State of Alaska
Department of Community and Economic Development
Rural Energy Group
813 West Northern Lights Blvd.
Anchorage, Alaska 99503

ALASKA ENERGY AUTHORITY

TATITLEK □ ALASKA

BULK FUEL UPGRADE

ISSUED FOR CONSTRUCTION
DESIGN DRA□ INGS
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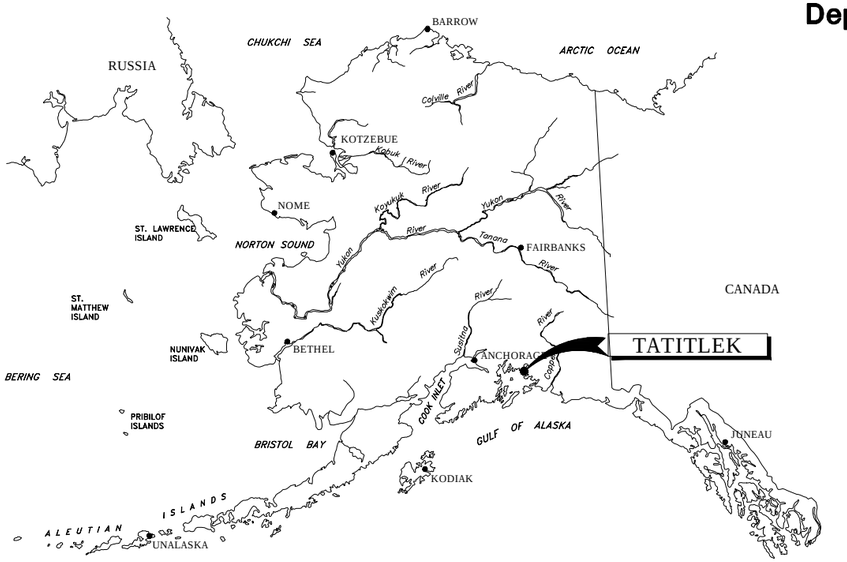

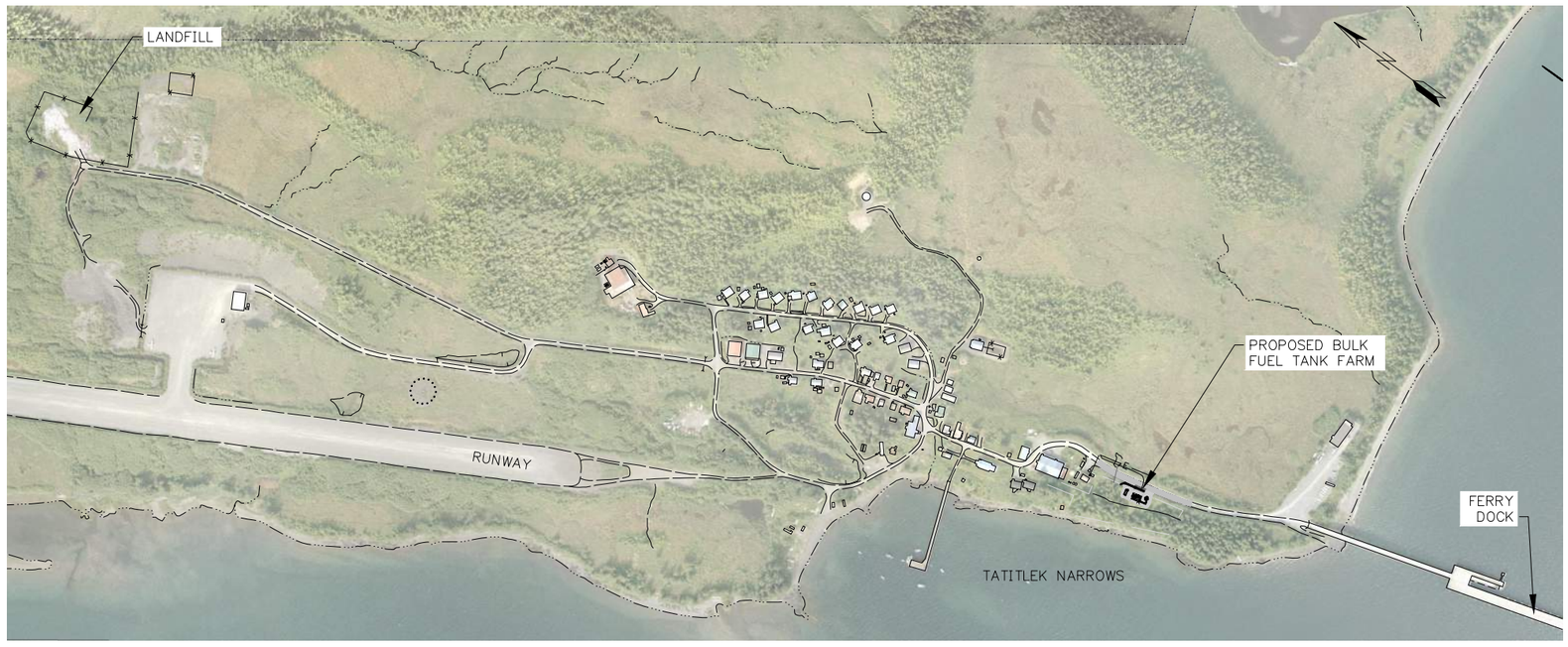

PROJECT AREA MAP

GRAPHIC SCALE
300 0 300 600
SCALE IN FEET

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Project Number (Consultant) 30413.00 (AEA) 20044
AEA Project Manager Bill Price
Construction Manager –
Final Design (Date) –
Fire Marshal Approval (Date) –
Construction Period (From) _____ (To) _____
As-Builts (Date) _____

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

STATE OF ALASKA 49 TH Andrew M. Horazdovsky E-14054 1/29/2020 REGISTERED PROFESSIONAL ENGINEER

FILE: J:\JobsData_30413.00 Tatitlek BFU CA\00 CADD\01 Working Set\01 Civil\30413.00 Cover.dwg

PROJECT SCOPE

PROJECT ACTIVITIES WILL INCLUDE THE CONSTRUCTION OF:

- INSTALLATION OF AN OWNER PROVIDED 11,600 GALLON HORIZONTAL DUAL PRODUCT, PROTECTED, SKID MOUNTED AST WITHIN A NEW CONCRETE DIKE CONTAINMENT AREA.
- NEW DUAL PRODUCT RETAIL DISPENSER, HOSE REEL, AND POINT OF SALE SYSTEM..
- LIGHTING AND ELECTRICAL CONTROLS AS REQUIRED.
- REQUIRED SPILL CONTINGENCY EQUIPMENT.

GENERAL NOTES

1. THE CONTRACTOR SHALL PROTECT ALL ITEMS NOT SCHEDULED FOR DEMOLITION DURING CONSTRUCTION. DISTURBED AREAS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION.
2. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL CONSULT WITH THE APPROPRIATE UTILITY ORGANIZATIONS TO VERIFY AND LOCATE UTILITIES PRIOR TO CONSTRUCTION. SEE UTILITY CONTACT INFORMATION ON THIS SHEET.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE APPROPRIATE TEMPORARY CUT SLOPES AND SHORING FOR EXCAVATIONS AND TRENCHES FOR SITE SOILS, GROUNDWATER AND RUNOFF CONDITIONS AND SURFACE LOADING CONDITIONS. THE CONTRACTOR MUST COMPLY WITH APPLICABLE FEDERAL AND STATE OSHA REGULATIONS. THE CONTRACTOR SHALL MAINTAIN ALL SIGNS, BARRICADES, WARNING LIGHTS AND OTHER PROTECTIVE DEVICES NECESSARY FOR SAFETY AND TRAFFIC CONTROL.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH EXISTING FACILITY OPERATORS, OTHER CONTRACTORS, SUBCONTRACTORS, THE CITY AND STATE AND FEDERAL AUTHORITIES.
5. 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, AND CODE COMPLIANT SYSTEM. VERIFY EXISTING FIELD CONDITIONS PRIOR TO STARTING CONSTRUCTION. IMMEDIATELY CONTACT THE ENGINEER FOR CLARIFICATION OF QUESTIONABLE ITEMS OR APPARENT CONFLICTS.
5. THE CONTRACTOR SHALL PREPARE AND SUBMIT A SWPPP IF ONE IS REQUIRED.
6. ALL ITEMS TO BE INSTALLED ARE NEW UNLESS SPECIFICALLY INDICATED AS EXISTING. INSTALL ALL MATERIALS AND EQUIPMENT IAW MANUFACTURERS RECOMMENDATIONS, INSTRUCTIONS, AND INSTALLATION DRAWINGS, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
7. THE SPECIFICATION OF A NAME BRAND PRODUCT FOLLOWED BY THE "OR EQUAL" PHRASE IS DONE MERELY TO ESTABLISH THE MINIMUM LEVEL OF QUALITY OF MATERIALS AND EQUIPMENT REQUIRED AND IS NOT A PRODUCT ENDORSEMENT. SUBMIT ANY PROPOSED SUBSTITUTIONS FOR REVIEW AND APPROVAL, UNLESS "NO SUBSTITUTIONS" IS SPECIFIED.
8. FACILITY DESIGN IS IN ACCORDANCE WITH THE 2009 INTERNATIONAL FIRE CODE, STATE OF ALASKA FIRE AND SAFETY REGULATIONS ADMINISTRATIVE CODES 13 AAC 50, 13 AAC 55, AND THE MOST RECENT MEMORANDUM OF AGREEMENT BETWEEN THE AEA AND THE STATE OF ALASKA FIRE MARSHALL.
9. CONTRACTOR TO PROVIDE SIGNAGE IAW THE SIGN SCHEDULE, AND AS IDENTIFIED ELSEWHERE IN THE DRAWINGS AND SPECIFICATIONS.
10. PERFORM WORK WITH SKILLED CRAFTSMEN SPECIALIZED IN SAID WORK. INSTALL ALL MATERIALS IN A NEAT, ORDERLY, AND SECURE FASHION, AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS AND COMMONLY RECOGNIZED STANDARDS OF GOOD WORKMANSHIP.
11. SCHEDULE AND COORDINATE DEMOLITION AND NEW CONSTRUCTION / RENOVATION ACTIVITIES SUCH THAT COMPLETE AND OPERABLE BULK FUEL STORAGE AND DISPENSING SYSTEMS ARE MAINTAINED AT ALL TIMES.
12. CONTRACTOR SHALL MAINTAIN A "REDLINE" SET OF DRAWINGS TO REFLECT FIELD CHANGES THROUGHOUT CONSTRUCTION. RED LINE CONSTRUCTION DRAWINGS SHALL BE SUBMITTED TO ENGINEER AT COMPLETION OF THE PROJECT.
13. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH U.S. ENVIRONMENTAL PROTECTION AGENCY, ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND STATE AND FEDERAL OCCUPATIONAL HEALTH AND SAFETY REGULATIONS.

CALL BEFORE YOU DIG	
WATER/SEWER	NATIVE VILLAGE OF TATITLEK 907-525-2298
ELECTRIC	

ABBREVIATIONS

ADEC	ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ADOT	ALASKA DEPARTMENT OF TRANSPORTATION
AEA	ALASKA ENERGY AUTHORITY
ALCAP	ALUMINUM SURVEY CAP
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
API	AMERICAN PETROLEUM INSTITUTE
APPROX	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING OF MATERIALS
AST	ABOVEGROUND STORAGE TANK
AWS	AMERICAN WELDING SOCIETY
BLDG	BUILDING
BV	BALL VALVE
CMP	CORRUGATED METAL PIPE
DEMO	DEMOLISH
DFT	DRY FILM THICKNESS
DIA	DIAMETER
DWG	DRAWING
E	EAST
EA	EACH
EL	ELEVATION
ELEC	ELECTRIC
EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY
ENGINEER	CRW ENGINEERING GROUP, LLC
E-VENT	EMERGENCY VENT
°F	FAHRENHEIT
FC	FLEXIBLE CONNECT
FF	FINISH FLOOR ELEV.
FG	FINISH GRADE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FPT	FEMALE NATIONAL PIPE TAPERED THREAD
FT	FOOT OR FEET
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSE POWER
HR	HOUR
IAW	IN ACCORDANCE WITH
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IFC	INTERNATIONAL FIRE CODE
IPC	INTERNATIONAL PLUMBING CODE
LF	LINEAR FEET
LB	POUND
M	METERS
MAX	MAXIMUM
MIL	0.001 INCH
MIN	MINIMUM
MNPT	MALE NATIONAL PIPE THREAD
N	NORTH
NC	NORMALLY CLOSED
NFS	NON-FROST SUSCEPTIBLE SOIL
NO	NORMALLY OPEN
NPT	NATIONAL PIPE TAPERED THREAD
NTS	NOT TO SCALE
NVT	NATIVE VILLAGE OF TATITLEK
NWR	NATIONAL WILDLIFE REFUGE
OAE	OR APPROVED EQUAL
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OZ	OUNCE
PCC	PORTLAND CEMENT CONCRETE
PL	PLATE
PRV	PRESSURE RELIEF VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
R	RADIUS
RF	RAISED FACE
S	SEWER
SCH	SCHEDULE
SHPO	STATE HISTORIC PRESERVATION OFFICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SSPC	STEEL STRUCTURES PAINTING COUNCIL
STA	STATION
SY	SQUARE YARD
TBM	TEMPORARY BENCH MARK
TS	TUBE STEEL
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UPC	UNIFORM PLUMING CODE
UST	UNDERGROUND STORAGE TANK
ULSD	ULTRA LOW SULFUR DIESEL
w/	WITH
W	WATER

TESTING, STARTUP AND COMMISSIONING PROCEDURES

1. CONTRACTOR SHALL PERFORM SYSTEM TESTING, STARTUP AND COMMISSIONING IN ACCORDANCE WITH THE PROCEDURES LISTED HERE, THE SPECIFICATIONS, AND IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. LEAVE ALL WORK SITES IN AN ORDERLY CONDITION CONSISTENT WITH THAT FOUND UPON ARRIVAL.
2. PRESSURE TEST ALL PIPING AND FILL OUT AEA-APPROVED PIPELINE PRESSURE TEST REPORTS, SEE SPECIFICATIONS FOR ADDITIONAL DETAILS. THE ENGINEER OR HIS APPROVED REPRESENTATIVE SHALL BE PRESENT DURING ALL PRESSURE TESTING UNLESS DIRECTED OTHERWISE IN WRITING. DELIVER ORIGINAL REPORTS TO AEA AND A COPY TO THE ENGINEER.
3. TEST ALL PRESSURE RELIEF AND ANTI-SIPHON VALVES FOR PROPER OPERATION AT SPECIFIED PRESSURE.
4. CONTRACTOR SHALL BE PRESENT DURING INITIAL FILLING OF TANKS. UPON FILLING OF TANKS VERIFY PRODUCT LEVEL WITH GAUGING STICK AND RECALIBRATE ALL TANK GAUGES. REMOVE AND CLEAN ALL STRAINERS AND FILTERS AFTER INITIAL FILLING AND DISPENSING.
5. CHECK ALL PUMPS FOR PROPER ROTATION. PRIOR TO OPERATING CENTRIFUGAL PUMPS PRIME THE PUMP CAVITY WITH FUEL. IF TEMPERATURES ARE BELOW 40° F WARM PUMP BODY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
6. CHECK ALL CONTROL AND ALARM FUNCTIONS. MANIPULATE TANK FLOAT SWITCHES TO SIMULATE LOW AND HIGH LEVEL CONDITIONS. SET TIMING RELAYS FOR 30 SECONDS AND VERIFY TIME-OUT FUNCTION. RE-SET TIMERS TO SPECIFIED VALUES AFTER TESTING. VERIFY LATCHING AND RESET FUNCTIONS, EMERGENCY STOP FUNCTION, AND OPERATION OF ALL SIGNAL LAMPS AND HORNS. OBSERVE OPERATION OF MOTOR ACTUATED VALVES. VERIFY THAT AREA LIGHTING FUNCTIONS PROPERLY.
7. TEST THE BULK TRANSFER HOSE REEL, RETAIL DISPENSER, AND ALL RELATED COMPONENTS.
8. VERIFY ALL SIGNS, PLACARDS, AND VALVE TAGS ARE PROPERLY LOCATED. VERIFY PROPER PRODUCT COLOR CODE AND LABELING FOR ALL TANKS AND PIPING.
9. INSTALL PADLOCKS ON ALL VALVES AND FENCE GATES. KEY ALL LOCKS ALIKE. PROVIDE SPARE LOCKS AND KEYS AS INDICATED IN THE SPECIFICATIONS.

CIVIL LEGEND (GENERAL)

NOTE: SOME DETAILS UTILIZE SYMBOLS NOT IN THIS GENERAL LEGEND. WHERE THIS OCCURS, SYMBOLS ARE DEFINED ON THE SHEET IN WHICH THEY ARE USED.

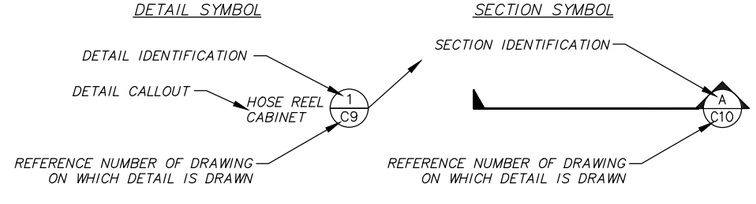
- PROPERTY BOUNDARY
- CENTERLINE
- CULVERT
- EDGE OF WATER
- DITCH LINE/DRAINAGE SWALE
- 2% DRAINAGE DIRECTION & SLOPE
- TRAVELED WAY
- FILL SLOPE
- CUT SLOPE
- FENCE LINE
- FIRE EXTINGUISHER
- 20 GROUND ELEVATION CONTOURS
- BOLLARD
- PP POWER POLE
- 9 INFORMATION / WARNING SIGN
- 5 SHEET NOTE
- SURVEY MONUMENT
- TEST PIT
- XXX FINISH GRADE ELEVATION
- ø DIAMETER
- ANTI-SIPHON VALVE
- FUSIBLE VALVE
- BALL VALVE
- MOTOR ACTUATED BALL VALVE
- CHECK VALVE
- GATE VALVE
- PRESSURE RELIEF VALVE w/ FLOW DIRECTION
- P PRESSURE TEST TAP
- M METER
- F FILTER
- OR FLEXIBLE CONNECTOR
- (#10) WYE STRAINER (MESH SIZE)
- FILL LIMITER
- QUICK COUPLING
- SUBMERSIBLE PUMP
- CENTRIFUGAL PUMP
- VERTICAL PIPE TRANSITION
- REDUCER
- LEVEL FLOAT SWITCH
- HOSE REEL
- SPILL BASIN

UTILITY LINE/PIPELINE DESIGNATIONS

F	FUEL
D	DIESEL FUEL
G	GASOLINE
HR	HEAT RETURN
HS	HEAT SUPPLY
S	SANITARY SEWER
W	WATER

- UNDERGROUND UTILITY LINE/PIPELINE: EXISTING
- UNDERGROUND UTILITY LINE/PIPELINE: NEW
- ABOVEGROUND UTILITY LINE/PIPELINE: EXISTING
- ABOVEGROUND UTILITY LINE/PIPELINE: NEW
- UTILITY LINE/PIPELINE TO BE DECOMMISSIONED

DETAIL/SECTION REFERENCES



ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH Andrew M. Montgomery E-14054 1/29/2020 REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD., SUITE 300
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PHONE: (907) 562-3252
#AECL682-AK

TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
NOTES, LEGEND, AND ABBREVIATIONS

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date: 1/27/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. 2

Files: J:\JobsData\30413.00 Tatitlek Bfu Co\00 CADD\01 Working Set\01 Civil\30413.00 General Sheets.dwg

NOTES:

1. INSTALL 5 PORTABLE FIRE EXTINGUISHERS, INCLUDING ONE IN THE CONCRETE WALL CONTAINMENT AREA, ONE AT THE DISPENSER, ONE AT THE HOSE REEL ENCLOSURE, AND TWO SPARES TO BE STORED WITH SPILL RESPONSE EQUIPMENT. EXTINGUISHERS MOUNTED OUTSIDE SHALL BE WITHIN APPROVED WEATHER PROOF ENCLOSURE WITH HINGED DOORS.

2. SEE ELECTRICAL SHEETS FOR LOCATIONS OF EMERGENCY STOPS AND INSTALL SIGNS AT THOSE LOCATIONS.

SETBACK/SEPARATION REQUIREMENTS:

THE PROPOSED TANK FARM WILL PERFORM THREE FUNCTIONS – BULK STORAGE, DIESEL BULK TRANSFER, AND RETAIL DISPENSING. ALL TANKS ARE INSTALLED ABOVE GROUND. TO COMPLY WITH THE REQUIREMENTS OF THE 2012 INTERNATIONAL FIRE CODE, EPA, THE 2013 ALASKA ENERGY AUTHORITY/DIVISION OF FIRE PREVENTION MEMORANDUM OF AGREEMENT, AND STATE OF ALASKA REGULATIONS THE FOLLOWING MINIMUM CLEARANCES ARE REQUIRED:

10' FROM THE DISPENSER TO ALL BUILDINGS AND PROPERTY LINES.
15' FROM PROTECTED DISPENSING TANKS (12000 GAL MAX) TO THE NEAREST IMPORTANT BUILDING OR NEAREST SIDE OF A PUBLIC WAY.
25' FROM PROTECTED DISPENSING TANKS (12000 GAL MAX) TO THE NEAREST PROPERTY LINE WHICH IS OR CAN BE BUILT UPON.
25' FROM THE BULK TRANSFER HOSE STAND TO THE NEAREST TANK, THE NEAREST IMPORTANT BUILDING, THE NEAREST PROPERTY LINE WHICH IS OR CAN BE BUILT UPON, COMBUSTIBLE MATERIALS, AND FIXED SOURCES OF IGNITION. DISTANCE MAY BE REDUCED TO 15' IF NOT USED FOR TRANSFER OF CLASS I LIQUIDS.

WARNING SIGNS & INFORMATION PLACARD SCHEDULE:

PROVIDE ALL SIGNS INDICATED IN THE SCHEDULE BELOW, QUANTITY & LOCATION AS INDICATED ON THE DRAWINGS. ALL SIGNS SHALL BE CONSTRUCTED FROM 0.08" ALUMINUM PLATE, AND SIZED IAW 2009 IFC. SIGN LETTERING IS SHOWN BELOW IN QUOTATIONS. PROVIDE 3/16" HOLES IN ALL FOUR CORNERS. PROVIDE NON-REFLECTIVE VINYL BACKGROUND, 3M 3650-10, WITH 3M SERIES 225 HIGH PERFORMANCE VINYL LETTERS, ONE SIDE ONLY, COLOR AS INDICATED. ATTACH TO FENCING WITH GALVANIZED HOG RINGS OR STAINLESS STEEL CABLE TIES. SIGNAGE PLACED DIRECTLY ON TANKS SHALL CONSIST OF HIGH QUALITY ADHESIVE BACK DECALS OR PAINTED STENCILS.

WARNING SIGNS – RED LETTERING ON WHITE BACKGROUND (3" HIGH X 1/2" STROKE LETTERS)

(1) "DANGER FLAMMABLE LIQUIDS"

(2) "NO SMOKING NO OPEN FLAMES"

(3) "FLAMMABLE ____ GALLONS GASOLINE" OR "COMBUSTIBLE ____ GALLONS DIESEL", INSERT VOLUME IN GALLONS AS APPROPRIATE.

INFORMATIONAL PLACARDS – BLACK LETTERING ON WHITE BACKGROUND (2" HIGH 1/2" STROKE LETTERS)

(4) "IMPORTANT – PRIOR TO DISPENSING:
1. SHUT OFF MOTOR
2. DISCHARGE YOUR STATIC ELECTRICITY BEFORE FUELING BY TOUCHING A METAL SURFACE AWAY FROM THE NOZZLE
3. TO PREVENT STATIC CHARGE, DO NOT RE-ENTER YOUR VEHICLE WHILE FUEL IS PUMPING
4. IF A FIRE STARTS, DO NOT REMOVE NOZZLE – BACK AWAY IMMEDIATELY"

(5) "IT IS UNLAWFUL AND DANGEROUS TO DISPENSE FUEL INTO UNAPPROVED CONTAINERS"

(6) "ATTACH STATIC WIRE TO PORTABLE TANK PRIOR TO FILLING"

(7) "IN CASE OF FIRE SPILL OR RELEASE:"
1. USE EMERGENCY SHUTOFF
2. CONTACT THE NATIVE VILLAGE OF TATITLEK (907)-525-2278
3. REPORT ACCIDENT TO ADEC (1-800-478-9300)

(8) "SPILL CONTINGENCY EQUIPMENT"

(9) "EMERGENCY SHUTOFF" – SEE ELECTRICAL FOR SIGN LOCATIONS

(10) "PRESSURE NOT TO EXCEED 70 PSI" (NOTE THIS SIGN IS WELDED TO THE TRUCK HEADER SUPPORT)

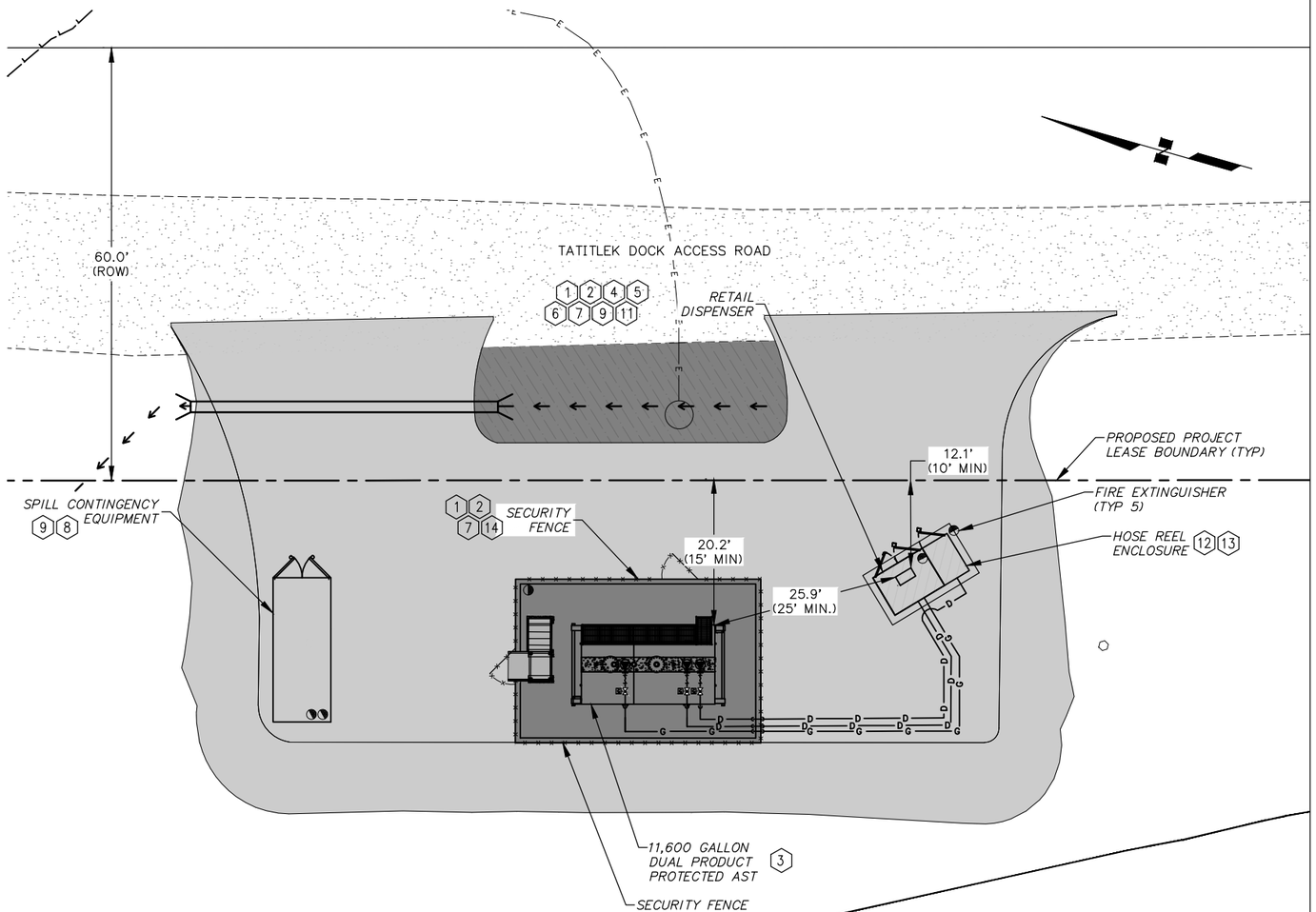
INSTRUCTION PLACARDS – BLUE LETTERING ON WHITE BACKGROUND (1/2" HIGH X 3/8" STROKE LETTERS)

(11) RETAIL DISPENSING:
1. SEE ATTENDANT TO PRE-PAY FOR FUEL
2. REMOVE NOZZLE, LIFT LEVER AND BEGIN FUELING
3. REPLACE NOZZLE AFTER FUELING
4. SEE ATTENDANT FOR RECEIPT"

(12) BULK TRANSFER:
1. SHUT OFF VEHICLE AND CONNECT GROUNDING REEL.
2. RESET METER – SET TO DESIRED VOLUME
3. DEPRESS "PUMP ON" BUTTON LOCATED NEAR HOSE REEL.
4. PLACE NOZZLE IN FUEL RECEPTACLE
5. DEPRESS NOZZLE LEVER TO BEGIN FLOW
6. TO PREVENT STATIC CHARGE, DO NOT RE-ENTER YOUR VEHICLE WHILE FUEL IS PUMPING.
7. IF FIRE STARTS, DO NOT REMOVE NOZZLE – BACK AWAY IMMEDIATELY.
8. WHEN FUELING IS COMPLETE DEPRESS "PUMP OFF" BUTTON, REWIND HOSE AND HANG UP NOZZLE"

(13) PROVIDE PLACARDS INDICATING PRODUCT TYPE AT EACH HOSE REEL

(14) PROVIDE ADEC SPILL REPORTING SIGN: CONTRACTOR TO CONTACT ADEC FOR CURRENT SPILL REPORTING PLACARD (907-269-3063)



1 **TANK FARM SETBACK & SIGNAGE PLAN**

GRAPHIC SCALE

10' 0 10' 20'

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH Andrew M. Mommsen E-14054 11/29/2020 REGISTERED PROFESSIONAL ENGINEER

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PHONE: (907) 562-3252
#AECL682-AK

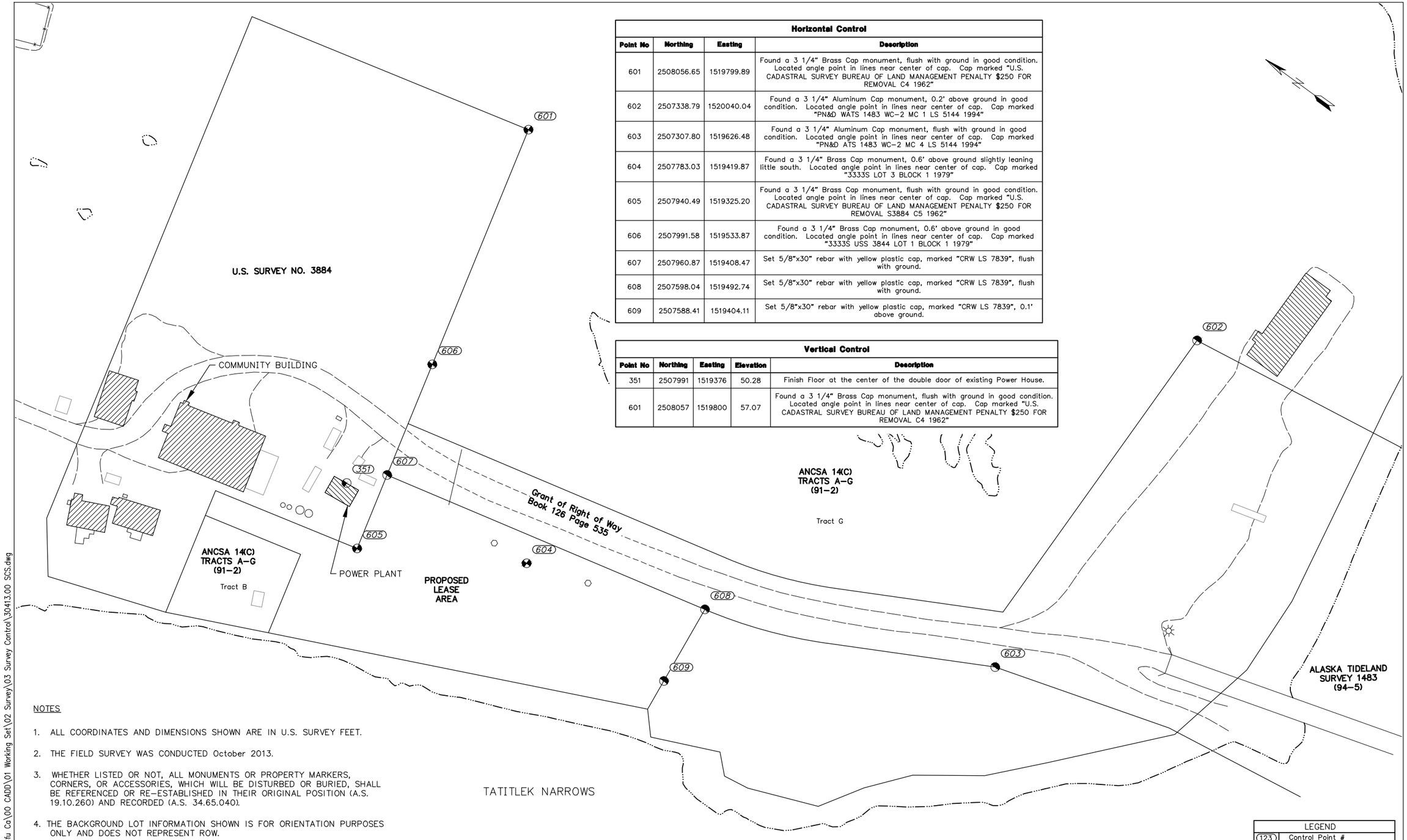
TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
SETBACK & SIGNAGE PLAN

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/27/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. 3

File: J:\JobsData\30413.00 Tatitlek Bfu Co\00 CADD\01 Working Set\01 Civil\30413.00 Signage Setback.dwg



Horizontal Control

Point No	Northing	Easting	Description
601	2508056.65	1519799.89	Found a 3 1/4" Brass Cap monument, flush with ground in good condition. Located angle point in lines near center of cap. Cap marked "U.S. CADASTRAL SURVEY BUREAU OF LAND MANAGEMENT PENALTY $250 FOR REMOVAL C4 1962"
602	2507338.79	1520040.04	Found a 3 1/4" Aluminum Cap monument, 0.2' above ground in good condition. Located angle point in lines near center of cap. Cap marked "PN&D WATS 1483 WC–2 MC 1 LS 5144 1994"
603	2507307.80	1519626.48	Found a 3 1/4" Aluminum Cap monument, flush with ground in good condition. Located angle point in lines near center of cap. Cap marked "PN&D ATS 1483 WC–2 MC 4 LS 5144 1994"
604	2507783.03	1519419.87	Found a 3 1/4" Brass Cap monument, 0.6' above ground slightly leaning little south. Located angle point in lines near center of cap. Cap marked "3333S LOT 3 BLOCK 1 1979"
605	2507940.49	1519325.20	Found a 3 1/4" Brass Cap monument, flush with ground in good condition. Located angle point in lines near center of cap. Cap marked "U.S. CADASTRAL SURVEY BUREAU OF LAND MANAGEMENT PENALTY $250 FOR REMOVAL S3884 C5 1962"
606	2507991.58	1519533.87	Found a 3 1/4" Brass Cap monument, 0.6' above ground in good condition. Located angle point in lines near center of cap. Cap marked "3333S USS 3844 LOT 1 BLOCK 1 1979"
607	2507960.87	1519408.47	Set 5/8"x30" rebar with yellow plastic cap, marked "CRW LS 7839", flush with ground.
608	2507598.04	1519492.74	Set 5/8"x30" rebar with yellow plastic cap, marked "CRW LS 7839", flush with ground.
609	2507588.41	1519404.11	Set 5/8"x30" rebar with yellow plastic cap, marked "CRW LS 7839", 0.1' above ground.

Vertical Control

Point No	Northing	Easting	Elevation	Description
351	2507991	1519376	50.28	Finish Floor at the center of the double door of existing Power House.
601	2508057	1519800	57.07	Found a 3 1/4" Brass Cap monument, flush with ground in good condition. Located angle point in lines near center of cap. Cap marked "U.S. CADASTRAL SURVEY BUREAU OF LAND MANAGEMENT PENALTY $250 FOR REMOVAL C4 1962"

NOTES

1. ALL COORDINATES AND DIMENSIONS SHOWN ARE IN U.S. SURVEY FEET.
2. THE FIELD SURVEY WAS CONDUCTED October 2013.
3. WHETHER LISTED OR NOT, ALL MONUMENTS OR PROPERTY MARKERS, CORNERS, OR ACCESSORIES, WHICH WILL BE DISTURBED OR BURIED, SHALL BE REFERENCED OR RE–ESTABLISHED IN THEIR ORIGINAL POSITION (A.S. 19.10.260) AND RECORDED (A.S. 34.65.040).
4. THE BACKGROUND LOT INFORMATION SHOWN IS FOR ORIENTATION PURPOSES ONLY AND DOES NOT REPRESENT ROW.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA, AND THAT THIS DRAWING REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT THE MONUMENTS SHOWN HEREON ACTUALLY EXIST AS DESCRIBED, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT TO THE EXTENT SHOWN HEREON.

xx/xx/2016

MICHAEL L. JOKELA LS–7839 (DATE)

GRAPHIC SCALE

50 0 50 100

SCALE IN FEET

LEGEND	
(123)	Control Point #
◑	ALUMINUM CAP
◕	BRASS CAP
◔	TEMPORARY BENCH MARK

VERTICAL & HORIZONTAL CONTROL STATEMENT

The vertical datum is based on DCCED 2004 Community Mapping point #909–(CRW #601) Published Elevation 57.07' above Mean Lower Low Water(MLLW). DCCED point #909 –(CRW #601) is a BLM monument Corner 4 of US Survey 3884. DCCED obtain elevation from DOT & PF Site Plan & Survey Project "Tatitlek Dock & Equipment Facility" Project no. 50727.

Horizontal Datum: Is a ground coordinate system with a basis of coordinates at CRW (601) N 2,508,056.6540' E 1,519,799.8949' Elevation = 57.07'.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH Michael L. Jokela LS-7839 1/29/2020 NAD83 NAVD88 (1991) 1991.35 (2010) 2007.53 (2001)

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
SURVEY CONTROL

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

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Drawn KEG
Approved AH

Sheet No. 4

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TANK FARM VALVE SCHEDULE

VALVE ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
BALL VALVES (BV)					
BV-1	1 1/2"	RETAIL DISPENSER	FLANGED	N.O.-CLOSE ONLY FOR SERVICE	Y
BV-2	1 1/2"	RETAIL DISPENSER	FLANGED	N.O.-CLOSE ONLY FOR SERVICE	Y
BV-3	2"	HOSE REEL	FLANGED	N.O.-CLOSE ONLY FOR SERVICE	Y
MOTORIZED VALVES (MV)					
MV-1	2"	TANK 1A	FLANGED	N.C.-OPEN FOR BULK TRANSFER	Y
MV-2	2"	TANK 1A	FLANGED	N.C.-OPEN FOR DISPENSING	Y
MV-3	2"	TANK 1B	FLANGED	N.C.-OPEN FOR DISPENSING	Y
FILL LIMITING VALVES (FLV)					
FLV-1	3"	TANK 1A FILL	-	-	N
FLV-2	3"	TANK 1B FILL	-	-	N
PRESSURE RELIEF VALVES (PRV)					
PRV-1	1"	MV-1	FLANGED	PRESSURE SETTING 75 PSI	Y
PRV-2	1"	MV-2	FLANGED	PRESSURE SETTING 50 PSI	Y
PRV-3	1"	MV-3	FLANGED	PRESSURE SETTING 50 PSI	Y
PRV-4	1"	HOSE REEL	FLANGED	PRESSURE SETTING 25 PSI	Y
ANTI SIPHON VALVE (ASV)					
ASV-1 TO ASV-3	2"	P-1, P-2, P-3 OUTLETS	THREADED	SEE NOTE 3	N

TANK FARM MISCELLANEOUS COMPONENTS

COMPONENT ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
METER (M)					
M-1	-	DISPENSING AREA	-	-	N
FILTER (F)					
F-1	2"	METER M-1	FLANGED X FLANGED	-	N
FLEX CONNECT (FC)					
FC-1 TO FC-3	2" X 18"	TOP OF TANKS, TANK ISSUE	FLANGED X FLANGED	-	
FC- 4 TO FC-6	2" X 18"	TANK ISSUE, GROUND	FLANGED X FLANGED	-	
FC-7	2" X 18"	TANK 1B (ON GROUND)	FLANGED X FLANGED	-	
FC 8	1.5" X 18"	HOSE REEL	FLANGED X MPT	-	
FC -9 AND FC-10	1.5" X 18"	RETAIL DISPENSER	FLANGED XMPT	-	
STRAINERS (S)					
S-1 & S-1	2"	T1A ISSUE	FLANGED X FLANGED	-	N
S-3	2"	TIB ISSUE	FLANGED X FLANGED	-	N
QUICK COUPLER (QC)					
QC-1	3"	SB1	4"	-	N
QC-2	3"	SB2	4"	-	N
SPILL BUCKETS (SB)					
SB-1	6 GAL	TANK 1A FILL	MTPXFTP	SEE NOTE 1	N
SB-1	6 GAL	TANK 1B FILL	MTPXFTP	SEE NOTE 1	N
PRESSURE TEST POINT (P)					
PT-1	3/4"	RETAIL DISPENSER	THREAD-O-LET	-	N
PT-2	3/4"	RETAIL DISPENSER	THREAD-O-LET	-	N
PT-3	3/4"	HOSE REEL	THREAD-O-LET	-	N
REDUCERS					
2X1.5	2"X1.5"	BV-1, BV-2,AND HOSE REEL	WELDED	-	N
MISCELLANEOUS COMPONENTS					
PADLOCKS	-	BALL VALVES AND FENCE GATES	-	7 PADLOCKS (SEE NOTE 2)	N

PUMP SCHEDULE

NAME	TYPE	PRODUCT	LOCATION	MOTOR	ELECTRICAL	COMMENTS
P1	SUBMERSIBLE	DIESEL	T1A	3/4	230 VAC, 1-PH	SEE NOTE 3
P2	SUBMERSIBLE	DIESEL	T1A	3/4	230 VAC, 1-PH	SEE NOTE 3
P3	SUBMERSIBLE	GASOLINE	T1B	3/4	230 VAC, 1-PH	SEE NOTE 3

TANK SCHEDULE

NAME	CAPACITY (GALLONS)	PRODUCT	TYPE	NOTES	COMMENTS
T1A	4500	GASOLINE	T1A	CITY	SEE NOTE 4
T1B	7500	DIESEL	T1B	CITY	SEE NOTE 4

NOTES:

1. *PROVIDE SPILL BUCKET, QUICK CONNECT COUPLING AND INTEGRAL FILL LIMITER VALVE ON TANK FILL PORT.*
2. *PROVIDE LOCKABLE PADLOCKS AND TWO SETS OF KEYS FOR ALL ENCLOSURES INCLUDING MAN GATES.*
3. *PROVIDE SUBMERSIBLE PUMPS WITH INTEGRAL ANTI SIPHONING FEATURE.*
4. *PROVIDE TANK FLOAT SWITCH SYSTEM (LSHA, LSH & LSL). SEE ELECTRICAL FOR COMPONENT INFORMATION.*

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
COMPONENT SCHEDULES

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/27/20 — Designed NCP — Drawn KEG — Approved AH

Sheet No. 5

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ADD ALT 1 & 2 NOTES:

1. THE EXISTING TANKS SHOWN SHALL REMAIN IN OPERATION UNTIL THE NEW TANK FARM IS FULLY OPERATIONAL.
2. SEE SPECIFICATIONS FOR MORE DETAILS REGARDING DESCRIPTION OF WORK.
3. CONTRACTOR SHALL TAKE OWNERSHIP OF THE EXISTING TANKS, UNUSABLE CONTENTS, AND ALL ATTACHED FUEL SYSTEM COMPONENTS, AND IS RESPONSIBLE FOR REMOVAL FROM THE COMMUNITY IAW THE PROJECT DOCUMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH TANK OWNER PRIOR TO TANK REMOVAL.

ADD ALT 1 - REMOVAL OF 2,000 GALLON CONCRETE FUEL TANK

1 **EXISTING 2000 GALLON TANK**
SCALE: NTS

ADD ALT 2 - REMOVAL OF 10,000 GALLON DOUBLE WALL FUEL TANK

2 **EXISTING 10000 GALLON TANK**
SCALE: NTS

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
DECOMMISSIONING PLAN (ADD ALT 1 & 2)

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Plot Date 1/27/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. 6

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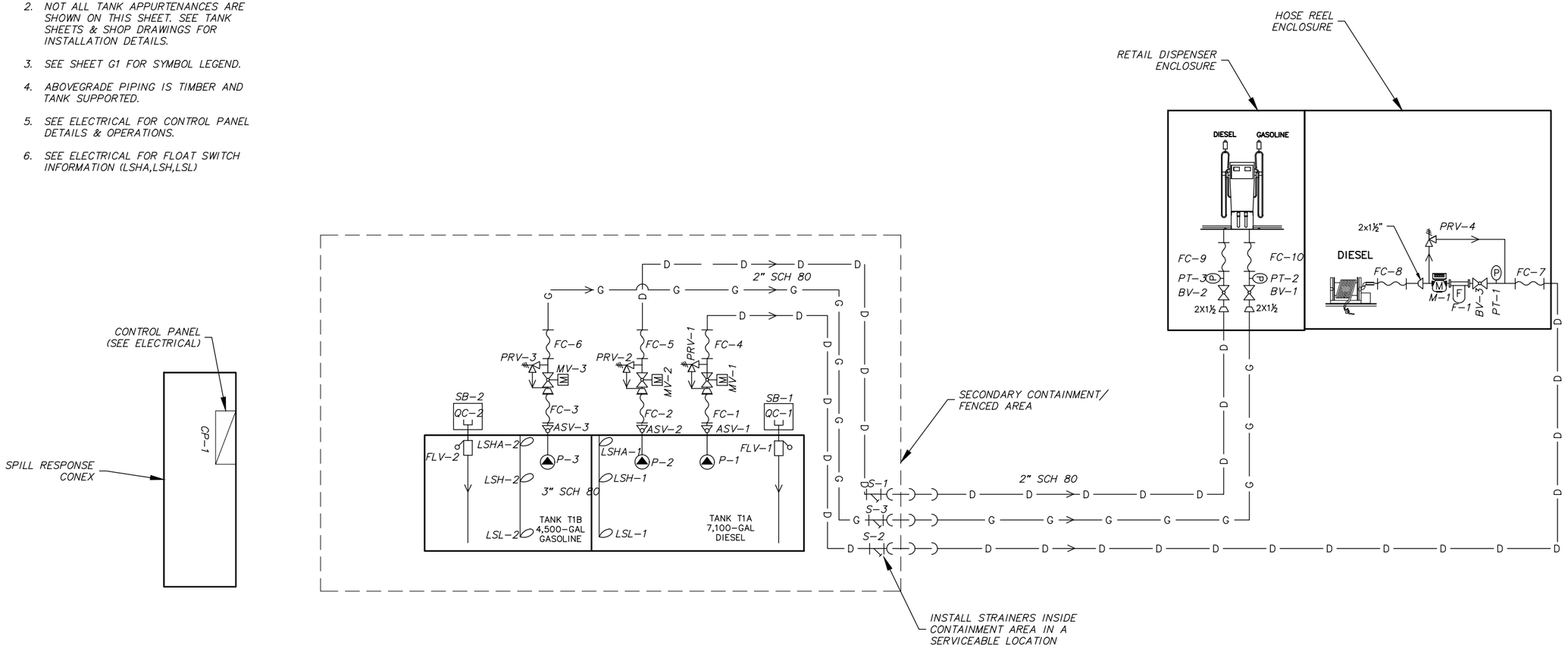
NOTES:

1. SYSTEM REPRESENTATIONS ON THIS SHEET ARE SCHEMATIC. SEE SITE PLAN AND TANK DETAILS FOR MORE SPECIFIC INFORMATION ON COMPONENT LOCATIONS.
2. NOT ALL TANK APPURTENANCES ARE SHOWN ON THIS SHEET. SEE TANK SHEETS & SHOP DRAWINGS FOR INSTALLATION DETAILS.
3. SEE SHEET G1 FOR SYMBOL LEGEND.
4. ABOVEGRADE PIPING IS TIMBER AND TANK SUPPORTED.
5. SEE ELECTRICAL FOR CONTROL PANEL DETAILS & OPERATIONS.
6. SEE ELECTRICAL FOR FLOAT SWITCH INFORMATION (LSHA,LSH,LSL)



1 TANK FARM OPERATIONS SCHEMATIC

NTS

TANK FARM OPERATIONAL NARRATIVE

FILLING TANK T1A AND T1B FROM FUEL TRUCK

TANK T1 IS FILLED VIA BARGE TRANSPORTED FUEL TRUCK:

1. BEFORE BEGINNING THE FILL PROCESS THE OPERATOR SHALL CONFIRM SUBMERSIBLE PUMPS ARE OFF AND MOTORIZED VALVES ARE CLOSED.
2. CONNECT THE TRUCK GROUNDING SYSTEM AND ATTACH TRUCK SUPPLIED FUEL TRANSFER HOSE TO CAMLOK LOCATED INSIDE TANK MOUNTED SPILL BUCKET.
3. BULK TANK T1A & T1B SHOULD BE FILLED ONE AT A TIME.
4. LINE PRESSURE WILL BE SUPPLIED BY THE FUEL TRUCK PUMPING SYSTEM.
5. THE TANK FARM OPERATOR WILL MONITOR THE FILLING PROCESS VIA CLOCK GAUGES AND GAUGING ROD AT EACH TANK.
6. AT THE CONCLUSION OF FILLING, STOP PUMP, DISCONNECT FILL HOSE AND SECURE CAMLOK CAP AND SPILL BUCKET COVER.

BULK TRANSFER/HOSE REEL OPERATION

HOSE REEL HR-1 IS INTENDED TO FACILITATE THE FILLING OF NVT VEHICLES/HEAVY EQUIPMENT & BULK TRANSFERS.

- PRIOR TO FILLING, TURN OFF ENGINE, CHOCK WHEELS AND CONNECT STATIC GROUNDING CABLE.
- OPEN ISOLATION VALVE, INPUT DESIRED FUEL VOLUME INTO PRE-SET METER, SET SPRING LOADED MECHANICAL VALVE AND DEPRESS PUMP START BUTTON TO PRESSURIZE HOSE.
- UNWIND HOSE, PLACE NOZZLE IN APPROVED FUEL CONTAINER AND DEPRESS TRIGGER TO INITIATE FLOW.
- PROVIDE CONTINUOUS MONITORING DURING FUELING PROCESS. FLOW WILL AUTOMATICALLY STOP AT PRE-SET VOLUME, BUT PUMP WILL CONTINUE TO RUN.
- WHEN FUELING IS COMPLETE, DEPRESS PUMP STOP BUTTON, WIND HOSE ONTO REEL, HANG UP NOZZLE, AND NOTE VOLUME OF FUEL DISPENSED.

RETAIL SALES DISPENSER OPERATION

RETAIL FUEL CREDIT/DEBIT CARD SALES TRANSACTIONS WILL BE CONDUCTED VIA ELECTRONIC CARD READER LOCATED AT THE RETAIL DISPENSER. THE ELECTRONIC POINT OF SALE SYSTEM WILL BE LOCATED AT THE OLD CLINIC BUILDING (NEW OFFICE). CASH SALES WILL REQUIRE AN ATTENDANT AND WILL BE INITIATED FROM THE POS SYSTEM.

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
OPERATING SCHEMATIC

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

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Sheet No. 1

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1 **VICINITY MAP**
GRAPHIC SCALE

100' 0 100' 200'

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
VICINITY MAP

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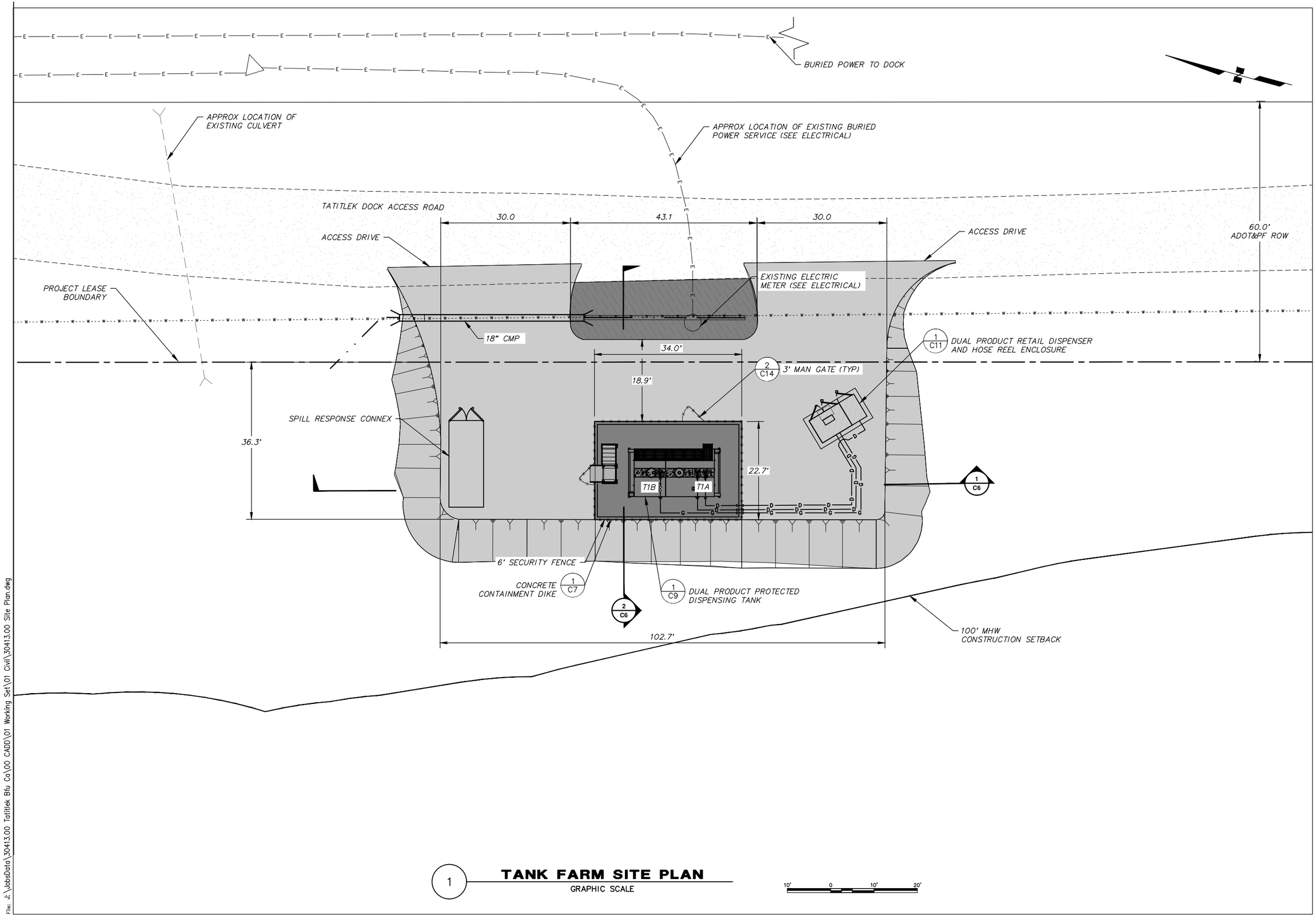
Sheet No. 2

File: J:\JobsData\30413.00 Tatitlek BFU CA\00 CADD\01 Working Set\01 Civil\30413.00 Vicinity Map.dwg



1 **TANK FARM SITE PLAN**

GRAPHIC SCALE

10' 0 10' 20'

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
TANK FARM SITE PLAN

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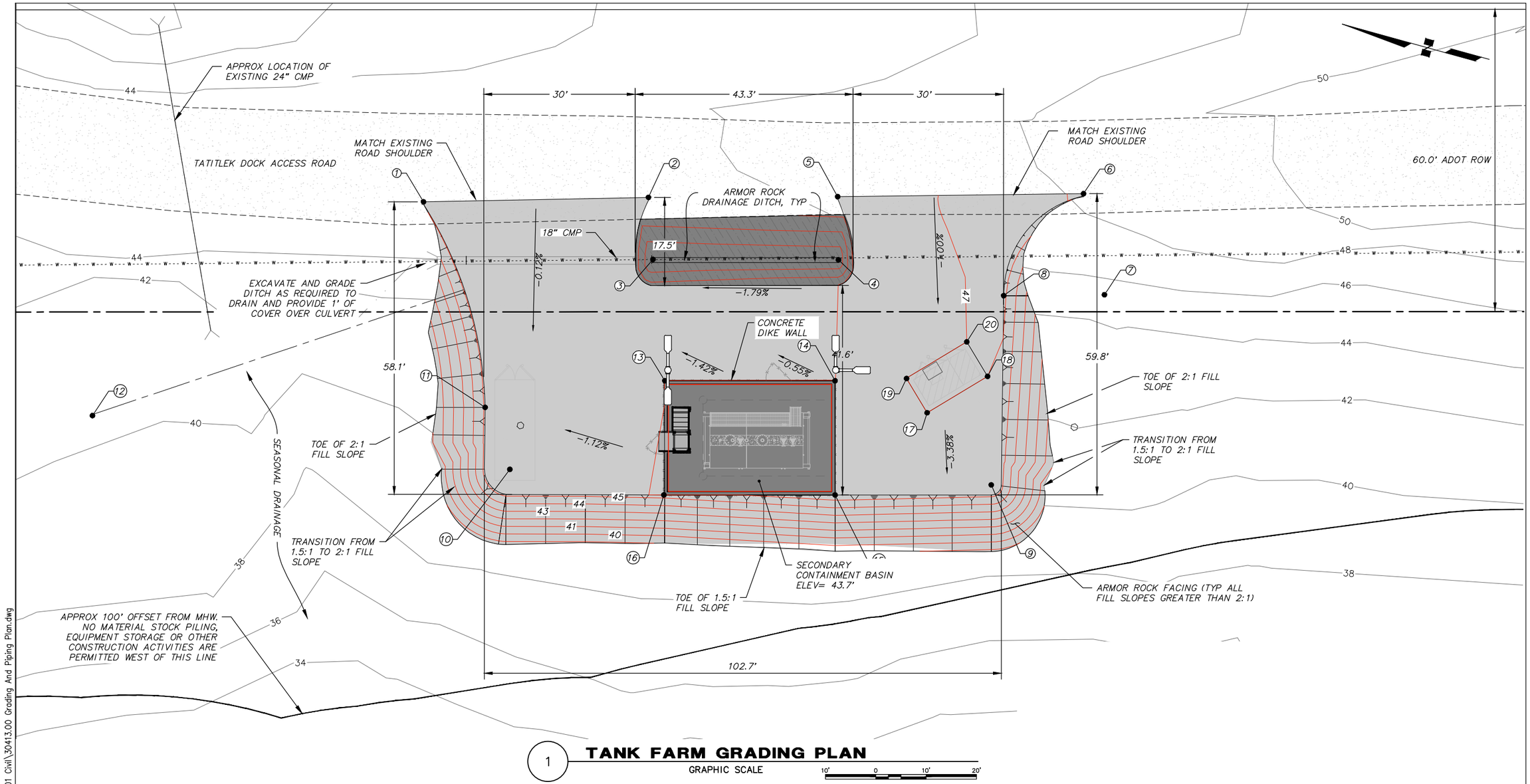
Sheet No. 3

File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\01 Civil\30413.00 Site Plan.dwg



1 TANK FARM GRADING PLAN

GRAPHIC SCALE 10' 0 10' 20'

NOTES:

1. SEE SHEET C6 FOR PAD SECTIONS.
2. SEE SHEET C6 FOR PAD CONSTRUCTION SEQUENCE.

GROUND CONTOUR LEGEND

- FG CONTOUR: 1.0' INTERVAL
- EG CONTOUR: 2.0' INTERVAL

GRAVEL PAD POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	REMARKS
1	2507852.7175	1519456.0359	45.04	MATCH EXISTING ROAD SHOULDER
2	2507809.3937	1519466.9738	45.45	MATCH EXISTING ROAD SHOULDER
3	2507805.7520	1519455.1833	43.00	RADIUS POINT, R = 4.0'
4	2507769.8417	1519463.4284	43.27	RADIUS POINT, R = 4.0'
5	2507772.8353	1519475.6121	46.23	MATCH EXISTING ROAD SHOULDER
6	2507725.4040	1519487.2156	48.17	MATCH EXISTING ROAD SHOULDER
7	2507716.8269	1519468.6065	–	RADIUS POINT, R = 20.0'
8	2507736.2689	1519463.9153	47.62	EDGE OF PAD
9	2507730.1857	1519426.7448	46.26	RADIUS POINT, R = 2.0'
10	2507824.0176	1519408.1560	45.20	RADIUS POINT. R = 5.0'
11	2507831.5708	1519419.0256	45.13	EDGE OF PAD
12	2507907.1689	1519399.8181	–	RADIUS POINT, R = 78.0'
13	2507797.9986	1519432.2344	46.70	TOP OF CONCRETE WALL
14	2507765.0696	1519439.8755	46.70	TOP OF CONCRETE WALL
15	2507759.9442	1519417.7856	46.70	TOP OF CONCRETE WALL
16	2507793.0650	1519410.1038	46.70	TOP OF CONCRETE WALL
17	2507745.8201	1519437.8209	47.00	DISPENSURE TOP OF SLAB
18	2507735.7685	1519447.5635	47.00	DISPENSURE TOP OF SLAB
19	2507751.3504	1519443.5287	47.00	DISPENSURE TOP OF SLAB
20	2507741.3354	1519453.3089	47.00	DISPENSURE TOP OF SLAB

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
GRADING PLAN

NO.	REVISION	BY	DATE
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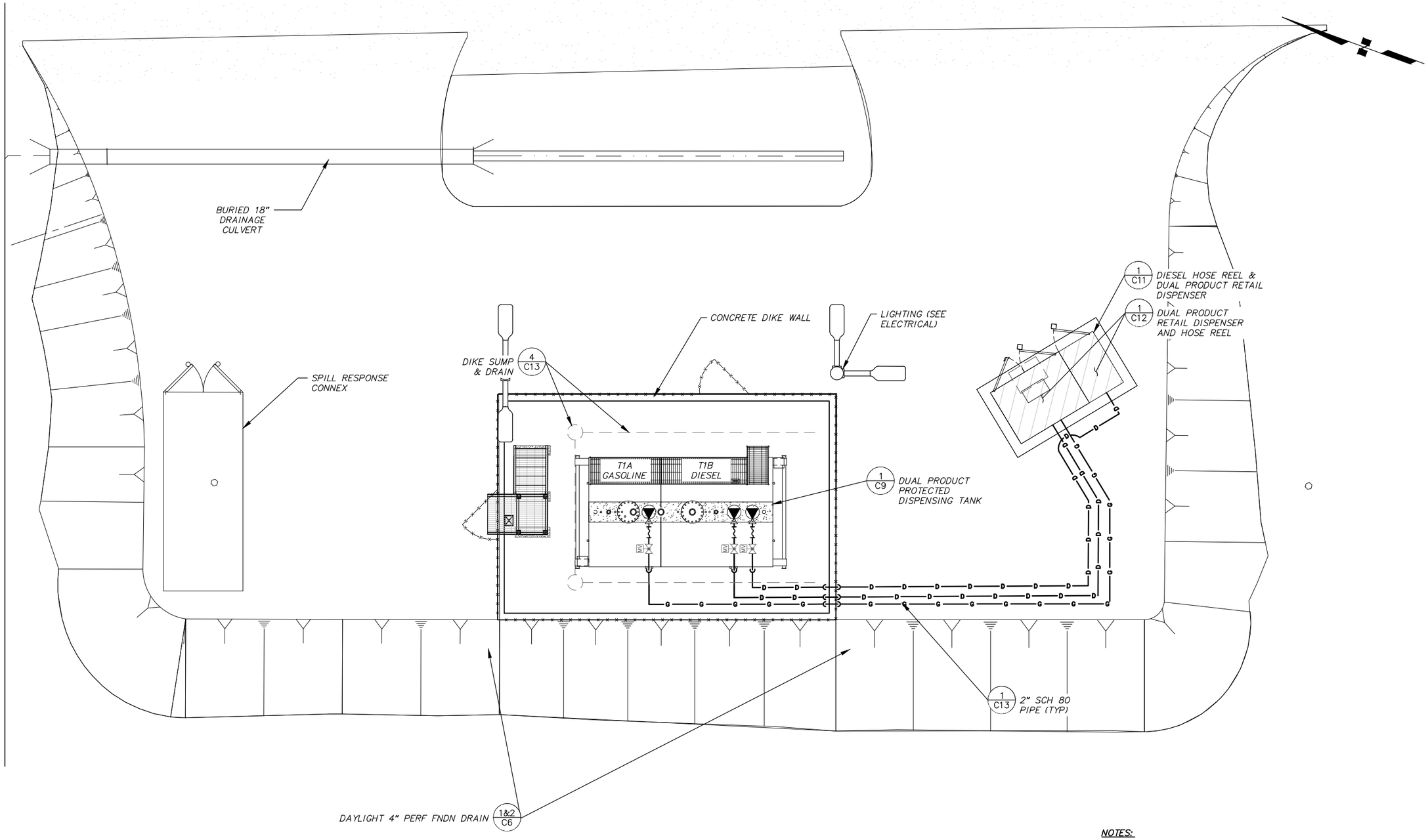
Sheet No. 4

File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\01 Civil\30413.00 Grading And Piping Plan.dwg



1 TANK FARM PIPING PLAN

GRAPHIC SCALE

5' 0 5' 10'

NOTES:

1. *SYSTEM REPRESENTATIONS ON THIS SHEET ARE SCHEMATIC. SEE OPERATING SCHEMATIC AND TANK DETAILS FOR MORE SPECIFIC INFORMATION ON COMPONENT LOCATIONS.*
2. *NOT ALL TANK APPURTENANCES (VENTS, ETC.) ARE SHOWN ON THIS SHEET. SEE SPECIFICATIONS AND TANK SHEETS FOR INSTALLATION DETAILS.*
3. *SEE SPECIFICATIONS FOR PIPING AND FITTING MATERIAL REQUIREMENTS.*
4. *SEE SHEET G2 FOR SYMBOL LEGEND.*

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
PIPING PLAN

NO.	REVISION	BY	DATE
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Sheet No. 5

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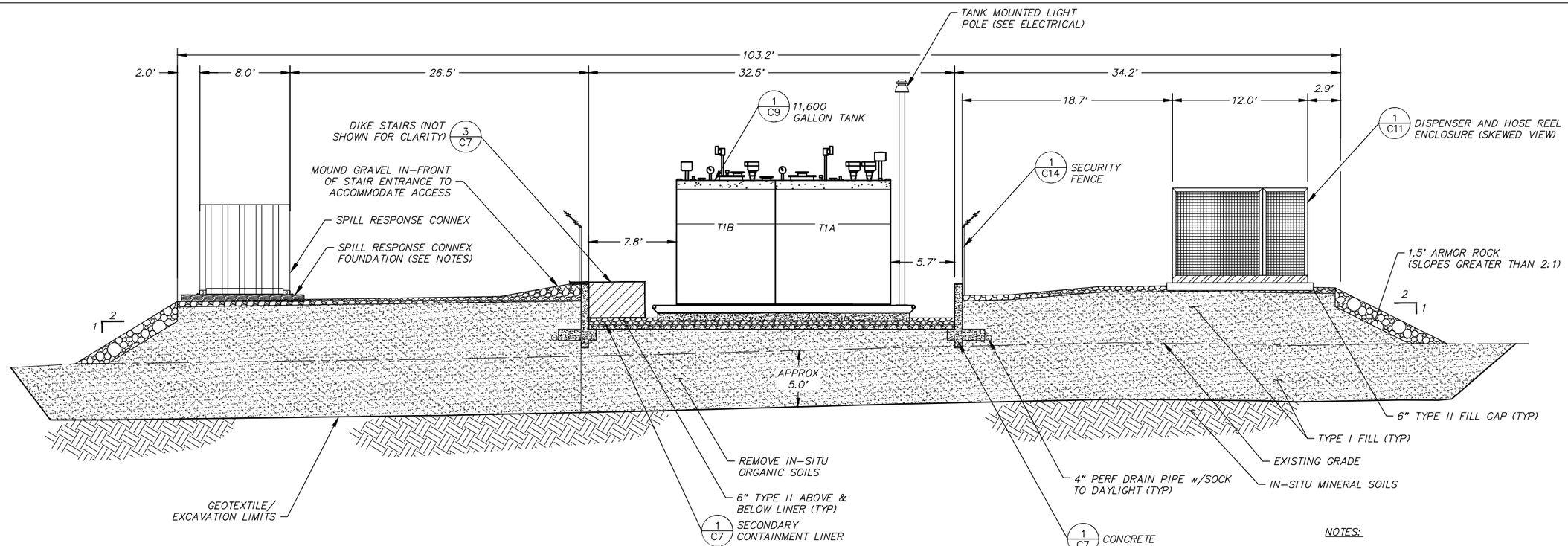
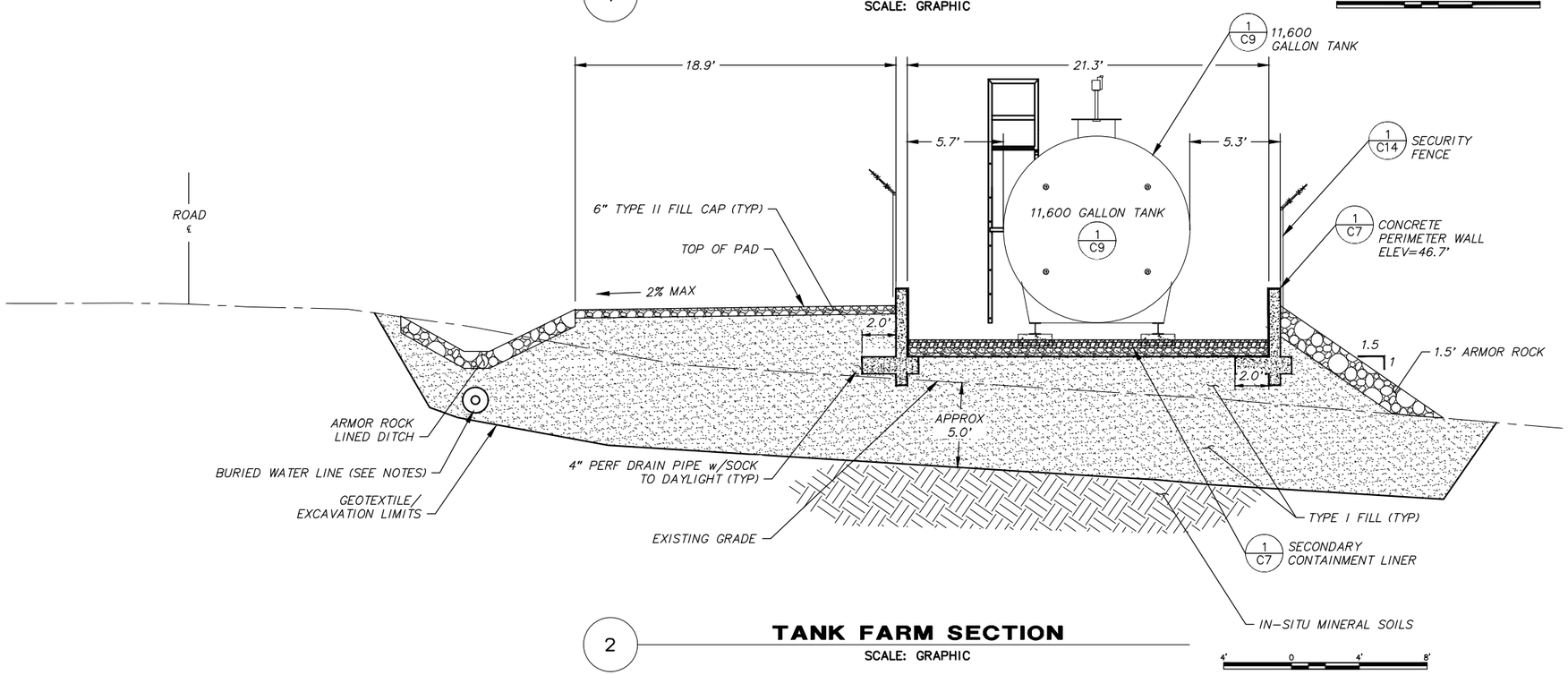


1 PAD SECTION

SCALE: GRAPHIC



2 TANK FARM SECTION

SCALE: GRAPHIC

NOTES:

1. CLEAR & GRUB PROJECT SITE TO THE EXTENT REQUIRED FOR EXCAVATION. PROJECT EXCAVATION LIMITS ARE GENERALLY DEFINED AS FOLLOWS:
   - REMOVE & DISPOSE OF ALL ORGANIC & VEGETATIVE MATER TO EXPOSE IN-SITU MINERAL SOILS (AVERAGE DEPTH IN TEST HOLES WAS 5'). WASTE MATERIAL WAS OBSERVED AS LOOSE, DARK BROWN, SATURATED ORGANIC PEAT.
   - EXCAVATION LIMIT IS AT IN-SITU MINERAL SILTS AS DEFINED BY ENGINEER (APPROX. DEPTH 5').
2. IN-SITU MINERAL SILTS ARE KNOWN TO BE MOISTURE SENSITIVE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT PRECIPITATION/RUNOFF FROM CONTACTING MOISTURE SENSITIVE MATERIALS. MATERIAL THAT BECOMES UNWORKABLE DUE TO EXPOSURE TO INCLEMENT WEATHER OR RUNOFF SHALL BE REMOVED AND REPLACED WITH CLASSIFIED FILL AT NO COST TO THE OWNER.
3. EXCAVATION WALLS SHALL BE SLOPED AND/OR BENCHED AS NECESSARY IN ORDER TO ALLOW FOR SAFE AND EFFICIENT BACKFILL PLACEMENT AND COMPACTION.
4. CONTRACTOR SHALL LOCATE ALL BURIED UTILITIES WITHIN PROJECT AREA PRIOR TO CONSTRUCTION.
5. CONTRACTOR SHALL COORDINATE ANY AND ALL EXISTING UTILITIY WORK, OR CONFLICTS, WITH THE NVT.
6. CONTRACTOR TO PROVIDE TIMBER CONNEX FOUNDATION: (12) 6X6X10 TREATED TIMBERS.

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
TANK FARM PAD SECTIONS

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Sheet No. 6

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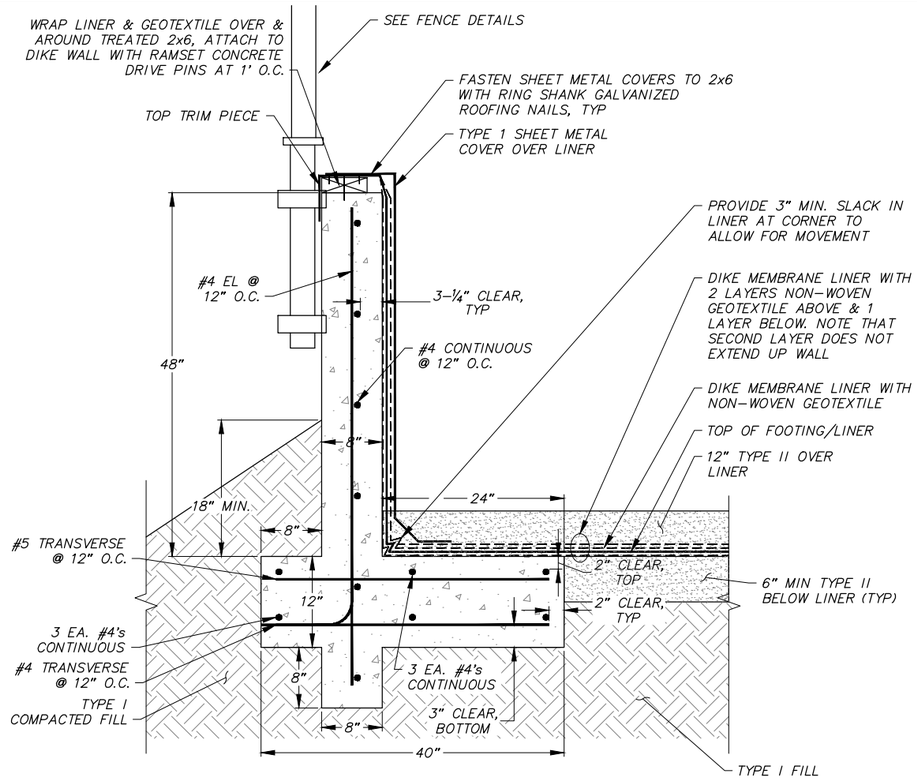
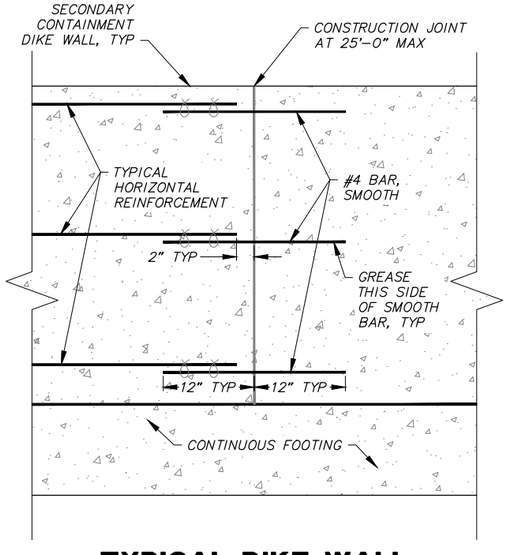


IMPORTANT NOTE: THE 24" FOOTING LEG FACES AWAY FROM THE CONTAINMENT AREA ON THE NORTH, EAST AND SOUTH AND TOWARD THE CONTAINMENT AREA ON THE WEST.

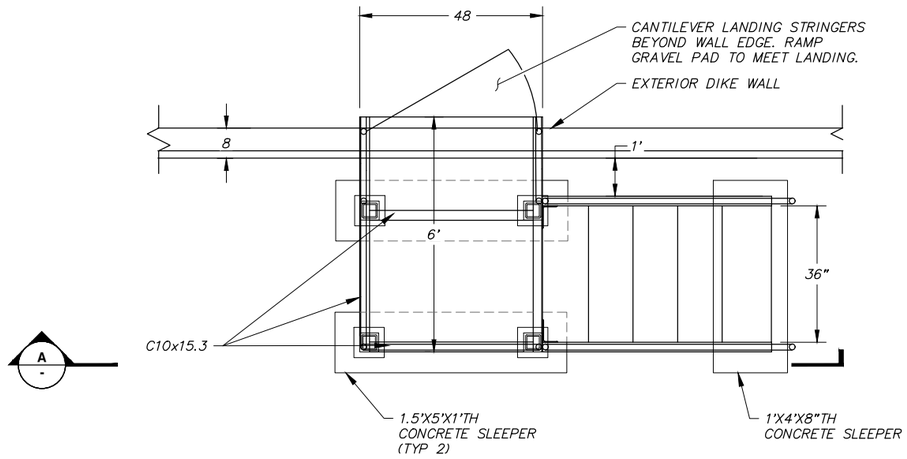
1 TYPICAL CONCRETE PERIMETER DIKE WALL SECTION

NTS

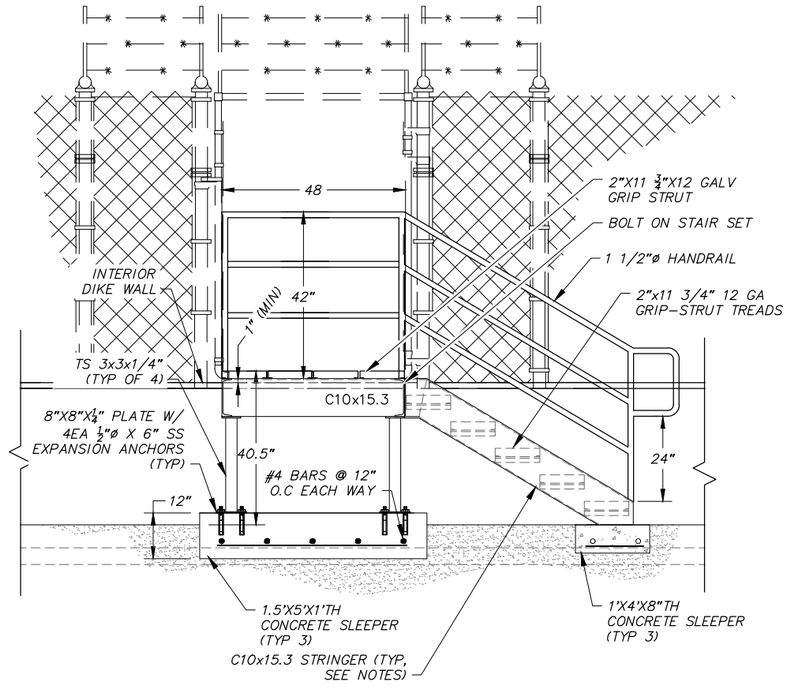


2 TYPICAL DIKE WALL CONSTRUCTION JOINT

NTS



PLAN VIEW



A - SECTION VIEW

3 DIKE STAIR DETAIL

NTS

NOTES

1. ALL CONNECTIONS SHALL BE WELDED IAW THE SPECIFICATIONS.
2. ALL STEEL SHALL BE PAINTED IAW SPECIFICATIONS.
3. DIKE STAIRS ARE DIAGRAMMATIC. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER AND RECEIVE ENGINEER APPROVAL PRIOR TO FABRICATION OF DIKE STAIRS.
4. DIKE STAIRS ARE TO BE OSHA COMPLIANT.

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
CONTAINMENT DIKE DETAIL

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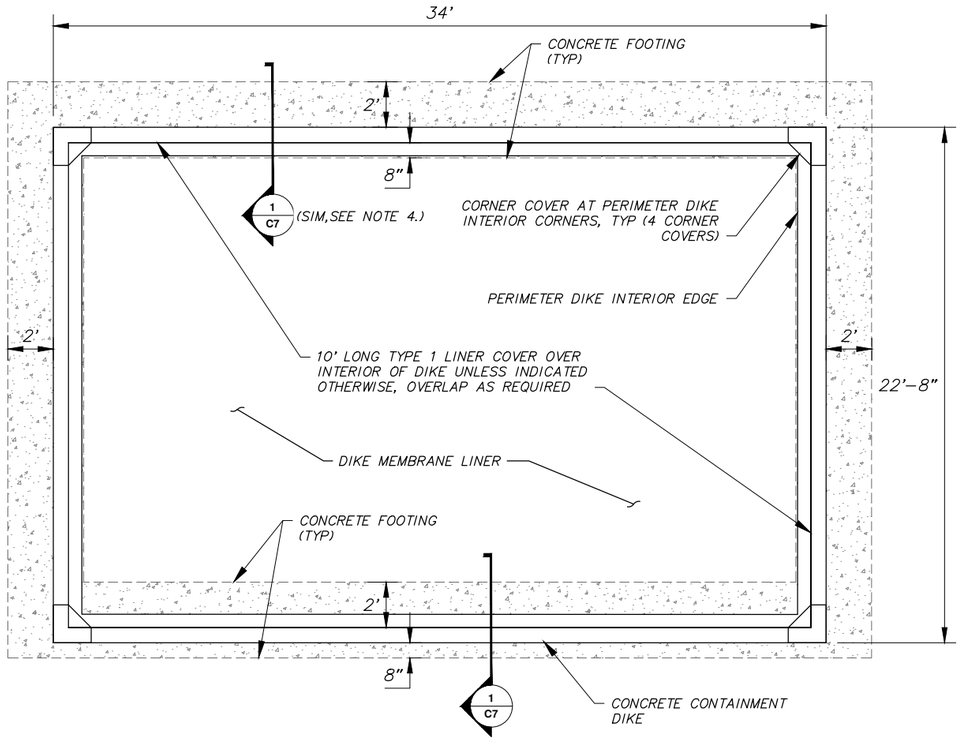
Approved AH

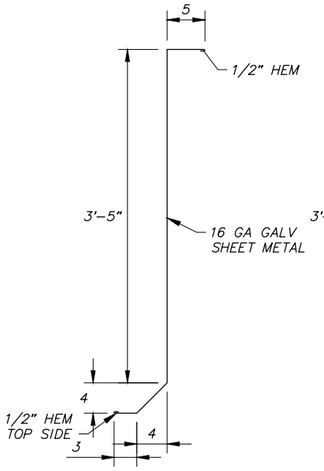
Sheet No. 7

File: J:\JobsData\30413.00 Tatitlek Bfu Co\00 CADD\01 Working Set\01 Civil\30413.00 11600 Tank.dwg

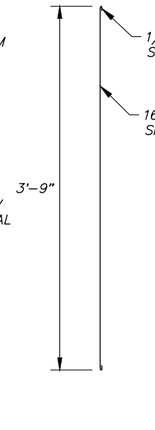


1 CONCRETE CONTAINMENT & DIKE MEMBRANE LINER SHEET METAL COVER PLAN

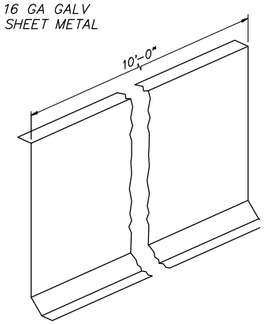
NTS



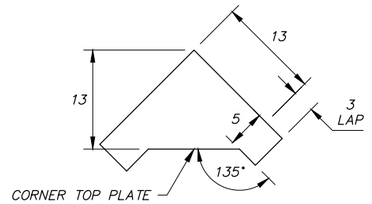
LINER COVER SECTION

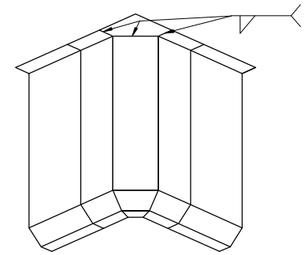


DIKE FACING SECTION



LINER COVER ISOMETRIC





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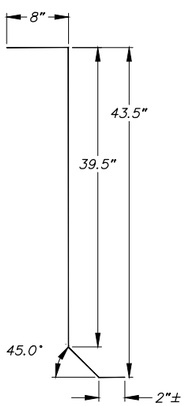
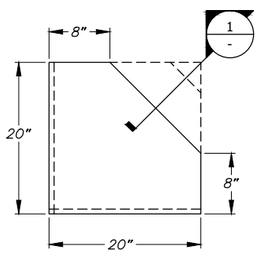


TYPICAL PERIMETER DIKE LINER COVER SECTION

2 TYPE 1 LINER COVER

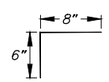
NTS



PLAN VIEW

3 CORNER COVER

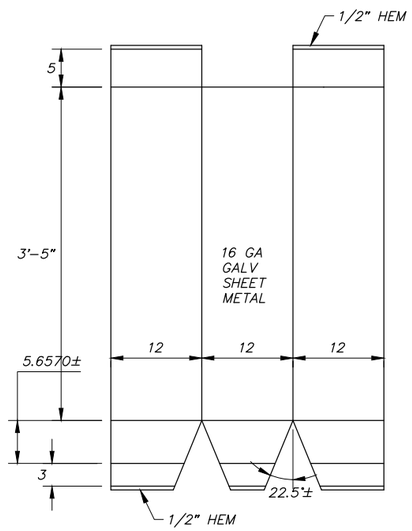
NTS



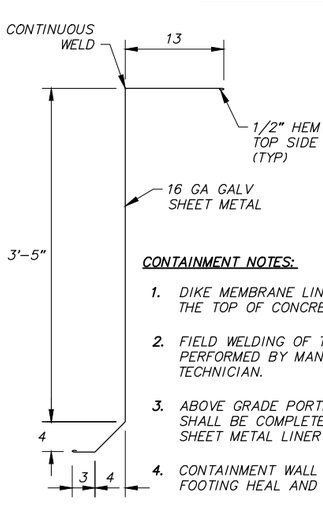
TYPICAL TOP TRIM PIECE SECTION

4 TOP TRIM PIECE

NTS



LAYOUT



SECTION AT CORNER

CONTAINMENT NOTES:

1. *DIKE MEMBRANE LINER SHALL BE WATER TIGHT TO THE TOP OF CONCRETE DRIVE-IN CURB.*
2. *FIELD WELDING OF THE MEMBRANE LINER SHALL BE PERFORMED BY MANUFACTURERS CERTIFIED TECHNICIAN.*
3. *ABOVE GRADE PORTIONS OF THE MEMBRANE LINER SHALL BE COMPLETELY ENCAPSULATED BY BY THE SHEET METAL LINER COVER.*
4. *CONTAINMENT WALL IS OFFSET ON FOOTING. FOOTING HEAL AND TOE WIDTHS VARY AS SHOWN.*

5 SHEET METAL COVER PLAN

NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — Andrew M. Hemmesch — E-14054 — 1/29/2020 — REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
CONTAINMENT DIKE DETAILS

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/29/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. 8

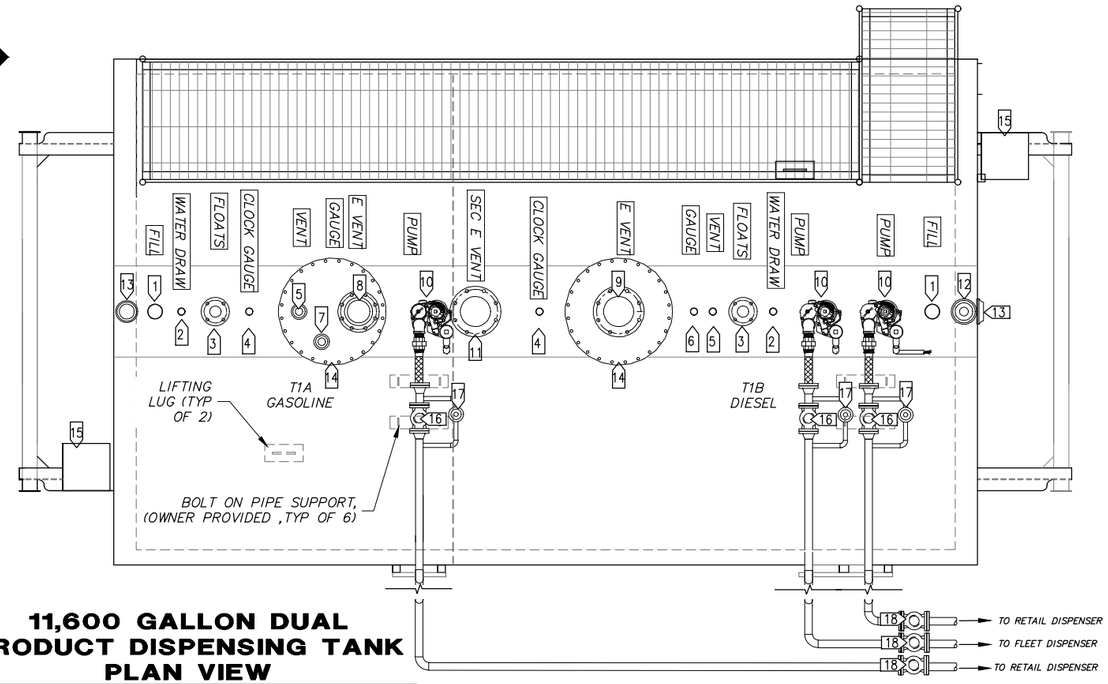
File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\01 Civil\30413.00 11600 Tank.dwg

SPECIFIC TANK NOTES:

1. 4" THREADED FILL, WITH FILL LIMITER VALVE AND 6 GALLON SPILL BASIN
2. 2" THREADED WATER DRAW (3/C10)
3. 3" FLANGED FLOATS
4. 2" THREADED CLOCK GAUGE (2/C10)
5. 2" PRESSURE VACUUM VENT WITH WHISTLE ALARM. VENT MUST BE 12' ABOVE FINISHED GRADE. FEED CABLE THROUGH PIPE PRIOR TO CONNECTING TO TANK. SET WHISTLE TO ALARM AT 90% FULL.
6. 2" THREADED GAUGE HATCH
7. 2" THREADED GAUGE HATCH
8. 6" FLANGED E VENT
9. 8" FLANGED EVENT
10. SUBMERSIBLE PUMP (1/C10)
11. 8" FLANGED SECONDARY E VENT
12. 4" OUTER TANK HEAD (PLUGGED)
13. 4" OUTER TANK HEAD (PLUGGED)
14. 24" MANHOLE
15. TANK MOUNT LIGHT POLE BASE (TYP 2)
16. 2" MOTORIZED BALL VALVE
17. 1" PRV
18. 2" STRAINER

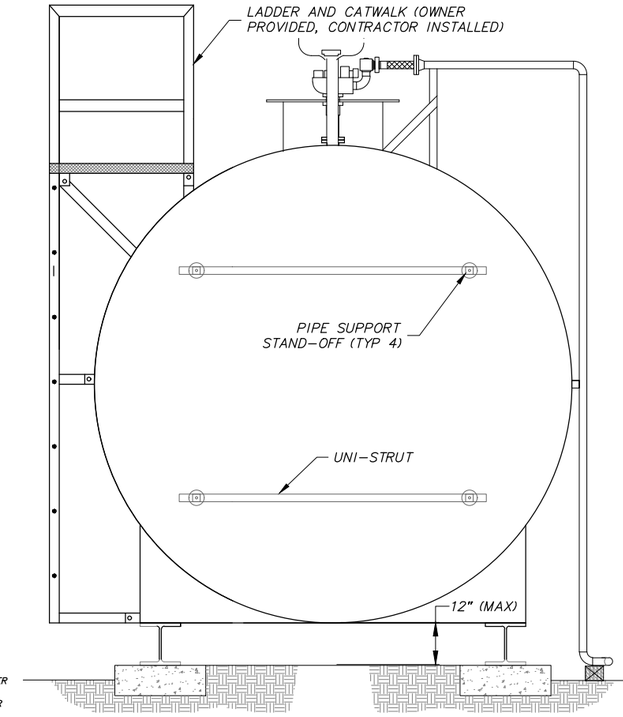
GENERAL NOTES:

1. ***PROTECTED 11,600 GALLON NOMINAL CAPACITY DUAL PRODUCT TANK AND CATWALK IS OWNER PROVIDED.*** *SHOP DRAWINGS AVAILABLE UPON REQUEST. ALL OTHER APPURTENANCES ARE CONTRACTOR PROVIDED.*
2. *ALL THREADED PENETRATIONS FNPT.*
3. *ALL REQUIRED PENETRATIONS, STANDOFFS, PIPE SUPPORTS ETC., SHALL BE BOLT ON OR FACTORY INSTALLED. FIELD WELDING ON TANKS IS PROHIBITED.*
4. *SEE G SHEETS AND OPERATING SCHEMATIC FOR COMPONENT SCHEDULES.*
5. *SEE TECHNICAL SPECIFICATIONS AND TANK SHOP DRAWINGS FOR ADDITIONAL INFORMATION.*
6. *TANK BOTTOM SHALL BE 12" (MAX) ABOVE GRADE. INFILL BETWEEN SKIDS AS REQUIRED.*



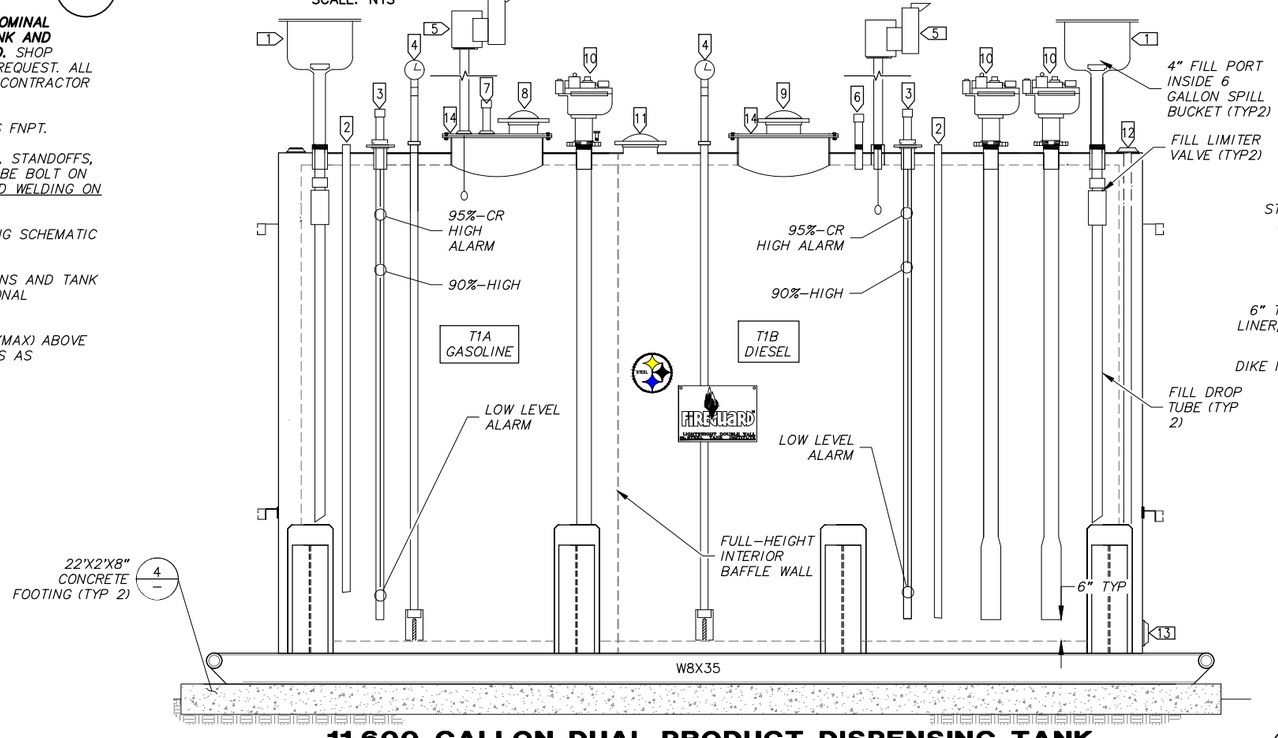
11,600 GALLON DUAL PRODUCT DISPENSING TANK PLAN VIEW

1 SCALE: NTS



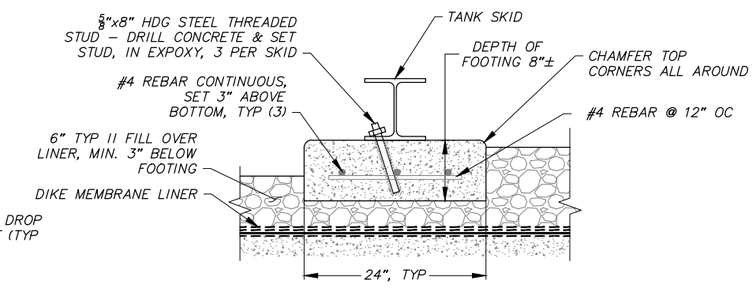
11,600 GALLON DUAL PRODUCT DISPENSING TANK SECTION VIEW

2 SCALE: NTS



11,600 GALLON DUAL PRODUCT DISPENSING TANK ELEVATION VIEW

3 SCALE: NTS



NOTE:
1. *TAKE STEPS TO PROTECT LINER WHILE FORMING & POURING FOOTING. USE SNAP TIES OR ALL THREAD TO HOLD FORM BOARDS.* ***DO NOT USE STAKES FOR SETTING FORMS.***

TYPICAL HORIZONTAL TANK FOOTING

4 NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — Andrew M. Mastrantonio — EXPIRES: 12/31/2020 — REGISTERED PROFESSIONAL ENGINEER

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
11,600 GALLON PROTECTED TANK DETAILS

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

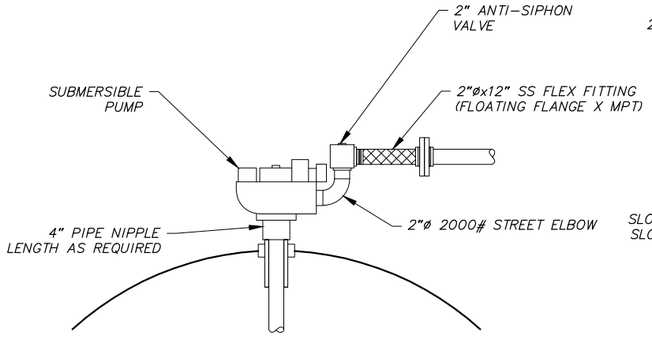
Plot Date 1/27/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. 9

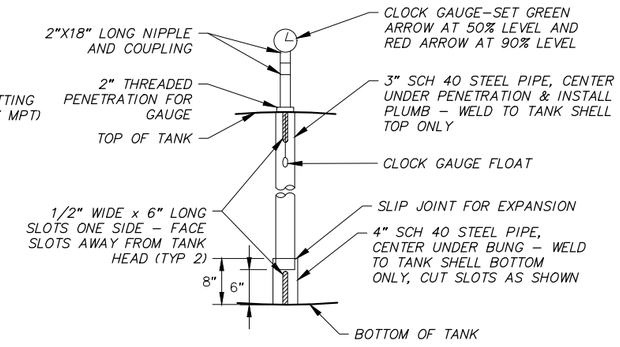
File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\01 Civil\30413.00 11600 Tank.dwg

GENERAL NOTES:

1. SEE SPECIFICATIONS FOR DETAILED COMPONENT DESIGNATIONS.
2. PROVIDE UL APPROVED GROUNDING LUG ON TANK SKIDS (TYP 2, ON OPPOSITE CORNERS)



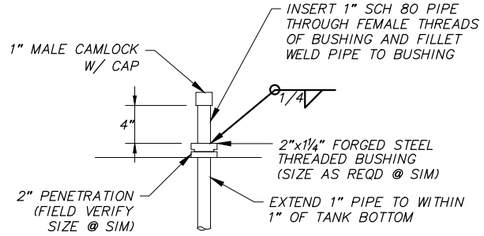
1 **SUBMERSIBLE PUMP ASSEMBLY**
NTS



NOTE:

INTERNAL TANK STILLING WELL COMPONENTS ARE INCLUDED WITH OWNER PROVIDED TANKS. CLOCK GAUGE AND NIPPLE ARE NOT OWNER PROVIDED.

2 **GAUGE FLOAT STILLING WELL**
NTS



NOTE:

WATER DRAW ASSEMBLY COMPONENTS WILL BE OWNER PROVIDED WITH THE EXCEPTION OF THE CAMLOCK FITTING AND CAP.

3 **TYP WATER DRAW**
NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH Andrew M. Hemmasky E-14054 1/29/2020 REGISTERED PROFESSIONAL ENGINEER

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#AECL682-AK

TATITLEK, ALASKA

AEA BULK FUEL UPGRADES

MISCELLANEOUS TANK DETAILS

NO.	REVISION	BY	DATE
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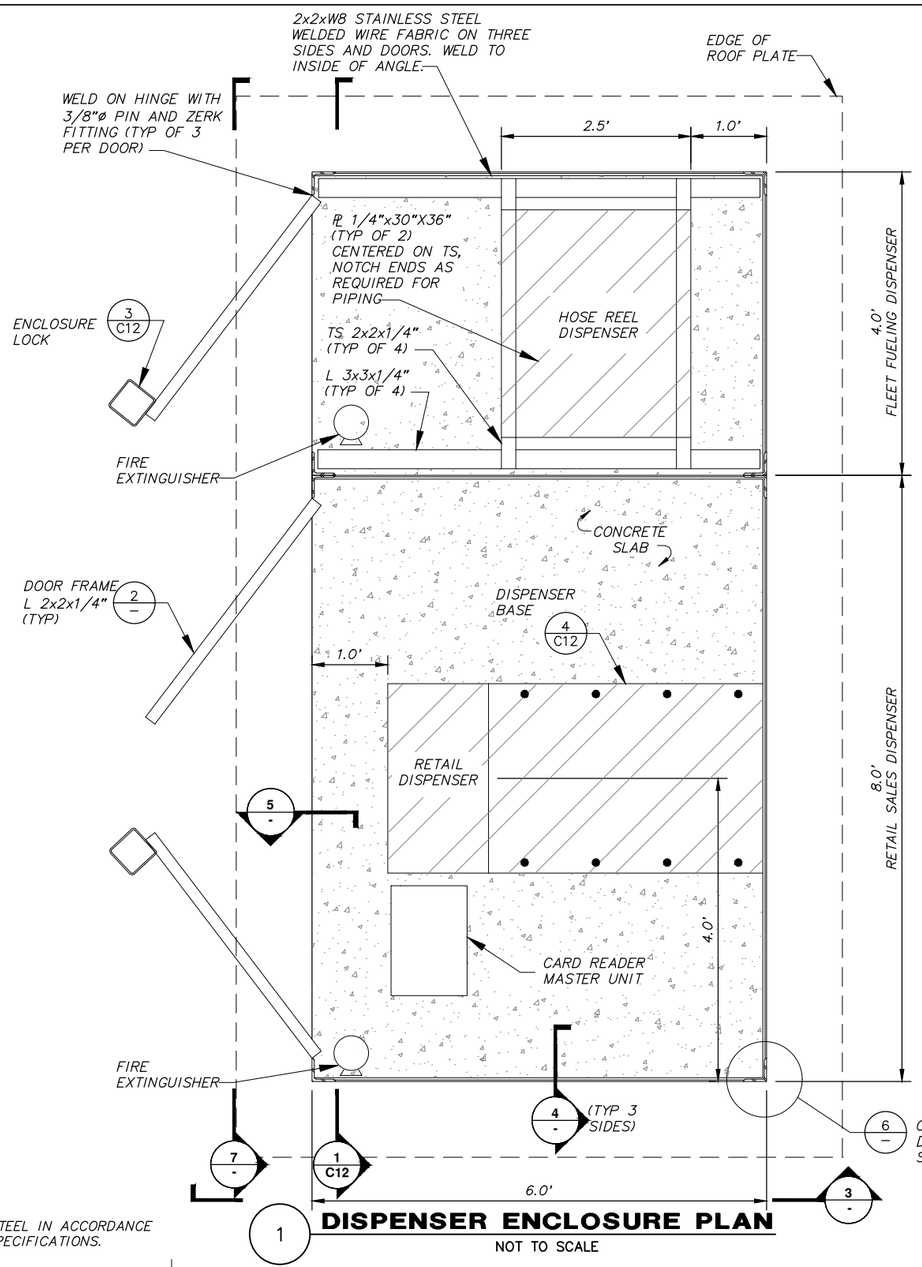
Drawn KEG
Approved AH

Sheet No. 10

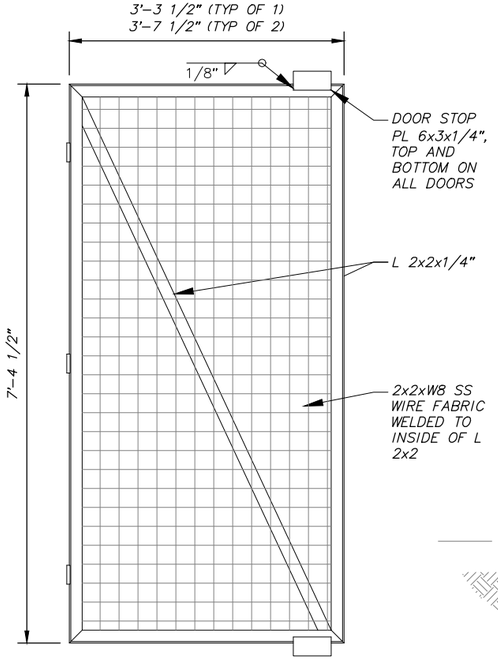
File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\01 Civil\30413.00 Details-Tank.dwg



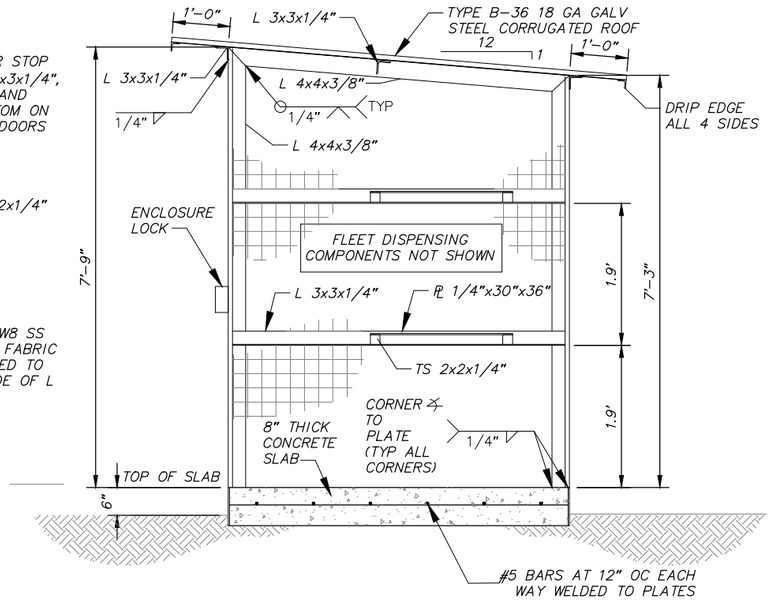
NOTE:

COAT ALL STEEL IN ACCORDANCE WITH THE SPECIFICATIONS.

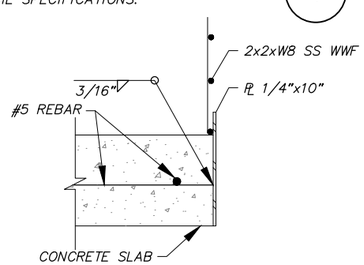
1 **DISPENSER ENCLOSURE PLAN**
NOT TO SCALE



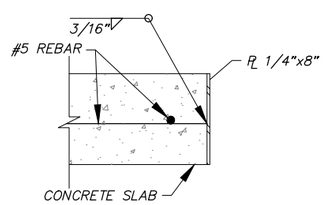
2 **DOOR FRAME**
NOT TO SCALE



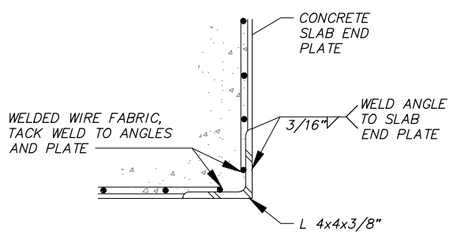
3 **DISPENSER ENCLOSURE SECTION**
NOT TO SCALE



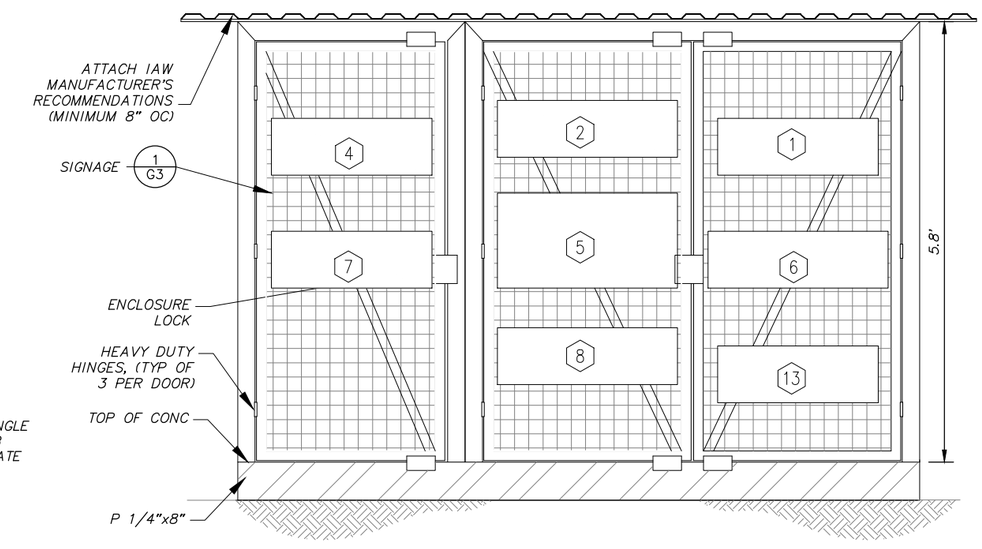
4 **CONCRETE SLAB ENDS**
NOT TO SCALE



5 **CONCRETE SLAB FRONT**
NOT TO SCALE



6 **CORNER DETAIL AT SLAB**
NOT TO SCALE



7 **DISPENSER ENCLOSURE FRONT ELEVATION**
NOT TO SCALE

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — Andrew M. Mazmanian — E-14054 — 1/29/2020 — REGISTERED PROFESSIONAL ENGINEER

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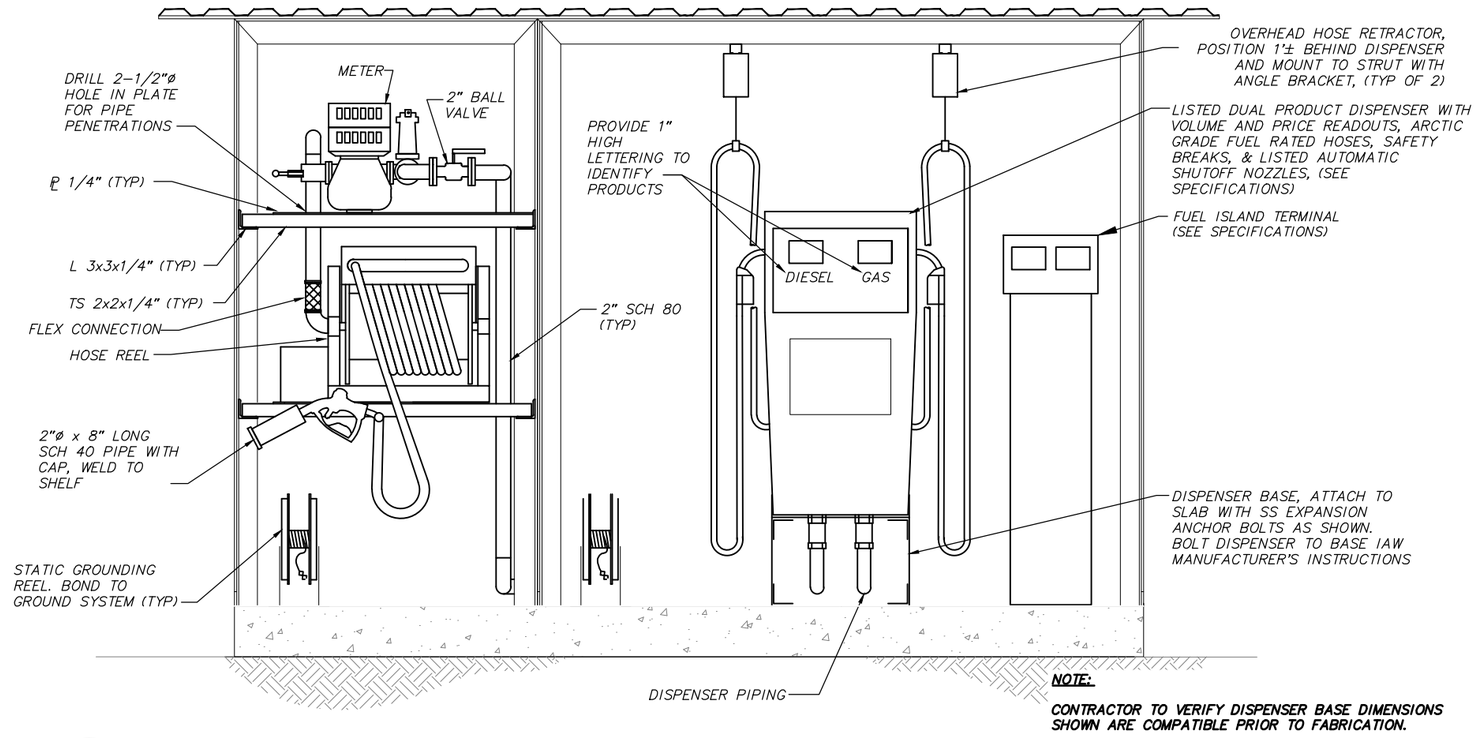
TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
DISPENSER AND HOSE REEL ENCLOSURE

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/27/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. □11

File: J:\JobsData\30413.00 Tatitlek BFU CA\00 CADD\01 Working Set\01 Civil\30413.00 Details-Despenser.dwg

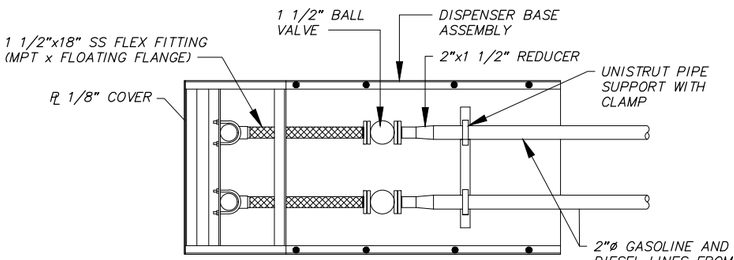


NOTE:

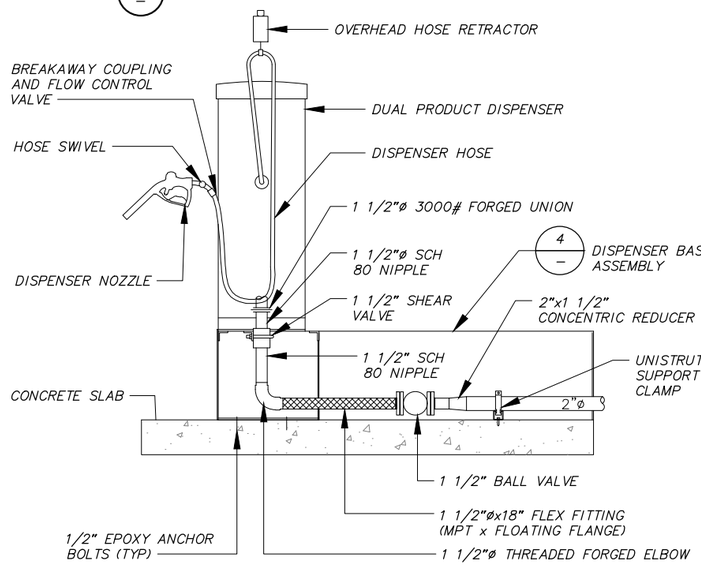
CONTRACTOR TO VERIFY DISPENSER BASE DIMENSIONS SHOWN ARE COMPATIBLE PRIOR TO FABRICATION.

1 HOSE REEL & RETAIL DISPENSER - ELEVATION VIEW

NOT TO SCALE



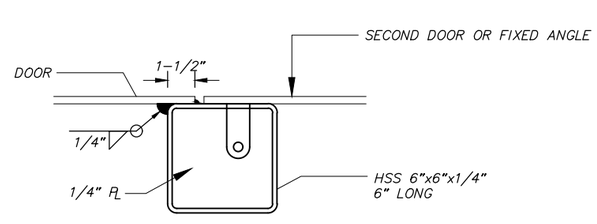
PLAN VIEW

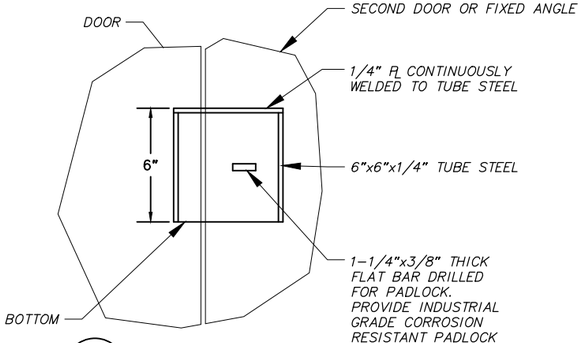


A - SECTION VIEW

2 RETAIL DISPENSER DETAILS

NOT TO SCALE





3 ENCLOSURE LOCK

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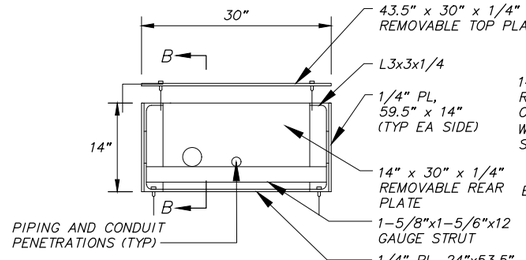
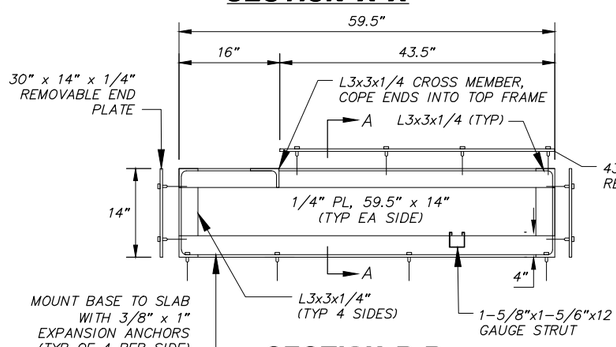


SECTION A-A



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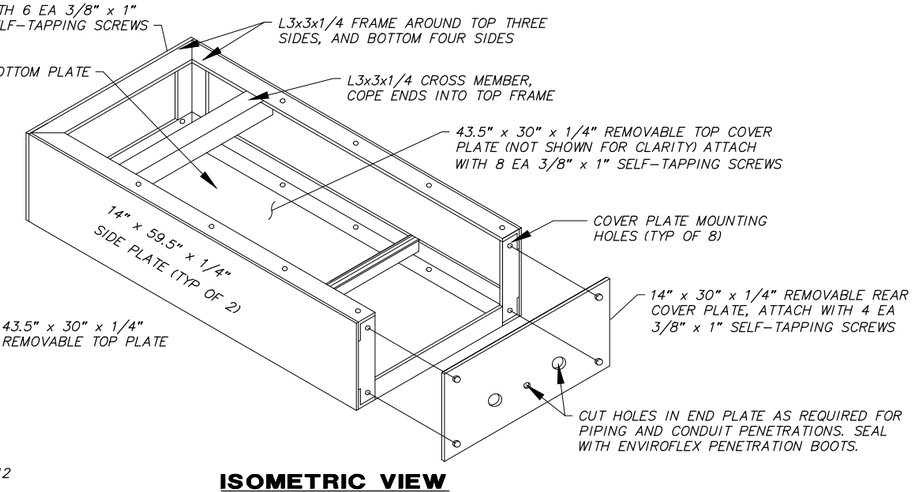

ISOMETRIC VIEW

4 DISPENSER BASE FABRICATION

NOT TO SCALE

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH Andrew M. Mongrawsky E-14054 12/29/2020 REGISTERED PROFESSIONAL ENGINEER

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES

DISPENSER AND HOSE REEL ENCLOSURE DETAILS

NO.	REVISION	BY	DATE
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Sheet No. □12

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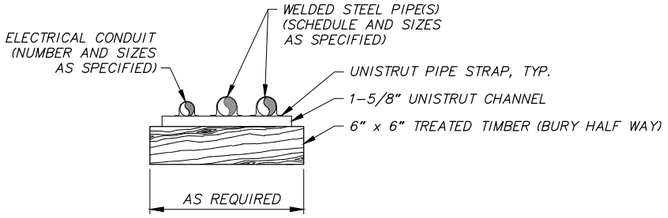
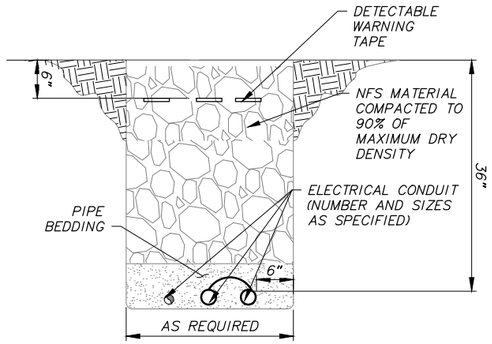


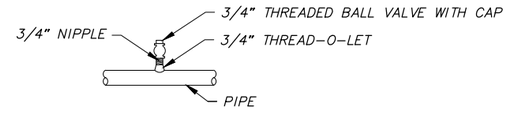
1 **TIMBER PIPE SUPPORT**
NOT TO SCALE



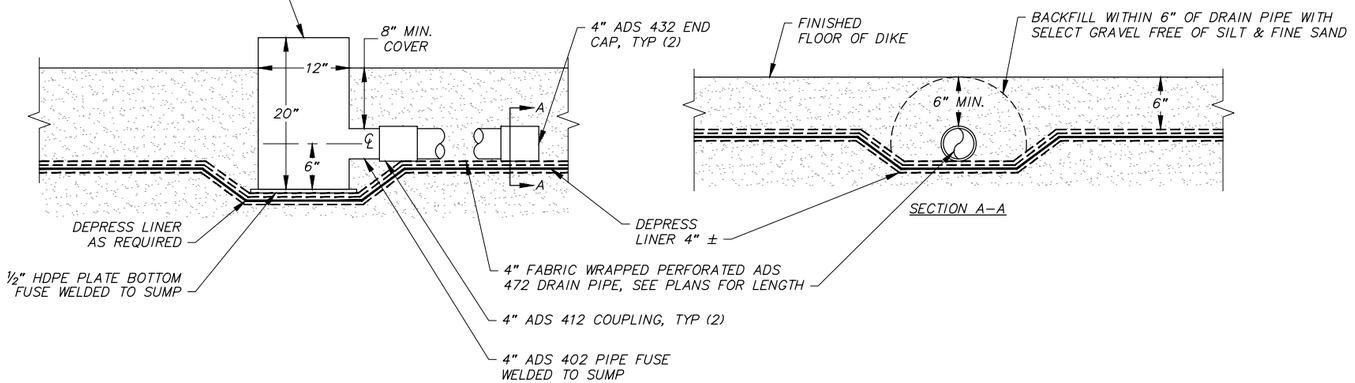
2 **BURIED PIPE DETAIL**
SCALE: NTS

NOTE:

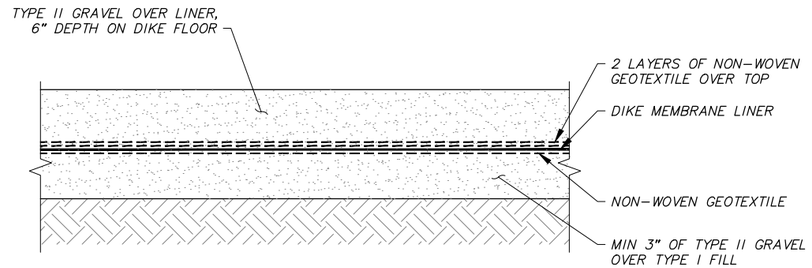
1. *WHERE BURIED PIPELINES CROSS EXISTING TRAVELED WAY, SEGREGATE GRAVEL ROAD CAP FROM GENERAL TRENCH EXCAVATION AND USE TO RE-CAP DISTURBED AREA.*
2. *SEE SPECS FOR BACK FILL REQUIREMENTS*



3 **PRESSURE TEST CONNECTION**
NOT TO SCALE



4 **DIKE DRAIN & SUMP INSTALLATION**
NTS



5 **TYPICAL LINER INSTALLATION**
NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — Andrew M. Mongrella — E-14054 — 1/29/2020 — REGISTERED PROFESSIONAL ENGINEER

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
MISCELLANEOUS DETAILS

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/27/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. 13

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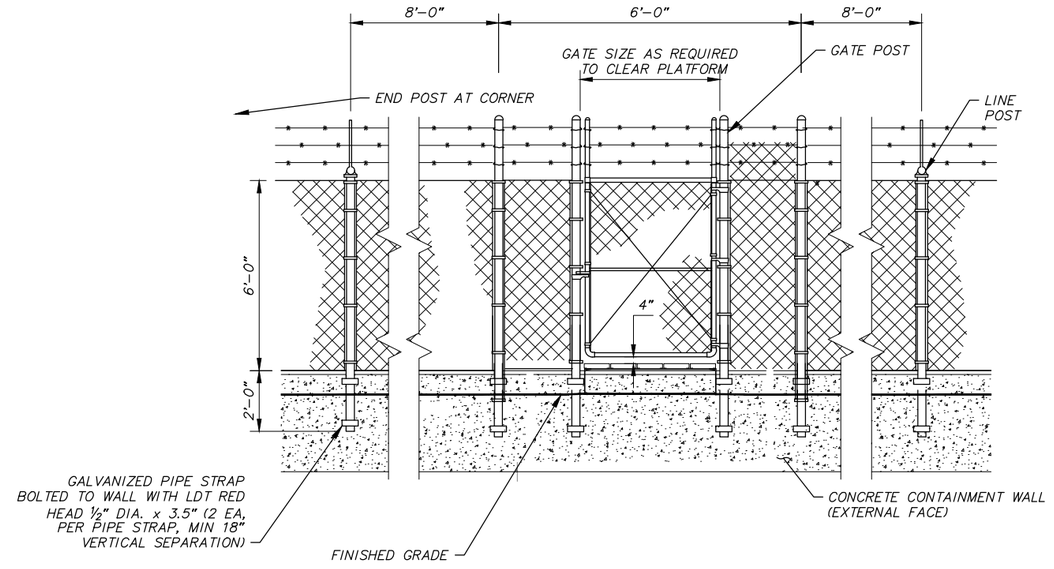

1 **GATE DETAIL**
NOT TO SCALE

GENERAL FENCE NOTES:

1. *MAXIMUM PULL POST SPACING 75 FEET. EACH PULL POST SHALL BE SUPPORTED WITH A DIAGONAL BRACE RAIL TO THE ADJACENT LINE POSTS.*
2. *BRACE RAILS AND TRUSS RODS SHALL BE SECURELY FASTENED TO POSTS WITH BRACE BANDS AND THREADED TAKE–UP ADAPTER FOR TRUSS RODS.*
3. *INSTALL 1 PIECE GATES AT DIKE EGRESS POINTS.*
4. *GATES AT CONCRETE WALL DIKE EGRESS POINTS WITH STAIRS SHALL BE ELEVATED ABOVE STAIR PLATFORM AS SHOWN. GATES AT EGRESS POINTS WITHOUT STAIRS SHALL BE INSTALLED FLUSH WITH TOP OF DIKE.*
5. *MAN GATES ON CONCRETE DIKE WALL AT LOCATIONS WHERE NO STAIRS ARE PROPOSED WILL NOT INCLUDE THE STAIR PLATFORM. INSTALL GATE WITH 4–INCH GAP BETWEEN BOTTOM OF GATE AND TOP OF CONCRETE WALL.*
6. *SEE ELECTRICAL SHEET E6 FOR GROUNDING.*

ALASKA ENERGY AUTHORITY

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
FENCE DETAILS

NO.	REVISION	BY	DATE
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LEGEND

- BUS
- EXPOSED CONDUIT
- CONDUIT/CABLE RUN UNDERGROUND OR IN CONCRETE
- X–Y,Z — HOMERUN TO PANEL "X", CIRCUITS NO. Y AND Z. CONDUIT RUNS NOT DEFINED ARE 1/2" C with 3#12.
- GROUND
- CONDUIT RUN – CHANGE IN ELEVATION
- GROUND ROD
- LIQUID–TIGHT FLEXIBLE CONDUIT
- HP — MOTOR, HP AS SHOWN, SINGLE PHASE, "F" = FRACTIONAL
- HP — MOTOR, HP AS SHOWN, THREE PHASE
- X — SHEET NOTE "X"
- X — ELECTRICAL EQUIPMENT TAG "X"
- PANELBOARD
- DISCONNECT SWITCH
- TRANSFORMER
- M — KILOWATT–HOUR METER
- GFI — 125V DUPLEX GROUND FAULT INTERRUPT WEATHER PROOF RECEPTACLE, NEMA CONFIGURATION 5 – 20R.
- JUNCTION BOX
- MOTOR OVERLOAD
- XX / YY — FIELD MOUNTED INSTRUMENT. XX = FUNCTION; YY = TAG NO.
- INSTRUMENT DEVICE LOCATION (SEE TAG)
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- R — PILOT LIGHT. R=RED, B=BLUE, A=AMBER, G=GREEN
- XX / XXXX — RELAY COIL
- XXX / YYY / [ZZZ] — TIME DELAY RELAY CONTACTS NORMALLY CLOSED TIMED OPEN. XXX= DESCRIPTION; YYY=RELATED COIL & CONTACT #; ZZZ=COIL RUNG
- XXX / YYY / [ZZZ] — TIME DELAY RELAY CONTACTS NORMALLY OPEN TIMED CLOSED. XXX= DESCRIPTION; YYY=RELATED COIL & CONTACT #; ZZZ=COIL RUNG
- XXX / YYY / [ZZZ] — TIME DELAY RELAY CONTACTS NORMALLY OPEN TIMED OPEN. XXX= DESCRIPTION; YYY=RELATED COIL & CONTACT #; ZZZ=COIL RUNG
- FLOAT OPERATED SWITCH, NORMALLY CLOSED
- FLOAT OPERATED SWITCH, NORMALLY OPEN
- PUSHBUTTON NORMALLY CLOSED, MOMENTARY CONTACT
- PUSHBUTTON NORMALLY OPEN, MOMENTARY CONTACT
- MV — MOTORIZED VALVE
- J — JUNCTION BOX OR FITTING
- CONDUIT TEE
- X — FUSE, X=SIZE IN AMPS
- MANUAL MOTOR STARTER (FVNR)
- COMBINATION MAGNETIC MOTOR STARTER (FVNR) WITH DISCONNECT
- X/Y — MOLDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES THERMAL/MAGNETIC UON
- CONTROL PANEL
- $ — SINGLE POLE SWITCH 120/277V 20A
- SEAL–OFF FITTING
- PC — PHOTO ELECTRIC CONTROL
- INSTRUMENT DEVICE LOCATION (SEE TAG)
- MUSHROOOM HEAD, EMERGENCY PUSHBUTTON
- REMOTE OPERATOR FOR CONTROL PANEL
- X — PUSH TO TEST PILOT LIGHT. X= LENS TINT
- X — TERMINAL – X = CONTRACTOR DERIVED NUMBERING
- ST — STROBE ALARM
- H O A — HAND–OFF–AUTO SWITCH

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISH FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
AVEC	ALASKA VILLAGE ELECTRIC COOPERATIVE
bCU	BARE COPPER
BKT	BRACKET
C	CONDUCTOR
C	CONDUIT
CCT	CORRELATED COLOR TEMPERATURE
C1D1	CLASS 1, DIVISION 1
C1D2	CLASS 1, DIVISION 2
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
DISP	DISPENSER
DWG	DRAWING
EA	EACH
ENT	ELECTRICAL NON–METALLIC TUBING
EOL	END OF LINE RESISTOR
ESD	EMERGENCY SHUTDOWN
EXP	EXPLOSION PROOF
FVNR	FULL VOLTAGE NON–REVERSING, THERMAL MAGNETIC OCP
G	GROUND CONDUCTOR
GAS	GASOLINE
GFI	GROUND FAULT INTERRUPTING
H	HOT CONDUCTOR
HOA	HAND OFF AUTO
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
KVA	KILO–VOLT–AMPERES
KW	KILOWATT
LTFC	LIQUID–TIGHT FLEXIBLE METAL CONDUIT
LTG	LIGHTING
MAX	MAXIMUM
MCM	THOUSAND CIRCULAR MILLS
MCP	MAGNETIC ONLY CIRCUIT PROTECTOR
MIN	MINIMUM
MV	MOTORIZED VALVE
N	NEUTRAL CONDUCTOR
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
NLT	NO LESS THAN
NTS	NOT TO SCALE
OCP	OVERCURRENT PROTECTION
P	POLE
POS	POINT OF SALE
RCP	RECEPTACLE
RMC	RIGID METAL CONDUIT, GALVANIZED
SG	SPECIFIC GRAVITY
SIG	SIGNAL CONDUCTOR
SL	SWITCH LEG
SS	STAINLESS STEEL
TWSH	TWISTED/SHIELDED CONDUCTOR
TYP	TYPICAL
U/G	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT–AMPERES
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHER PROOF
XFMR	TRANSFORMER

ELECTRICAL EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	MANUFACTURER
1	EMERGENCY SHUTOFF SWITCH. NEMA 4 DIE–CAST ALUMINUM ENCLOSURE, 2–1/4" DIA. RED MUSHROOM HEAD MAINTAINED CONTACT PUSH BUTTON WITH 1 EA. NC CONTACT, 10A RATED.	ALLEN BRADLEY 800T–FX6D4 WITH 800T–1TZ ENCLOSURE & 800T–N247R HEAD
2	WEATHER PROOF RECEPTACLE. COMPLETE WITH 20A, 125V DUPLEX GFCI RECEPTACLE. INSTALL IN CAST SINGLE GANG FD BOX WITH WEATHERPROOF COVER.	P&S 2095TRWRI RED DOT CCGV COVER RED DOT IH32LM BOX
3	20A SINGLE POLE LIGHT SWITCH. INSTALL IN CAST BOX WITH WEATHERPROOF COVER.	P&S PS20AC1–I SWITCH CROUSE–HINDS FD–2 BOX CROUSE–HINDS DS–32G COVER
4	LOCKABLE SWITCH. NEMA 4, 7, 9 EXPLOSION PROOF CONSTRUCTION WITH 3/4" FEED THRU HUB, 4PST, 250V, 20A.	KILLARK
5	MULTI–TONE ALARM WITH STROBE, 115V, NEMA 3R, WEATHER RESISTANT SURFACE MOUNT BELL BOX.	WHEELOCK MT4–115–WH–VNS
6	THREE POSITION FLOAT ACTIVATED LEVEL SWITCH, 316 SS STEM, 2" 316 SS FLOAT, 2" NPT BUSHING, 1/2" NPT CONDUIT ENTRY, EXPLOSION PROOF CONSTRUCTION, LISTED FOR CLASS 1, DIVISION 1, GROUP D, 120VAC, 100W MAX SWITCHING POWER. PROVIDE FLOAT ACTIVATED SWITCHES AT DIMENSIONS BASED ON APPROVED SHOP DRAWINGS. CONTRACTOR SHALL VERIFY ACTUAL TANK DIMENSIONS AND SUBMIT SWITCH DIMENSIONS TO CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO ORDERING.	CUSTOM SWITCHES, INC. MODEL LS–1900 TYPE 7 OR APPROVED EQUAL. CONTRACTOR TO VERIFY CUSTOM PROBE LENGTHS PRIOR TO ORDERING. SEE DESCRIPTION.
6	20A, 125V DUPLEX GFCI RECEPTACLE. INSTALL IN CAST BOX WITH WEATHERPROOF COVER.	HUBBEL GFTWRST20GY RECEPTACLE CROUSE–HINDS FD2 BOX CROUSE–HINDS WLGF–FS COVER

FIXTURE SCHEDULE

SYMBOL	LAMP SIZE	MOUNTING	DESCRIPTION	MANUFACTURER
A	25W LED	SURFACE MOUNT	VAPORTITE L.E.D AREA LIGHT SURFACE MOUNT	CROUSE HINDS: V2LCA3/UNV1 WITH J–BOX VXFT20 – MOUNT 18" FROM DISPENSER
B	53W LED	SURFACE MOUNTED	L.E.D SURFACE CANOPY LIGHT, ALUMINUM HOUSING. 4000K COLOR TEMPERATURE. 5400 LUMENS	DSXSC LED 30C 700 40K T5W 120 SRM DNAXD
	143W LED	CLASS 5 25' WOOD STUB POLE. MOUNT AT 20'	L.E.D AREA LIGHT, ROUND POLE MOUNTING, 120V, 60LEDs, 700mA DRIVER, 4000K CCT, TYPE V DISTRIBUTION, NEMA TWIST–LOCK RECEPTACLE. PROVIDE ACCESSORIES PHOTOCELL – SSL TWIST–LOCK (120–277V) AND SHORTING CAP. ALSO PROVIDE 2' ALUMINUM ELLIPTICAL TUBE ARM.	LITHONIA: DSX1 LED 2 30B700/40K SR5 MVOLT RPA PER DNATXD PHOTOCELL: DSS124N 1.5 TJJE U SHORTING CAP: SC U ARM: AMACE T20 US2 DNA

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — 1/29/2020 — William M. McDonald — EE-7879 — REGISTERED PROFESSIONAL ENGINEER

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
ELECTRICAL NOTES, LEGEND & ABBREVIATIONS

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CONTROL SPECIFICATION - DIV 26 SPECIFICATIONS TAKE PRECIDENCE OVER THIS SPECIFICATION SHOULD DIFFERENCES OCCUR.

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

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

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

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

- DIMENSIONED OPERATOR DOOR AND BACK PANEL LAYOUT SHOWING ALL COMPONENTS.
- BILL OF MATERIALS WITH MANUFACTURER AND RELEVANT PART NUMBERS.
- SCHEMATIC DIAGRAM. POWER, SIGNAL, AND CONTROL WIRING.
- DIFFERENTIATE BETWEEN MANUFACTURER-INSTALLED AND FIELD-INSTALLED WIRING.
- DETAILS OF CONTROL PANEL FACES, INCLUDING CONTROLS, INSTRUMENTS, AND LABELING.
- TERMINAL ASSIGNMENTS WITH ALL EXTERNAL COMPONENT TERMINATIONS SHOWN.
- DETAIL EQUIPMENT ASSEMBLIES AND INDICATE DIMENSIONS, WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, COMPONENTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION.
- WRITTEN DESCRIPTION OF SEQUENCE OF OPERATION.
- MAINTENANCE DATA INCLUDE THE FOLLOWING:
  - MAINTENANCE INSTRUCTIONS AND LISTS OF SPARE PARTS FOR EACH TYPE OF CONTROL DEVICE. INTERCONNECTION WIRING DIAGRAMS WITH IDENTIFIED AND NUMBERED SYSTEM COMPONENTS AND DEVICES.
  - STEP-BY-STEP PROCEDURES INDEXED FOR EACH OPERATOR FUNCTION. INSPECTION PERIOD, CLEANING METHODS, CLEANING MATERIALS RECOMMENDED, AND CALIBRATION TOLERANCES. CALIBRATION RECORDS AND LIST OF SET POINTS.

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

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

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

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

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

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

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

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

PANEL COMPONENTS SHALL BE AS LISTED UNDER THE COMPONENT SCHEDULE.

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

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

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

- BLACK: UNGROUNDED LINE, LOAD, AND CONTROL CONDUCTORS AT LINE VOLTAGE.
- RED: UNGROUNDED AC CONTROL CONDUCTORS, AT LESS THAN LINE VOLTAGE.
- BLUE: UNGROUNDED DC CONTROL CONDUCTORS.
- YELLOW: UNGROUNDED CONTROL CIRCUIT CONDUCTORS THAT MAY REMAIN ENERGIZED WHEN THE MAIN DISCONNECTING MEANS IS IN THE OFF POSITION. THESE CONDUCTORS SHALL BE YELLOW THROUGHOUT THE ENTIRE CIRCUIT, INCLUDING WIRING IN THE CONTROL PANEL AND THE EXTERNAL FIELD WIRING.
- WHITE OR NATURAL GRAY: GROUNDED CIRCUIT CONDUCTOR.
- WHITE WITH BLUE STRIPE: GROUNDED (CURRENT-CARRYING) DC CIRCUIT CONDUCTORS.

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

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

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

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

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

COMPONENT SCHEDULE	
(#)	ITEM
(1)	PILOT LIGHT, 120V, LED, NEMA 4X, LENS TINT AS SHOWN, SQUARE D, CLASS 9001 TYPE SKP
(2)	120V RELAY, 3PDT, 11-PIN OCTAL SOCKET MOUNT WITH PILOT LIGHT SQUARE D TYPE KP13P14V20.
(3)	PILOT LIGHT, PUSH TO TEST, 120V, LED, NEMA 4X, LENS TINT AS SHOWN SQUARE D CLASS 9001, TYPE SKT
(4)	DIN RAIL MOUNTED POWER CONDITIONER. HARDWIRED SOLA CVW SERIES, 1kVA, 120V, ±1% REGULATION. P/N 22-23-210-8.
(5)	3-POSITION SELECTOR SWITCH, 120V, NEMA 4X, HAND-OFF-AUTO, WITH SPRING RETURN FROM HAND TO OFF POSITION, SQUARE D, CLASS 9001 TYPE SKS63B .
(6)	2-POLE, SINGLE PHASE, 600V, COMBINATION MOTOR CONTROLLER WITH NEMA SIZE 00 FVNR CONTACTOR SUITABLE FOR GROUP MOTOR PROTECTION. PROVIDE WITH O/L AND AUX CONTACT SETS AS REQUIRED. CUTLER-HAMMER N307UNSAX3N OR EQUAL W C320TR11 TRIP AND C3320SA20 AUX
(7)	MULTI-POLE CONTACTOR, 120V COIL, 20A RATED CONTACTS. # OF CONTACTS AS REQUIRED.
(8)	ALARM STROBE, 120V, FEDERAL ELECTRA FLASH #141 W/ RED LEXAN DOME.
(9)	INTEGRAL POWER DISTRIBUTION.
(10)	120V, PANEL HEATER W/ INTEGRAL THERMOSTAT WATTAGE AS REQUIRED, HOFFMAN SERIES #D-AH.
(11)	NORMALLY OPEN PUSHBUTTON, 120V, 10A, NEMA 4X, SQUARE D CLASS 9001, TYPE SKR1 - CONTACT BLOCKS AS REQUIRED.
(12)	CLASS 1, DIVISION 2 RATED START/STOP PUSHBUTTON CONTROL, HERMETICALLY SEALED 10 NO/NC CONTACTS. KILARK FXCS 1B4
(13)	2-POSITION SELECTOR SWITCH, 120V, NEMA 4X, ON-OFF, 10A RATED CONTACTS, SQUARE D, CLASS 9001.
(14)	DIN RAIL MOUNTED TERMINAL BLOCK RELAY 2P, 24VDC. ALLEN BRADLEY 700-HL-T-1-2-Z24-X.
(15)	NOT USED
(16)	NOT USED
(17)	ADJUSTABLE TIME DELAY RELAY, 1.8-180 SECOND ON DELAY, 120V, DPDT, SQUARE D, CLASS 9050 TYPE JCK15V20 OR EQUAL.
(18)	ADJUSTABLE TIME DELAY RELAY, 1.2-120 MINUTE ON DELAY, 120V, DPDT, SQUARE D, CLASS 9050 TYPE JCK19V20 OR EQUAL.

SEE E1 FOR FIELD MOUNTED ELECTRICAL EQUIPMENT SCHEDULE.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH WILLIAM M. MCDONELL EE-7879 REGISTERED PROFESSIONAL ENGINEER 1/29/2020

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
ELECTRICAL CONTROL SPECIFICATIONS

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A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

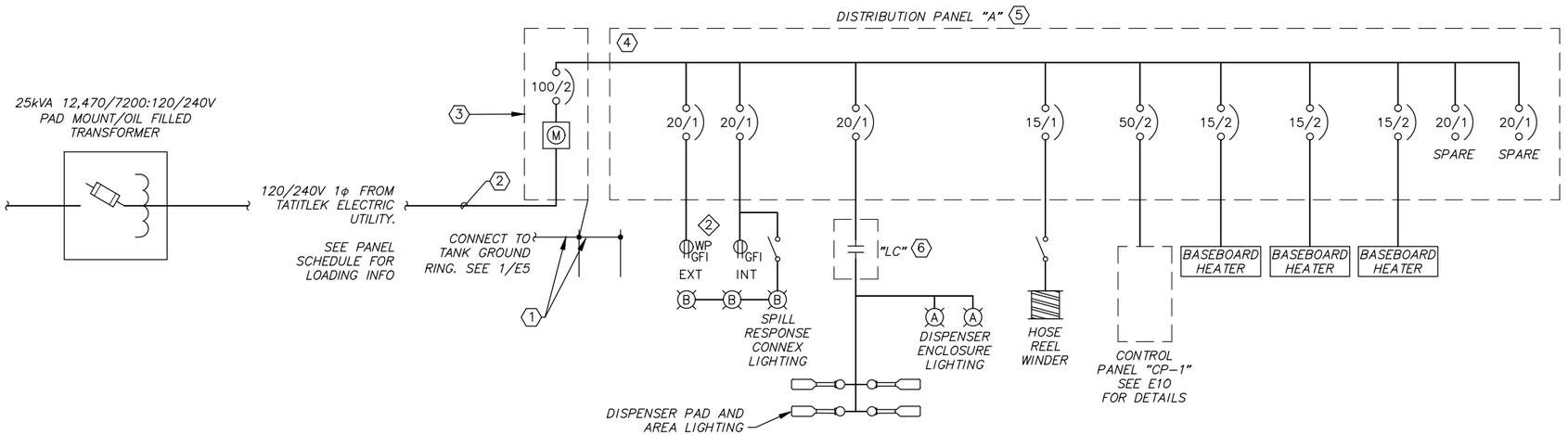
Plot Date 1/29/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. E2

File: J:\JobsData\30413.00 Tatitlek Bfu Co\00 CADD\01 Working Set\03 Electrical\30413.00 - LEGEND-E1-E2.dwg

NOTES

1. 3/4"X10' COOPER CLAD STEEL GROUND RODS CONNECTED WITH #2 bCU. BOND GROUND TO SERVICE USING #6 bCU.
2. 1-1/2"C, 3#2 XXHW-2 CU. COORDINATE WITH LOCAL UTILITY FOR POWER SUPPLY CONNECTION.
3. 120/240V, 100A METER MAIN COMBO.
4. 100A, 120/240V, 1ϕ, 3 WIRE, 20 SPACE NEMA 12 SURFACE MOUNT PANEL.
5. PROVIDE PLACARD ON MAIN (CONFIRM WITH ENGINEER AFTER INSTALLATION):
   - AIC = 4,45A (INFINITE BUS)
   - VOLT = 120/240
   - PPE = LEVEL 1
6. LIGHTING CONTACTOR, 120V COIL. HOA, NEMA 12 ENCLOSURE WITH REMOTE PHOTOELECTRIC CONTROL. 2P-20A RATED CONTACTS, SQUARE D 8903SMAV102C OR EQUAL.



1 **BULK FUEL POWER ONE-LINE**
SCALE: NTS

PANEL "A" SCHEDULE

LOCATION: SPILL RESPONSE CONEX			240/120V			1ϕ , 3 WIRE		0
SERVED FROM: TATITLEK ELECTRIC UTILITY			100A MAINS					NEMA 3R
POLE #	AMP TRIP	LOAD DESCRIPTION	POLE Kva	MLO L1	MLO L2	POLE kVA	LOAD DESCRIPTION	AMP TRIP	POLE #
1	20/1	RECEPTACLES	0.2	4.3		4.1	CP-1	50/2	2
3	20/1	CONEX LIGHTING	0.3		4.4	4.1			4
5	20/1	DISPENSER AREA LIGHTING	0.6	1.6		1.0	1KW BASEBOARD HEATER	15/2	6
7	15/2	0.5KW BASEBOARD HEATER	0.5		1.5	1.0			8
9			0.5	1.5		1.0	1KW BASEBOARD HEATER	15/2	10
11	20/1	SPARE	0.0		1.0	1.0			12
13	20/1	SPARE	0.0	0.0		0.0	POS RTU AND PANEL	20/1	14
15			0.0		0.0	0.0	SPARE	20/1	16
17			0.0	0.0		0.0			18
19			0.0		0.0	0.0			20
				7.4	6.9		TOTAL kVA =	14.3 kVA	
* = GFCI CIRCUIT BREAKER							TOTAL AMPS @ 240V =	59.6 A	

2 **PANEL SCHEDULE**
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH WILLIAM MCDONELL EE-7879 PROFESSIONAL ENGINEER 1/29/2020

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL682-AK

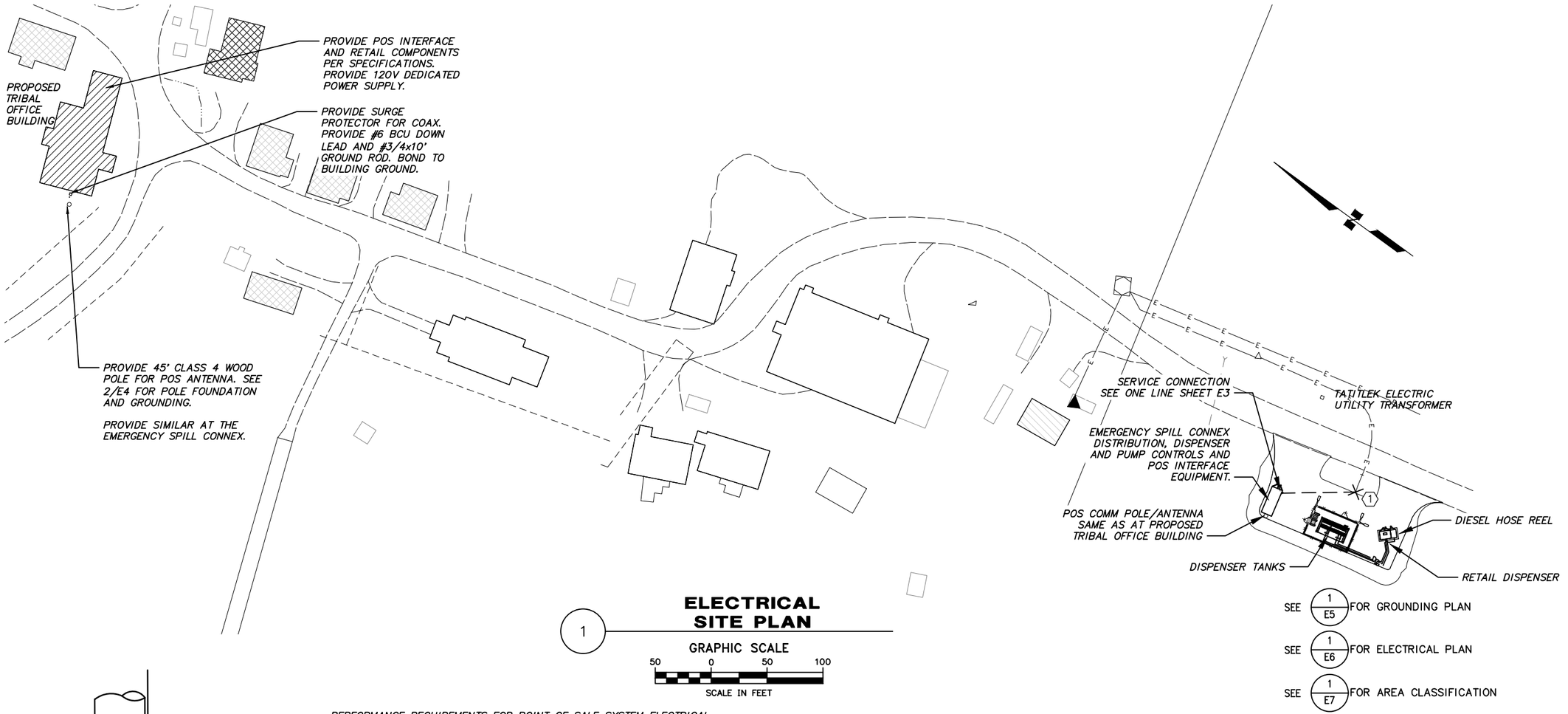
TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
POWER ONE-LINE & PANEL SCHEDULES

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date: 1/29/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. E3

File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\03 Electrical\30413.00 - ONE-LINE-E4.dwg



1 ELECTRICAL SITE PLAN

GRAPHIC SCALE

50 0 50 100

SCALE IN FEET

SEE 1/E5 FOR GROUNDING PLAN

SEE 1/E6 FOR ELECTRICAL PLAN

SEE 1/E7 FOR AREA CLASSIFICATION

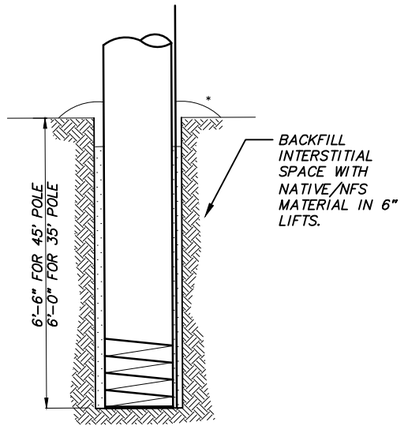
PERFORMANCE REQUIREMENTS FOR POINT OF SALE SYSTEM ELECTRICAL

CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING:

1. *COORDINATION WITH THE POS EQUIPMENT VENDOR AND THE OWNER AS REQUIRED.*
2. *PROVIDING ELECTRICAL SUPPORT FOR THE COMPONENTS RELATED TO THE POS, CONTROL PANEL, CARD READER, FUEL DISPENSER AND COMMUNICATIONS.*
3. *PROVIDING INTERFACE BETWEEN CP, CARD READER, DISPENSER AND POS SYSTEM.*
4. *PROVIDING INSTALLATION, INCLUDING DATA AND POWER FOR POS MODULES AT EMERGENCY SPILL CONNEX, REMOTE RETAIL COUNTER.*
5. *ANTENNA POLES, INSTALLATION OF COAX AND ANTENNAS PER MANUFACTURERS REQUIREMENTS. INSTALLATION TO INCLUDE GROUNDING AND SURGE PROTECTION AT STRUCTURE PENETRATIONS.*
6. *PROVIDE OPERATOR TRAINING FOR THE POS, CARD READER AND DISPENSER SALES SYSTEM DURING STARTUP AND COMMISSIONING.*
7. *PROVIDE AS-BUILT REDLINE DRAWINGS SHOWING ALL NEW WORK AND INTERFACE WITH CP, CARD READER AND DISPENSER.*
8. *ALL WIRING AND INFRASTRUCTURE INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND WHERE NOT EXPLICITLY SPECIFIED THEN IN ACCORDANCE WITH THE APPLICABLE CODE.*
9. *CONTRACTOR MUST PROVIDE A COMPLETE, SECURE AND OPERABLE POINT OF SALE AND FUEL DISPENSING SYSTEM. SEE TECHNICAL SPECIFICATIONS FOR MORE DETAIL.*

DEMOLITION NOTES

(1) *DISCONNECT/REMOVE SERVICE, PANELBOARD, RECEPTACLES, BRANCH CIRCUITS, AND SUPPORTS. PULL BACK SERVICE LATERAL TO "X" LOCATION SHOWN FOR REUSE. SEE E6.*



2 WOOD POLE FOUNDATION

NO SCALE

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH WILLIAM M. MCDONELL EE-7879 PROFESSIONAL ENGINEER 1/29/2020

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3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL682-AK

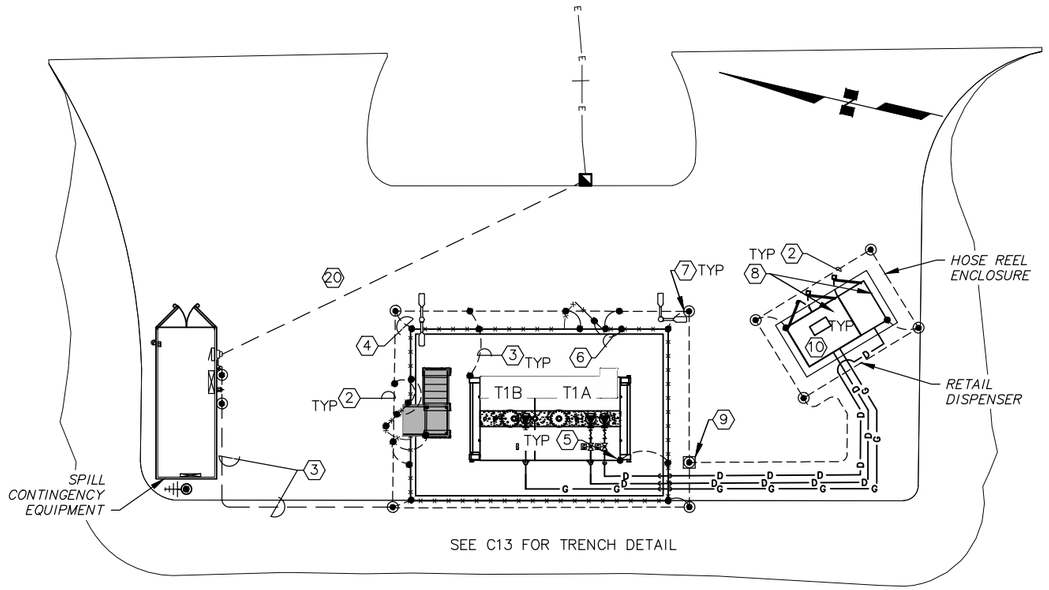
TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
ELECTRICAL SITE PLAN

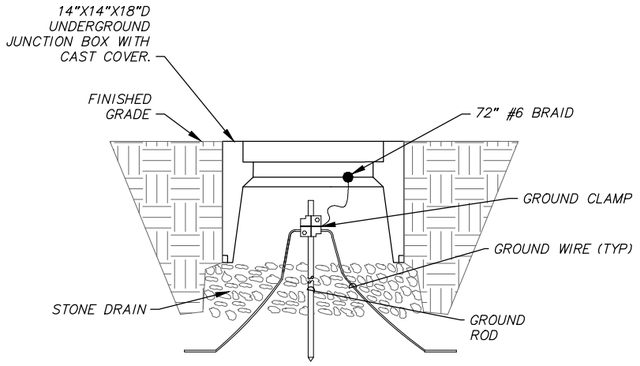
NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/29/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. E4

File: J:\JobsData\30413.00 Tatitlek Bfu Co\00 CADD\01 Working Set\03 Electrical\30413.00 - SITE PLAN-E5.dwg





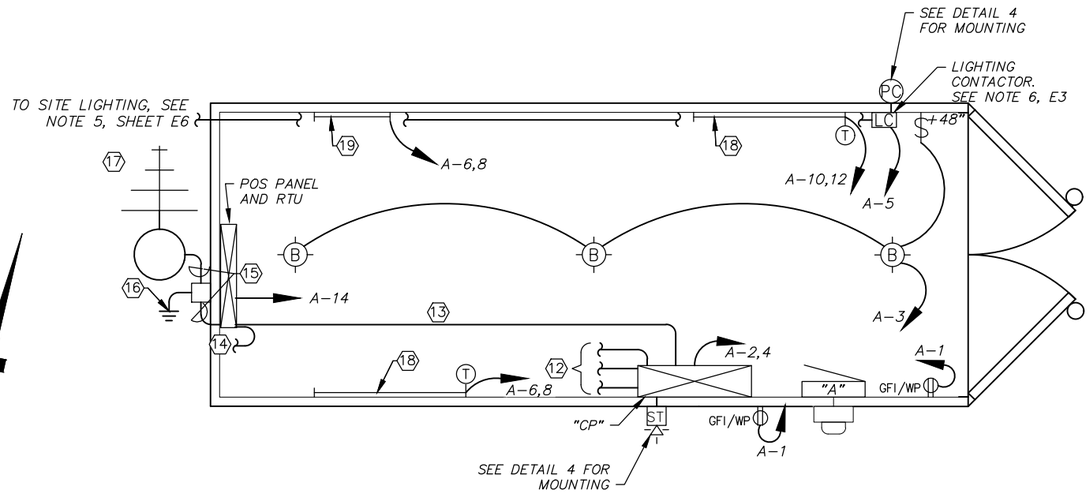
NOTES

1. BOND GROUND TO PIPE. SEE NOTE 5 FOR TYPE OF BOND.
2. #2 bCU GROUND RING BURIED MIN 30" BELOW GRADE.
3. #2 bCU GROUND CONDUCTOR BURIED 6" BELOW GRADE.
4. #6 bCU JUMPER. TYPICAL CONNECTION TO RING.
5. BELOW GRADE BOND: EXOTHERMIC WELDMENT
   ABOVE GRADE BOND: FENCEPOST/STAIRS, SPLIT BOLT
   TANK SKID: EXOTHERMIC WELDMENT, DO NOT WELD TO TANK, TOUCH UP AND PAINT AREA AFFECTED WHEN WELD IS COMPLETE.
6. #6 BRAID ON HINGED POST.
7. EXTEND #6 GROUND TO BARBED WIRE AND BOND AT ALL CORNERS AND WHERE SHOWN.
8. PROVIDE ATTACHMENT POINT FOR GROUND REEL AT FLEET DISPENSER. COORDINATE LOCATION AND CONNECTION MEANS WITH GROUND REEL SUPPLIER.
9. GROUND TEST POINT, SEE 3/E6 FOR DETAILS.
10. GROUND DUAL DISPENSER PER MANUFACTURER RECOMMENDATIONS.
11. 1"C, 4#6 (2H, N, G)
12. SEE E6 FOR CONDUIT ROUTING TO TANK AND DISPENSER AREAS.
13. 1"C, POS RESPONSE SIGNALS PER MANUFACTURER.
14. 1"C, DATA LINKS FOR CARD READER AND DISPENSER.
15. LM400 ARMORED COAX FOR "ZIPLINE" TELEMETRY.
16. GROUNDED SURGE ARRESTOR.
17. YAGI ANTENNA ATOP WOOD POLE, SEE E4.
18. 1KW CHROMALOX BASEBOARD HEATERS. ICH48100 PCN# 228128
19. 0.5KW CHROMALOX BASEBOARD HEATERS. ICH28050 PCN# 228048
20. EXTEND GROUND TO SPLICE POINT J-BOX. BOND TO COVER. #6bCU IN CONDUIT, SEE NOTE 21, SHEET E6.

1 **GROUNDING PLAN**
SCALE: GRAPHIC

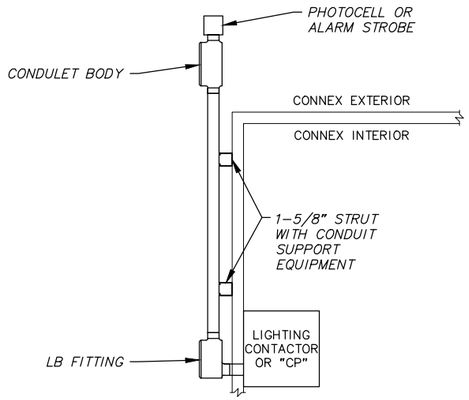
GRAPHIC SCALE
10 0 10 20
SCALE IN FEET

2 **GROUND TEST POINT ELEVATION**
SCALE: NTS



3 **SPILL RESPONSE CONNEX PLAN**
SCALE: GRAPHIC

GRAPHIC SCALE
2 0 2 4
SCALE IN FEET



4 **PHOTOCELL/ALARM MOUNTING DETAIL**
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH WILLIAM MCDONELL EE-7879 REGISTERED PROFESSIONAL ENGINEER 1/29/2020

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#AECL682-AK

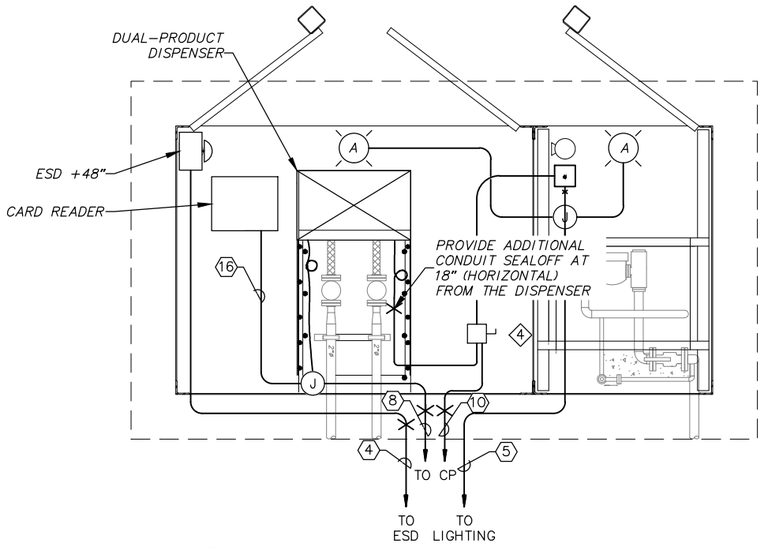
TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
GROUNDING PLAN

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/29/20
Designed NCP
Drawn NCP
Approved AH

Sheet No. E5

File: J:\JobsData\30413.00 Tatitlek Bfu Co\00 CADD\01 Working Set\03 Electrical\30413.00 - GROUNDING PLAN-E6.dwg

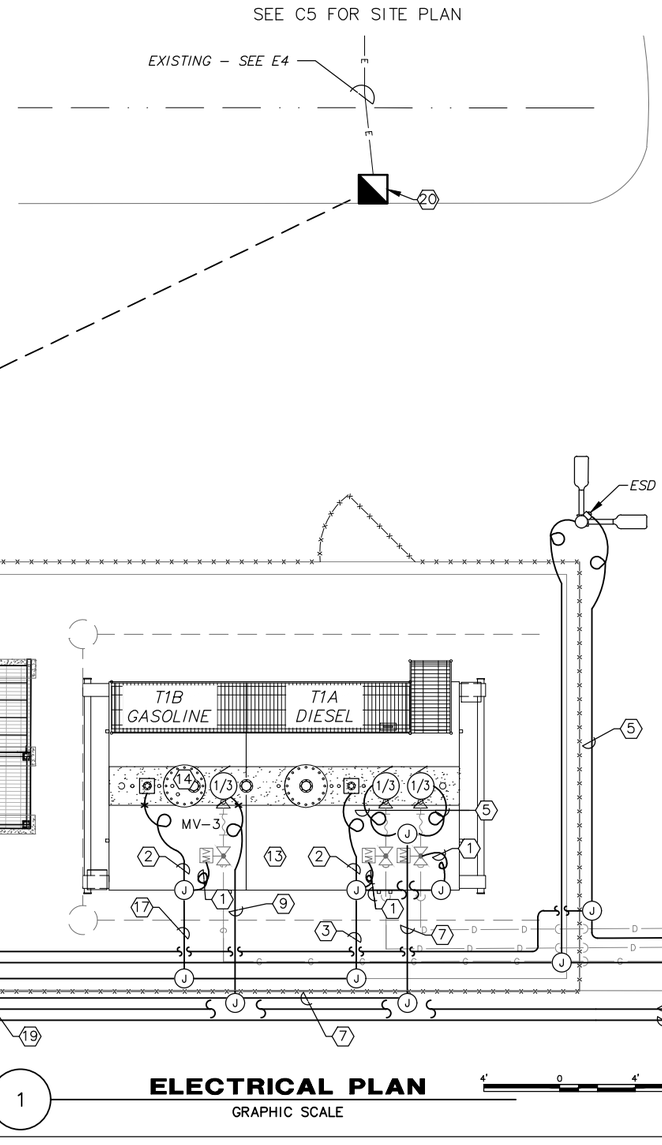


2 **DISPENSER SHELTER PLAN**

SCALE: NTS

NOTES

1. 3/4"C, 7#14(H, N, G, 4SIGNAL).
2. 3/4"C, 5#14(H, 3SIGNAL, G).
3. 1–1/4"C, 17#14(3H, 2N, 11SIGNAL, G).
4. 3/4"C, 3#12(2ESD, G).
5. 3/4"C,3#10(SWITCHLEG, N, G,).
6. 1 1/2"C, 19#12(3H, 3N, G, 12SIGNAL).
7. 1"C, 5#10(4H, G).
8. 1"C, CARD READER AND DISPENSER I/O CABLE
9. 3/4"C, 3#10(2H, G).
10. 1"C, 10#10(2GAS, 2DIESEL, H, N, G, 3CONTROL).
12. 1"C, 3#10(2H, G).
13. PROVIDE SEALOFFS FOR ALL CONDUITS LEAVING HAZARD CLASSIFICATION AREAS – SEE E7 FOR MORE DETAILS. PROVIDE EXPLOSION PROOF FLEXIBLE COUPLING FOR DEVICES ON T1B (GASOLINE)
14. LM400 ARMORED COAX FOR POS SYSTEM RADIO LINK.
15. POS RADIO TELEMETRY PANEL. SERVE FROM CP. RUN SIGNAL FROM CARD READER.
16. 1"C, CARD READER POE CABLE
17. 1"C, 11#14(2H, N, 7SIG, G)
18. 1–1/2"C, 27#14(5H, 3N, 18SIG, G)
19. 1"C, 7#10(6H, G)
20. PROVIDE 2'X3'X24" UNDERGROUND J–BOX WITH H20 (TRAFFIC) RATED COVER. LOGO "ELECTRIC SERVICE". EXISTING SERVICE LATERAL CONSITS OF AL URD CABLE IN (HDPE) CONDUIT. TRIM CONDUIT AND LEAVE 36" CABLE. PROVIDE DIRECT BURIAL SPLICE TO SERVE SPILL RESPONSE CONNEX.
21. PROVIDE 2"C, 3C2 AL URD AND # 6bCU TO SPLICE AND EXTEND LATERAL TO SPILL RESPONSE CONNEX. BURY NLT 36". PROVIDE LFMC AT METER RISER.



1 **ELECTRICAL PLAN**

GRAPHIC SCALE 4' 0 4' 8'

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH WILLIAM M. MCDONELL EE-7879 PROFESSIONAL ENGINEER 1/29/2020

CRW ENGINEERING GROUP, LLC
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#AECL682–AK

TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
TANK FARM ELECTRICAL PLAN

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/29/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. E6

File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\03 Electrical\30413.00 – ELECTRICAL PLANS_Nov2019.dwg

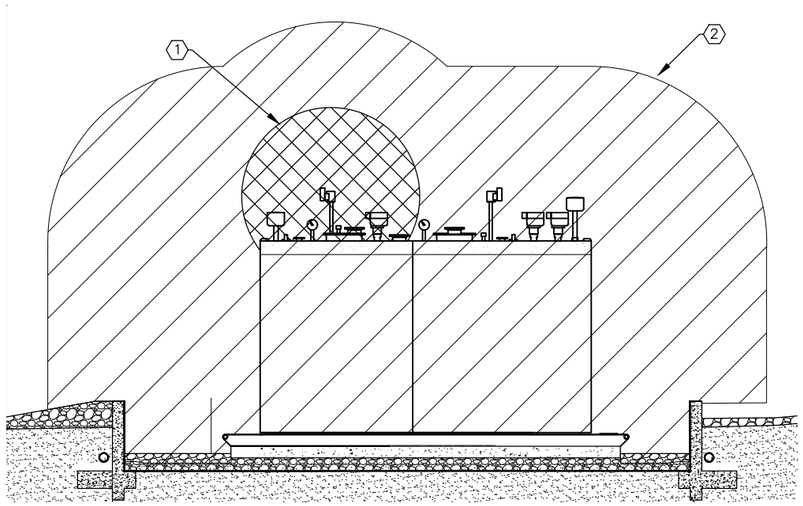
NOTES

1. CLASS 1, DIVISION 1 RATING EXTENDS 5' IN ALL DIRECTIONS AROUND GASOLINE TANK VENTS.
2. CLASS 1, DIVISION 2 RATING EXTENDS 10' IN ALL DIRECTIONS OF TANK.
3. THE AREA 18" ABOVE GRADE WITHIN 20' OF DUAL DISPENSER IS CLASS 1, DIVISION 2 RATED.
4. THE AREA INSIDE THE DUAL DISPENSER AND INSIDE AND BELOW THE PAN BASIN IS CLASS 1, DIVISION 1 RATED.
5. THE AREA WITHIN 18" OF DISPENSER SHELTER IS CLASS 1, DIVISION 2 RATED.

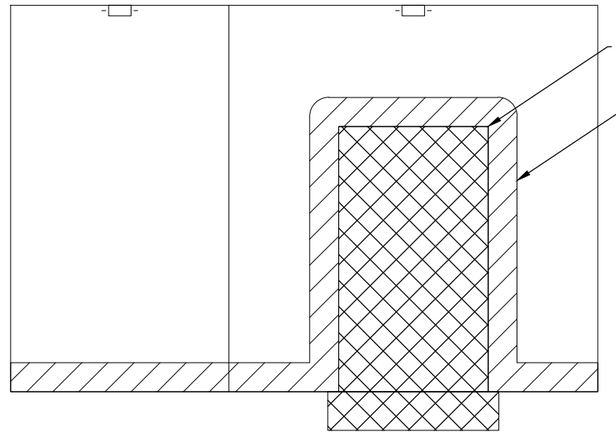
ALL WORK IN CLASSIFIED AREAS SHALL BE DONE IN STRICT COMPLIANCE WITH ARTICLES 500, 501, 514 AND 515 OF THE NATIONAL ELECTRICAL CODE. PROVIDE SEAL-OFFS ON ALL CONDUIT PENETRATING CLASSIFIED LOCATIONS AS REQUIRED BY CODE.

CLASSIFICATION LEGEND

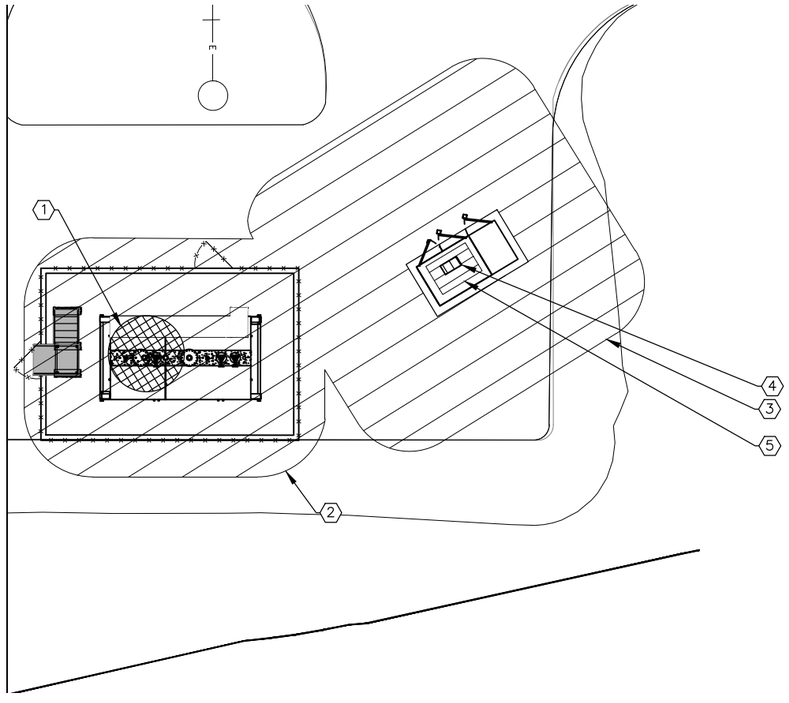
- CLASS 1, DIVISION 1
- CLASS 1, DIVISION 2



1 **TANK FARM AREA CLASSIFICATION PLAN PROFILE VIEW**
SCALE: NTS

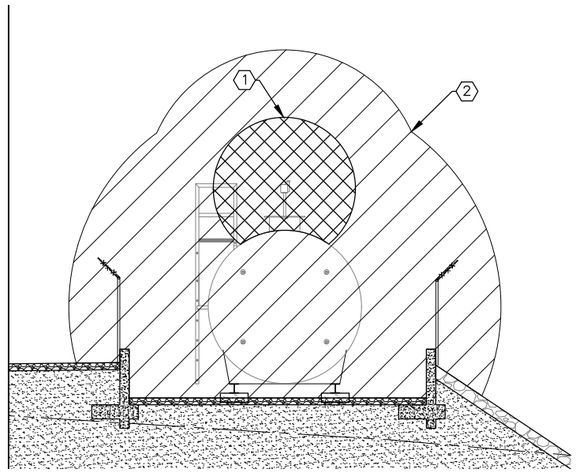


3 **DISPENSER**
SCALE: NTS



2 **TANK FARM AREA CLASSIFICATION PLANS**
SCALE: GRAPHIC

GRAPHIC SCALE
10 0 10 20
SCALE IN FEET



4 **TANK CLASSIFICATION PLAN PROFILE VIEW**
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH WILLIAM M. MCDONELL EE-7879 PROFESSIONAL ENGINEER 12/29/2020

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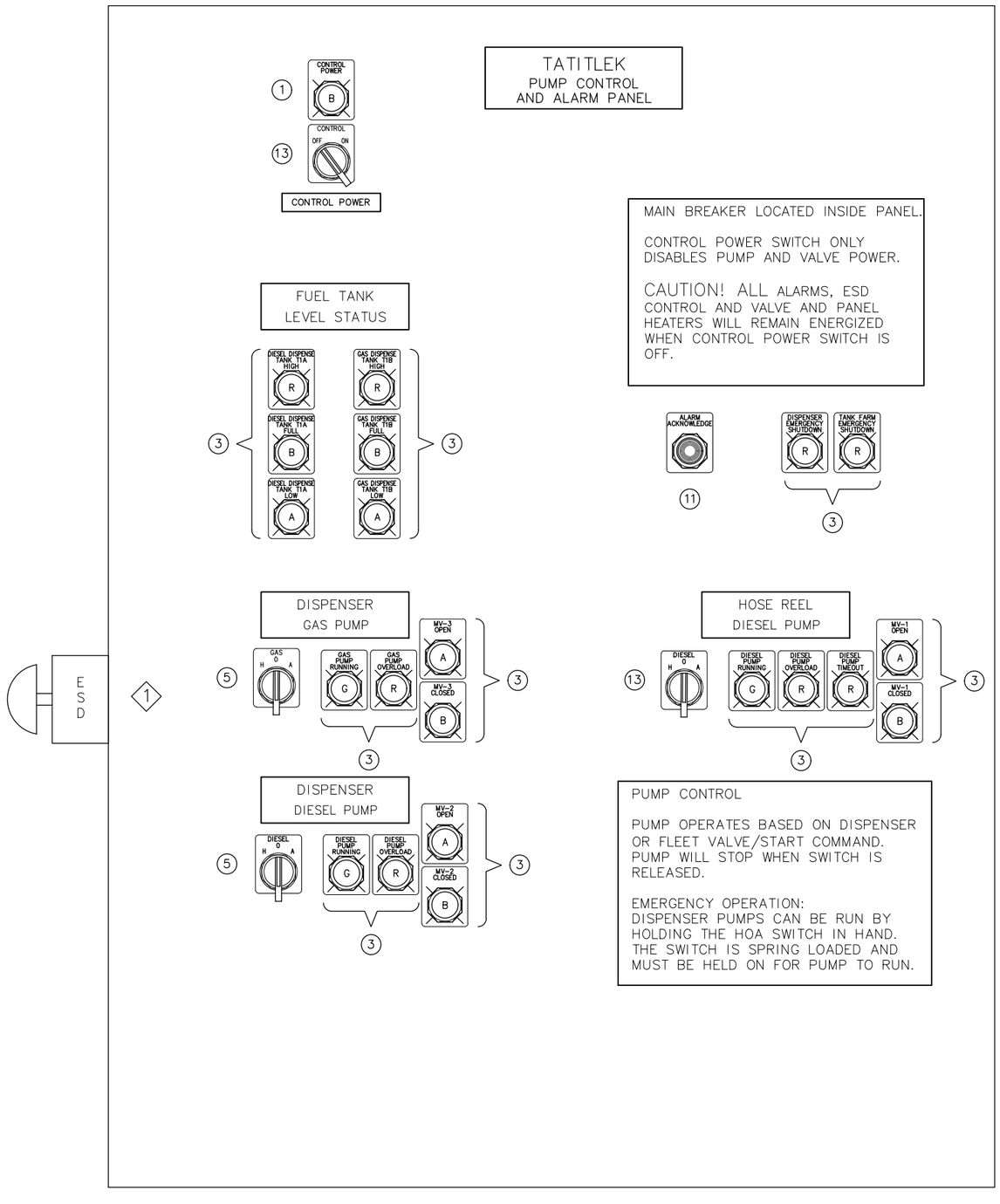
TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
ELECTRICAL AREA CLASSIFICATION PLAN

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date: 12/29/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. E7

Files: J:\JobsData\30413.00 Tatitlek Bfu Co\00 CADD\01 Working Set\03 Electrical\30413.00 - CLASSIFICATION.dwg



1 **TANK FARM PANEL CP LAYOUT**
SCALE: NTS

ALARM AND PUMP CONTROL NARRATIVE

The control panel provides critical high alarms for the two product dispensing tank, and operates the gasoline and diesel retail dispensing pumps, the hose reel diesel pump and provides emergency shutdown for the entire fuel system.

ALARMS

Each tank is equipped with a CRITICAL HIGH (LSHA – XX) Level Float switch that, when fuel reaches its level, opens a circuit (fail safe) and causes an alarm horn/strobe to signal a CRITICAL HIGH Level has been reached. The CRITICAL HIGH Level condition is indicated on the front of the panel as well, identifying the tank(s) with high level(s).

The operator can acknowledge the alarm by pressing the ALARM ACKNOWLEDGE button on the control panel. This extinguishes the strobe and silences the horn, but the front panel light will remain illuminated until sufficient fuel is drained from the tank to drop its fuel level below the CRITICAL HIGH float's sensing point. At that time the front panel light will extinguish.'

The control logic for alarms is set up so that each new alarm condition will cause the audible and visual alarms to annunciate, regardless of any existing (acknowledged) alarm conditions.

The Emergency shutdown system, when engaged, will cause the alarm horn/strobe to be energized. There are three emergency shutdown stations; one by the dispenser, one by the spill control equipment building and one at the hose reel. The alarm is enabled by pushing the ESD button and is extinguished by pulling the Emergency push button "out", clearing the signal. When an ESD button is pushed, all powered conductors to the dispensers are disconnected and all pumps are shut down. The motorized valves are all sent a CLOSE signal and after a brief time delay to allow them to close they too will be disconnected from all current carrying conductors. Lighting and alarms are NOT de–energized and will remain active.

DISPENSING PUMPS

The dispenser pumps can be operated manually or by the dipsenser. The following applies to both the Gas and Diesel systems.

The dispensing tanks are equipped with Low Level Floats (LSL). If tank fuel level drops below the float, the associated pump will stop until transfer is completed.

Manual Operation

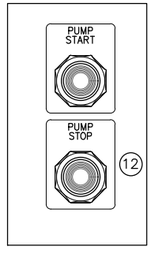
By placing (and holding) the HOA switch in the HAND position, the dispenser pump will start and run. Its RUN light will turn on and the pump will continue running until either it experiences an overload condition where either the panel mounted motor starter control is opened internally, or an internal temperature sensor in the motor detects an overheat condition or the operator releases the HOA switch. If a panel–based overload causes the shutdown, a pilot light on the panel front will be energized (no other indication will be given, other than the pump stopping). A RESET pushbutton on the pump motor starter located inside the panel must be pressed to clear the overload relay in order to allow the pump to restart. The HOA switch is spring loaded so that upon release it will return to OFF from the HAND position. The HAND or manual mode is provided for maintenance and testing however it could be used to operate the Fleet Dispensing system in the event of control failure.

Auto Operation

By placing the HOA switch in AUTO, the pumps are under control of the dispenser "hook" switch. Lifting the nozzle from the dispenser starts the pump.

Hose Reel Pump

Setting the valve counter to the desired amount will enable the system. Press START to begin flow. The pump stops when the valve setting is reached.



2 **TANK HOSE REEL CONTROL LAYOUT**
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA · 49TH · REGISTERED PROFESSIONAL ENGINEER · William M. McDonell · CI-14318 · 1/29/2020

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD., SUITE 300
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#AECL682-AK

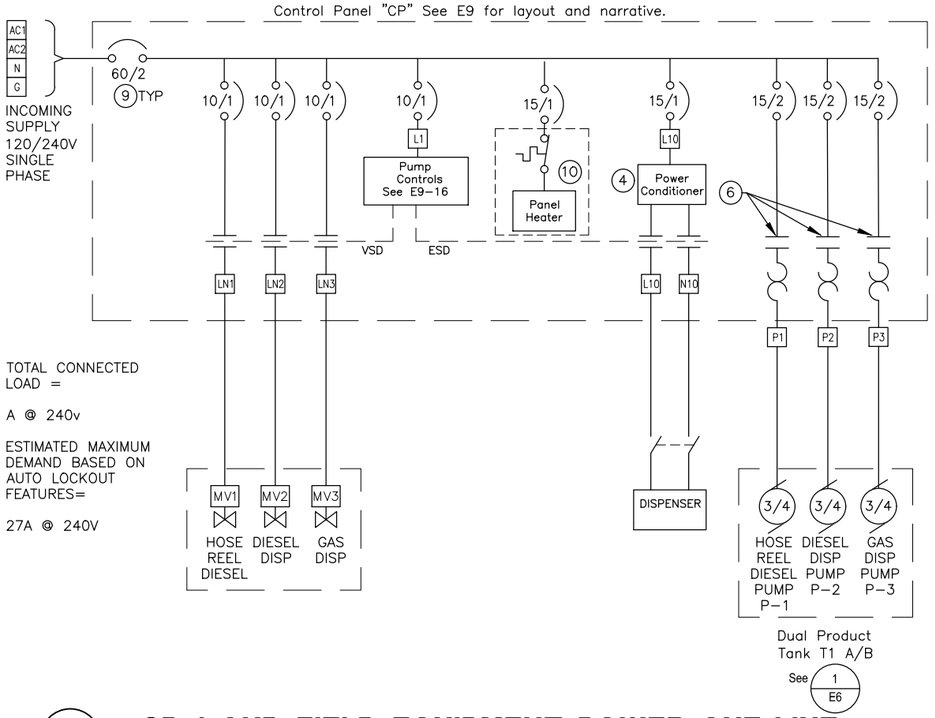
TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
PANEL CP LAYOUT & NARRATIVE

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/29/20
Designed NCP
Drawn KEG
Approved AH

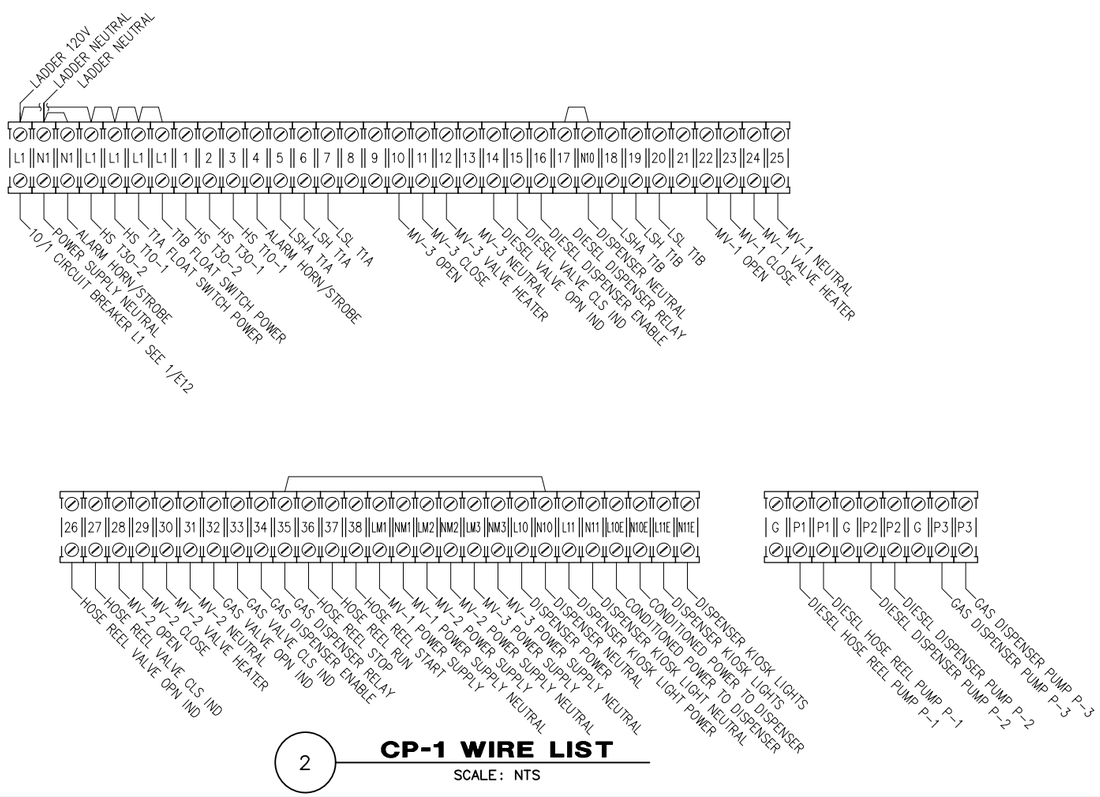
Sheet No. E8

File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\03 Electrical\30413.00 – CP1.dwg



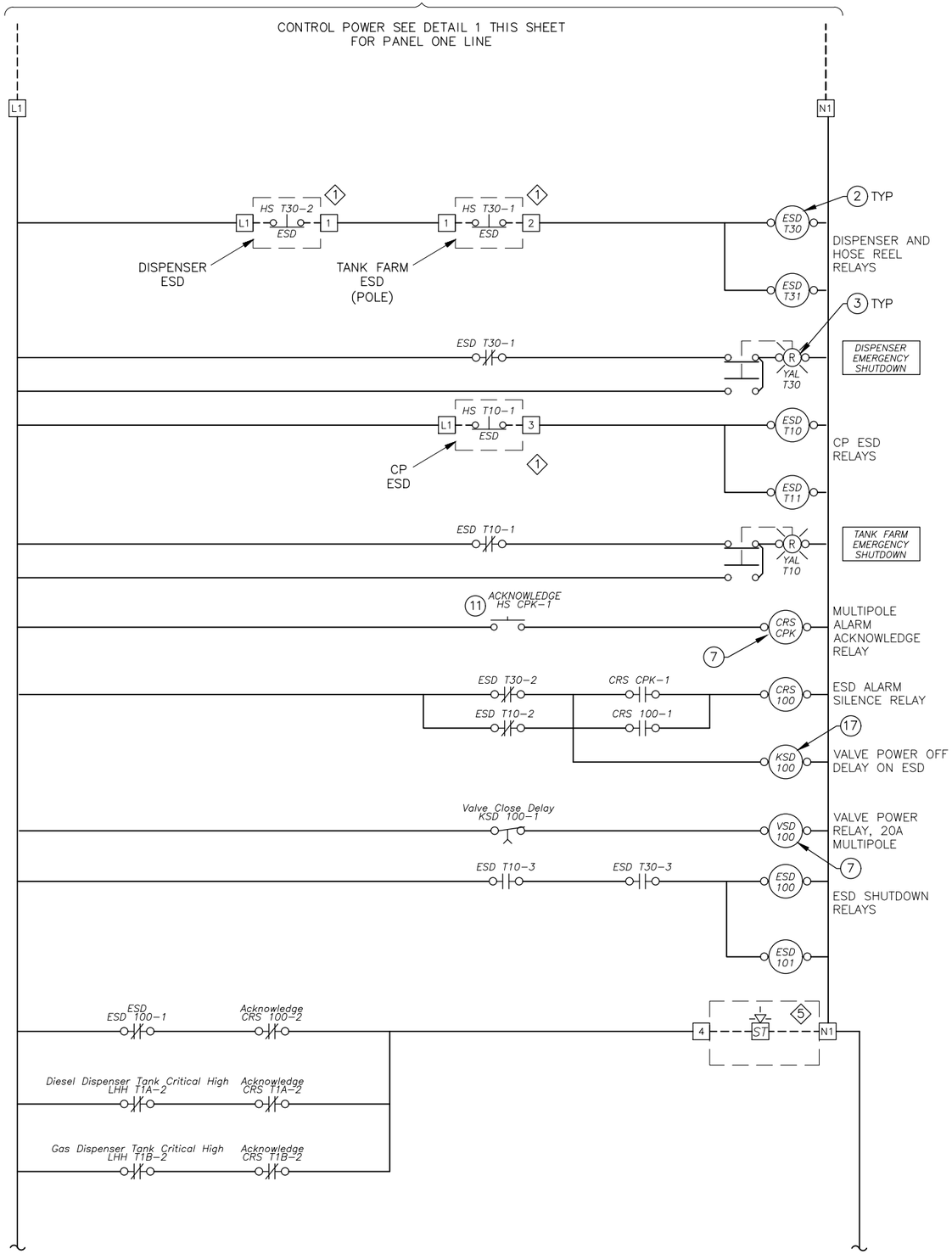
1 CP-1 AND FIELD EQUIPMENT POWER ONE-LINE

SCALE: NTS



2 CP-1 WIRE LIST

SCALE: NTS



ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH WILLIAM M. MCDONELL 12-31-2020 REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD., SUITE 300
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#AECL682-AK

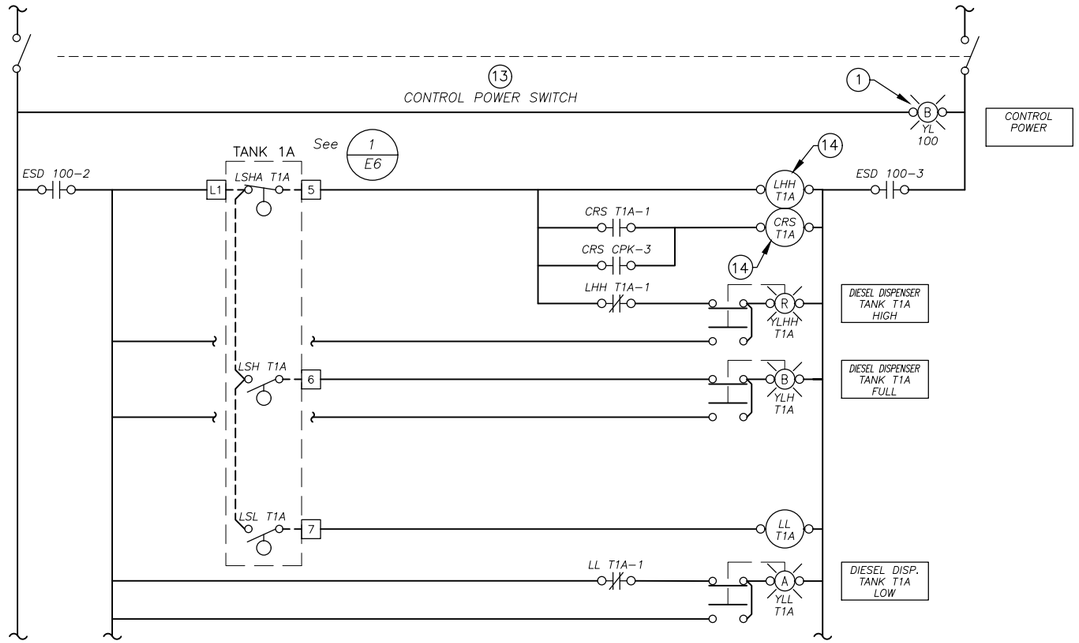
TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
PANEL OP ONE-LINE AND WIRE LIST

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date: 1/29/20
Designed: NCP
Drawn: KEG
Approved: AH

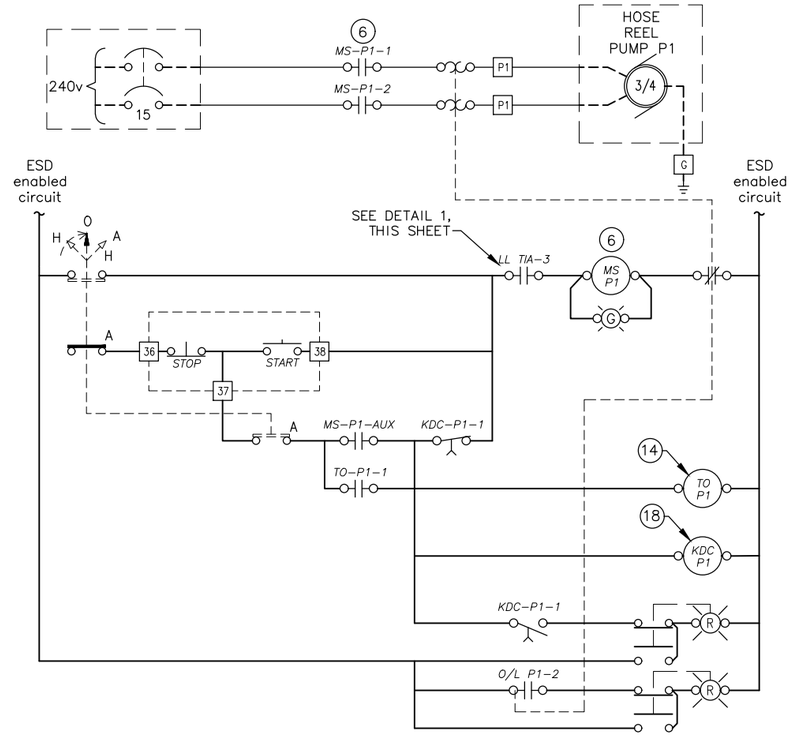
Sheet No. E9

Files: J:\JobsData\30413.00 Tatitlek Bfu Co\00 CADD\01 Working Set\03 Electrical\30413.00 - CP1.dwg



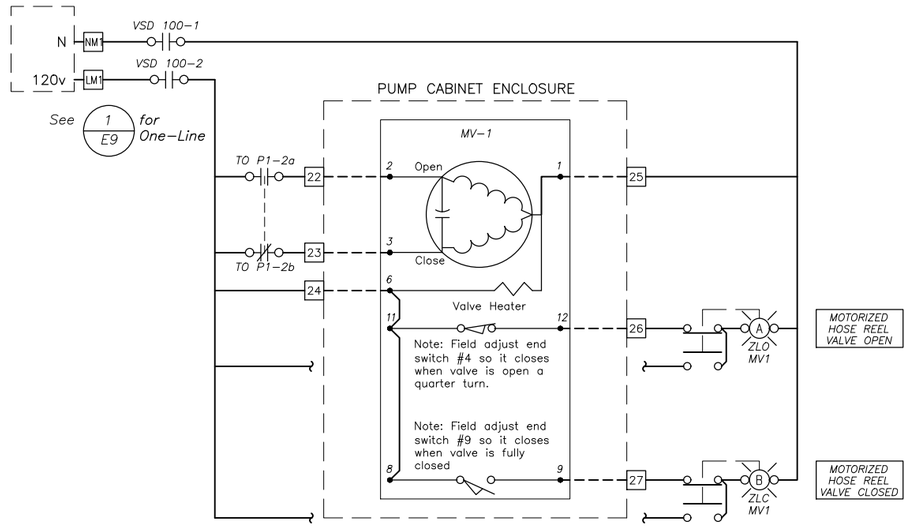
1 **T1A FLOAT (P1&P2) SCHEMATIC**

SCALE: NTS



2 **P1 CONTROL SCHEMATIC**

SCALE: NTS



3 **MV-1 (P1) SCHEMATIC**

SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER William M. McDonell 12/29/2020

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL682-AK

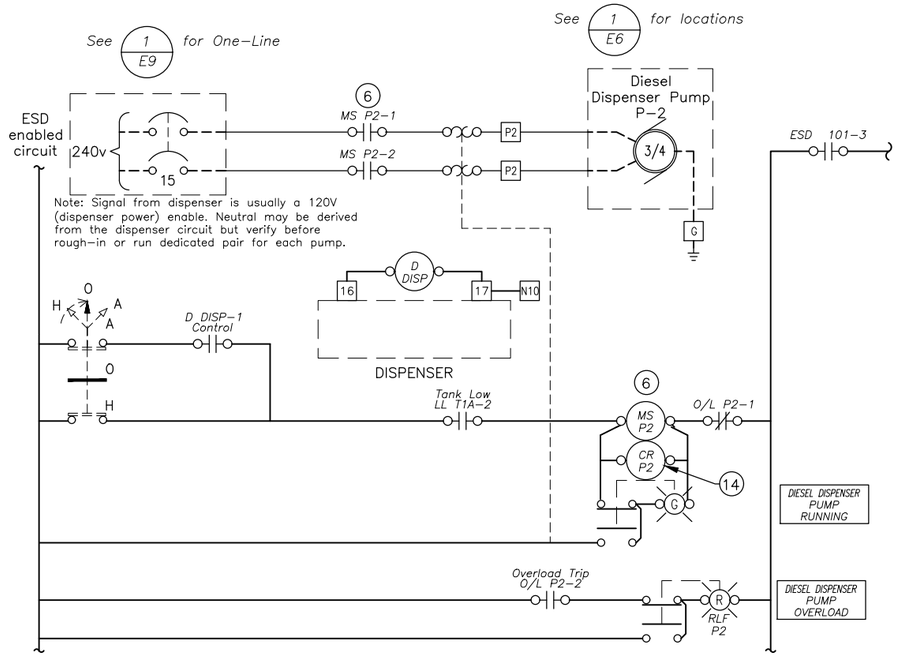
TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
DIESEL TANK & DIESEL DISPENSER CONTROLS

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 12/29/20
Designed NCP
Drawn KEG
Approved AH

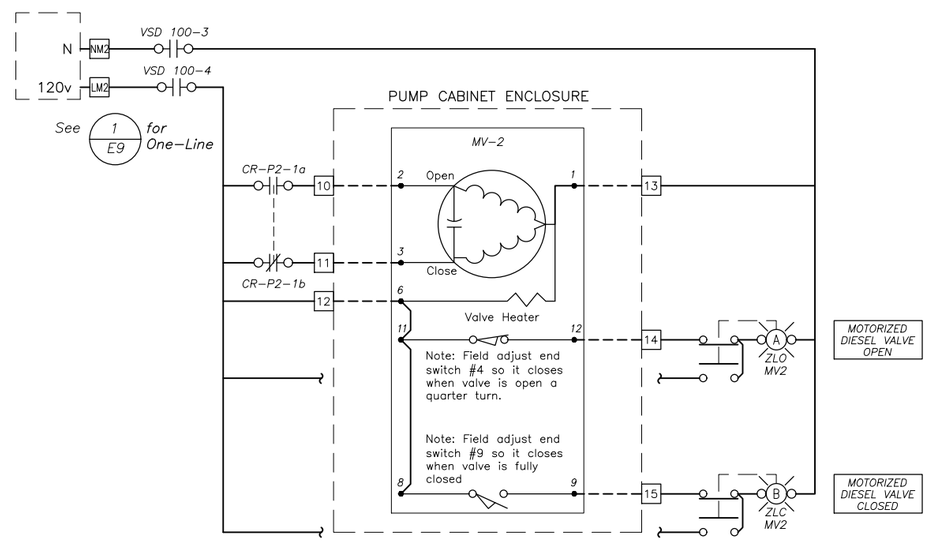
Sheet No. E10

File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\03 Electrical\30413.00 - CP1.dwg



1 **P2 CONTROL SCHEMATIC**

SCALE: NTS



2 **MV-2 (P2) SCHEMATIC**

SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — William M. McDonell — CERTIFICATE NO. 13161 — 1/29/2020

CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
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#AECL682-AK

TATITLEK, ALASKA

AEA BULK FUEL UPGRADES

DIESEL HOSE REEL & CONTROLS

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date 1/29/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. E11

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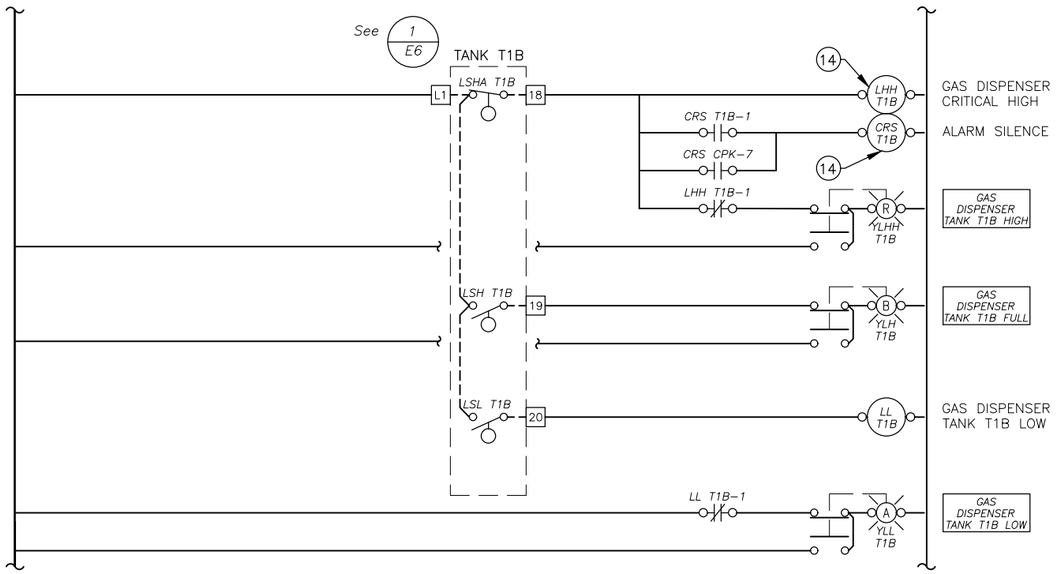
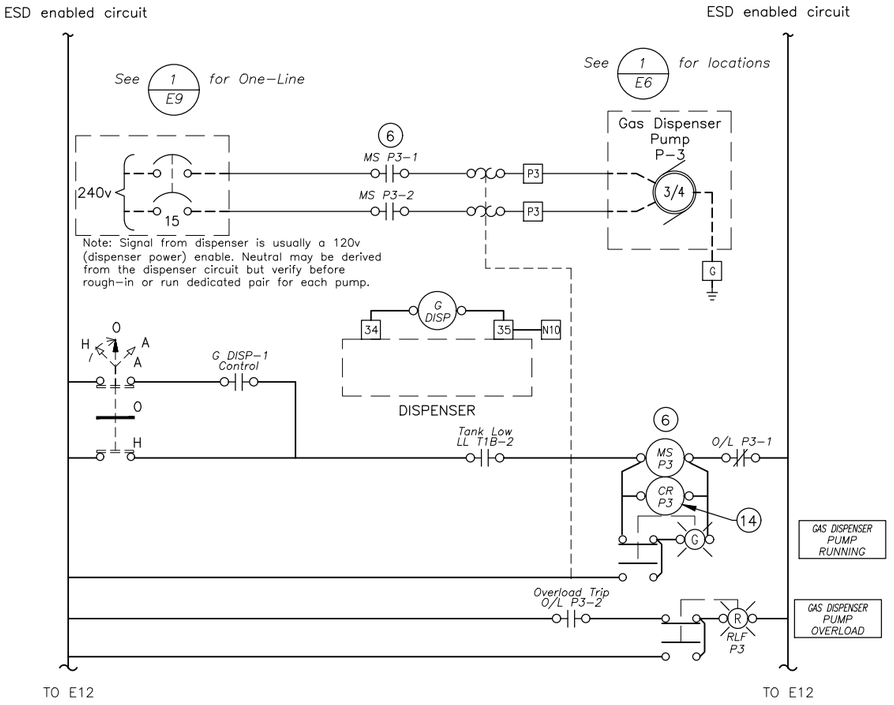
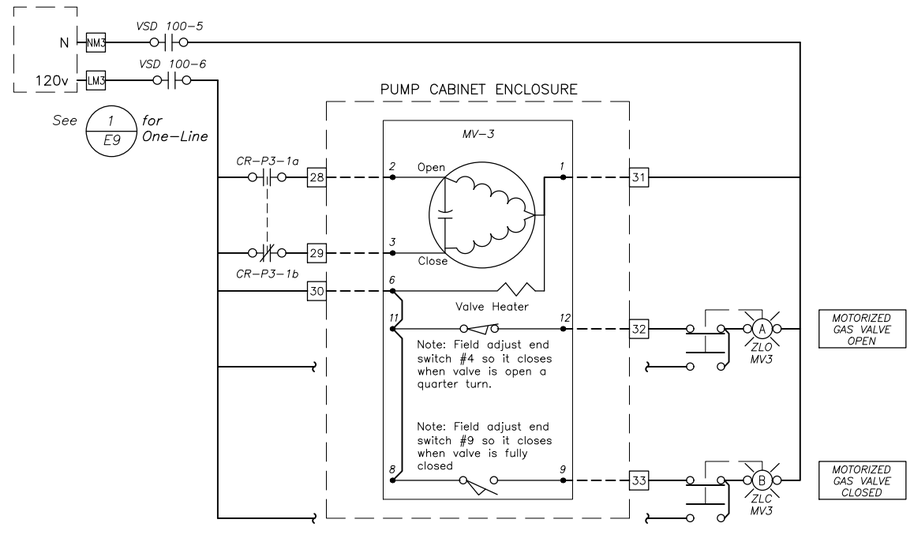


1 **T1B FLOAT (P3) SCHEMATIC**
SCALE: NTS



2 **P3 CONTROL SCHEMATIC**
SCALE: NTS



3 **MV-3 (P3) SCHEMATIC**
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER William M. McDonell 12/29/2020 AECL882

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TATITLEK, ALASKA
AEA BULK FUEL UPGRADES
GAS TANK & GAS DISPENSER CONTROLS

NO.	REVISION	BY	DATE
A	ISSUED FOR CONSTRUCTION	AH	JAN 2019

Plot Date: 1/29/20
Designed NCP
Drawn KEG
Approved AH

Sheet No. E12

File: J:\JobsData\30413.00 Tatitlek Bfu Ca\00 CADD\01 Working Set\03 Electrical\30413.00 – CP1.dwg