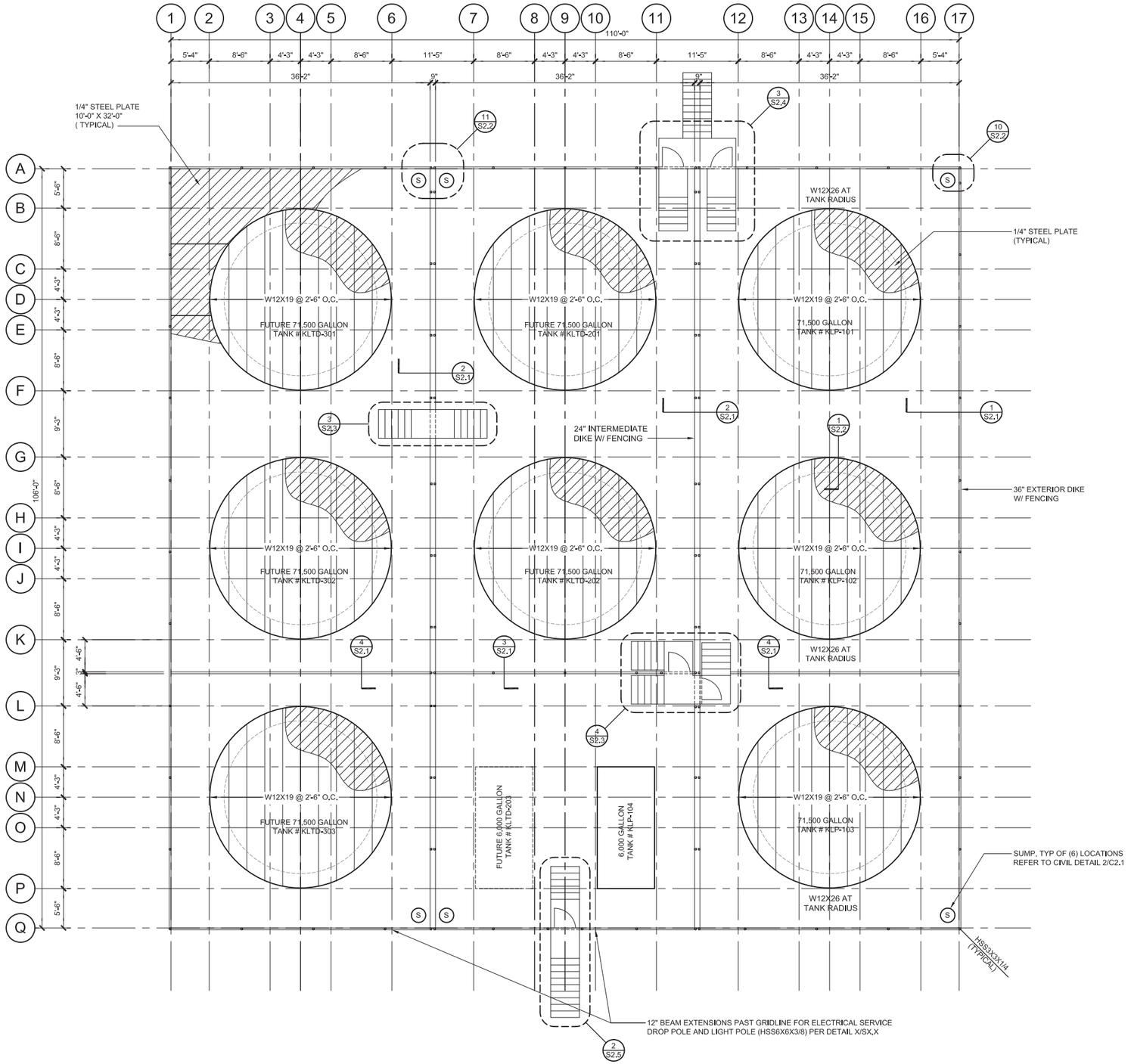

TANK BASE FRAMING AND CONTAINMENT LAYOUT PLAN

1/8" = 1'-0"

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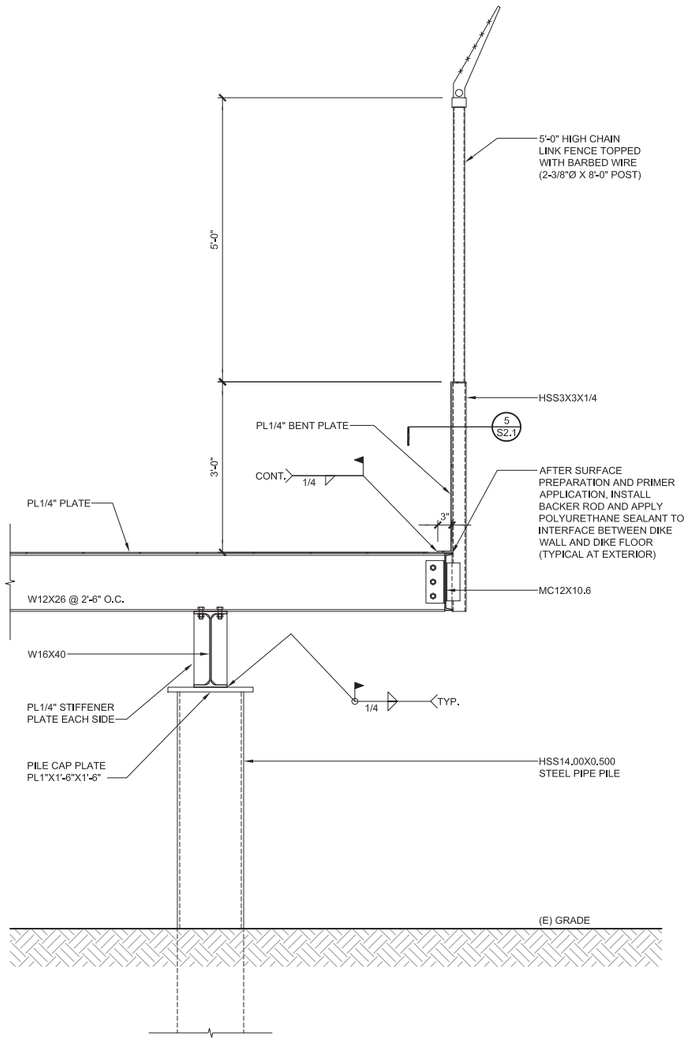
TANK BASE FRAMING AND CONTAINMENT LAYOUT PLAN

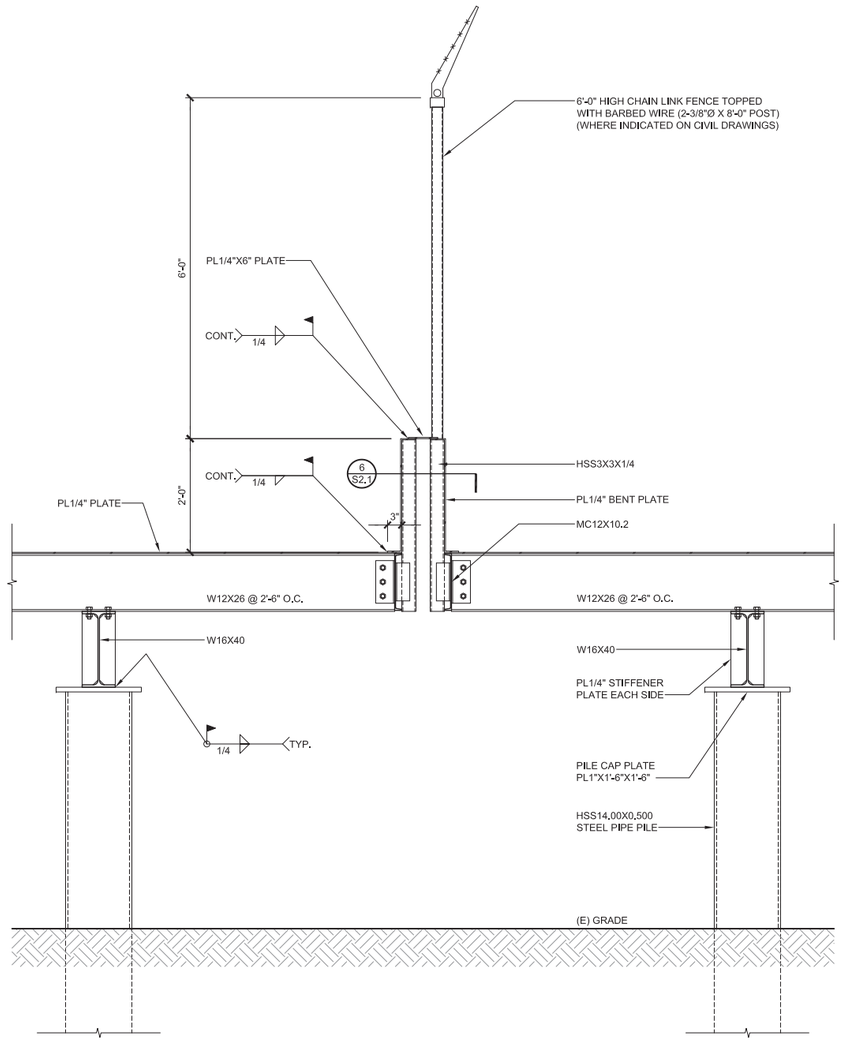
S1.3

SHEET | OF



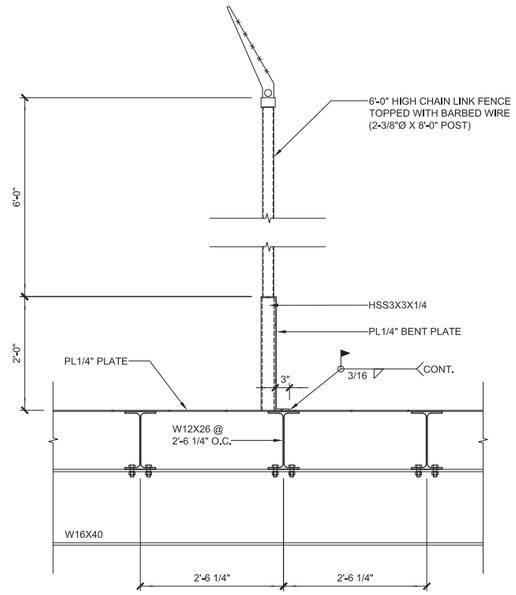
1 S2.1 TYPICAL EXTERIOR DIKE SECTION

3/4" = 1'-0"



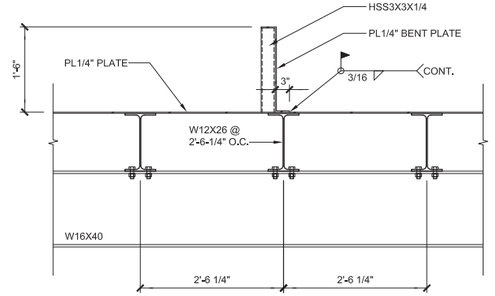
2 S2.1 TYPE "A" INTERMEDIATE DIKE SECTION

3/4" = 1'-0"



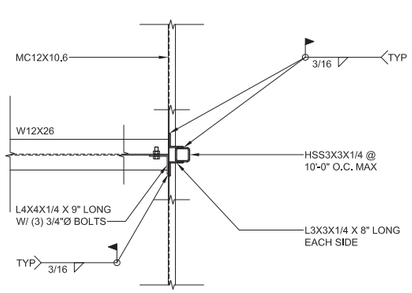
3 S2.1 TYPE "B" INTERMEDIATE DIKE SECTION

3/4" = 1'-0"



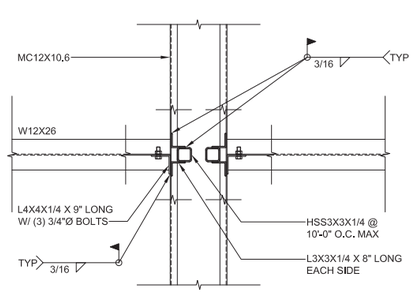
4 S2.1 TYPE "C" INTERMEDIATE DIKE SECTION

3/4" = 1'-0"



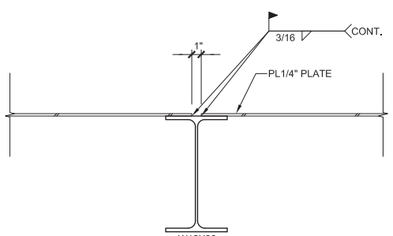
5 S2.1 TYPICAL EXTERIOR DIKE DETAIL

3/4" = 1'-0"



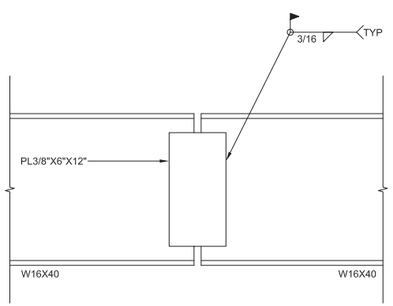
6 S2.1 TYPICAL INTERMEDIATE DIKE DETAIL

3/4" = 1'-0"



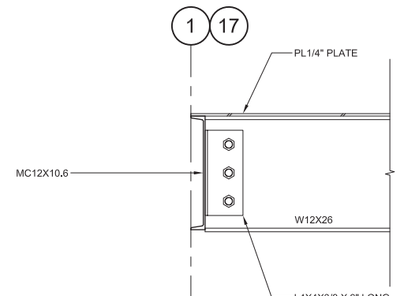
7 S2.1 PLATE JOINT DETAIL

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



8 S2.1 BEAM JOINT DETAIL

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



9 S2.1 GRID LINE LOCATION DETAIL

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

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PLATFORM FRAMING SECTIONS AND DETAILS

S2.1

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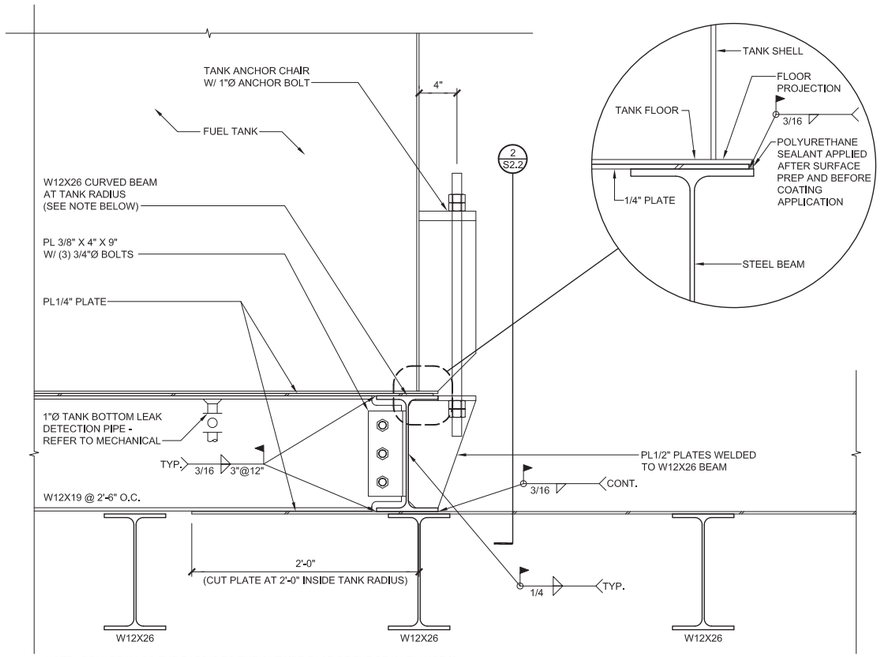
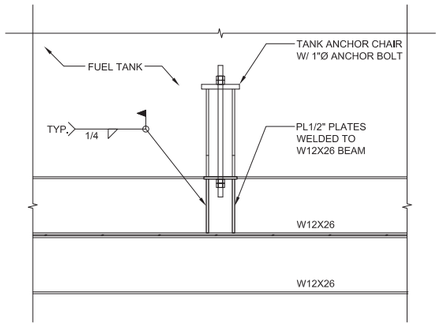
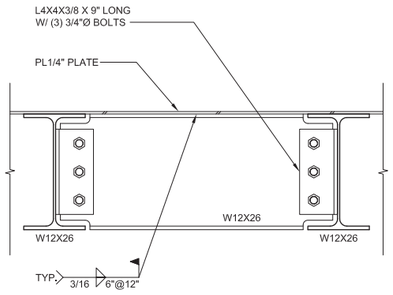


NOTE: ROLL BEAM SO THE RADIUS TO THE OUTSIDE FACE OF THE BEAM FLANGE IS EQUAL TO THE TANK INSIDE RADIUS, PLUS THE SHELL THICKNESS, PLUS THE TANK FLOOR PROJECTION. TRIM THE FLAT ENDS OFF ROLLED BEAMS PRIOR TO JOINING WITH 1/4" BEVEL WELD CONTINUOUS ALL AROUND. BEVEL BOTH BEAM FLANGES AT 45 DEGREES PRIOR TO WELDING.

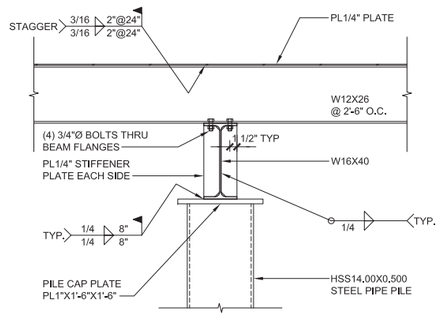
1 S2.2 — TYPICAL ANCHOR CHAIR DETAIL
1-1/2" = 1'-0"



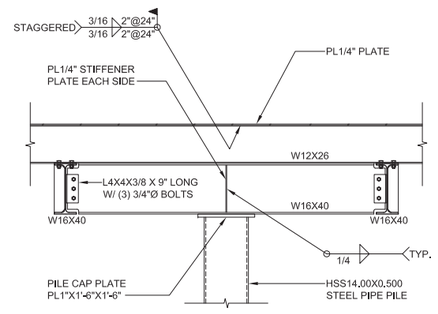
2 S2.2 — TYPICAL ANCHOR CHAIR DETAIL
3/4" = 1'-0"



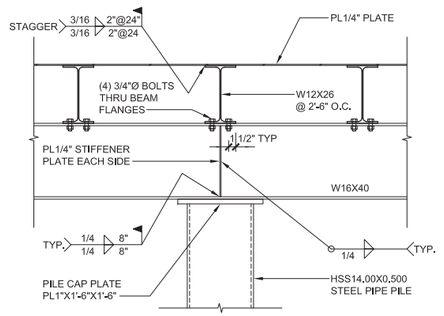
5 S2.2 — TYPICAL BLOCKING DETAIL
1-1/2" = 1'-0"



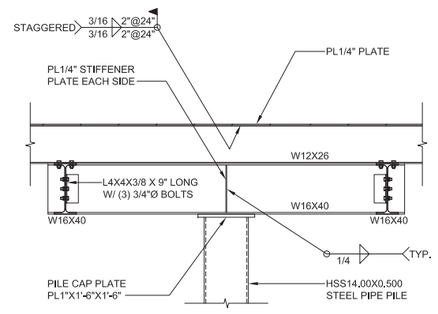
3 S2.2 — BEAM CONNECTION DETAIL
3/4" = 1'-0"



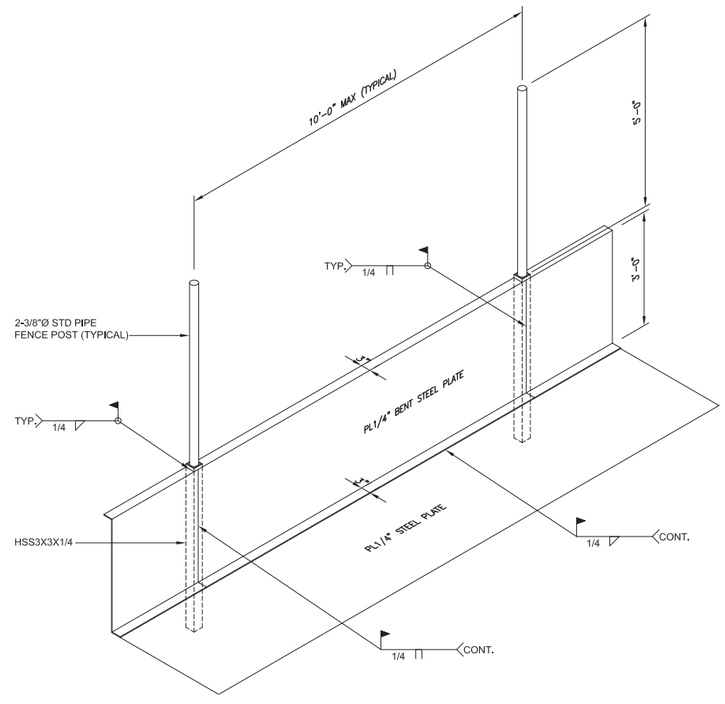
4 S2.2 — PLATFORM FRAMING DETAIL
1/2" = 1'-0"



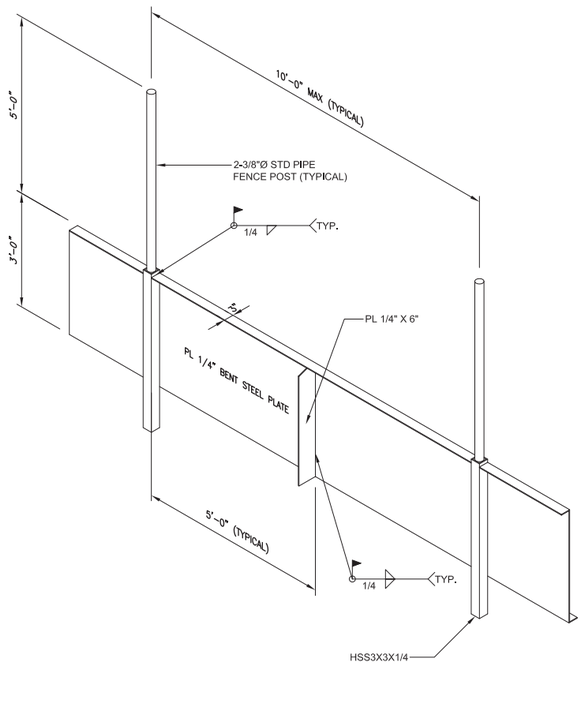
6 S2.2 — BEAM CONNECTION DETAIL
3/4" = 1'-0"



7 S2.2 — PLATFORM FRAMING DETAIL
1/2" = 1'-0"

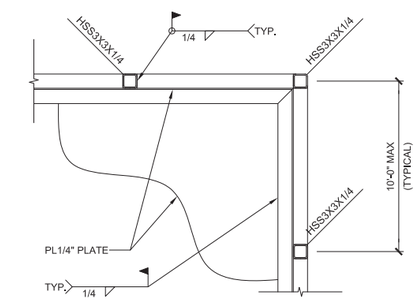


8 S2.2 — EXTERIOR DIKE WALL ISOMETRIC
1/2" = 1'-0"



9 S2.2 — EXTERIOR DIKE WALL ISOMETRIC
1/2" = 1'-0"

*NOTE: WELDED CONNECTIONS AND REQUIRED SPECIAL INSPECTIONS CAN BE PROVIDED IN PLACE OF BOLTED CONNECTIONS AT THE CONTRACTOR'S REQUEST WITH PRIOR APPROVAL BY THE ENGINEER OF RECORD



10 S2.2 — TYPICAL CORNER DETAIL
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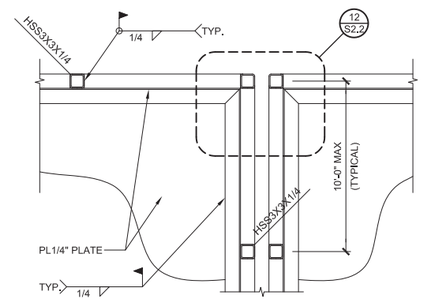
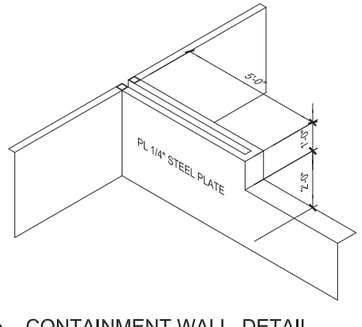


11 S2.2 — CONTAINMENT WALL DETAIL
3/4" = 1'-0"



12 S2.2 — CONTAINMENT WALL DETAIL
3/4" = 1'-0"

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PLATFORM FRAMING SECTIONS AND DETAILS

S2.2

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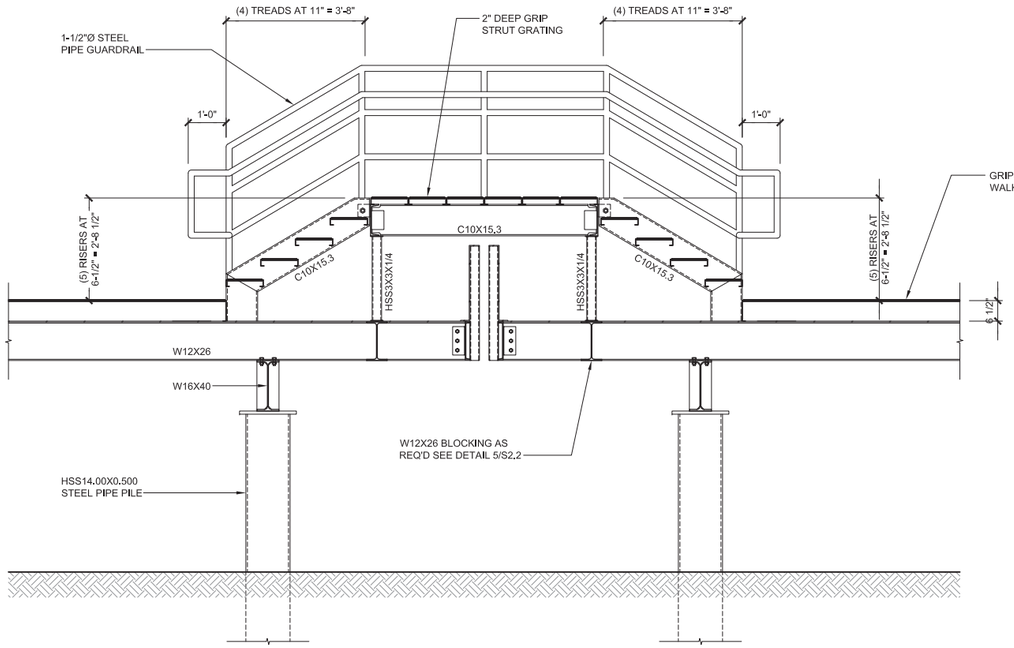
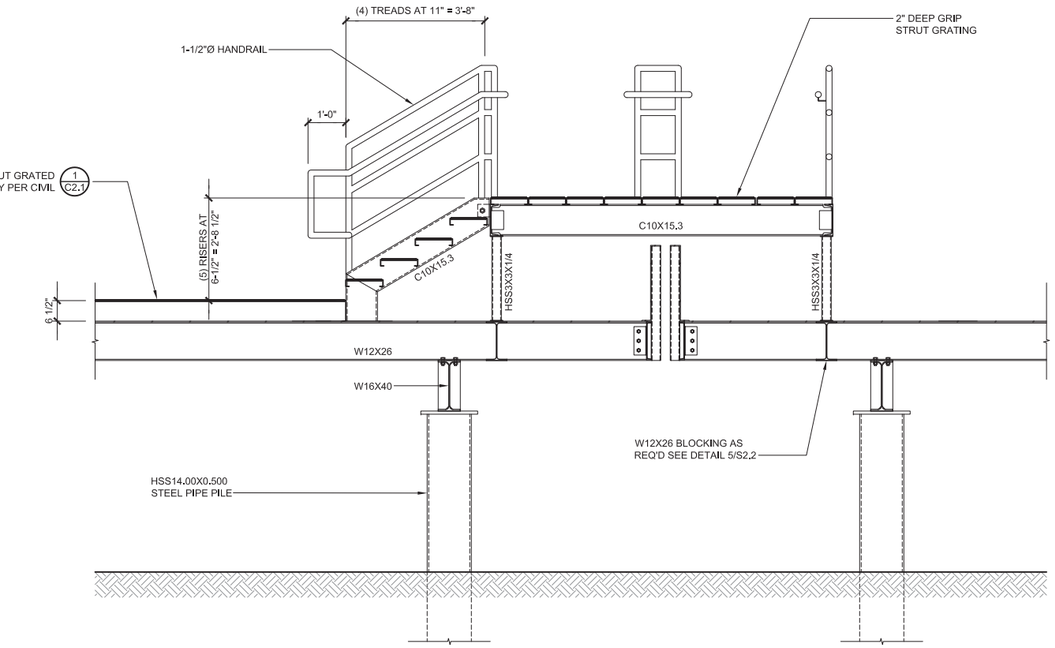


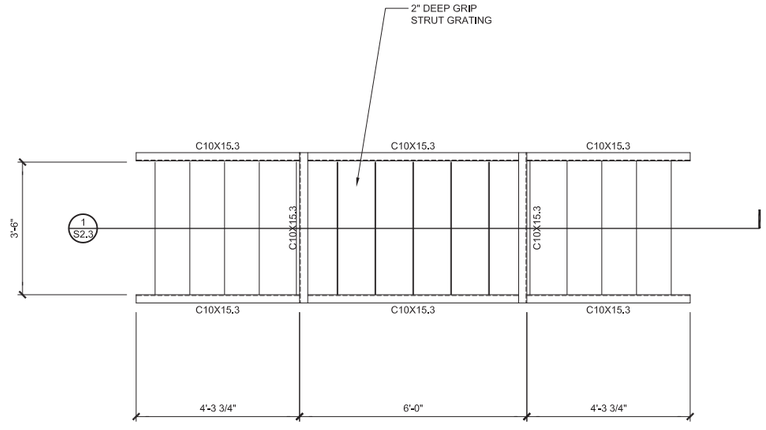
1 S2.3 STAIR FRAMING SECTION

1/2" = 1'-0"



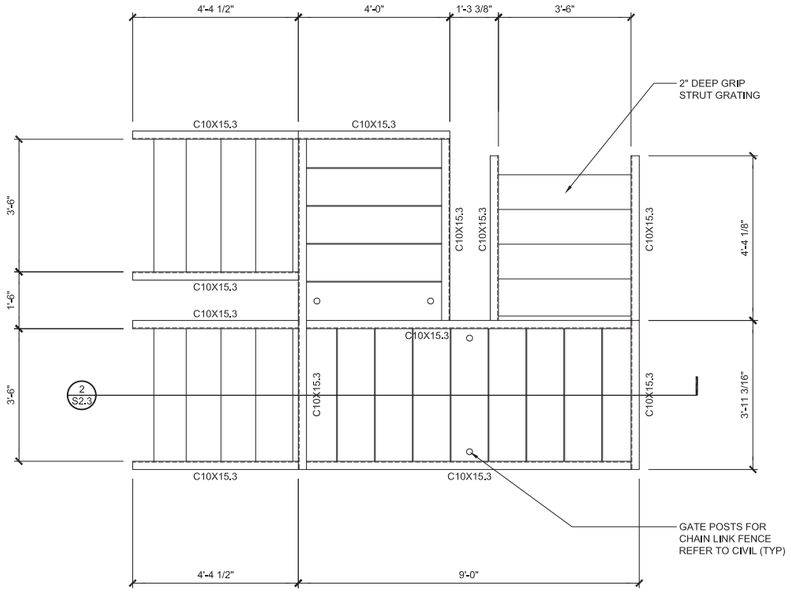
2 S2.3 STAIR FRAMING SECTION

1/2" = 1'-0"



3 S2.3 STAIR FRAMING PLAN

1/2" = 1'-0"



4 S2.3 STAIR FRAMING PLAN

1/2" = 1'-0"

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STAIR FRAMING PLANS AND SECTIONS

S2.3

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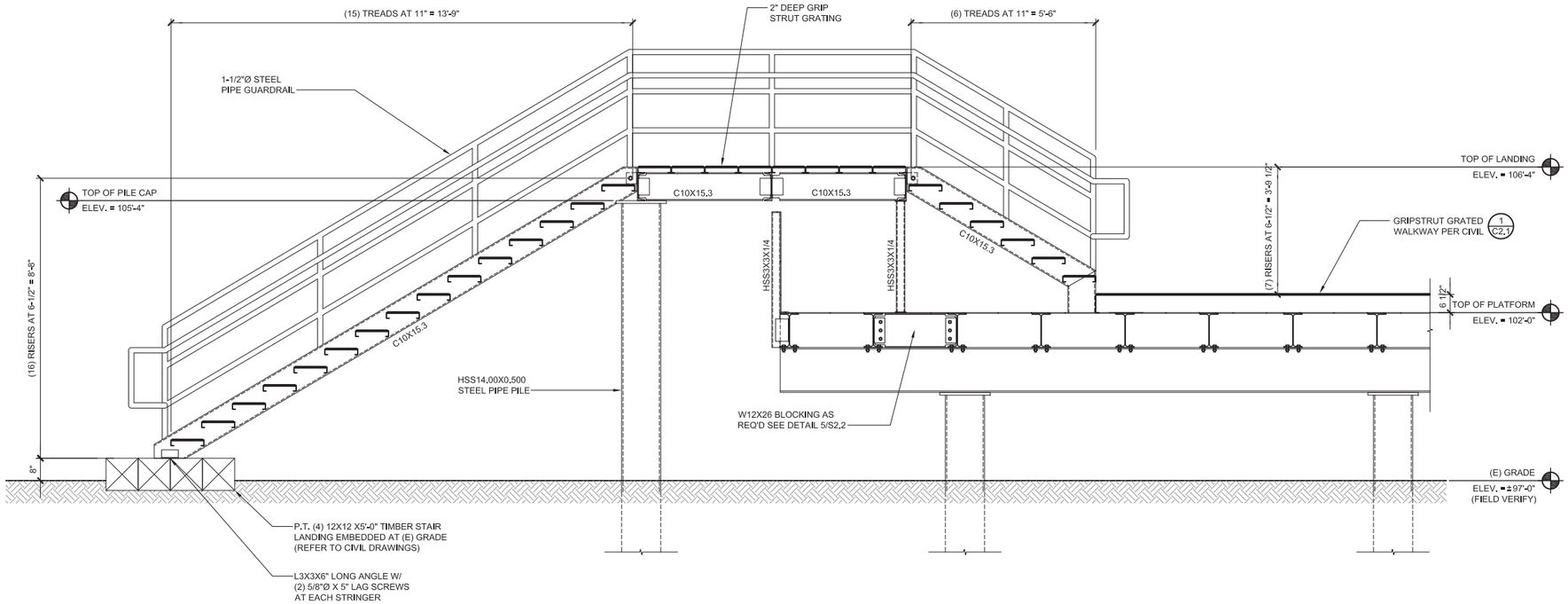
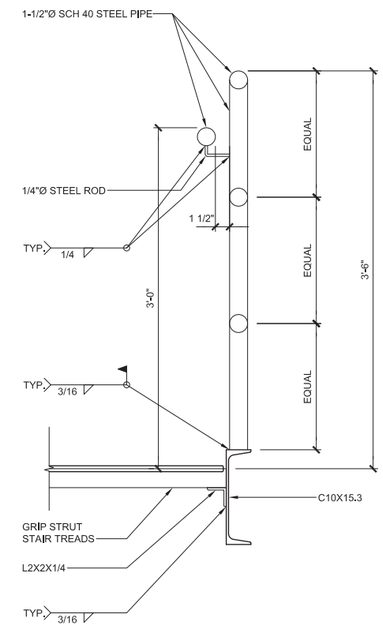


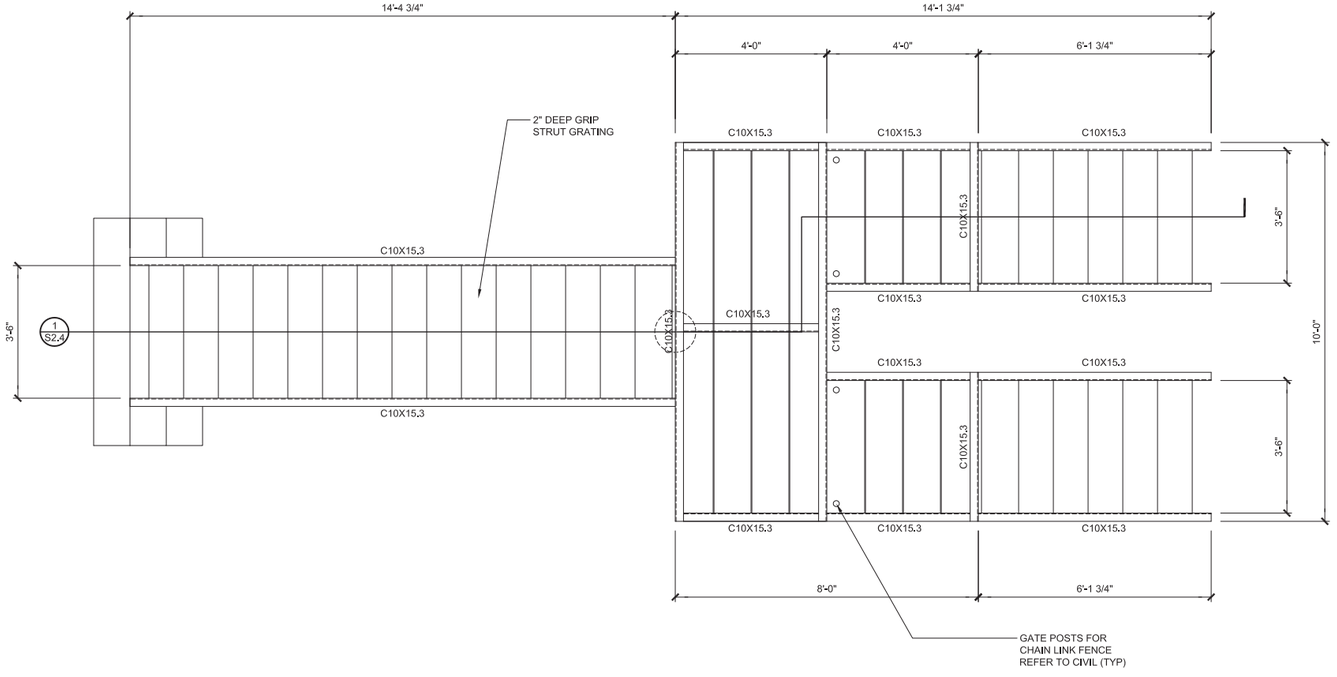
1 S2.4 EMERGENCY EXIT STAIR FRAMING SECTION

1/2" = 1'-0"



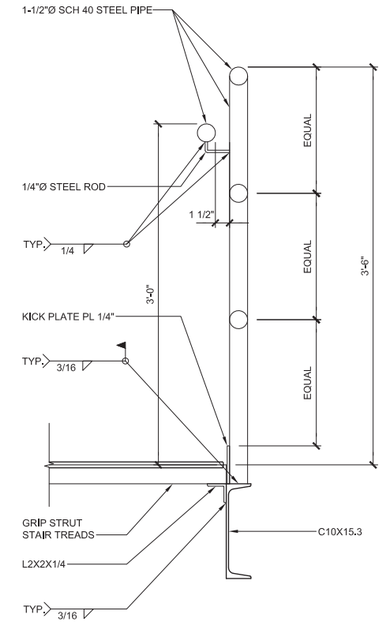
2 S2.4 TYPICAL STAIR RAIL DETAIL

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



3 S2.4 EMERGENCY EXIT STAIR FRAMING PLAN

1/2" = 1'-0"



4 S2.4 TYPICAL GUARDRAIL DETAIL

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

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS REV	DATE	DESCRIPTION

VERIFY SCALES
0 ——— 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA 49TH
Derek Hopewell
Derek W. Hopewell
SE 13298
05/21/17
REGISTERED STRUCTURAL ENGINEER

UMIAQ Design & Municipal Services, LLC / AECL1316

DATE: 03/16/2017
DRAWN BY: DWH
CHECKED BY: DWH
JOB NUMBER: 70183.15

DRAWING TITLE:
STAIR FRAMING PLANS SECTIONS AND DETAILS

S2.4

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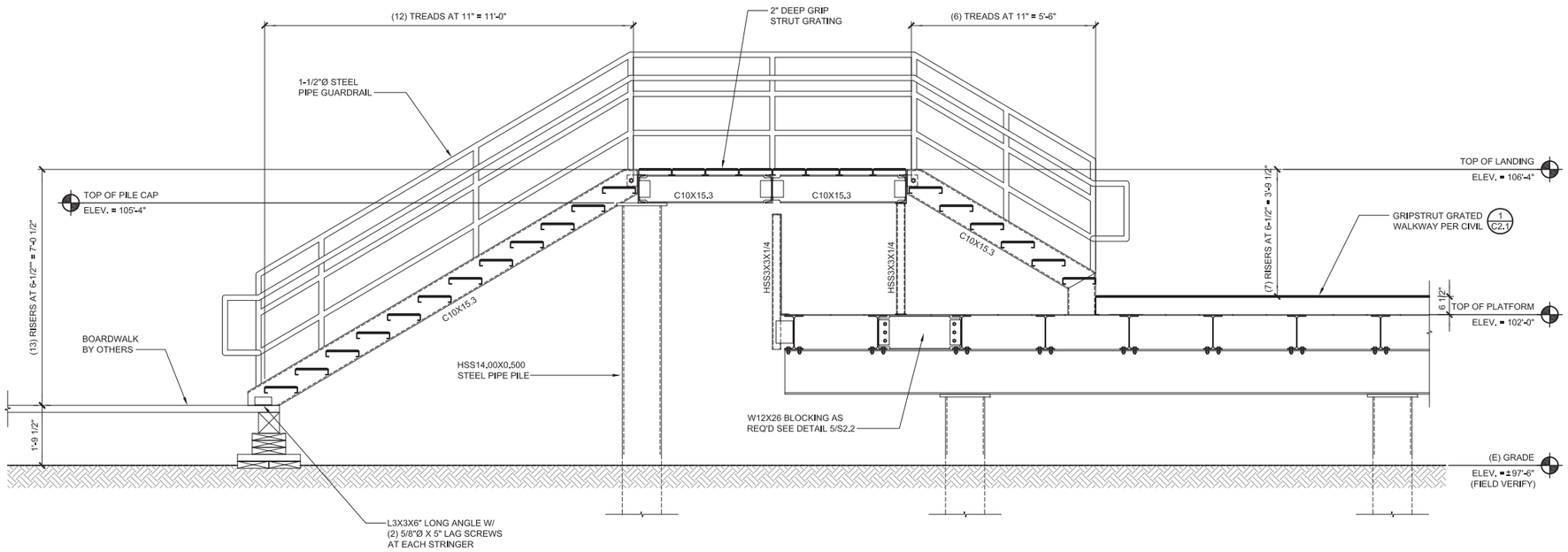
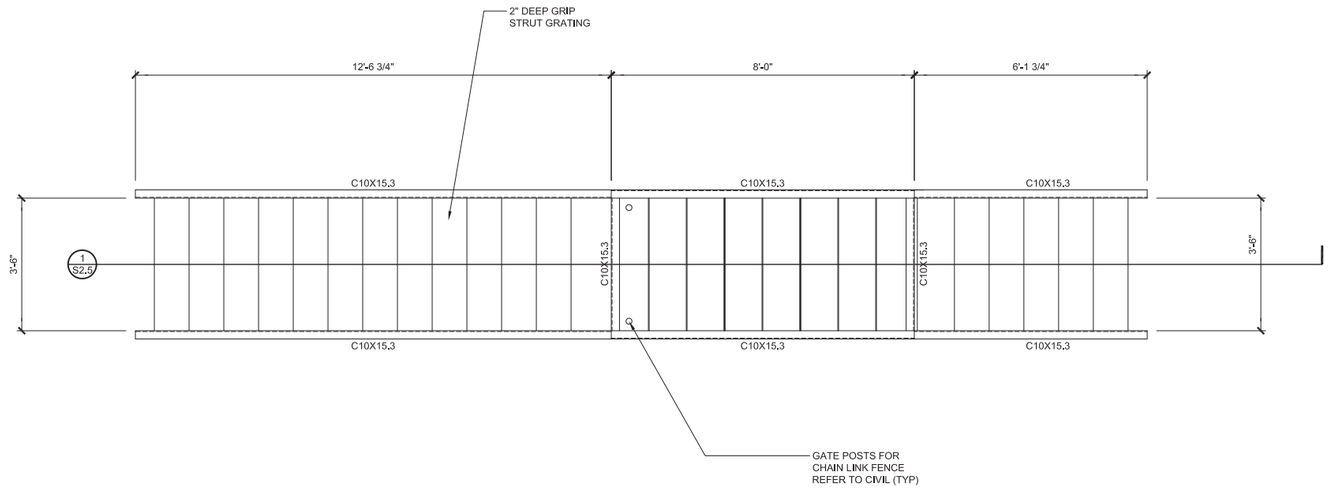


1 S2.5 MAIN ENTRY STAIR FRAMING SECTION

1/2" = 1'-0"



2 S2.5 MAIN ENTRY STAIR FRAMING PLAN

1/2" = 1'-0"

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

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THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

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DRAWING TITLE:
STAIR FRAMING PLANS SECTIONS AND DETAILS

S2.5

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SEQUENCE OF OPERATION

BULK TANK FILL (CP-1 AND CP-2):

GASOLINE AND DIESEL BULK TANKS ARE MANUALLY FILLED VIA THE MARINE HEADER. ALL BULK TANKS HAVE 'HIGH' AND 'CRITICAL HIGH' LEVEL FLOAT SWITCHES.

IN THE EVENT THAT A BULK TANK'S 'HIGH LEVEL' SWITCH IS ACTIVATED THE RESPECTIVE 'HIGH LEVEL' INDICATOR LIGHT IS ILLUMINATED AT THE CONTROL PANEL 'CP-1' OR 'CP-2' (CORPORATION OR COUNCIL). ONCE THE HIGH FUEL LEVEL CONDITION IS CORRECTED, PRESS THE RESET BUTTON TO CLEAR THE FAULT.

IF THE 'CRITICAL HIGH' SWITCH IS ACTIVATED, THE RESPECTIVE 'CRITICAL HIGH LEVEL' LIGHT IS ILLUMINATED AT THE CONTROL PANEL, AND THE HORN/STROBE IS ACTIVATED. AN ALARM SILENCE BUTTON LOCATED AT THE CONTROL PANEL CAN BE PRESSED TO SILENCE THE HORN. ONCE THE 'CRITICAL HIGH'FUEL LEVEL CONDITION IS CORRECTED, PRESS THE RESET BUTTON TO CLEAR THE FAULT.

BULK TANK LEVEL ALARMS WILL OPERATE WHEN THE CONTROL PANEL IS 'OFF'. THEREFORE IF BARGE DELIVERY IS RECEIVED AND THE CONTROL PANEL IS 'OFF', CONTROL PANEL INDICATOR LIGHTS AND HORN/STROBE WILL STILL BE ENABLED FOR SAFETY. NOTE THAT THE LEVEL ALARMS ARE AUDIBLE/VISUAL ONLY AND WILL NOT AUTOMATICALLY SHUT OFF THE TRANSFER PUMP IN THE BARGE.

FILLING INTERMEDIATE TANK (CP-1):

TO FILL THE POWER PLANT INTERMEDIATE TANK, FIRST THE USER TURNS CONTROL PANEL 'CP-1' FUEL SYSTEM SELECTOR SWITCH TO THE 'ON' POSITION. AN INDICATOR LIGHT IS ILLUMINATED AT CONTROL PANEL INDICATING THE CONTROL PANEL IS 'ON'.

TO TRANSFER FUEL USER PRESSES THE PUMP 'START' BUTTON AT THE CONTROL PANEL 'CP-1'. A SIGNAL IS SENT TO OPEN ACTUATED BALL VALVE 'A-3'. WHEN THE ACTUATED BALL VALVE IS FULLY OPENED, A LIGHT IS ILLUMINATED AT 'CP-1' INDICATING THE VALVE IS FULLY OPEN, DISTRIBUTION PUMP 'DP-1' TURNS ON, AND THE 'ON' INDICATOR LIGHT FOR THE PUMP ILLUMINATES ON THE CONTROL PANEL. THIS WILL ALLOW FUEL TO FLOW FROM THE DIESEL BULK TANK TO THE POWER PLANT INTERMEDIATE TANK. TIMER 'T-3' IS ENABLED TO ALLOW THE PUMP TO BE OPERATIONAL FOR AN ADJUSTABLE 2-120 MINUTES, SET TIMER INITIALLY FOR 55 MINUTES.

TO STOP THE TRANSFER OPERATION THE USER PRESSES THE PUMP 'STOP' BUTTON AT THE CONTROL PANEL 'CP-1' CAUSING DISTRIBUTION PUMP 'DP-1' TO STOP, AND ACTUATED BALL VALVES 'A-3' TO CLOSE. THE PUMP 'ON' INDICATOR LIGHT FOR 'DP-1' WILL TURN OFF. ACTUATED BALL VALVE 'CLOSED' INDICATOR LIGHT WILL ILLUMINATE FOR 'A-3' WHEN THE VALVE IS FULLY CLOSED.

IN THE EVENT THAT THE INTERMEDIATE TANK HIGH LEVEL SWITCH IS ACTIVATED, IT DOES THE SAME FUNCTION AS THE 'STOP' BUTTON, PLUS THE 'HIGH LEVEL' INDICATOR LIGHT IS ILLUMINATED AT THE CONTROL PANEL INDICATING A HIGH FUEL LEVEL IN THE TANK. ONCE THE HIGH FUEL LEVEL IS CLEARED, PRESS THE RESET BUTTON TO CLEAR THE FAULT.

IF THE CRITICAL HIGH SWITCH IS ACTIVATED, IT DOES THE SAME FUNCTION AS THE HIGH LEVEL SWITCH, PLUS THE 'CRITICAL HIGH LEVEL' LIGHT IS ILLUMINATED AND THE HORN/STROBE IS ACTIVATED. AN ALARM SILENCE BUTTON LOCATED AT CONTROL PANEL 'CP-1' CAN BE PRESSED TO SILENCE THE HORN. ONCE THE FAULT IS CLEARED, PRESS THE RESET BUTTON TO CLEAR THE FAULT.

IF AN EMERGENCY STOP PUSHBUTTON IS ACTIVATED, IT DOES THE SAME FUNCTION AS THE 'STOP' BUTTON. PLUS CONTROL POWER IS SHUTDOWN EXCEPT EMERGENCY STOP RELAY, HEATER, AND AREA LIGHTS. IF ACTUATED WHEN BALL VALVE IS OPENED, VALVE WILL FULLY CLOSE BEFORE POWER IS DISCONNECTED FROM THE VALVE.

UPON ACTIVATION OF THE E-STOP SYSTEM A LIGHT IS ILLUMINATED AT THE CONTROL PANEL INDICATING THE SYSTEM HAS BEEN ACTIVATED.

GASOLINE DISPENSING TANK FILL (CP-2):

USER TURNS THE 'FUEL SYSTEM' SELECTOR SWITCH TO THE 'ON' POSITION AT THE CONTROL PANEL 'CP-2'. AN INDICATOR LIGHT IS ILLUMINATED AT THE CONTROL PANEL INDICATING THE CONTROL PANEL IS 'ON'.

TO FILL THE GASOLINE DISPENSING TANK, USER PRESSES THE GASOLINE PUMP 'START' BUTTON AT THE CONTROL PANEL. A SIGNAL IS SENT TO OPEN ACTUATED BALL VALVE 'A-1'. WHEN THE ACTUATED BALL VALVE IS FULLY OPENED, A LIGHT IS ILLUMINATED AT THE CONTROL PANEL, TRANSFER PUMP 'TP-1' WILL START, AND THE PUMP 'ON' INDICATOR LIGHT WILL ILLUMINATE. THIS WILL ALLOW GASOLINE TO FLOW FROM THE GASOLINE BULK TANKS TO THE DISPENSING TANK. TIMER 'T-1' IS ENABLED TO ALLOW THE PUMP TO BE OPERATIONAL FOR AN ADJUSTABLE 2-120 MINUTES, SET TIMER INITIALLY FOR 45 MINUTES.

TO STOP THE TRANSFER OPERATION THE USER PRESSES THE PUMP 'STOP' BUTTON AT THE CONTROL PANEL CAUSING TRANSFER PUMP 'TP-1' TO STOP AND ACTUATED BALL VALVE 'A-1' TO CLOSE. THE PUMP 'ON' INDICATOR LIGHT WILL TURN OFF AND THE 'CLOSED' INDICATOR LIGHT WILL ILLUMINATE WHEN THE ACTUATED BALL VALVE IS FULLY CLOSED.

IN THE EVENT THAT THE DISPENSING TANK'S 'HIGH LEVEL' SWITCH IS ACTIVATED, IT DOES THE SAME FUNCTION AS THE 'STOP' BUTTON, PLUS THE 'HIGH LEVEL' INDICATOR LIGHT IS ILLUMINATED AT THE CONTROL PANEL INDICATING A HIGH FUEL LEVEL IN THE DISPENSING TANK. ONCE THE HIGH FUEL LEVEL IS CLEARED, PRESS THE RESET BUTTON TO CLEAR THE FAULT.

IF THE 'CRITICAL HIGH' LEVEL SWITCH IS ACTIVATED, IT DOES THE SAME FUNCTION AS THE 'HIGH LEVEL' SWITCH, PLUS THE 'CRITICAL HIGH LEVEL' LIGHT IS ILLUMINATED AND THE HORN/STROBE IS ACTIVATED. AN ALARM SILENCE BUTTON LOCATED AT THE CONTROL PANEL CAN BE PRESSED TO SILENCE THE HORN. ONCE THE FAULT IS CLEARED, PRESS THE RESET BUTTON TO CLEAR THE FAULT.

IF AN EMERGENCY STOP PUSHBUTTON IS ACTIVATED, IT DOES THE SAME FUNCTION AS THE 'STOP' BUTTON, PLUS CONTROL POWER IS SHUT DOWN AT THE CONTROL PANEL WITH THE EXCEPTION OF THE E-STOP LOCKOUT RELAY, HEATER, AND THE TANK FARM AREA LIGHTING.

IN THE EVENT THAT THE ACTUATED BALL VALVE 'A-1' IS OPEN WHEN THE E-STOP IS PRESSED, A SIGNAL IS SENT FOR THE VALVE TO CLOSE. ONCE THE VALVE IS FULLY CLOSED, ALL POWER IS DISCONNECTED FROM THE ACTUATED BALL VALVE.

UPON ACTIVATION OF THE E-STOP SYSTEM A LIGHT IS ILLUMINATED AT THE CONTROL PANEL INDICATING THE SYSTEM HAS BEEN ACTIVATED.

DIESEL DISPENSING TANK FILL (CP-2):

SAME SEQUENCE OF OPERATION AS FOR GASOLINE DISPENSING EXCEPT USING THE TRANSFER PUMP 'TP-2' AND ACTUATED BALL VALVE 'A-2'. INITIAL SET POINT FOR TIMER 'T-2' IS 45 MINUTES.

MOTOR VEHICLE DISPENSERS (CP-2):

FIRST USER TURNS THE 'FUEL SYSTEM' SELECTOR SWITCH TO THE 'ON' POSITION AT THE CONTROL PANEL. AN INDICATOR LIGHT WILL ILLUMINATE AT THE CONTROL PANEL INDICATING THE CONTROL PANEL IS ON. NEXT USER TURNS THE 'VEHICLE DISPENSING' SELECTOR SWITCH TO THE 'ON' POSITION TO ENABLE THE MOTOR VEHICLE DISPENSING SYSTEM.

ONCE ACTIVATED THE SOLENOID VALVE INSIDE THE RESPECTIVE DISPENSER IS INTERLOCKED WITH THE DISPENSER NOZZLE HANG-UP SWITCH AND OPENS UPON LIFTING THE SWITCH.

AFTER THE VEHICLE DISPENSING SYSTEM IS ENABLED, A CUSTOMER CAN DISPENSE GASOLINE OR DIESEL BY LIFTING THE NOZZLE HANG-UP SWITCH AT THE RESPECTIVE DISPENSER AND DEPRESSING THE TRIGGER ON THE FUEL NOZZLE. LIFTING THE NOZZLE HANG-UP SWITCH WILL START THE RESPECTIVE SUBMERSIBLE PUMP ('SP-1' FOR GASOLINE AND 'SP-2' FOR DIESEL). THIS WILL ALLOW FUEL TO FLOW FROM DISPENSING TANK TO THE DISPENSER. WHEN FINISHED THE NOZZLE TRIGGER IS RELEASED AND THE HANG-UP SWITCH LOWERED WHICH SHUTS OFF THE RESPECTIVE SUBMERSIBLE PUMP ('SP-1' OR 'SP-2').

IN THE EVENT THAT THE 'LOW LEVEL' SWITCH IN A DISPENSING TANK IS ACTIVATED IT SHUTS DOWN THE RESPECTIVE SUBMERSIBLE PUMP, 'SP-1/L-1' FOR GASOLINE AND 'SP-2/L-2' FOR DIESEL. AN INDICATOR LIGHT WILL ILLUMINATE AT THE CONTROL PANEL INDICATING A LOW FUEL LEVEL IN THE DISPENSING TANK. ONCE THE LOW FUEL LEVEL IS CLEARED, PRESS THE RESET BUTTON TO CLEAR THE FAULT.

IN THE EVENT THAT A TRANSFER PUMP IS ON, THE RESPECTIVE SUBMERSIBLE PUMP ('SP-1' FOR 'TP-1' AND 'SP-2' FOR 'TP-2') IS LOCKED OUT UNTIL FUEL TRANSFER TO DISPENSING TANK IS COMPLETED. THIS IS TO PREVENT DISPENSING INTO MOTOR VEHICLES WHILE DISPENSING TANK IS BEING FILLED.

IF AN EMERGENCY STOP PUSHBUTTON IS ACTIVATED, IT SHUTS DOWN CONTROL POWER AT THE CONTROL PANEL WITH THE EXCEPTION OF THE E-STOP LOCKOUT RELAY, HEATER, AND TANK FARM AREA LIGHTING. THE E-STOPS SHALL ALSO DISCONNECT ALL POWER CONDUCTORS FEEDING THE DISPENSER AND DISPENSING ISLAND DISPENSER ENCLOSURE LIGHTING INCLUDING THE NEUTRAL CONDUCTORS.

UPON ACTIVATION OF THE E-STOP SYSTEM A LIGHT IS ILLUMINATED AT THE CONTROL PANEL INDICATING THE SYSTEM HAS BEEN ACTIVATED.

LIGHT FIXTURE SCHEDULE

TYPE	LOCATION	MANUFACTURER AND CATALOG NUMBER (OR APPROVED EQUAL)	LUMINAIRE DESCRIPTION	MOUNTING		LAMPS	BALLAST/DRIVER	TOTAL INPUT WATTS
				TYPE	HEIGHT			
A	BULK TANK FARM	GARDCO #ECF-S-32L-700-NW-G2-WS-3-UNV-BZ	29.3"Lx14.9"Wx6.5"D LED AREA LIGHT WITH WALL MOUNTING HARDWARE, LOW PROFILE ALUMINUM HOUSING, TYPE 3 OPTICS, AND DARK BRONZE FINISH.	WALL	TOP RIM OF TANK OR +15'-0"	4,000K LED 7,791LM	120/277V ELECTRONIC DRIVER, -40°F START	71
B	PUMP ENCLOSURE	AZZ #MHL-04-L-D-2-U	6.14"Hx4.78"Wx24"L LED STRIP LIGHT, DIFFUSE POLYCARBONATE LENS, AND LISTED FOR HAZARDOUS LOCATIONS.	SURFACE	CEILING	4,000K LED 3,737LM	120/277V ELECTRONIC DRIVER, -40°F START	40
C	DISPENSING ENCLOSURE	LITHONIA #OLWX1-13-40-120-PE	7-1/2"Wx8"Hx3"D WALL MOUNTED AREA LIGHT, DARK BRONZE FINISH AND INTEGRAL PHOTOCELL.	WALL	8'-0" AFG	4,000K LED 1,271LM	120V ELECTRONIC DRIVER, -40°F START	13

LEGEND

	STRIPLIGHT - PENDANT OR SURFACE MTD CLG		FIRE ALARM HORN/STROBE LIGHT
	POLE MOUNTED AREA LIGHT - OUTDOORS, WEATHERPROOF	CX	CRITICAL HIGH LEVEL FLOAT SWITCH
	WALL MOUNTED AREA LIGHT - OUTDOORS, WEATHERPROOF	HX	HIGH LEVEL FLOAT SWITCH
	LIGHT FIXTURE - SURFACE MTD ON WALL	LX	LOW LEVEL FLOAT SWITCH
A	FIXTURE TAG (LETTER INDICATES TYPE)	1	NOTE TAG (No. INDICATES NOTE)
$	SINGLE POLE SWITCH	AFG	ABOVE FINISHED GRADE
P	PHOTOCELL	C	CONDUIT
	CONDUIT, CONCEALED	CO	CONDUIT ONLY
#10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)	E	DENOTES EXISTING ITEM
A-2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)	EM	DENOTES EMERGENCY POWER
—OH/E—	OVERHEAD ELECTRICAL LINE (12470/7200V UON)	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
	PANEL	GRSC	GALVANIZED RIGID STEEL CONDUIT
	DUPLEX RECEPTACLE	LED	LIGHT EMITTING DIODE
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER	MCB	MAIN CIRCUIT BREAKER
	QUADRAPLEX RECEPTACLE	MLO	MAIN LUGS ONLY
	SPECIAL PURPOSE OUTLET	NEC	NATIONAL ELECTRICAL CODE
	JUNCTION BOX	R	DENOTES EXISTING ITEM THAT HAS BEEN RELOCATED
	EMERGENCY PUSHBUTTON SWITCH	TYP	TYPICAL
	MOTOR (SIZED AS NOTED)	UON	UNLESS OTHERWISE NOTED
		WP	WEATHERPROOF

GENERAL NOTES:

A. BASE BID: INCLUDES INSTALLATION OF CONTAINMENT PLATFORM, TANKS KLP-101, 102, 103, AND 104. PROVIDE SERVICE ENTRANCE, TANK INSTRUMENTATION, TANK AND SECURITY LIGHTING, AND CONTROL PANEL 'CP-1'. 'CP-1' SHALL INCLUDE ALL COMPONENTS WHICH WILL CONNECT TO FIELD DEVICES PROVIDED UNDER OTHER BID ALTERNATES.

B. ADDITIVE ALTERNATE #1: INCLUDES INSTALLATION OF TANKS KLTD-201, 202, 301, 302, AND 303. PROVIDE TANK INSTRUMENTATION, EXTENSION OF LIGHTING CIRCUIT FOR NEW TANK LIGHTS, AND CONTROL PANEL 'CP-2'. PROVIDE EXTENSION OF FEEDER FROM SERVICE TO 'CP-2'. 'CP-2' SHALL INCLUDE ALL COMPONENTS WHICH WILL CONNECT TO FIELD DEVICES PROVIDED UNDER OTHER BID ALTERNATES. MAKE CONNECTIONS TO ALL FIELD DEVICES REQUIRING CONNECTION TO 'CP-1'.

C. ADDITIVE ALTERNATE #2: INCLUDES INSTALLATION OF TANK KLTD-203 AND DISPENSING STATION. PROVIDE TANK AND DISPENSER INSTRUMENTATION. PROVIDE POWER FOR DISPENSING STATION. MAKE CONNECTIONS TO ALL FIELD DEVICES REQUIRING CONNECTION TO 'CP-1' AND 'CP-2'.

D. SEE SPECIFICATIONS SECTION 01 11 13 SUMMARY OF WORK FOR FURTHER CLARIFICATION ON BID ALTERNATES.

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES
KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS		
REV	DATE	DESCRIPTION

VERIFY SCALES
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STATE OF ALASKA
49TH
CHANNING P. LILLO
EE-10285
3/16/17
REGISTERED PROFESSIONAL ENGINEER

DATE: 03/16/2017
DRAWN BY: PCC
CHECKED BY: CPL,TEH
JOB NUMBER: L5100

DRAWING TITLE:
ELECTRICAL LEGEND, SEQUENCE OF OPERATION, AND FIXTURE SCHEDULE

E0.1

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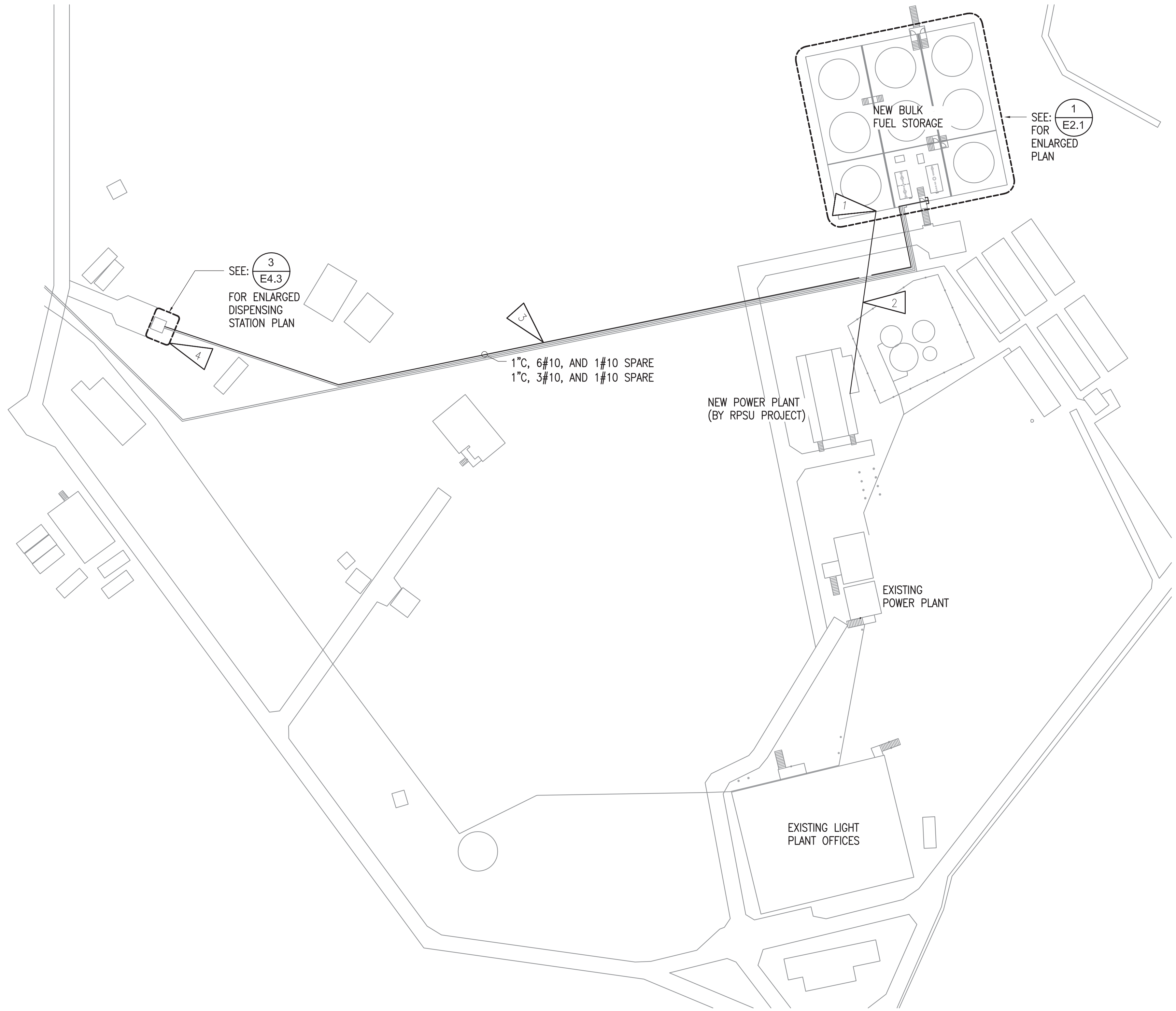

1 ELECTRICAL SITE PLAN
1" = 40'

SHEET NOTES:

1. NEW BULK FUEL STORAGE SERVICE ENTRANCE EQUIPMENT. SEE PLAN 1/E2.1 FOR LOCATION.
2. NEW OVERHEAD SERVICE SECONDARY CONDUCTORS PROVIDED BY LIGHT PLANT. COORDINATE EXACT CONNECTION REQUIREMENTS WITH UTILITY.
3. ROUTE ON FUEL PIPING RACK WHERE POSSIBLE. PROVIDE WEATHER-PROOF PULL BOXES AS REQUIRED.
4. SEE 2/E3.1 FOR HAZARDOUS AREA BOUNDARY.

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES
KIPNUK, ALASKA

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CHANNING P. LILLO
EE-10285
3/16/17
REGISTERED PROFESSIONAL ENGINEER

DATE: 03/16/2017
DRAWN BY: PCC
CHECKED BY: CPL,TEH
JOB NUMBER: L5100

DRAWING TITLE:
ELECTRICAL SITE PLAN

E1.1

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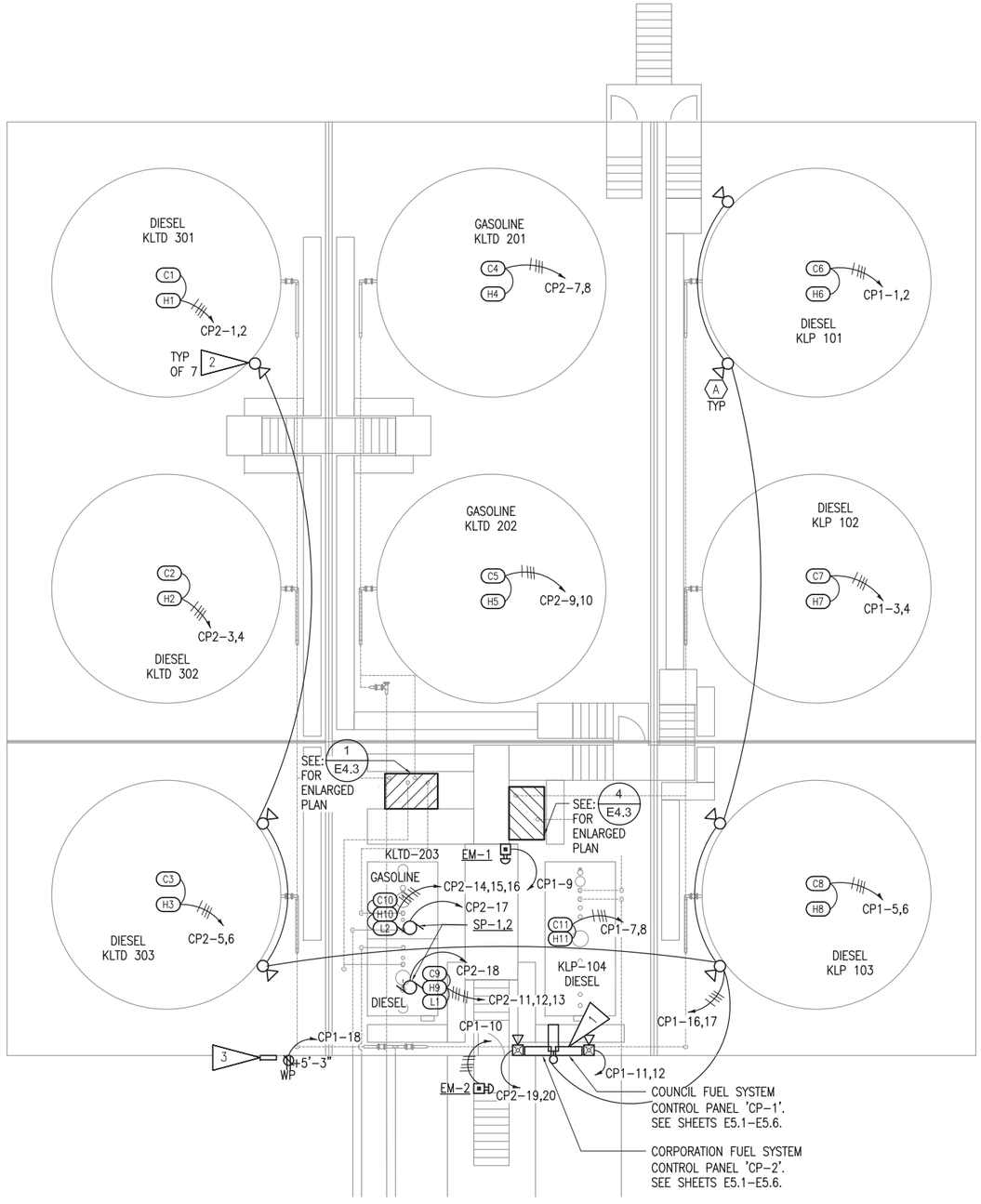

1 BULK FUEL STORAGE LIGHTING, POWER, AND SIGNAL PLAN

1/8" = 1'-0"

GENERAL NOTES:

A. INSTALL ALL CONDUCTORS IN GALVANIZED RIGID CONDUIT. FIELD ROUTE AND SIZE CONDUIT TO ACCOMMODATE ALL CONDUCTORS PLUS 25% SPARE CAPACITY. 3/4" MINIMUM SIZE.

B. SEE 1/E3.1 AND 2/E4.2 FOR HAZARDOUS AREA DETAILS. INSTALL SEAL–OFFS AND EXPLOSION–PROOF EQUIPMENT WHERE REQUIRED BY CODE.

C. ROUTE CONDUIT ON TOP OF DIKE WALLS WHERE EVER POSSIBLE. DO NOT PLACE FITTINGS AND JUNCTION BOXES NEAR DIKE FLOOR. COORDINATE WITH CIVIL PLANS FOR EXACT ROUTING LOCATIONS PRIOR TO INSTALLATION.

D. WHERE CONDUIT CANNOT BE ROUTED ON TOP OF DIKE WALLS, ROUTE ON UNISTRUT SUPPORTS SEAL WELDED IN PLACE BEFORE COATING STEEL CONTAINMENT DIKES TO ELIMINATE RUST BLEEDING. SEE 3/E4.2 FOR CONDUIT INSTALLATION OUTSIDE OF CONTAINMENT DIKE.

E. PROVIDE LIQUID TIGHT FLEXIBLE CONDUIT WITH "S" BEND OR LOOP TO ALLOW FOR GROUND MOVEMENT AT ALL LOCATION WHERE CONDUIT TRANSITION FROM GRADE TO FIXED EQUIPMENT.

NOTE:
SEE 1/E3.1 FOR HAZARDOUS AREA BOUNDARIES. ALL WORK IN THESE AREAS SHALL BE DONE IN STRICT COMPLIANCE WITH ARTICLES 500, 501, AND 514 OF THE NATIONAL ELECTRICAL CODE. PROVIDE SEAL–OFFS ON ALL CONDUIT PENETRATING CLASSIFIED LOCATIONS AS REQUIRED BY CODE.

SHEET NOTES:

1. SEE 3/E4.1 FOR MOUNTING DETAIL.
2. MOUNT FIXTURE ON TOP RIM OF TANK. SEE 2/E4.3 AND MECHANICAL PLANS FOR TANK MOUNTING DETAIL.
3. SERVICE ENTRANCE EQUIPMENT COORDINATE EXACT LOCATION WITH STRUCTURAL PLANS FOR MOUNTING AT BOTTOM OF POLE ON OUTSIDE OF DIKE. SEE DETAIL 1/E4.1 FOR CONNECTION TO CONTROL PANELS.
4. SEE DETAIL 2/E5.2 FOR WIRING CONNECTIONS.
5. SEE DETAIL 1/E5.2 FOR WIRING CONNECTIONS.
6. SEE DETAIL 1/E5.5 FOR WIRING CONNECTIONS.
7. SEE DETAIL 1/E5.4 FOR WIRING CONNECTIONS.
8. SEE DETAIL 2/E5.5 FOR WIRING CONNECTIONS.
9. SEE DETAIL 1/E5.3 FOR WIRING CONNECTIONS.

EQUIPMENT SCHEDULE

CIRCUIT TAG	SOURCE	DESTINATION	HP	AMPS	VOLTS	PHASE	CONDUCTORS (CU, XHHW)	NOTES
CP1–1	CP–1	CRITICAL HIGH FLOAT SWITCH TANK KLP #101		N/A	120	1	2#12, 1#12 G	4
CP1–2	CP–1	HIGH FLOAT SWITCH TANK KLP #101		N/A	120	1	2#12, 1#12 G	4
CP1–3	CP–1	CRITICAL HIGH FLOAT SWITCH TANK KLP #102		N/A	120	1	2#12, 1#12 G	4
CP1–4	CP–1	HIGH FLOAT SWITCH TANK KLP #102		N/A	120	1	2#12, 1#12 G	4
CP1–5	CP–1	CRITICAL HIGH FLOAT SWITCH TANK KLP #103		N/A	120	1	2#12, 1#12 G	4
CP1–6	CP–1	HIGH FLOAT SWITCH TANK KLP #103		N/A	120	1	2#12, 1#12 G	4
CP1–7	CP–1	CRITICAL HIGH FLOAT SWITCH TANK KLP #104		N/A	120	1	2#12, 1#12 G	4
CP1–8	CP–1	HIGH FLOAT SWITCH TANK KLP #104		N/A	120	1	2#12, 1#12 G	4
CP1–9	CP–1	EM–1		N/A	120	1	2#12, 1#12 G	5
CP1–10	CP–1	EM–2		N/A	120	1	2#10, 1#10 G	5
CP1–11	CP–1	TANK CRITICAL HIGH LEVEL HORN		N/A	120	1	2#12, 1#12 G	5
CP1–12	CP–1	TANK CRITICAL HIGH LEVEL STROBE LIGHT		N/A	120	1	2#12, 1#12 G	5
CP1–16	CP–1	AREA LIGHTS		4.1	120	1	2#12, 1#12 G	6
CP1–17	CP–1	SECURITY LIGHT		0.6	120	1	2#12, 1#12 G	6
CP1–18	CP–1	SERVICE AND CONTROL PANEL RECEPTACLES		3	120	1	2#12, 1#12 G	6
CP2–1	CP–2	CRITICAL HIGH FLOAT SWITCH TANK KLTD #301		N/A	120	1	2#12, 1#12 G	4
CP2–2	CP–2	HIGH FLOAT SWITCH TANK KLTD #301		N/A	120	1	2#12, 1#12 G	4
CP2–3	CP–2	CRITICAL HIGH FLOAT SWITCH TANK KLTD #302		N/A	120	1	2#12, 1#12 G	4
CP2–4	CP–2	HIGH FLOAT SWITCH TANK KLTD #302		N/A	120	1	2#12, 1#12 G	4
CP2–5	CP–2	CRITICAL HIGH FLOAT SWITCH TANK KLTD #303		N/A	120	1	2#12, 1#12 G	4
CP2–6	CP–2	HIGH FLOAT SWITCH TANK KLTD #303		N/A	120	1	2#12, 1#12 G	4
CP2–7	CP–2	CRITICAL HIGH FLOAT SWITCH TANK KLTD #201		N/A	120	1	2#12, 1#12 G	4
CP2–8	CP–2	HIGH FLOAT SWITCH TANK KLTD #201		N/A	120	1	2#12, 1#12 G	4
CP2–9	CP–2	CRITICAL HIGH FLOAT SWITCH TANK KLTD #202		N/A	120	1	2#12, 1#12 G	4
CP2–10	CP–2	HIGH FLOAT SWITCH TANK KLTD #202		N/A	120	1	2#12, 1#12 G	4
CP2–11	CP–2	CRITICAL HIGH FLOAT SWITCH DIESEL TANK KLTD #203		N/A	120	1	2#10, 1#10 G	7
CP2–12	CP–2	HIGH FLOAT SWITCH DIESEL TANK KLTD #203		N/A	120	1	2#12, 1#12 G	7
CP2–13	CP–2	LOW FLOAT SWITCH DIESEL TANK KLTD #203		N/A	120	1	2#12, 1#12 G	7
CP2–14	CP–2	CRITICAL HIGH FLOAT SWITCH GASOLINE TANK KLTD #203		N/A	120	1	2#10, 1#10 G	7
CP2–15	CP–2	HIGH FLOAT SWITCH GASOLINE TANK KLTD #203		N/A	120	1	2#12, 1#12 G	7
CP2–16	CP–2	LOW FLOAT SWITCH GASOLINE TANK KLTD #203		N/A	120	1	2#12, 1#12 G	7
CP2–17	CP–2	GASOLINE SUBMERSIBLE PUMP 'SP–1'	3/4		240	1	2#12, 1#12 G	8
CP2–18	CP–2	DIESEL SUBMERSIBLE PUMP 'SP–2'	3/4		240	1	2#12, 1#12 G	8
CP2–19	CP–2	TANK CRITICAL HIGH LEVEL HORN		0.1	120	1	2#12, 1#12 G	9
CP2–20	CP–2	TANK CRITICAL HIGH LEVEL STROBE LIGHT		0.1	120	1	2#12, 1#12 G	9

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STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES

KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS	
REV	DATE
	DESCRIPTION

VERIFY SCALES
0 ——— 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

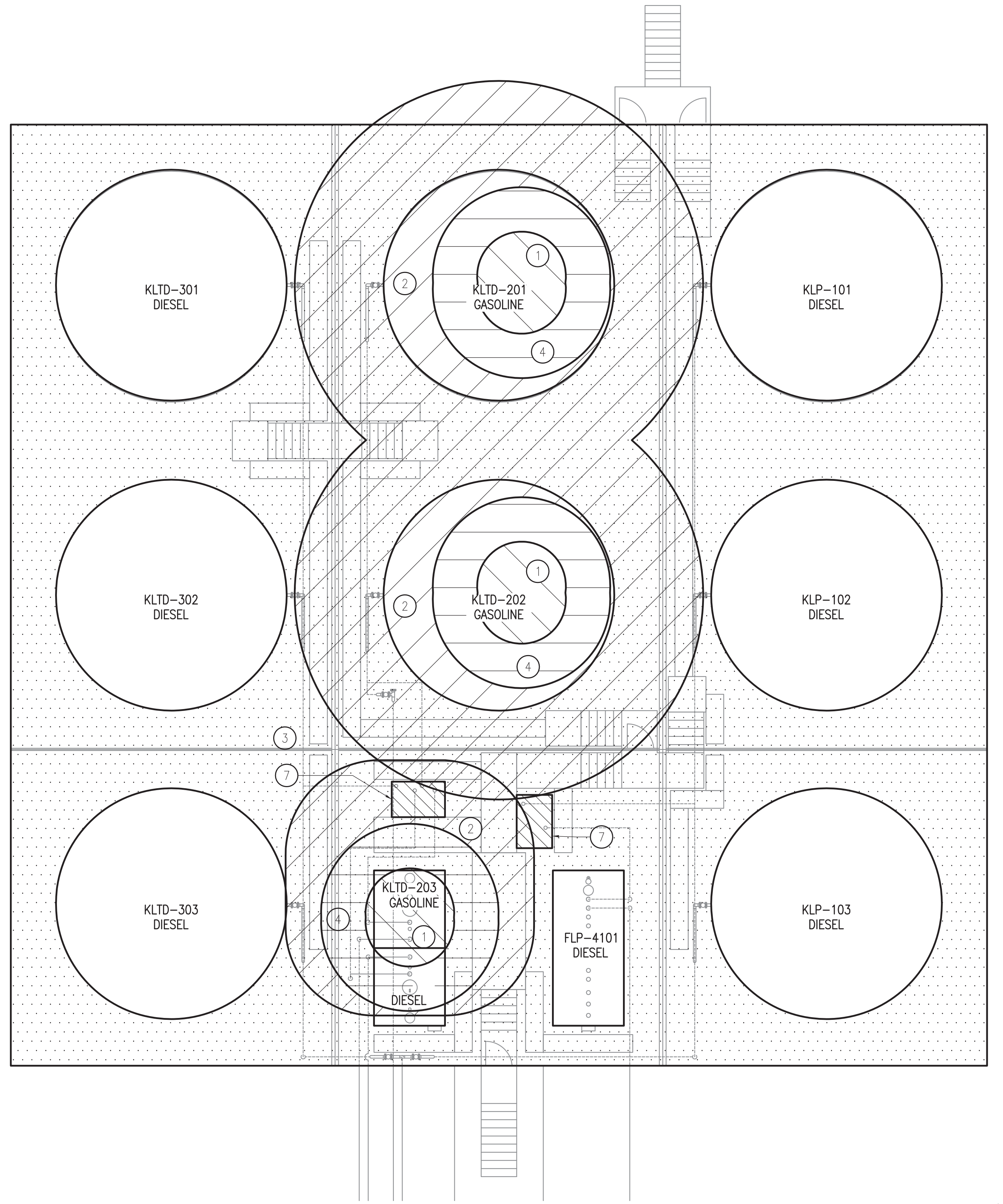
STATE OF ALASKA
CHANNING P. LILLOP
EE–10285
REGISTERED PROFESSIONAL ENGINEER

DATE: 03/16/2017
DRAWN BY: PCC
CHECKED BY: CPL,TEH
JOB NUMBER: L5100

DRAWING TITLE:
BULK FUEL STORAGE LIGHTING, POWER, AND SIGNAL PLAN

E2.1

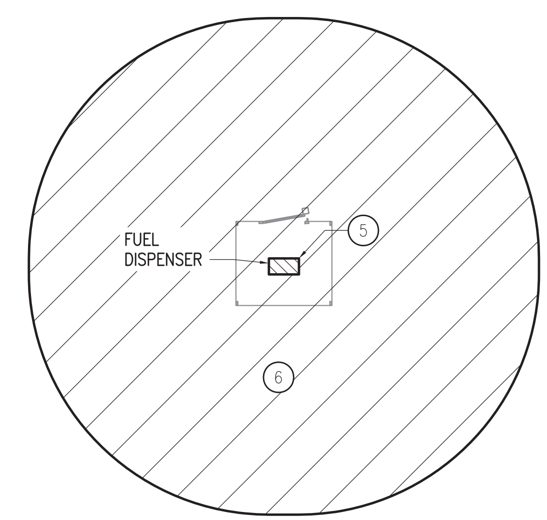
3 | X



1 HAZARDOUS LOCATION - TANK FARM
1/8" = 1'-0"

HAZARDOUS LOCATIONS

NO	CLASSIFICATIONS OF LOCATION	DESCRIPTION OF LOCATIONS
1	CLASS 1, DIVISION 1	5' IN ALL DIRECTIONS FROM OPEN END OF GASOLINE TANK VENT. SEE 2/E4.2.
2	CLASS 1, DIVISION 2	10' FROM SHELL, ENDS, OR ROOF OF GASOLINE TANK. SEE 2/E4.2.
3	CLASS 1, DIVISION 2	SPACE INSIDE DIKE TO LEVEL OF TOP OF DIKE. SEE 2/E4.2.
4	CLASS 1, DIVISION 2	AREA BETWEEN 5' AND 10' FROM OPEN END OF GASOLINE TANK VENT. SEE 2/E4.2.
5	CLASS 1, DIVISION 1	ENTIRE AREA WITHIN FUEL DISPENSER
6	CLASS 1, DIVISION 2	HORIZONTALLY 18" FROM DISPENSER AND THEN 20' HORIZONTALLY 18" AFG.
7	CLASS 1, DIVISION 2	ENTIRE AREA WITHIN PUMP ENCLOSURE.



2 HAZARDOUS LOCATION - DISPENSER ENCLOSURE
1/8" = 1'-0"

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REGISTERED PROFESSIONAL ENGINEER

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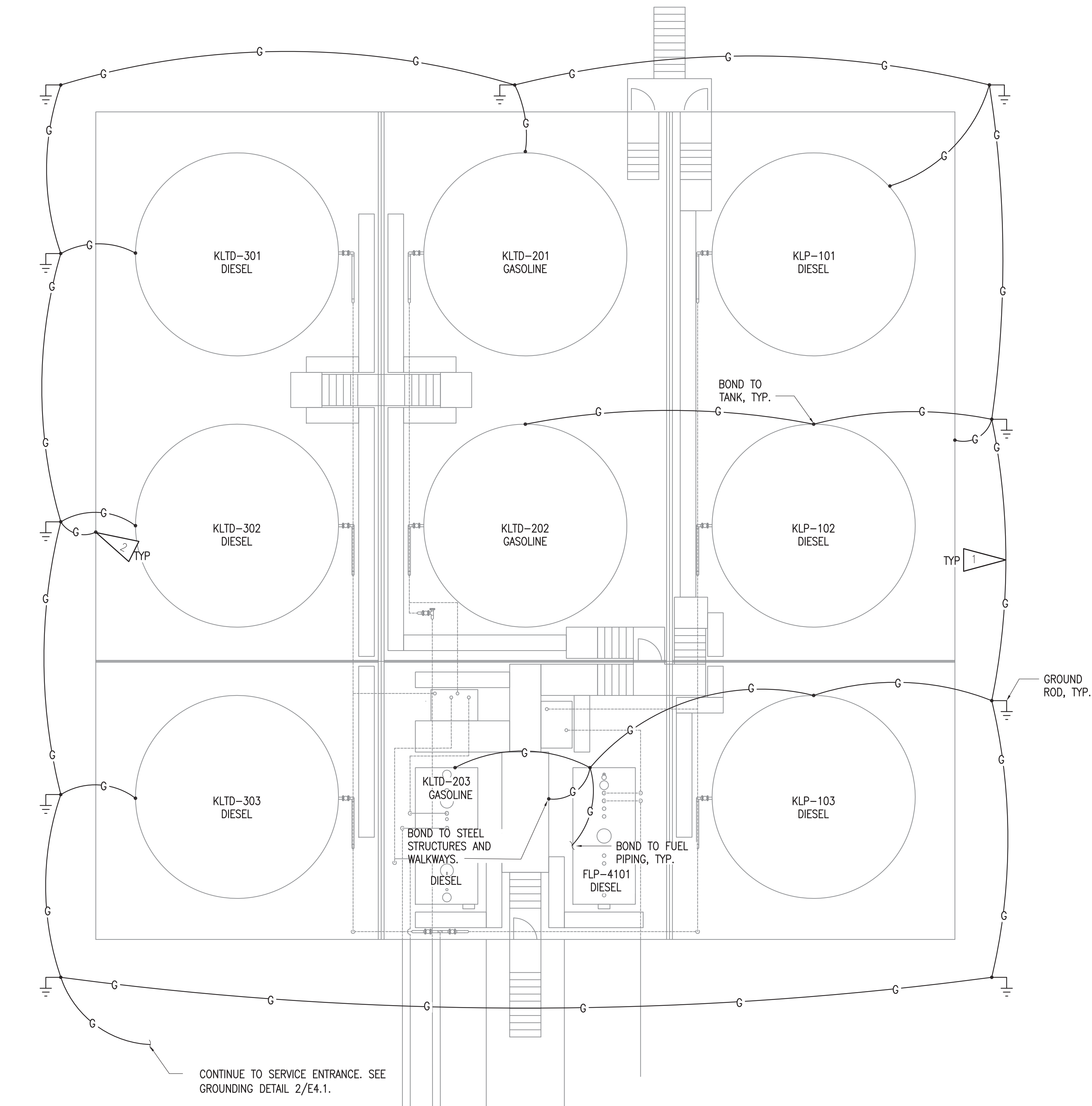
CHECKED BY:	CPL,TEH
JOB NUMBER:	L5100

DRAWING TITLE:
HAZARDOUS BOUNDARY PLANS

E3.1

SHEET NOTES:

1. PROVIDE #2 BARE COPPER GROUND CONDUCTORS SEE 1/E4.2 FOR GROUNDING DETAIL, TYP.
2. PROVIDE #2 BARE COPPER GROUND CONDUCTOR TO TANKS AND CHAIN LINK FENCE. SEE DETAIL 1/E4.2.



1 GROUNDING PLAN
1/8" = 1'-0"

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JOB NUMBER:	L5100

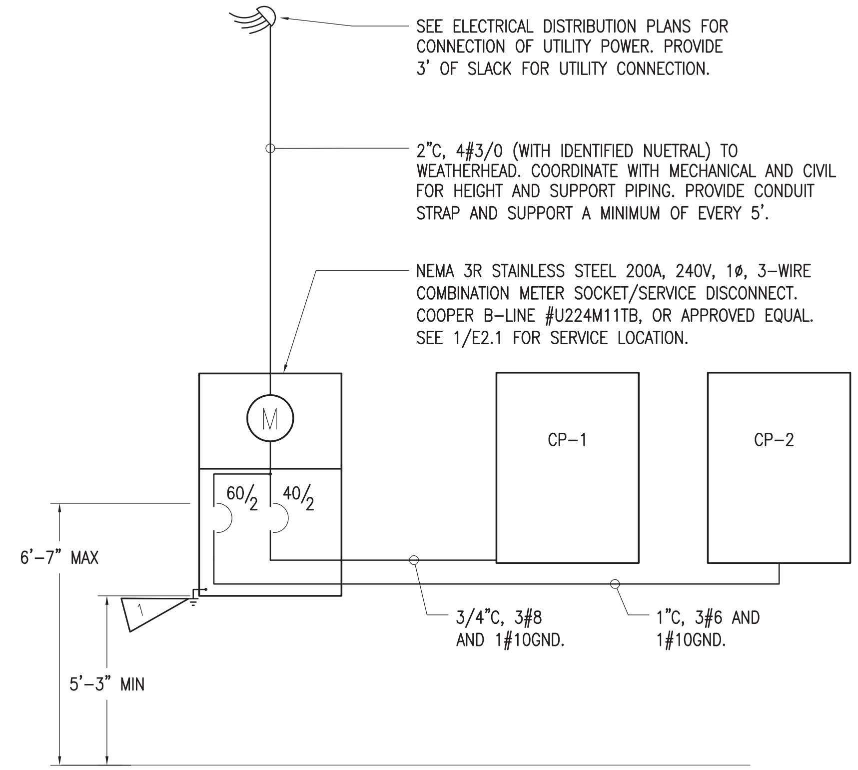
DRAWING TITLE:
GROUNDING PLAN

E3.2

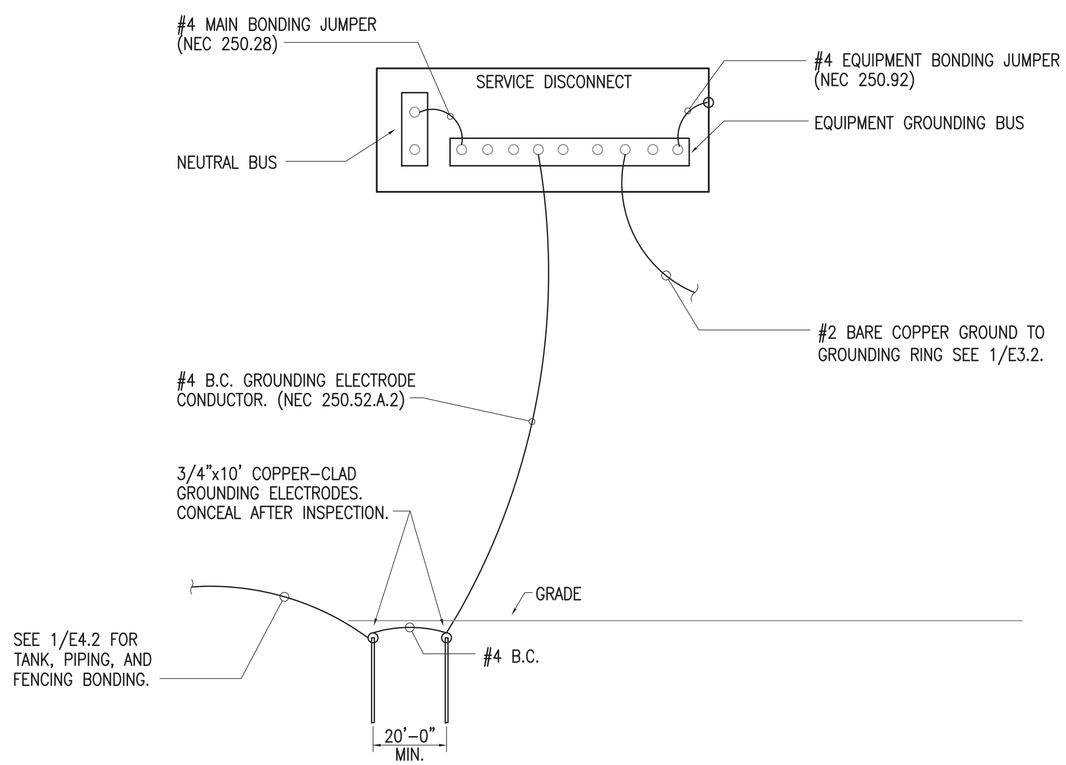
5 | X

SHEET NOTES:

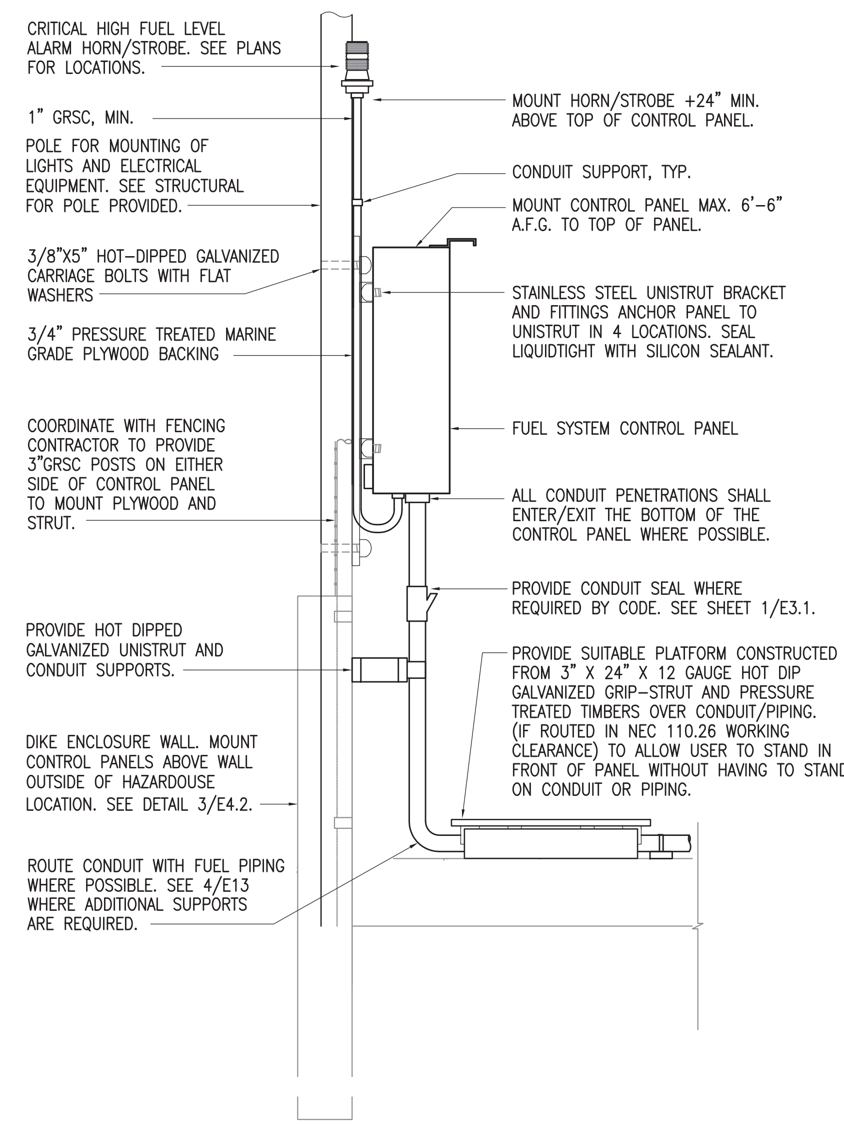
1. SEE 2/E4.1 FOR GROUNDING DETAIL.



1 ONE-LINE DIAGRAM
NO SCALE



2 GROUNDING DETAIL
NO SCALE



3 ONE-LINE DIAGRAM
NO SCALE

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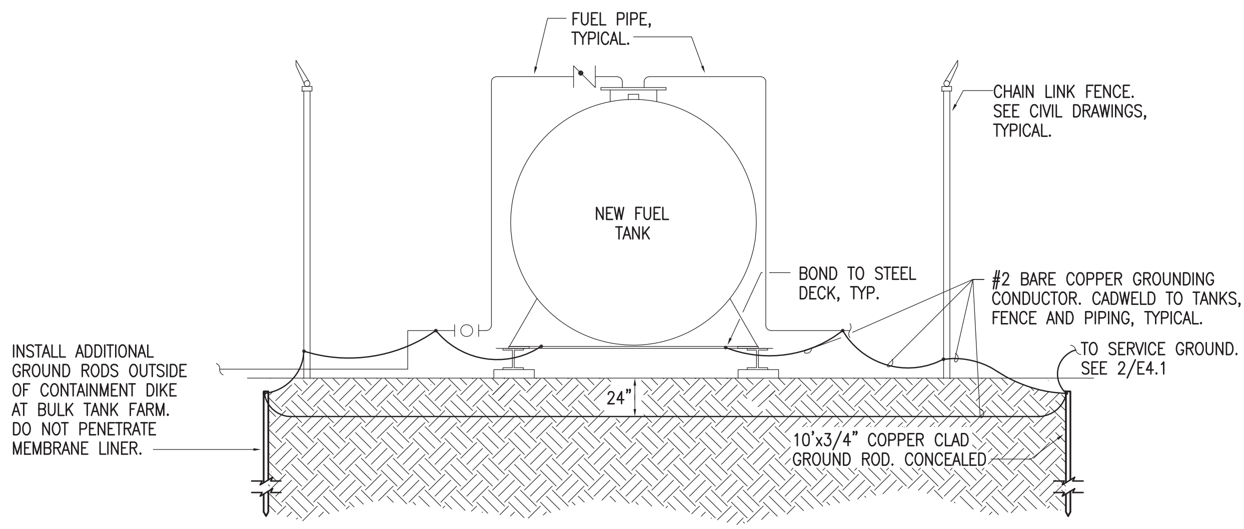
JOB NUMBER:	L5100

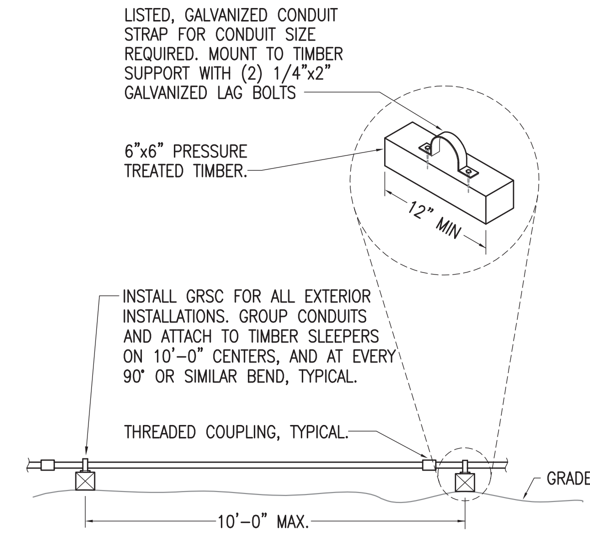
DRAWING TITLE:
ELECTRICAL DETAILS

E4.1

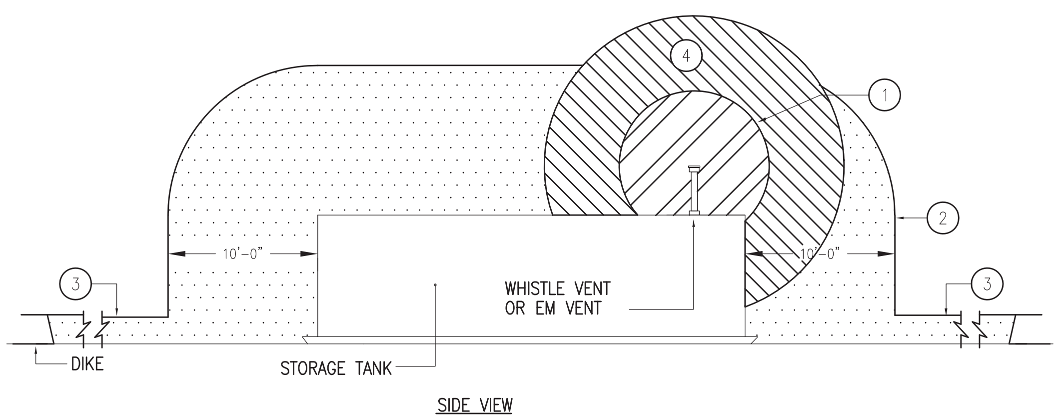
6 | X



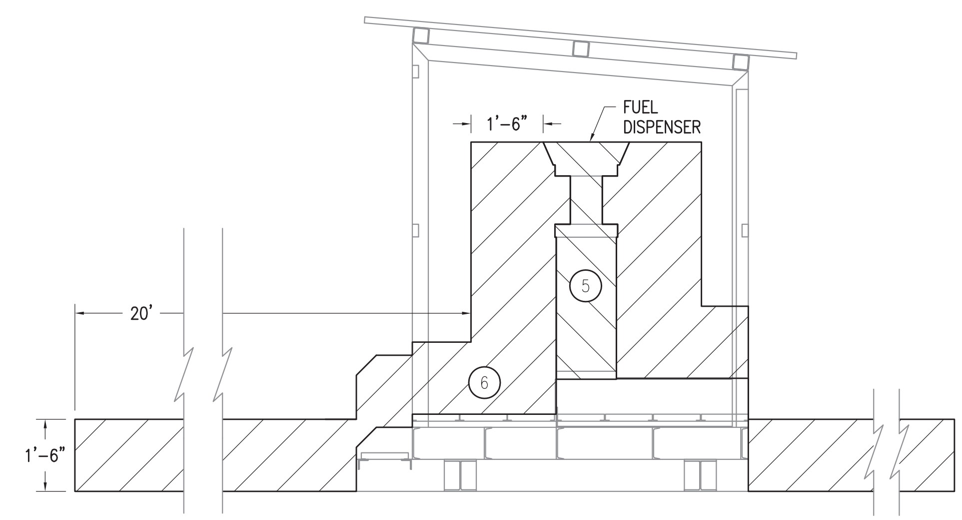
1 TYPICAL TANK GROUNDING DETAIL
NO SCALE



3 CONDUIT SUPPORT DETAIL
NO SCALE



1 2 TYPICAL GASOLINE STORAGE TANK HAZARDOUS AREA
NO SCALE



1 4 DISPENSING HAZARDOUS AREA
NO SCALE

SHEET NOTES:

1. SEE HAZARDOUS LOCATION SCHEDULE ON SHEET E3.1.

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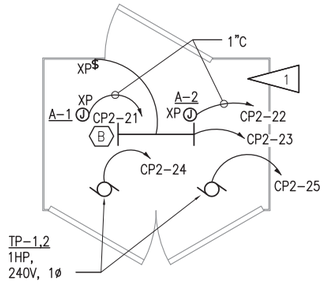
DRAWING TITLE:
ELECTRICAL DETAILS

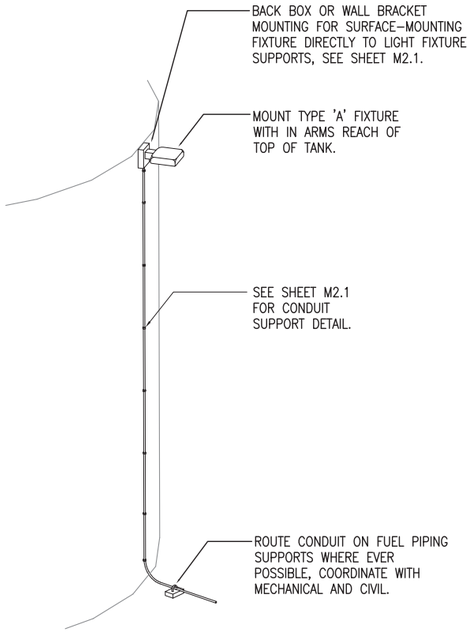
E4.2

7 X

EQUIPMENT SCHEDULE								
CIRCUIT TAG	SOURCE	DESTINATION	HP	AMPS	VOLTS	PHASE	CONDUCTORS (CU, XHHW)	NOTES
CP1-13	CP-1	ACTUATED BALL VALVE 'A-3'		1.6	120	1	6#12, 1#12 G	1,2
CP1-14	CP-1	DISPENSING PUMP 'DP-1'	2		240	1	2#12, 1#12 G	1
CP1-15	CP-1	COUNCIL PUMP ENCLOSURE LIGHT		0.3	120	1	2#12, 1#12 G	1
CP1-19	CP-1	EM-3		N/A	120	1	2#12, 1#12 G	2
CP2-21	CP-2	ACTUATED BALL VALVE 'A-1'		1.6	120	1	6#12, 1#12 G	3,4
CP2-22	CP-2	ACTUATED BALL VALVE 'A-2'		1.6	120	1	6#12, 1#12 G	3,4
CP2-23	CP-2	CORPORATION PUMP ENCLOSURE LIGHT		0.3	120	1	2#12, 1#12 G	3
CP2-24	CP-2	TRANSFER PUMP 'TP-1'	1		240	1	2#12, 1#12 G	3
CP2-25	CP-2	TRANSFER PUMP 'TP-2'	1		240	1	2#12, 1#12 G	3
CP2-26	CP-2	DISPENSER AND LIGHTS		1.4	120	1	2#10, 1#10 G	3
CP2-27	CP-2	GASOLINE DISPENSER HANG-UP SWITCH		N/A	120	1	2#12, 1#12 G	5
CP2-28	CP-2	DIESEL DISPENSER HANG-UP SWITCH		N/A	120	1	2#12, 1#12 G	5



1 CORPORATION PUMP ENCLOSURE ENLARGED PLANS
1" = 1'-0"



2 TANK LIGHT FIXTURE MOUNTING DETAIL
NO SCALE

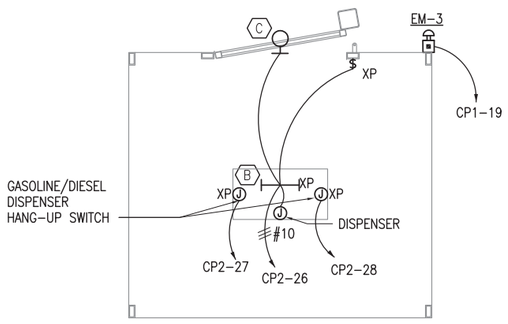
NOTE:
SEE 1 AND 2/E3.1 FOR HAZARDOUS AREA BOUNDARIES. ALL WORK IN THESE AREAS SHALL BE DONE IN STRICT COMPLIANCE WITH ARTICLES 500, 501, AND 514 OF THE NATIONAL ELECTRICAL CODE. PROVIDE SEAL-OFFS ON ALL CONDUIT PENETRATING CLASSIFIED LOCATIONS AS REQUIRED BY CODE.

GENERAL NOTES:

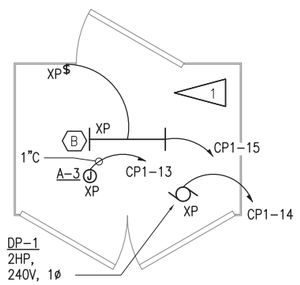
A. SEE SHEET E2.1 FOR GENERAL NOTES.

SHEET NOTES:

1. SEE DETAIL 1/E5.5 FOR WIRING CONNECTIONS.
2. SEE DETAIL 1/E5.2 FOR WIRING CONNECTIONS.
3. SEE DETAIL 2/E5.5 FOR WIRING CONNECTIONS.
4. SEE DETAIL 1/E5.3 FOR WIRING CONNECTIONS.
5. SEE DETAIL 2/E5.4 FOR WIRING CONNECTIONS.



3 ENLARGED DISPENSING PLAN
1/2" = 1'-0"



4 COUNCIL PUMP ENCLOSURE ENLARGED PLANS
1" = 1'-0"

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STATE OF ALASKA, AIDEA/AEA
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KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

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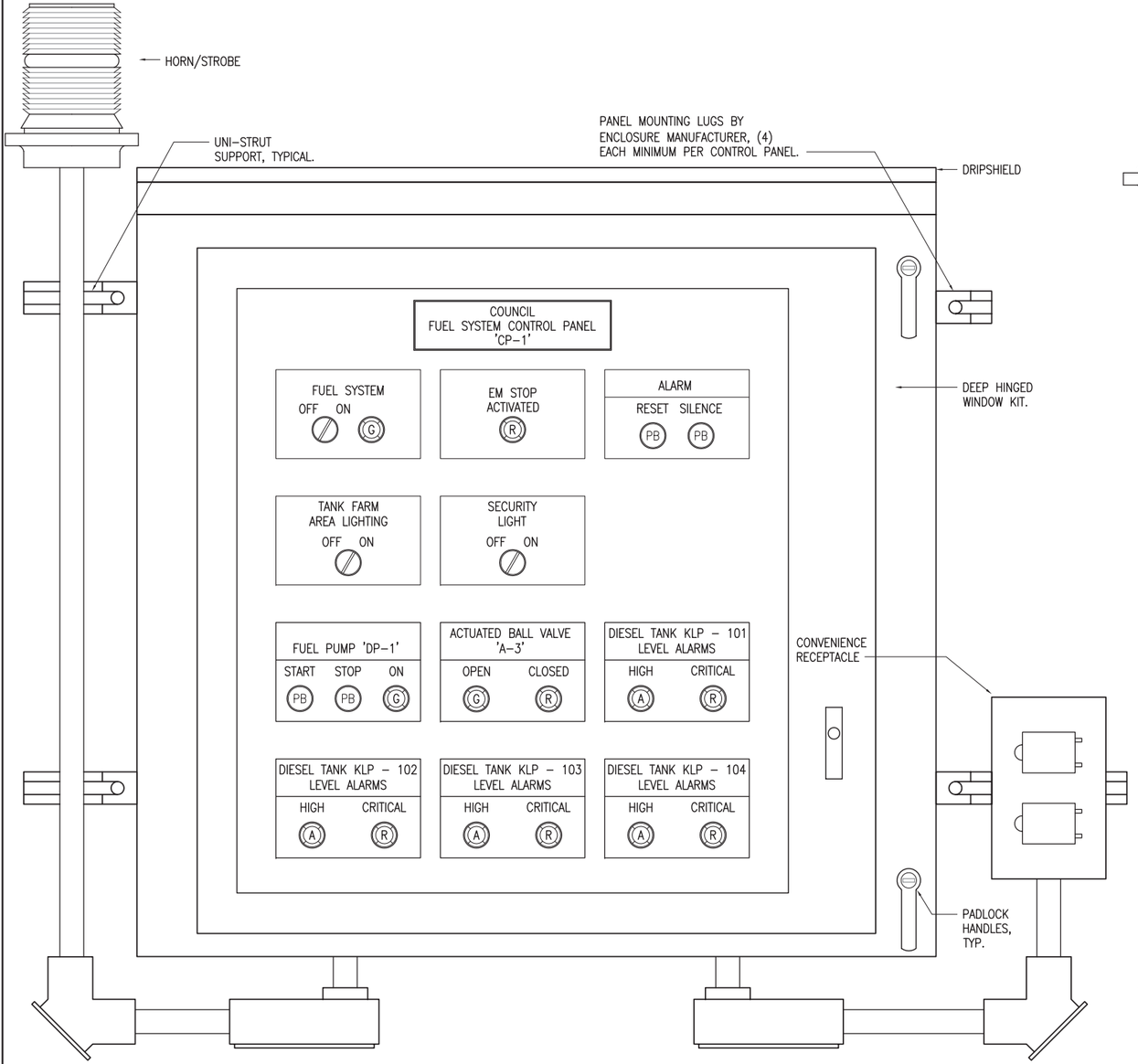
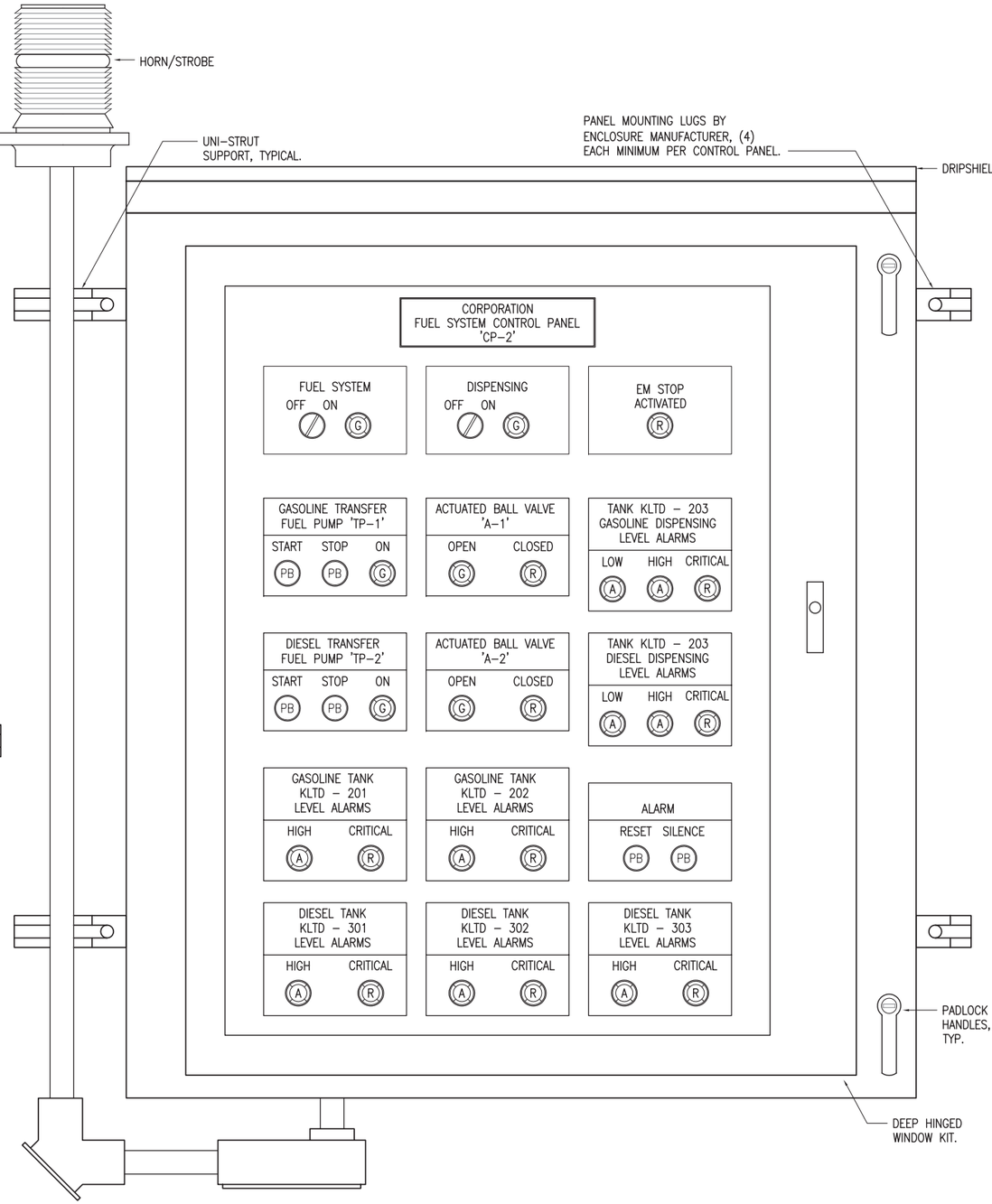
DRAWING TITLE:
ELECTRICAL DETAILS

E4.3

8 | X



1 CONTROL PANEL 'CP-1' FRONT VIEW
NO SCALE



2 CONTROL PANEL 'CP-2' FRONT VIEW
NO SCALE

GENERAL NOTES:

A. ALL CONDUITS ARE TO CONNECT THROUGH THE BOTTOM OF THE CONTROL PANEL. DO NOT PENETRATE TOP OF CONTROL PANEL. AVOID CONDUIT ENTRY THROUGH SIDE OF CONTROL PANELS.

B. CONTROL PANELS, HORN/STROBE, AND CONVENIENCE RECEPTACLE ARE TO BE MOUNTED ABOVE THE TOP OF THE DIKE WALL, OUTSIDE OF HAZARDOUS AREA.

C. SEE SHEET E5.6 FOR TYPICAL PANEL ELEVATION DETAILS.

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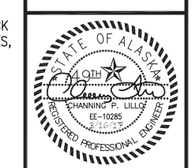

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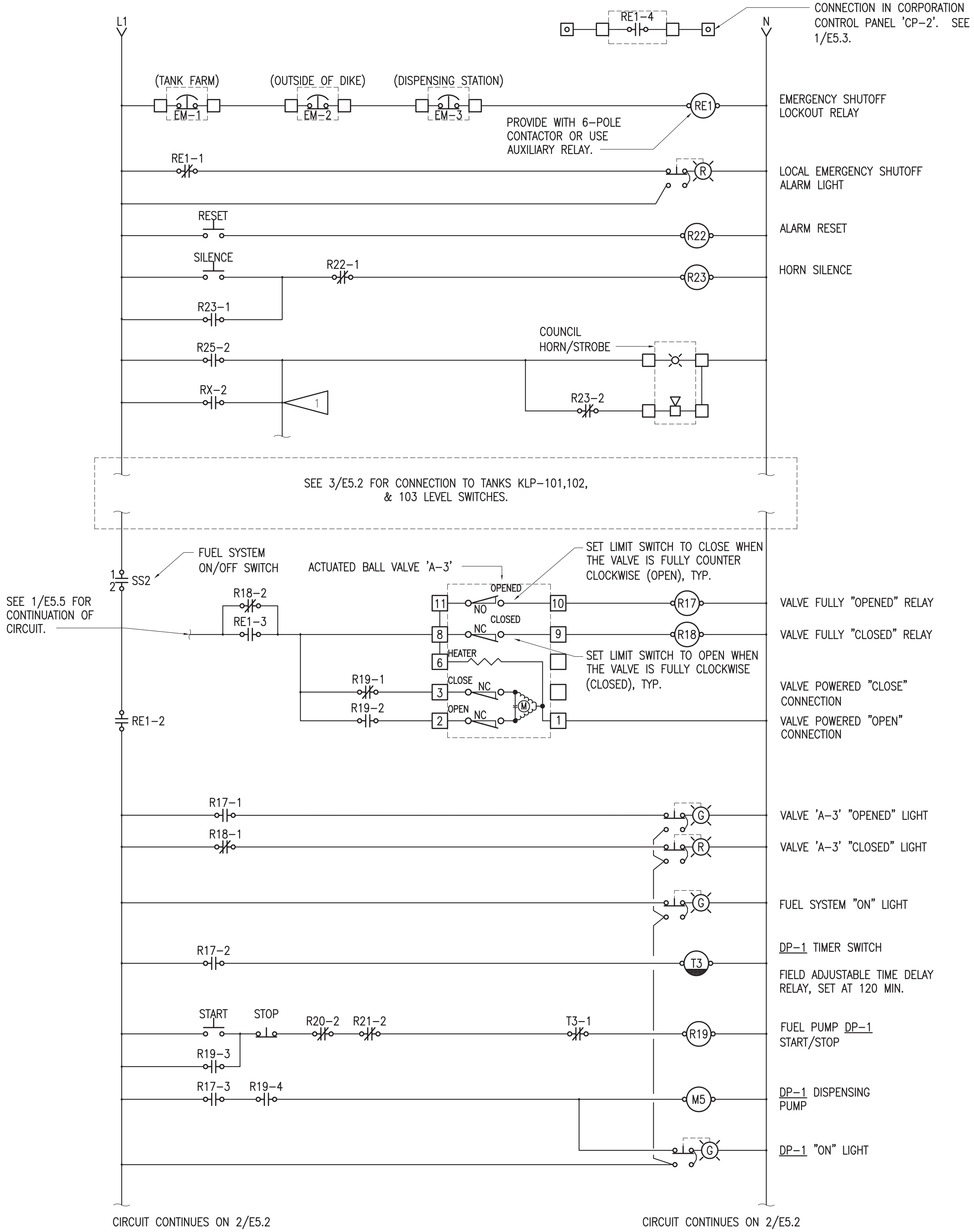
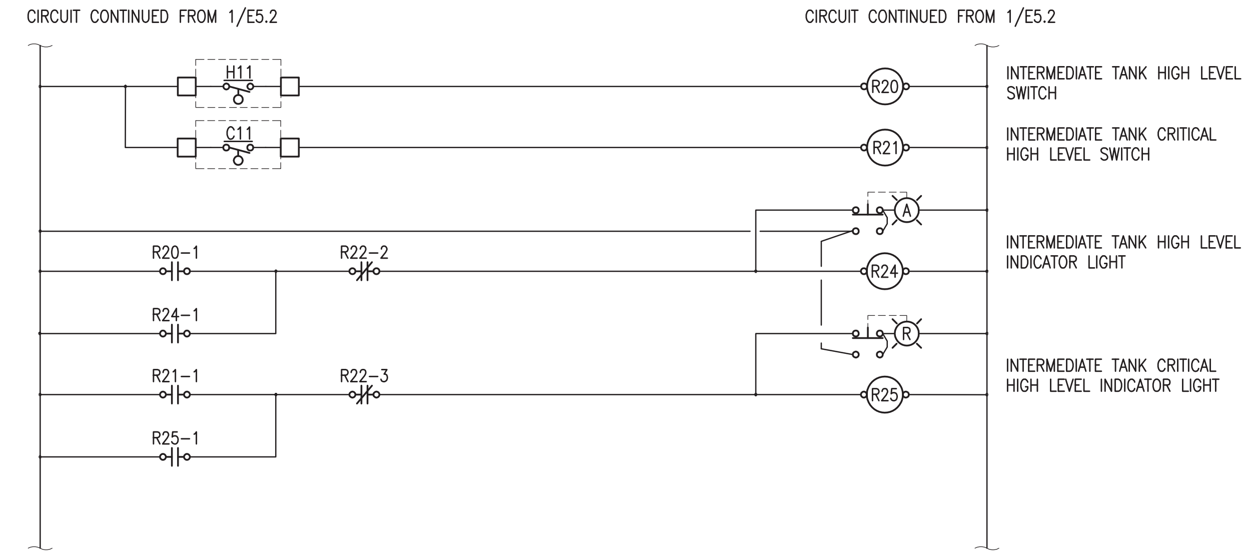
DRAWING TITLE:
CONTROL PANEL ELEVATIONS

E5.1

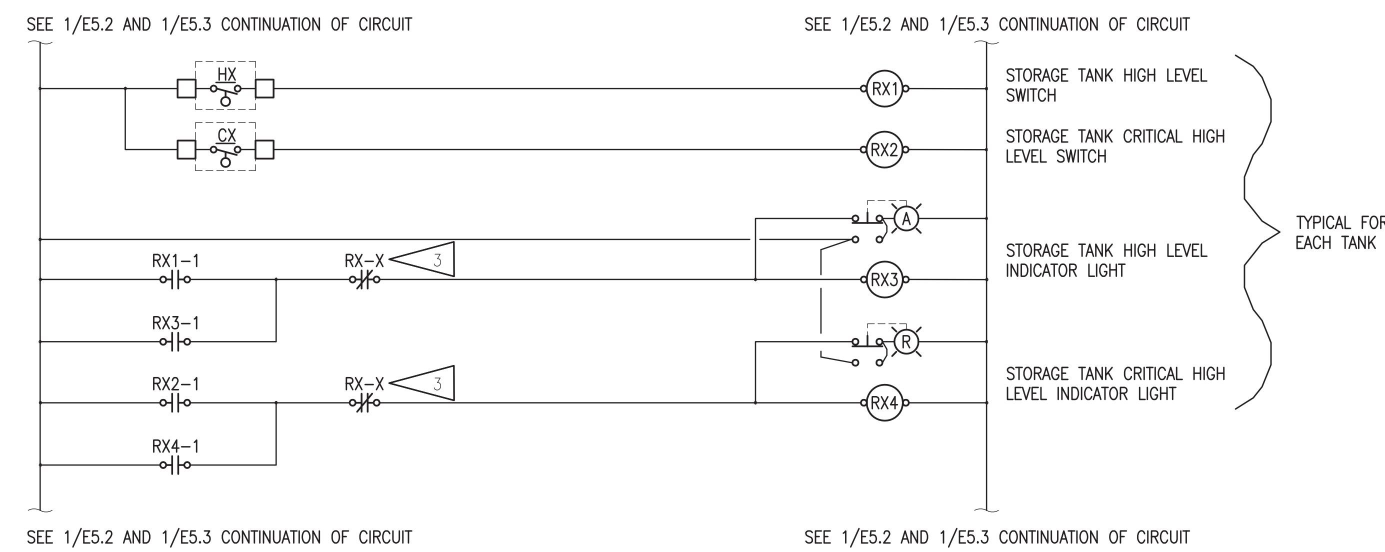
9 X



1 CONTROL PANEL 'CP-1' FUEL TRANSFER SCHEMATIC DIAGRAM
NO SCALE



2 CONTROL PANEL 'CP-1' FUEL TRANSFER SCHEMATIC DIAGRAM (CONT.)
NO SCALE



2 3 TYPICAL STORAGE TANK LEVEL SWITCH SCHEMATIC DIAGRAM
NO SCALE

GENERAL NOTES:

A. ALL RELAY CONTACTS ARE SHOWN IN THE NORMAL NON-ENERGIZED POSITION.

B. ALL INDICATOR LIGHTS ARE PUSH TO TEST TYPE. PROVIDE JUMPERS FROM THE "L1" SIDE OF CONTROL LADDERS TO INDICATOR LIGHTS, AND JUMPERS FROM FIRST INDICATOR LIGHT TO THE REMAINDER OF THE INDICATOR LIGHTS ON THE FACE OF THE CONTROL PANEL. JUMPER WIRES FOR PUSH TO TEST FEATURE HAVE NOT BEEN SHOWN FOR CLARITY.

C. THE PANEL MANUFACTURER SHALL VERIFY THE CONTROL SCHEMATICS SHOWN WILL PRODUCE THE INDICATED SEQUENCE OF OPERATION. ANY SUCH CONTROL LADDER LOGIC MODIFICATIONS SHALL BE SHOWN ON CONTROL PANEL SHOP DRAWINGS SUBMITTED TO THE ENGINEER BY THE CONTROL PANEL MANUFACTURER.

D. AFTER CONTROL PANELS ARE COMPLETE, PERFORM A BENCH TEST TO CONFIRM PROPER OPERATION OF THE PANELS. NOTIFY ENGINEER 3-DAYS IN ADVANCE OF BENCH TEST TO WITNESS THE TEST. SAVE ALL CONTROL PANEL COMPONENT DATA SHEETS AND GIVE TO ENGINEER AT THE TIME OF THE BENCH TEST.

E. CONTROL PANELS SHALL BE COORDINATED WITH THE ACTUAL FIELD DEVICES PROVIDED FOR THE PROJECT, REGARDLESS IF THESE DEVICES ARE PROVIDED BY OTHER TRADES.

F. THE CONTROL PANEL MANUFACTURER SHALL INCLUDE TIME AND EXPENSES TO TRAVEL TO THE PROJECT SITE AS NECESSARY TO RESOLVE DISCREPANCIES IN THE SPECIFIED SEQUENCE OF OPERATION AS RELATED TO CONTROL PANELS.

G. CONTRACTOR TO PROVIDE RELAYS, CONNECTED IN PARALLEL, TO PROVIDE ADDITIONAL CONTACTS WHEN REQUIRED CONTACT COUNT EXCEEDS THE RELAY'S NUMBER OF AVAILABLE CONTACTS.

H. PROVIDE 20 AMP RATED CONTROL RELAYS AND MANUAL SWITCH CONTACTS WHERE INDICATED ON THE CONTROL PANEL ONE-LINE DIAGRAM.

SHEET NOTES:

1. CONTACT IS FOR OPERATION OF ALARM WHEN STORAGE TANK CRITICAL HIGH LEVEL SWITCHES ARE CLOSED. SEE TYPICAL CONNECTION SHOWN ON 1/E2.1 AND 2/E5.2 FOR NUMBER OF LEVEL SWITCHES AND CONNECTION REQUIREMENTS.

2. TYPICAL STORAGE TANK LEVEL SWITCHES AND ALARMS SEE 1/E2.1 FOR NUMBER AND LABEL FOR SWITCH TAGS. PROVIDE NUMBER OF RELAYS, INDICATOR LIGHTS, AND CONTACTS AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.

3. CONTACT ASSOCIATED WITH CONTROL PANEL RESET SWITCH RELAY. FOR CONTROL PANEL 'CP-1' SEE 1/E5.2 AND FOR 'CP-2' SEE 1/E5.3

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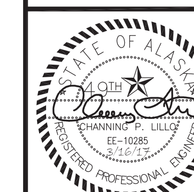
STATE OF ALASKA, AIDEA/AEA
KIPNUK BULK FUEL UPGRADES
KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION

REVISIONS

VERIFY SCALES
0 — 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

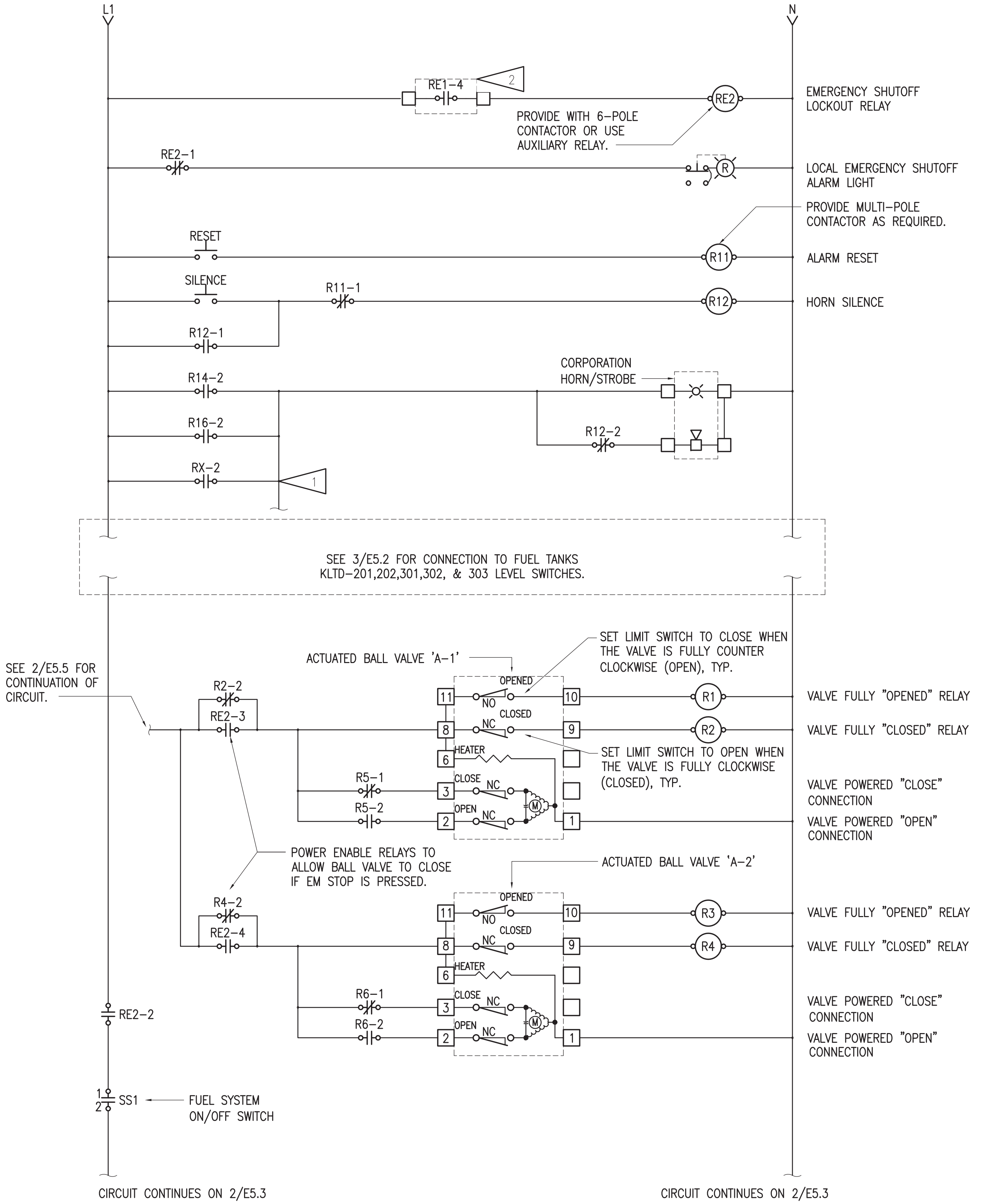


DATE:	03/16/2017
DRAWN BY:	PCC
CHECKED BY:	CPL,TEH
JOB NUMBER:	L5100

DRAWING TITLE:
CONTROL PANEL SCHEMATIC DIAGRAMS

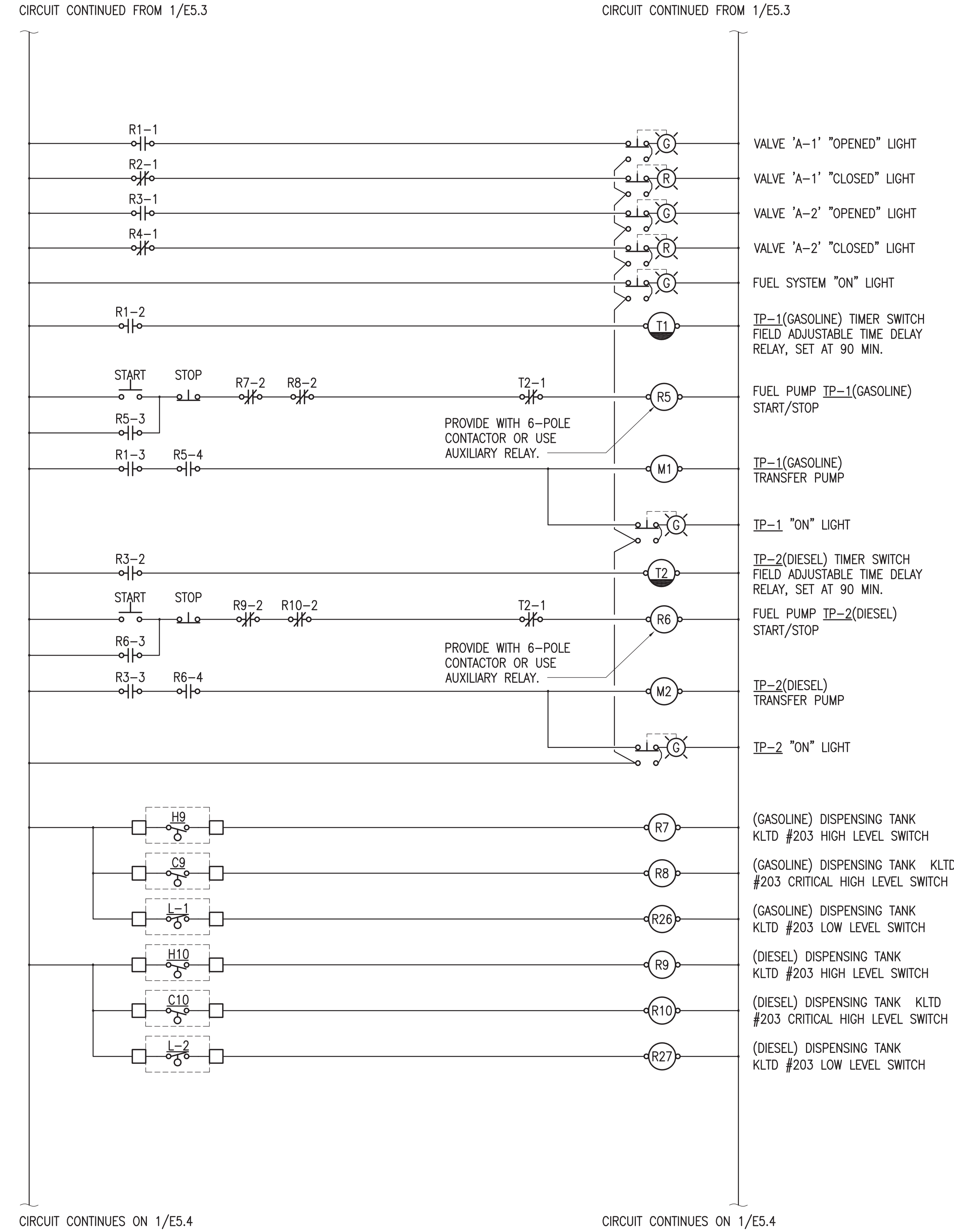
E5.2

11 | X



① CONTROL PANEL 'CP-2' FUEL TRANSFER SCHEMATIC DIAGRAM

NO SCALE



② CONTROL PANEL 'CP-2' FUEL TRANSFER SCHEMATIC DIAGRAM (CONT.)

NO SCALE

SHEET NOTES:

1. CONTACT IS FOR OPERATION OF ALARM WHEN STORAGE TANK CRITICAL HIGH LEVEL SWITCHES ARE CLOSED. SEE TYPICAL CONNECTION SHOWN ON 3/E5.2 AND 1/E2.1 FOR NUMBER OF LEVEL SWITCH CONNECTIONS.
2. CONTACTS LOCATED IN CONTROL PANEL 'CP-1'.

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6700 Arctic Spur Road Anchorage, AK 99518 (907) 677-8220

RSA
Mechanical and Electrical Consulting Engineers
370 West Fireweed Lane, Suite 200 Anchorage, AK 99503 (907) 276-0521
191 Swanson Avenue Wasilla, Alaska 99654 (907) 357-1521

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STATE OF ALASKA · 49TH · CHANNING P. LILLO · EE-10285 · 3/16/17 · REGISTERED PROFESSIONAL ENGINEER

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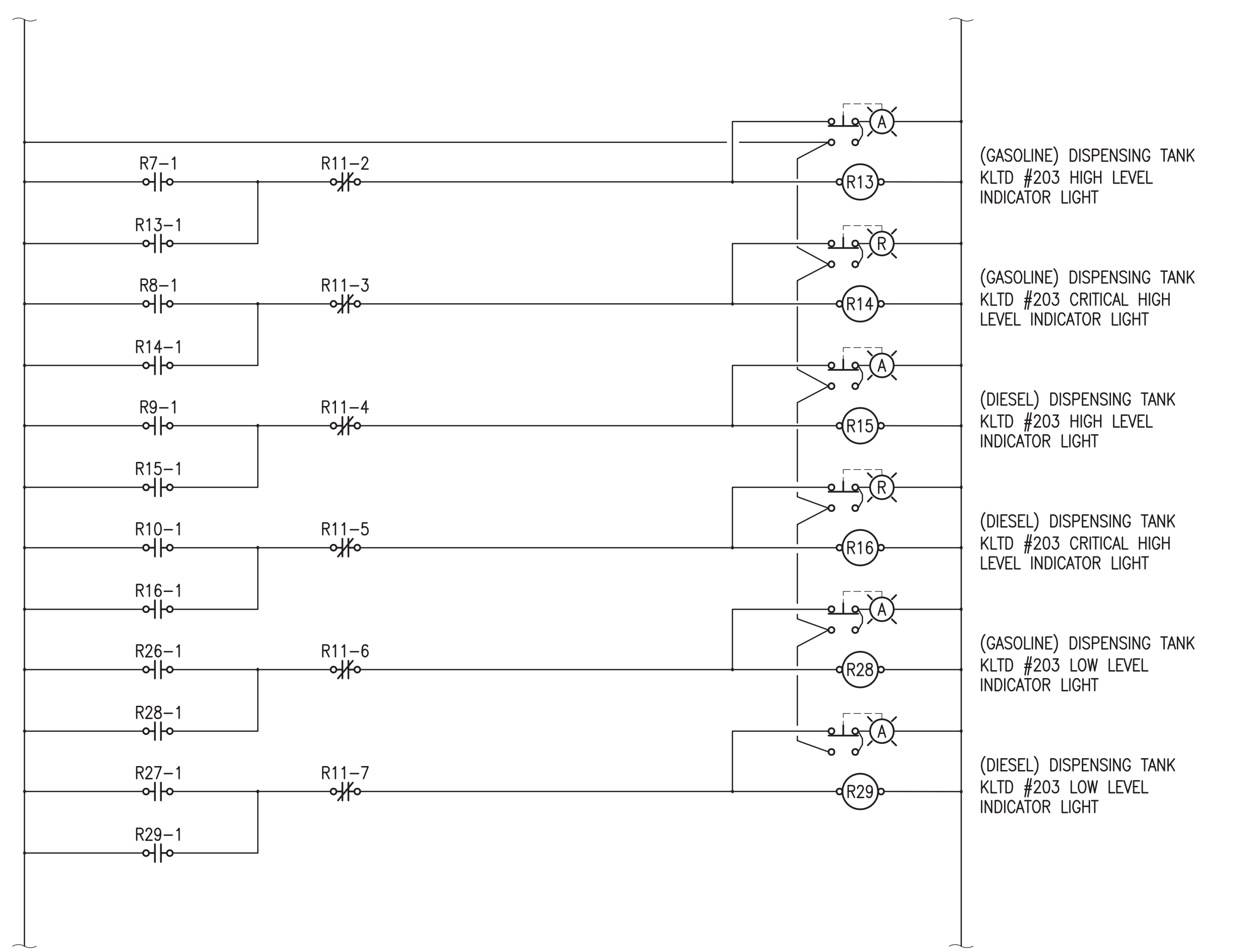
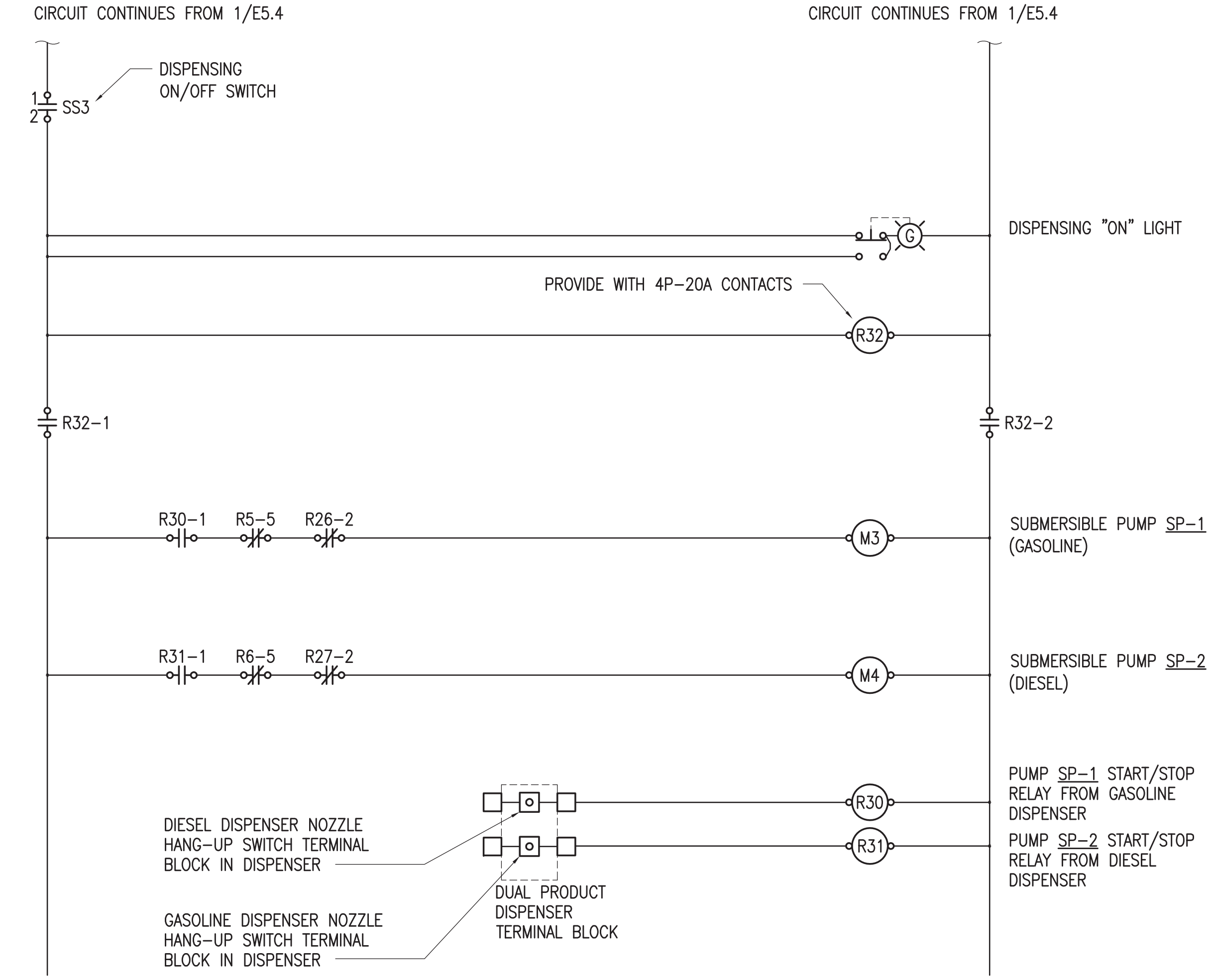
CONTROL PANEL SCHEMATIC DIAGRAMS

E5.3



1 CONTROL PANEL 'CP-2' FUEL TRANSFER SCHEMATIC DIAGRAM (CONT.)
NO SCALE



2 CONTROL PANEL 'CP-2' FUEL DISPENSING SCHEMATIC DIAGRAM
NO SCALE

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EE-10285
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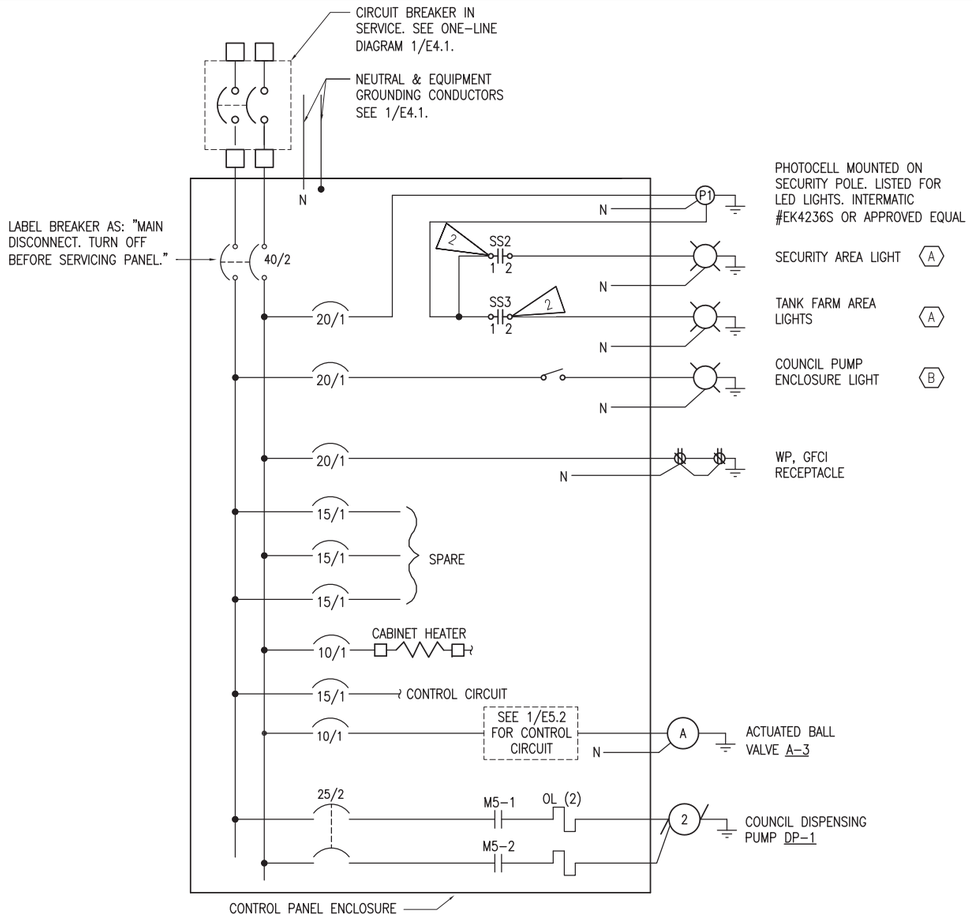
CONTROL PANEL SCHEMATIC DIAGRAMS

E5.4

12 X

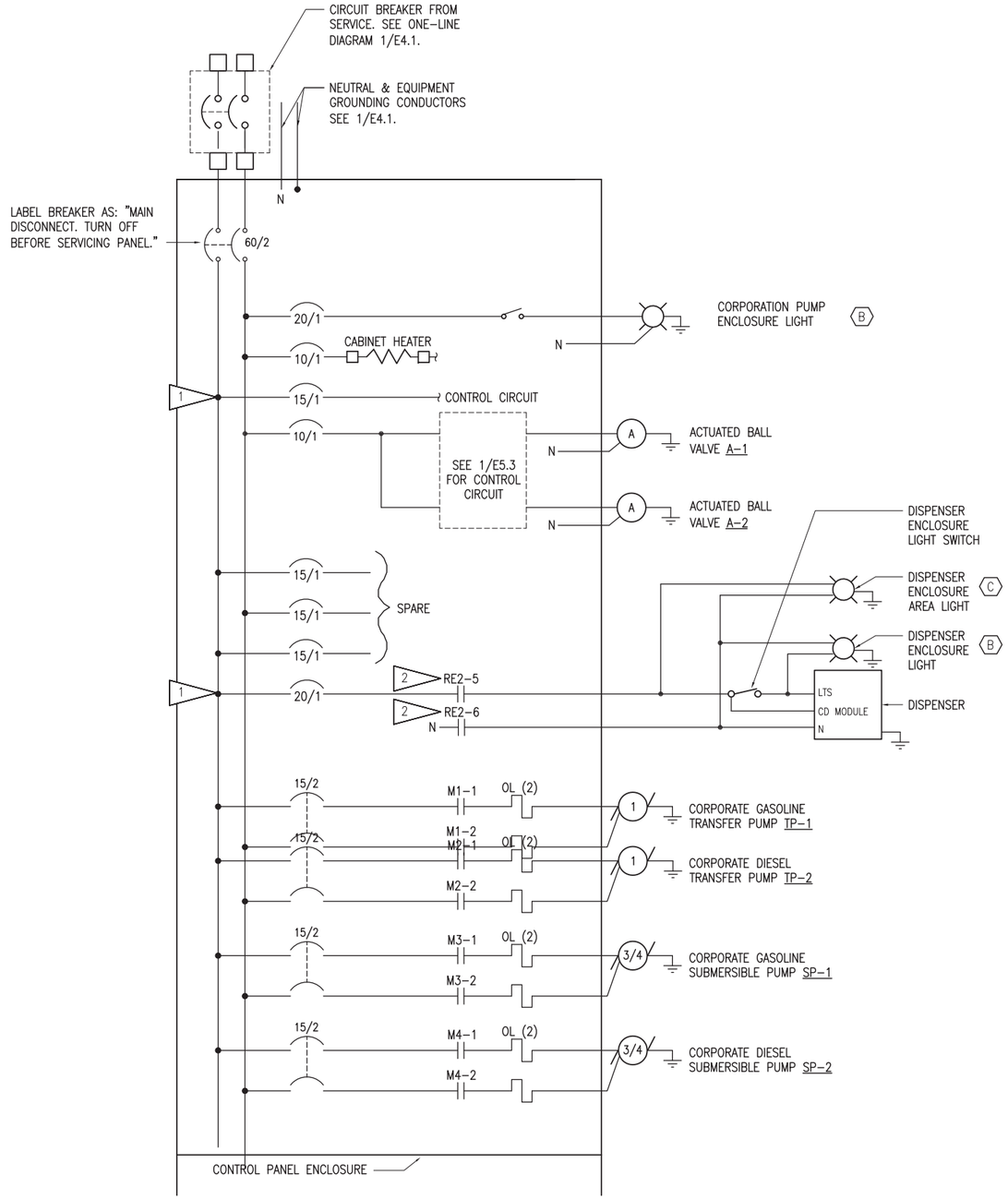


1 CONTROL PANEL 'CP-1' ONE-LINE DIAGRAM

NO SCALE

CONTROL LEGEND

1 2 2-POSITION SELECTOR SWITCH	L-X NORMALLY CLOSED FLOAT SWITCH
NORMALLY CLOSED EMERGENCY PUSHBUTTON	THERMOSTATIC SWITCH
NORMALLY CLOSED MOMENTARY PUSH BUTTON	20/1 MOLDED CASE CIRCUIT BREAKER RATING & NO. OF POLES AS INDICATED
NORMALLY OPEN MOMENTARY PUSH BUTTON	R PUSH-TO-TEST LED INDICATING LIGHT A = AMBER, G = GREEN, R = RED
RX CONTROL RELAY	REMOTE MOUNTED DEVICE
TX CONTROL RELAY, TIME DELAY	SELECTOR SWITCH
RX-X NORMALLY OPEN CONTACT	PB MOMENTARY PUSH BUTTON
RX-X NORMALLY CLOSED CONTACT	G INDICATING LIGHT
H-X NORMALLY OPEN FLOAT SWITCH	



2 CONTROL PANEL 'CP-2' ONE-LINE DIAGRAM

NO SCALE

SHEET NOTES:

1. CONNECT DISPENSER AND CONTROL CIRCUIT POWER TO SAME POWER SOURCE AND SAME LEG OR PHASE.
2. PROVIDE 20A CONTACTS.

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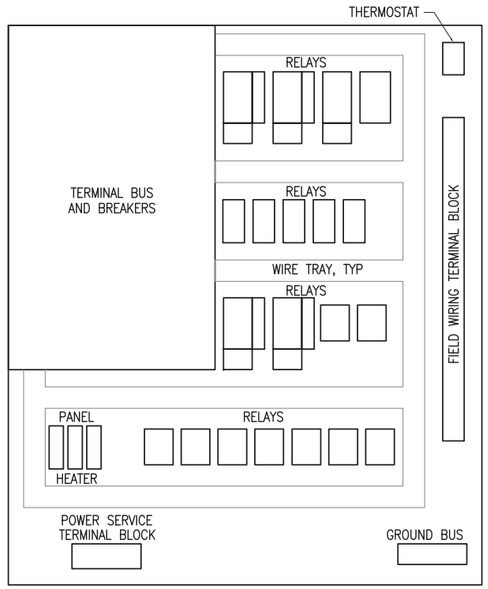
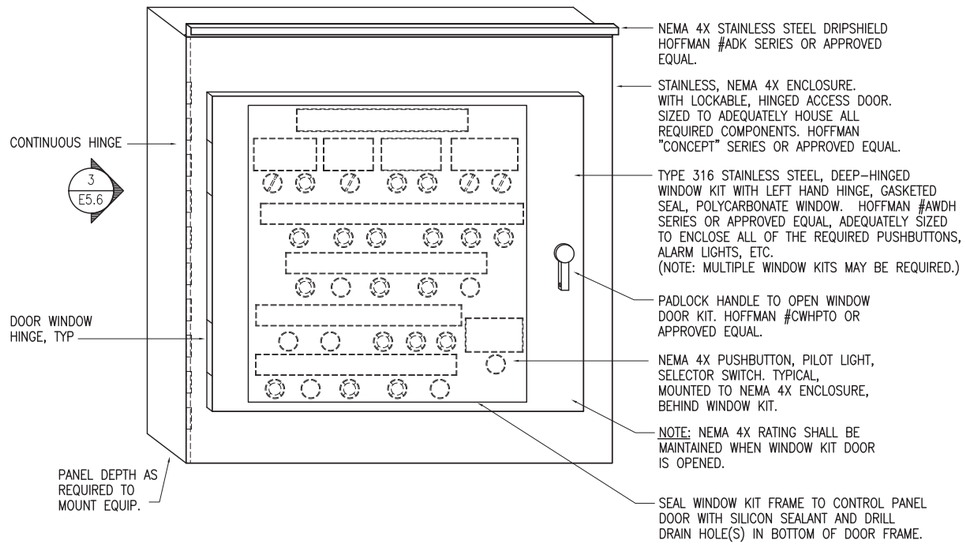
E5.5

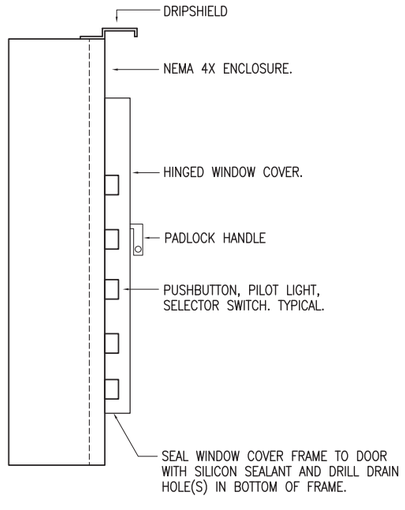
13 X



1 TYPICAL FUEL SYSTEM CONTROL PANEL INTERIOR VIEW
NO SCALE



2 TYPICAL FUEL SYSTEM CONTROL PANEL 3-D VIEW
NO SCALE



3 TYPICAL FUEL SYSTEM CONTROL PANEL SIDE VIEW
NO SCALE

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CHANNING P. LILLO
EE-10285
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DRAWING TITLE:
CONTROL PANEL DETAILS

E5.6

14 X