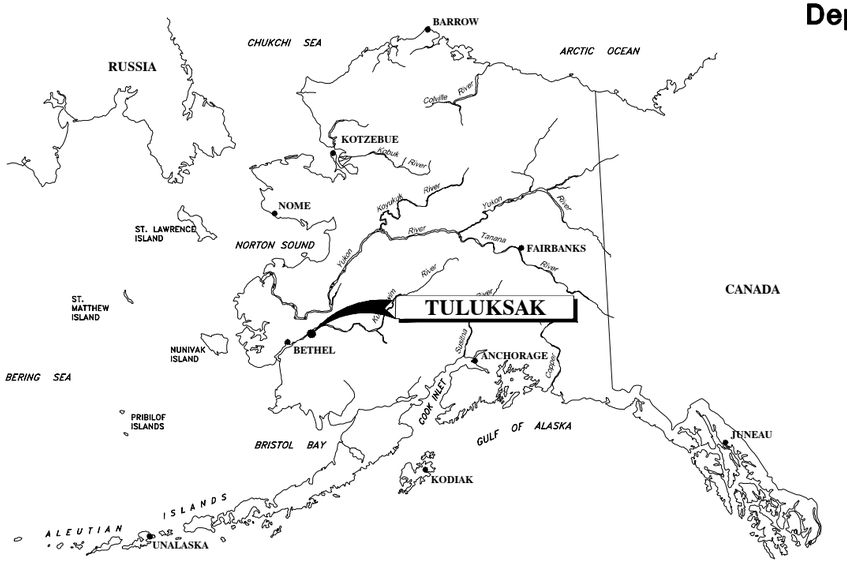


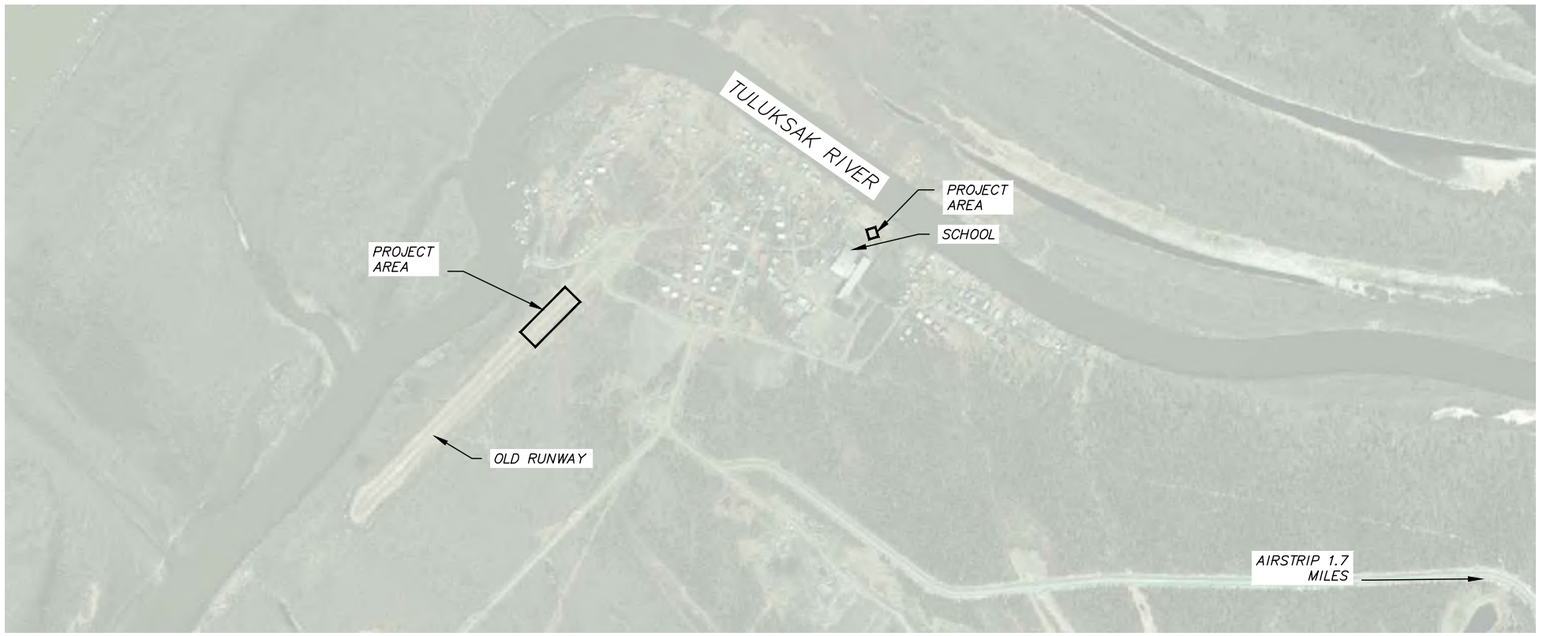
State of Alaska
Department of Community and Economic Development
Rural Energy Group
813 West Northern Lights Blvd.
Anchorage, Alaska 99503

ALASKA ENERGY AUTHORITY

TULUKSAK, ALASKA

BULK FUEL UPGRADE

ISSUED FOR CONSTRUCTION
APRIL 2026



PROJECT AREA MAP

500' 0 500' 1000'

Project Number	(Consultant) _____ (AEA) _____
AEA Project Manager	DAWN MOLINA
Construction Manager	–
Final Design	(Date) –
Fire Marshal Approval	(Date) –
Construction Period	(From) _____ (To) _____
As-Builts	(Date) _____

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

STATE OF ALASKA
49 TH
Nicholas C. Gibbs
CE-123218
04/14/26
REGISTERED PROFESSIONAL ENGINEER

FILE: i:\Jobs\Data\30422.02 aea - tuluksak bfu phase 2 design\00 CADD\01 working set\01 Civil\02 Design\30422.02_Cover.dwg

SHEET INDEX

SHEET NO	DESCRIPTION
GENERAL	
G0.0	COVER
G1.0	SHEET INDEX
G1.1	GENERAL NOTES, LEGEND, AND ABBREVIATIONS
G1.2	CO-LOCATED SETBACK & SIGNAGE PLAN
G1.3	SCHOOL TANK FARM SETBACK & SIGNAGE PLAN
G1.4	TANK FARM 1 CORP. DECOMMISSION PLAN
G1.5	TANK FARM 2 TNC DECOMMISSION PLAN
G1.6	TANK FARM 3 CORP. DECOMMISSION PLAN
G1.7	TANK FARM 4 SCHOOL DECOMISSION PLAN
G1.8	TANK FARM 5 SCHOOL DECOMISSION PLAN
G1.9	SURVEY CONTROL
CIVIL	
C1.1	VICINITY MAP
C1.2	CO-LOCATED TANK FARM SITE PLAN
C1.3	SCHOOL TANK FARM SITE PLAN
C1.4	CO-LOCATED TANK FARM GRADING PLAN
C1.5	SCHOOL TANK FARM GRADING PLAN
C1.6	FUEL SUPPLY PIPING PLAN
C1.7	FUEL DISTRIBUTION PIPING PLAN
C3.1	CO-LOCATED TANK FARM SECTIONS
C3.2	SCHOOL TANK FARM SECTIONS
C4.1	PUMP CABINET DETAILS
C4.2	RETAIL & FLEET DISPENSER ENCLOSURE DETAILS
C4.3	RETAIL DISPENSER ENCLOSURE DETAILS
C4.4	FENCE DETAILS
C4.5	CONTAINMENT DIKE & STAIR DETAILS
C4.6	CONNEX DETAILS
C4.7	ACCESS STAIR DETAILS
C4.8	SCHOOL HOSE REEL ENCLOSURE DETAILS
C4.9	PIPING DETAILS
MECHANICAL	
M1.1	MECHANICAL LEGEND AND ABBREVIATIONS
M1.2	COMPONENT SCHEDULES I
M1.3	COMPONENT SCHEDULES II
M1.4	COLOCATED TANK FARM SCHEMATIC
M1.5	COLOCATED TANK FARM PIPING PLAN
M1.6	SCHOOL TANK FARM PIPING PLAN AND SCHEMATIC
M1.7	PUMP CABINET PIPING
M2.1	30,000 GALLON TANK DETAILS
M2.2	5,000 GALLON TANK REFURBISHMENT DETAILS
M2.3	500 GALLON TANK DETAILS
M2.4	TANK APPURTENANCE DETAILS
M3.1	PIPING DETAILS
M3.2	RETAIL DISPENSER PIPING
M3.3	POWER PLANT & WTP TANK CONECTION DETAIL
M3.4	SCHOOL TANK CONNECTION DETAIL

SHEET NO	DESCRIPTION
ELECTRICAL	
E1.1	NOTES, LEGEND AND ABBRIEVIATIONS
E1.2	SPECIFICATIONS
E1.3	CONTROLS SPECIFICATIONS
E1.4	POWER ONE-LINES AND PANEL SCHEDULES
E3.1	CO-LOCATED TANK FARM ELECTRICAL MAP
E3.2	CO-LOCATED TANK FARM ELECTRICAL GROUNDING PLAN
E3.3	CO-LOCATED TANK FARM ELECTRICAL SITE PLAN WEST
E3.4	CO-LOCATED TANK FARM ELECTRICAL SITE PLAN EAST
E3.5	CO-LOCATED TANK FARM AREA CLASSIFICATION PLAN
E3.6	DUAL PRODUCT DISPENSER CLASSIFICATION PLANS
E3.7	SCHOOL TANK FARM GROUNDING PLAN
E3.8	SCHOOL TANK FARM ELECTRICAL SITE PLAN
E3.9	HOSE REEL AND DUAL DISPENSER ELECTRCIAL DETAILS
E4.1	ELECTRICAL DETAILS
E4.2	ELECTRICAL DISTRIBUTION NOTES AND DETAILS
E5.1	CORP TANK FARM PANEL, CP-1
E5.2	CP-1 POWER ONE-LINE
E5.3	CP-1 LADDER (1 OF 4)
E5.4	CP-1 LADDER (2 OF 4)
E5.5	CP-1 LADDER (3 OF 4)
E5.6	CP-1 LADDER (4 OF 4)
E5.7	TNC TANK FARM PANEL CP-3
E5.8	CP-3 POWER ONE-LINE
E5.9	CP-3 LADDER (1 OF 2)
E5.10	CP-3 LADDER (1 OF 2)
E5.11	YSD TANK FARM PANEL CP-5
E5.12	CP-5 POWER ONE-LINE
E5.13	CP-5 LADDER (1 OF 2)
E5.14	CP-5 LADDER (2 OF 2)

ALASKA ENERGY AUTHORITY

STATE OF ALASKA
49 TH
Nicholas C. Phelps
CE-123218
04/14/26
REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES
SHEET INDEX
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/16/26
Designed —
Drawn —
Approved —

Sheet No. G1.0

PROJECT SCOPE

THIS PROJECT PROVIDES FOR THE CONSTRUCTION OF NEW BULK FUEL STORAGE, HANDLING, AND RETAIL DISPENSING FACILITIES IN TULUKSAK, ALASKA. SPECIFIC ACTIVITIES WILL INCLUDE THE FOLLOWING:

1. A NEW CO-LOCATED TANK FARM TO SERVE THE TRIBE AND CORPORATION NEEDS. THE FACILITY WILL INCLUDE A COMBINATION OF SHOP BUILT HORIZONTAL ABOVEGROUND STORAGE TANKS WITHIN A STEEL DIKE WALL SECONDARY CONTAINMENT SYSTEM. PLANNED GROSS CAPACITY WILL INCLUDE:
   a. TULUKSAK NATIVE COMMUNITY (TNC): 150,000 GALLONS DIESEL
   b. TULKISARMUTE, INC (CORP): 62,500 GALLONS DIESEL, 62,500 GALLONS GASOLINE
2. A NEW TANK FARM TO SERVE THE SCHOOL BUILDING. THE FACILITY WILL INCLUDE THREE 30,000 GALLON ABOVE GROUND DIESEL STORAGE TANKS WITHIN A STEEL DIKE WALL SECONDARY CONTAINMENT SYSTEM.
3. RETAIL FUEL SALES FACILITIES LOCATED ADJACENT TO THE CO-LOCATED TANK FARM.
4. DISTRIBUTION PIPELINE BETWEEN THE CO-LOCATED TANK FARM AND THE POWER PLANT AND WTP INTERMEDIATE TANKS.
5. DISTRIBUTION PIPING FROM SCHOOL TANK FARM AND EXISTING 12,00 GALLON INTERMEDIATE TANK AND HOSE REEL FLEET DISPENSER.
6. ALL REQUIRED MECHANICAL AND ELECTRICAL EQUIPMENT, INCLUDING NEW POWER SERVICE FROM THE POWER PLANT TO THE NEW CO-LOCATED TANK FARM.
7. ALL 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 CORPORATION, VILLAGE COUNCIL, 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.

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 SUBSTITUTIONS FOR REVIEW AND APPROVAL, UNLESS "NO SUBSTITUTIONS" IS SPECIFIED. PRIOR TO PROCUREMENT, SUBMIT VENDORS LIST WITH A LIST OF EQUIPMENT TO BE PROVIDED BY EACH VENDOR.

8. CONTRACTOR SHALL PREPARE AND SUBMIT OPERATION AND MAINTENANCE MANUAL FOR ALL SYSTEMS. CONTRACTOR SHALL SUBMIT PROPOSED O&M MANUAL TABLE OF CONTENTS TO ENGINEER FOR REVIEW AND APPROVAL WITHIN TWO WEEKS OF SUBSTANTIAL COMPLETION INSPECTION. O&M MANUAL SHALL INCLUDE AN APPENDIX WITH LITERATURE FOR ALL MATERIALS AND EQUIPMENT UTILIZED TO CONSTRUCT THE PROJECT.

9. FACILITY DESIGN IS IN ACCORDANCE WITH THE 2006 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.

10. CONTRACTOR TO PROVIDE SIGNAGE IAW THE SIGN SCHEDULE, AND AS IDENTIFIED ELSEWHERE IN THE DRAWINGS.

11. 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.

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
CMP	CORRUGATED METAL PIPE
CORP	TULKISARMUTE INC.
DEMO	DEMOLISH
DFT	DRY FILM THICKNESS
DIA	DIAMETER
DWG	DRAWING
E	EAST
EA	EACH
EL	ELEVATION
ELEC	ELECTRIC
EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY
E-VENT	ENGINEER CRW ENGINEERING GROUP, INC EMERGENCY VENT
°F	FAHRENHEIT
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
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
MPT	MALE NATIONAL PIPE TAPERED THREAD
N	NORTH
NC	NORMALLY CLOSED
NFS	NON FROST SUSCEPTIBLE (SOIL)
NO	NORMALLY OPEN
NPT	NATIONAL PIPE TAPERED THREAD
NTS	NOT TO SCALE
OAE	OR APPROVED EQUAL
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OZ	OUNCE
PCC	PORTLAND CEMENT CONCRETE
PL	PLATE
PP	POWER PLANT
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 OFFICER
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SSPC	STEEL STRUCTURES PAINTING COUNCIL
STA	STATION
SY	SQUARE YARD
TBM	TEMPORARY BENCH MARK
TNC	TULUKSAK NATIVE COMMUNITY
TS	TUBE STEEL
TYP	TYPICAL
UG	UNDER GROUND
UL	UNDERWRITERS LABORATORY
UPC	UNIFORM PLUMBING CODE
UST	UNDERGROUND STORAGE TANK
W/	WITH
W	WATER
WTP	WATER TREATMENT PLANT

12. WHERE PIPE SUPPORTS ARE NOT SHOWN THEY SHALL BE SPACED A MAXIMUM OF 10 FEET ON CENTER IAW THE 2018 UPC.

13. SCHEDULE AND COORDINATE DEMOLITION AND NEW CONSTRUCTION / RENOVATION ACTIVITIES SUCH THAT COMPLETE AND OPERABLE BULK FUEL STORAGE AND RETAIL DISPENSING SYSTEMS ARE MAINTAINED AT ALL TIMES.

14. MARK UP DESIGN DRAWINGS TO REFLECT FIELD CHANGES THROUGHOUT CONSTRUCTION. SUBMIT "RED LINE" CONSTRUCTION DRAWINGS TO ENGINEER AT COMPLETION OF THE PROJECT.

15. 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.

TESTING, STARTUP AND COMMISSIONING PROCEDURES

1. CONTRACTOR SHALL PERFORM SYSTEM TESTING, STARTUP AND COMMISSIONING IN ACCORDANCE WITH THE PROCEDURES LISTED HERE 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. 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. CONTRACTOR SHALL BE PRESENT DURING INITIAL BARGE FILLING OF TANKS. UPON FILLING OF TANKS VERIFY PRODUCT LEVEL WITH GAUGING STICK AND RECALIBRATE ALL TANK GAUGES. REMOVE AND CLEAN ALL STRAINERS AFTER INITIAL FILLING.

4. CHECK ALL PUMPS FOR PROPER ROTATION. PRIOR TO OPERATING CENTRIFUGAL PUMPS PRIME THE PUMP CAVITY WITH FUEL. PRIOR TO INITIAL START UP, WARM PUMP BODY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.

5. 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.

6. FILL DISPENSING TANK USING PROCEDURES AND COMPONENTS SHOWN ON THE DRAWINGS.

7. TEST ALL DISPENSING SYSTEM FUNCTIONS INCLUDING REMOTE CONSOLE(S) (IF ANY).

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 (4) SPARE LOCKS AND KEYS.

10. INSTRUCT LOCAL OPERATORS IN THE OPERATION AND MAINTENANCE OF ALL SYSTEMS. PLACE SPARE PARTS, AND SPILL RESPONSE SUPPLIES IN DESIGNATED LOCATION.

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
- W — WATER WELL
- ANTI-SIPHON VALVE
- FUSIBLE VALVE
- BALL VALVE
- M — 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

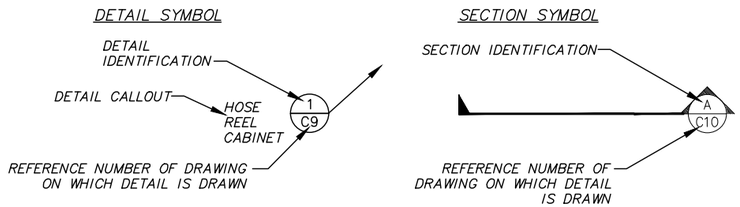
UTILITY LINE/PIPELINE DESIGNATIONS

E	ELECTRIC
D	DIESEL FUEL
G	GASOLINE
S	SANITARY SEWER
T	TELEPHONE
W	WATER

- # — UNDERGROUND UTILITY LINE/PIPELINE: EXISTING
- # — UNDERGROUND UTILITY LINE/PIPELINE: PROPOSED
- # — ABOVEGROUND UTILITY LINE/PIPELINE: EXISTING
- # — ABOVEGROUND UTILITY LINE/PIPELINE: PROPOSED
- EXISTING FUEL LINE TO BE DECOMMISSIONED

CALL BEFORE YOU DIG	
WATER/SEWER	TNC 907-695-6420
ELECTRIC	TULUKSAK TRADITIONAL POWER UTILITY 907-695-6458

DETAIL/SECTION REFERENCES



ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES

GENERAL NOTES, LEGEND, AND ABBREVIATIONS

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed: -
Drawn: -
Approved: -

Sheet No. G1.1

File: u:\Jobsdata\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\02 Design\30422.02_Cover.dwg Plot Date: 4/14/2026 2:58 PM

NOTES:

1. INSTALL 4A:80-B:C PORTABLE FIRE EXTINGUISHERS AT LOCATIONS SHOWN (◑). PROVIDE TWO SPARES TO EACH OWNER. EXTINGUISHERS MOUNTED OUTSIDE SHALL BE WITHIN HIGH QUALITY COLD RATED AND APPROVED WEATHER PROOF ENCLOSURES.

SETBACK/SEPARATION REQUIREMENTS:

THE PROPOSED TANK FARMS WILL PERFORM TWO FUNCTIONS – BULK STORAGE AND DISPENSING FOR THE TULUKSAK NATIVE CORPORATION AND BULK STORAGE FOR THE TULUKSAK NATIVE COMMUNITY. ALL TANKS ARE INSTALLED ABOVE GROUND. TO COMPLY WITH THE REQUIREMENTS OF THE 2023 INTERNATIONAL FIRE CODE, 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.
- 30' FROM 751–12,000 GAL BULK STORAGE TANKS TO THE NEAREST PROPERTY LINE WHICH IS OR CAN BE BUILT UPON.
- 40' FROM 12,001–30,000 GAL BULK STORAGE TANKS 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.

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 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)

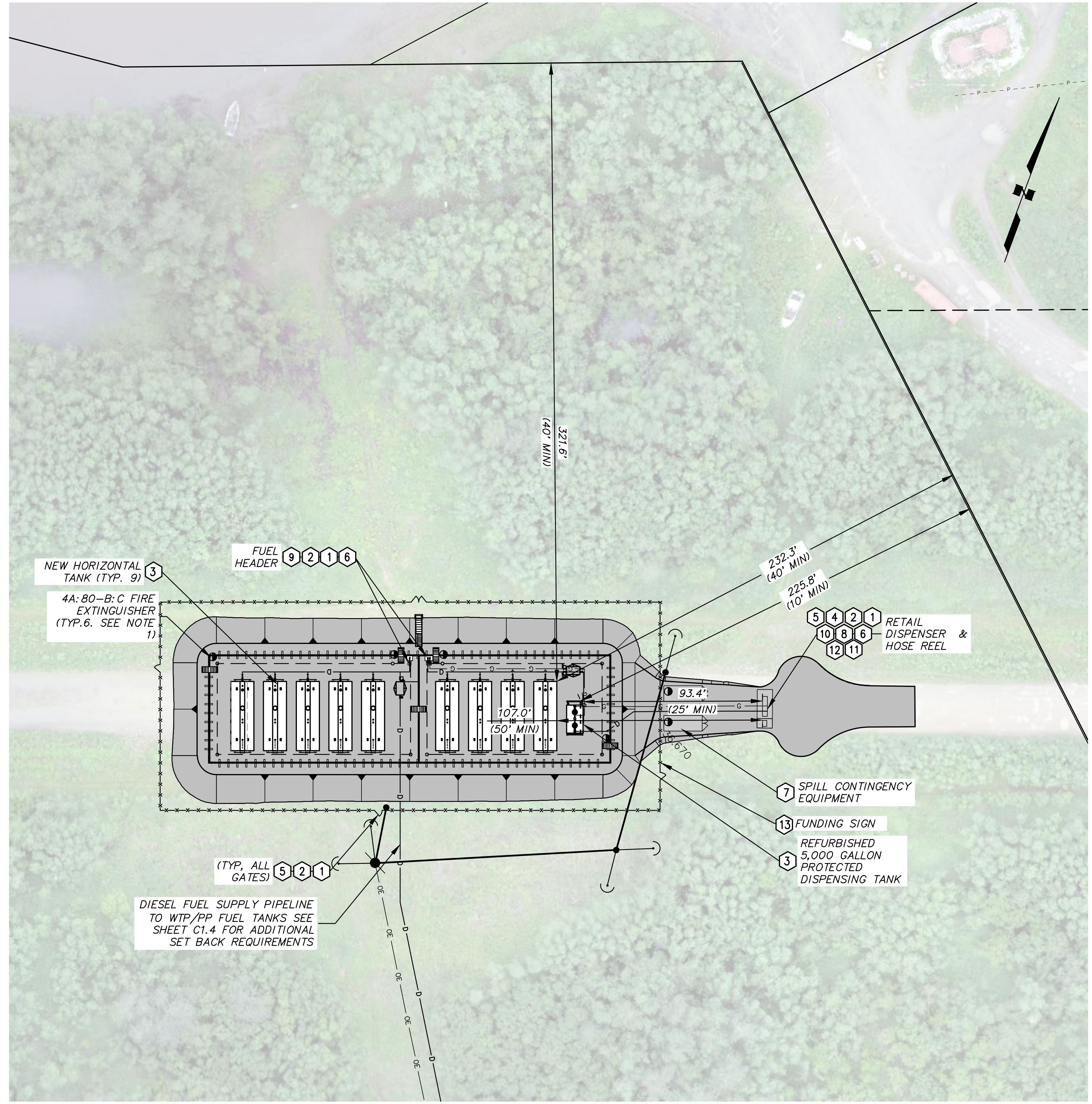
1. "DANGER FLAMMABLE LIQUIDS"
2. "NO SMOKING NO OPEN FLAMES"
3. "FLAMMABLE _____ GALLONS GASOLINE" OR "COMBUSTIBLE _____ GALLONS DIESEL", INSERT VOLUME IN GALLONS AS APPROPRIATE.

__INFORMATIONAL PLACARDS__ – BLACK LETTERING ON WHITE BACKGROUND (2" HIGH 1/2" STROKE LETTERS)

4. "IMPORTANT – PRIOR TO DISPENSING:
   1. NO SMOKING.
   2. SHUT OFF MOTOR.
   3. DISCHARGE YOUR STATIC ELECTRICITY BEFORE FUELING BY TOUCHING A METAL SURFACE AWAY FROM THE NOZZLE.
   4. TO PREVENT STATIC CHARGE, DO NOT RE-ENTER YOUR VEHICLE WHILE GASOLINE IS PUMPING.
   5. IF A FIRE STARTS, DO NOT REMOVE NOZZLE – BACK AWAY IMMEDIATELY
   6. IT IS UNLAWFUL AND DANGEROUS TO DISPENSE FUEL INTO UNAPPROVED CONTAINERS
   7. NO FILLING OF PORTABLE CONTAINERS IN OR ON A MOTOR VEHICLE. PLACE CONTAINER ON GROUND BEFORE FILLING"
5. "IN CASE OF FIRE SPILL OR RELEASE:
   1. USE EMERGENCY SHUTOFF
   2. CONTACT TANK FARM OWNER
   3. REPORT ACCIDENT TO ADEC"
6. PROVIDE ADEC SPILL SIGN: CONTRACTOR TO CONTACT ADEC FOR CURRENT SPILL REPORTING PLACARD (907-269-3063)
7. "SPILL CONTINGENCY EQUIPMENT"
8. "EMERGENCY SHUTOFF" – SEE ELECTRICAL FOR SIGN LOCATIONS
9. "PRESSURE NOT TO EXCEED 75 PSI" (NOTE THIS SIGN SHALL BE PERMANENTLY AFFIXED TO THE BARGE HEADER SUPPORT). SEE DETAIL

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

10. "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"
11. "BULK TRANSFER/FLEET DISPENSING:
    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. UNWIND HOSE
    5. PLACE NOZZLE IN FUEL RECEPTACLE
    6. DEPRESS NOZZLE LEVER TO BEGIN FLOW
    7. WHEN FUELING IS COMPLETE DEPRESS "PUMP OFF" BUTTON, REWIND HOSE AND HANG UP NOZZLE"
12. PROVIDE PLACARDS INDICATING PRODUCT TYPE AT HOSE REEL
13. INSTALL OWNER PROVIDED FUNDING SOURCE SIGN AT EACH FACILITY (TYP 2)



1 **CORPORATION & CITY TANK FARM SITE PLAN**

SCALE: GRAPHIC

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
CO-LOCATED SETBACK & SIGNAGE PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed –
Drawn –
Approved –

Sheet No. G1.2

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Setback And Signage.dwg Plot Date: 4/14/2026 2:59 PM

NOTES:

1. INSTALL 4A:80-B:C PORTABLE FIRE EXTINGUISHERS AT LOCATIONS SHOWN (◑). PROVIDE TWO SPARES TO EACH OWNER. EXTINGUISHERS MOUNTED OUTSIDE SHALL BE WITHIN HIGH QUALITY COLD RATED AND APPROVED WEATHER PROOF ENCLOSURES.

SETBACK/SEPARATION REQUIREMENTS:

THE PROPOSED TANK FARMS WILL PERFORM TWO FUNCTIONS – BULK STORAGE FOR THE TULUKSAK SCHOOL DISTRICT. ALL TANKS ARE INSTALLED ABOVE GROUND. TO COMPLY WITH THE REQUIREMENTS OF THE 2023 INTERNATIONAL FIRE CODE, THE CURRENT ALASKA ENERGY AUTHORITY/DIVISION OF FIRE PREVENTION MEMORANDUM OF AGREEMENT, AND STATE OF ALASKA REGULATIONS THE FOLLOWING MINIMUM CLEARANCES ARE REQUIRED:

40' FROM 12,001–30,000 GAL BULK STORAGE TANKS 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.

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 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) "IN CASE OF FIRE SPILL OR RELEASE:
1. USE EMERGENCY SHUTOFF
2. CONTACT TANK FARM OWNER
3. REPORT ACCIDENT TO ADEC"

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

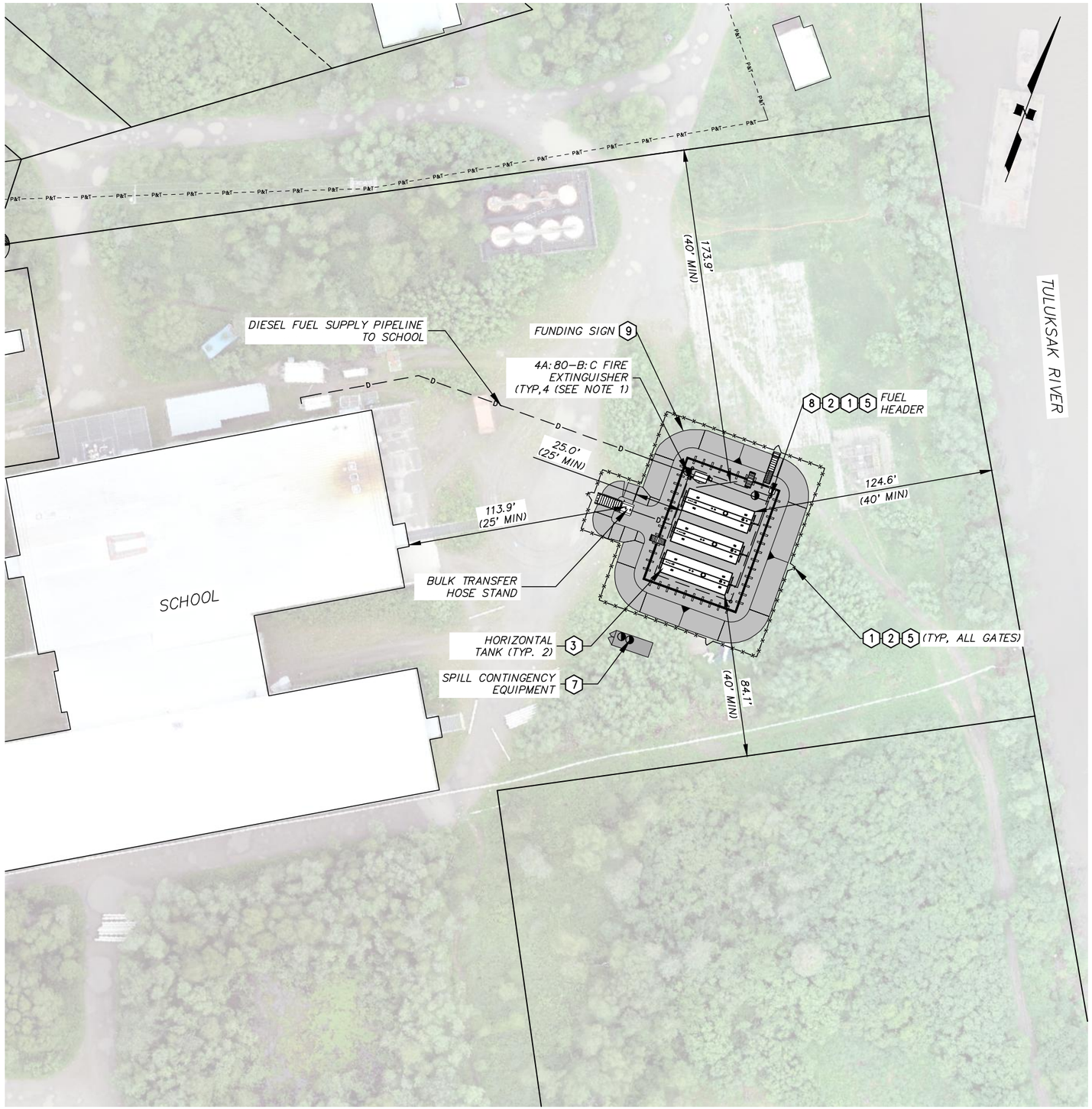
(6) "SPILL CONTINGENCY EQUIPMENT"

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

(8) "PRESSURE NOT TO EXCEED 75 PSI" (NOTE THIS SIGN SHALL BE PERMANENTLY AFFIXED TO THE BARGE HEADER SUPPORT). SEE DETAIL

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

(9) INSTALL OWNER PROVIDED FUNDING SOURCE SIGN AT EACH FACILITY (TYP 2)



1 **SCHOOL TANK FARM SITE PLAN**
SCALE: GRAPHIC

ALASKA ENERGY AUTHORITY

STATE OF ALASKA – REGISTERED PROFESSIONAL ENGINEER – ALEXANDER C. ADAMS – CE-13218 – 04/14/26

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

TULUKSAK BULK FUEL UPGRADES
SCHOOL TANK FARM SETBACK & SIGNAGE PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed –
Drawn –
Approved –

Sheet No. G1.3

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Setback And Signage.dwg Plot Date: 4/14/2026 2:59 PM

GENERAL NOTES:

1. CONTACTOR SHALL COORDINATE AS NECESSARY TO RELOCATE SALVAGEABLE ITEMS TO APPROVED OFFSITE LOCATION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL TANK OWNERS PRIOR TO BEGINNING ANY DECOMMISSIONING/DEMOLITION WORK.
2. PERFORM WALK THROUGH WITH TANK FARM OWNER/OWNER'S REP TO IDENTIFY ITEMS TO BE SALVAGED. CONTACTOR SHALL COORDINATE AS NECESSARY TO RELOCATE SALVAGED ITEMS TO APPROVED OFFSITE LOCATION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL TANK OWNERS PRIOR TO BEGINNING ANY DECOMMISSIONING/DEMOLITION WORK.
3. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM OWNER PRIOR TO PROCEEDING WITH DECOMMISSIONING EXISTING TANKS FARMS. ALL RESIDUE SHALL BE DISPOSED OF IAW APPLICABLE STATE, FEDERAL AND LOCAL LAWS AND ORDINANCE (SEE SPECIFICATIONS).
4. ALL DECOMMISSIONED PIPING, TANKS & FUEL SYSTEM COMPONENTS SHALL BE DISPOSED OF IAW SPECIFICATIONS.
5. CONTRACTOR SHALL PROVIDE TEMPORARY FUEL STORAGE AND PIPING SYSTEMS AS NECESSARY TO PROVIDE UNINTERRUPTED BULK FUEL/RETAIL FUEL DISPENSING THROUGHOUT CONSTRUCTION. PROVIDE TEMPORARY FUEL SUPPLY & DISPENSING PLAN TO OWNER FOR APPROVAL.

TANK FARM 1 DECOMMISSIONING/SALVAGE SCHEDULE							
TANK I.D.	DIAMETER (FT-INCHES)	LENGTH (FT)	TANK ORIENTATION	TANK TYPE	PRODUCT	CAPACITY (GALLONS)	COMMENTS
TD1	11'-0"	42'-8"	HORIZONTAL	STEEL DIKED	DIESEL	8,823	DECOMMISSION
TD2	11'-0"	42'-8"	HORIZONTAL	STEEL DIKED	GASOLINE	8,779	DECOMMISSION
T10A/B	8'-6.5"	14'-8"	HORIZONTAL	PROTECTED	DIESEL/GASOLINE	5,000	SALVAGE/REUSE

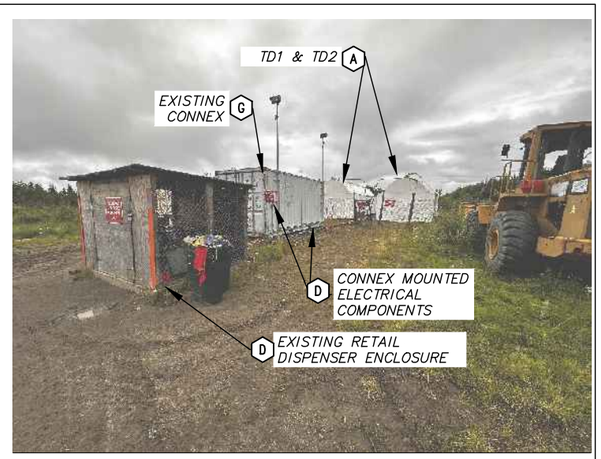


PHOTO 1: CORPORATION TANK FARM AND RETAIL DISPENSING FACILITY, SUMMER 2025

DECOMMISSIONING NOTES:

(A) EXISTING TANKS TD1 AND TD2 SHALL BE DECOMMISSIONED. SEE SPECIFICATIONS FOR TANK DECOMMISSIONING REQUIREMENTS.
(B) DECOMMISSION & DISPOSE OF ALL EXISTING ABOVE GRADE FUEL PIPING ASSOCIATED WITH TANKS SCHEDULED FOR DECOMMISSIONING INCLUDING 200 LF OF DIESEL AND GASOLINE PIPING, VALVES AND TANK MOUNTED FILL HEADERS. FUEL PIPING AND COMPONENT LOCATIONS SHOWN ARE APPROXIMATE.
(C) DECOMMISSION & DISPOSE OF EXISTING RETAIL FUEL DISPENSER AND ALL FUEL PIPING COMPONENTS.

DEMOLITION NOTES:

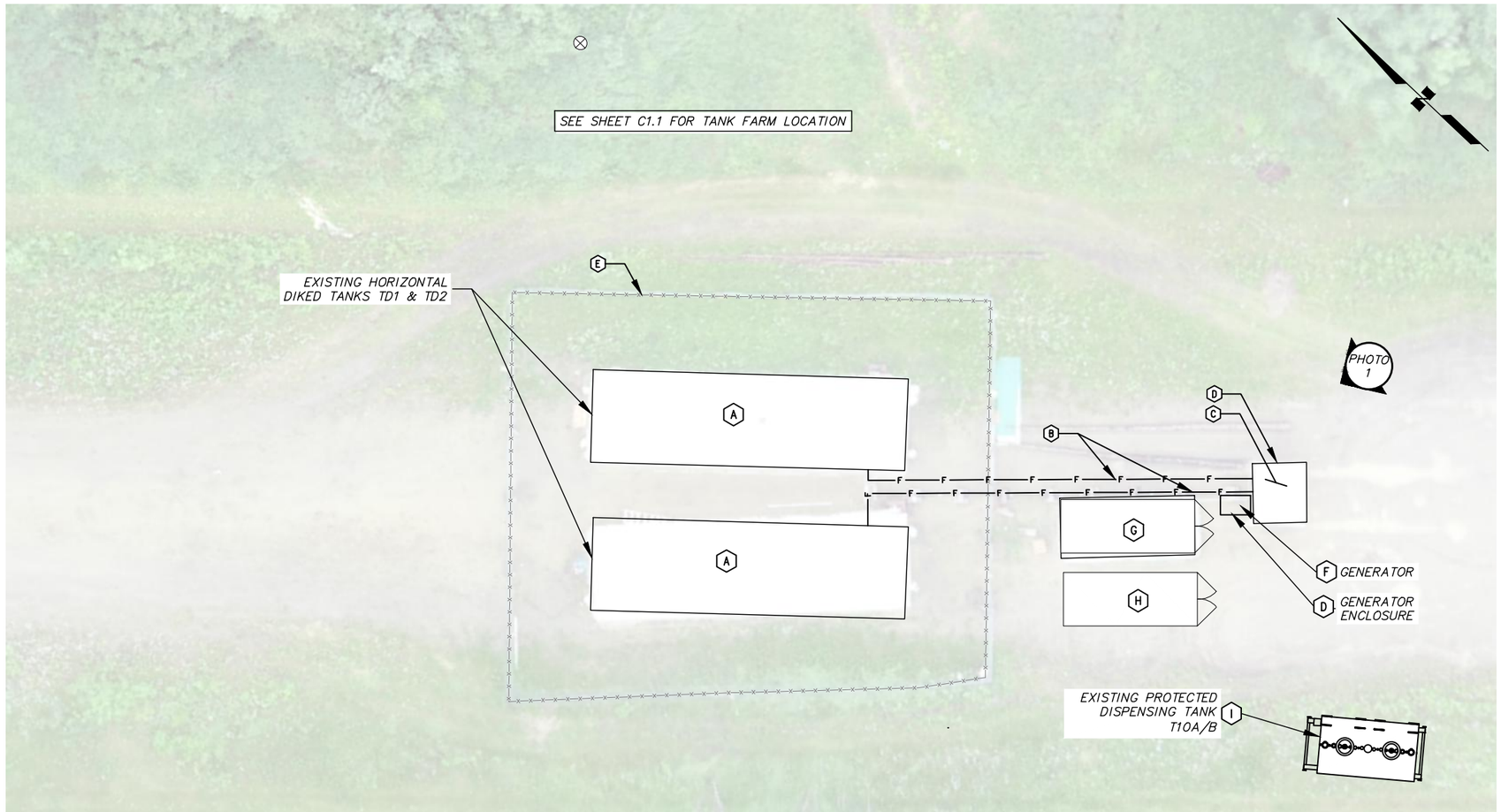
(D) DEMOLISH AND DISPOSE OF RETAIL DISPENSER ENCLOSURE, GAS POWERED GENERATOR ENCLOSURE, AND ALL EXISTING FUEL RELATED ELECTRICAL COMPONENTS.
(E) DEMOLISH AND DISPOSE OF APPROXIMATELY 260 LF OF TANK FARM FENCE AND ALL TIMBER POSTS.

SALVAGE NOTES:

(F) GAS-POWERED GENERATOR SHALL BE SALVAGED AND REMOVED FROM SITE.
(G) EXISTING SPILL RESPONSE CONNEX AND EQUIPMENT SHALL BE SALVAGED AND REMOVED FROM SITE.
(H) EXISTING AEA PROVIDED CONNEX SHALL BE SALVAGED AND REMAIN ONSITE. CONTENTS SHALL BE SALVAGED AND REMOVED FROM CONNEX TO A LOCATION DESIGNATED BY OWNER.
(I) EXISTING 5,000 GALLON TWO PRODUCT DISPENSING TANK SHALL BE SALVAGED AND REFURBISHED. SEE MECHANICAL SHEET M2.2 FOR TANK DETAILS.

UTILITY NOTES:

1. ALL UTILITY LOCATIONS SHOWN IN CONTRACT DRAWINGS ARE APPROXIMATE. **CONTRACTOR MUST FIELD LOCATE ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION.**



1 **TANK FARM 1 CORP. DECOMMISSION PLAN**
SCALE: GRAPHIC

10' 0 10' 20'

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
TANK FARM 1 CORP. DECOMMISSION PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed –
Drawn –
Approved –

Sheet No. G1.4

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Deccomi Plan.dwg Plot Date: 4/14/2026 3:01 PM

GENERAL NOTES:

1. TANK FARM 2 DECOMMISSIONING/DEMO WORK SHALL NOT BEGIN UNTIL THE NEW CO-LOCATED TANK FARM IS OPERATIONAL.
2. PERFORM WALK THROUGH WITH TANK FARM OWNER/OWNER'S REP TO IDENTIFY ITEMS TO BE SALVAGED. CONTACTOR SHALL COORDINATE AS NECESSARY TO RELOCATE SALVAGED ITEMS TO APPROVED OFFSITE LOCATION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL TANK OWNERS PRIOR TO BEGINNING ANY DECOMMISSIONING/DEMOLITION WORK.
3. SALVAGED ITEMS SHALL REMAIN TANK FARM OWNER'S PROPERTY & SHALL BE STORED BY THE CONTRACTOR AT THE OWNER APPROVED LOCATION.
4. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM OWNER PRIOR TO PROCEEDING WITH DECOMMISSIONING EXISTING TANKS FARMS. ALL RESIDUE SHALL BE DISPOSED OF IAW APPLICABLE STATE, FEDERAL AND LOCAL LAWS AND ORDINANCE (SEE SPECIFICATIONS).
5. CONTRACTOR SHALL PROVIDE TEMPORARY FUEL STORAGE AND PIPING SYSTEMS AS NECESSARY TO PROVIDE UNINTERRUPTED FUEL STORAGE AND FUEL SUPPLY THROUGHOUT CONSTRUCTION. PROVIDE TEMPORARY FUEL SUPPLY PLAN TO OWNER FOR APPROVAL.

TANK I.D.	DIAMETER (FT-INCHES)	LENGTH (FT)	TANK ORIENTATION	TANK TYPE	PRODUCT	CAPACITY (GALLONS)	COMMENTS
TD3	9'-8.4"	42'-8"	VERTICAL	SINGLE WALL	DIESEL	6,500	DECOMMISSION
TD4	9'-3.6"	42'-8"	VERTICAL	SINGLE WALL	DIESEL	6,500	DECOMMISSION
TD5	-	-	HORIZONTAL	SINGLE WALL	DIESEL	500	DECOMMISSION

DECOMMISSIONING NOTES:

(A) EXISTING TANKS TD3,TD4 AND TD5 SHALL BE DECOMMISSIONED. SEE SPECIFICATIONS FOR TANK DECOMMISSIONING REQUIREMENTS.

(B) DECOMMISSION ALL EXISTING ABOVE GRADE FUEL PIPING ASSOCIATED WITH TANKS SCHEDULED FOR DECOMMISSIONING WITHIN THE DIKED AREA INCLUDING TANK APPURTENANCES, FUEL SUPPLY/ISSUE PIPING, VALVES, PUMPS AND MANIFOLDS . FUEL PIPING AND COMPONENT LOCATIONS SHOWN ARE APPROXIMATE.

(C) DECOMMISSION ALL EXISTING INTERIOR FUEL PIPING COMPONENTS WITHIN VALVE ENCLOSURE.

(D) ALL SUPPLY AND ISSUE PIPELINES OUTSIDE OF TANK FARM CONTAINMENT SHALL BE PURGED, CAPPED AND ABANDONED IN PLACE.

(E) TIMBER DIKE AND MEMBRANE LINER SHALL REMAIN IN PLACE.

DEMOLITION NOTES:

(F) DEMOLISH AND DISPOSE OF VALVE ENCLOSURE, AND ALL EXISTING ELECTRICAL COMPONENTS INCLUDING FUEL CONTROLS.

UTILITY NOTES:

1. ALL UTILITY LOCATIONS SHOWN IN CONTRACT DRAWINGS ARE APPROXIMATE. **CONTRACTOR MUST FIELD LOCATE ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION.**

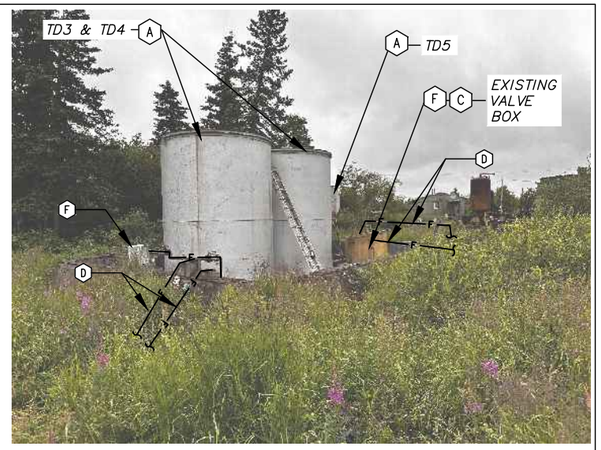
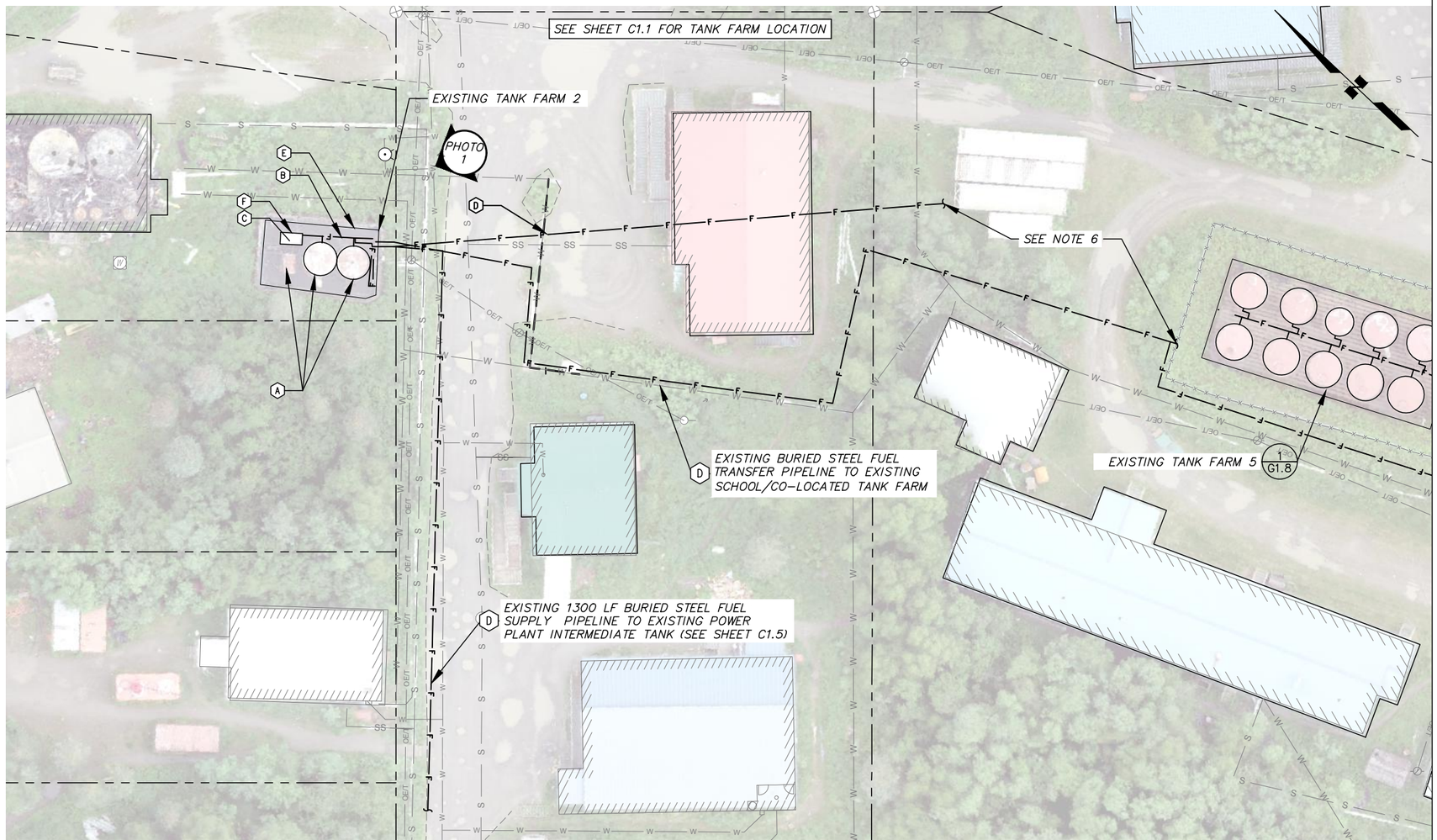


PHOTO 1: TANK FARM 2, TNC OWNED – OLD WTP TANK FARM, SUMMER 2025



1 **TANK FARM 2 TNC DECOMMISSION PLAN**

SCALE: GRAPHIC

20' 0 20' 40'

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
TANK FARM 2 TNC DECOMMISSION PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26 | Designed – | Drawn – | Approved –

Sheet No. G1.5

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Deccomi Plan.dwg Plot Date: 4/14/2026 3:01 PM

GENERAL NOTES:

1. TANK FARM 3 DECOMMISSIONING/DEMO WORK SHALL NOT BEGIN UNTIL THE NEW CO-LOCATED TANK FARM IS OPERATIONAL.
2. PERFORM WALK THROUGH WITH TANK FARM OWNER/OWNER'S REP TO IDENTIFY ITEMS TO BE SALVAGED. CONTACTOR SHALL COORDINATE AS NECESSARY TO RELOCATE SALVAGED ITEMS TO APPROVED OFFSITE LOCATION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL TANK OWNERS PRIOR TO BEGINNING ANY DECOMMISSIONING/DEMOLITION WORK.
3. SALVAGED ITEMS SHALL REMAIN TANK FARM OWNER'S PROPERTY & SHALL BE STORED BY THE CONTRACTOR AT THE TANK OWNER APPROVED LOCATION.
4. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM TANK OWNER PRIOR TO PROCEEDING WITH DECOMMISSIONING EXISTING TANKS FARMS. ALL RESIDUE SHALL BE DISPOSED OF IAW APPLICABLE STATE, FEDERAL AND LOCAL LAWS AND ORDINANCE (SEE SPECIFICATIONS).
5. CONTRACTOR SHALL PROVIDE TEMPORARY FUEL STORAGE AND PIPING SYSTEMS AS NECESSARY TO PROVIDE UNINTERRUPTED FUEL STORAGE AND FUEL SUPPLY THROUGHOUT CONSTRUCTION. PROVIDE TEMPORARY FUEL SUPPLY PLAN TO OWNER FOR APPROVAL.

TANK FARM 3 DECOMMISSIONING/SALVAGE SCHEDULE

TANK I.D.	DIAMETER (FT-INCHES)	LENGTH (FT)	TANK ORIENTATION	TANK TYPE	PRODUCT	CAPACITY (GALLONS)	COMMENTS
TD6	11'-0"	42'-8"	VERTICAL	SINGLE WALL	DIESEL	25,000	DECOMMISSION
TD7	11'-0"	42'-8"	VERTICAL	SINGLE WALL	DIESEL	25,000	DECOMMISSION

DECOMMISSIONING NOTES:

(A) EXISTING TANKS TD6 AND TD7 SHALL BE DECOMMISSIONED. SEE SPECIFICATIONS FOR TANK DECOMMISSIONING REQUIREMENTS.

(B) DECOMMISSION ALL EXISTING ABOVE GRADE FUEL PIPING ASSOCIATED WITH TANKS SCHEDULED FOR DECOMMISSIONING WITHIN THE DIKED AREA INCLUDING TANK APPURTENANCES, FUEL SUPPLY/ISSUE PIPING, HEADERS, VALVES, PUMPS AND MANIFOLDS . FUEL PIPING AND COMPONENT LOCATIONS SHOWN ARE APPROXIMATE.

(C) DECOMMISSION ALL EXISTING INTERIOR FUEL PIPING COMPONENTS WITHIN RETAIL DISPENSER ENCLOSURE.

(D) TIMBER DIKE AND MEMBRANE LINER SHALL REMAIN IN PLACE.

DEMOLITION NOTES:

(E) DEMOLISH AND DISPOSE OF RETAIL DISPENSER ENCLOSURE, AND ALL ASSOCIATED ELECTRICAL AND MECHANICAL SYSTEMS.

UTILITY NOTES:

1. ALL UTILITY LOCATIONS SHOWN IN CONTRACT DRAWINGS ARE APPROXIMATE. **CONTRACTOR MUST FIELD LOCATE ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION.**

PHOTO 1, SUMMER 2025: TANK FARM 3 –OWNED BY THE CORP.–OLD RETAIL SALES TANK FARM.

1 **TANK FARM 3 CORP. DECOMMISSION PLAN**

SCALE: GRAPHIC

10' 0 10' 20'

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES

TANK FARM 3 CORP. DECOMMISSION PLAN

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed –
Drawn –
Approved –

Sheet No. G1.6

Plot Date: 4/14/2026 3:01 PM
File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Decomi Plan.dwg

GENERAL NOTES:

1. TANK FARM 4 DECOMMISSIONING/DEMO WORK SHALL NOT BEGIN UNTIL THE NEW SCHOOL TANK FARM IS OPERATIONAL.
2. PERFORM WALK THROUGH WITH TANK FARM OWNER/OWNER'S REP TO IDENTIFY ITEMS TO BE SALVAGED. CONTACTOR SHALL COORDINATE AS NECESSARY TO RELOCATE SALVAGED ITEMS TO APPROVED OFFSITE LOCATION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL TANK OWNERS PRIOR TO BEGINNING ANY DECOMMISSIONING/DEMOLITION WORK.SALVAGED ITEMS SHALL REMAIN TANK FARM OWNER'S PROPERTY & SHALL BE STORED BY THE CONTRACTOR AT THE TANK OWNER APPROVED LOCATION.
3. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM TANK OWNER PRIOR TO PROCEEDING WITH DECOMMISSIONING EXISTING TANKS FARMS. ALL RESIDUE SHALL BE DISPOSED OF IAW APPLICABLE STATE, FEDERAL AND LOCAL LAWS AND ORDINANCE (SEE SPECIFICATIONS).
4. CONTRACTOR SHALL PROVIDE TEMPORARY FUEL STORAGE AND PIPING SYSTEMS AS NECESSARY TO PROVIDE UNINTERRUPTED FUEL STORAGE AND FUEL SUPPLY THROUGHOUT CONSTRUCTION. PROVIDE TEMPORARY FUEL SUPPLY PLAN TO OWNER FOR APPROVAL.

TANK FARM 4 DECOMMISSIONING/SALVAGE SCHEDULE

TANK I.D.	DIAMETER (FT-INCHES)	LENGTH (FT)	TANK ORIENTATION	TANK TYPE	PRODUCT	CAPACITY (GALLONS)	COMMENTS
TD1	10'-2"	13'-7"	VERTICAL	STEEL DIKED	DIESEL	7,750	DECOMMISSION
TD2	9'-5"	13'-7"	VERTICAL	STEEL DIKED	DIESEL	7,000	DECOMMISSION
TD3	9'-10"	13'-8"	VERTICAL	STEEL DIKED	DIESEL	7,750	DECOMMISSION
TD4	9'-5"	13'-8"	VERTICAL	STEEL DIKED	DIESEL	8,500	DECOMMISSION
TD5	7'-4"	13'-2"	VERTICAL	STEEL DIKED	DIESEL	4,250	DECOMMISSION
TD6	8'-0"	13'-2"	VERTICAL	STEEL DIKED	DIESEL	5,000	DECOMMISSION
TD7	6'-4"	13'-2"	VERTICAL	STEEL DIKED	GASOLINE	3,000	DECOMMISSION
TD8	9'-4"	13'-7"	VERTICAL	STEEL DIKED	DIESEL	7,000	DECOMMISSION

PHOTO 1, TANK FARM 4 – OWNED BY THE SCHOOL DISTRICT.

DECOMMISSIONING NOTES:

(A) EXISTING TANKS TD1 THROUGH TD8 SHALL BE DECOMMISSIONED. SEE SPECIFICATIONS FOR TANK DECOMMISSIONING REQUIREMENTS.

(B) DECOMMISSION ALL EXISTING ABOVE GRADE FUEL PIPING ASSOCIATED WITH TANKS SCHEDULED FOR DECOMMISSIONING WITHIN THE DIKED AREA INCLUDING TANK APPURTENANCES, FUEL SUPPLY/ISSUE PIPING, VALVES, PUMPS AND MANIFOLDS . FUEL PIPING AND COMPONENT LOCATIONS SHOWN ARE APPROXIMATE.

(C) DECOMMISSION ALL EXISTING INTERIOR FUEL PIPING COMPONENTS WITHIN VALVE ENCLOSURE.

(D) ALL SUPPLY AND ISSUE PIPELINES OUTSIDE OF TANK FARM CONTAINMENT SHALL BE PURGED, CAPPED AND ABANDONED IN PLACE.

(E) TIMBER DIKE AND MEMBRANE LINER SHALL REMAIN IN PLACE.

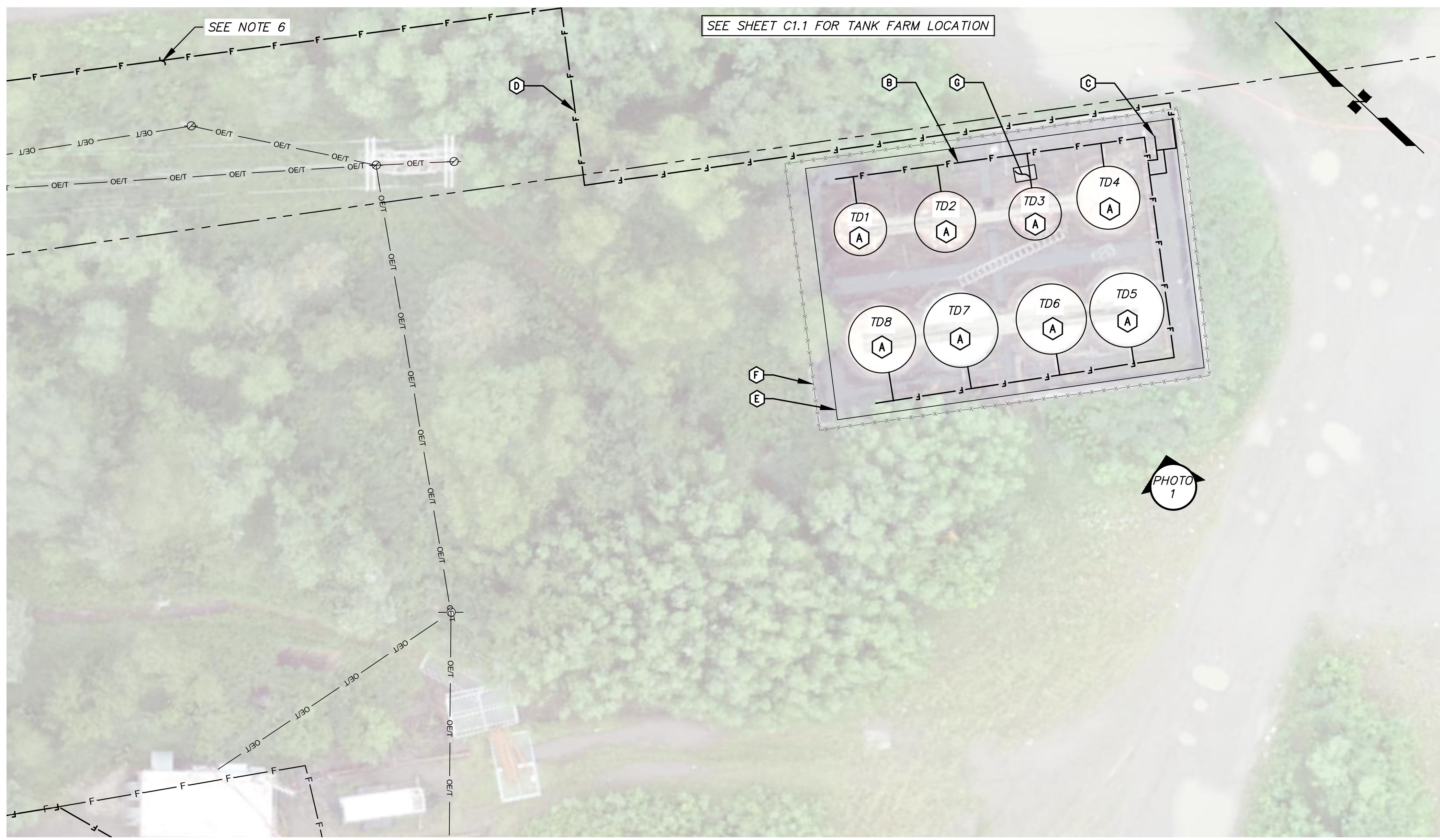
(F) DEMOLISH AND DISPOSE OF APPROXIMATELY 202 LF OF TANK FARM FENCE AND ALL TIMBER POSTS.

DEMOLITION NOTES:

(G) DEMOLISH AND DISPOSE OF VALVE ENCLOSURE, AND ALL EXISTING ELECTRICAL COMPONENTS INCLUDING FUEL CONTROLS.

UTILITY NOTES:

1. ALL UTILITY LOCATIONS SHOWN IN CONTRACT DRAWINGS ARE APPROXIMATE. **CONTRACTOR MUST FIELD LOCATE ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION.**



1 **TANK FARM 4 SCHOOL DECOMISSION PLAN**

SCALE: GRAPHIC

10' 0 10' 20'

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Deccomi Plan.dwg Plot Date: 4/14/2026 3:01 PM

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES

TANK FARM 4 SCHOOL DECOMISSION PLAN

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed —
Drawn —
Approved —

Sheet No. G1.7

TANK FARM 5 DECOMMISSIONING/SALVAGE SCHEDULE							
TANK I.D.	DIAMETER (FT–INCHES)	LENGTH (FT)	TANK ORIENTATION	TANK TYPE	PRODUCT	CAPACITY (GALLONS)	COMMENTS
TD1	10'–5"	13'–0"	VERTICAL	STEEL DIKED	DIESEL	8,500	DECOMMISSION
TD2	11'–0"	13'–0"	VERTICAL	STEEL DIKED	DIESEL	9,250	DECOMMISSION
TD3	10'–0"	13 3/8–0 1/2	VERTICAL	STEEL DIKED	DIESEL	7,500	DECOMMISSION
TD4	10'–5"	13'–0"	VERTICAL	STEEL DIKED	DIESEL	8,500	DECOMMISSION
TD5	8'–5"	13'–0"	VERTICAL	STEEL DIKED	DIESEL	5,500	DECOMMISSION
TD6	10'–0"	13 3/8–0 1/2	VERTICAL	STEEL DIKED	DIESEL	7,500	DECOMMISSION
TD7	10'–0"	13 3/8–0 1/2	VERTICAL	STEEL DIKED	DIESEL	7,500	DECOMMISSION
TD8	11'–0"	13'–0"	VERTICAL	STEEL DIKED	DIESEL	9,250	DECOMMISSION
TD9	11–0"	13'–0"	VERTICAL	STEEL DIKED	DIESEL	9,250	DECOMMISSION
TD10	10'–5"	13 3/8–0 1/2	VERTICAL	STEEL DIKED	DIESEL	8,500	DECOMMISSION

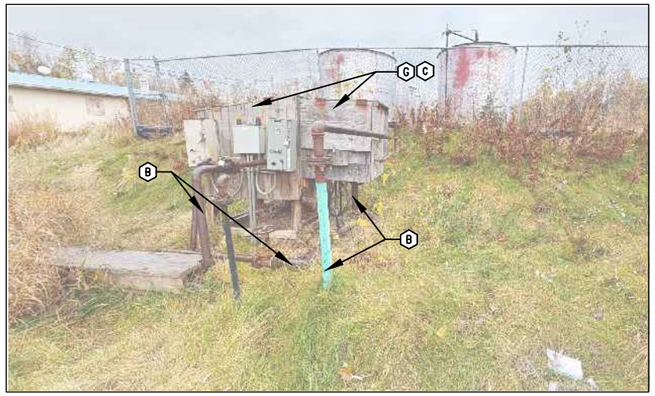


PHOTO 1, HIGH SCHOOL TANK FARM: FUEL TRANSFER PUMP ENCLOSURE

PHOTO 2, HIGH SCHOOL TANK FARM: DRONE AERIAL

GENERAL NOTES:

1. TANK FARM 5 DECOMMISSIONING/DEMO WORK SHALL NOT BEGIN UNTIL THE NEW SCHOOL TANK FARM IS OPERATIONAL.
2. PERFORM WALK THROUGH WITH TANK FARM OWNER/OWNER'S REP TO IDENTIFY ITEMS TO BE SALVAGED. CONTACTOR SHALL COORDINATE AS NECESSARY TO RELOCATE SALVAGED ITEMS TO APPROVED OFFSITE LOCATION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL TANK OWNERS PRIOR TO BEGINNING ANY DECOMMISSIONING/DEMOLITION WORK.
3. SALVAGED ITEMS SHALL REMAIN OWNER'S PROPERTY & SHALL BE STORED BY THE CONTRACTOR AT THE TANK OWNER APPROVED LOCATION.
4. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM TANK OWNER PRIOR TO PROCEEDING WITH DECOMMISSIONING EXISTING TANKS FARMS. ALL RESIDUE SHALL BE DISPOSED OF IAW APPLICABLE STATE, FEDERAL AND LOCAL LAWS AND ORDINANCE (SEE SPECIFICATIONS).
5. CONTRACTOR SHALL PROVIDE TEMPORARY FUEL STORAGE AND PIPING SYSTEMS AS NECESSARY TO PROVIDE UNINTERRUPTED FUEL STORAGE AND FUEL SUPPLY THROUGHOUT CONSTRUCTION. PROVIDE TEMPORARY FUEL SUPPLY PLAN TO OWNER FOR APPROVAL.

DECOMMISSIONING NOTES:

(A) EXISTING TANKS TD1, THRU TD10 SHALL BE DECOMMISSIONED. SEE SPECIFICATIONS FOR TANK DECOMMISSIONING REQUIREMENTS.

(B) DECOMMISSION ALL EXISTING ABOVE GRADE FUEL PIPING ASSOCIATED WITH TANKS SCHEDULED FOR DECOMMISSIONING WITHIN THE DIKED AREA INCLUDING TANK APPURTENANCES, FUEL SUPPLY/ISSUE PIPING, VALVES, PUMPS AND MANIFOLDS . FUEL PIPING AND COMPONENT LOCATIONS SHOWN ARE APPROXIMATE.

(C) DECOMMISSION ALL EXISTING INTERIOR FUEL PIPING COMPONENTS WITHIN TRANSFER PUMP ENCLOSURE.

(D) ALL SUPPLY AND ISSUE PIPELINES OUTSIDE OF TANK FARM CONTAINMENT SHALL BE PURGED, CAPPED AND ABANDONED IN PLACE.

(E) WOODED PLANKS & LINER SHALL REMAIN IN PLACE.

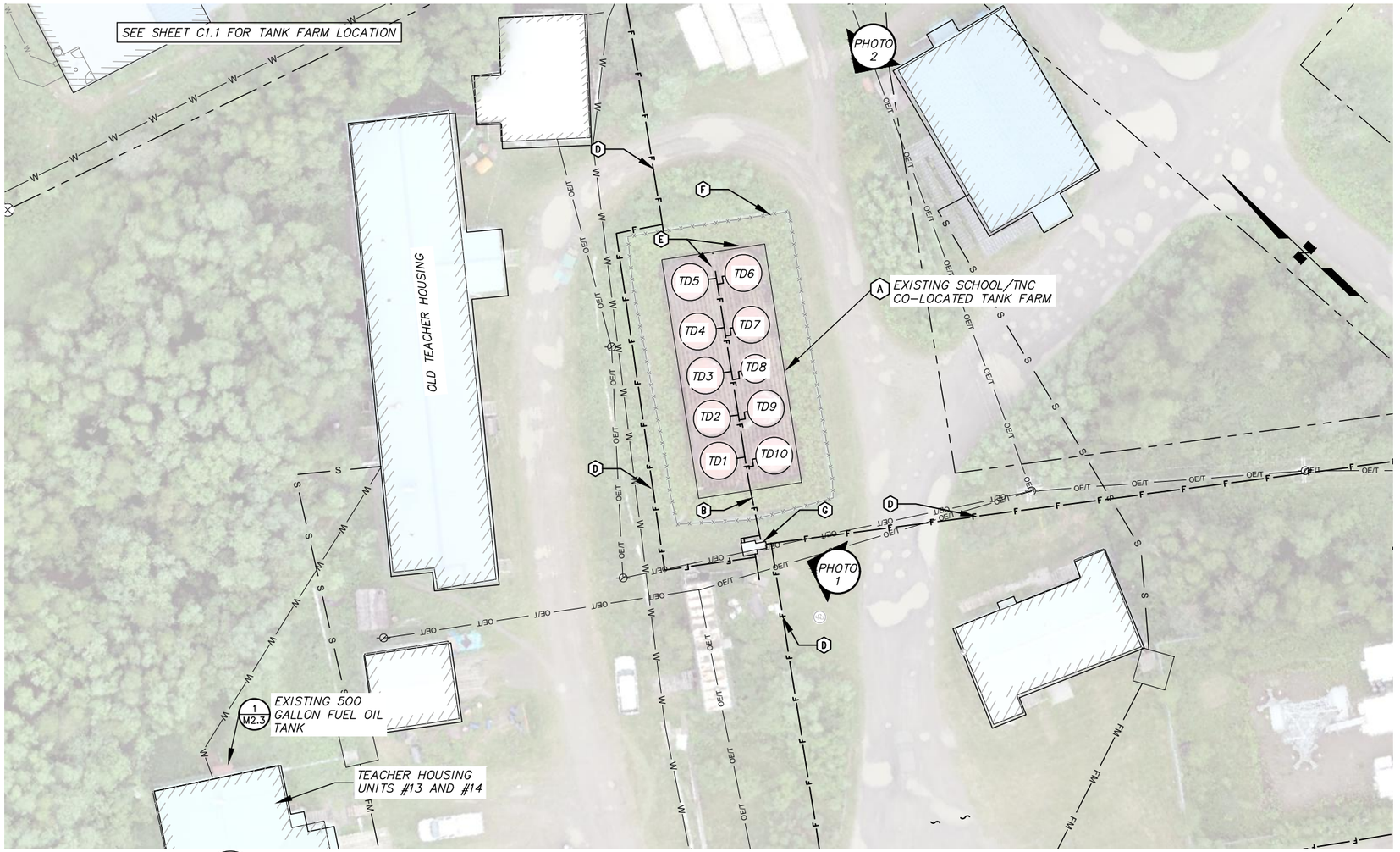
(F) DEMOLISH AND DISPOSE OF APPROXIMATELY 282 LF OF TANK FARM FENCE AND ALL TIMBER POSTS.

DEMOLITION NOTES:

(G) DEMOLISH AND DISPOSE OF VALVE ENCLOSURE, AND ALL EXISTING ELECTRICAL COMPONENTS INCLUDING FUEL CONTROLS.

UTILITY NOTES:

1. ALL UTILITY LOCATIONS SHOWN IN CONTRACT DRAWINGS ARE APPROXIMATE. **CONTRACTOR MUST FIELD LOCATE ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION.**



1 **TANK FARM 5 SCHOOL DECOMISSION PLAN**

SCALE: GRAPHIC

10' 0 10' 20'

ALASKA ENERGY AUTHORITY

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

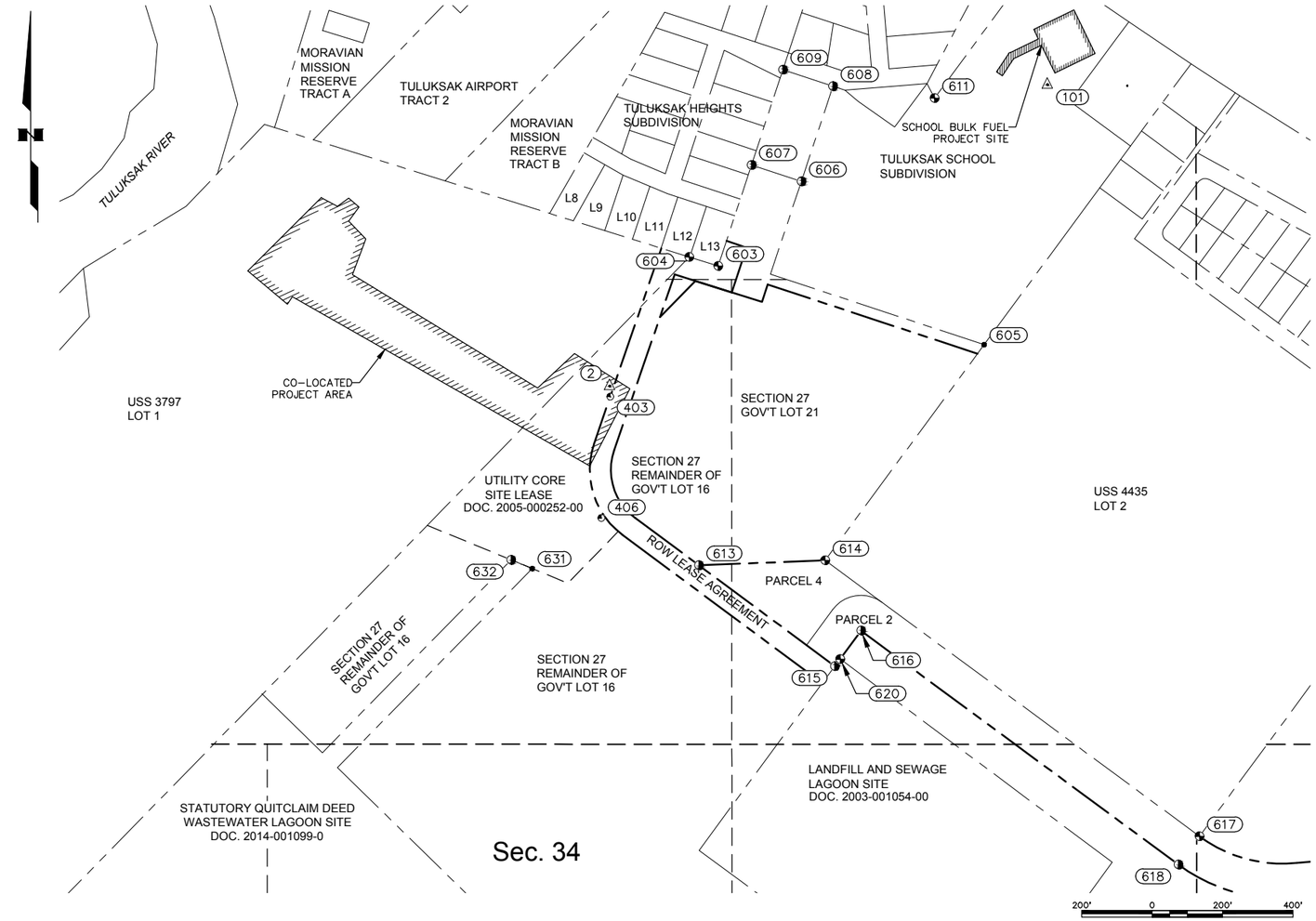
TULUKSAK BULK FUEL UPGRADES
TANK FARM 5 SCHOOL DECOMISSION PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed —
Drawn —
Approved —

Sheet No. G1.8

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Decconi Plan.dwg Plot Date: 4/14/2026 3:01 PM



HORIZONTAL CONTROL STATEMENT

FOR THIS PROJECT CRW CREATED A CUSTOM LOCAL LOW DISTORTION PROJECTION (LDP) SURFACE GRID COORDINATE SYSTEM. THIS LDP WAS USED FOR THE TULUKSAK WATER TREATMENT PLANT & WASHETERIA PROJECT.

CRW ESTABLISHED THE BASIS OF COORDINATES BY A MULTIPLE DAY STATIC GPS OPUS SOLUTION ON CRW #101, A 12" NAIL SET AT GROUND SURFACE. ALL OTHER CONTROL POINTS WERE MEASURED BY RAPID STATIC OR REDUNDANT RTK MEASUREMENTS AND POST PROCESSED WITH LEICA INFINITY SOFTWARE, VERSION 3.2.
** POINT 101 HAS BEEN DESTROYED AND IS ONLY BEING SHOWN FOR REFERENCE.**

OPUS SOLUTION VALUES OF #101 ARE:

NAD 83 (2011)	STATE PLANE ZONE 7 GRID COORDINATES
LATITUDE: 61° 05' 56.38484" N	NORTHING: 2,595,069.617'
LONGITUDE: 160° 57' 20.99527" W	EASTING:1,825,173.820'

NGS BASE STATIONS USED FOR GPS POST PROCESSING

PID	DESIGNATION	LATITUDE	LONGITUDE
DK4091	BET1 BETHEL WAAS CORS ARP	60° 47' 16.508" N	161° 50' 30.124" W
DL6432	AB25 TATALINA AK2008 CORS ARP	62° 55' 45.524" N	156° 01' 24.113" W
DL6426	AB14 DILLINGHAMAK2007 CORS ARP	59° 06' 29.405" N	159° 05' 29.431" W

CRW LOCAL COORDINATE SYSTEM INFORMATION AND LDP PARAMETERS:

NAME:	AK83 TULUKSAK GRS80
LINEAR UNIT:	US SURVEY FEET
GEODETIC DATUM:	NAD83(2011)
ELLIPSOID:	GRS80
PROJECTION:	TRANSVERSE MERCATOR
LATITUDE OF ORIGIN:	61° 05' 57.00" N
CENTRAL MERIDIAN:	160° 57' 21.00" W
FALSE NORTHING:	50,000.00
FALSE EASTING:	30,000.00
SCALE FACTOR :	1.0000034

ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED TO MINIMIZE THE DIFFERENCE BETWEEN PROJECTED (GRID) DISTANCES AND HORIZONTAL ("GROUND") DISTANCES AT THE TOPOGRAPHIC SURFACE WITHIN THE DESIGN AREA OF THIS COORDINATE SYSTEM.

THE BASIS OF BEARINGS IS GEODETIC NORTH. (NOTE: THE GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

VERTICAL CONTROL STATEMENT

THE BASIS OF THE VERTICAL DATUM USED FOR THIS PROJECT IS NAVD88 AS COMPUTED BY GEOID06.

THIS DATUM WAS BASED ON CRW PT #603 THAT WAS PREVIOUSLY DETERMINED TO HAVE AN ELEVATION OF 30.77' NAVD88 (GEOID06) AS SHOWN ON THE TULUKSAK AIRPORT RELOCATION PROJECT, RECORD OF SURVEY(ROS), PLAT 2007-1, BRD. PER PLAT 2007-1, VERTICAL DATUM IS BASED ON STATIC GPS WITH TWO AVERAGED OPUS SOLUTIONS ON ROS PT #551, PACS "TLT A" (CRW PT.#619). THE ELEVATION WAS TRANSFERRED TO ROS PT #704 (CRW PT #603) BY CLOSED DIFFERENTIAL LEVELS FROM "TLT A".

AT THE TIME OF CRW FIELD SURVEY, PT #619 "TLT A" WAS FOUND 0.7' ABOVE GRADE AND BE OUT OF VERTICAL POSITION FROM THE VALUE SHOWN ON THE ROS. THE ELEVATION ON PT# 619 REFLECTS THE CRW MEASURED VALUE.

DATUM NOTE: TO CONVERT FROM GEOID06 TO GEOID12B DATUMS, ADD 1.30' TO ELEVATIONS SHOWN.

FLOOD NOTE: CORRELATION BETWEEN GEOID06 ELEVATIONS TO U.S. ARMY CORP. OF ENGINEERS (USACE) FLOOD DATA. BASED ON R&M'S PLAT 2007-1, TWO OF USACE TULUKSAK FLOOD ELEVATIONS (HIGH WATER MARKS) WERE FIELD VERIFIED TO COMPUTE THE FOLLOWING CORRELATIONS.

1) GEOID 06 ELEVATION 37.8' = 3.9' RECORD FLOOD ELEVATION
2) GEOID 06 ELEVATION 39.8' = 5.9' RECOMMENDED BUILDING ELEVATION
3) GEOID 06 ELEVATION 33.9' = 0.0 BASE ELEVATION

HORIZONTAL CONTROL

POINT #	NORTHING	EASTING	LATITUDE	LONGITUDE	DESCRIPTION
2	49,081.663	28,756.992	N61° 05' 47.9563"	W160° 57' 46.2846"	SET 2" ALCAP CRW CNTL
101	49,937.530	30,000.232	N61° 05' 56.3848"	W160° 57' 20.9953"	SET 12" SPIKE - DISTROYED
601 *	48,814.554	31,176.871	N61° 05' 45.3261"	W160° 56' 57.0613"	3 1/4" BRASS CAP
602 *	49,269.956	31,183.469	N61° 05' 49.8105"	W160° 56' 56.9261"	1 1/2" PLASTIC CAP
603	49,422.439	29,064.783	N61° 05' 51.3123"	W160° 57' 40.0242"	3 1/4" BRASS CAP
604	49,448.178	28,982.521	N61° 05' 51.5657"	W160° 57' 41.6977"	3 1/4" BRASS CAP
605	49,198.960	29,819.821	N61° 05' 49.1120"	W160° 57' 24.6651"	2 1/2" IRON POST
606	49,662.733	29,300.910	N61° 05' 53.6787"	W160° 57' 35.2212"	2" ALCAP
607	49,709.430	29,159.306	N61° 05' 54.1384"	W160° 57' 38.1018"	2" ALCAP
608	49,933.090	29,390.834	N61° 05' 56.3410"	W160° 57' 33.3922"	2" ALCAP
609	49,980.080	29,248.339	N61° 05' 56.8036"	W160° 57' 36.2910"	2" ALCAP

HORIZONTAL CONTROL

POINT #	NORTHING	EASTING	LATITUDE	LONGITUDE	DESCRIPTION
611	49,899.437	29,679.455	N61° 05' 56.0097"	W160° 57' 27.5208"	3 1/4" BRASS CAP
613	48,572.648	29,009.793	N61° 05' 42.9442"	W160° 57' 41.1414"	3 1/4" ALCAP
614	48,586.410	29,368.429	N61° 05' 43.0800"	W160° 57' 33.8465"	3 1/4" BRASS CAP
615	48,286.212	29,396.118	N61° 05' 40.1239"	W160° 57' 33.2830"	3 1/4" ALCAP
616	48,387.171	29,470.226	N61° 05' 41.1181"	W160° 57' 31.7757"	3 1/4" ALCAP
617	47,803.130	30,431.659	N61° 05' 35.3669"	W160° 57' 12.2204"	3 1/4" BRASS CAP
618	47,722.666	30,371.736	N61° 05' 34.5746"	W160° 57' 13.4392"	3 1/4" ALCAP
619 *	46,098.580	36,073.106	N61° 05' 18.5663"	W160° 55' 17.4961"	3 1/4" BRASS CAP - PACS TAT A
620	48,306.390	29,411.084	N61° 05' 40.3226"	W160° 57' 32.9786"	2 1/2" BRASS CAP
631	48,563.158	28,536.477	N61° 05' 42.8503"	W160° 57' 50.7688"	5/8" REBAR
632	48,587.921	28,476.342	N61° 05' 43.0940"	W160° 57' 51.9921"	2" ALCAP

* DENOTES NOT SHOWN WITHIN VIEW PORT.

VERTICAL CONTROL

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
403	49,051.12	28,757.86	31.69	FOUND TBM SPIKE IN POWER POLE
406	48,706.92	28,732.77	31.84	FOUND TBM SPIKE IN POWER POLE
603	49,422.44	29,064.78	30.77	3 1/4" BRASS CAP
611	49,899.44	29,679.46	34.28	3 1/4" BRASS CAP
619 *	46,098.58	36,073.11	30.31	3 1/4" BRASS CAP - PACS TAT A

GENERAL NOTES

1. ALL COORDINATES AND DIMENSIONS SHOWN ARE IN U.S. SURVEY FEET.
2. A FIELD SURVEY FOR BULK FUEL UPGRADE PROJECT WAS CONDUCTED IN JUNE 24-25, 2025 BY CRW ENGINEERING GROUP, INC.

LEGEND

- FOUND ALUMINUM CAP
- FOUND BRASS CAP
- FOUND REBAR OR IRON POST
- TEMPORARY BENCH MARK
- CONTROL SET BY CRW
- (500) CONTROL POINT NUMBER

1 SURVEYCONTROL
SCALE: 1: 200

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL LAND SURVEYOR Robert W. Wibbs LS-12319 4/15/26

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

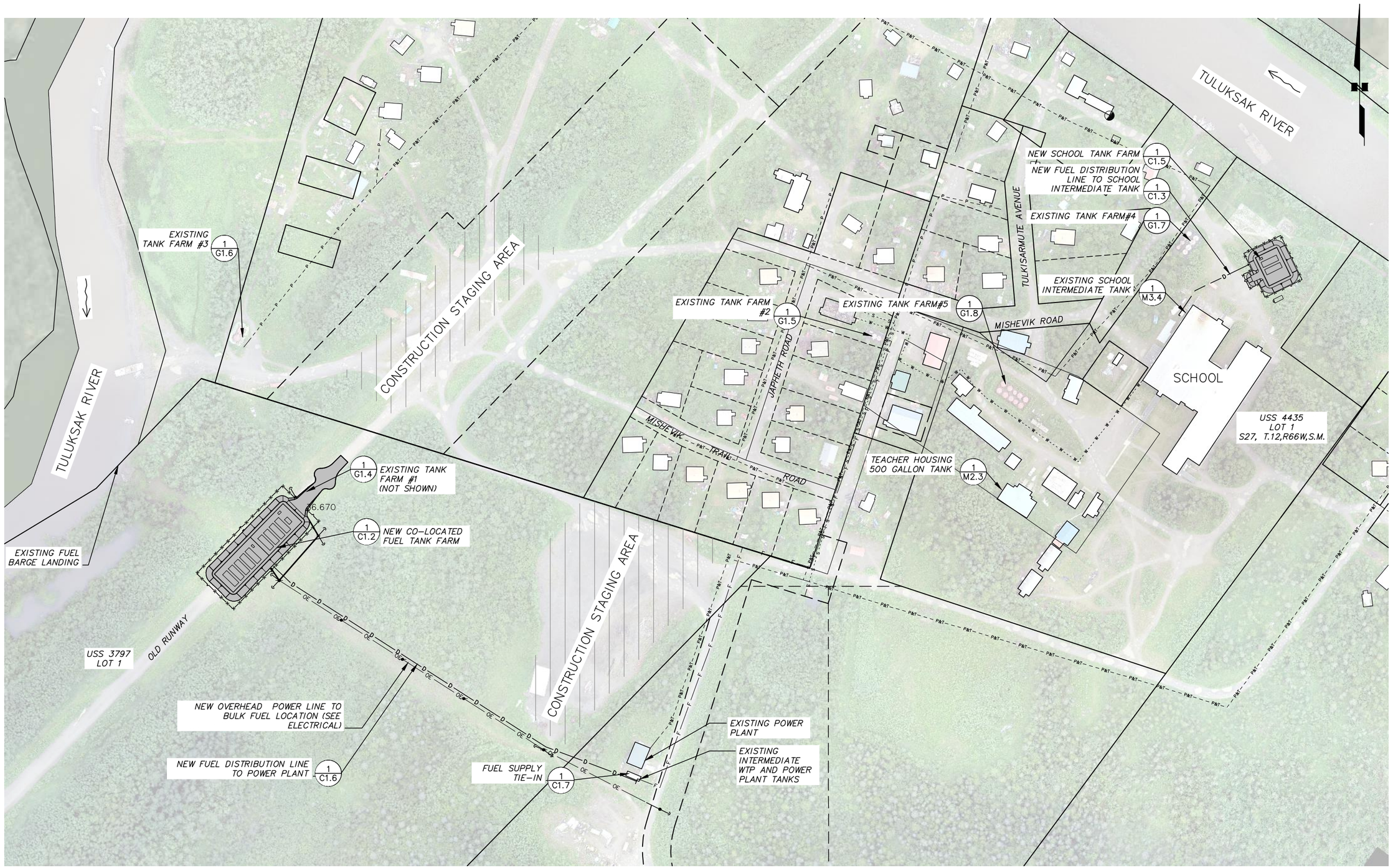
TULUKSAK BULK FUEL UPGRADES
SURVEY CONTROL
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26 | Designed | Drawn | Approved

Sheet No. G1.9

File: J:\JobsData\30422.02 AEA - Tuluksak BFU Phase 2 Design\00 CADD\01 Working Set\02 Survey\03 Survey Control\30422.02 - SCS.dwg Plot Date: 4/15/2026 11:10 AM



1 **PROJECT VICITY MAP**

100' 0 100' 200'

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — REGISTERED PROFESSIONAL ENGINEER — Alexander C. Arends — CE-12328 — 04/14/26

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

TULUKSAK BULK FUEL UPGRADES
VICINITY MAP
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed —
Drawn —
Approved —

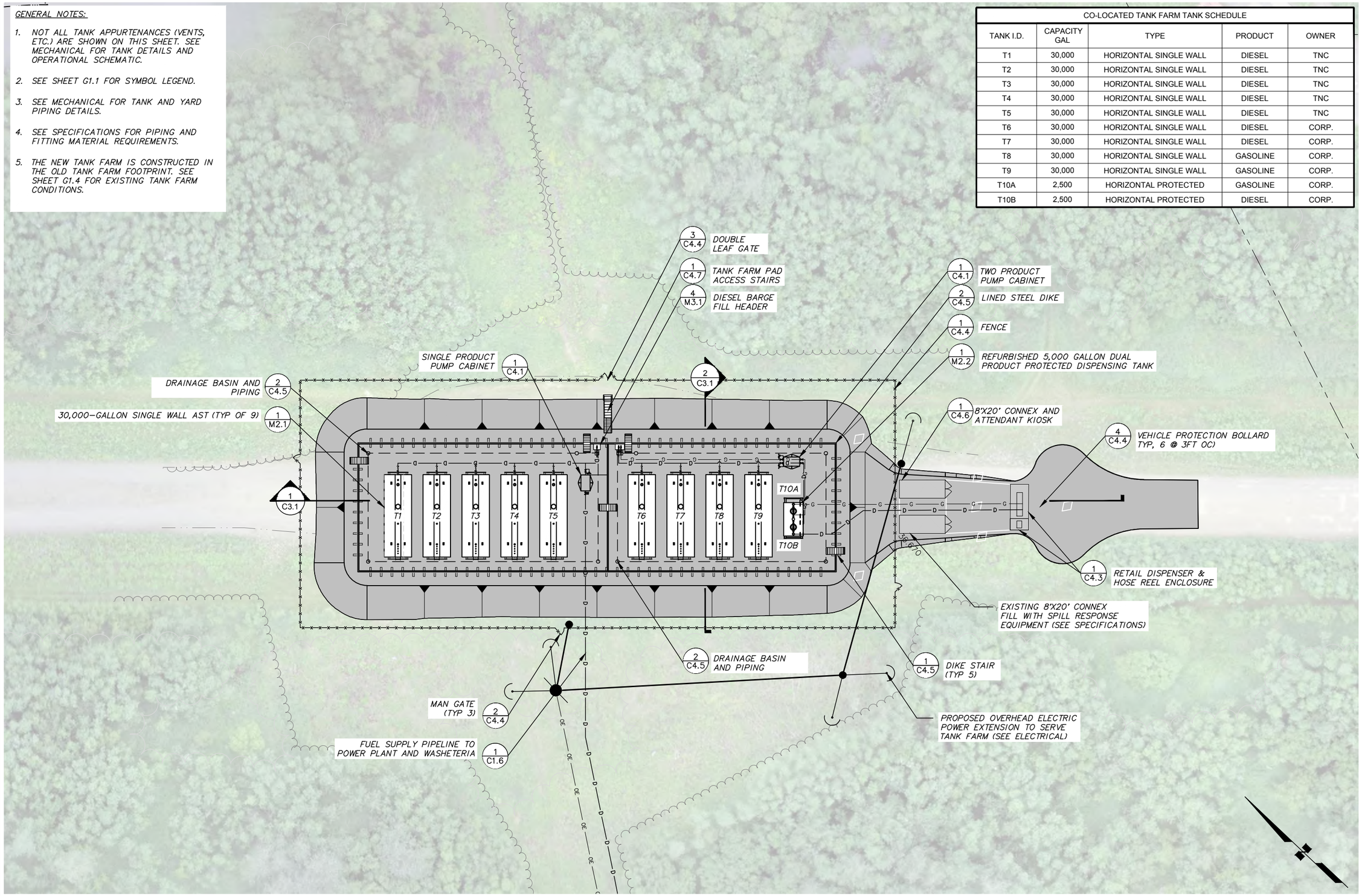
Sheet No. C1.1

File: J:\Jobs\Data\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\00 General\30422.02 PROJECT VICINITY MAP.dwg Plot Date: 4/14/2026 3:02 PM

GENERAL NOTES:

1. NOT ALL TANK APPURTENANCES (VENTS, ETC.) ARE SHOWN ON THIS SHEET. SEE MECHANICAL FOR TANK DETAILS AND OPERATIONAL SCHEMATIC.
2. SEE SHEET G1.1 FOR SYMBOL LEGEND.
3. SEE MECHANICAL FOR TANK AND YARD PIPING DETAILS.
4. SEE SPECIFICATIONS FOR PIPING AND FITTING MATERIAL REQUIREMENTS.
5. THE NEW TANK FARM IS CONSTRUCTED IN THE OLD TANK FARM FOOTPRINT. SEE SHEET G1.4 FOR EXISTING TANK FARM CONDITIONS.

CO-LOCATED TANK FARM TANK SCHEDULE				
TANK I.D.	CAPACITY GAL	TYPE	PRODUCT	OWNER
T1	30,000	HORIZONTAL SINGLE WALL	DIESEL	TNC
T2	30,000	HORIZONTAL SINGLE WALL	DIESEL	TNC
T3	30,000	HORIZONTAL SINGLE WALL	DIESEL	TNC
T4	30,000	HORIZONTAL SINGLE WALL	DIESEL	TNC
T5	30,000	HORIZONTAL SINGLE WALL	DIESEL	TNC
T6	30,000	HORIZONTAL SINGLE WALL	DIESEL	CORP.
T7	30,000	HORIZONTAL SINGLE WALL	DIESEL	CORP.
T8	30,000	HORIZONTAL SINGLE WALL	GASOLINE	CORP.
T9	30,000	HORIZONTAL SINGLE WALL	GASOLINE	CORP.
T10A	2,500	HORIZONTAL PROTECTED	GASOLINE	CORP.
T10B	2,500	HORIZONTAL PROTECTED	DIESEL	CORP.



1 **CO-LOCATED TANK FARM SITE PLAN**
SCALE: GRAPHIC

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
CO-LOCATED TANK FARM SITE PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed –
Drawn –
Approved –

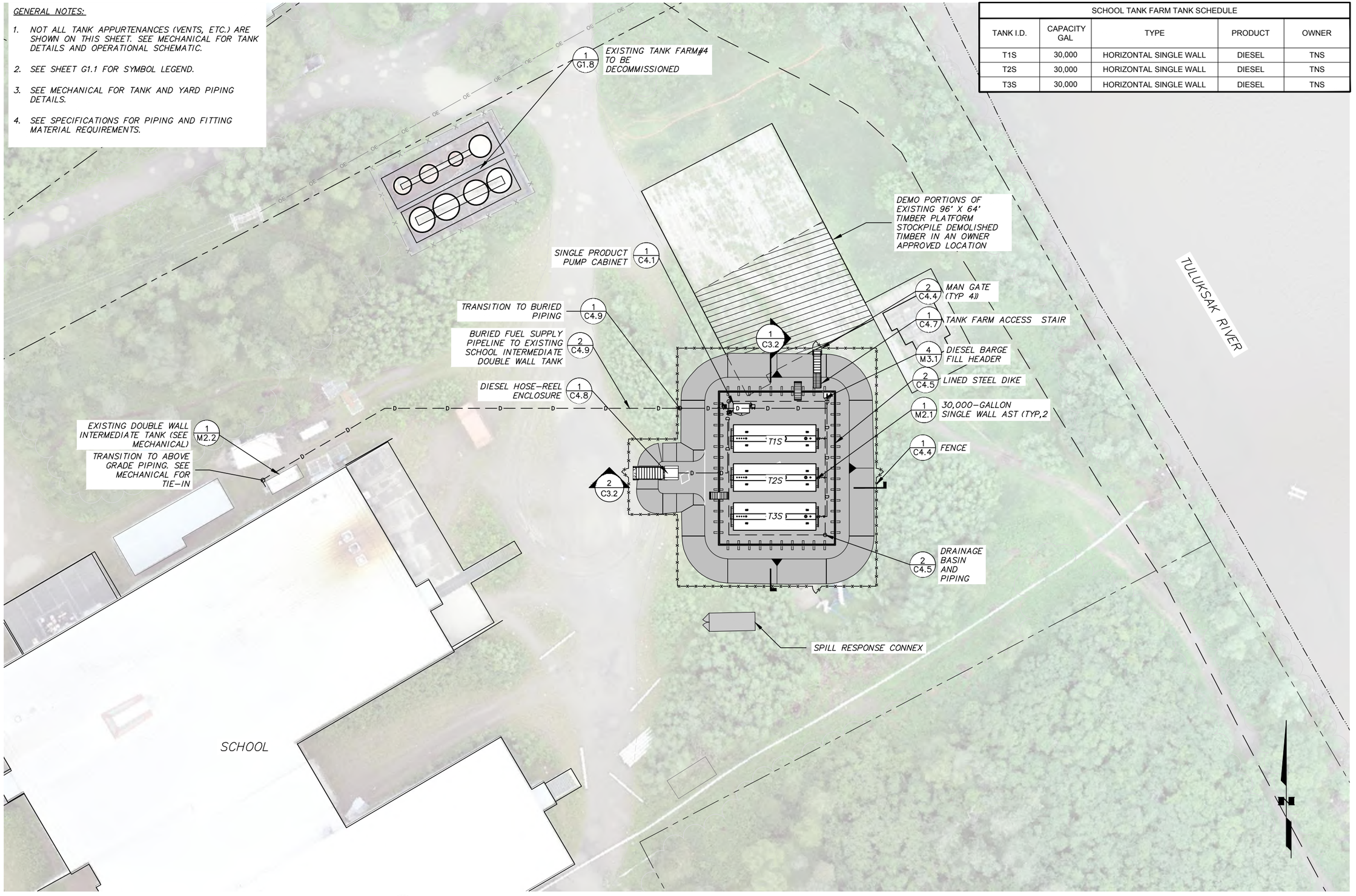
Sheet No. C1.2

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Site Plan.dwg Plot Date: 4/14/2026 3:03 PM

GENERAL NOTES:

1. *NOT ALL TANK APPURTENANCES (VENTS, ETC.) ARE SHOWN ON THIS SHEET. SEE MECHANICAL FOR TANK DETAILS AND OPERATIONAL SCHEMATIC.*
2. *SEE SHEET G1.1 FOR SYMBOL LEGEND.*
3. *SEE MECHANICAL FOR TANK AND YARD PIPING DETAILS.*
4. *SEE SPECIFICATIONS FOR PIPING AND FITTING MATERIAL REQUIREMENTS.*

SCHOOL TANK FARM TANK SCHEDULE				
TANK I.D.	CAPACITY GAL	TYPE	PRODUCT	OWNER
T1S	30,000	HORIZONTAL SINGLE WALL	DIESEL	TNS
T2S	30,000	HORIZONTAL SINGLE WALL	DIESEL	TNS
T3S	30,000	HORIZONTAL SINGLE WALL	DIESEL	TNS



1 **SCHOOL TANK FARM SITE PLAN**
SCALE: GRAPHIC

20' 0 20' 40'

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
SCHOOL TANK FARM SITE PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed —
Drawn —
Approved —

Sheet No. C1.3

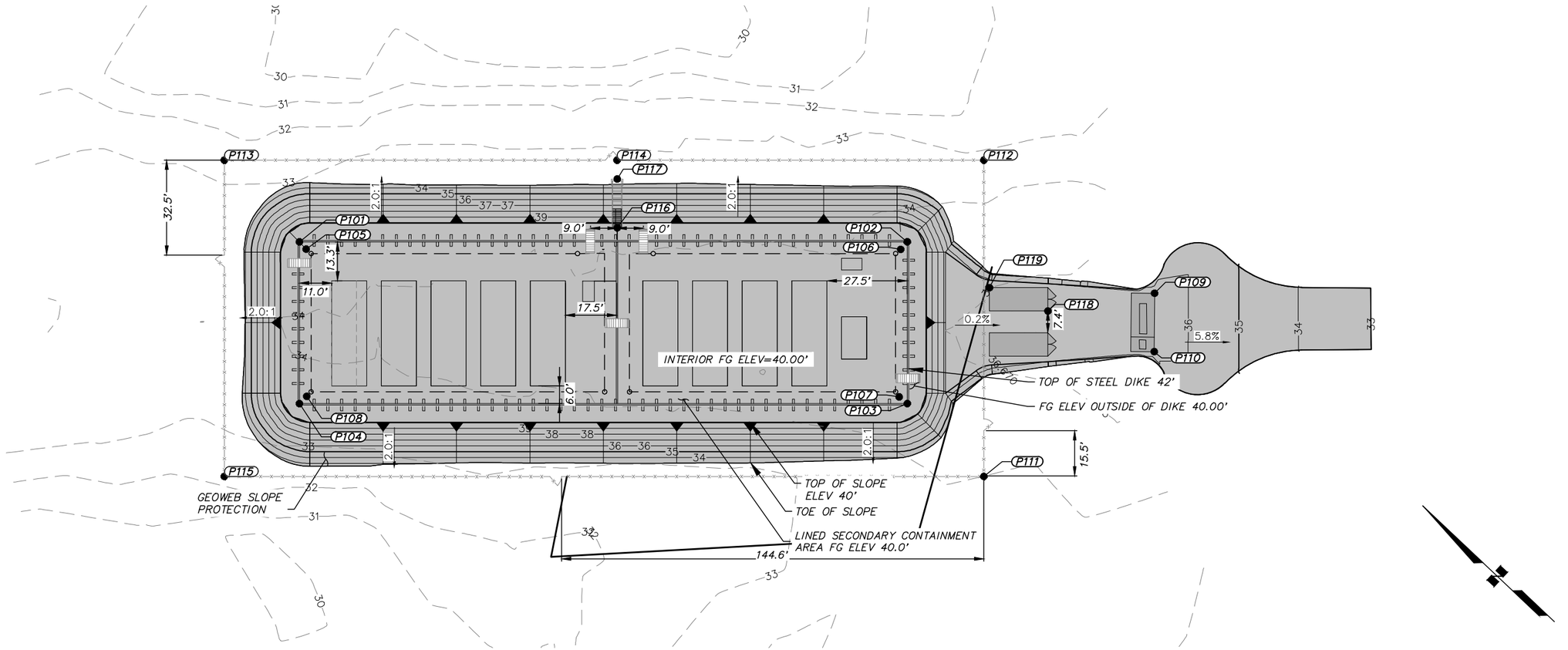
File: J:\Jobs\Data\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Site Plan.dwg Plot Date: 4/14/2026 3:04 PM

PAD CONSTRUCTION SEQUENCE:

1. *DECOMMISSION EXISTING TANK FARM, SEE DECOMMISSIONING PLAN. REMOVE TANKS AND DEBRIS FROM WITHIN THE PAD FOOTPRINT.*
2. *EXCAVATE TO REMOVE OF SURFACE ORGANICS (APPROX 12"). PROOF COMPACT THE INSITU SOILS BENEATH THE TANK FARM. REPORT ANY UNDESIRABLE MATERIAL OR SOFT SPOTS TO THE ENGINEER PRIOR TO BACKFILLING.*
3. *PLACE GEOTEXTILE OVER OVER EXCAVATED AREA.*
4. *PLACE AND COMPACT CLASSIFIED FILL MATERIAL TO THE ELEVATION AND GRADES SHOWN ON THE GRADING PLAN AND TYPICAL SECTIONS.*
5. *INSTALL JUTE-MAT ON SIDE SLOPES AND APPLY SEED AND FERTILIZER IN ACCORDANCE WITH SPECIFICATIONS..*
6. *INSTALL STEEL CONTAINMENT LINER SYSTEM, DRAIN PIPE, SUMPS, AND CONTAINMENT FILL IAW PROJECT SPECIFICATIONS AND MANUFACTURE'S RECOMMENDATIONS.*

CO-LOCATED TANK FARM TANK GRADING POINTS

NUMBER	ELEVATION	NORTHING	EASTING	DESCRIPTION
101	40.000'	49411.0565'	27803.5204'	DIKE WALL CORNER
102	40.000'	49559.9224'	27948.8297'	DIKE WALL CORNER
103	40.000'	49521.2766'	27988.4223'	DIKE WALL CORNER
104	40.000'	49372.4094'	27843.1143'	DIKE WALL CORNER
105	40.000'	49410.9553'	27806.9141'	COLOCATED PAD CORNER R=10.0'
106	40.000'	49556.5104'	27949.0470'	COLOCATED PAD CORNER R=10.0'
107	40.000'	49520.8803'	27984.8913'	COLOCATED PAD CORNER R=10.0'
108	40.000'	49375.9447'	27843.0715'	COLOCATED PAD CORNER R=10.0'
109	36.400'	49608.2284'	28020.5546'	COLOCATED DISPENSER CORNER
110	36.400'	49594.1574'	28034.7676'	COLOCATED DISPENSER CORNER
111	33.995'	49522.5795'	28024.5930'	FENCE CORNER
112	33.281'	49598.2094'	27947.1104'	FENCE CORNER
113	32.544'	49412.2058'	27765.5508'	FENCE CORNER
114	33.186'	49508.3914'	27859.4383'	SWING GATE, CENTER OF
115	32.178'	49336.5742'	27843.0348'	FENCE CORNER
116	40.000'	49492.2349'	27876.0408'	ACCESS STAIR, TOP
117	33.335'	49503.9005'	27864.0789'	ACCESS STAIR, BOTTOM
118	36.670'	49577.8280'	27999.3503'	CONNEX CORNER
119	36.670'	49569.1040'	27979.6553'	CONNEX CORNER



1 **CO-LOCATED TANK FARM GRADING PLAN**
GRAPHIC

20' 0 20' 40'

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — REGISTERED PROFESSIONAL ENGINEER — Alexander C. Adams — CE-12328 — 04/14/26

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

TULUKSAK BULK FUEL UPGRADES
CO-LOCATED TANK FARM GRADING PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

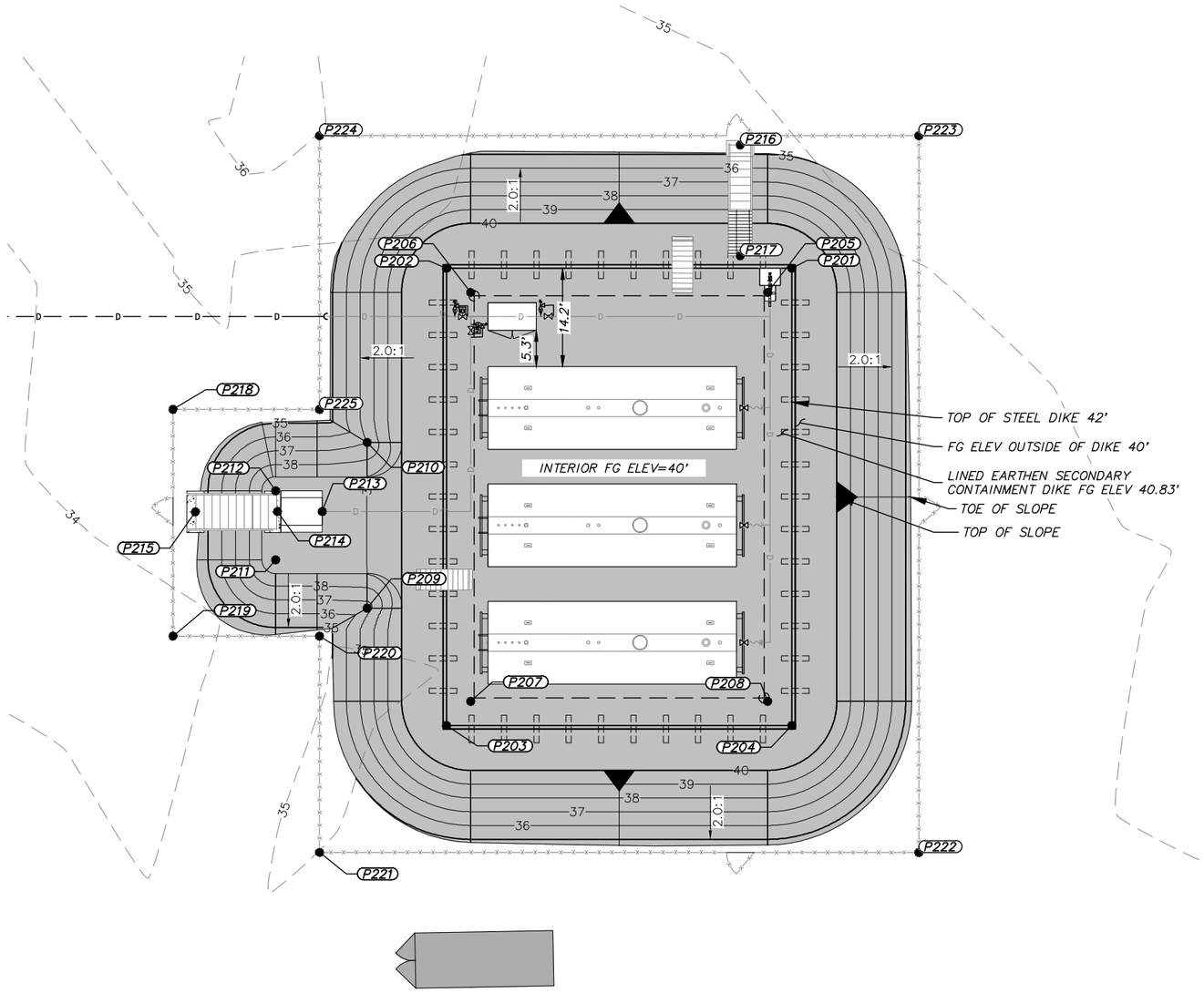
Plot Date 4/14/26
Designed –
Drawn –
Approved –

Sheet No. C1.4

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Grading Plan.dwg Plot Date: 4/14/2026 3:04 PM

PAD CONSTRUCTION SEQUENCE:

1. REMOVE AND DISPOSE OF ANY EXISTING DEBRIS FROM WITHIN THE PAD FOOTPRINT.
2. EXCAVATE TO REMOVE SURFACE ORGANICS (APPROX 12"). PROOF COMPACT THE INSITU SOILS BENEATH THE TANK FARM. REPORT ANY UNDESIRABLE MATERIAL OR SOFT SPOTS TO THE ENGINEER PRIOR TO BACKFILLING.
3. PLACE GEOTEXTILE OVER OVER EXCAVATED AREA.
4. PLACE AND COMPACT CLASSIFIED FILL MATERIAL TO THE ELEVATION AND GRADES SHOWN ON THE GRADING PLAN AND TYPICAL SECTIONS.
5. INSTALL JUTE-MAT ON SIDE SLOPES AND APPLY SEED AND FERTILIZER IN ACCORDANCE WITH SPECIFICATIONS..
6. INSTALL STEEL CONTAINMENT LINER SYSTEM, DRAIN PIPE SUMPS, AND CONTAINMENT FILL IAW PROJECT SPECIFICATIONS AND MANUFACTURE'S RECOMMENDATIONS.



SCHOOL TANK FARM TANK GRADING POINTS				
NUMBER	ELEVATION	NORTHING	EASTING	DESCRIPTION
201	40.000'	50103.1869'	30054.8877'	DIKE WALL CORNER
202	40.000'	50081.3632'	30009.9008'	DIKE WALL CORNER
203	40.000'	50021.7878'	30038.8020'	DIKE WALL CORNER
204	40.000'	50043.6108'	30083.7872'	DIKE WALL CORNER
205	40.000'	50098.5094'	30053.2646'	PAD CORNER R=10.0'
206	40.000'	50079.7418'	30014.5775'	PAD CORNER R=10.0'
207	40.000'	50026.4645'	30040.4235'	PAD CORNER R=10.0'
208	40.000'	50045.2322'	30079.1106'	PAD CORNER R=10.0'
209	40.000'	50032.0610'	30021.0366'	PAD CORNER, R= 5'
210	40.000'	50053.6543'	30010.5612'	PAD CORNER, R= 5'
211	38.900'	50032.5714'	30006.0509'	PAD CORNER, R= 2'
212	38.900'	50041.5685'	30001.6861'	PAD CORNER, R= 2'
213	38.900'	50041.8230'	30009.0840'	HOSE REEL ENCLOSURE
214	38.900'	50038.9944'	30003.2461'	ACCESS STAIR, TOP
215	34.382'	50033.7478'	29992.5781'	ACCESS STAIR, BOTTOM
216	34.901'	50115.9990'	30040.3695'	ACCESS STAIR, BOTTOM
217	34.901'	50101.5661'	30047.3719'	ACCESS STAIR, TOP
218	34.606'	50045.6953'	29983.1699'	FENCE CORNER
219	33.787'	50016.1396'	29997.5080'	FENCE CORNER
220	34.855'	50025.4060'	30016.6093'	FENCE CORNER
221	34.992'	49997.2182'	30030.2838'	FENCE CORNER
222	34.752'	50035.0687'	30108.3676'	FENCE CORNER
223	35.151'	50128.4867'	30063.0523'	FENCE CORNER
224	35.965'	50090.6113'	29984.9769'	FENCE CORNER
225	34.832'	50054.9617'	30002.2713'	FENCE CORNER

1 **SCHOOL TANK FARM GRADING PLAN**
GRAPHIC

10' 0 10' 20'

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — REGISTERED PROFESSIONAL ENGINEER — Alexander C. Adams — CE-13328 — 04/14/26

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

TULUKSAK BULK FUEL UPGRADES
SCHOOL TANK FARM GRADING PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/16/26
Designed —
Drawn —
Approved —

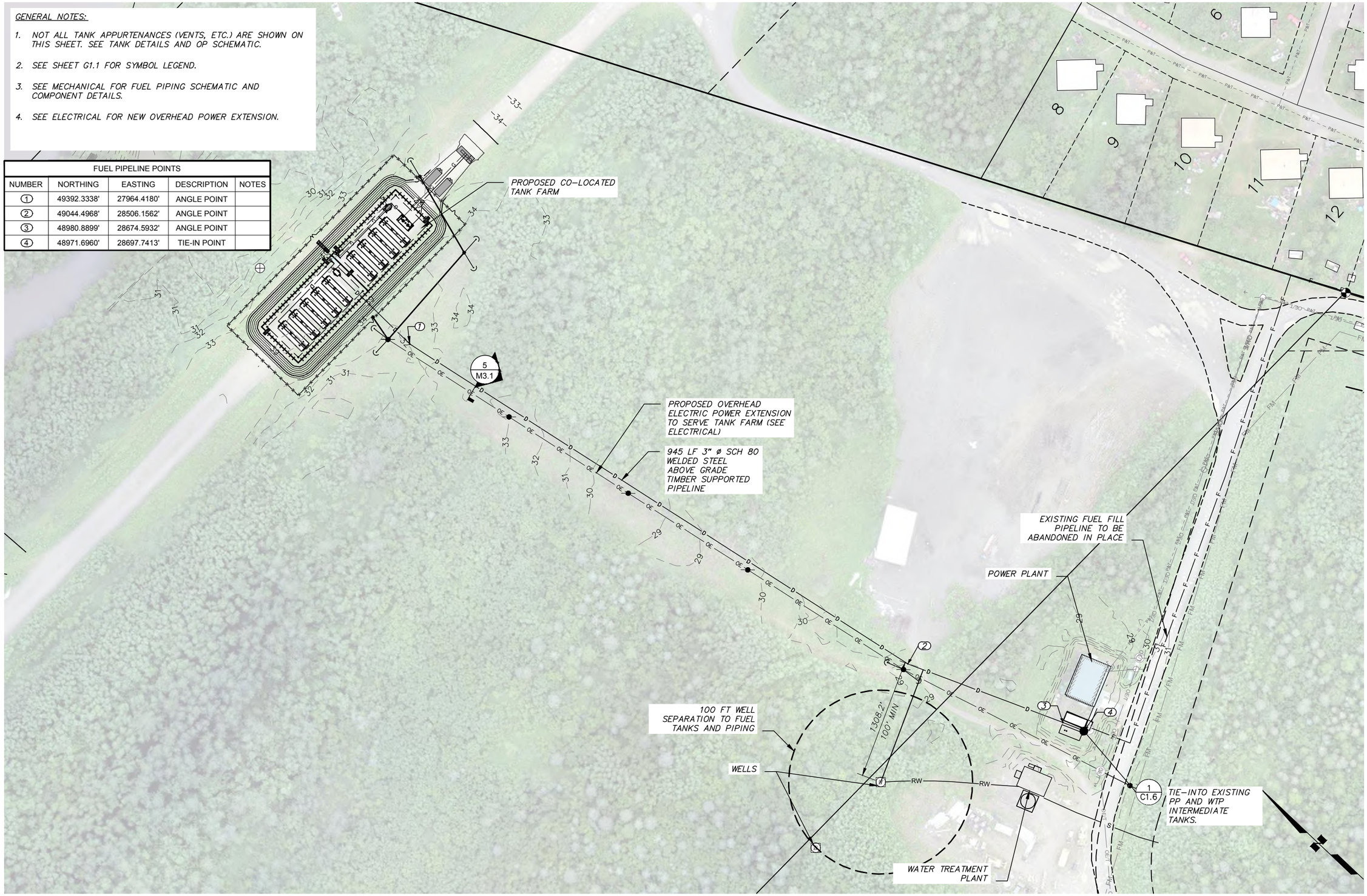
Sheet No. C1.5

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Grading Plan.dwg Plot Date: 4/16/2026 11:06 AM

GENERAL NOTES:

1. *NOT ALL TANK APPURTENANCES (VENTS, ETC.) ARE SHOWN ON THIS SHEET. SEE TANK DETAILS AND OP SCHEMATIC.*
2. *SEE SHEET G1.1 FOR SYMBOL LEGEND.*
3. *SEE MECHANICAL FOR FUEL PIPING SCHEMATIC AND COMPONENT DETAILS.*
4. *SEE ELECTRICAL FOR NEW OVERHEAD POWER EXTENSION.*

FUEL PIPELINE POINTS				
NUMBER	NORTHING	EASTING	DESCRIPTION	NOTES
①	49392.3338'	27964.4180'	ANGLE POINT	
②	49044.4968'	28506.1562'	ANGLE POINT	
③	48980.8899'	28674.5932'	ANGLE POINT	
④	48971.6960'	28697.7413'	TIE-IN POINT	



1 FUEL DISTRIBUTION PIPING PLAN

SCALE: GRAPHIC

50' 0 50' 100'

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES

FUEL SUPPLY PIPING PLAN

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed –
Drawn –
Approved –

Sheet No. C1.6

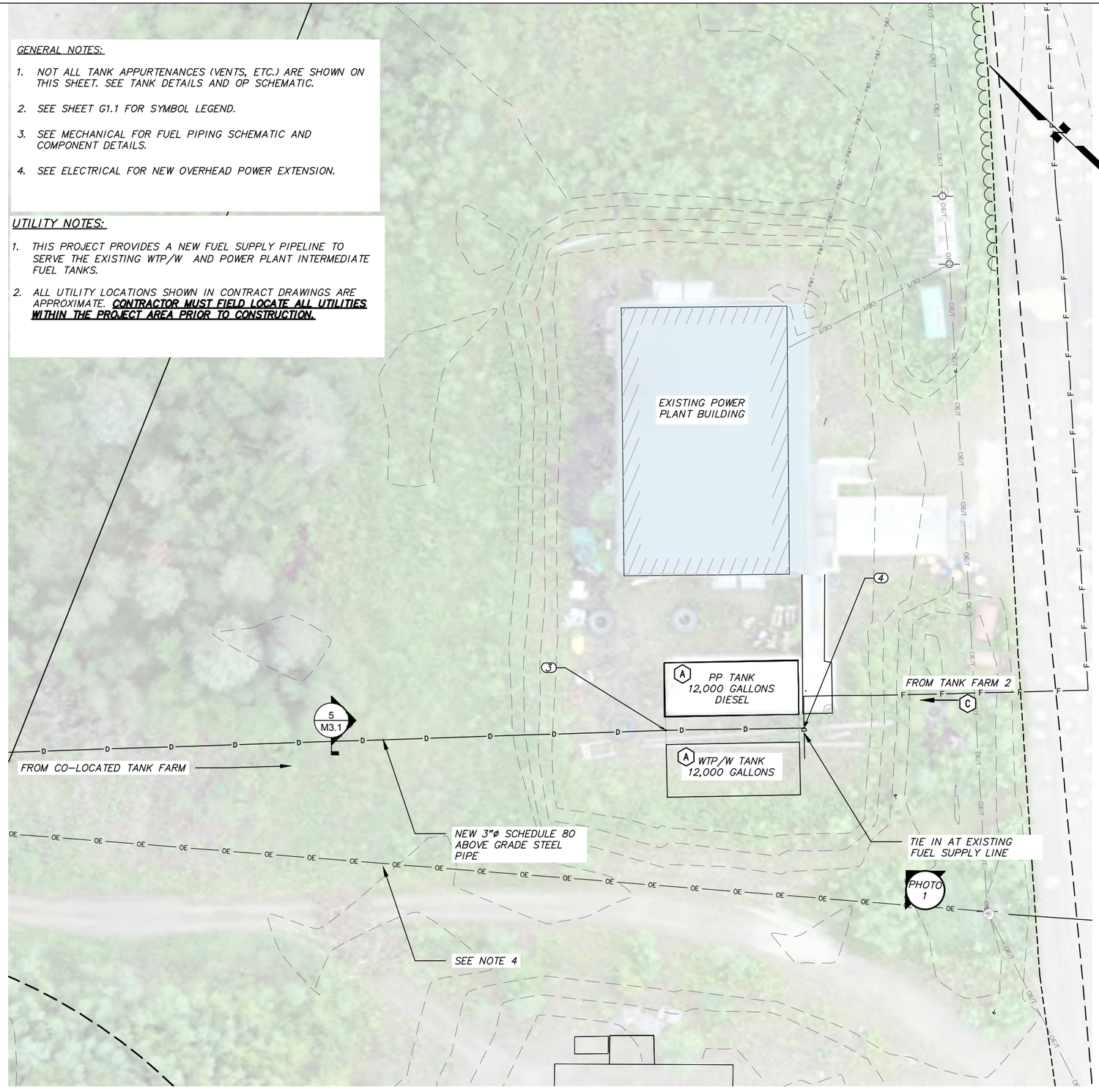
File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Piping Plan.dwg Plot Date: 4/14/2026 3:05 PM

GENERAL NOTES:

1. NOT ALL TANK APPURTENANCES (VENTS, ETC.) ARE SHOWN ON THIS SHEET. SEE TANK DETAILS AND OP SCHEMATIC.
2. SEE SHEET G1.1 FOR SYMBOL LEGEND.
3. SEE MECHANICAL FOR FUEL PIPING SCHEMATIC AND COMPONENT DETAILS.
4. SEE ELECTRICAL FOR NEW OVERHEAD POWER EXTENSION.

UTILITY NOTES:

1. THIS PROJECT PROVIDES A NEW FUEL SUPPLY PIPELINE TO SERVE THE EXISTING WTP/W AND POWER PLANT INTERMEDIATE FUEL TANKS.
2. ALL UTILITY LOCATIONS SHOWN IN CONTRACT DRAWINGS ARE APPROXIMATE. **CONTRACTOR MUST FIELD LOCATE ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION.**



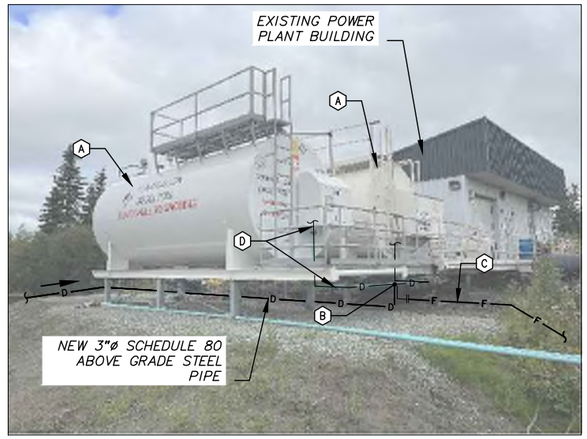


PHOTO 1: WTP/PP TANKS,SUMMER 2025

PIPING NOTES:

(A) EXISTING TANKS SERVED BY NEW FUEL SUPPLY PIPE LINE.

(B) TIE-IN POINT ON SHARED FILL PIPE MANIFOLD.

(C) EXISTING FILL PIPELINE TO BE ABANDONED IN PLACE. SEE SHEET G1.5 FOR PIPELINE DECOMMISSIONING.

(D) EXISTING FILL PIPING TO REMAIN. SEE MECHANICAL FOR FUEL SYSTEM UPGRADES.

FUEL PIPELINE POINTS				
NUMBER	NORTHING	EASTING	DESCRIPTION	NOTES
(1)	49392.3338'	27964.4180'	ANGLE POINT	
(2)	49044.4968'	28506.1562'	ANGLE POINT	
(3)	48980.8899'	28674.5932'	ANGLE POINT	
(4)	48971.6960'	28697.7413'	TIE-IN POINT	

1 **FUEL SUPPLY PIPING PLAN**
SCALE: GRAPHIC

10' 0 10' 20'

ALASKA ENERGY AUTHORITY

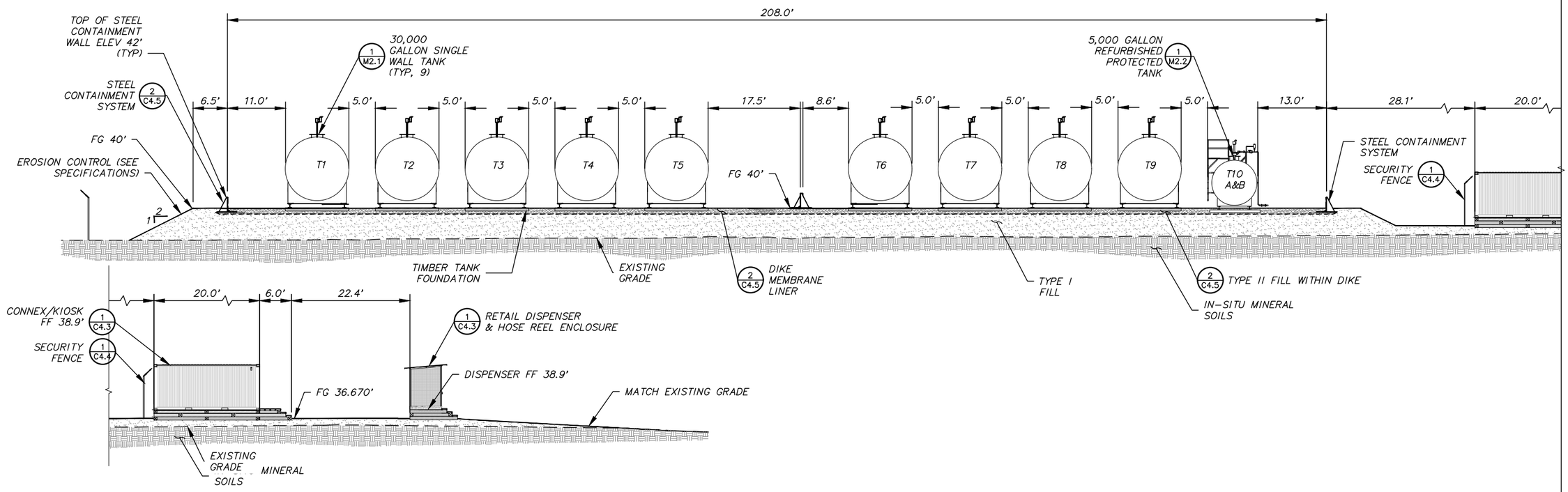
CRW ENGINEERING GROUP
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

TULUKSAK BULK FUEL UPGRADES
FUEL DISTRIBUTION PIPING PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

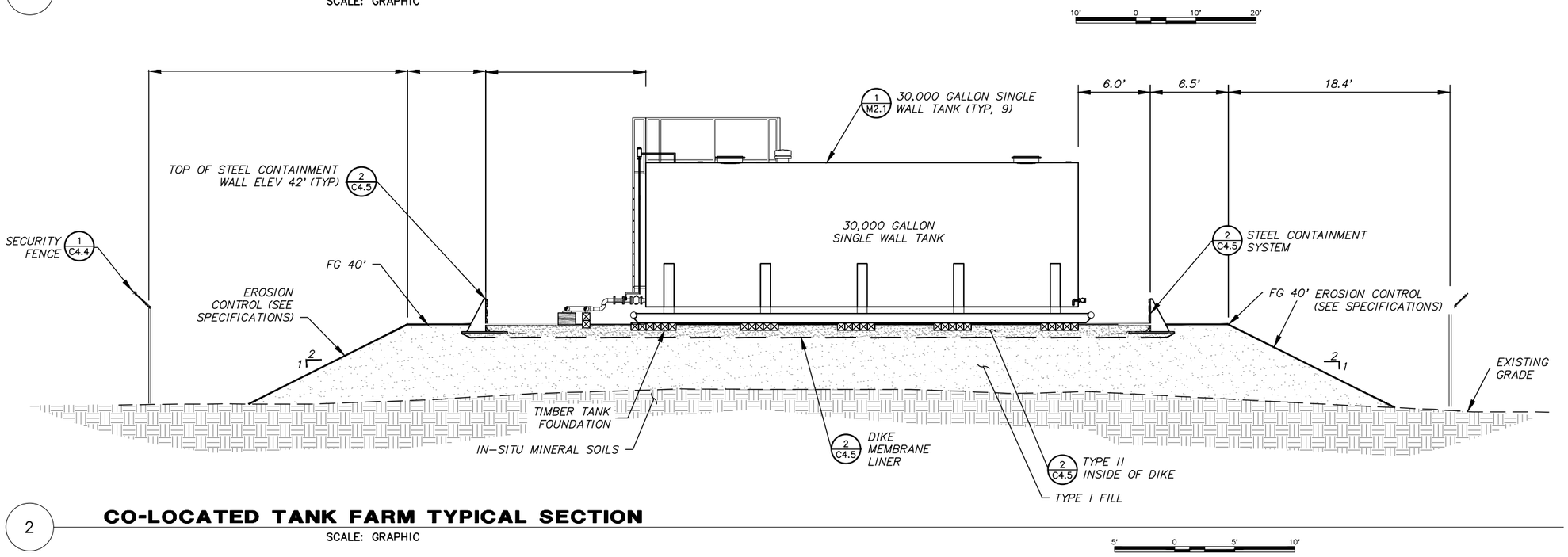
Plot Date 4/14/26
Designed –
Drawn –
Approved –

Sheet No. C1.7



1 **CO-LOCATED TANK FARM TYPICAL SECTION**

SCALE: GRAPHIC



2 **CO-LOCATED TANK FARM TYPICAL SECTION**

SCALE: GRAPHIC

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
CO-LOCATED TANK FARM SECTIONS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

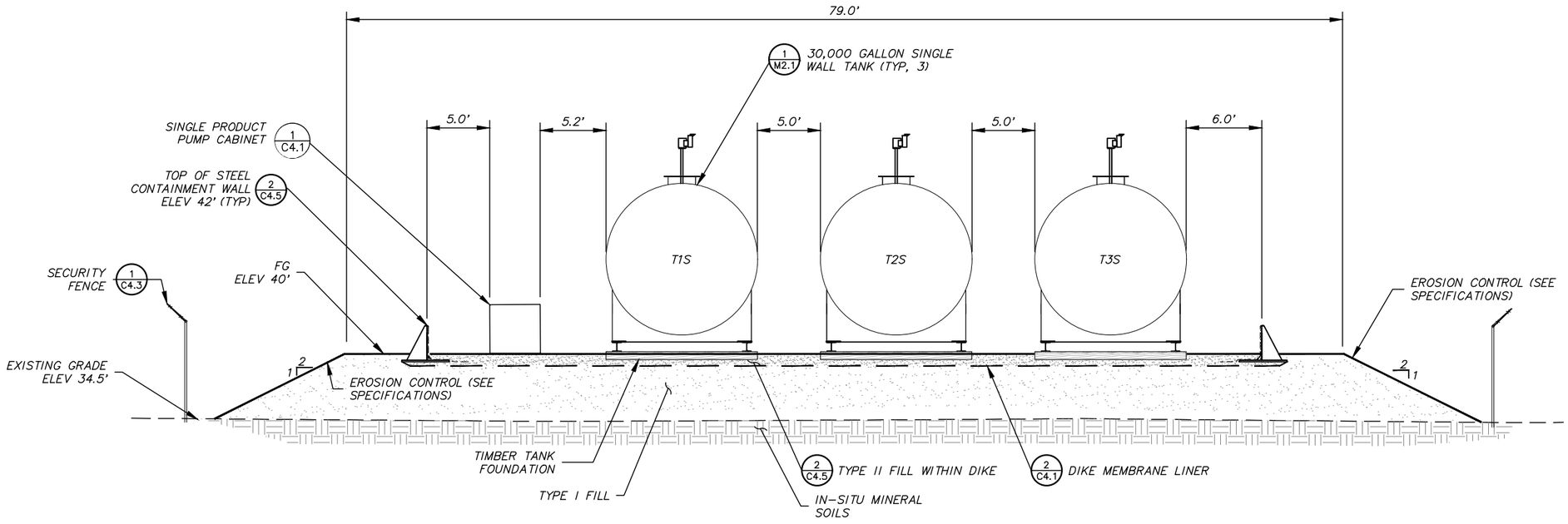
Plot Date 4/16/26
Designed –
Drawn –
Approved –

Sheet No. C3.1

Plot Date: 4/16/2026 11:07 AM

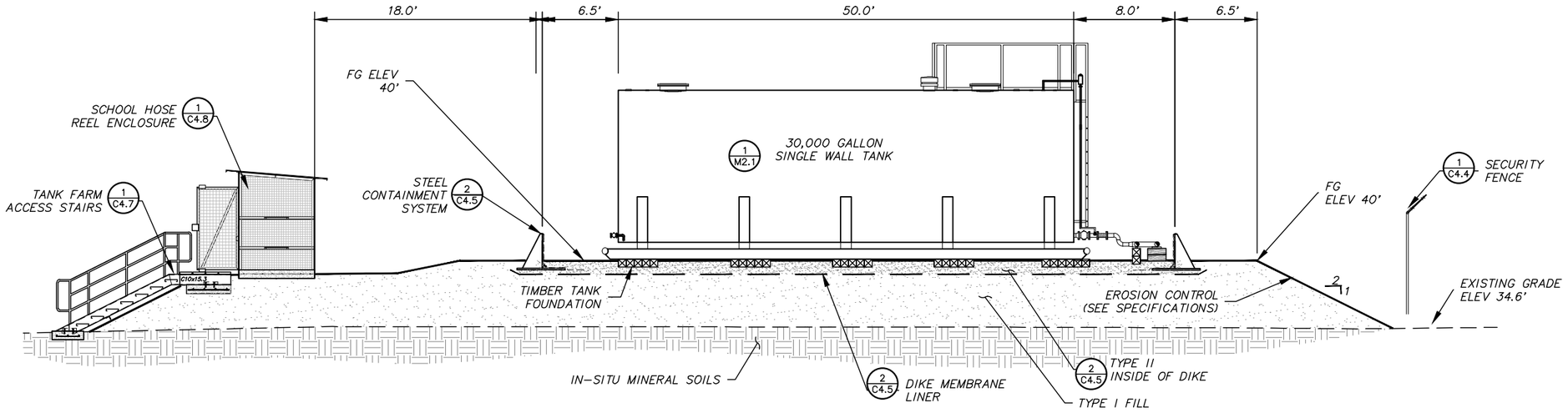
File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Typical Sections.dwg

NOTES:
1. SEE PAD CONSTRUCTION SEQUENCE ON GRADING PLAN.



1 **SCHOOL TANK FARM TYPICAL SECTION**
SCALE: GRAPHIC

5' 0 5' 10'



2 **SCHOOL TANK FARM TYPICAL SECTION**
SCALE: GRAPHIC

5' 0 5' 10'

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
SCHOOL TANK FARM SECTIONS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/16/26
Designed: -
Drawn: -
Approved: -

Sheet No. C3.2

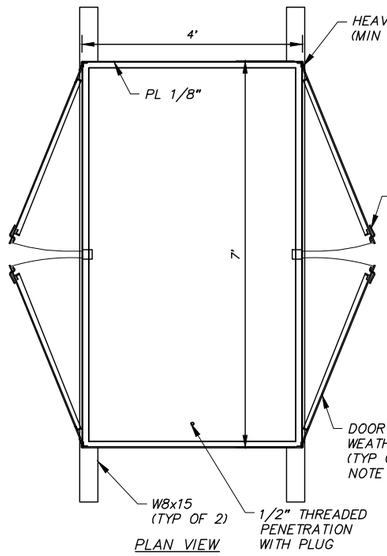
File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Typical Sections.dwg Plot Date: 4/16/2026 11:07 AM

GENERAL NOTES:

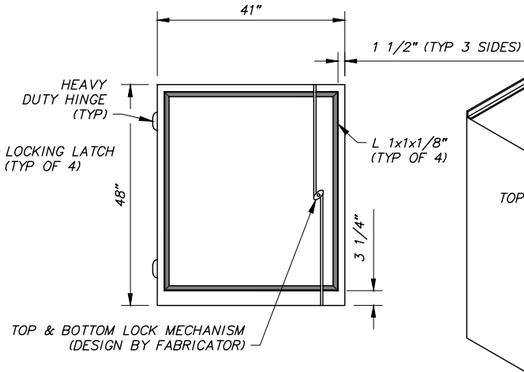
1. PIPING COMPONENTS NOT SHOWN. SEE MECHANICAL SHEET M1.7 FOR FUEL SYSTEM COMPONENTS.

PUMP CABINET FABRICATION NOTES:

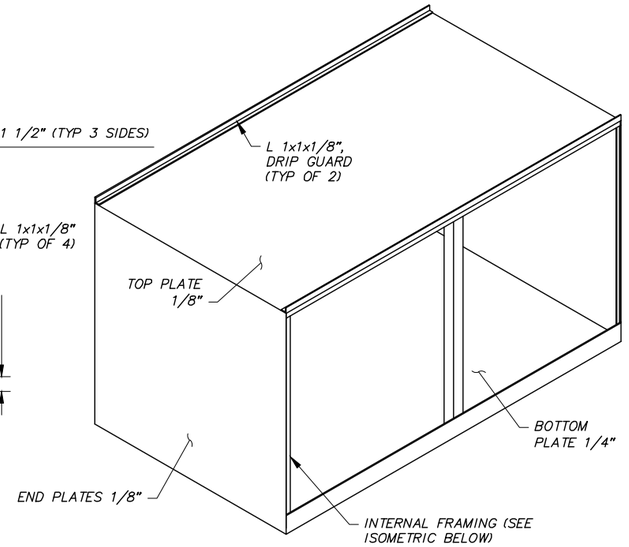
1. THE DESIGN, FABRICATION, AND ERECTION OF ALL STRUCTURAL STEEL COMPONENTS SHALL COMPLY WITH THE CURRENT CODE OF STANDARD PRACTICE OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. ALL WELDING TO BE DONE IAW THE CURRENT CODE OF AMERICAN WELDING SOCIETY.
2. MAKE ALL CONNECTIONS WITH CONTINUOUS FILLET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



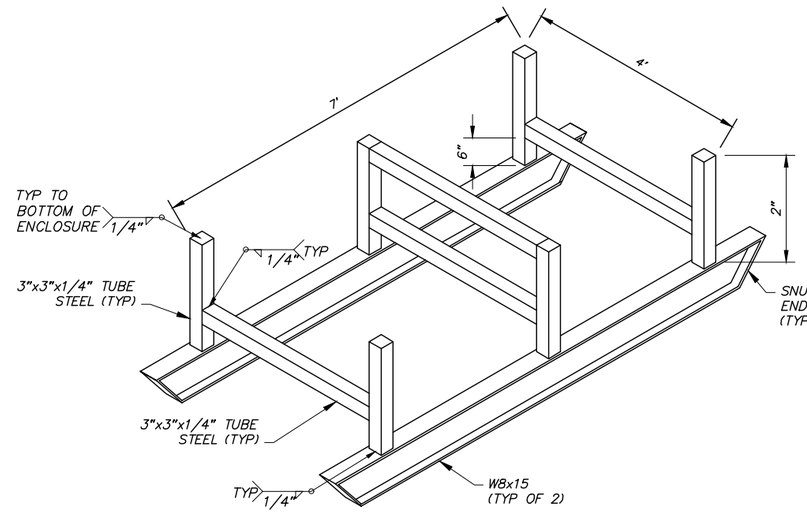
PLAN VIEW



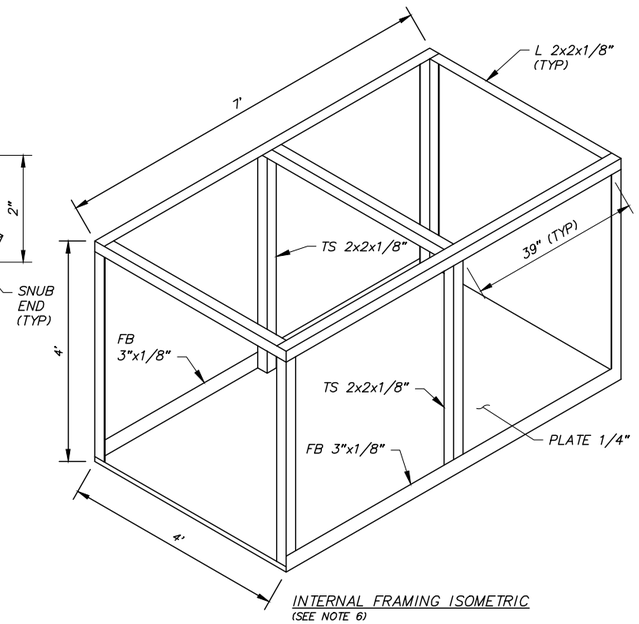
DOOR FRAMING (INTERIOR)



SHEETING ISOMETRIC



SKID ISOMETRIC



INTERNAL FRAMING ISOMETRIC
(SEE NOTE 6)

1 PUMP CABINET FABRICATION DETAILS

SCALE: NTS

ALASKA ENERGY AUTHORITY

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

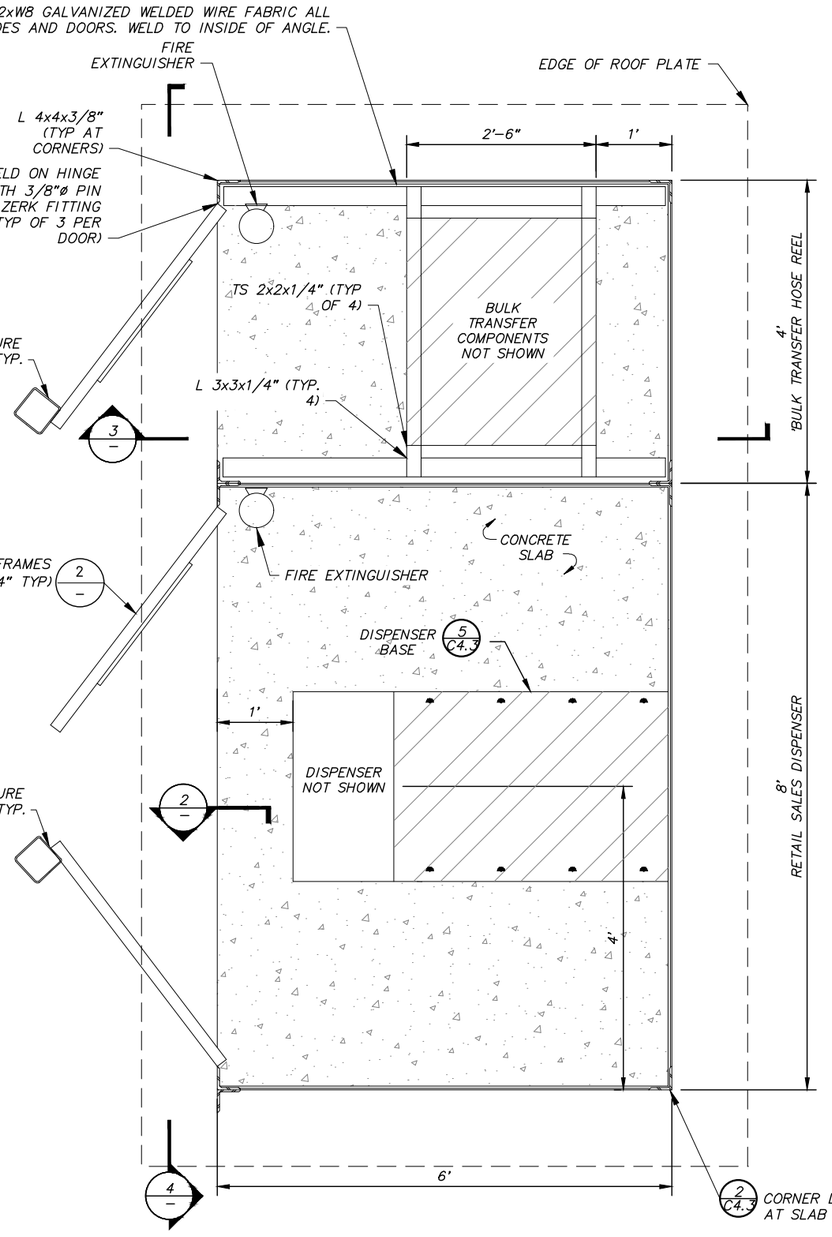
TULUKSAK BULK FUEL UPGRADES
PUMP CABINET DETAILS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

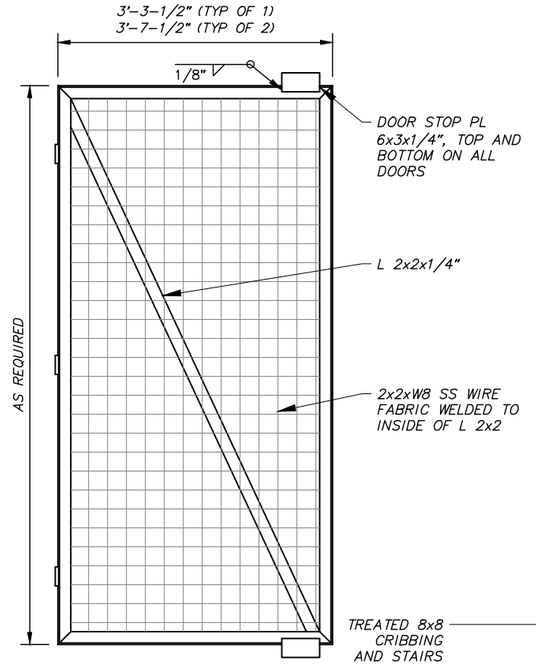
Plot Date: 4/14/26
Designed –
Drawn –
Approved –

Sheet No. C4.1

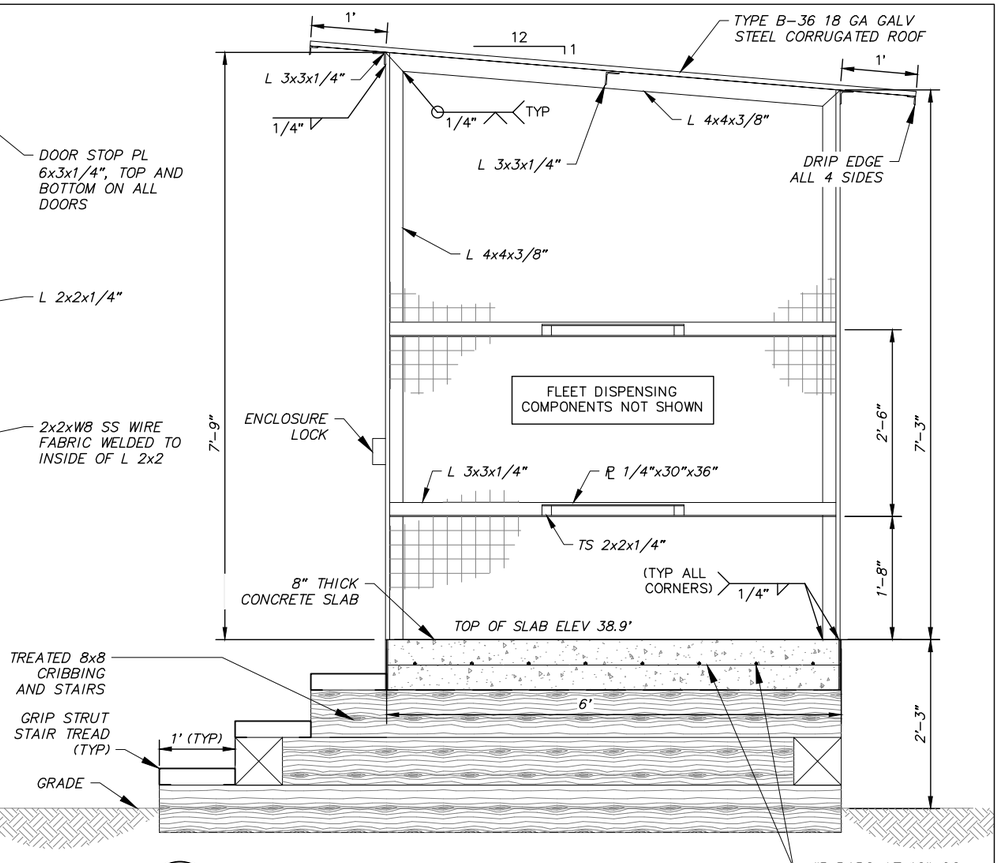
File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Cabinet Pump Details.dwg Plot Date: 4/14/2026 3:06 PM



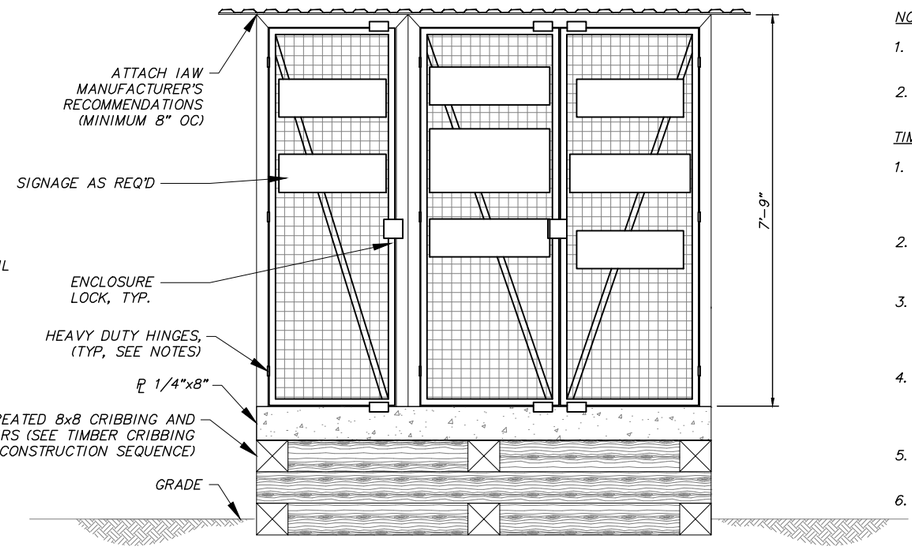
1 **DISPENSER ENCLOSURE PLAN**
NTS



2 **DOOR FRAME**
NTS



3 **DISPENSER ENCLOSURE SECTION**
NTS



4 **DISPENSER ENCLOSURE FRONT ELEVATION**
NTS

NOTES

1. ALL STEEL TO BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ENGINEER APPROVAL.

TIMBER CRIBBING CONSTRUCTION SEQUENCE:

1. TIMBER CRIBBING TO CONSIST OF 8X8 PRESSURE TREATED TIMBERS IN ACCORDANCE WITH THE SPECIFICATIONS. CUT ENDS TO BE TREATED WITH APPROVED PRESERVATIVE SOLUTION.
2. THOROUGHLY COMPACT AND LEVEL THE GROUND SURFACE WITHIN FOOTPRINT AREA OF TIMBER CRIBBING.
3. LAYOUT FIRST COURSE OF TIMBERS AND PIN TO GROUND SURFACE BY DRIVING #5 X 4' LONG REBAR THROUGH PRE-DRILLED 5/8"ø HOLES AT MAXIMUM 2-FT SPACING.
4. CONNECT SUBSEQUENT COURSES OF TIMBERS USING 1/2" DIA X 10" LONG GALV LAG BOLTS. LAGS TO BE INSTALLED AT ALL TIMBER ENDS AND AT 2' MAX SPACING ALONG TIMBER LENGTH.
5. INSTALL LAGS IN PRE-DRILLED HOLES AND COUNTERSINK ALL LAG HEADS.
6. PLACE WOVEN GEOTEXTILE ALONG INTERIOR SIDES AND BOTTOM OF CRIBBING AND BACKFILL WITH TYPE I CLASSIFIED FILL. PLACE FILL IN MAXIMUM 8 1/2 LIFTS AND COMPACT TO 95% OF MAXIMUM DENSITY. FINISHED GRADE OF BACKFILL TO BE FLUSH WITH TOP SURFACE OF TIMBER CRIBBING.

ALASKA ENERGY AUTHORITY

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

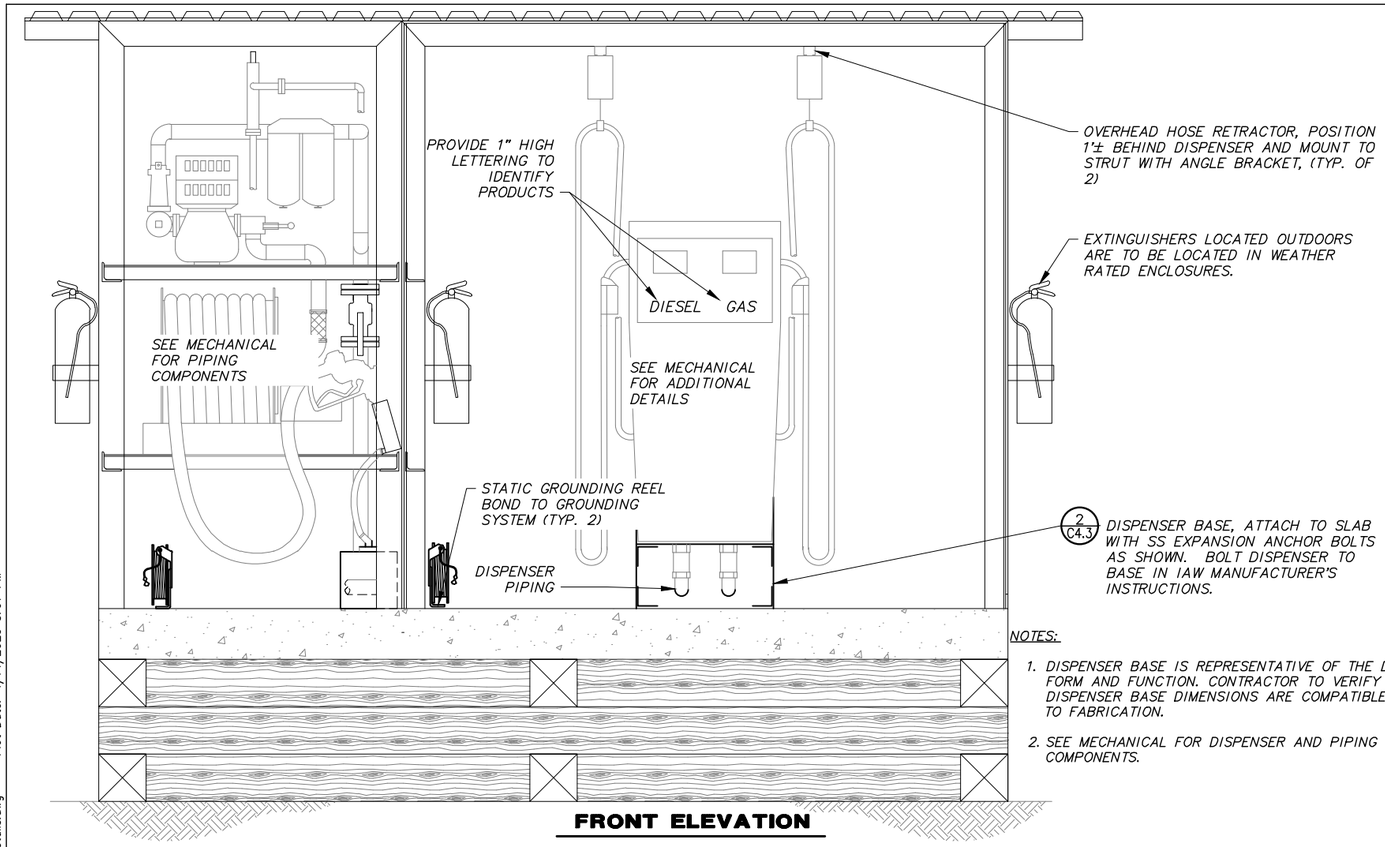
TULUKSAK BULK FUEL UPGRADES
RETAIL & FLEET DISPENSER ENCLOSURE DETAILS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed: -
Drawn: -
Approved: -

Sheet No. C4.2

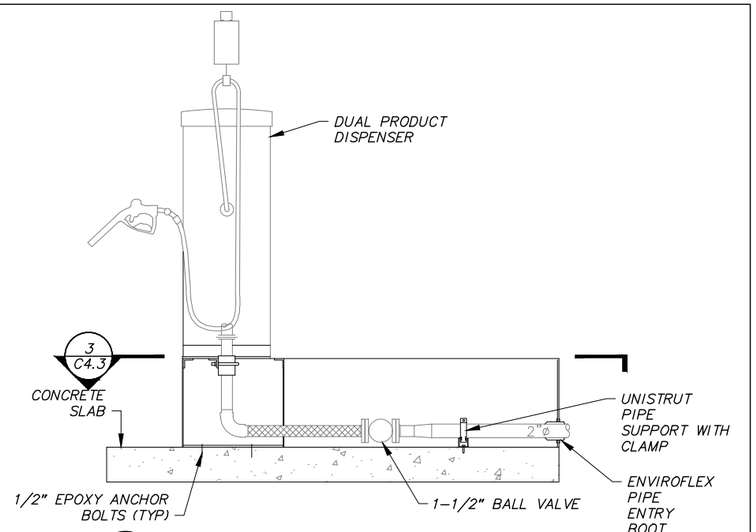
File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Retail Dispenser Details.dwg Plot Date: 4/14/2026 3:07 PM



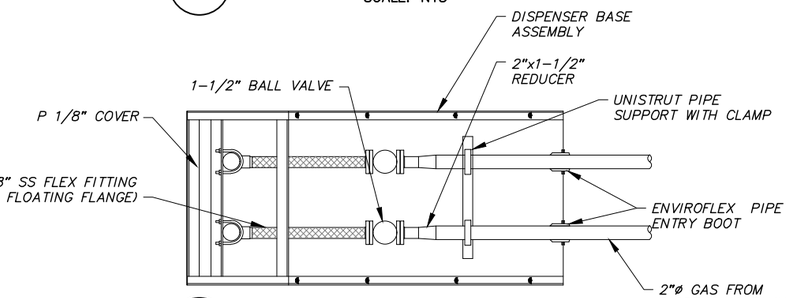
NOTES:

1. DISPENSER BASE IS REPRESENTATIVE OF THE DESIRED FORM AND FUNCTION. CONTRACTOR TO VERIFY DISPENSER BASE DIMENSIONS ARE COMPATIBLE PRIOR TO FABRICATION.
2. SEE MECHANICAL FOR DISPENSER AND PIPING COMPONENTS.

FRONT ELEVATION

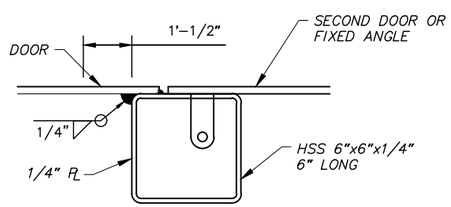


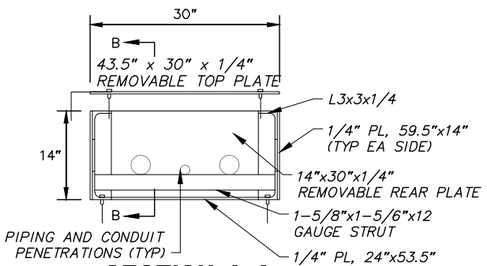
2 **SIDE ELEVATION**
SCALE: NTS



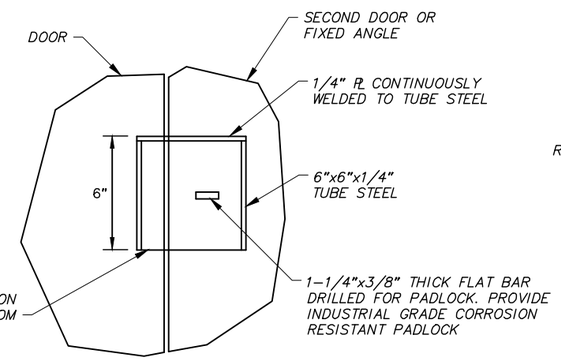
3 **PIPING PLAN**
SCALE: NTS

1 **DUAL PRODUCT RETAIL DISPENSER INSTALLATION DETAILS**
SCALE: NTS

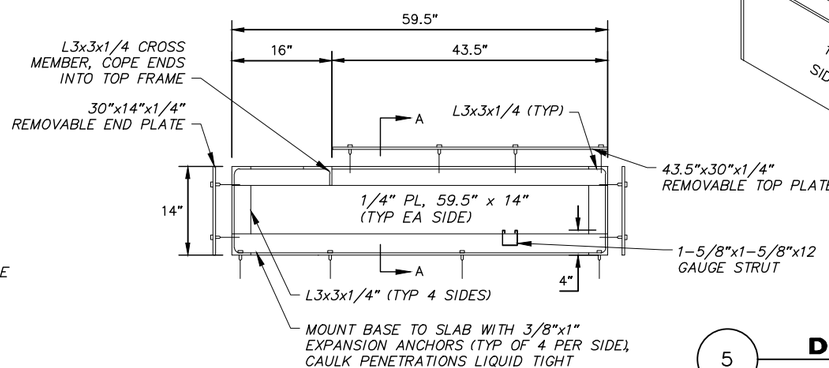


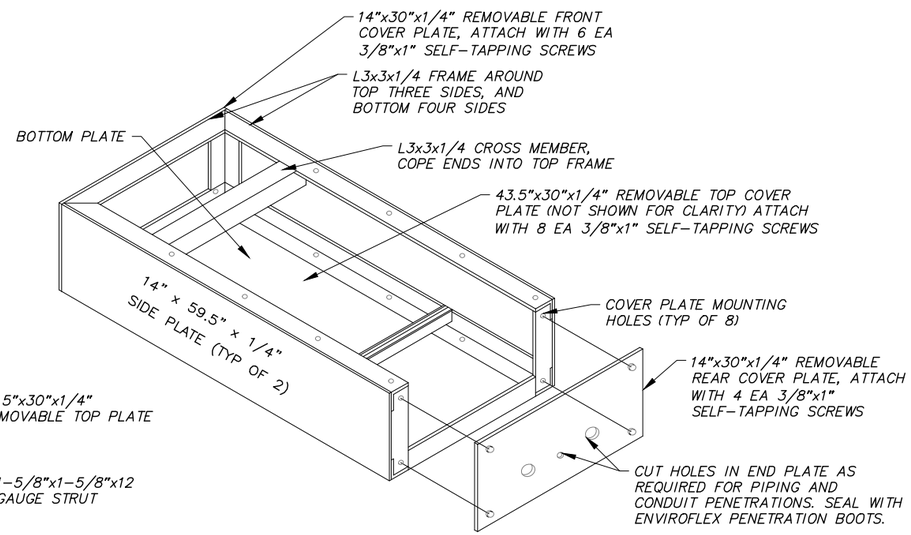


SECTION A-A



4 **ENCLOSURE LOCK**
SCALE: NTS





ISOMETRIC VIEW

5 **DISPENSER BASE FABRICATION**
SCALE: NTS

ALASKA ENERGY AUTHORITY

TULUKSAK BULK FUEL UPGRADES
RETAIL DISPENSER ENCLOSURE DETAILS
TULUKSAK, ALASKA

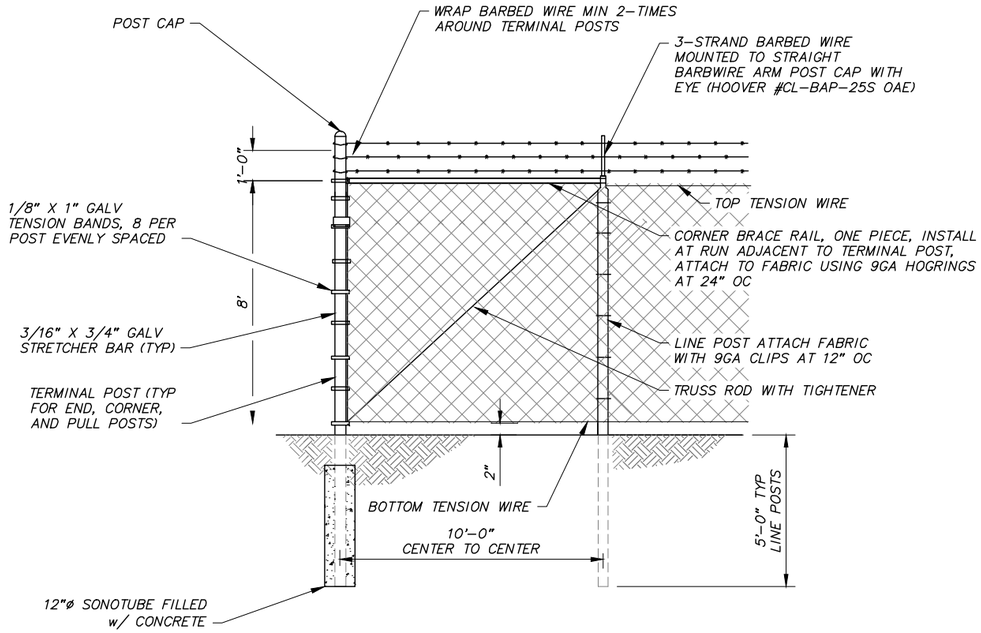
CRW ENGINEERING GROUP
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL682-AK

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed: -
Drawn: -
Approved: -

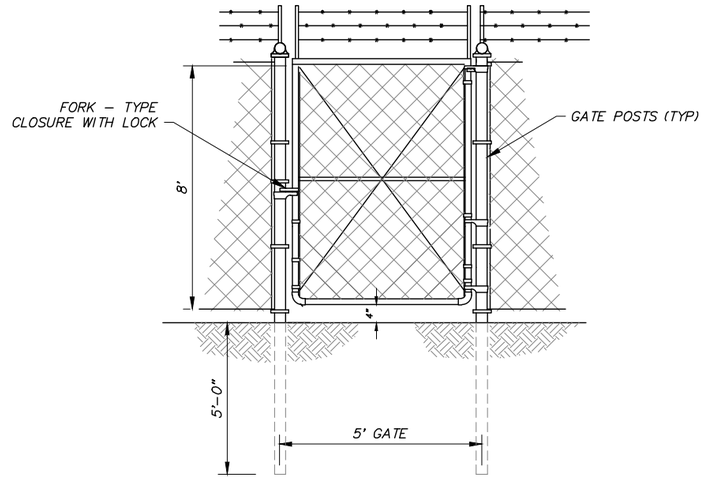
Sheet No. C4.3

File: J:\Jobsdata\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Retail Dispenser Details.dwg Plot Date: 4/14/2026 3:07 PM



1 FENCE DETAIL

SCALE: NTS

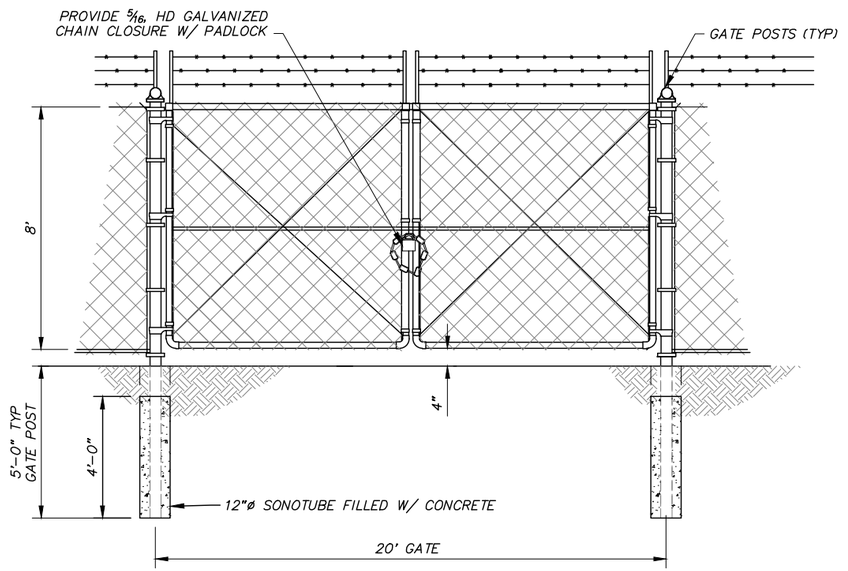


2 MAN GATE DETAIL

SCALE: NTS

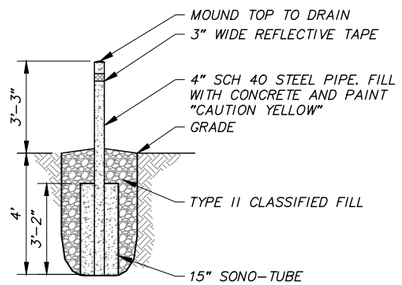
FENCE NOTES:

1. *LINE POSTS MAY BE DRIVEN IF APPROVED BY ENGINEER. CORNER PULL POSTS SHALL BE BEDDED IN CONCRETE AS SHOWN.*
2. *GROUNDING: SEE ELECTRICAL AND AVEC STANDARD FENCE GROUNDING DETAILS.*



3 10-FOOT SWING GATE DETAIL

SCALE: NTS



4 BOLLARD DETAIL

SCALE: NTS

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES

FENCE DETAILS

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed: –
Drawn: –
Approved: –

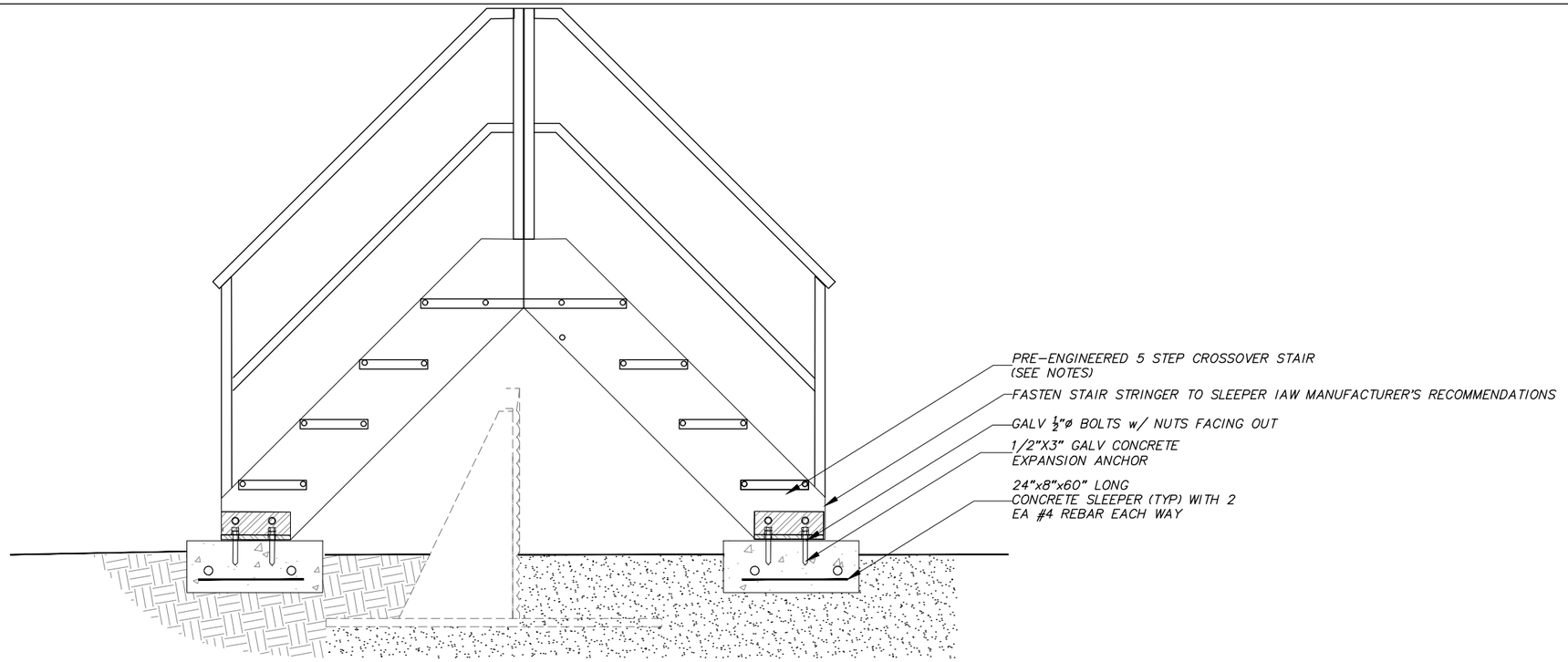
Sheet No. C4.4

Plot Date: 4/14/2026 3:07 PM

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Fence Details.dwg

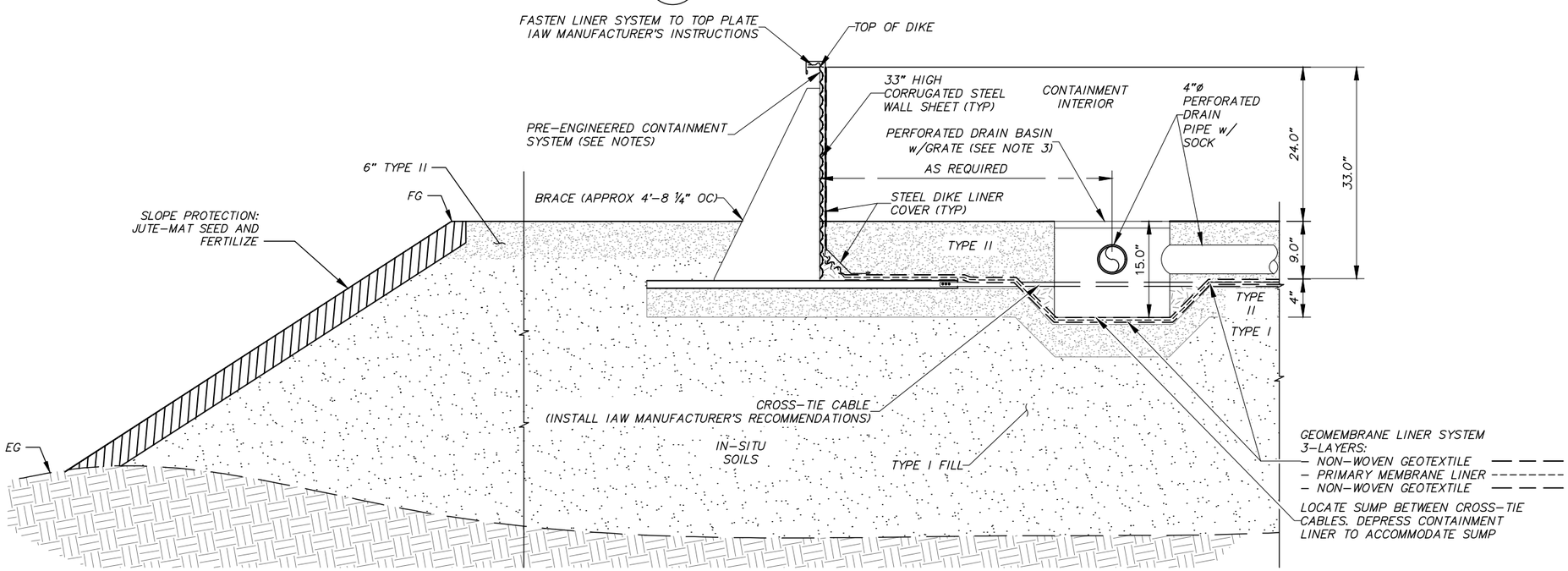
NOTES

1. CONTAINMENT DIKE AND STAIR ASSEMBLY SHALL BE PRE-ENGINEERED STEEL SYSTEM, FRANK ROBERTS & SONS OR APPROVED EQUAL.
2. COAT STEEL IAW THE SPECIFICATIONS.
3. DRAIN BASIN SHALL BE PERFORATED 18"ø X 15" DEEP & INCLUDE DRAINAGE COVER (ADS NYLOPAST OAE)



1 DIKE STAIR SECTION

NTS



2 DIKE SECTION

NTS

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES

CONTAINMENT DIKE & STAIR DETAILS

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed: -
Drawn: -
Approved: -

Sheet No. C4.5

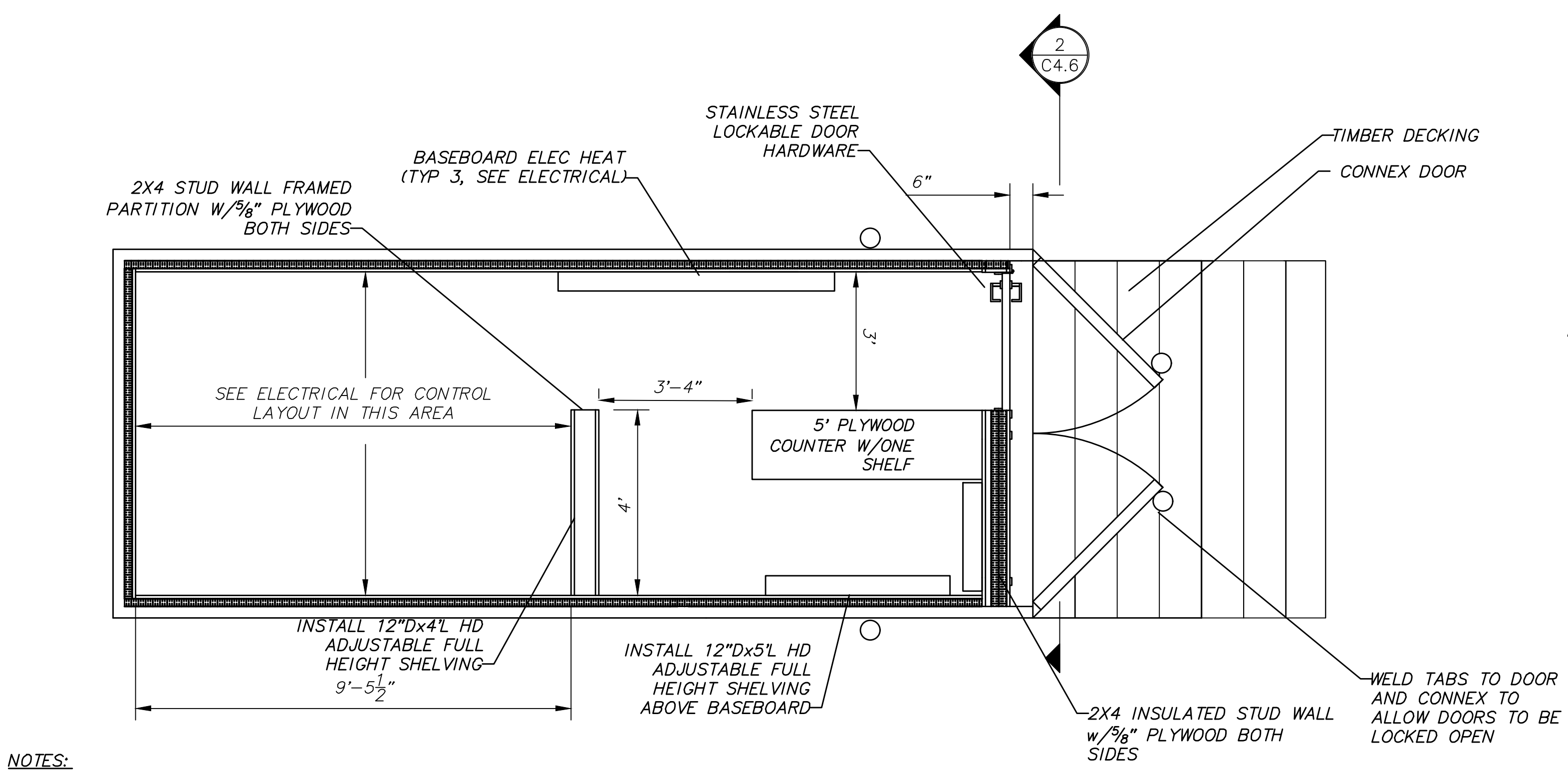
THE MODIFIED CONNEX FALLS UNDER THE FOLLOWING CATEGORIES WITHIN THE 2021 IBC:

OCCUPANCY TYPE (MIXED):	MOTOR FUEL-DISPENSING FACILITY (M) / STORAGE (S-1)
CONSTRUCTION TYPE:	VB
ALLOWABLE AREA (M):	9,000 SF
MAXIMUM HEIGHT:	40 FT
EXITS REQUIRED:	1
PANIC HARDWARE:	NOT REQUIRED
EXIT SEPARATION:	GREATER THAN ½ OF THE LONGEST DIAGONAL DISTANCE
EXIT TRAVEL DISTANCE:	200 FT MAXIMUM WITHOUT SPRINKLER SYSTEM
FIRE BLOCKING:	NOT REQUIRED
FIRE ALARM:	NOT REQUIRED
FIRE SUPPRESSION SYSTEM:	NOT REQUIRED
SMOKE ALARMS:	NOT REQUIRED

CONNEX INSULATION AND INTERIOR SURFACE CONSTRUCTION SEQUENCE:

ROOF & WALLS:
1. BOND DOW HI-40 RIGID INSULATION TO CONNEX ROOF (2 LAYERS @ 2" EA) AND WALLS (1 LAYER @ 2") WITH OSI QB-300 CONSTRUCTION ADHESIVE.
2. TAPE ALL INSULATION JOINTS WITH TYVEK TAPE.
3. BOND ⅝" T&G PLYWOOD TO INSULATION WITH OSI QB-300 CONSTRUCTION ADHESIVE.
4. TEK SCREW OR BOLT PLYWOOD & INSULATION TO CONNEX AT 24" OC EA WAY.
5. APPLY A FLEXIBLE ROOF SEALENT TO ALL ROOF AND WALL PENETRATIONS.
6. PRIME AND PAINT PLYWOOD WHITE.

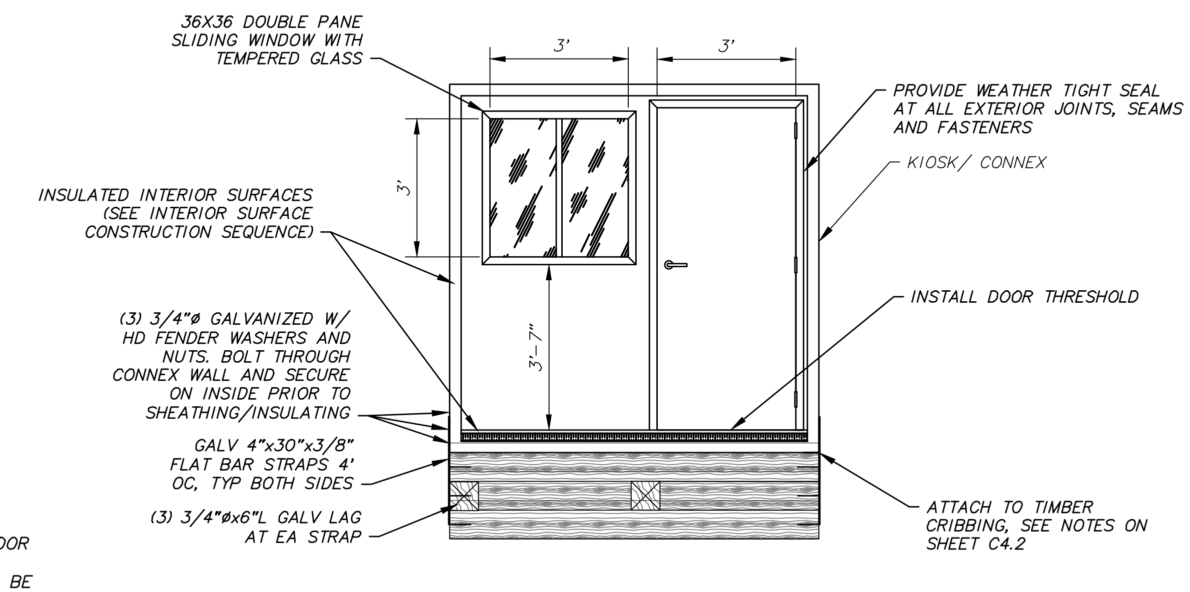
UNDERSIDE OF CONNEX:
1. APPLY URETHANE SPRAY FOAM TO THE UNDERSIDE OF CONNEX (4" MIN.) TOP COAT WITH SWD URETHANE QUICK-SHIELD 951, OAE.



NOTES:

1. CONNEX DOORS TO REMAIN LOCKED OPEN DURING BUILDING USE.
2. SEE ELECTRICAL FOR WIRING AND BASEBOARD HEAT.

1 **CONNEX UPGRADES**



2 **PARTITION SECTION**

ALASKA ENERGY AUTHORITY

STATE OF ALASKA
Nicholas C. Phelps
CE-123218
04/14/26
REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES

CONNEX DETAILS

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

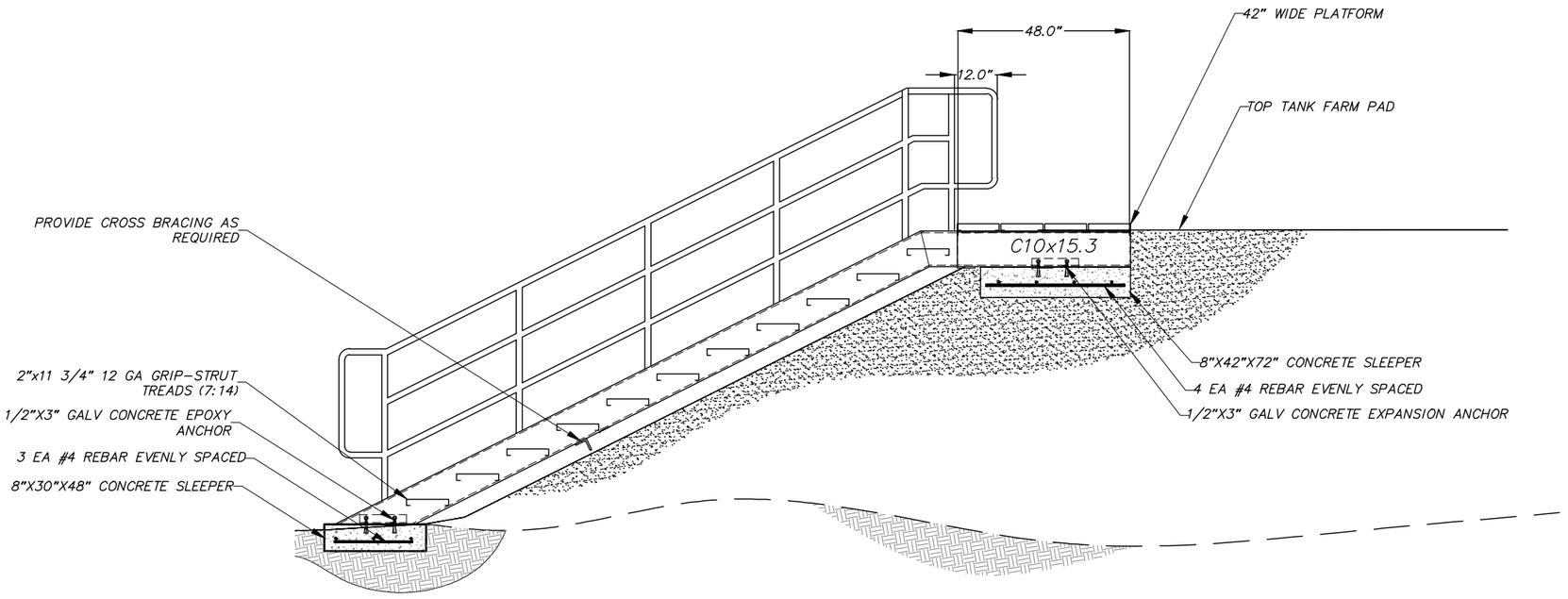
Plot Date 4/14/26
Designed –
Drawn –
Approved –

Sheet No. C4.6

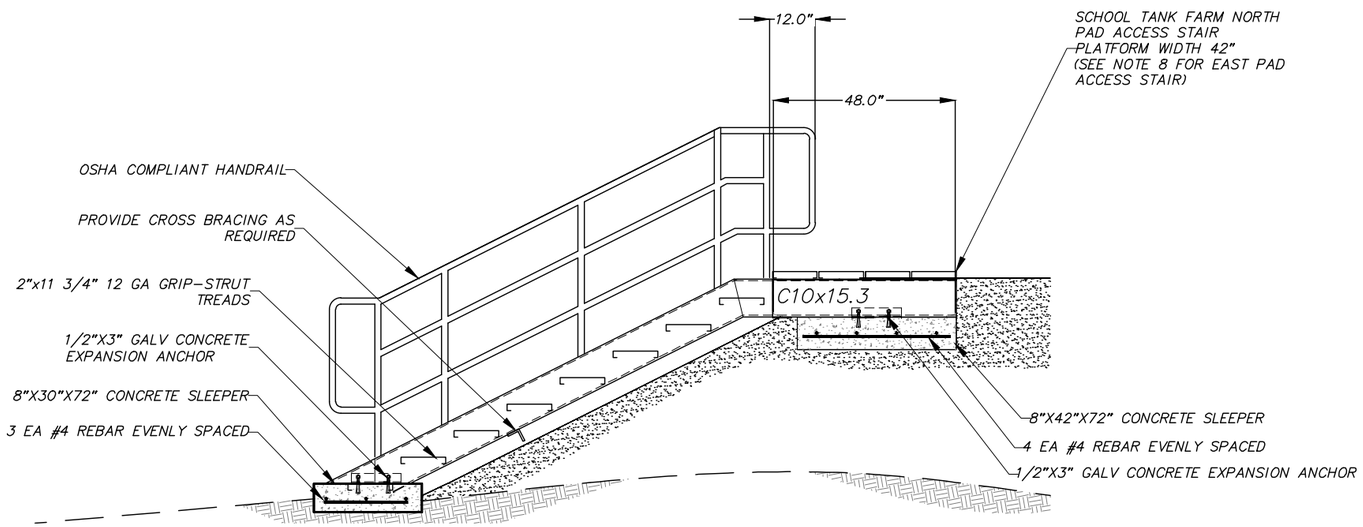
File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02.00 Details-Connex.dwg Plot Date: 4/14/2026 3:08 PM

ACCESS STAIR NOTES

1. SPAN AND LENGTH OF STAIRS VARY. FABRICATE AS NECESSARY PER LOCATION. SUBMIT SHOP DRAWINGS FOR EACH STAIR CONFIGURATION TO ENGINEER IAW SPECIFICATIONS PRIOR TO FABRICATION.
2. ALL CONNECTIONS SHALL BE CONTINUOUSLY WELDED (FILLET WELD) UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS.
3. FABRICATE STAIR AND RAILING ASSEMBLIES FROM ASTM A36 STEEL. ROUND ALL CORNERS AND SHARP EDGES AFTER FABRICATION. PROVIDE HDG COATING ON ALL COMPONENTS. ALL FIELD CU/EXPOSED METAL SHALL BE COLD GALVANIZED IN THE FIELD FOR CORROSION PROTECTION
4. STAIRS & HAND RAIL ASSEMBLIES ARE TO BE HOT DIP GALVANIZED PREP AND PAINT ALL NON GALVANIZED STEEL SURFACES IN ACCORDANCE WITH TECHNICAL SPECIFICATION.
5. COMPLETED STAIR ASSEMBLIES SHALL CONFORM TO ALL IBC AND OSHA STANDARDS.
6. ALL STAIR HARDWARE SHALL BE HOT DIPPED GALVANIZED.
7. ALL REBAR SHALL BE ASTM A615 GRADE 40 UNO.
8. EAST SCHOOL TANK FARM ACCESS STAIR TO HOSE REEL ENCLOSURE SHALL BE A 5' WIDE PLATFORM AND MUST NOT IMPEDE ENCLOSURE DOOR ACCESS.



1 **CO-LOCATED TANKFARM ACCESS STAIR**
NTS



2 **SCHOOL TANK FARM ACCESS STAIR**
NTS

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
ACCESS STAIR DETAILS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

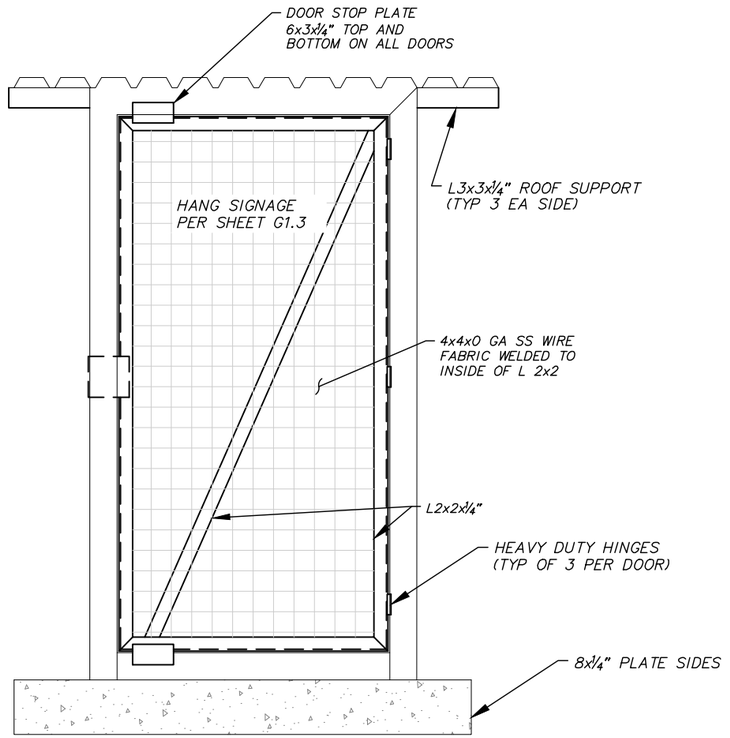
Plot Date: 4/14/26
Designed: –
Drawn: –
Approved: –

Sheet No. C4.7

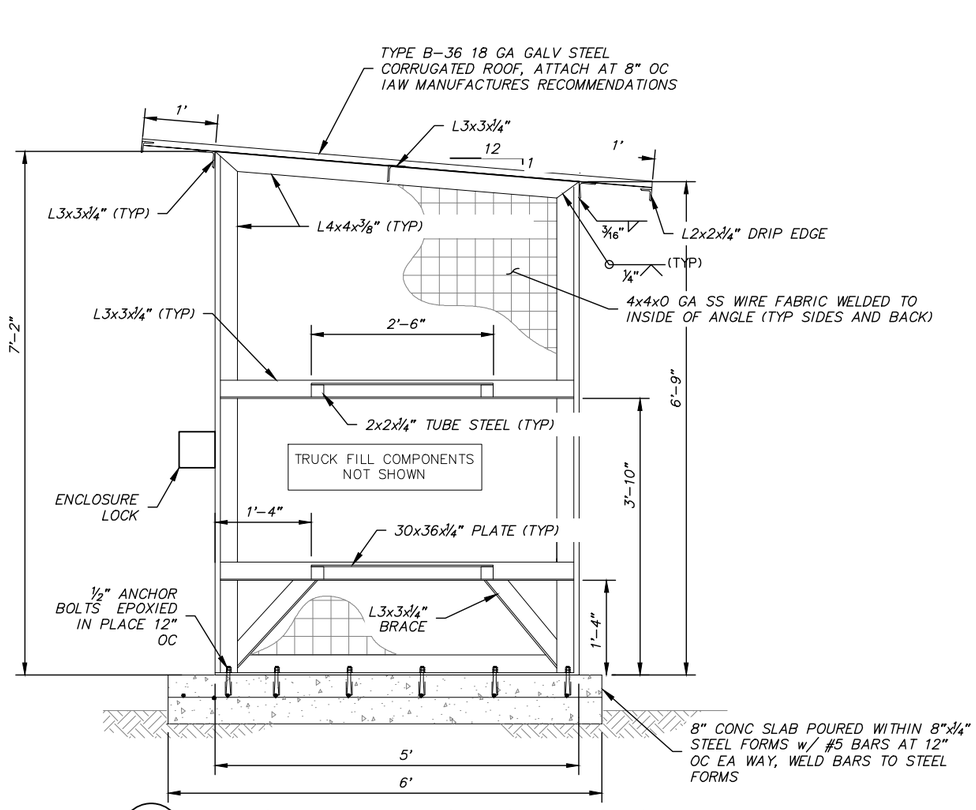
File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\01 Civil\30422.02 Containment Dike & Stairs Details.dwg Plot Date: 4/14/2026 3:08 PM

GENERAL NOTES:

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



1 **SCHOOL HOSE REEL ENCLOSURE FRONT ELEVATION**
NTS



2 **HOSE REEL ENCLOSURE SECTION**
NTS

ALASKA ENERGY AUTHORITY

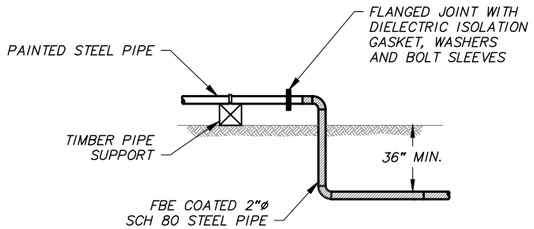
CRW ENGINEERING GROUP
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

TULUKSAK BULK FUEL UPGRADES
SCHOOL HOSE REEL ENCLOSURE DETAILS

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed —
Drawn —
Approved —

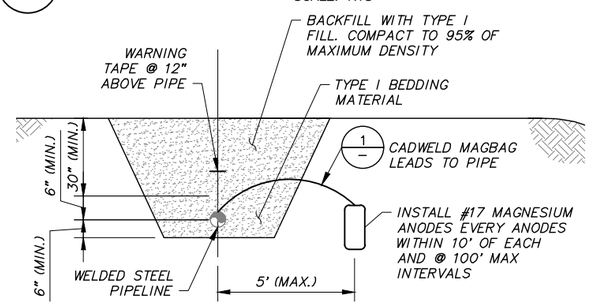
Sheet No. C4.8



1

BURIED PIPE DETAIL

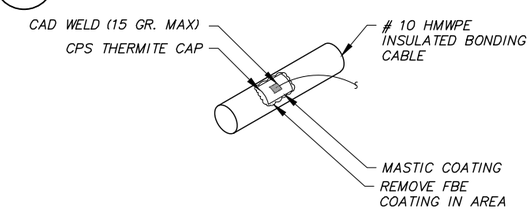
SCALE: NTS



2

PIPE TRENCH SECTION

SCALE: NTS



3

CADWELD DETAIL

SCALE: NTS

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES

PIPING DETAILS

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed: —
Drawn: —
Approved: —

Sheet No. C4.9

GENERAL LEGEND

- POINT OF CONNECTION TO EXISTING
- SHEET NOTE
- DETAIL NUMBER
- SHEET LOCATED ON
- EXISTING (E)
- DEMOLISHED
- NEW

PIPING LEGEND

- VENT (V)
- WASTE (W)
- OILY WASTE (OW)
- PUMPED WASTE (PW)
- STORM DRAIN (SD)
- OVERFLOW RAIN LEADER (OL)
- COLD WATER (CW)
- HOT WATER (HW)
- HOT WATER RECIRCULATION (HWC)
- TRAP PRIMER (TP)
- TEMPERED WATER (TW)
- HEATING GLYCOL RETURN (HGR)
- HEATING GLYCOL SUPPLY (HGS)
- HEATING WATER RETURN (HWR)
- HEATING WATER SUPPLY (HWS)
- RECOVERED HEAT RETURN (WHGR)
- RECOVERED HEAT SUPPLY (WHGS)
- SNOWMELT GLYCOL RETURN (SGR)
- SNOWMELT GLYCOL SUPPLY (SGS)
- REFRIGERANT SUCTION (S)
- REFRIGERANT LIQUID (L)
- FIRE SPRINKLER (FS)
- COMPRESSED AIR (AIR)
- DIESEL (D)
- GASOLINE (G)

NOTE:
NOT ALL SYMBOLS AND ABBREVIATIONS ARE USED ON THIS PROJECT.

PIPING SYMBOL LEGEND

- GATE VALVE
- BALL / ISOLATION VALVE
- BUTTERFLY VALVE
- GLOBE VALVE
- CHECK VALVE
- FILL VALVE
- PRESSURE REDUCING VALVE
- SHEAR VALVE
- BALANCE VALVE
- TWO-WAY CONTROL VALVE
- THREE-WAY CONTROL VALVE
- THERMOSTATIC MIXING VALVE
- THREE-WAY VALVE
- SOLENOID VALVE
- FLOW INDICATOR
- STRAINER
- STRAINER WITH BLOWDOWN
- FUEL OIL METER
- FUEL OIL FILTER
- FLOW METER
- FLOW SWITCH
- PRESSURE SWITCH
- FLEXIBLE CONNECTOR
- THERMOWELL
- FLOW DIRECTION
- UNION
- REDUCER
- TEE UP
- TEE DOWN
- ISOLATION FLANGE
- PIPE CONTINUATION
- PIPE DOWN
- PIPE UP
- CLEANOUT
- PIPE CONTINUATION
- CAP
- PRESSURE TEST PORT
- PRESSURE RELIEF VALVE (PRV)
- TEMPERATURE INDICATOR
- PRESSURE INDICATOR
- PRESSURE INDICATOR W/ ISOLATION VALVE
- HIGH POINT AIR VENT W/ ISOLATION VALVE
- WATER HAMMER ARRESTOR
- PUMP
- SPRINKLER HEAD
- DOWNSPOUT WALL NOZZLE
- FLOOR CLEANOUT (FCO)
- FLOOR DRAIN (FD-X)
- HOSE BIBB (HB-X)
- GAS METER
- BOILER EMERGENCY SHUTDOWN

INSTRUMENTATION LEGEND

- INSTRUMENT TAG
- INSTRUMENT TAG WITH THERMOWELL
- CONTROLLER TAG
- THERMOSTAT
- HUMIDISTAT
- SENSOR

TAG NUMBERS

TYPICAL:	PRV-314	-	INSTRUMENT INDENTIFICATION OR TAG NUMBER
FORMAT	PRV	-	FUNCTIONAL IDENTIFICATION
	P	-	FIRST LETTER
	RV	-	SUCCEEDING LETTER(S)

FIRST LETTER — SUCCEEDING LETTERS

PRV 314

INSTRUMENT LOOP NUMBER — (INSTRUMENT SYMBOLS)

EXPANDED:	PRV-314	-	TAG NUMBER
FORMAT	A	-	OPTIONAL SUFFIX

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ARCH	ARCHITECTURAL
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BLDG	BUILDING
BTUH	BRITISH THERMAL UNIT PER HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CMU	CONCRETE MASONRY UNIT
CO/C.O.	CLEANOUT
DB	DRY BULB
dB	DECIBELS
DEG	DEGREES
DIA/ø	DIAMETER
DN	DOWN
DWG	DRAWING
(E)	EXISTING
EAT	ENTERING AIR TEMPERATURE
EGT	ENTERING GLYCOL TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
F	FAHRENHEIT
FDC	FIRE DEPARTMENT CONNECTION
FLA	FULL LOAD AMPERES
FPF	FINS PER FOOT
FPM	FEET PER MINUTE
FT	FEET
GA	GAUGE
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HR	HOUR
IN	INCH
LAT	LEAVING AIR TEMPERATURE
LB	POUNDS
LF	LINEAL FEET
LGT	LEAVING GLYCOL TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTUH
MFGR	MANUFACTURER
MIN	MINIMUM
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
PD	PRESSURE DROP
PG	PROPYLENE GLYCOL
PH	PHASE
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTIONS PER MINUTE
SQ FT	SQUARE FEET
(TYP)	TYPICAL
UL	UNDERWRITERS LABORATORIES
UPC	UNIFORM PLUMBING CODE
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN
WHA	WATER HAMMER ARRESTOR

GENERAL NOTES:

1. INFORMATION SHOWN ON THE DRAWINGS IS TAKEN FROM A NON-DESTRUCTIVE WALK THROUGH OF THE FACILITY AND AS-BUILT DRAWINGS. THERE IS NO GUARANTEE TO THE ACCURACY OF THE INFORMATION SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.
2. MECHANICAL DRAWINGS ARE GENERALLY DIAGRAMMATIC, CONTRACTOR TO FIELD LOCATE ALL PIPES, DUCTS, MECHANICAL EQUIPMENT AND ASSOCIATED APPURTENANCES TO AVOID CONFLICTS WITH OTHER EQUIPMENT, PIPING, LIGHTING, AND ELECTRICAL CLEARANCES.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — BRANDON C. CALKINS — ME-17903 — 04/14/26 — REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
MAECI.BIZ.4K

TULUKSAK BULK FUEL UPGRADES

MECHANICAL LEGEND AND ABBREVIATIONS

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/14/26
Designed: BCA
Drawn: BRP
Approved: --

Sheet No.
M1.1

Plot Date: 4/14/2026 3:26:21 PM

COLOCATED TANK FARM FUEL TANK SCHEDULE

SYMBOL	OWNER	TYPE	MEDIUM	MATERIAL	TANK CAPACITY (GAL)	LISTING	REMARKS
T-1	TNC	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE PROVIDED NEW BY CONTRACTOR. SEE DETAILS FOR APPURTENANCES AND LAYOUT.
T-2	TNC	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE PROVIDED NEW BY CONTRACTOR. SEE DETAILS FOR APPURTENANCES AND LAYOUT.
T-3	TNC	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE PROVIDED NEW BY CONTRACTOR. SEE DETAILS FOR APPURTENANCES AND LAYOUT.
T-4	TNC	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE PROVIDED NEW BY CONTRACTOR. SEE DETAILS FOR APPURTENANCES AND LAYOUT.
T-5	TNC	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE PROVIDED NEW BY CONTRACTOR. SEE DETAILS FOR APPURTENANCES AND LAYOUT.
T-6	TULKISARMUTE	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE PROVIDED NEW BY CONTRACTOR. SEE DETAILS FOR APPURTENANCES AND LAYOUT.
T-7	TULKISARMUTE	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE PROVIDED NEW BY CONTRACTOR. SEE DETAILS FOR APPURTENANCES AND LAYOUT.
T-8	TULKISARMUTE	HORIZONTAL SINGLE WALL	GASOLINE	STEEL	30,000	UL 142	TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE PROVIDED NEW BY CONTRACTOR. SEE DETAILS FOR APPURTENANCES AND LAYOUT.
T-9	TULKISARMUTE	HORIZONTAL SINGLE WALL	GASOLINE	STEEL	30,000	UL 142	TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE PROVIDED NEW BY CONTRACTOR. SEE DETAILS FOR APPURTENANCES AND LAYOUT.
T-10A/B	TULKISARMUTE	HORIZONTAL PROTECTED	GASOLINE/DIESEL	STEEL	2,500/2,500	UL 2085	EXISTING 5,000GAL DUAL PRODUCT DISPENSING TANK FURNISHED BY OWNER, CONTRACTOR INSTALLED. APPURTENANCES TO BE A COMBINATION OF SALVAGED AND PROVIDED NEW BY CONTRACTOR AS REQUIRED, SEE TANK DETAILS.

COLOCATED TANK FARM PUMP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	FUNCTION/SERVICE	MEDIUM	GPM	HEAD (FT)	RPM	HP	ELECTRICAL (VOLTS/PH)	REMARKS
P-1	GORMAN-RUPP	02K3-X2 1P	BULK TRANSFER	DIESEL	68	75	3450	2	230/1	EXPLOSION PROOF SELF PRIMING CENTRIFUGAL PUMP.
P-2	GORMAN-RUPP	81 1/2D3-X1 1P	INTERMEDIATE TRANSFER	DIESEL	40	40	3450	1	230/1	EXPLOSION PROOF SELF PRIMING CENTRIFUGAL PUMP.
P-3	GORMAN-RUPP	81 1/2D3-X1 1P	INTERMEDIATE TRANSFER	GASOLINE	40	40	3450	1	230/1	EXPLOSION PROOF SELF PRIMING CENTRIFUGAL PUMP.
P-10A	RED JACKET	P75U1	DISPENSING	GASOLINE	10	87	3450	3/4	208/1	EXPLOSION PROOF SUBMERSIBLE PUMP.
P-10B	RED JACKET	P75U1	DISPENSING	DIESEL	25	79	3450	3/4	208/1	EXPLOSION PROOF SUBMERSIBLE PUMP.

COLOCATED TANK FARM MISCELLANEOUS COMPONENT SCHEDULE

VALVE ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
FLEXIBLE CONNECTORS (FC-X)					
FC-1	3	TANK T1	FLG	--	N
FC-2	3	TANK T2	FLG	--	N
FC-3	3	TANK T3	FLG	--	N
FC-4	3	TANK T4	FLG	--	N
FC-5	3	TANK T5	FLG	--	N
FC-6	3	TANK T6	FLG	--	N
FC-7	3	TANK T7	FLG	--	N
FC-8	3	TANK T8	FLG	--	N
FC-9	3	TANK T9	FLG	--	N
FC-10A	2	TANK T10A/B (PUMP DISCHARGE)	FLG	--	N
FC-10B	2	TANK T10A/B (PUMP DISCHARGE)	FLG	--	N
FC-11	2	TANK T10A/B (DISCHARGE GRADE TRANSITION)	FLG	--	N
FC-12	2	TANK T10A/B (DISCHARGE GRADE TRANSITION)	FLG	--	N
FC-13	1-1/2	RETAIL DISPENSER ENCLOSURE	MNPT X FLG	--	N
FC-14	1-1/2	RETAIL DISPENSER ENCLOSURE	MNPT X FLG	--	N
FC-15	1-1/2	TULKISARMUTE PUMP CABINET	MNPT X FLG	--	N
FC-16	1-1/2	TULKISARMUTE PUMP CABINET	MNPT X FLG	--	N
FC-17	1-1/2	TULKISARMUTE PUMP CABINET	MNPT X FLG	--	N
FC-18	1-1/2	TULKISARMUTE PUMP CABINET	MNPT X FLG	--	N
FC-19	2	TANK T10A/B (FILL GRADE TRANSITION)	FLG	--	N
FC-20	2	TANK T10A/B (FILL GRADE TRANSITION)	FLG	--	N
FC-21	1-1/2	BULK TRANSFER HOSE REEL ENCLOSURE	FLG	--	N
FC-22	3	TNC PUMP CABINET	MNPT X FLG	--	N
FC-23	3	TNC PUMP CABINET	MNPT X FLG	--	N
FC-24	3	(E) POWER PLANT TANK	FLG	--	N
STRAINERS (S-X)					
S-1	4	BARGE HEADER	FLG	--	N
S-2	4	BARGE HEADER	FLG	--	N
S-3	4	BARGE HEADER	FLG	--	N
QUICK COUPLERS (QC-X)					
QC-1	4	BARGE HEADER	FNPT	--	N
QC-2	4	BARGE HEADER	FNPT	--	N
QC-3	4	BARGE HEADER	FNPT	--	N
PRESSURE TEST POINTS (PT-X)					
PT-1	3/4	TNC PUMP CABINET	--	--	N
PT-2	3/4	TULKISARMUTE PUMP CABINET	--	--	N
PT-3	3/4	TULKISARMUTE PUMP CABINET	--	--	N
PT-4	3/4	TANK T10A/B	--	--	N
PT-5	3/4	TANK T10A/B	--	--	N
PT-6	3/4	BULK TRANSFER HOSE REEL ENCLOSURE	--	--	N
FUEL FILTERS (F-X)					
F-1	2	TNC PUMP CABINET	FNPT	CIM TEK CENTURION TRIPLE	N
F-2	1-1/2	TULKISARMUTE PUMP CABINET	FNPT	CIM TEK CENTURION DOUBLE	N
F-3	1-1/2	TULKISARMUTE PUMP CABINET	FNPT	CIM TEK CENTURION DOUBLE	N
F-4	1-1/2	BULK TRANSFER HOSE REEL ENCLOSURE	FNPT	CIM TEK CENTURION DOUBLE	N
FUEL METER (M-X)					
M-1	1-1/2	BULK TRANSFER HOSE REEL ENCLOSURE	FNPT	--	N
HOSE REEL (HR-X)					
HR-1	1-1/2	BULK TRANSFER HOSE REEL ENCLOSURE	MNPT	--	N

COLOCATED TANK FARM VALVE SCHEDULE

VALVE ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
BALL VALVES (BV-X)					
BV-1	3	TANK T1	FLG	--	Y
BV-2	3	TANK T2	FLG	--	Y
BV-3	3	TANK T3	FLG	--	Y
BV-4	3	TANK T4	FLG	--	Y
BV-5	3	TANK T5	FLG	--	Y
BV-6	3	TANK T6	FLG	--	Y
BV-7	3	TANK T7	FLG	--	Y
BV-8	3	TANK T8	FLG	--	Y
BV-9	3	TANK T9	FLG	--	Y
BV-10	4	BARGE HEADER	FLG	--	Y
BV-11	4	BARGE HEADER	FLG	--	Y
BV-12	4	BARGE HEADER	FLG	--	Y
BV-13	3	TNC PUMP CABINET	FLG	--	Y
BV-14	2	TULKISARMUTE PUMP CABINET	FLG	--	Y
BV-15	2	TULKISARMUTE PUMP CABINET	FLG	--	Y
BV-16	2	TANK T10A/B	FLG	--	Y
BV-17	1-1/2	RETAIL DISPENSER ENCLOSURE	FLG	--	Y
BV-18	1-1/2	RETAIL DISPENSER ENCLOSURE	FLG	--	Y
BV-19	2	TANK T10A/B	FLG	--	Y
BV-20	1-1/2	BULK TRANSFER HOSE REEL ENCLOSURE	FLG	--	Y
MOTORIZED VALVES (MV-X)					
MV-1	3	TNC PUMP CABINET	FLG	--	Y
MV-2	2	TULKISARMUTE PUMP CABINET	FLG	--	Y
MV-3	2	TULKISARMUTE PUMP CABINET	FLG	--	Y
CHECK VALVES (CV-X)					
CV-1	4	BARGE HEADER	FLG	--	Y
CV-2	4	BARGE HEADER	FLG	--	Y
CV-3	4	BARGE HEADER	FLG	--	Y
CV-10A	2	TANK T10A/B	FLG	--	Y
CV-10B	2	TANK T10A/B	FLG	--	Y
PRESSURE RELIEF VALVES (PRV-X)					
PRV-1	1	TANK T5	FLG	PRESSURE SET AT 25 PSI	Y
PRV-2	1	TNC PUMP CABINET	FLG	PRESSURE SET AT 25 PSI	Y
PRV-3	1	TANK T6	FLG	PRESSURE SET AT 25 PSI	Y
PRV-4	1	TANK T8	FLG	PRESSURE SET AT 25 PSI	Y
PRV-5	1	TULKISARMUTE PUMP CABINET	FLG	PRESSURE SET AT 25 PSI	Y
PRV-6	1	TULKISARMUTE PUMP CABINET	FLG	PRESSURE SET AT 25 PSI	Y
PRV-7	1	TANK T10A/B	FLG	PRESSURE SET AT 25 PSI	Y
PRV-8	1	TANK T10A/B	FLG	PRESSURE SET AT 25 PSI	Y
PRV-9	1	BULK TRANSFER HOSE REEL ENCLOSURE	FLG	PRESSURE SET AT 25 PSI	Y
PRV-10	1	RETAIL DISPENSER ENCLOSURE	FLG	PRESSURE SET AT 25 PSI	Y
PRV-11	1	RETAIL DISPENSER ENCLOSURE	FLG	PRESSURE SET AT 25 PSI	Y
FILL LIMITING VALVES (FLV-X)					
FLV-10A	2	TANK T10A/B	FNPT	--	Y
FLV-10B	2	TANK T10A/B	FNPT	--	Y
ANTI SIPHON VALVES (AV-X)					
ASV-10A	2	TANK T10A/B	FNPT	--	N
ASV-10B	2	TANK T10A/B	FNPT	--	N
SHEAR VALVES (SV-X)					
SV-1	1-1/2	RETAIL DISPENSER ENCLOSURE	FNPT	--	N
SV-2	1-1/2	RETAIL DISPENSER ENCLOSURE	FNPT	--	N
SV-3	1-1/2	BULK TRANSFER HOSE REEL ENCLOSURE	FNPT	--	N
GLOBE VALVES (GV-X)					
GV-1	1-1/2	BULK TRANSFER HOSE REEL ENCLOSURE	FLG	REMOVE HANDLE AFTER SETTING FLOW TO 25 GPM	N

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49 TH
Brandon C. Adkins
ME-177903
04/14/26
REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP
3940 ARCTIC BLVD, SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
AECL1182 AK

TULUKSAK BULK FUEL UPGRADES

COMPONENT SCHEDULES I

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed BCA
Drawn BRP
Approved --

Sheet No. M1.2

SCHOOL TANK FARM FUEL TANK SCHEDULE

SYMBOL	OWNER	TYPE	MEDIUM	MATERIAL	TANK CAPACITY (GAL)	LISTING	REMARKS
T-1S	TNS	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	SEE TANK DETAILS FOR APPURTENANCES AND LAYOUT.
T-2S	TNS	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	SEE TANK DETAILS FOR APPURTENANCES AND LAYOUT.
T-3S	TNS	HORIZONTAL SINGLE WALL	DIESEL	STEEL	30,000	UL 142	SEE TANK DETAILS FOR APPURTENANCES AND LAYOUT.
T-4S	TNS	HORIZONTAL SINGLE WALL	DIESEL	STEEL	500	UL 142	DAY TANK FOR TECHER HOUSING, SEE TANK DETAILS FOR APPURTENANCES AND LAYOUT. SEE CIVIL FOR TANK INSTALLATION AND LOCATION.

SCHOOL TANK FARM PUMP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	FUNCTION/SERVICE	MEDIUM	GPM	HEAD (FT)	RPM	HP	ELECTRICAL (VOLTS/PH)	REMARKS
P-1S	GORMAN-RUPP	81 1/2D3-X1 1P	SCHOOL TRANSFER	DIESEL	34	43	3450	1	230/1	EXPLOSION PROOF SELF PRIMING CENTRIFUGAL PUMP.

SCHOOL TANK FARM MISCELLANEOUS COMPONENT SCHEDULE

VALVE ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
FLEXIBLE CONNECTORS (FC-XS)					
FC-1S	3	TANK T1S	FLG	--	N
FC-2S	3	TANK T2S	FLG	--	N
FC-3S	3	TANK T3S	FLG	--	N
FC-4S	1-1/2	SCHOOL PUMP CABINET	FLG	--	N
FC-5S	1-1/2	SCHOOL PUMP CABINET	FLG	--	N
FC-6S	2	(E) SCHOOL TANK	FLG	--	N
FC-7S	1-1/2	SCHOOL HOSE REEL ENCLOSURE	FLG	--	N
STRAINERS (S-XS)					
S-1S	3	SCHOOL BARGE HEADER	FLG	--	N
QUICK COUPLERS (QC-XS)					
QC-1S	3	SCHOOL BARGE HEADER	FNPT	--	N
PRESSURE TEST POINTS (PT-X)					
PT-1S	3/4	SCHOOL PUMP CABINET	--	--	N
PT-2S	3/4	SCHOOL HOSE REEL ENCLOSURE	--	--	N
FUEL FILTERS (F-XS)					
F-1S	1-1/2	SCHOOL PUMP CABINET	FNPT	CIM TEK CENTURION DOUBLE	N
FUEL METER (M-XS)					
M-1S	1-1/2	SCHOOL HOSE REEL ENCLOSURE	FNPT	--	N
HOSE REEL (HR-XS)					
HR-1S	1-1/2	SCHOOL HOSE REEL ENCLOSURE	MNPT	--	N

SCHOOL TANK FARM VALVE SCHEDULE

VALVE ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
BALL VALVES (BV-XS)					
BV-1S	3	SCHOOL BARGE HEADER	FLG	--	Y
BV-2S	3	TANK T1S	FLG	--	Y
BV-3S	3	TANK T2S	FLG	--	Y
BV-4S	3	TANK T3S	FLG	--	Y
BV-5S	2	SCHOOL PUMP CABINET	FLG	--	Y
BV-6S	1-1/2	SCHOOL HOSE REEL ENCLOSURE	FLG	--	Y
MOTORIZED VALVES (MV-XS)					
MV-1S	2	SCHOOL PUMP CABINET	FLG	--	Y
MV-2S	2	SCHOOL PUMP CABINET	FLG	--	Y
CHECK VALVES (CV-XS)					
CV-1S	3	SCHOOL BARGE HEADER	FLG	--	Y
PRESSURE RELIEF VALVES (PRV-XS)					
PRV-1S	1	TANK T11	FLG	PRESSURE SET AT 25 PSI	Y
PRV-2S	1	SCHOOL PUMP CABINET	FLG	PRESSURE SET AT 25 PSI	Y
PRV-3S	1	SCHOOL PUMP CABINET	FLG	PRESSURE SET AT 25 PSI	Y
PRV-4S	1	SCHOOL HOSE REEL ENCLOSURE	FLG	PRESSURE SET AT 25 PSI	Y
FILL LIMITING VALVES (FLV-XS)					
FLV-1S	2	(E) SCHOOL TANK	FNPT	--	Y
SHEAR VALVE (SV-XS)					
SV-1S	1-1/2	SCHOOL HOSE REEL ENCLOSURE	FNPT	--	N
GLOBE VALVE (GV-XS)					
GV-1S	1-1/2	SCHOOL HOSE REEL ENCLOSURE	FLG	REMOVE HANDLE AFTER SETTING FLOW TO 25 GPM	N

ALASKA ENERGY AUTHORITY

CRW ENGINEERING GROUP
3940 ARCTIC BLVD, SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
AECL872-AK

TULUKSAK BULK FUEL UPGRADES

COMPONENT SCHEDULES II

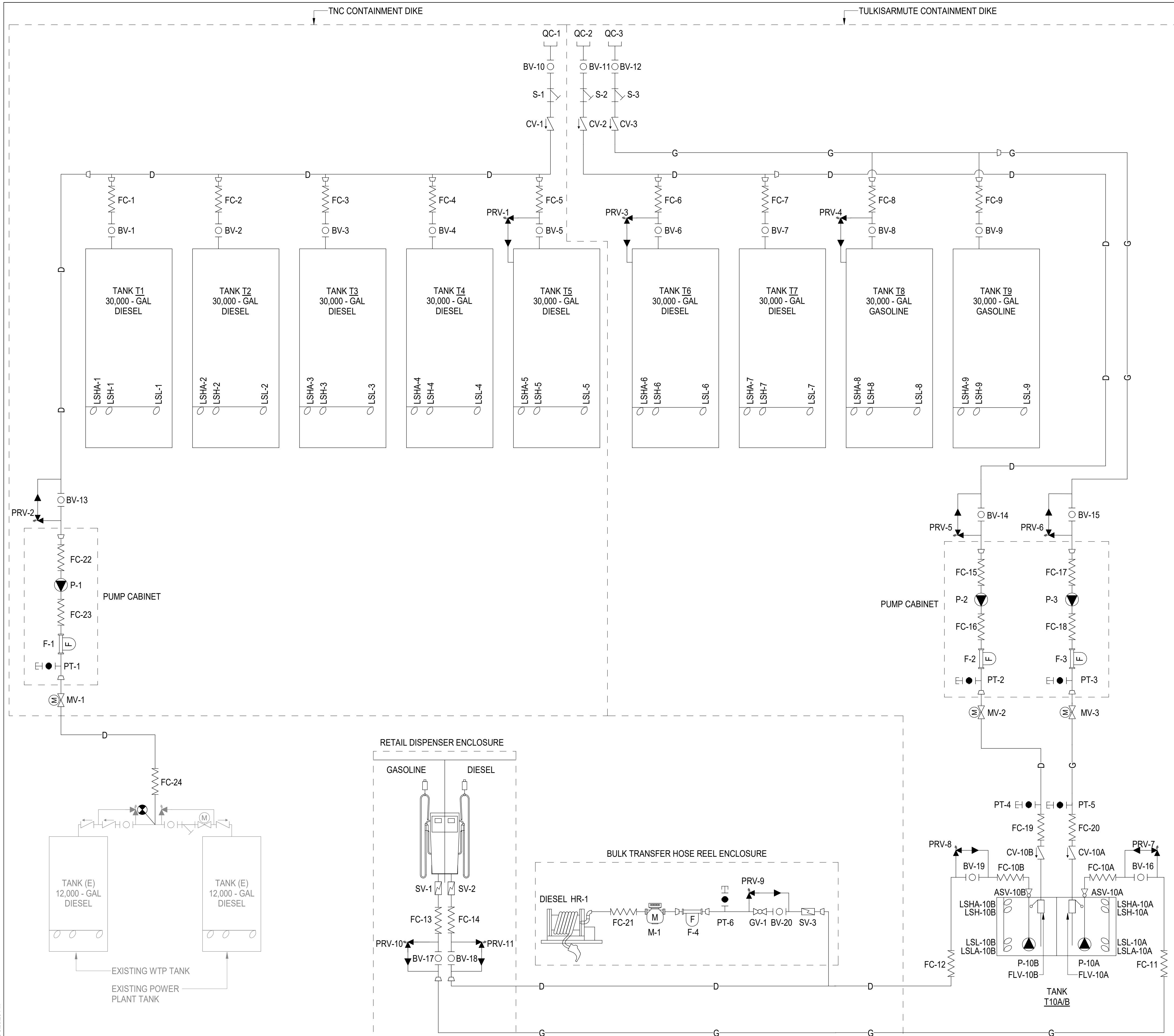
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed BCA
Drawn BCA
Approved --

Sheet No. M1.3

Plot Date: 4/14/2026 3:26:22 PM



1 **COLOCATED TANK FARM SCHEMATIC**
SCALE: NTS

GENERAL NOTES:

1. SYSTEM REPRESENTATIONS ON THIS SHEET ARE SCHEMATIC, NOT ALL PIPE FITTINGS (BENDS, REDUCERS, BUSHINGS, ETC.) ARE SHOWN. CONTRACTOR SHALL PROVIDE ALL NECESSARY FITTINGS FOR PROPER COMPONENT FIT-UP.
2. NOT ALL TANK APPURTENANCES (VENTS, ETC.) ARE SHOWN ON THIS SHEET. SEE TANK SHEETS FOR COMPONENT CALLOUTS AND INSTALLATION DETAILS.

CO-LOCATED TANK FARM OPERATIONAL NARRATIVE:

FILLING TNC TANK FARM FROM BARGE HEADER:
THE TANK FARM WILL BE FILLED VIA A BARGE HEADER WITH 4-INCH FILL PIPELINE. FLOAT SWITCHES MONITOR THE LEVEL OF FUEL IN THE BULK TANKS. WHEN FUEL LEVEL(S) FALL BELOW THE 2%-FULL POINT, LOW LEVEL LIGHTS WILL ILLUMINATE ON CONTROL PANEL CP-3. BEFORE BEGINNING THE FILL PROCESS THE OPERATOR SHALL CONFIRM THAT THE POWER PLANT AND WTP TANKS ARE ISOLATED AND THAT ALL TNC TANK ISOLATION VALVES ARE CLOSED. BULK TANKS SHOULD BE FILLED ONE AT A TIME BY SEQUENTIALLY OPENING AND CLOSING INDIVIDUAL TANK ISOLATION BALL VALVES. LINE PRESSURE WILL BE SUPPLIED BY THE BARGE PUMPING SYSTEM. THE TANK FARM OPERATOR WILL MONITOR THE FILLING PROCESS VIA CLOCK GAUGES AND/OR GAUGING ROD AT EACH TANK. WHEN THE TANK LEVEL REACHES 90%, A LIGHT ON THE CONTROL PANEL WILL INDICATE THAT THE TANK IS FULL. IF FILLING CONTINUES TO THE 95% LEVEL, A FLOAT WILL ACTIVATE AN ALARM AND THE "TANK OVERFULL" LIGHT WILL ILLUMINATE. AT THE CONCLUSION OF FILLING, CLOSE BARGE HEADER & TANK ISOLATION VALVES AND DISCONNECT FILL HOSE.

FILLING TULKISARMUTE TANK FARM FROM BARGE HEADER:
THE TANK FARM WILL BE FILLED VIA A TWO PRODUCT BARGE HEADER WITH TWO 4-INCH FILL PIPELINES. FLOAT SWITCHES MONITOR THE LEVEL OF FUEL IN THE BULK TANKS. WHEN FUEL LEVEL(S) FALL BELOW THE 2%-FULL POINT, LOW LEVEL LIGHTS WILL ILLUMINATE ON CONTROL PANEL CP-1. BEFORE BEGINNING THE FILL PROCESS THE OPERATOR SHALL CONFIRM THAT THE DISPENSING TANKS ARE ISOLATED AND THAT ALL TULKISARMUTE TANK ISOLATION VALVES ARE CLOSED. BULK TANKS SHOULD BE FILLED ONE AT A TIME BY SEQUENTIALLY OPENING AND CLOSING INDIVIDUAL TANK ISOLATION BALL VALVES. LINE PRESSURE WILL BE SUPPLIED BY THE BARGE PUMPING SYSTEM. THE TANK FARM OPERATOR WILL MONITOR THE FILLING PROCESS VIA CLOCK GAUGES AND/OR GAUGING ROD AT EACH TANK. WHEN THE TANK LEVEL REACHES 90%, A LIGHT ON THE CONTROL PANEL WILL INDICATE THAT THE TANK IS FULL. IF FILLING CONTINUES TO THE 95% LEVEL, A FLOAT WILL ACTIVATE AN ALARM AND THE "TANK OVERFULL" LIGHT WILL ILLUMINATE. AT THE CONCLUSION OF FILLING, CLOSE BARGE HEADER & TANK ISOLATION VALVES AND DISCONNECT FILL HOSE.

FILLING TULKISARMUTE DISPENSING TANKS FROM TULKISARMUTE TANK FARM:
THE DUAL PRODUCT DISPENSING TANK CONTAINS TWO COMPARTMENTS, ONE FOR GASOLINE AND ONE FOR DIESEL. THE COMPARTMENTS ARE FILLED FROM CORRESPONDING BULK TANKS. THE DISPENSING TANK FILL OPERATION IS CONTROLLED MANUALLY FROM CONTROL PANEL CP-1 LOCATED WITHIN THE SALES KIOSK. FLOAT SWITCHES MONITOR THE LEVEL OF FUEL IN THE DISPENSING TANKS. WHEN FUEL LEVEL(S) FALL BELOW THE 50%-FULL POINT, LOW LEVEL LIGHTS WILL ILLUMINATE ON CONTROL PANEL CP-1. ENSURE THAT THE BULK TANKS HAVE SUFFICIENT FUEL FOR THE TRANSFER. PRESS THE PUMP START BUTTON ON CONTROL PANEL CP-1. THE PUMP WILL RUN FOR UP TO 15 MINUTES BEFORE NEEDING TO BE STARTED AGAIN. HIGH LEVEL FLOAT SWITCHES WITHIN THE DISPENSING TANK AUTOMATICALLY DE-ENERGIZE THE TRANSFER PUMP AND CLOSE THE MOTORIZED BALL VALVE WHEN THE FUEL LEVEL REACHES 90% FULL. IF THE MOTORIZED VALVE & PUMP FAIL TO SHUTOFF, A MECHANICAL FILL LIMITER WILL STOP FUEL FLOW AT 95% AND AN ALARM WILL SOUND. DO NOT LEAVE THE FACILITY WHEN TRANSFERS ARE UNDERWAY!

RETAIL DISPENSER OPERATION:
RETAIL FUEL SALES WILL BE CONDUCTED VIA AN ELECTRONIC POINT OF SALE SYSTEM LOCATED WITHIN THE CORPORATION FUEL SALES CONNEX. CUSTOMERS WILL ENTER THE CONNEX AND PREPAY FOR FUEL, AT WHICH TIME THE FUEL ATTENDANT WILL ENERGIZE THE DISPENSER. THE FUEL CONTROL SYSTEM WILL LIMIT THE DISPENSED QUANTITY TO THE PREPAID AMOUNT, AFTER WHICH THE CUSTOMER WILL RETURN TO THE FUEL SALES CONNEX TO RECEIVE A RECEIPT FOR THE TRANSACTION.

BULK TRANSFER HOSE REEL DISPENSER OPERATION:
PRIOR TO FILLING, TURN OFF ENGINE, CHOCK WHEELS AND CONNECT STATIC GROUNDING CABLE. OPEN ISOLATION VALVE, INPUT DESIRED FUEL VOLUME INTO PRE-SET METER, AND SET SPRING LOADED MECHANICAL VALVE. UNWIND HOSE, PLACE NOZZLE IN APPROVED FUEL CONTAINER, DEPRESS PUMP START BUTTON ON CONTROLLER CP-2 TO PRESSURIZE HOSE, AND DEPRESS TRIGGER TO INITIATE FLOW. THE PUMP WILL RUN FOR UP TO 15 MINUTES BEFORE NEEDING TO BE STARTED AGAIN. 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.

FILLING POWER PLANT/WTP TANKS FROM TNC TANK FARM:
THE TWO SEPARATE TANKS ARE FILLED FROM CORRESPONDING BULK TANKS VIA AN ABOVE GRADE 3-INCH FILL PIPELINE. THE TANK FILL OPERATION IS CONTROLLED MANUALLY BY A COMBINATION OF THE EXISTING CONTROLS, CONTROL PANEL CP-3 LOCATED AT THE TNC TANK FARM, AND CONTROLLER CP-4 ADJACENT TO THE POWER PLANT TANK. BEFORE STARTING FUEL TRANSFER, ENSURE THAT THE BULK TANKS HAVE SUFFICIENT FUEL FOR THE TRANSFER AND THE FUEL TRANSFER ISOLATION VALVES FOR THE POWER PLANT/WTP TANKS ARE CLOSED. PRESS THE PUMP START BUTTON ON CONTROLLER CP-4 TO START THE TRANSFER PUMP AND OPEN MV-1. OPEN THE DESIRED FUEL TRANSFER CONTROL VALVE WITH THE EXISTING CONTROLS TO START THE FUEL TRANSFER. THE PUMP WILL RUN FOR UP TO 15 MINUTES BEFORE NEEDING TO BE STARTED AGAIN. WHEN THE EXISTING LEVEL MONITORING SYSTEMS INDICATE THE TANK IS FULL, PRESS THE PUMP STOP BUTTON ON CONTROLLER CP-4 TO STOP THE TRANSFER PUMP AND CLOSE MV-1. THEN ALSO CLOSE THE CONTROL VALVE THAT WAS BEING USED FOR FUEL TRANSFER WITH THE EXISTING CONTROLS. IF FILLING CONTINUES, THE EXISTING MECHANICAL FILL LIMITER WILL POSITIVELY SHUT OFF FUEL FLOW TO THE TANK. DO NOT LEAVE THE FACILITY WHEN TRANSFERS ARE UNDERWAY!

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH Brandon C. Adkins ME-177593 04/14/26 REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP
3940 ARCTIC BLVD, SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
AECL827-AK

TULUKSAK BULK FUEL UPGRADES
COLOCATED TANK FARM SCHEMATIC
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed BCA
Drawn BRP
Approved --

Sheet No. M1.4

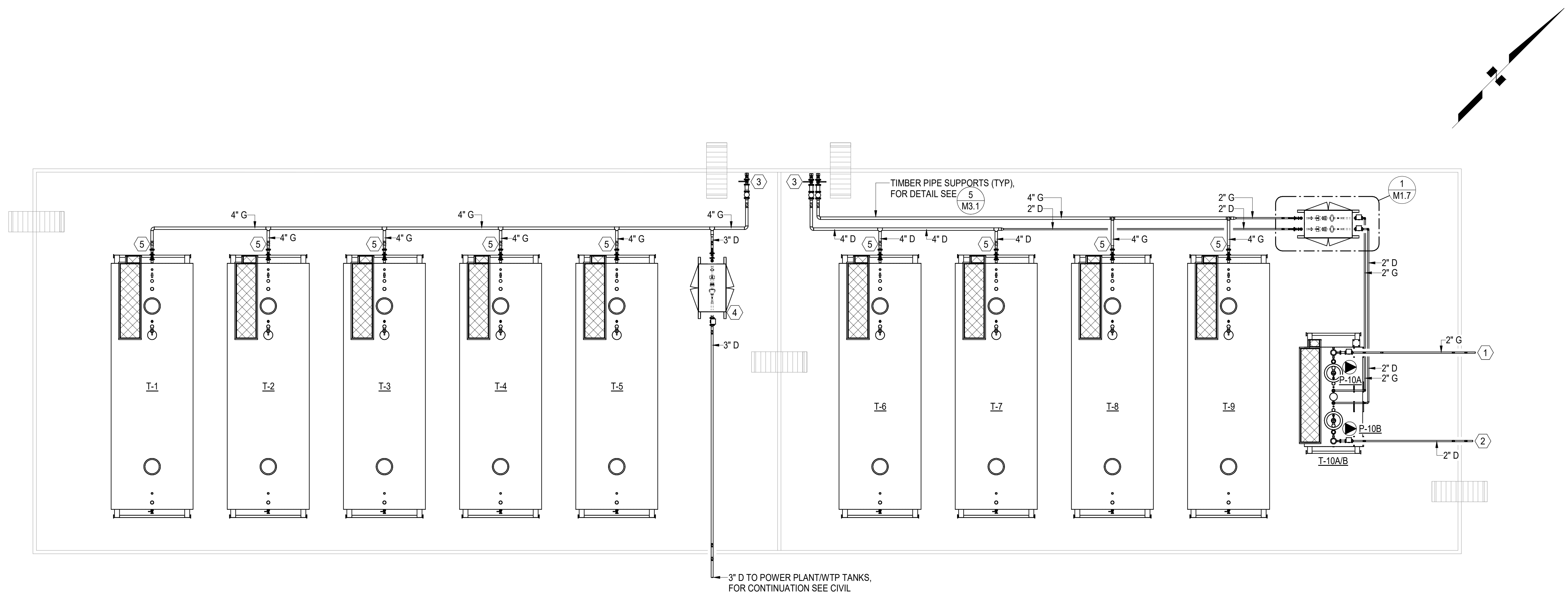
Plot Date: 4/14/2026 3:26:23 PM

GENERAL NOTES:

1. NOT ALL APPURTENANCES (VENTS, ETC.) ARE SHOWN ON THIS SHEET. SEE TANK DETAILS AND FUEL PIPING SCHEMATIC.

SHEET NOTES:

1. 2" G TO RETAIL DISPENSER, FOR CONTINUATION SEE CIVIL
2. 2" D TO RETAIL DISPENSER AND HOSE REEL, FOR CONTINUATION SEE CIVIL
3. BARGE HEADER, FOR DETAIL SEE 1/M3.1
4. PUMP CABINET, FOR DETAIL SEE 1/M1.7
5. REDUCE PIPING TO 3" BEFORE TANK FLEXIBLE CONNECTOR.



1 COLOCATED TANK FARM PIPING PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16'

ALASKA ENERGY AUTHORITY

CRW ENGINEERING GROUP

TULUKSAK BULK FUEL UPGRADES

COLOCATED TANK FARM PIPING PLAN

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26

Designed BCA

Drawn BRP

Approved --

Sheet No. M1.5

Plot Date: 4/14/2026 3:26:25 PM

SCHOOL TANK FARM OPERATIONAL NARRATIVE:

FILLING SCHOOL TANK FARM FROM BARGE HEADER:

THE TANK FARM WILL BE FILLED VIA A BARGE HEADER WITH 3-INCH FILL PIPELINE. FLOAT SWITCHES MONITOR THE LEVEL OF FUEL IN THE BULK TANKS. WHEN FUEL LEVEL(S) FALL BELOW THE 2%-FULL POINT, LOW LEVEL LIGHTS WILL ILLUMINATE ON CONTROL PANEL CP-5. BEFORE BEGINNING THE FILL PROCESS THE OPERATOR SHALL CONFIRM THAT THE SCHOOL INTERMEDIATE TANK IS ISOLATED AND THAT ALL TANK ISOLATION VALVES ARE CLOSED. BULK TANKS SHOULD BE FILLED ONE AT A TIME BY SEQUENTIALLY OPENING AND CLOSING INDIVIDUAL TANK ISOLATION BALL VALVES. LINE PRESSURE WILL BE SUPPLIED BY THE BARGE PUMPING SYSTEM. THE TANK FARM OPERATOR WILL MONITOR THE FILLING PROCESS VIA CLOCK GAUGES AND/OR GAUGING ROD AT EACH TANK. WHEN THE TANK LEVEL REACHES 90%, A LIGHT ON THE CONTROL PANEL WILL INDICATE THAT THE TANK IS FULL. IF FILLING CONTINUES TO THE 95% LEVEL, A FLOAT WILL ACTIVATE AN ALARM AND THE "TANK OVERFULL" LIGHT WILL ILLUMINATE. AT THE CONCLUSION OF FILLING, CLOSE BARGE HEADER & TANK ISOLATION VALVES AND DISCONNECT FILL HOSE.

FILLING INTERMEDIATE SCHOOL TANK FROM SCHOOL TANK FARM:

THE INTERMEDIATE SCHOOL TANK IS FILLED FROM CORRESPONDING BULK TANKS VIA A BURIED 2-INCH FILL PIPELINE. THE TANK FILL OPERATION IS CONTROLLED BY CONTROL PANEL CP-5 LOCATED AT THE SCHOOL TANK FARM AND CONTROLLER CP-6 LOCATED ADJACENT TO THE INTERMEDIATE SCHOOL TANK. WHEN FUEL LEVEL FALLS BELOW 50% FULL, AS MEASURED BY THE LOW LEVEL SWITCH OF THE CLOCK GAUGE, A LOW LEVEL LIGHT WILL ILLUMINATE ON CP-5. BEFORE STARTING FUEL TRANSFER, ENSURE THAT THE BULK TANKS HAVE SUFFICIENT FUEL FOR THE TRANSFER AND THE FUEL TRANSFER ISOLATION VALVES FOR THE TANKS ARE OPEN. PRESS THE PUMP START BUTTON ON CONTROLLER CP-6 TO START THE TRANSFER PUMP AND OPEN MV-1S TO START THE FUEL TRANSFER. THE PUMP WILL RUN FOR UP TO 15 MINUTES BEFORE NEEDING TO BE STARTED AGAIN. AT 90% FULL AS MEASURED BY THE HIGH LEVEL SWITCH OF THE CLOCK GAUGE, CP-5 TO STOP THE TRANSFER PUMP, CLOSE MV-1S, AND ILLUMINATE A HIGH LEVEL LIGHT ON CP-5. IF FILLING CONTINUES, A MECHANICAL FILL LIMITER WILL POSITIVELY SHUT OFF FUEL FLOW TO THE TANK AT 95% FULL. DO NOT LEAVE THE FACILITY WHEN TRANSFERS ARE UNDERWAY!

SCHOOL HOSE REEL DISPENSER OPERATION:

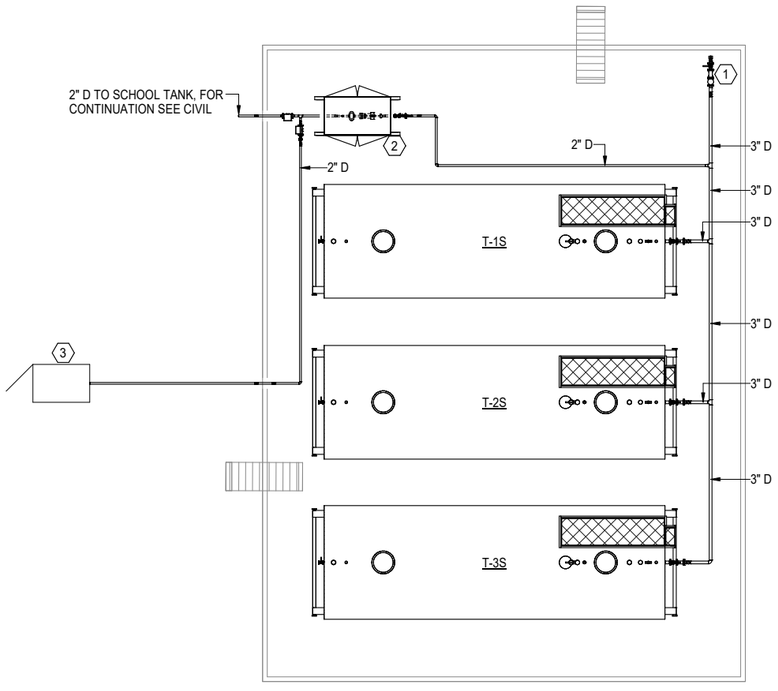
PRIOR TO FILLING, TURN OFF ENGINE, CHOCK WHEELS AND CONNECT STATIC GROUNDING CABLE. OPEN ISOLATION VALVE, INPUT DESIRED FUEL VOLUME INTO PRE-SET METER, AND SET SPRING LOADED MECHANICAL VALVE. UNWIND HOSE, PLACE NOZZLE IN APPROVED FUEL CONTAINER, DEPRESS PUMP START BUTTON ON CONTROLLER CP-7 TO START THE PUMP AND OPEN MV-2S, THEN 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. THE PUMP WILL RUN FOR UP TO 15 MINUTES BEFORE NEEDING TO BE STARTED AGAIN. WHEN FUELING IS COMPLETE, DEPRESS PUMP STOP BUTTON ON CONTROLLER CP-7 TO STOP PUMP AND CLOSE MV-2S, WIND HOSE ONTO REEL, HANG UP NOZZLE, AND NOTE VOLUME OF FUEL DISPENSED.

GENERAL NOTES:

1. NOT ALL APPURTENANCES (VENTS, ETC.) ARE SHOWN ON THIS SHEET. SEE TANK DETAILS.

SHEET NOTES:

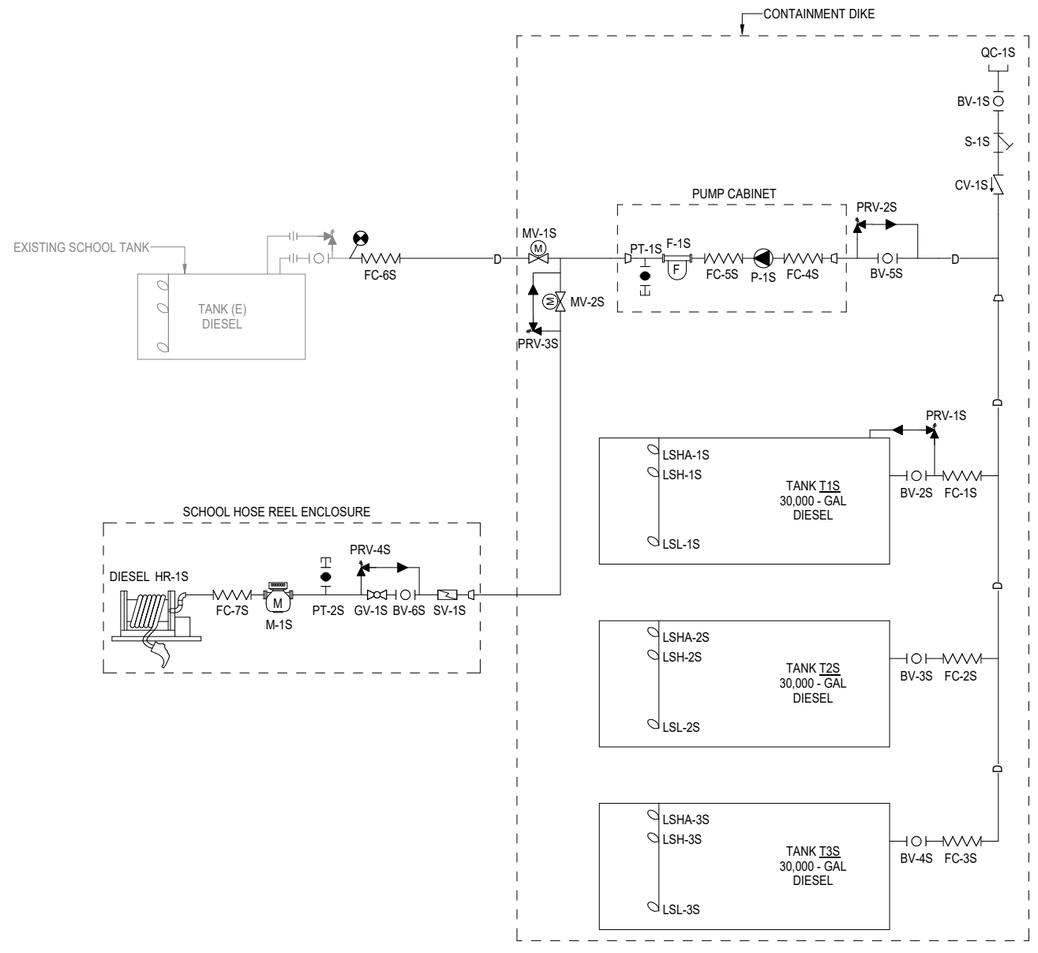
1. BARGE HEADER, FOR DETAIL SEE (1 / M3.1)
2. PUMP CABINET, FOR DETAIL SEE (1 / M1.7)
3. HOSE REEL DISPENSER, FOR DETAIL SEE (1 / M3.2)



1 SCHOOL TANK FARM PIPING PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16'



2 SCHOOL TANK FARM SCHEMATIC

SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — Brandon C. Calkins — ME-17903 — 04/14/26 — REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
MAE@CRWENG.COM

TULUKSAK BULK FUEL UPGRADES

SCHOOL TANK FARM PIPING PLAN AND SCHEMATIC

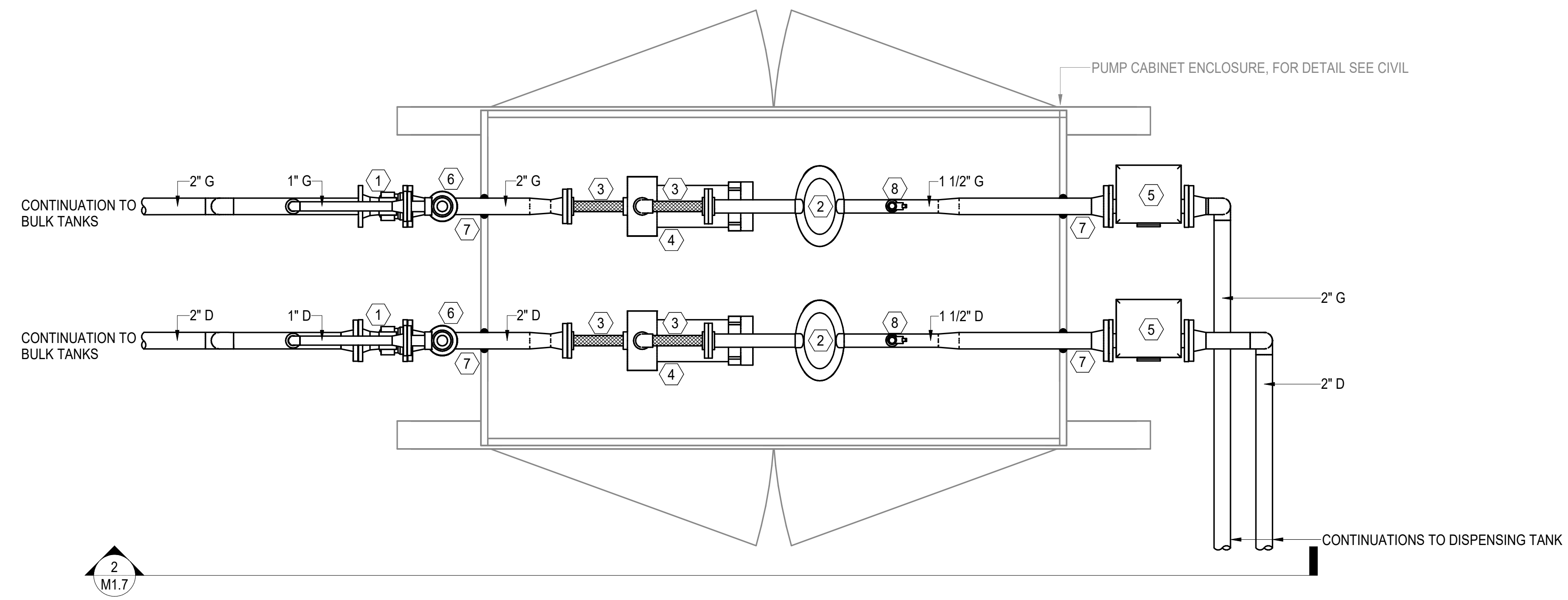
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

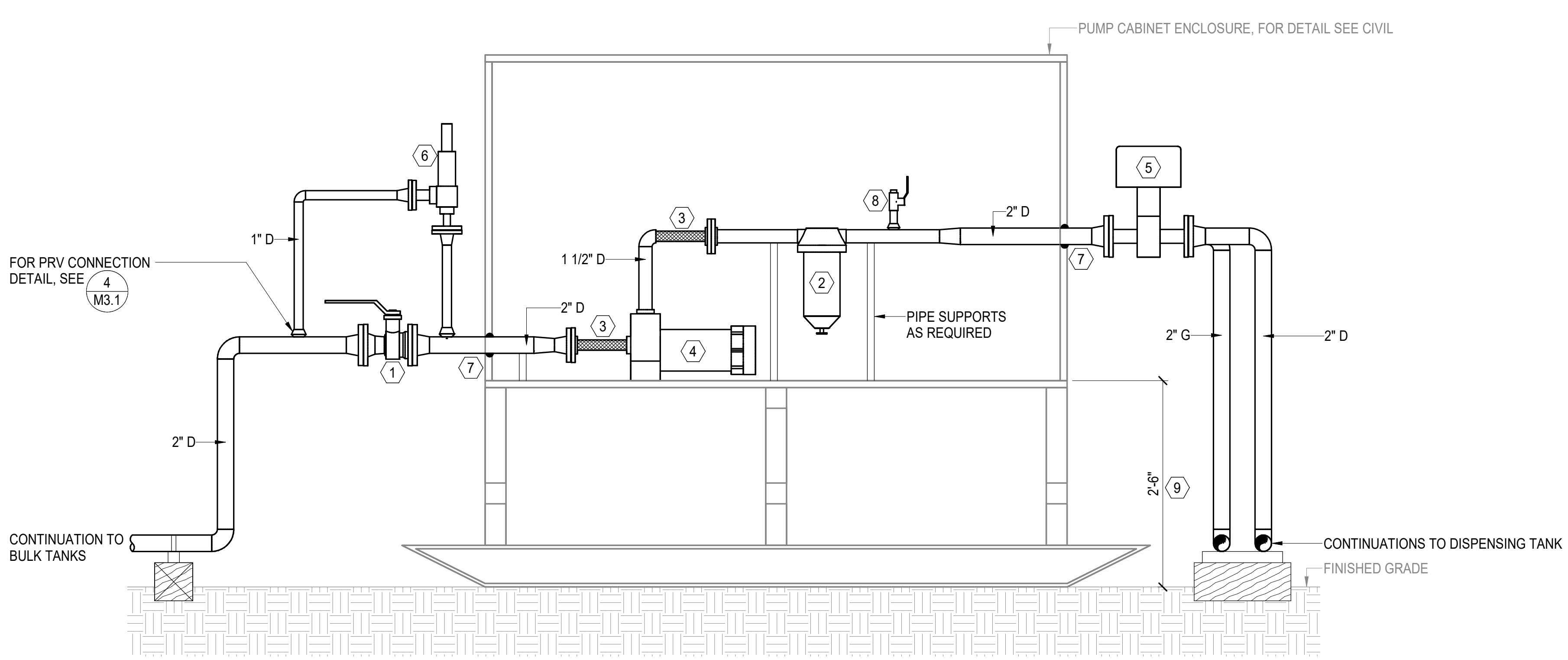
Plot Date 4/14/26
Designed BCA
Drawn BCA
Approved --

Sheet No. M1.6

Plot Date: 4/14/2026 3:26:27 PM



1 PUMP CABINET ENLARGED PLAN
SCALE: 1" = 1'-0"



2 PUMP CABINET VIEW
SCALE: 1" = 1'-0"

GENERAL NOTES:

1. TULKISARMUTE PUMP CABINET SHOWN, OTHER PUMP CABINETS TO BE SIMILAR.

SHEET NOTES:

1. BALL VALVE
2. FUEL FILTER
3. FLEXIBLE CONNECTOR
4. TRANSFER PUMP
5. MOTORIZED BALL VALVE
6. PRESSURE RELIEF VALVE
7. ENVIROFLEX PENETRATION BOOT
8. PRESSURE TEST CONNECTION, FOR DETAIL SEE 3 M3.1
9. BOTTOM OF PUMP CABINET MUST BE HIGHER THAN TOP OF DIKE

ALASKA ENERGY AUTHORITY

CRW ENGINEERING GROUP
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
AECL1102, AK

TULUKSAK BULK FUEL UPGRADES
PUMP CABINET PIPING
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed BCA
Drawn BRP
Approved --

Sheet No. M1.7

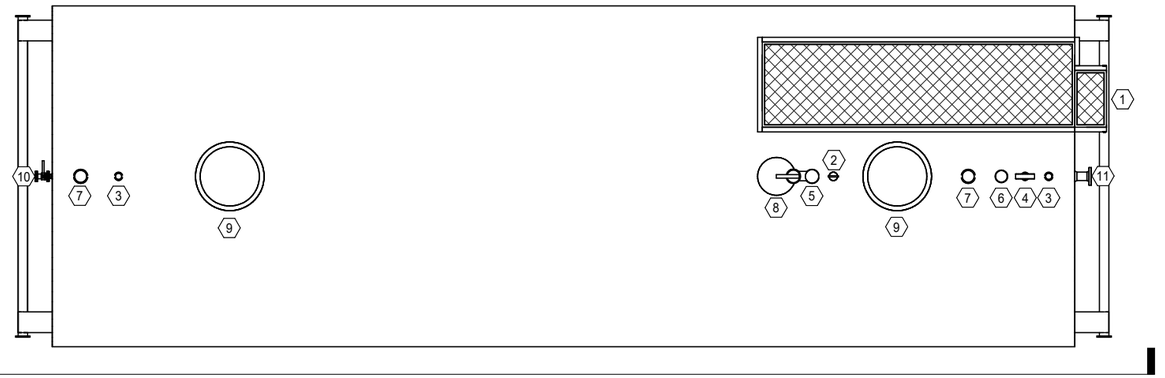
Plot Date: 4/14/2026 3:26:28 PM

GENERAL NOTES:

1. 30,000 GALLON TANKS SHALL BE OWNER FURNISHED AND CONTRACTOR INSTALLED.
2. SEE CIVIL FOR TANK FABRICATION AND FOUNDATION DETAILS.
3. CONTRACTOR SHALL PROVIDE ALL VALVES, NORMAL VENTS, EMERGENCY VENTS, LEVEL GAUGES, SAMPLE HATCHES, FLOATS, PLUGS, AND OTHER APPURTENANCES. SEE SPECIFICATIONS FOR DETAILED COMPONENT SPECIFICATIONS.
4. PROVIDE UL APPROVED GROUNDING LUG ON TANK SKIDS (TYP 2, ON OPPOSITE CORNERS)
5. INSTALL PRESSURE RELIEF VALVE (PRV) ASSEMBLIES IN LOCATIONS INDICATED ON PIPING PLAN AND SCHEMATIC.
6. ALL REQUIRED PENETRATIONS, STANDOFFS, PIPE SUPPORTS, ETC. SHALL BE BOLT ON OR FACTORY INSTALLED. FIELD WELDING ON TANKS IS PROHIBITED.

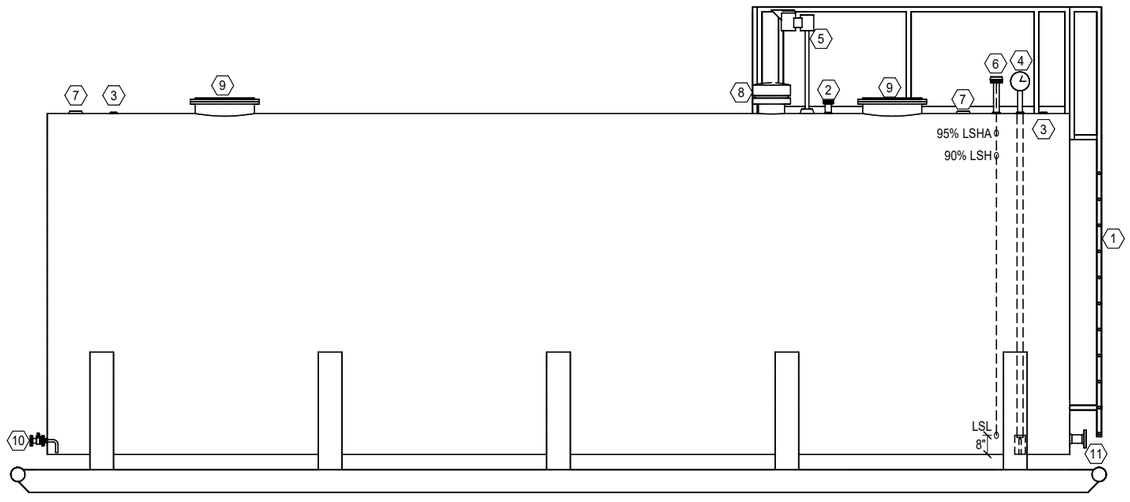
SHEET NOTES:

1. SHOP FABRICATED BOLT ON ACCESS LADDER AND PLATFORM.
2. 2" NPT THREADED TANK OPENING - GAUGE HATCH
3. 2" NPT THREADED TANK OPENING - PRV OR SPARE WITH PLUG AS APPROPRIATE
4. 2" NPT THREADED TANK OPENING - CLOCK GAUGE ON 2" Ø X 18" LONG NIPPLE, SET GREEN ARROW AT 50% LEVEL AND RED ARROW AT 90%, FOR DETAIL SEE (1/M2.4)
5. 3" NPT THREADED TANK OPENING - PRESSURE/VACUUM VENT WITH WHISTLE ALARM
6. 3" NPT THREADED TANK OPENING - 3-POSITION LEVEL SWITCH, SENSOR POSITIONS FACTORY SET AS SHOWN.
7. 4" NPT THREADED TANK OPENING - SPARE WITH PLUG
8. 10" FLANGED PENETRATION - EMERGENCY VENT
9. 24" FLANGED ACCESS HATCH WITH COVER
10. 1" ANSI#300 R.F. FLANGED TANK NOZZLE - WATER DRAW
11. 3" FLANGED NOZZLE - FILL/DRAW, FOR DETAIL SEE (4/M2.4)



(2/M2.1)

1 30,000 GALLON SINGLE WALL TANK PLAN
SCALE: NTS



2 30,000 GALLON SINGLE WALL TANK ELEVATION
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — Brandon C. Calkins — ME-17903 — 04/14/26 — REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES
30,000 GALLON TANK DETAILS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26 | Designed BCA | Drawn BRP | Approved --

Sheet No. M2.1

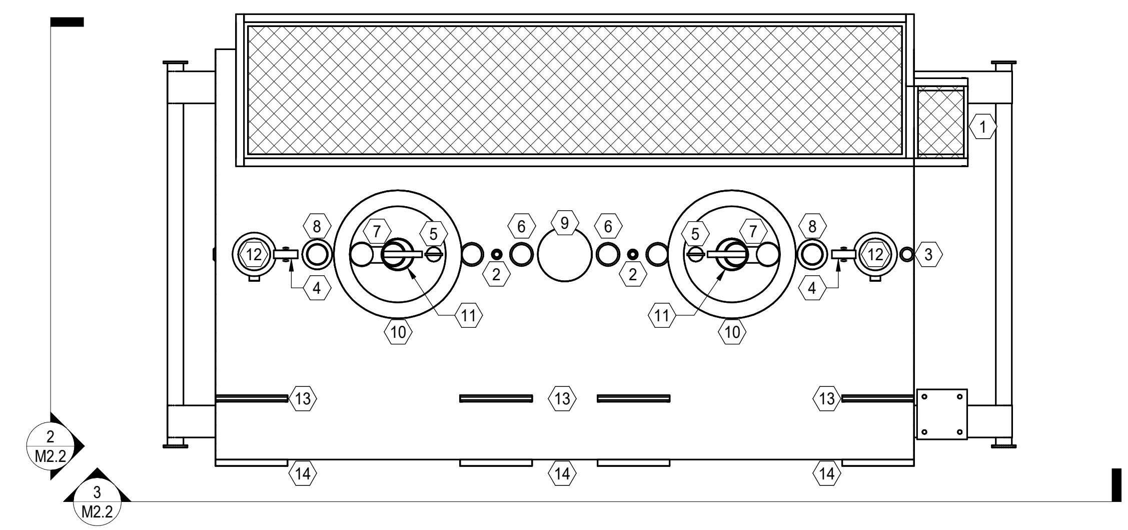
Plot Date: 4/14/2026 3:26:28 PM

GENERAL NOTES:

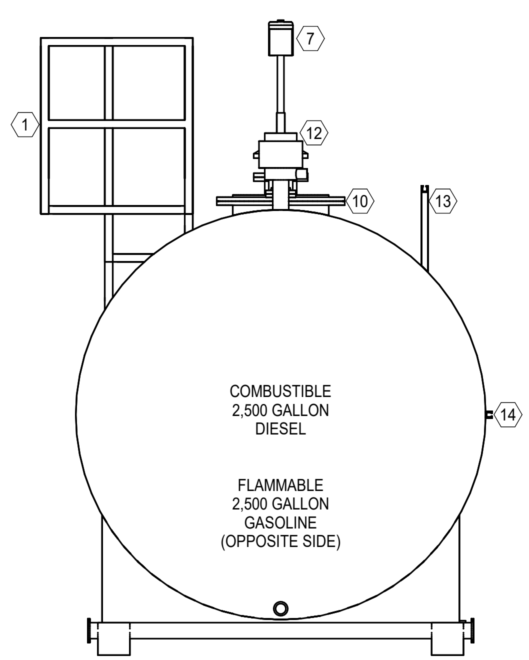
1. EXISTING 5,000 GALLON DUAL PRODUCT PROTECTED TANK SHALL BE FURNISHED BY THE CORPORATION AND TRIBE, AND INSTALLED BY THE CONTRACTOR. THE TANK IS EXISTING, UNUSED, AND APPROXIMATELY 8'-6.5" OUTER DIAMETER BY 14'-6.625" LONG.
2. CONTRACTOR SHALL TRANSFER ANY LIQUIDS IN THE TANK, CLEAN, FIELD PREP AND TOUCH UP THE TANK EXTERIOR COATING IN ACCORDANCE WITH THE SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
3. CONTRACTOR SHALL CONFIRM SALVAGEABLE APPURTENANCES AVAILABLE ONSITE IN THE AEA CONNEX AND PROVIDE NEW COMPONENTS AS REQUIRED; INCLUDING VALVES, NORMAL VENTS, EMERGENCY VENTS, LEVEL GAUGES, SAMPLE HATCHES, PLUGS, AND OTHER APPURTENANCES.
4. CONTRACTOR SHALL FIELD VERIFY TANK PENETRATIONS PRIOR TO ORDERING COMPONENTS.
5. INSTALL PRESSURE RELIEF VALVE (PRV) ASSEMBLIES IN LOCATIONS INDICATED ON PIPING PLAN AND SCHEMATIC.

SHEET NOTES:

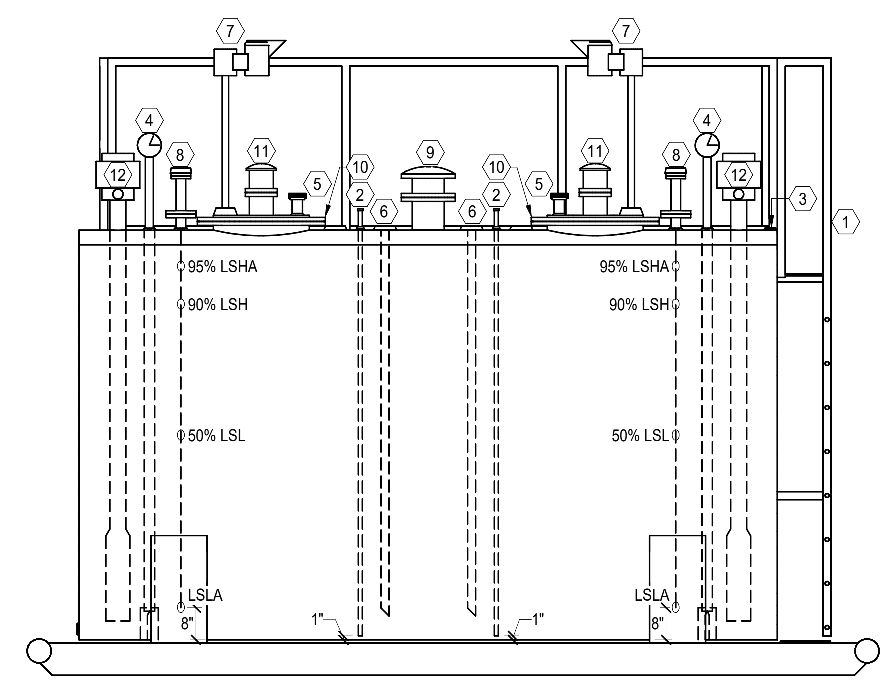
1. EXISTING BOLT ON ACCESS LADDER AND PLATFORM FURNISHED BY OWNER, CONTRACTOR FIELD INSTALLED.
2. 2" NPT THREADED TANK OPENING - WATER DRAW, FOR DETAIL SEE 2/M2.4
3. 2" NPT THREADED TANK OPENING - SECONDARY TANK MONITORING BUNG WITH PLUG.
4. 2" NPT THREADED TANK OPENING - CLOCK GAUGE ON 2" Ø X 18" LONG NIPPLE, SET GREEN ARROW AT 50% LEVEL AND RED ARROW AT 90%, FOR DETAIL SEE 1/M2.4
5. 2" NPT THREADED TANK OPENING - 2" NPT GAUGE HATCH INSTALLED ON 2" Ø X 4" LONG NIPPLE.
6. 4" NPT THREADED TANK OPENING - FILL WITH DROP TUBE, CONNECT PIPING WITH 4" X 2" REDUCING BUSHING.
7. 3" NPT THREADED TANK OPENING - 2" PRESSURE VACUUM VENT WITH WHISTLE ALARM. INSTALL WITH 3" X 2" REDUCING BUSHING, NIPPLE LENGTH WILL VARY WITH TANK DIAMETER. VENT MUST BE 12' ABOVE FINISHED GRADE. FEED CABLE THROUGH PIPE PRIOR TO CONNECTING TO TANK. SET WHISTLE TO ALARM AT 90% FULL.
8. 3" FLANGED PENETRATION - 4-POSITION LEVEL SWITCH, SENSOR POSITIONS FACTORY SET AS SHOWN.
9. 8" FLANGED PENETRATION - SECONDARY EMERGENCY VENT.
10. 24" FLANGED PENETRATION - MANHOLE.
11. 6" FLANGED PRIMARY EMERGENCY VENT.
12. SUBMERSIBLE PUMP, FOR DETAIL SEE 3/M2.4
13. BOLT ON PIPE SUPPORT.
14. WELDED ON STRUT SUPPORT.



1 **EXISTING 5,000 GALLON DUAL PRODUCT DISPENSING TANK PLAN**
SCALE: NTS



2 **EXISTING 5,000 GALLON DUAL PRODUCT DISPENSING TANK END VIEW**
SCALE: NTS



3 **EXISTING 5,000 GALLON DUAL PRODUCT DISPENSING TANK ELEVATION**
SCALE: NTS

ALASKA ENERGY AUTHORITY

CRW ENGINEERING GROUP

TULUKSAK BULK FUEL UPGRADES
5,000 GALLON TANK REFURBISHMENT DETAILS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed BCA
Drawn BRP
Approved --

Sheet No. M2.2

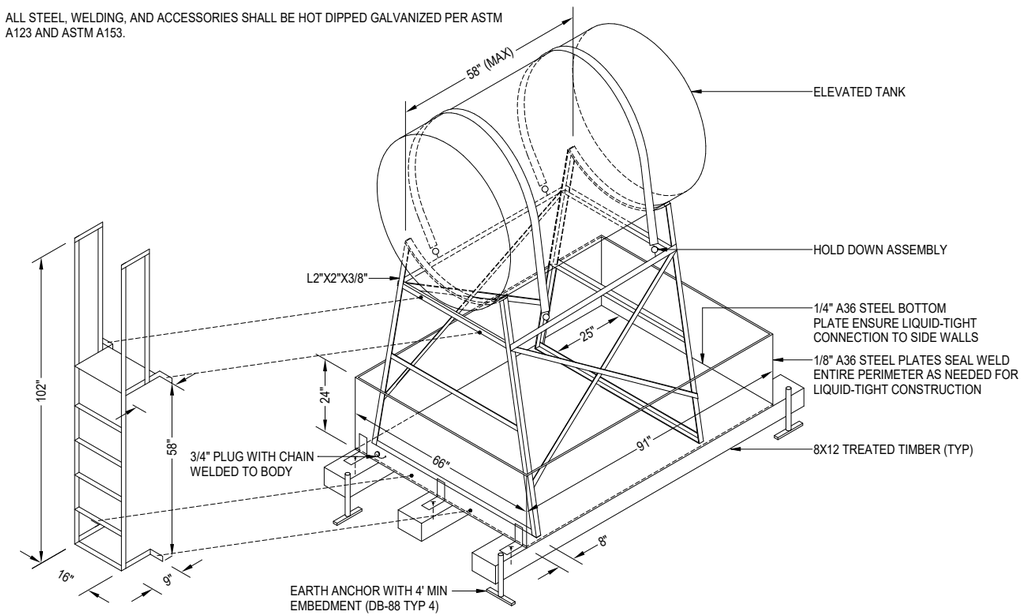
Plot Date: 4/14/2026 3:26:29 PM

GENERAL NOTES:

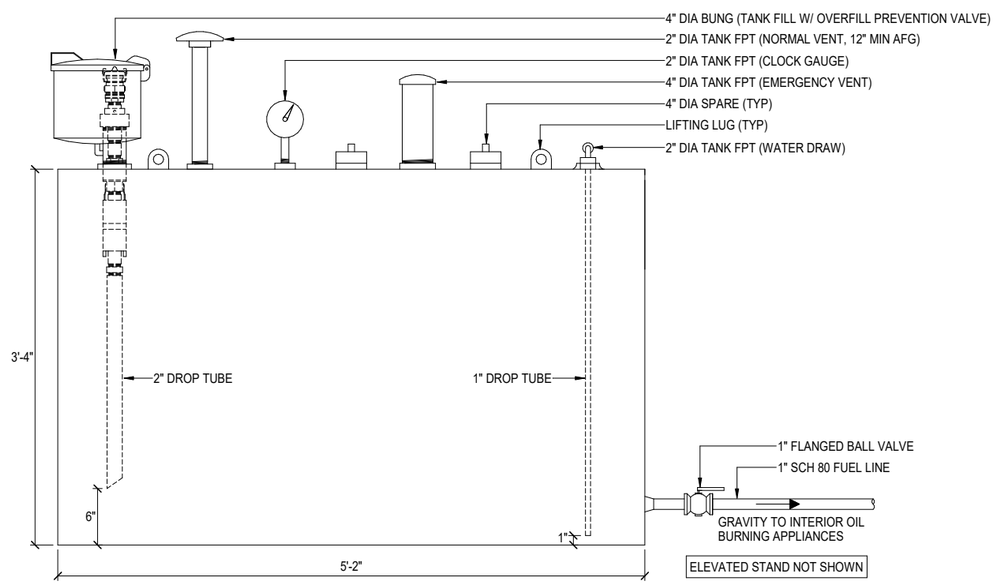
1. FOR TANK INSTALLATION AND LOCATION SEE CIVIL.

TANK STAND NOTES:

1. SUPPORT MEMBERS SHALL BE 2-INCH X 2-INCH X 3/8-INCH ANGLE MINIMUM, OR AS REQUIRED TO MEET UL-142.
2. LADDERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH OSHA REQUIREMENTS.
3. 1/8-INCH ASTM A36 STEEL SIDE PLATES SHALL BE BENT OR SEAL WELDED TO PROVIDE A LIQUID TIGHT PERIMETER FOR THE OVERSPILL PAN. INSTALL A 3/4-INCH PLUG WITH CHAIN WELDED TO PAN BODY WALL AS INDICATED ON DRAWING. PLUG REMOVAL SHALL NOT REQUIRE DISCONNECTING CHAIN.
4. BOTTOM PLATE SHALL BE CONSTRUCTED USING 1/4-INCH ASTM A36 STEEL PLATE AND SEAL WELDED TO THE SIDE PLATES TO CREATE A LIQUID TIGHT OVERSPILL PAN. ADHERE CLOSELY TO THE INDICATED DIMENSIONS FOR THE OVERSPILL PAN.
5. PROVIDE HOLD DOWN ASSEMBLIES TO ATTACH TO TANK STAND. CUSTOMIZED LENGTH ACE TANK ACHDAOXXE WITH ISOLATION STRIP ACHDA-RS AND TURNBUCKLE ACHDA-TB OR APPROVED EQUAL.
6. PROVIDE 3-INCH X 3-INCH X 3/8-INCH ASTM A36 ANGLE CLIPS WELDED TO THE OUTSIDE EDGE OF THE DRIP PAN AS INDICATED ON THE DRAWING. THESE CLIPS SHALL BE AFFIXED FLUSH WITH THE BOTTOM OF THE PAN TO FACILITATE BOLTING ONTO 6-INCH X 6-INCH TREATED TIMBERS. ALL WELDS SHALL BE 1/8" FILLET, MIN LENGTH OF CONTACT UNLESS OTHERWISE NOTED.
7. TANK STAND SHALL BE WELDED TO INSIDE OF OVERSPILL PAN. TANK STAND, OVERSPILL PAN, AND LADDER ASSEMBLY SHALL BE COATED SAME AS TANK.
8. TANK STANDS SHALL BE CONSTRUCTED IN SUCH A WAY THAT THE TOP OF THE TANK WILL NOT EXCEED 7.5' FROM GROUND LEVEL. DIMENSIONS WILL VARY BASED ON 300 GALLON AND 550 GALLON TANKS BEING SUPPORTED.
9. EARTH ANCHOR: FORESIGHT PRODUCTS, LLC MODEL MR-88, OR APPROVED EQUAL. INSTALL IAW MANUFACTURERS RECOMMENDATIONS.
10. USE 3/8"Ø X 4" LAG SCREW AT CLIP LOCATION CENTER ON TIMER, TYP.
11. ALL STEEL, WELDING, AND ACCESSORIES SHALL BE HOT DIPPED GALVANIZED PER ASTM A123 AND ASTM A153.



1 500 GALLON DAY TANK WITH STAND
SCALE: NTS



2 500 GALLON DAY TANK (ELEVATED STAND NOT SHOWN)
SCALE: NTS

3 EXISTING TEACHER HOUSING TANK FRONT VIEW
SCALE: NTS

ABANDON DIESEL SUPPLY LINE PER CIVIL DECOMMISSIONING PLAN, SEE CIVIL FOR CONTINUATION

DEMOLISH EXISTING TANK AND STAND

4 EXISTING TEACHER HOUSING TANK SIDE VIEW
SCALE: NTS

DEMOLISH EXISTING TANK AND STAND

EXISTING FUEL OIL SUPPLY PIPING TO REMAIN, CONNECT TO NEW TANK

STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — Nicholas C. Collins — CE-13218 — 04/14/26

STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — Brandon C. Collins — ME-17903 — 04/14/26

ALASKA ENERGY AUTHORITY

CRW ENGINEERING GROUP
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
MAEC.BIZ/AK

TULUKSAK BULK FUEL UPGRADES

500 GALLON TANK DETAILS

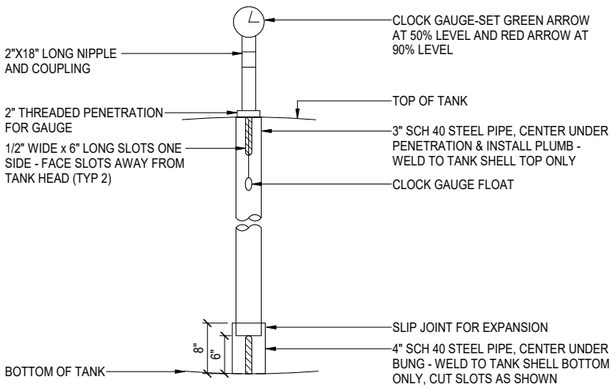
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

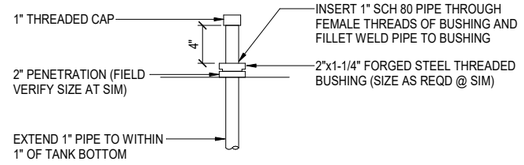
Plot Date 4/14/26
Designed NCP
Drawn BCA
Approved --

Sheet No. M2.3

Plot Date: 4/14/2026 3:26:31 PM



1 GAUGE FLOAT STILLING WELL
SCALE: NTS

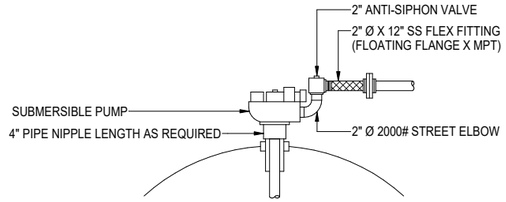


NOTE: REMOVE CAP AND INSTALL BARREL PUMP FOR WATER DRAW

2 TYP. WATER DRAW
SCALE: NTS

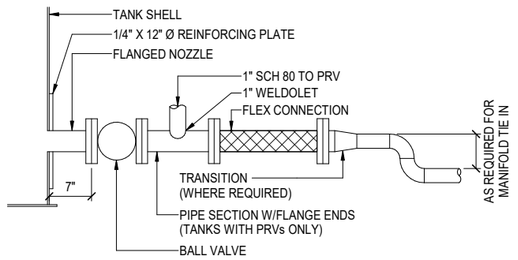
GENERAL NOTES:

1. FIELD WELDING ON TANKS IS PROHIBITED. ALL STANDOFFS, STILLING WELLS, BUNGS, ETC. ARE TO BE INSTALLED BY THE CERTIFIED TANK MANUFACTURER.



3 SUBMERSIBLE PUMP ASSEMBLY
SCALE: NTS

NOTE: SIZES AS INDICATED ON PLANS



4 TANK FILL/DRAW DETAIL (SINGLE WALL, BOTTOM DRAW)
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — Brandon C. Calkins — ME-17903 — 04/14/26

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

TULUKSAK BULK FUEL UPGRADES

TANK APPURTENANCE DETAILS

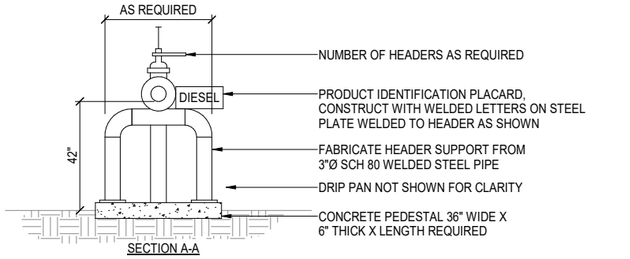
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

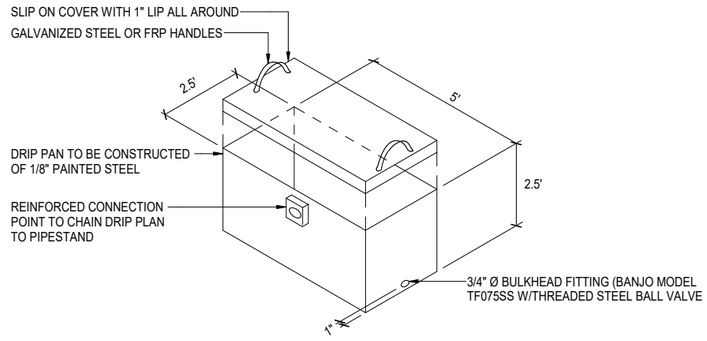
Plot Date 4/14/26
Designed BCA
Drawn BRP
Approved --

Sheet No. M2.4

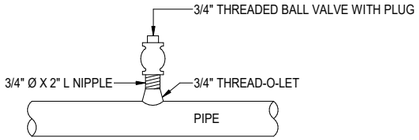
Plot Date: 4/14/2026 3:26:31 PM



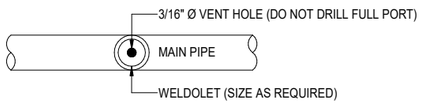
1 BARGE HEADER
SCALE: NTS



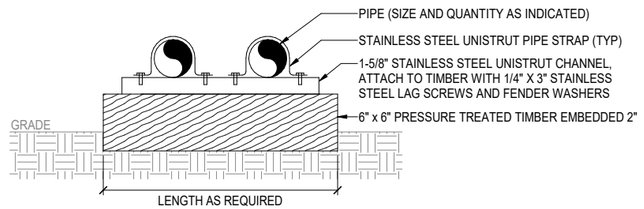
2 DRIP PAN
SCALE: NTS



3 PRESSURE TEST PORT
SCALE: NTS



4 PRV CONNECTION DETAIL
SCALE: NTS



5 TIMBER PIPE SUPPORT DETAIL
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — Brandon C. Calkins — ME-17903 — 04/14/26 — REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
MAE@CRWEAK.COM

TULUKSAK BULK FUEL UPGRADES

PIPING DETAILS

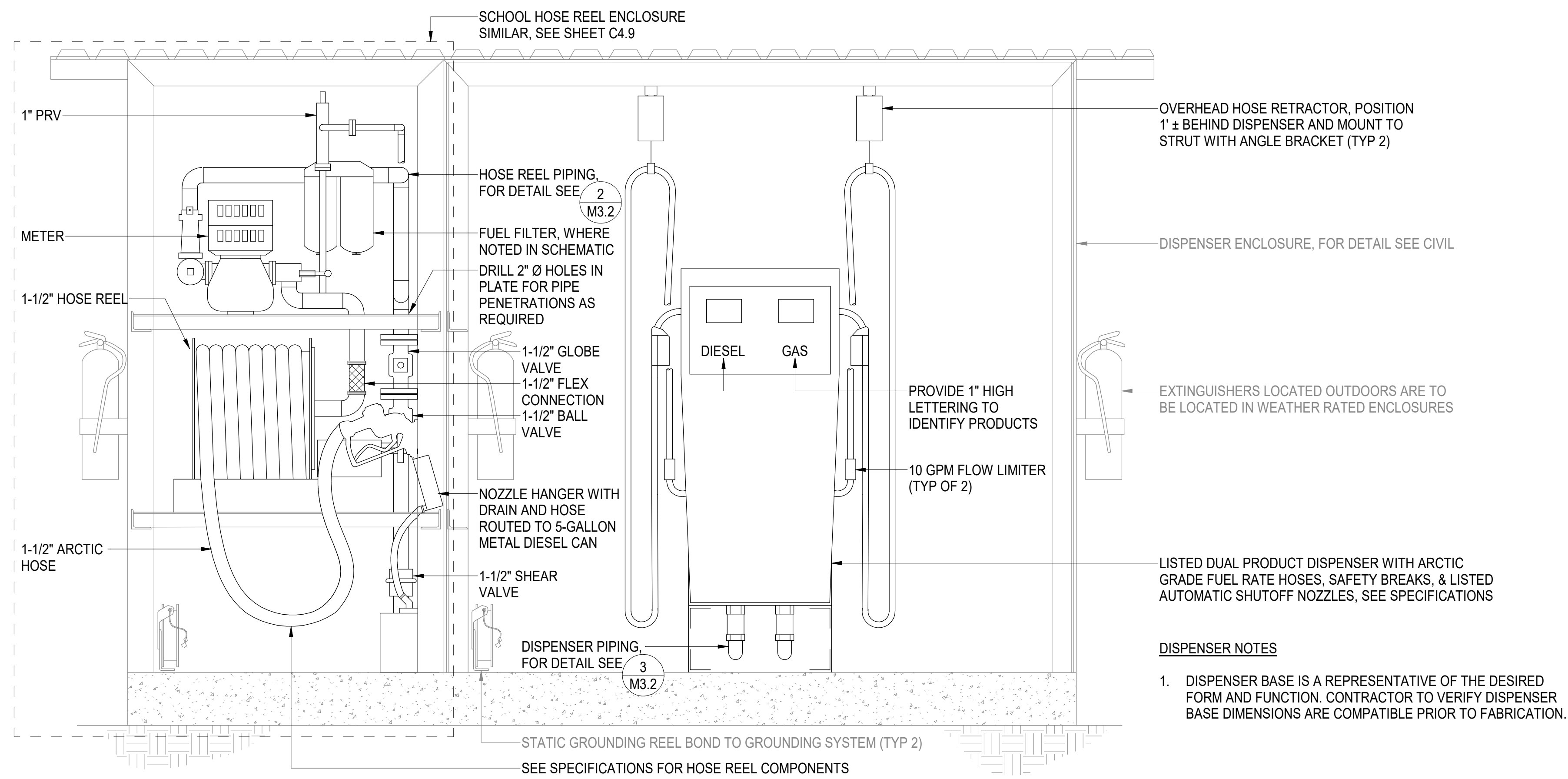
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26 | Designed BCA | Drawn BRP | Approved --

Sheet No. M3.1

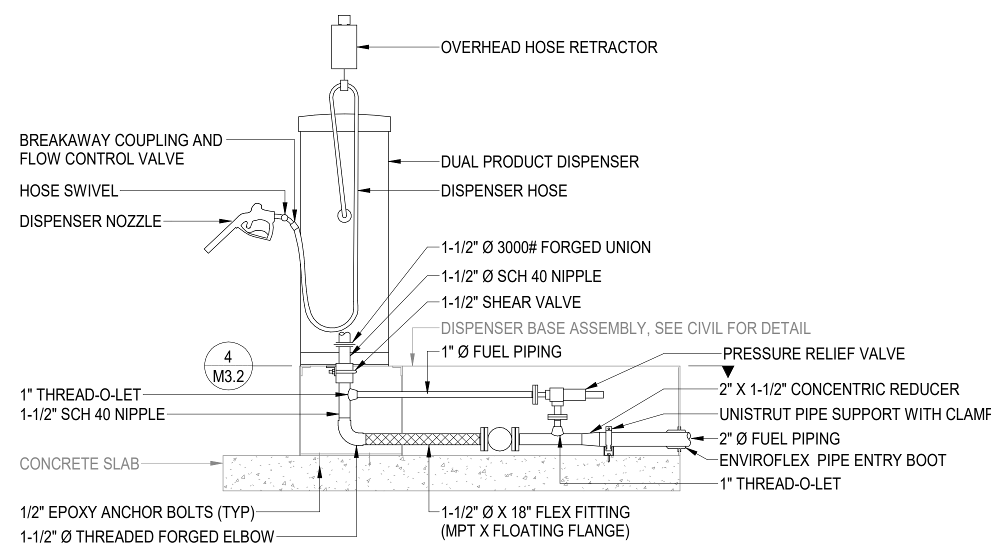
Plot Date: 4/14/2026 3:26:32 PM



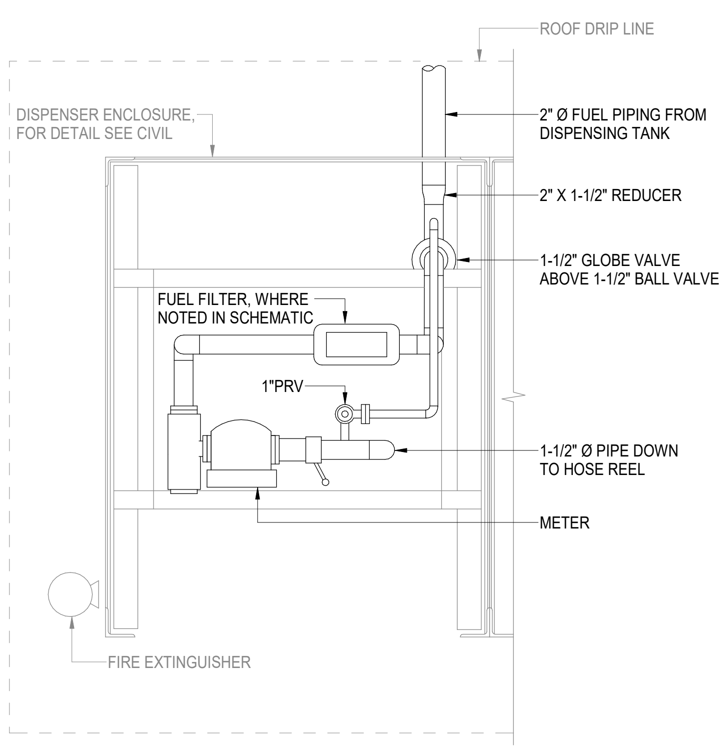
DISPENSER NOTES

1. DISPENSER BASE IS A REPRESENTATIVE OF THE DESIRED FORM AND FUNCTION. CONTRACTOR TO VERIFY DISPENSER BASE DIMENSIONS ARE COMPATIBLE PRIOR TO FABRICATION.

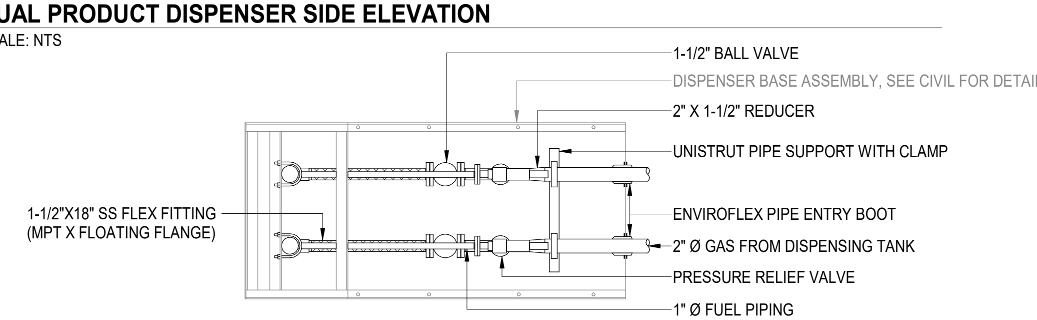
1 DUAL PRODUCT RETAIL DISPENSER INSTALLATION DETAILS
SCALE: NTS



3 DUAL PRODUCT DISPENSER SIDE ELEVATION
SCALE: NTS



2 HOSE REEL PIPING PLAN
SCALE: NTS



4 DUAL PRODUCT DISPENSER PIPING PLAN
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA
49TH
Brandon C. Adkins
ME-177903
04/14/26
REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP
3940 ARCTIC BLVD, SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
AECL1102, AK

TULUKSAK BULK FUEL UPGRADES
RETAIL DISPENSER PIPING
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26
Designed BCA
Drawn BRP
Approved --

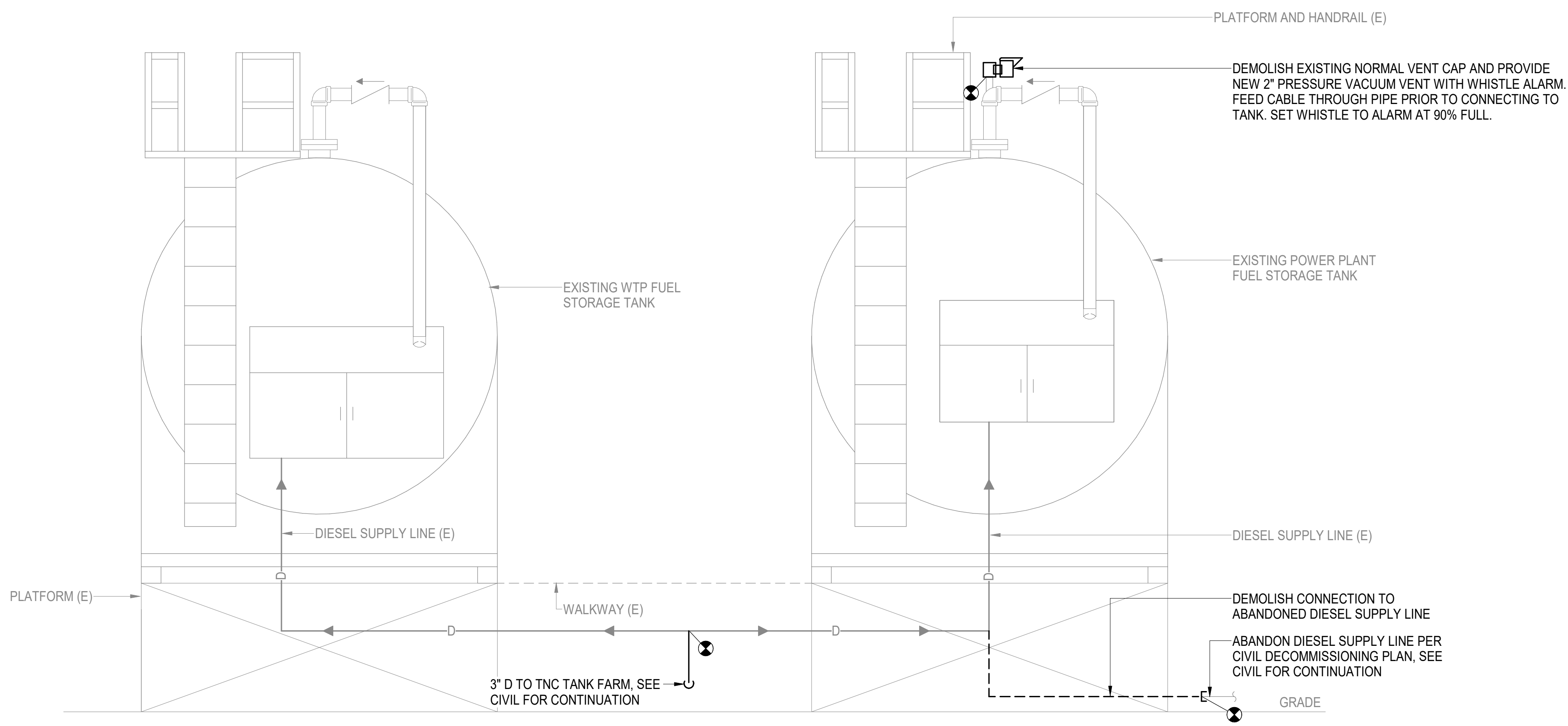
Sheet No. M3.2

Plot Date: 4/14/2026 3:26:32 PM

1 POWER PLANT & WTP TANK CONNECTION PHOTO
SCALE: NTS

2 POWER PLANT TANK VENT PHOTO
SCALE: NTS

3 POWER PLANT TANK FILL CONNECTION PHOTO
SCALE: NTS



4 POWER PLANT & WTP TANK CONNECTION DETAIL
SCALE: NTS

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
POWER PLANT & WTP TANK CONNECTION DETAIL
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

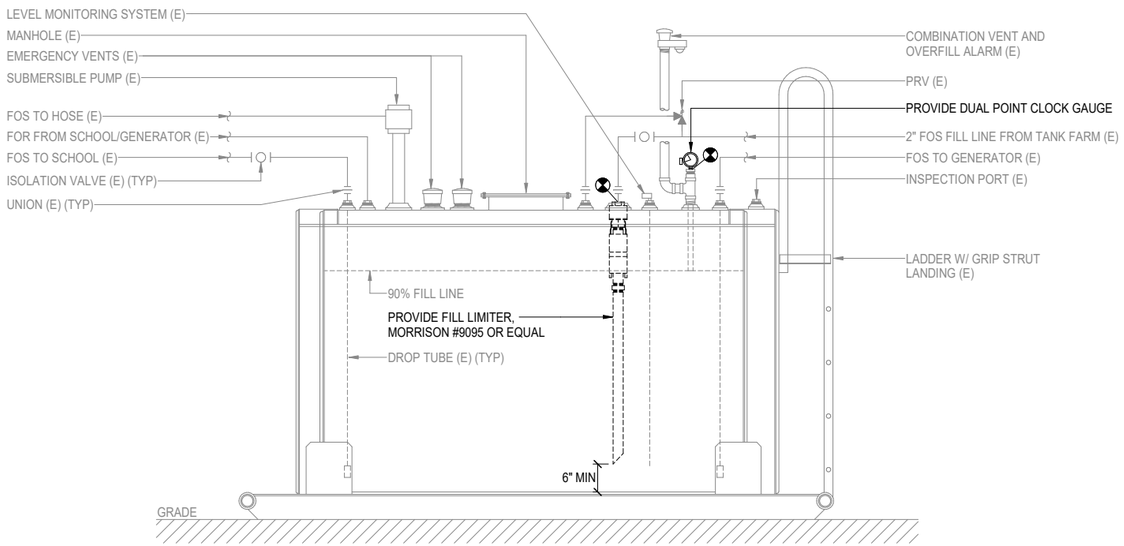
Plot Date 4/14/26
Designed BCA
Drawn BRP
Approved --

Sheet No. M3.3

Plot Date: 4/14/2026 3:26:35 PM

1 SCHOOL TANK CONNECTION PHOTO
SCALE: NTS

2 SCHOOL TANK APPURTENANCES PHOTO
SCALE: NTS



3 SCHOOL TANK CONNECTION DETAIL
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — Brandon C. Collins — ME-17903 — 04/14/26 — REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES

SCHOOL TANK CONNECTION DETAIL

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/14/26 | Designed BCA | Drawn BCA | Approved --

Sheet No. M3.4

Plot Date: 4/14/2026 3:26:36 PM

LEGEND

- BUS
- EXPOSED CONDUIT
- CONDUIT/CABLE RUN UNDERGROUND OR IN CONCRETE
- OHE — OVERHEAD CONDUCTOR (PRIMARY OR SECONDARY AS NOTED)
- 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
- GROUND BOND
- LIQUID–TIGHT FLEXIBLE CONDUIT
- HP — MOTOR, HP AS SHOWN, SINGLE PHASE, "F" = FRACTIONAL
- X — SHEET NOTE "X"
- ELECTRICAL EQUIPMENT TAG "X"
- PANELBOARD
- DISCONNECT SWITCH
- TRANSFORMER
- M — METER MAIN, KILOWATT–HOUR METER
- GFI — 125V DUPLEX GROUND FAULT INTERRUPT WEATHER PROOF RECEPTACLE, CONFIGURATION 5 – 20R
- 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
- X/Y — MOLDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES THERMAL/MAGNETIC UON
- CONTROL PANEL
- $ — SINGLE POLE SWITCH 120/277V 20A (UON)
- SEAL–OFF FITTING
- PC — PHOTO ELECTRIC CONTROL
- INSTRUMENT DEVICE LOCATION (SEE TAG)
- MUSHROOM 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
- O / H / A — HAND–OFF–AUTO SWITCH

ABBREVIATIONS

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

FIXTURE SCHEDULE

SYMBOL	SIZE	LAMP	MOUNTING	DESCRIPTION	MANUFACTURER
	54W	LED	35' CLASS 5 POLE	TANK FARM POLE MOUNTED LIGHT, 54W LED WITH 2' MOUNTING ARM, –40F RATED, AND PHOTOCELL	WESCO – PHILIPS STREETLIGHT: P/N#RFS54W16LED4KG2R3MUNIVDMGRCD7WC10 or P/N#RFS54W16LED4KG2R3MUNVDMGRCD7GY3 AVEC Part number 593–0669 LITHONIA P/N#SMAWT14US2 ARM AVEC Part number 593–0464
A	25W	LED	SURFACE MOUNT	VAPORTITE L.E.D AREA LIGHT SURFACE MOUNT. CLASS 1, DIV. 2.	CROUSE HINDS: V2LCA3/UNV1 WITH J–BOX VXFT20
	32W	LED	SURFACE MOUNT	(2) T8 EQUIVALENT LED FIXTURE, 120V, 2'Wx4'L	LITHONIA: P/N#2ALLS4 40L EZ1 LP84

ELECTRICAL EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	MANUFACTURER
1	EMERGENCY WP SHUTOFF SWITCH. 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	LIGHT SWITCH AND RECEPTACLE. COMPLETE WITH 20A, 125V DUPLEX GFCI RECEPTACLE, 20A SINGLE POLE SWITCH. INSTALL IN CAST MULTI–GANG FD BOX WITH WEATHERPROOF COVER.	P&S 2095TRWRI RECEPTACLE P&S PS20AC1–I SWITCH RED DOT 2CCTG COVER RED DOT 2IH4–2 BOX
4	LOCKABLE SWITCH. 4, 7, 9 EXPLOSION PROOF CONSTRUCTION WITH 3/4" FEED THRU HUB, 4PST, 250V, 20A.	KILLARK
5	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	FOUR POSITION FLOAT ACTIVATED LEVEL SWITCH, 316 SS STEM, 2" 316 SS FLOAT, 2" NPT BUSHING, 1/2" NPT CONDUIT ENTRY, EXPLOSION PROOF CONSTRUCTION, LISTED FOR CLASS 1, DIVISION 1, GROUP D, 120VAC, 100W MAX SWITCHING POWER. PROVIDE FLOAT ACTIVATED SWITCHES AT DIMENSIONS BASED ON APPROVED SHOP DRAWINGS. CONTRACTOR SHALL VERIFY ACTUAL TANK DIMENSIONS AND SUBMIT SWITCH DIMENSIONS TO CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO ORDERING.	CUSTOM SWITCHES, INC. MODEL LS–1900 TYPE 8 OR APPROVED EQUAL. CONTRACTOR TO VERIFY CUSTOM PROBE LENGTHS PRIOR TO ORDERING. SEE DESCRIPTION.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — R. Keene — EE-11401 — 4/15/2026

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

TULUKSAK BULK FUEL UPGRADES
NOTES, LEGEND AND ABBRIEVIATIONS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/15/26
Designed: –
Drawn: –
Approved: –

Sheet No. E1.1

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Legend.dwg Plot Date: 4/15/2026 10:54 AM

ELECTRICAL SPECIFICATION

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

STANDARDS, CODES AND REGULATIONS: CONTRACTOR SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), INTERNATIONAL BUILDING CODE (IBC), NFPA 30 & 30A, AND INTERNATIONAL FIRE CODE (IFC) INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH R. Keene EE-14401 REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES
SPECIFICATIONS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed –
Drawn –
Approved –

Sheet No. E1.2

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Legend.dwg Plot Date: 4/15/2026 10:54 AM

CONTROL SPECIFICATION

CONTROLS

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

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

SUBMITTALS

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

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

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

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

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

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

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

PRODUCTS

CONTROL PANEL: ENCLOSURES SHALL BE 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 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.

ALASKA ENERGY AUTHORITY

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

TULUKSAK BULK FUEL UPGRADES
CONTROLS SPECIFICATIONS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

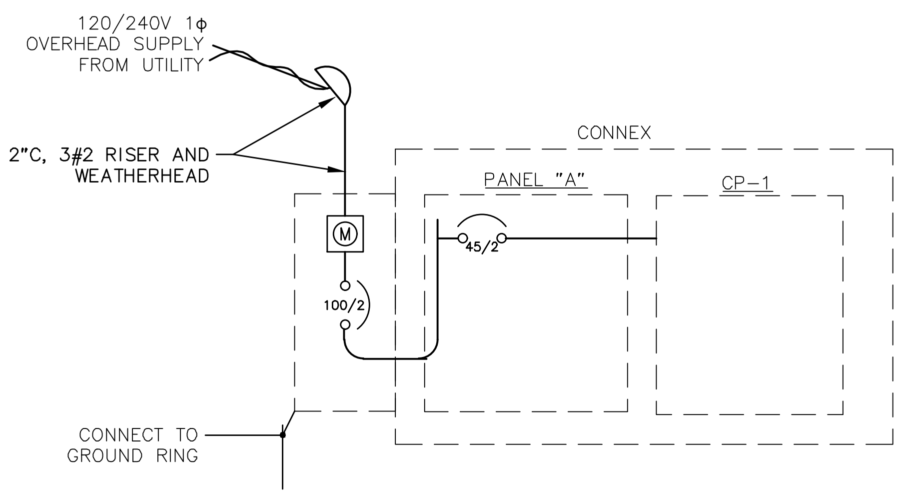
Plot Date 4/15/26
Designed —
Drawn —
Approved —

Sheet No. E1.3

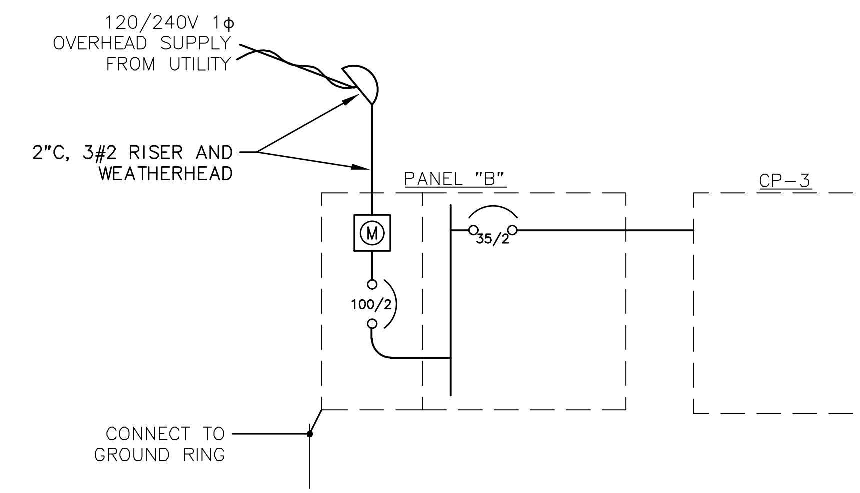
File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Legend.dwg Plot Date: 4/15/2026 10:54 AM

PANEL "A" SCHEDULE (TULKISARMUTE)									
Location: TANK FARM STAIRS			240/120V			1ϕ , 3 Wire		10,000 AIC	
Served from: TRANSFORMER			100A MCB					NEMA 4X	
POLE #	AMP TRIP	LOAD DESCRIPTION	POLE Kva	MLO L1	MLO L2	POLE Kva	LOAD DESCRIPTION	AMP TRIP	POLE #
1	45/2	CP-1	4.4	5.1		0.7	TANK FARM, AREA LIGHTING	20/1	2
3			4.5		4.7	0.2	RECEPTACLE	20/1	4
5	20/1	CONNEX LIGHTING	0.2	1.0		0.8	CONNEX RECEPTACLES	20/1	6
7	20/1	SPARE	0.0		0.0	0.0	SPARE	20/1	8
9	20/1	SPARE	0.0	0.0		0.0			10
11			0.0		0.0	0.0			12
				6.1	4.7		Total kVA =	10.8 kVA	
							Total Amps @ 240V =	45.0 A	

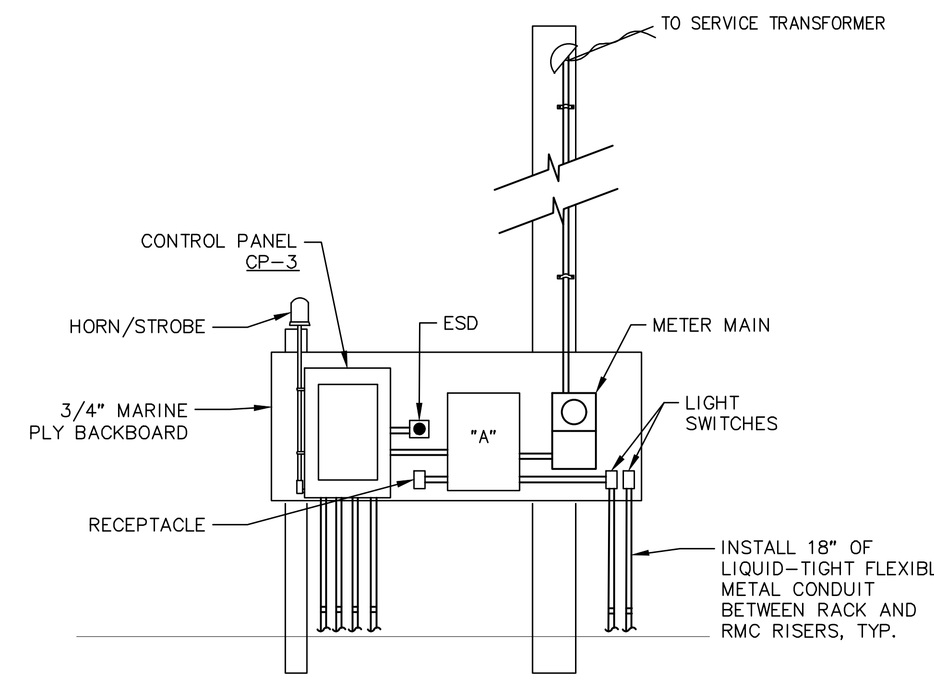
PANEL "B" SCHEDULE (TNC)									
Location: TANK FARM			240/120V			1ϕ , 3 Wire		10,000 AIC	
Served from: TRANSFORMER			100A MAINS					NEMA 4X	
POLE #	AMP TRIP	LOAD DESCRIPTION	POLE Kva	MLO L1	MLO L2	POLE Kva	LOAD DESCRIPTION	AMP TRIP	POLE #
1	20/1	TANK FARM LIGHTING	0.3	2.3		2.0	CP-3	35/2	2
3	20/1	RECEPTACLE	0.2		2.2	2.0			4
5	20/1	SPARE	0.0	0.0		0.0	SPARE	20/1	6
7	20/1	SPARE	0.0		0.0				8
9				0.0					10
11					0.0				12
				2.3	2.2		Total kVA =	4.5 kVA	
	* = GFCI Circuit Breaker						Total Amps @ 240V =	18.9 A	



1 **TULKISARMUTE POWER ONE-LINE**
SCALE: NTS



2 **TNC POWER ONE-LINE**
SCALE: NTS



3 **TNC ELECTRICAL RACK ELEVATION**
SCALE: NTS

ALASKA ENERGY AUTHORITY

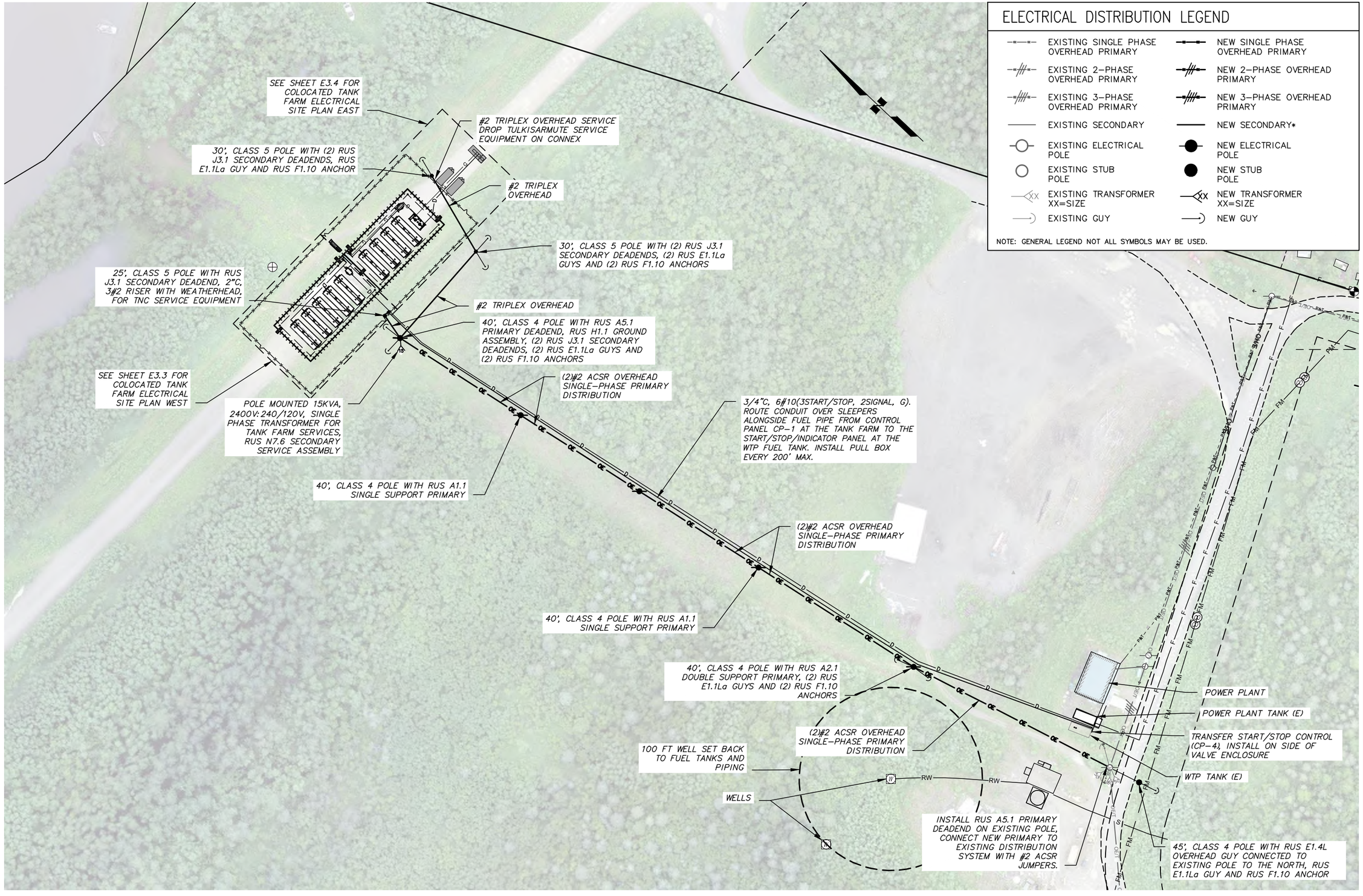
CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

TULUKSAK BULK FUEL UPGRADES
POWER ONE-LINES AND PANEL SCHEDULES
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed –
Drawn –
Approved –

Sheet No. E1.4



ELECTRICAL DISTRIBUTION LEGEND

EXISTING SINGLE PHASE OVERHEAD PRIMARY	NEW SINGLE PHASE OVERHEAD PRIMARY
EXISTING 2-PHASE OVERHEAD PRIMARY	NEW 2-PHASE OVERHEAD PRIMARY
EXISTING 3-PHASE OVERHEAD PRIMARY	NEW 3-PHASE OVERHEAD PRIMARY
EXISTING SECONDARY	NEW SECONDARY*
EXISTING ELECTRICAL POLE	NEW ELECTRICAL POLE
EXISTING STUB POLE	NEW STUB POLE
EXISTING TRANSFORMER XX=SIZE	NEW TRANSFORMER XX=SIZE
EXISTING GUY	NEW GUY

NOTE: GENERAL LEGEND NOT ALL SYMBOLS MAY BE USED.

1 **CO-LOCATED TANK FARM ELECTRICAL MAP**

SCALE: GRAPHIC

SEE SHEET E4.2 FOR ELECTRICAL DISTRIBUTION NOTES AND DETAILS.

50' 0 50' 100'

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER R. Keene EE-11401 4/15/2026

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

TULUKSAK BULK FUEL UPGRADES

CO-LOCATED TANK FARM ELECTRICAL MAP

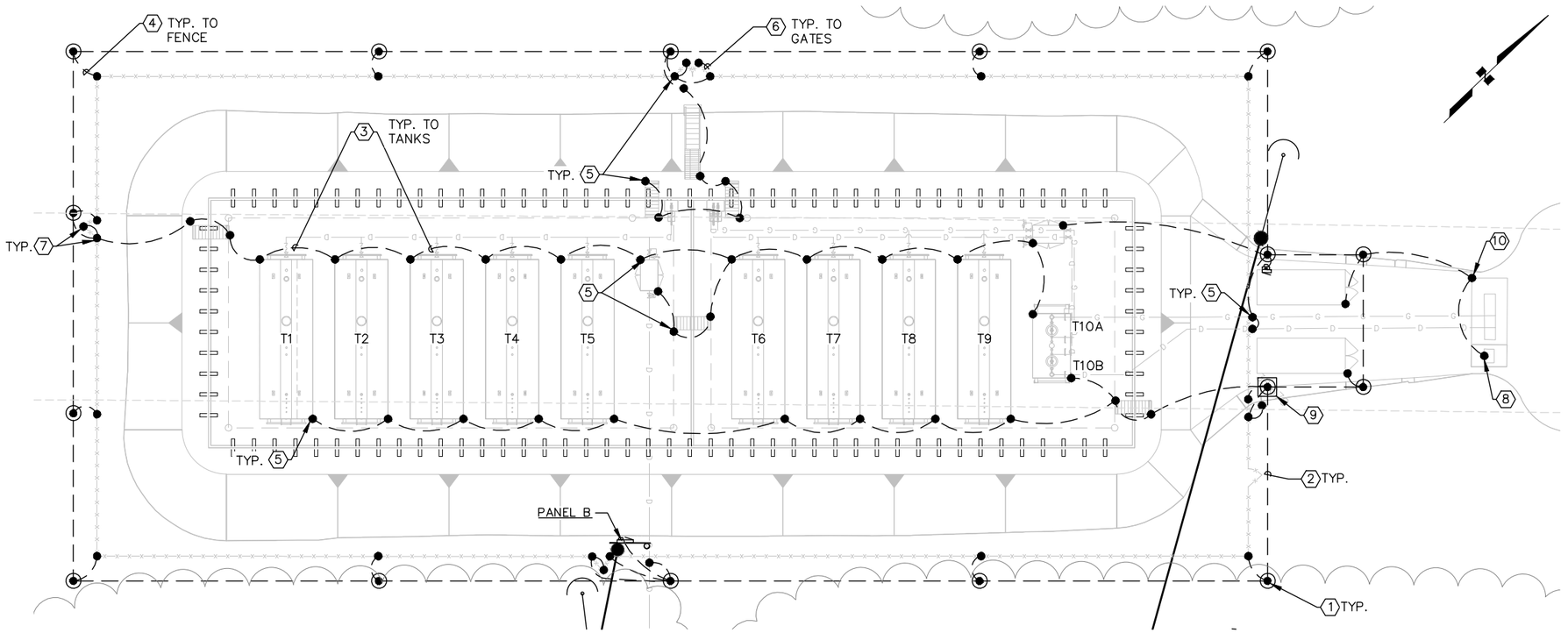
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed -
Drawn -
Approved -

Sheet No. E3.1

Files: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Electrical Map.dwg Plot Date: 4/15/2026 10:55 AM



1 **CO-LOCATED TANK FARM ELECTRICAL GROUNDING PLAN**

SCALE: 1"=15'

15' 0 15' 30'

SHEET NOTES

1. 3/4"X10' COOPER CLAD GROUND ROD.
2. #2 bCU GROUND RING BURIED MIN 30" BELOW GRADE.
3. #4 bCU GROUND.
4. #6 bCU JUMPER.
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.
   PIPELINE: APPROVED PIPE GROUNDING CLAMP
6. #6 BRAID TO GATE.
7. EXTEND #6 GROUND TO BARBED WIRE AND BOND AT ALL CORNERS, GATES, AND DOOR POSTS, 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 1/E4.1 FOR DETAILS.
10. GROUND DUAL DISPENSER PER MANUFACTURER RECOMMENDATIONS. GROUND DISPENSER ENCLOSURE. BOND GROUNDING REELS TO GROUND GRID.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — R. Keene — EE-11401 — 4/15/2026

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

TULUKSAK BULK FUEL UPGRADES

CO-LOCATED TANK FARM
ELECTRICAL GROUNDING PLAN

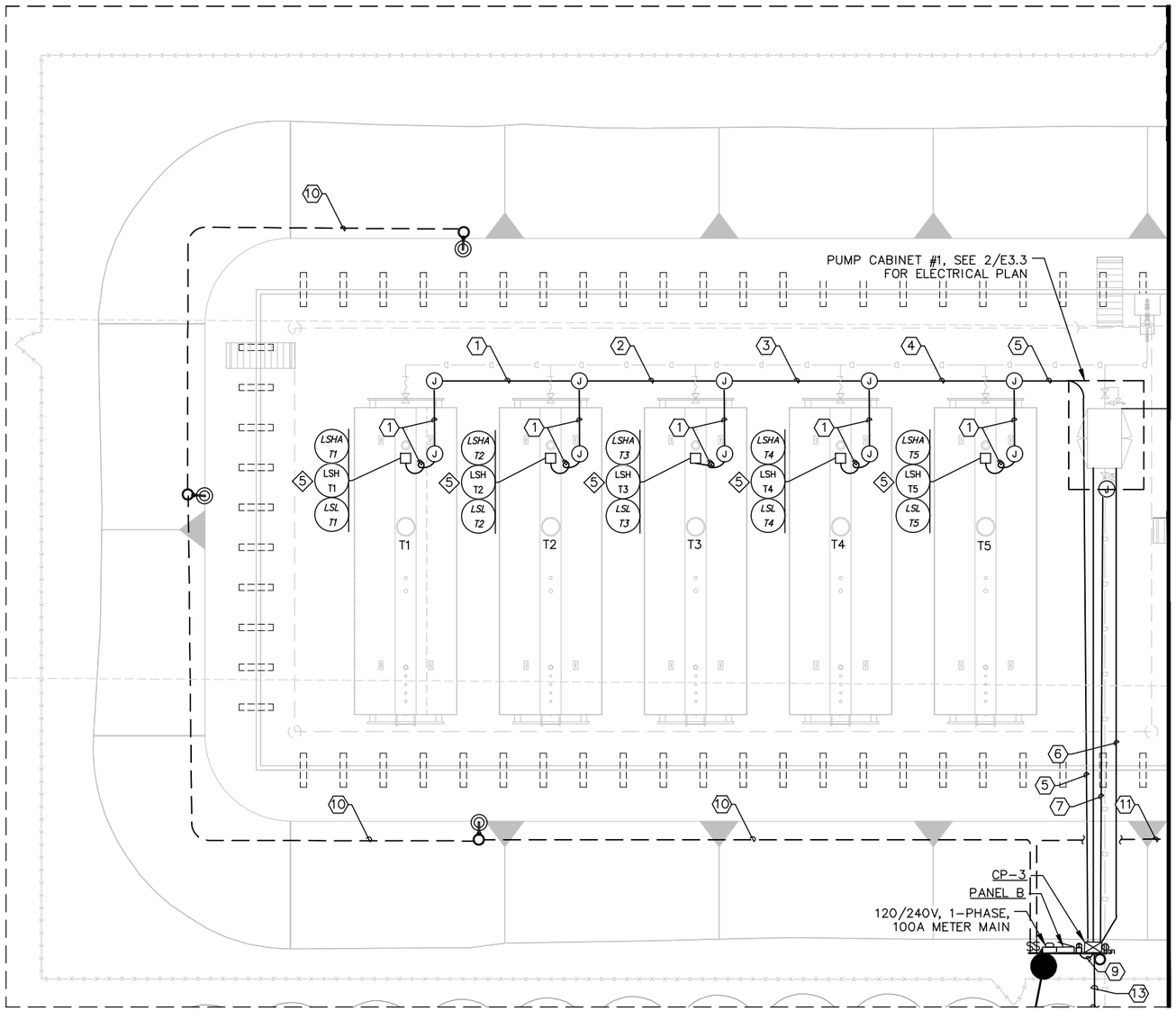
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/15/26
Designed: —
Drawn: —
Approved: —

Sheet No. E3.2

File: u:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Electrical Site Plans.dwg Plot Date: 4/15/2026 10:56 AM



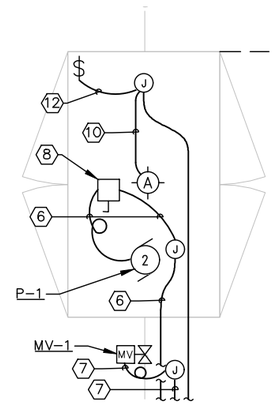
1 CO-LOCATED TANK FARM ELECTRICAL SITE PLAN WEST

SCALE: 1"=8'

8' 0 8' 16'

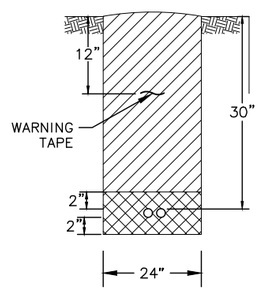
SHEET NOTES

1. 1/2"C, 5#12(H, 3SIGNAL, G).
2. 1"C, 9#12(2H, 6SIGNAL, G).
3. 1"C, 13#12(3H, 9SIGNAL, G).
4. 1-1/2"C, 17#12(4H, 12SIGNAL, G).
5. 1-1/2"C, 21#12(5H, 15SIGNAL, G).
6. 3/4"C, 3#12(2PUMP, G).
7. 3/4"C, 7#12(H, N, 2CONTROL, 2STATUS, G).
8. 2P, 2HP RATED 240V DISCONNECT IN NEMA 3R ENCLOSURE.
9. 1/2"C, 3#12(2ESD, G).
10. 1/2"C, 3#12(SWITCHLEG, N, G).
11. 3/4"C, 4#12(H, 2TRAVELER, G).
12. 1/2"C, 4#12(H, SWITCHLEG, G).
13. 3/4"C, 6#10(3START/STOP, 2SIGNAL, G). ROUTE CONDUIT ABOVE GRADE OVER SLEEPERS ALONGSIDE FUEL PIPE.



2 PUMP CABINET #1 ELECTRICAL PLAN

SCALE: NTS



LEGEND

- SAND OR CLEAN SOIL
- COMPACTED BACKFILL UNLESS OTHERWISE SPECIFIED
- UNDISTURBED EARTH

NOTES:

1. DEPTHS SHOWN ARE TO FINISHED GRADE.
2. OVER-EXCAVATE TRENCHES AS NECESSARY TO ALLOW FOR (a) SAND BEDDING OR (b) LOOSE SANDY SOILS OR (c) WHERE MORE THAN ONE CABLE WILL INSTALLED IN TRENCH AND LAYING FIRST CABLE MAY CAUSE TRENCH DAMAGE AND REDUCTION IN DEPTH.

3 TRENCH DETAIL

SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — R. Keene, EE-11401, 4/15/2026, PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES
CO-LOCATED TANK FARM ELECTRICAL
SITE PLAN WEST
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/15/26
Designed: -
Drawn: -
Approved: -

Sheet No. E3.3

MATCH LINE - SHEET E3.3

PUMP CABINET #2, SEE 2/E3.4 FOR ELECTRICAL PLAN

120/240V, 1-PHASE, 100A METER MAIN

ATTENDANT CONEX

PANEL A

CP-1

T6

T7

T8

T9

P-10A

T10A

T10B

P-10B

RETAIL DISPENSER & HOSE REEL ENCLOSURE, SEE SHEET E3.9 FOR ELECTRICAL DETAILS

LIGHT POLE, TYP.

NOTES

1. 1/2"C, 5#12(H, 3SIGNAL, G).
2. 1"C, 9#12(2H, 6SIGNAL, G).
3. 1"C, 13#12(3H, 9SIGNAL, G).
4. 1-1/2"C, 17#12(4H, 12SIGNAL, G).
5. 1"C, 11#12(2H, 8SIGNAL, G).
6. 3/4"C, 3#12(2PUMP, G).
7. 3/4"C 5#12(4PUMP, G).
8. 1/2"C, 6#12(H, 4SIGNAL, G).
9. 3/4"C, 7#12(H, N, 2CONTROL, 2STATUS, G).
10. 1"C, 13#12(2H, 2N, 4CONTROL, 4STATUS, G).
11. C1D1 RATED, 2P HP RATED DISCONNECT.
12. 3/4"C, 5#12(4ESD, G).
13. 3/4"C, 3#12(SWITCHLEG, N, G).
14. 3/4"C, 4#12(H, 2TRAVELER, G).
15. 1/2"C, 3#12(2ESD, G).
16. SEE NOTE 5, SHEET E3.9.
17. 3/4"C, 6#12(2H, N, 2TRAVELER, G).

1 **CO-LOCATED TANK FARM ELECTRICAL SITE PLAN EAST**

SCALE: 1"=8'

8' 0 8' 16'

P-2

P-3

MV-2

MV-3

2 **PUMP CABINET #2 ELECTRICAL PLAN**

SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — REGISTERED PROFESSIONAL ENGINEER — R. Keene EE-11401 — 4/15/2026

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

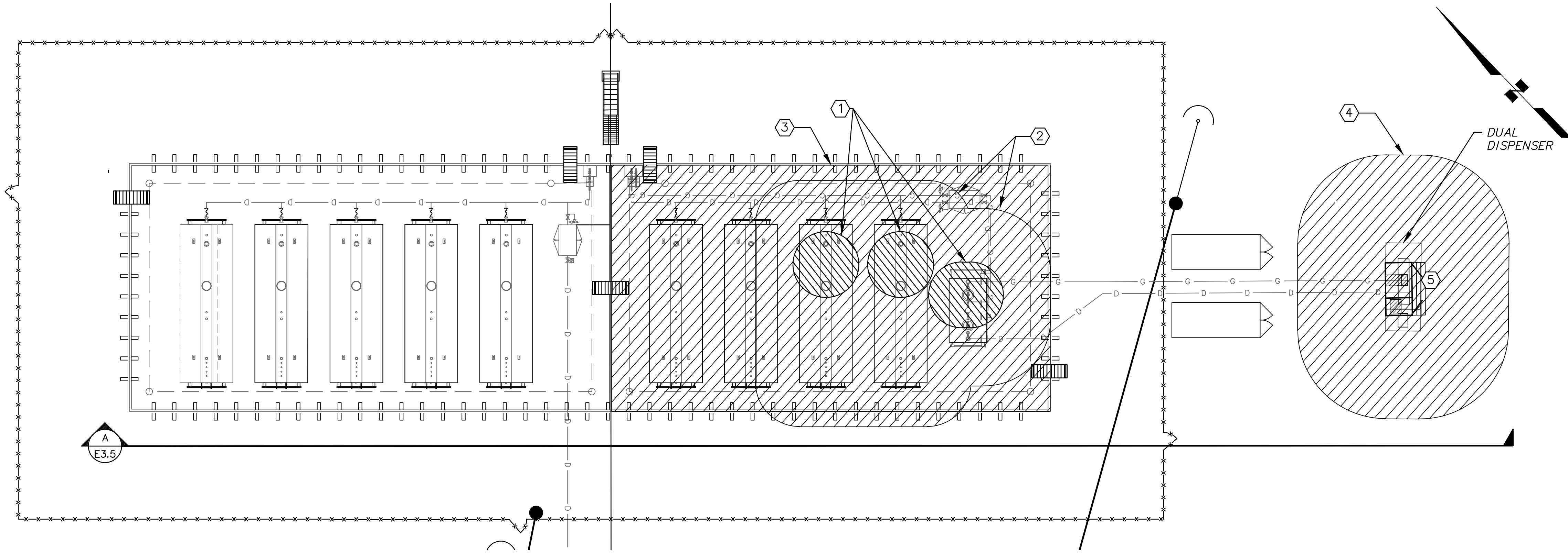
TULUKSAK BULK FUEL UPGRADES
CO-LOCATED TANK FARM ELECTRICAL SITE PLAN EAST
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/15/26
Designed: -
Drawn: -
Approved: -

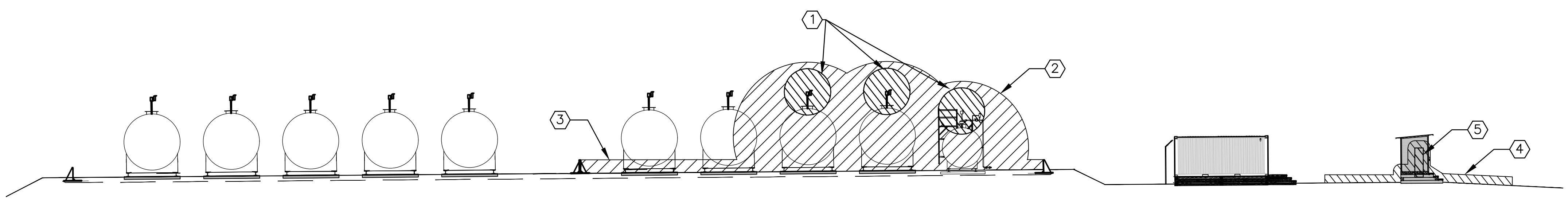
Sheet No. E3.4

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Electrical Site Plans.dwg Plot Date: 4/15/2026 10:56 AM



1 TANK FARM AREA CLASSIFICATION PLAN

SCALE: 1" = 15'



A TANK FARM AREA CLASSIFICATION ELEVATION

SCALE: 1" = 15'

CLASSIFICATION LEGEND

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

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 GASOLINE TANKS.
3. SPACE INSIDE DIKE LEVEL TO THE TOP OF THE DIKE IS RATED CLASS 1, DIVISION 2.
4. THE AREA 18" ABOVE GRADE WITHIN 20' OF DUAL DISPENSER IS CLASS 1, DIVISION 2 RATED.
5. THE AREA WITHIN 18" OF THE DUAL PRODUCT DISPENSER IS CLASS 1 DIVISION 2 LOCATION. THE AREA WITHIN AND THE PIPE GALLERY BELOW THE DISPENSER IS A CLASS 1 DIVISION 1 LOCATION. SEE SHEET E3.6 FOR DETAILS.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49 TH Lyle R. Keene EE-14401 4/15/26 REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES

CO-LOCATED TANK FARM AREA CLASSIFICATION PLAN

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed —
Drawn —
Approved —

Sheet No. E3.5

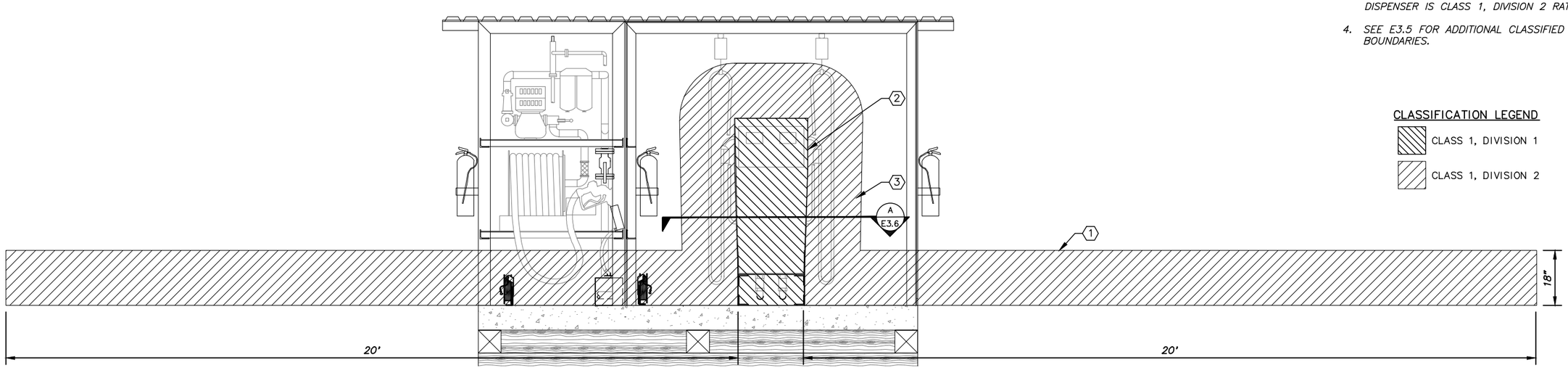
File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Dispenser.dwg   Plot Date: 4/15/2026 11:07 AM

NOTES

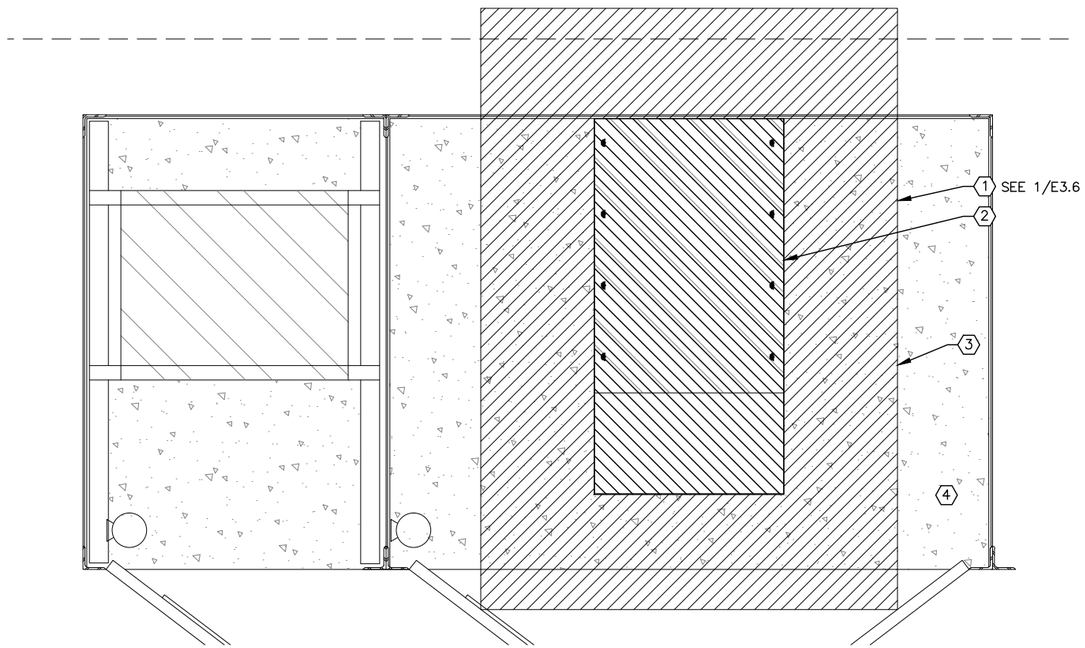
1. THE AREA 18" ABOVE GRADE WITHIN 20' OF DUAL DISPENSER IS CLASS 1, DIVISION 2 RATED.
2. THE AREA INSIDE THE DUAL DISPENSER AND INSIDE AND BELOW THE PAN BASIN IS CLASS 1, DIVISION 1 RATED.
3. THE AREA WITHIN 18" OF DUAL PRODUCT DISPENSER IS CLASS 1, DIVISION 2 RATED.
4. SEE E3.5 FOR ADDITIONAL CLASSIFIED BOUNDARIES.

CLASSIFICATION LEGEND

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



1 **DUAL PRODUCT DISPENSER CLASSIFICATION ELEVATION**
NOT TO SCALE



A **DUAL PRODUCT DISPENSER AREA CLASSIFICATION PLAN**
NOT TO SCALE

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH R. Kleine EE-11401 4/15/2026 REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES

DUAL PRODUCT DISPENSER CLASSIFICATION PLANS

TULUKSAK, ALASKA

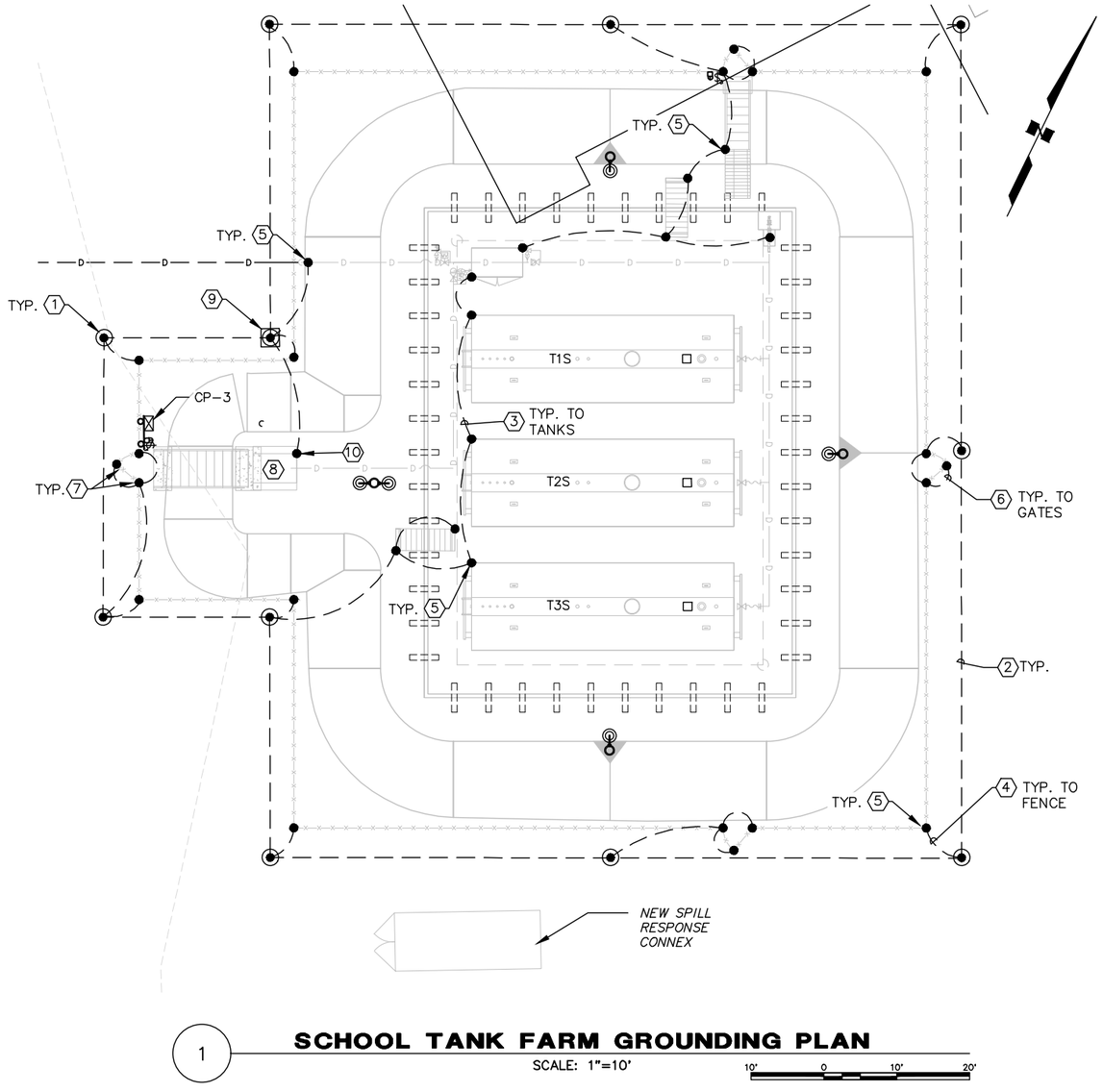
NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed —
Drawn —
Approved —

Sheet No. E3.6

Plot Date: 4/15/2026 10:56 AM

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Dispenser.dwg



1 **SCHOOL TANK FARM GROUNDING PLAN**

SCALE: 1"=10'

10' 0 10' 20'

SHEET NOTES

1. 3/4"X10' COOPER CLAD GROUND ROD.
2. #2 bCU GROUND RING BURIED MIN 30" BELOW GRADE.
3. #4 bCU GROUND.
4. #6 bCU JUMPER.
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.
   PIPELINE: APPROVED PIPE GROUNDING CLAMP
6. #6 BRAID TO GATE.
7. EXTEND #6 GROUND TO BARBED WIRE AND BOND AT ALL CORNERS, GATES, AND DOOR POSTS, 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 1/E4.1 FOR DETAILS.
10. GROUND HOSE REEL ENCLOSURE AND GROUNDING REELS TO GROUND GRID.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER R. Keene EE-11401 4/15/2026

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

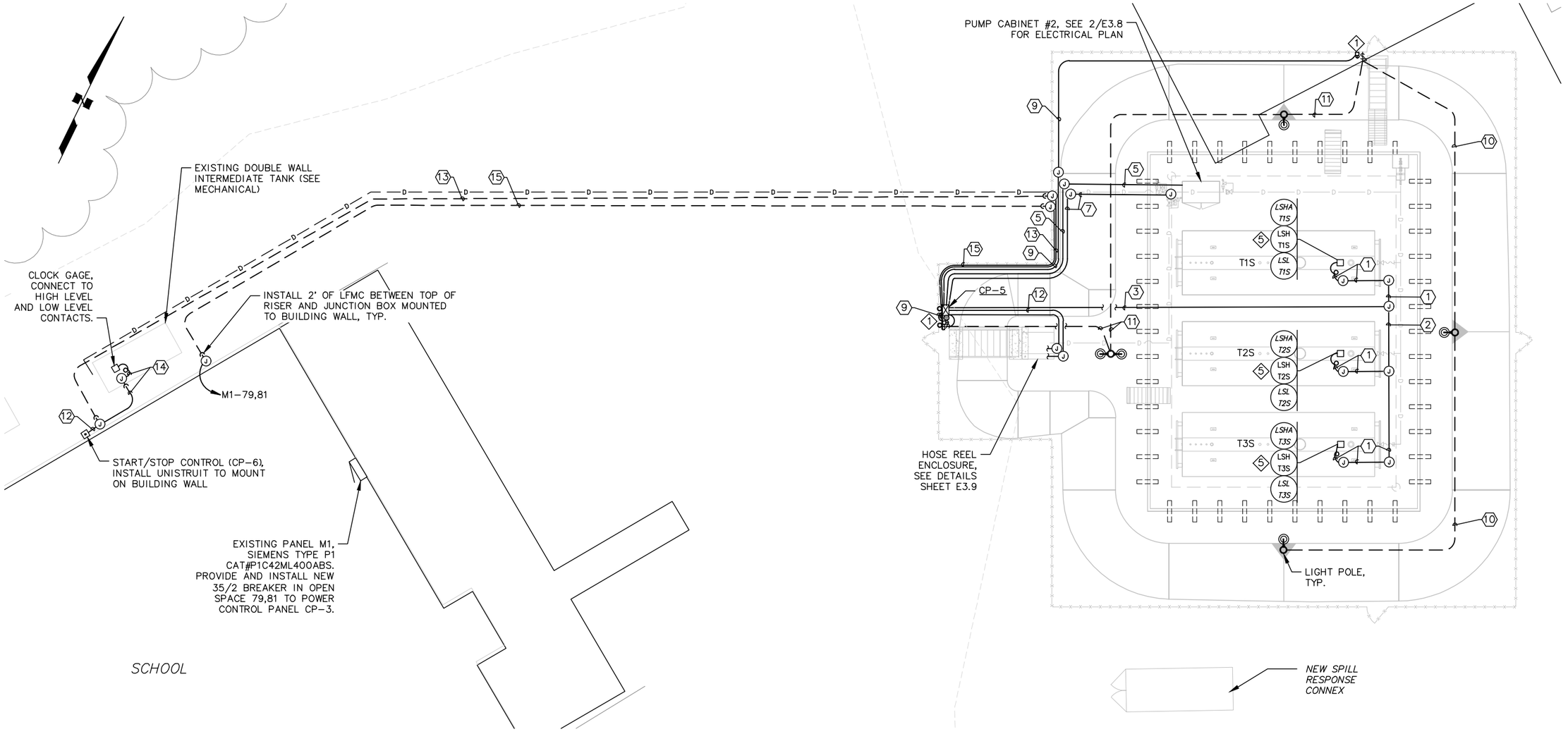
TULUKSAK BULK FUEL UPGRADES
SCHOOL TANK FARM GROUNDING PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed —
Drawn —
Approved —

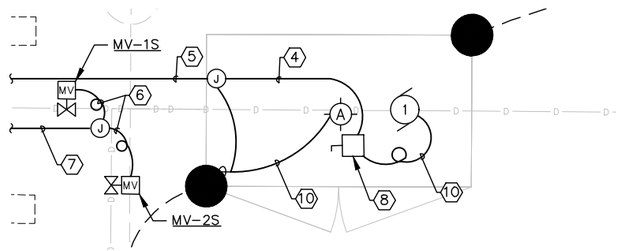
Sheet No. E3.7

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Electrical Site Plans.dwg Plot Date: 4/15/2026 10:57 AM



1 SCHOOL TANK FARM ELECTRICAL SITE PLAN

SCALE: 1"=10'



2 PUMP CABINET #1S ELECTRICAL PLAN

SCALE: NTS

SHEET NOTES

1. 1/2"C, 5#12(H, 3SIGNAL, G).
2. 1"C, 9#12(2H, 6SIGNAL, G).
3. 1"C, 13#12(3H, 9SIGNAL, G).
4. 3/4"C, 3#12(2PUMP, G).
5. 1"C, 5#12(H, 2PUMP, N, G).
6. 3/4"C, 7#12(H, N, 2CONTROL, 2STATUS, G).
7. 1"C, 13#12(2H, 2N, 4CONTROL, 4STATUS, G).
8. 2P, 1HP RATED 240V DISCONNECT IN NEMA 3R ENCLOSURE.
9. 1/2"C, 3#12(2ESD, G).
10. 1/2"C, 3#12(SWITCHLEG, N, G).
11. 3/4"C, 4#12(H, 2TRAVELER, G).
12. 1/2"C, 4#12(START/STOP CONTROL, G).
13. 1"C, 8#12(START/STOP CONTROL, 4SIGNAL, G).
14. 1/2"C, 5#12(4SIGNAL, G)
15. 1"C, 4#8(2H, N, G).

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — R. Kleene — EE-11401 — 4/15/2026

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

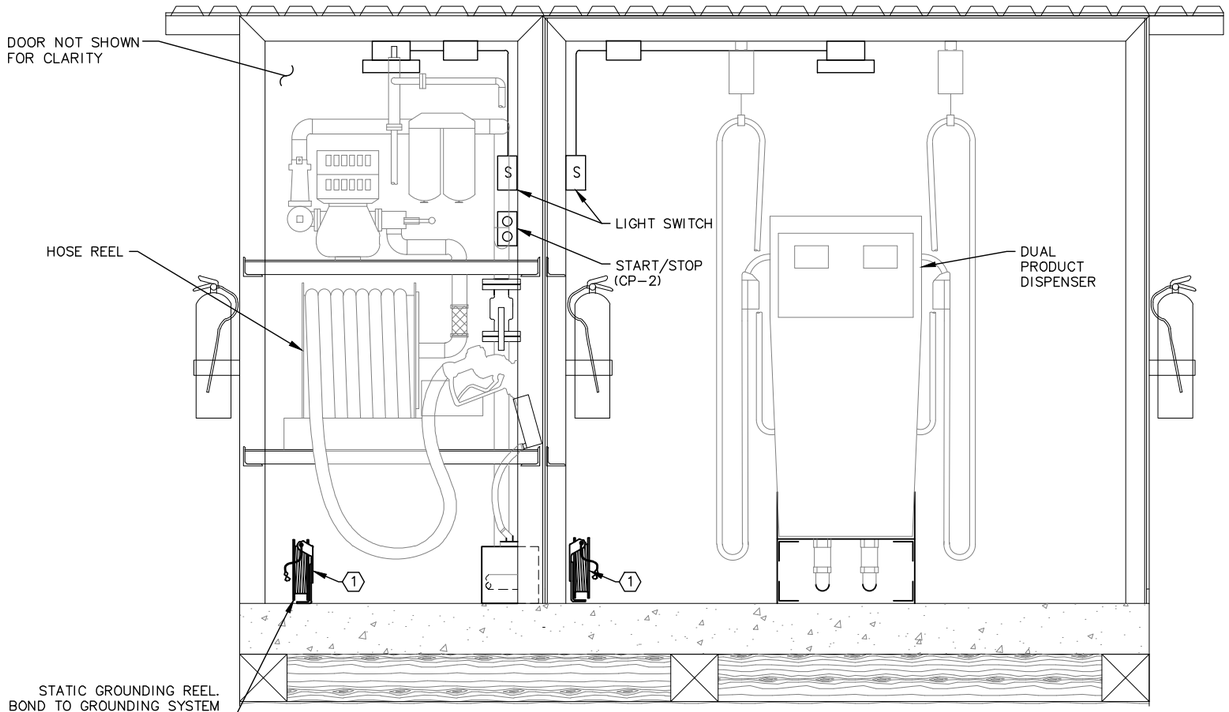
TULUKSAK BULK FUEL UPGRADES
SCHOOL TANK FARM ELECTRICAL SITE PLAN
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/15/26
Designed: —
Drawn: —
Approved: —

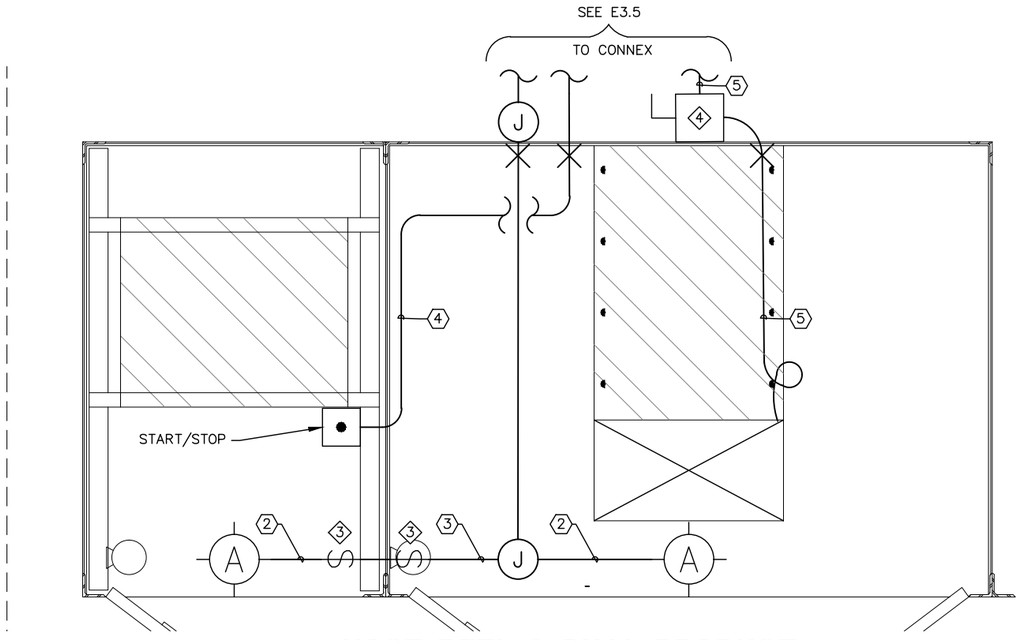
Sheet No. E3.8

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Electrical Site Plans.dwg Plot Date: 4/15/2026 10:57 AM



HOSE REEL & DUAL PRODUCT DISPENSER ELEVATION

1 — NOT TO SCALE

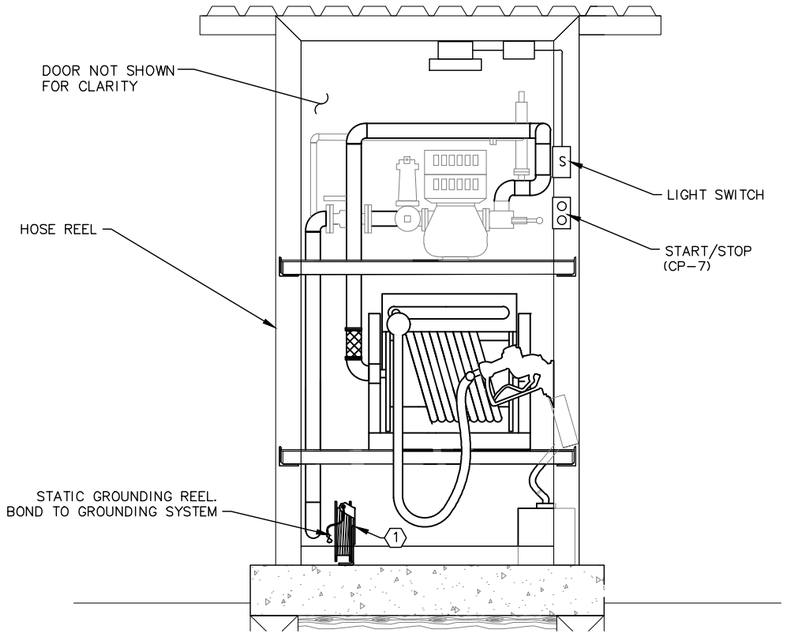


HOSE REEL & DUAL PRODUCT DISPENSER PLAN

2 — NOT TO SCALE

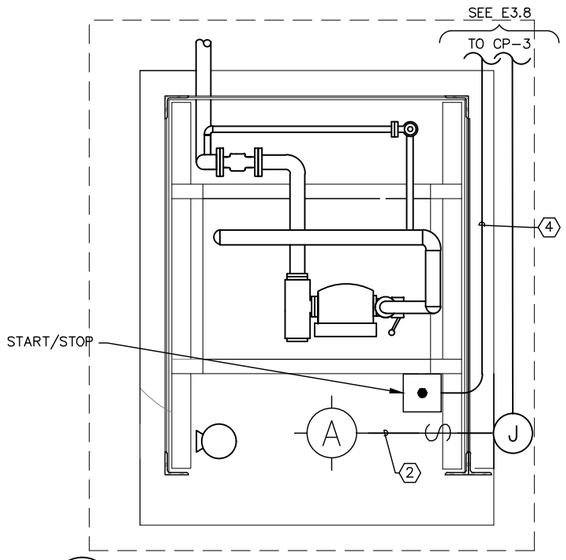
NOTES

1. *PROVIDE ATTACHMENT POINT FOR GROUND REEL AT FLEET DISPENSER. COORDINATE LOCATION AND CONNECTION MEANS WITH GROUND REEL SUPPLIER.*
2. *1/2"C, 3#12(SWITCHLEG, N, G).*
3. *1/2"C, 4#12(H, SWITCHLEG, N, G).*
4. *1/2"C, 3#12(START/STOP CONTROL).*
5. *3/4"C, 7#12(H, 2SIGNAL, 3N, G).*



SCHOOL HOSE REEL ELEVATION

3 — NOT TO SCALE



SCHOOL HOSE REEL PLAN

4 — NOT TO SCALE

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — R. Kleene — EE-11401 — 4/15/2026

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

TULUKSAK BULK FUEL UPGRADES

HOSE REEL AND DUAL DISPENSER ELECTRICAL DETAILS

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

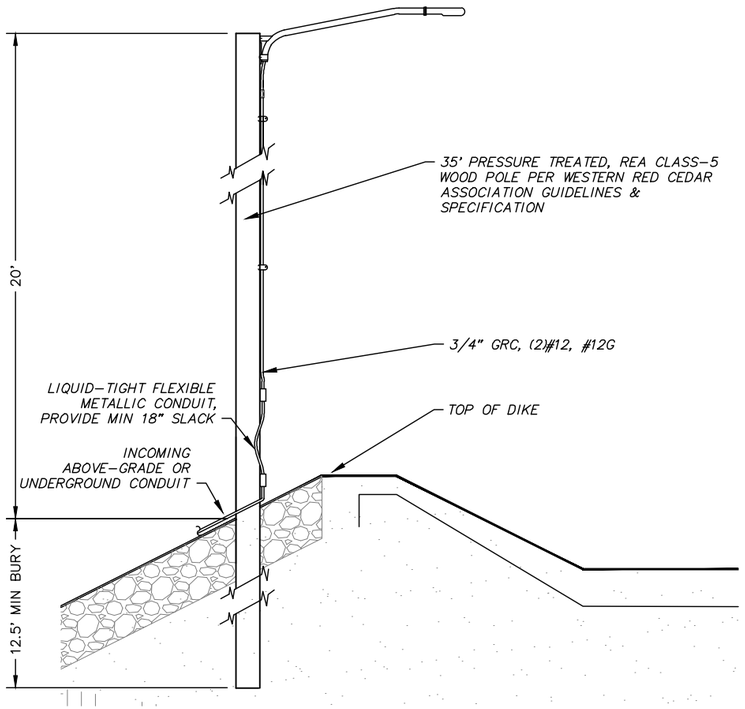
Plot Date: 4/15/26
Designed: -
Drawn: -
Approved: -

Sheet No. E3.9

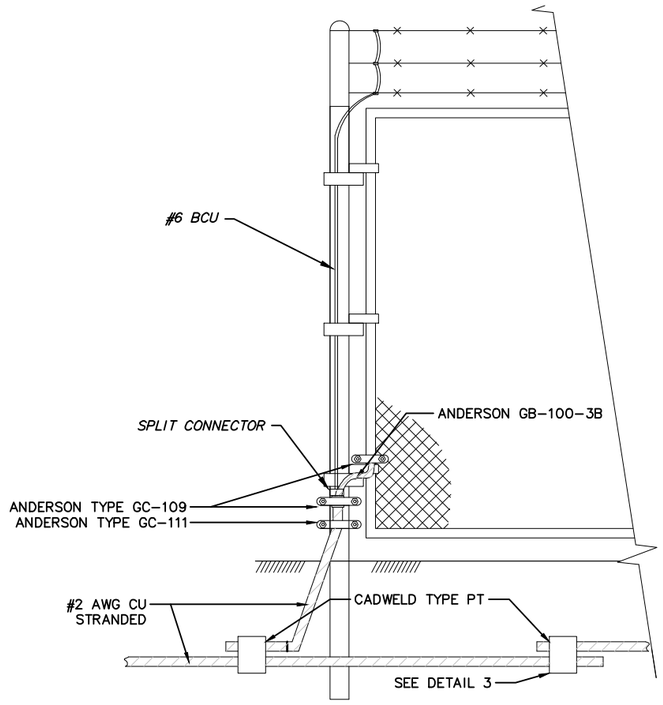
File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Dispenser.dwg Plot Date: 4/15/2026 10:57 AM

NOTES

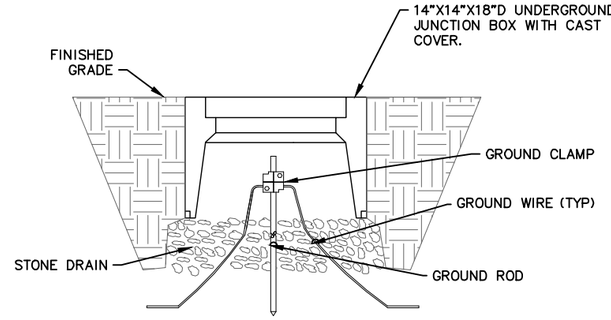
1. 3/4"X10' COPPER CLAD GROUND ROD.
2. #2 bCU GROUND RING BURIED MIN 30" BELOW GRADE.



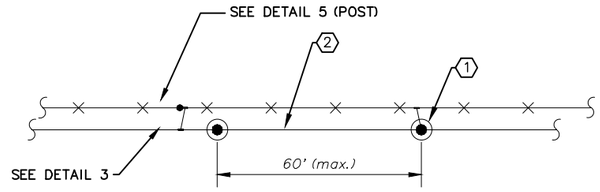
6 **LIGHT POLE**
SCALE: NTS



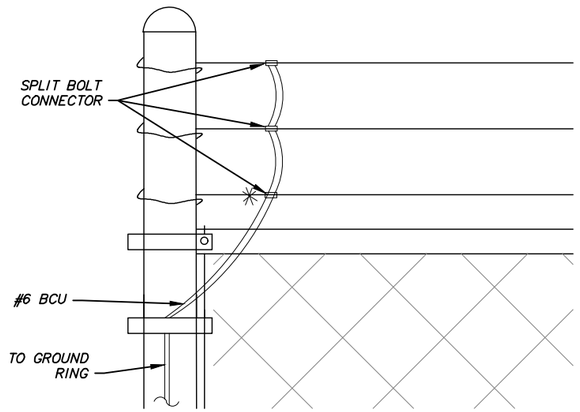
5 **POST/GATE/DOOR GROUNDING (TYP.)**
SCALE: NTS



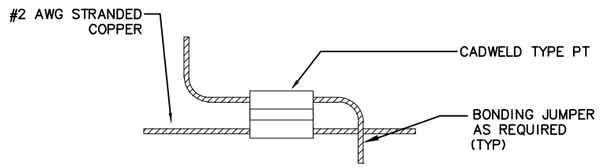
1 **GROUND TEST POINT ELEVATION**
SCALE: NTS



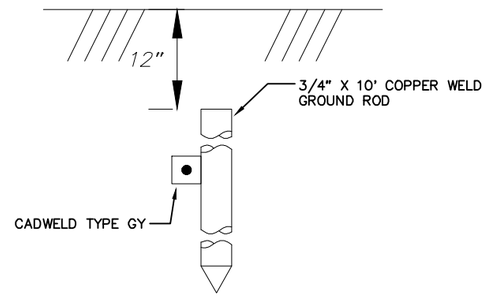
2 **FENCE GROUNDING**
SCALE: NTS



7 **FENCE GROUNDING (TYP.)**
SCALE: NTS



3 **GROUND RING CONNECTION**
SCALE: NTS



4 **GROUND ROD CONNECTION**
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED ELECTRICAL ENGINEER R. Keene EE-11401 4/15/2026

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

TULUKSAK BULK FUEL UPGRADES
ELECTRICAL DETAILS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed –
Drawn –
Approved –

Sheet No. E4.1

Files: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Electrical Details.dwg
Plot Date: 4/15/2026 10:58 AM

DISTRIBUTION SYSTEM GENERAL NOTES

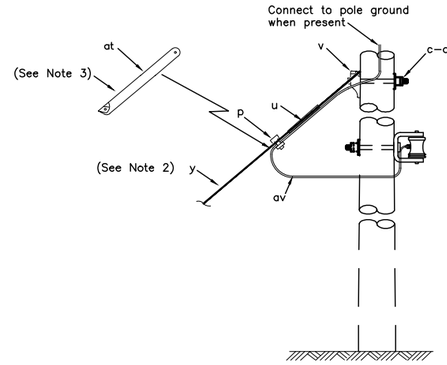
1. ALL CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE SPECIFICATIONS AND THE DRAWINGS.
2. THE 2007 EDITION OF ANSI C2 – NATIONAL ELECTRICAL SAFETY CODE (NESC), RUS BULLETIN 1728F–804 AND SPECIFICATIONS AND DRAWINGS FOR 12.47/7.2 kV LINE CONSTRUCTION, UNLESS MODIFIED BY THESE DRAWINGS OR SPECIFICATIONS, SHALL BE FOLLOWED, INCLUDING ANY STATE OF ALASKA AMENDMENTS. OBTAIN COPIES OF THE RUS BULLETINS AND MAINTAIN COPIES ON THE JOB SITE. ADDITIONALLY, CONSTRUCTION SPECIFICATIONS ARE INCLUDED IN DIVISIONS 26 AND 33 OF THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH THE CONTRACT DOCUMENTS, RUS CONSTRUCTION UNITS, AND ANSI C2.
3. THE EXISTING ELECTRICAL DISTRIBUTION SYSTEM CURRENTLY SERVES CUSTOMERS. SERVICE SHALL BE MAINTAINED AT ALL TIMES TO THE CUSTOMERS EXCEPT WHEN OUTAGES ARE REQUIRED FOR SERVICE CONVERSION OR OTHER CONSTRUCTION RELATED ACTIVITIES. ALL OUTAGES SHALL BE COORDINATED IN ADVANCE WITH TULUKSAK TRADITIONAL POWER UTILITY (OWNER).
4. UNLESS OTHERWISE INDICATED, THE EXISTING PRIMARY AND SECONDARY DISTRIBUTION SYSTEM, INCLUDING HARDWARE, CONDUCTORS (BOTH PRIMARY AND SECONDARY), TRANSFORMERS, CROSSARMS, INSULATORS, LIGHTS, ANCHOR RODS, GUYS, AND ALL OTHER MATERIAL DIRECTLY RELATED TO THE EXISTING ELECTRICAL DISTRIBUTION SYSTEM BEING TAKEN OUT OF SERVICE SHALL BE REMOVED AFTER COMPLETION OF THE INSTALLATION, ENERGIZATION, AND SERVICE CONVERSIONS TO THE NEW ELECTRICAL DISTRIBUTION SYSTEM. POLES THAT HAVE TELECOM SYSTEM CONDUCTORS OR EQUIPMENT ATTACHED SHALL NOT BE REMOVED.
5. ALL EXISTING UTILITIES MAY NOT BE SHOWN. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO DIGGING HOLES FOR POLES AND ANCHORS.
6. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL FEATURES OF THE REQUIRED WORK. PROVIDE ALL EQUIPMENT AND MATERIALS REQUIRED FOR A COMPLETE SYSTEM. VERIFY EXISTING FIELD CONDITIONS PRIOR TO STARTING CONSTRUCTION. IMMEDIATELY CONTACT THE ENGINEER FOR CLARIFICATION OF QUESTIONABLE ITEMS OR APPARENT CONFLICTS.
7. ENSURE THAT APPROPRIATE SAFETY MEASURES ARE IMPLEMENTED AND THAT ALL WORKERS ARE AWARE OF THE POTENTIAL HAZARDS FROM ELECTRICAL SHOCK ASSOCIATED WITH WORKING ON OR NEAR AN ENERGIZED MEDIUM VOLTAGE DISTRIBUTION SYSTEM.
8. THE SITE PLANS USED WERE DEVELOPED USING A COMBINATION OF AERIAL PHOTOGRAPHY AND SURVEY DATA PROVIDED BY OTHERS. ANY VARIATIONS BETWEEN WHAT IS SHOWN AND THE ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
9. SEE CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.
10. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COORDINATING HIS WORK WITH EXISTING FACILITY OPERATORS, OTHER CONTRACTORS AND/OR SUBCONTRACTORS WORKING IN THE COMMUNITY, LOCAL UTILITY AND GOVERNMENT ORGANIZATIONS, AND STATE AND FEDERAL AUTHORITIES.
11. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING CONSTRUCTION ACCESS FOR EQUIPMENT AND PERSONNEL AS REQUIRED TO COMPLETE POLE INSTALLATION, POLE HARDWARE AND CONDUCTOR INSTALLATION, AND ALL OTHER PROJECT TASKS. CONTRACTOR SHALL COORDINATION WITH LOCAL ENTITIES AND RESIDENTS, ERECT TEMPORARY STRUCTURES, AND PERFORM TEMPORARY REMOVAL/RELOCATION AND REPLACEMENT OF ALL STRUCTURES, STEAM HOUSES, ETC. AS NECESSARY TO COMPLETE THE WORK. ALL EXISTING STRUCTURES AFFECTED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL OR BETTER CONDITION BY THE CONTRACTOR IMMEDIATELY AFTER THE CONTRACTOR'S WORK IN THAT AREA IS COMPLETED. CONTRACTOR SHALL COORDINATE ALL NECESSARY PUBLIC SAFETY ACTIVITIES INCLUDING SIGNAGE, BARRIERS, TRAFFIC CONTROL PLANS, LIGHTING, PUBLIC NOTIFICATIONS, AND OTHER ITEMS DEEMED NECESSARY TO PROTECT THE PUBLIC DURING CONSTRUCTION ACTIVITIES.

DISTRIBUTION UPGRADE SCOPE OF WORK

1. THE SCOPE OF WORK IS AS FOLLOWS:
   - INSTALL SINGLE PHASE OVERHEAD PRIMARY LINE EXTENSION TO NEW TANK FARM LOCATION.
   - INSTALL NEW TRANSFORMER AND TWO SERVICES AT THE TANK FARM PER THE PLANS.

DISTRIBUTION SYSTEM INSTALLATION NOTES

1. SEE SPECIFICATIONS FOR EQUIPMENT REQUIREMENTS AND COMPLETE REQUIREMENTS FOR ELECTRICAL DISTRIBUTION INSTALLATION.
2. WHERE RUS UNITS ARE REFERENCED, MATERIAL ITEMS MAY NOT BE LISTED IN THE MATERIAL LIST. CONTRACTOR SHALL REFER TO RUS UNIT REFERENCED TO DETERMINE WHAT MATERIAL MUST BE PROVIDED.
3. ANY MODIFIED RUS CONSTRUCTION UNIT OR ANY NEW CONSTRUCTION UNITS ARE INCLUDED IN THE DETAIL SHEETS OF THE DRAWINGS. ANY STANDARD RUS CONSTRUCTION UNITS REFERENCED ON THE DRAWINGS SHALL BE OBTAINED BY THE CONTRACTOR. FAILURE TO HAVE THE CORRECT RUS CONSTRUCTION UNIT WILL NOT BE ACCEPTABLE AS AN EXCUSE FOR AN INCORRECT INSTALLATION.
4. ALL HARDWARE SHALL BE ALUMINUM, HOT DIP GALVANIZED, OR STAINLESS STEEL. ALL SMALL FASTENERS SHALL BE STAINLESS STEEL.
5. PRIMARY OVERHEAD CONDUCTOR SHALL #2 ACSR.
6. ALL INSULATOR TIES SHALL BE PREFORMED TYPE. ALL NEUTRAL AND PHASE CONDUCTOR DEADENDS SHALL BE PREFORMED TYPE.
7. ALL PHASE CONDUCTOR DEADENDS SHALL BE MADE USING A SHOE TYPE CLAMP.
8. NOT ALL GROUNDS ARE SHOWN. GROUND NEUTRAL WIRE AND TRANSFORMER GROUNDED BUSHING ALONG WITH TRANSFORMER CASE. ROUTE #4 AWG SOLID COPPER GROUND CONDUCTOR DOWN POLE GROUND. ATTACH COPPER GROUND CONDUCTOR TO POLE WITH COPPER PLATED STAPLES. ALL CONNECTIONS TO CABLE SHALL BE MADE WITH COPPER COMPRESSION LUGS. NO ALUMINUM CONNECTORS OR CABLES SHALL BE USED, EXCEPT AT CONNECTIONS TO ACSR. AT ACSR CONNECTIONS, USE CONNECTORS RATED FOR COPPER/ALUMINUM.
9. ALL QUANTITIES MAY NOT BE SHOWN. DETERMINE QUANTITIES OF ALL NECESSARY MATERIAL AND EQUIPMENT.
10. ARMOR RODS SHALL BE PROVIDED FOR ALL NEW ACSR CONDUCTORS. ARMOR RODS SHALL BE INSTALLED AT EACH INSULATOR BUT WILL NOT BE REQUIRED AT PRIMARY DEAD–END ASSEMBLIES.
11. INSULATORS SHALL BE SELECTED TO PROPERLY ACCOMMODATE THE ARMOR ROD INSTALLED ON THE CONDUCTOR.



NOTES:
1. PROVIDE PRE–FORMED GUY DEADEND (u.) OTHER DEADEND MATERIAL SHALL NOT BE SUBSTITUTED.
2. GUY WIRE SHALL BE 3/8" EHS UNLESS OTHERWISE NOTED. SEE SPECIFICATION.
3. INSTALL RED STRIPED REFLECTIVE TAPE ON BOTH SIDES OF GUY GUARD. INSTALL TAPE IN WARM ENVIRONMENT, ABOVE MANUFACTURE RECOMMENDED TEMPERATURE.

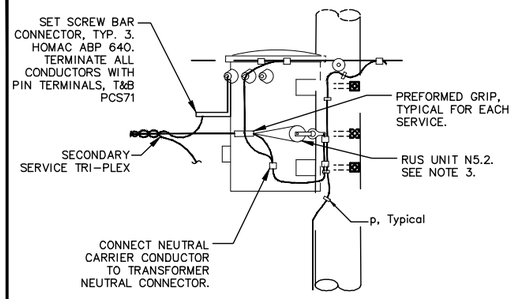
ITEM	QTY	MATERIAL
c	1	Bolt, machine, 3/4" x req'd length
d	1	Washer, square, 4", curved
p		Connectors, guy bond and as req'd
j	1	Screw, lag, 1/2" x 4"
u	2	Deadend for guy strand, heavy duty
v	1	Guy attachment, guy hook type
y		Guy wire, as req'd
at	1	Guy marker, Yellow
av		Jumpers, as req'd
ck	1	Clamp, anchor bonding
ek	1	Locknuts

DESIGN PARAMETERS:

PERMITTED LOAD IS LEAST OF: 8,500 LBS (IN ANY DIRECTION) or 90% of RATED BREAKING STRENGTH OF GUY WIRE

SINGLE DOWN GUY (THROUGH BOLT TYPE)

DEC 2017 | E1.1La



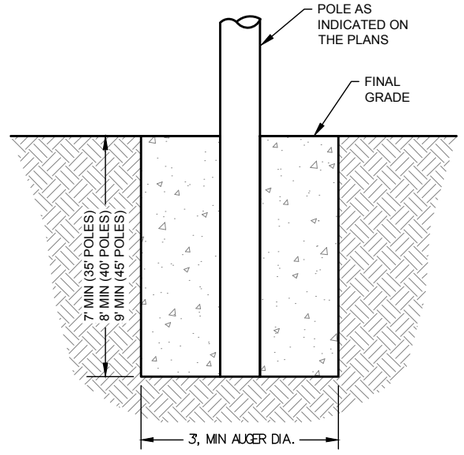
NOTES:
1) THIS CONSTRUCTION UNIT APPLIES ONLY TO SINGLE–PHASE SECONDARY CONNECTIONS AT SINGLE–PHASE TRANSFORMERS. FOR CONNECTIONS THREE–PHASE TRANSFORMERS SEE APPROPRIATE RUS CONSTRUCTION UNIT.
2) FOR POLE GROUNDING, TRANSFORMER GROUNDING, NEUTRAL CONNECTIONS, ETC. SEE THE APPROPRIATE RUS CONSTRUCTION UNIT.
3) FOR SERVICES ON OPPOSITE SIDES OF POLE PROVIDE TWO UNITS. AN EYE NUT MAY BE USED FOR THE SECOND UNIT IF DESIRED BY THE CONTRACTOR.

ITEM	QTY	MATERIAL
P		Connectors, as req'd
–	–	–
av		Jumpers, as req'd

SINGLE–PHASE SECONDARY SERVICE ASSEMBLY

DEC 2017 | N7.6

TRANSFORMER FUSE LINK SCHEDULE	
TRANSFORMER SIZE	FUSE LINK SIZE AND TYPE
10KVA	1.4 Amp, SloFast
15KVA	2.1 Amp, SloFast
25 KVA	3.5 Amp, SloFast
37.5 KVA	5.2 Amp, SloFast
75 KVA	10.4 Amp, SloFast
100 KVA	14 Amp, SloFast



NOTES:
1. AUGER MINIMUM 3' DIAMETER HOLE, DEPTH AS INDICATED.
2. BACKFILL WITH GRAVEL AND COMPACT IN MAXIMUM 8" LIFTS.
3. FOR POLES LESS THEN 35', MINIMUM BURIAL DEPTH SHALL BE 6'.

1 **TYPICAL POLE INSTALLATION**

SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER R. Keene EE-11401 4/15/2026

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

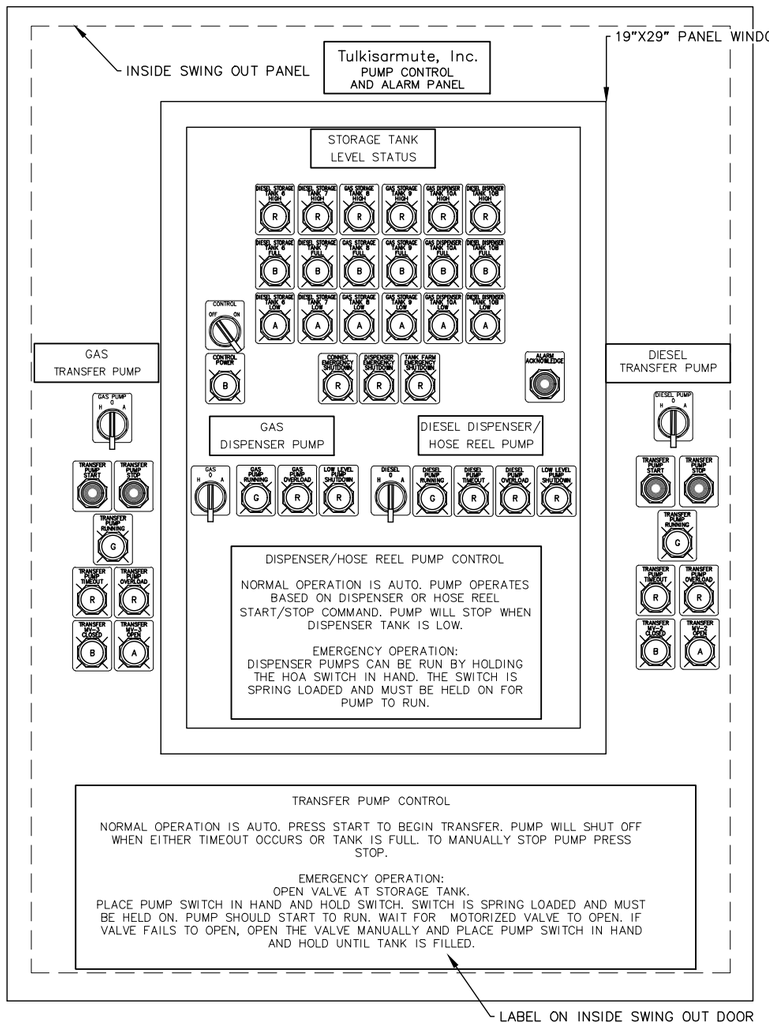
TULUKSAK BULK FUEL UPGRADES
ELECTRICAL DISTRIBUTION NOTES AND DETAILS
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26 | Designed – | Drawn – | Approved –

Sheet No. E4.2

File: J:\JobData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 Electrical Details.dwg Plot Date: 4/15/2026 10:58 AM



1 **TANK FARM PANEL CP-1 LAYOUT**

SCALE: NTS

ALARM AND PUMP CONTROL NARRATIVE

THE CONTROL PANEL PROVIDES CRITICAL HIGH ALARMS FOR THE TWO PRODUCT DISPENSING TANK, CONTROLS THE TRANSFER OF FUEL FROM THE BULK TANKS TO THE GASOLINE AND DIESEL DISPENSING TANKS, OPERATES THE GASOLINE AND DIESEL RETAIL DISPENSING PUMPS, THE HOSE REEL PUMP AND PROVIDES EMERGENCY SHUTDOWN FOR THE ENTIRE FUEL SYSTEM.

ALARMS

EACH STORAGE TANK IS EQUIPPED WITH A CRITICAL HIGH (LSHA – XX) LEVEL FLOAT SWITCH THAT, WHEN FUEL REACHES ITS LEVEL, OPENS A CIRCUIT (FAILS 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 DISPENSERS, ONE BY THE STORE BUILDING AND ONE AT THE FUEL TANK FARM. 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.

FUEL TRANSFER

THE FUEL TRANSFER BETWEEN THE BULK AND DISPENSING TANKS CAN BE EITHER MANUAL OR SEMI–AUTOMATIC. THE FOLLOWING APPLIES TO BOTH THE GASOLINE AND DIESEL SYSTEMS.

MANUAL OPERATION

BY PLACING (AND HOLDING) THE HOA SWITCH IN THE HAND POSITION, THE TRANSFER PUMP WILL START AND RUN. ITS RUN LIGHT WILL BE ILLUMINATED CONFIRMING THE PUMP IS POWERED. THE PUMP WILL CONTINUE RUNNING UNTIL EITHER IT EXPERIENCES AN OVERLOAD CONDITION WHERE THE MOTOR STARTER CONTROL IS OPENED INTERNALLY, THE CRITICAL HIGH LEVEL FLOAT IS REACHED OR THE OPERATOR RELEASES THE HOA SWITCH. IF AN 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) 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 FILL THE DISPENSING TANK SHOULD AUTOMATIC CONTROLS FAIL. THE MANUAL FILL OPERATION WOULD REQUIRE TWO PEOPLE TO PERFORM SAFELY.

WHENEVER A TRANSFER PUMP IS STARTED, AN "OPEN" SIGNAL IS ALSO SENT TO ITS ASSOCIATED MOTORIZED VALVE WHICH OPENS. WHEN THE PUMP IS SHUT DOWN, THE MOTORIZED VALVE RECEIVES A "CLOSE" SIGNAL AND IT CLOSES. OPEN AND CLOSED STATUS IS DISPLAYED ON THE PANEL.

NOTE: SEE ALARMS SECTION ABOVE FOR EMERGENCY SHUTDOWN

SEMI–AUTOMATIC OPERATION

AUTO MODE IS THE INTENDED CONTINUOUS MODE FOR THESE CONTROLS. IN AUTO, THE OPERATION OF THE TRANSFER PUMP IS CONTROLLED BY A PUSHBUTTON ON THE CONTROL PANEL AND THE LSH AND LSHA FLOATS IN THE DISPENSING TANK. WHEN FUEL LEVEL DROPS TO BELOW THE LSL FLOAT'S LEVEL A PANEL MOUNTED PILOT LIGHT, GAS/DIESEL DISPENSING TANK LOW IS ENERGIZED. THE OPERATOR MUST PRESS THE PUMP START PUSHBUTTON TO BEGIN TRANSFER. IF PUMPING IS SUCCESSFUL, THE LOW LEVEL LIGHT WILL EXTINGUISH AFTER A FEW MINUTES. INTERNAL CONTROLS LINKED TO THE LSH FLOAT KEEP THE PUMP RUNNING UNTIL THE LSH FLOAT LEVEL IS ATTAINED OR PUMPING LASTS FOR MORE THAN 15 MINUTES. (NOTE: THERE IS A TIMER THAT STARTS WHEN THE PUMP STARTS AND IS SET FOR 15 MINUTE TIMEOUT. A PILOT LIGHT ON THE FRONT PANEL WILL BE ENERGIZED, INDICATING PUMP TIMEOUT HAS OCCURRED. IF TIMEOUT IS THE CAUSE OF SHUTDOWN, THE HOA SWITCH MUST BE TURNED OFF THEN BACK TO AUTO FOR THE TRANSFER OPERATION TO RESUME.)

SHOULD PUMPING BE COMPLETED BEFORE TIMEOUT, A PILOT LIGHT ON THE FRONT PANEL WILL BE ENERGIZED ONCE THE LSH FLOAT LEVEL IS REACHED (GAS/DIESEL DISPENSING TANK FULL). WHEN NO TANK LEVEL PILOT LIGHTS ARE ON, THE TANK LEVEL LIES SOMEWHERE BETWEEN LOW LEVEL AND FULL. SHOULD THE PUMP CONTINUE TO RUN AFTER THE HIGH FLOAT WAS REACHED, AND FUEL LEVELS INCREASE THE LSHA FLOAT WILL ALSO ATTEMPT TO SHUT THE PUMP DOWN AS WELL AS SOUNDING THE ALARM AND ENABLING ITS PILOT LIGHT ON THE FRONT PANEL (GAS/DIESEL DISPENSING TANK HIGH).

DISPENSING PUMPS

THE DISPENSER PUMPS CAN BE EITHER MANUAL OR AUTOMATIC. THE FOLLOWING APPLIES TO BOTH THE GAS AND DIESEL SYSTEMS.

NORMAL OPERATION IS FOR THE PUMPS TO OPERATE IN AUTO MODE. 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. THE DISPENSER PUMPS WILL ALSO STOP IF THE ASSOCIATED DIESEL OR GAS TRANSFER PUMP IS RUNNING.

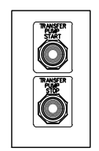
MANUAL OPERATION

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.

AUTOMATIC OPERATION

AUTO MODE IS THE INTENDED CONTINUOUS MODE FOR THESE CONTROLS. IN AUTO, THE OPERATION OF THE GAS AND DIESEL DISPENSER PUMPS IS CONTROLLED BY THE DISPENSER FOR THE GAS PUMP AND THE DISPENSER OR THE HOSE REEL START/STOP CONTROL (CP–2) FOR THE DIESEL PUMP. OTHER OPERATING PARAMETERS ARE IDENTICAL TO THE MANUAL MODE THE GAS PUMP AND DIESEL PUMP WHEN CONTROLLED BY THE DISPENSER.

WHEN THE HOSE REEL START/START CONTROL STARTS THE PUMP, A TIMER IS ACTIVATED AND WHEN THE PRESET TIME HAS ELAPSED THE PUMP IS SHUT DOWN. THE TIMER RESETS THE PUMP CONTROLS ONLY – IT DOES NOT AFFECT THE OPERATION OF THE INTEGRAL FUEL METER VALVE THAT ALLOWS A PRESET AMOUNT OF FUEL TO FLOW BEFORE CLOSING. SHOULD THE TIMER SHUT THE PUMP DOWN BEFORE THE REQUIRED AMOUNT OF FUEL IS PROVIDED, PUSHING THE START BUTTON WOULD CAUSE THE TIMER TO RESET ALLOWING THE PUMP TO RESUME OPERATION.



2 **HOSE REEL START/STOP CONTROL (CP–2)**

SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED ENGINEER R. Keene EE-11401 4/15/2026

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

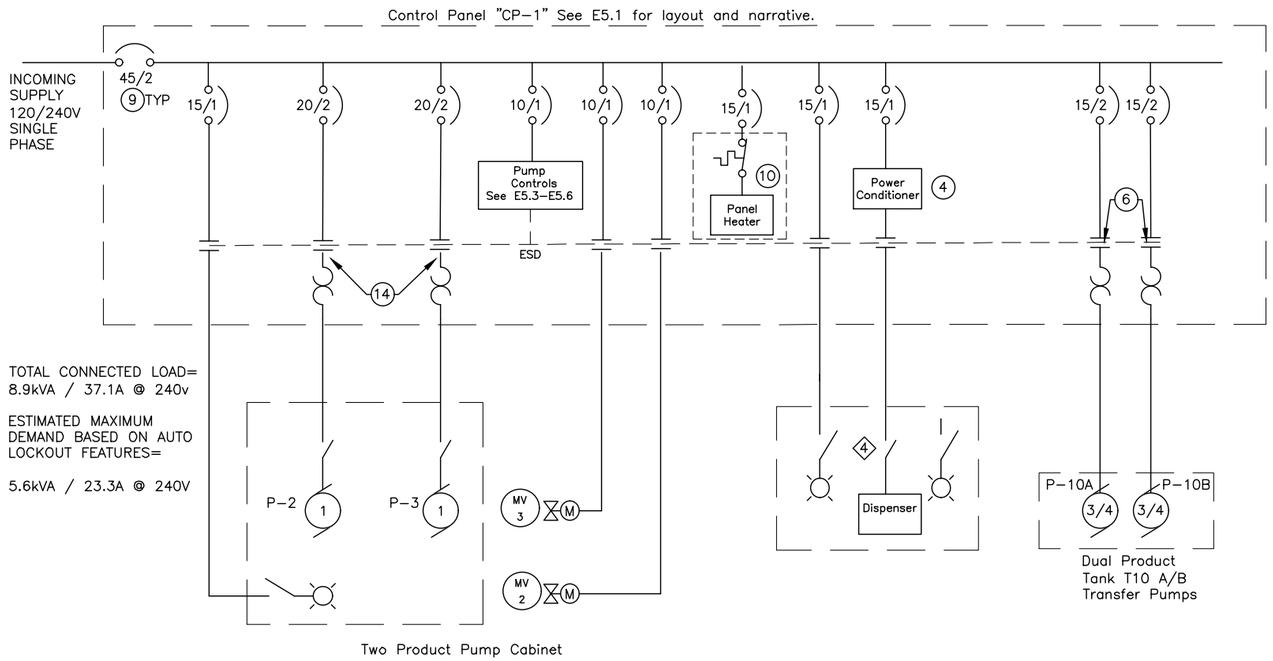
TULUKSAK BULK FUEL UPGRADES
CORP TANK FARM PANEL, CP–1
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26 | Designed – | Drawn – | Approved –

Sheet No. E5.1

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP1.dwg Plot Date: 4/15/2026 10:58 AM



1 **CP-1 AND FIELD EQUIPMENT POWER ONE-LINE**

SCALE: NTS

COMPONENT SCHEDULE	
#	ITEM
1	PILOT LIGHT, 120V, LED, NEMA 4X, LENS TINT AS SHOWN, ALLEN BRADLEY 800H SERIES
2	120V TERMINAL BLOCK RELAY, SPDT, ALLEN BRADLEY 700HLF
3	PILOT LIGHT, PUSH TO TEST, 120V, LED, NEMA 4X, LENS TINT AS SHOWN ALLEN BRADLEY 800H SERIES
4	DIN RAIL MOUNTED UPS. HARDWIRED DIN RAIL AC UPS, 850kVA, 120V. P/N SPU 850.
5	3-POSITION SELECTOR SWITCH, 120V, NEMA 4X, HAND-OFF-AUTO, WITH SPRING RETURN FROM HAND TO OFF POSITION, ALLEN BRADLEY 800H SERIES
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, NEMA 4X, 120V, FEDERAL FIREBALL W/ RED 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,ALLEN BRADLEY 800H SERIES - CONTACT BLOCKS AS REQUIRED.
12	NORMALLY CLOSED PUSHBUTTON, 120V, 10A, NEMA 4X, ALLEN BRADLEY 800H SERIES - CONTACT BLOCKS AS REQUIRED.
13	2-POSITION SELECTOR SWITCH, 120V, NEMA 4X, ON-OFF, 10A RATED CONTACTS, ALLEN BRADLEY 800H SERIES.
14	2-POLE, SINGLE PHASE, 600V, COMBINATION MOTOR CONTROLLER WITH NEMA SIZE 0 FVNR CONTACTOR SUITABLE FOR GROUP MOTOR PROTECTION. PROVIDE WITH AUX CONTACT SETS AS REQUIRED. CUTLER-HAMMER N307XNSOX3N OR EQUAL W C320TR11 TRIP AND C3320SA20 AUX
15	MULTI-POLE CONTACTOR, 120V COIL, 10A RATED CONTACTS. # OF CONTACTS AS REQUIRED.
16	36"X48" NEMA 4 RATED ENCLOSURE, LOCKABLE DEADFRONT PANEL WITH INNER OPERATOR DOOR AND 19"X29" WINDOW KIT. HOFFMAN OR EQUAL. SIZE AS DRAWN.
17	TERMINAL BLOCK RELAY, 2PDT, 120V COIL 10A RATED ALLEN BRADLEY 700 HLT.
18	ADJUSTABLE TIME DELAY RELAY, MODULE FOR ITEM 3 ABOVE, ALLEN BRADLEY 700-AT3A1.

SEE E1 FOR FIELD MOUNTED ELECTRICAL EQUIPMENT SCHEDULE.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER R. Keene EE-11401 4/15/2026

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

TULUKSAK BULK FUEL UPGRADES
CP-1 POWER ONE-LINE
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed —
Drawn —
Approved —

Sheet No. E5.2

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP1.dwg Plot Date: 4/15/2026 10:58 AM

CONTROL POWER SEE E5.2 FOR PANEL POWER ONE-LINE

L1

N1

HS T30-1 ESD — CONNEX ESD

17 TYP — ESD T30 — CONNEX ESD RELAYS

ESD T31

ESD T30-1 — 3 TYP — R YAL T30 — CONNEX EMERGENCY SHUTDOWN

HS T10-1 ESD — DISPENSER ESD

ESD T10 — DISPENSER ESD RELAYS

ESD T11

ESD T10-1 — R YAL T10 — DISPENSER EMERGENCY SHUTDOWN

HS T20-1 ESD — TANK FARM ESD

ESD T20 — TANK FARM ESD RELAYS

ESD T21

ESD T20-1 — R YAL T20 — TANK FARM EMERGENCY SHUTDOWN

ACKNOWLEDGE (11) HS CPK-1 — 15 — CRS CPK — MULTIPOLE ALARM ACKNOWLEDGE RELAY

ESD T30-2, ESD T10-2, ESD T20-2 — CRS CPK-1, CRS 100-1 — CRS 100 — ESD ALARM SILENCE RELAY

2 — KSD 100 — VALVE POWER OFF DELAY ON ESD

Valve Close Delay KSD 100-1 — VSD 100 — VALVE POWER RELAY, 20A MULTIPOLE

ESD T21-1, ESD T11-1, ESD T31-1 — ESD 100 — 7 — ESD SHUTDOWN RELAYS

ESD 101 — 7

ESD ESD 100-1 — Acknowledge CRS 100-2

Diesel Tank Critical High LHH T6-2 — Acknowledge CRS T6-2

Diesel Tank Critical High LHH T7-2 — Acknowledge CRS T7-2

Gasoline Tank Critical High LHH T8-2 — Acknowledge CRS T8-2

Gasoline Tank Critical High LHH T9-2 — Acknowledge CRS T9-2

Gasoline Dispenser Tank Critical High LHH T10A-2 — Acknowledge CRS T10A-2

Diesel Dispenser Tank Critical High LHH T10B-2 — Acknowledge CRS T10B-2

4 — S7 — 8 — N1

1 — B YL 100 — CONTROL POWER

See 1/E5.2 — 120V L9 — ESD 101-1 — L9E; N N9 — ESD 101-2 — N9E — Power circuit to transfer pump enclosure lights.

See 1/E5.2 — UPS — 120V L10 — ESD 101-3 — L10E; N N10 — ESD 101-4 — N10E — Conditioned Power circuit to dispenser

See 1/E5.2 — 120V L11 — ESD 101-5 — L11E; N N11 — ESD 101-6 — N11E — Dispenser and Hose Reel Enclosure Lights

ALASKA ENERGY AUTHORITY

STATE OF ALASKA — 49TH — R. Kleine — EE-11401 — 4/15/2026 — PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES

CP-1 LADDER
(1 OF 4)

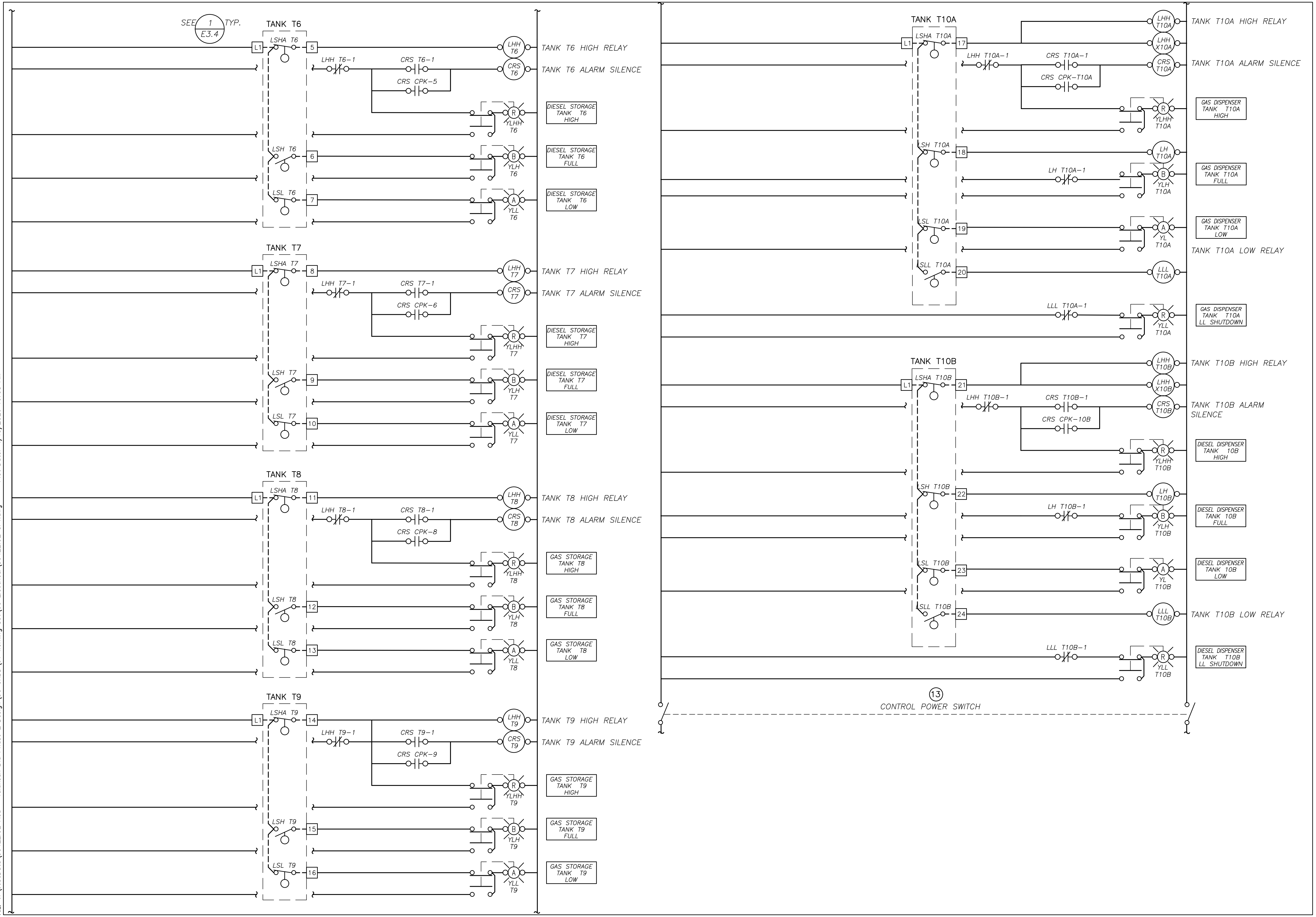
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/15/26
Designed: —
Drawn: —
Approved: —

Sheet No. E5.3

File: u:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP1.dwg Plot Date: 4/15/2026 10:58 AM


SEE 1 E3.4 TYP.
TANK T6
LSHA T6
LHH T6
TANK T6 HIGH RELAY
LHH T6-1
CRS T6-1
CRS CPK-5
CRS T6
TANK T6 ALARM SILENCE
YLHH T6
DIESEL STORAGE TANK T6 HIGH
LSH T6
YLH T6
DIESEL STORAGE TANK T6 FULL
LSL T6
YLL T6
DIESEL STORAGE TANK T6 LOW
TANK T7
LSHA T7
LHH T7
TANK T7 HIGH RELAY
LHH T7-1
CRS T7-1
CRS CPK-6
CRS T7
TANK T7 ALARM SILENCE
YLHH T7
DIESEL STORAGE TANK T7 HIGH
LSH T7
YLH T7
DIESEL STORAGE TANK T7 FULL
LSL T7
YLL T7
DIESEL STORAGE TANK T7 LOW
TANK T8
LSHA T8
LHH T8
TANK T8 HIGH RELAY
LHH T8-1
CRS T8-1
CRS CPK-8
CRS T8
TANK T8 ALARM SILENCE
YLHH T8
GAS STORAGE TANK T8 HIGH
LSH T8
YLH T8
GAS STORAGE TANK T8 FULL
LSL T8
YLL T8
GAS STORAGE TANK T8 LOW
TANK T9
LSHA T9
LHH T9
TANK T9 HIGH RELAY
LHH T9-1
CRS T9-1
CRS CPK-9
CRS T9
TANK T9 ALARM SILENCE
YLHH T9
GAS STORAGE TANK T9 HIGH
LSH T9
YLH T9
GAS STORAGE TANK T9 FULL
LSL T9
YLL T9
GAS STORAGE TANK T9 LOW
TANK T10A
LSHA T10A
LHH T10A
LHH X10A
TANK T10A HIGH RELAY
LHH T10A-1
CRS T10A-1
CRS CPK-T10A
CRS T10A
TANK T10A ALARM SILENCE
YLHH T10A
GAS DISPENSER TANK T10A HIGH
LSH T10A
LH T10A
LH T10A-1
YLH T10A
GAS DISPENSER TANK T10A FULL
LSL T10A
YL T10A
GAS DISPENSER TANK T10A LOW
TANK T10A LOW RELAY
LSLL T10A
LLL T10A
LLL T10A-1
YLL T10A
GAS DISPENSER TANK T10A LL SHUTDOWN
TANK T10B
LSHA T10B
LHH T10B
LHH X10B
TANK T10B HIGH RELAY
LHH T10B-1
CRS T10B-1
CRS CPK-10B
CRS T10B
TANK T10B ALARM SILENCE
YLHH T10B
DIESEL DISPENSER TANK 10B HIGH
LSH T10B
LH T10B
LH T10B-1
YLH T10B
DIESEL DISPENSER TANK 10B FULL
LSL T10B
YL T10B
DIESEL DISPENSER TANK 10B LOW
LSLL T10B
LLL T10B
TANK T10B LOW RELAY
LLL T10B-1
YLL T10B
DIESEL DISPENSER TANK T10B LL SHUTDOWN
13
CONTROL POWER SWITCH

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP1.dwg Plot Date: 4/15/2026 10:58 AM

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH R. Keene EE-14401 REGISTERED PROFESSIONAL ENGINEER

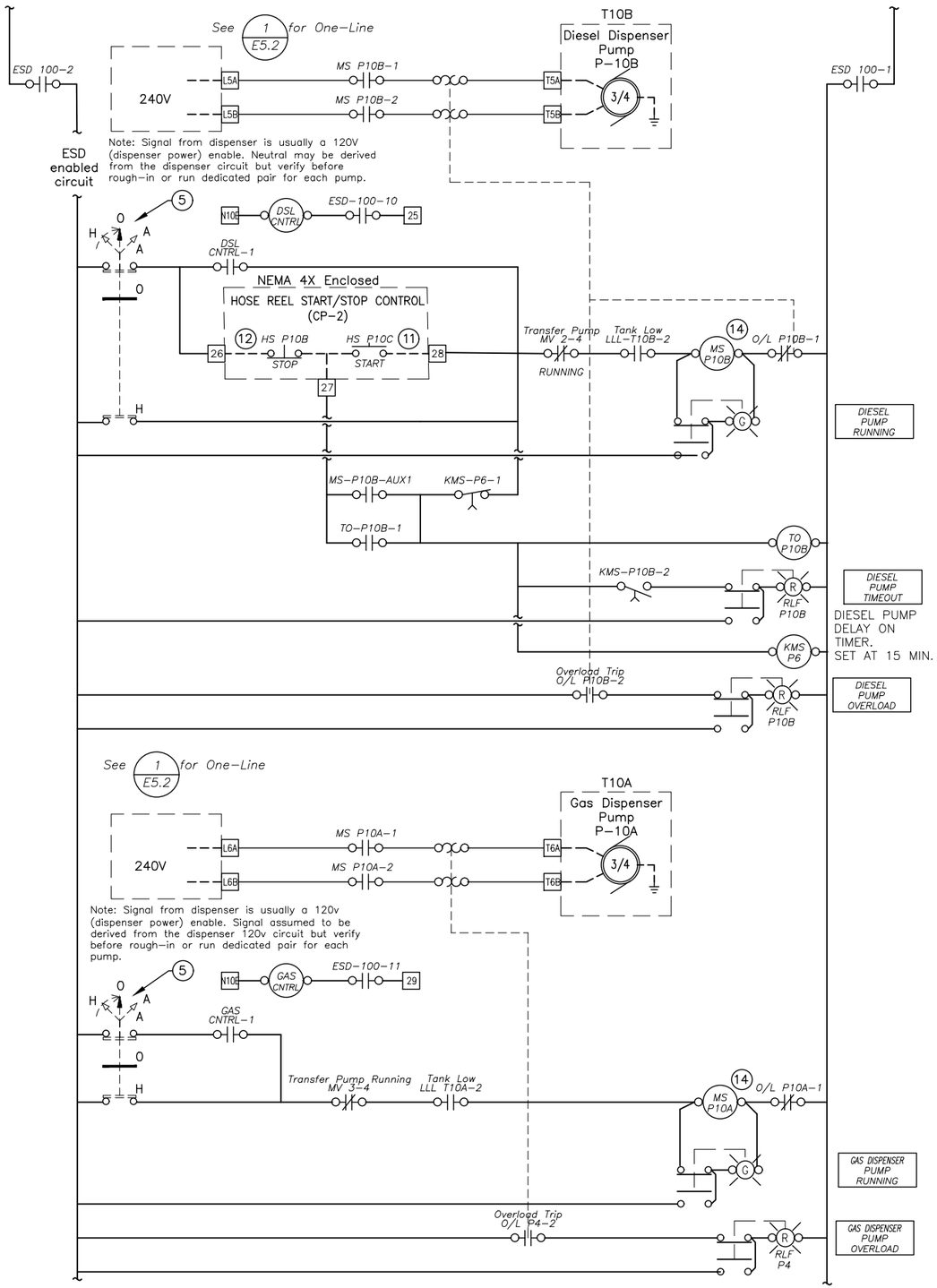
CRW ENGINEERING GROUP, LLC
3940 ARCTIC BLVD, SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECL882-AK

TULUKSAK BULK FUEL UPGRADES
CP-1 LADDER (2 OF 4)
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed —
Drawn —
Approved —

Sheet No. E5.4



Plot Date: 4/15/2026 10:58 AM

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP1.dwg

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH
R. Kleene
EE-11401
4/15/2026
REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES

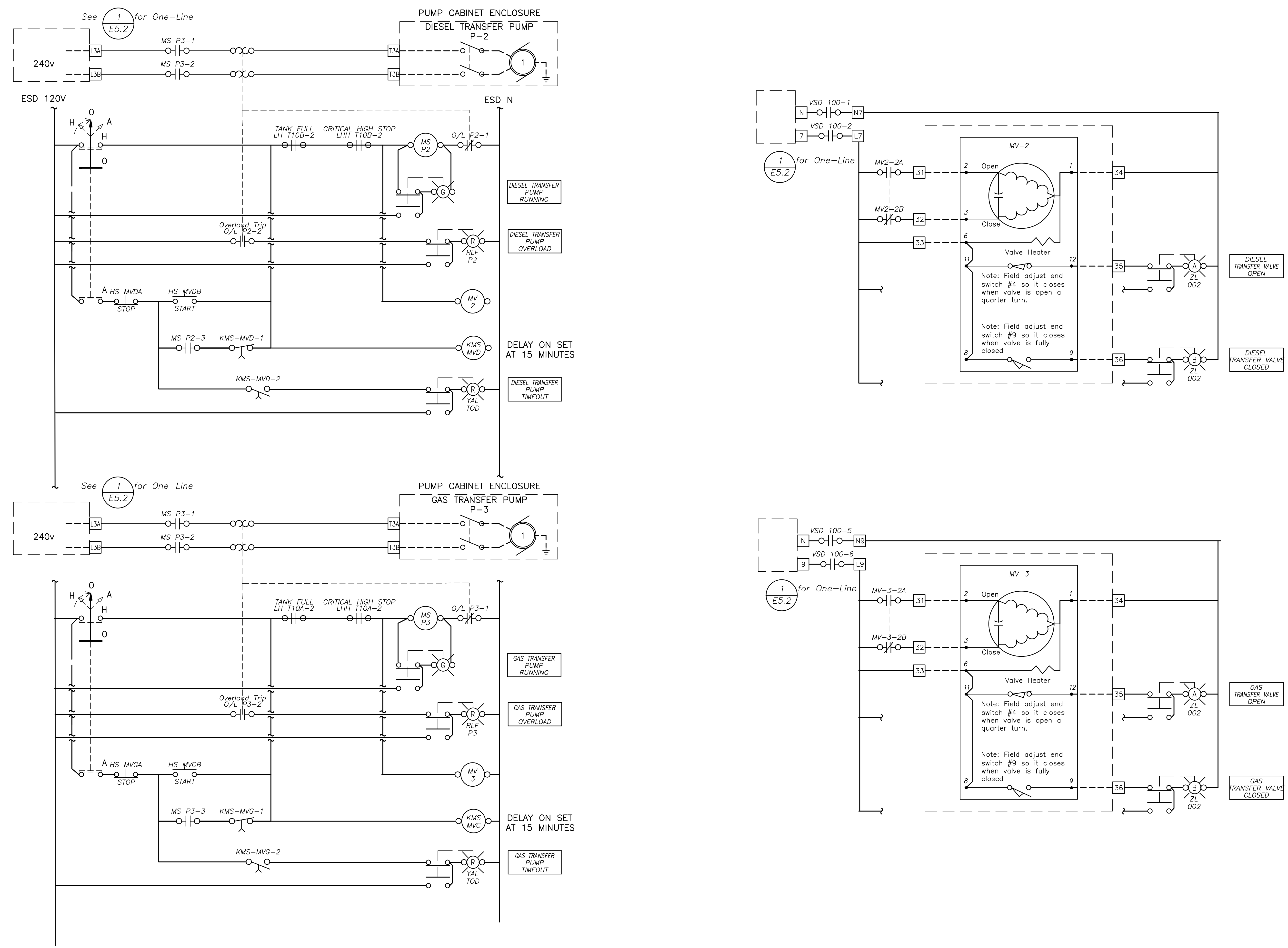
CP-1 LADDER
(3 OF 4)

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed –
Drawn –
Approved –

Sheet No.
E5.5



ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH R. Keene EE-14401 REGISTERED PROFESSIONAL ENGINEER

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

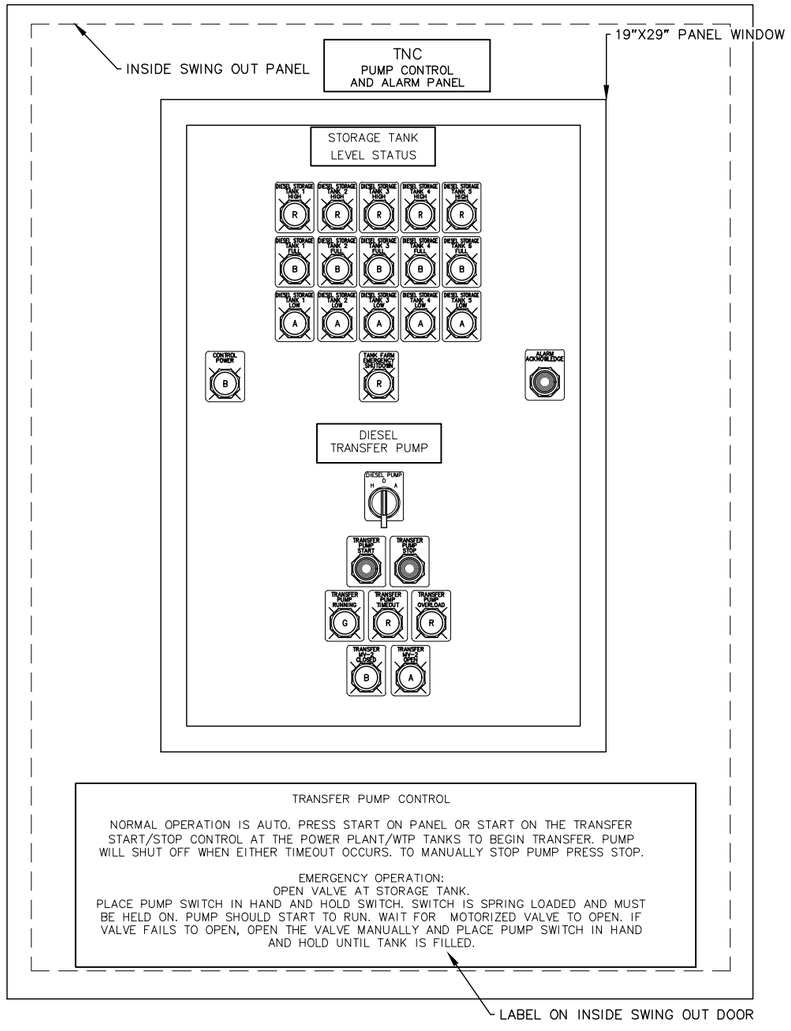
TULUKSAK BULK FUEL UPGRADES
CP-1 LADDER
(4 OF 4)
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed -
Drawn -
Approved -

Sheet No. E5.6

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP1.dwg Plot Date: 4/15/2026 10:58 AM



1 **TNC PANEL CP-3 LAYOUT**
SCALE: NTS

ALARM AND PUMP CONTROL NARRATIVE

THE CONTROL PANEL PROVIDES CRITICAL HIGH ALARMS FOR THE FIVE BULK STORAGE TANKS AND CONTROLS THE TRANSFER OF FUEL FROM THE BULK TANKS TO THE POWER PLANT/WTP TANKS AND PROVIDES EMERGENCY SHUTDOWN FOR THE ENTIRE FUEL SYSTEM.

ALARMS

EACH STORAGE TANK IS EQUIPPED WITH A CRITICAL HIGH (LSHA – XX) LEVEL FLOAT SWITCH THAT, WHEN FUEL REACHES ITS LEVEL, OPENS A CIRCUIT (FAILS 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 IS ONE EMERGENCY SHUTDOWN STATION. 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 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. SITE LIGHTING AND ALARMS ARE NOT DE–ENERGIZED AND WILL REMAIN ACTIVE.

FUEL TRANSFER

THE FUEL TRANSFER BETWEEN THE BULK AND POWER PLANT/WTP TANKS CAN BE EITHER MANUAL OR SEMI–AUTOMATIC.

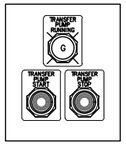
MANUAL OPERATION

BY PLACING (AND HOLDING) THE HOA SWITCH IN THE HAND POSITION, THE TRANSFER PUMP WILL START AND RUN AND THE MOTORIZED VALVE WILL OPEN. ITS RUN LIGHT WILL BE ILLUMINATED CONFIRMING THE PUMP IS POWERED. THE PUMP WILL CONTINUE RUNNING UNTIL EITHER IT EXPERIENCES AN OVERLOAD CONDITION WHERE THE MOTOR STARTER CONTROL IS OPENED INTERNALLY OR THE OPERATOR RELEASES THE HOA SWITCH. IF AN 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) 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 FILL THE POWER PLANT/WTP TANKS SHOULD AUTOMATIC CONTROLS FAIL. THE MANUAL FILL OPERATION WOULD REQUIRE TWO PEOPLE TO PERFORM SAFELY.

WHENEVER THE TRANSFER PUMP IS STARTED, AN "OPEN" SIGNAL IS ALSO SENT TO THE MOTORIZED VALVE WHICH OPENS. WHEN THE PUMP IS SHUT DOWN, THE MOTORIZED VALVE RECEIVES A "CLOSE" SIGNAL AND IT CLOSES. OPEN AND CLOSED STATUS IS DISPLAYED ON THE PANEL.

SEMI–AUTOMATIC OPERATION

AUTO MODE IS THE INTENDED CONTINUOUS MODE FOR THESE CONTROLS. IN AUTO, THE OPERATION OF THE TRANSFER PUMP IS CONTROLLED BY A START/STOP CONTROL ON THE PANEL OR A REMOTE START/STOP CONTROL AT THE POWER PLANT/WTP TANKS. WHEN THE EITHER START/START CONTROL STARTS THE PUMP, A TIMER IS ACTIVATED AND WHEN THE PRESET TIME HAS ELAPSED THE PUMP IS SHUT DOWN AND THE START BUTTON NEEDS TO BE PRESSED TO RESTART THE PUMP. THE PUMP CAN ALSO BE SHUTDOWN BY PRESSING THE STOP BUTTON ON WITHER OF THE START/STOP CONTROLS.



2 **TRANSFER START/STOP CONTROL (CP-4)**
SCALE: NTS

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED ENGINEER R. Keene EE-11401 4/15/2026

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

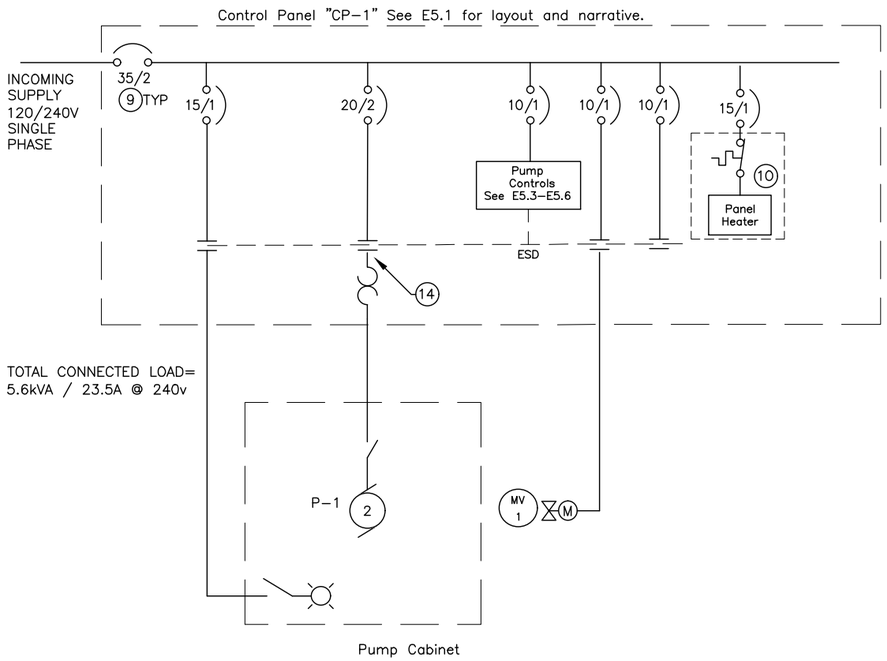
TULUKSAK BULK FUEL UPGRADES
TNC TANK FARM PANEL CP-3
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed –
Drawn –
Approved –

Sheet No. E5.7

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP2.dwg Plot Date: 4/15/2026 11:03 AM



1 CP-3 AND FIELD EQUIPMENT POWER ONE-LINE

SCALE: NTS

COMPONENT SCHEDULE	
#	ITEM
1	PILOT LIGHT, 120V, LED, NEMA 4X, LENS TINT AS SHOWN, ALLEN BRADLEY 800H SERIES
2	120V TERMINAL BLOCK RELAY, SPDT, ALLEN BRADLEY 700HLF
3	PILOT LIGHT, PUSH TO TEST, 120V, LED, NEMA 4X, LENS TINT AS SHOWN ALLEN BRADLEY 800H SERIES
4	DIN RAIL MOUNTED UPS. HARDWIRED DIN RAIL AC UPS, 850kVA, 120V. P/N SPU 850.
5	3-POSITION SELECTOR SWITCH, 120V, NEMA 4X, HAND-OFF-AUTO, WITH SPRING RETURN FROM HAND TO OFF POSITION, ALLEN BRADLEY 800H SERIES
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, NEMA 4X, 120V, FEDERAL FIREBALL W/ RED 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,ALLEN BRADLEY 800H SERIES - CONTACT BLOCKS AS REQUIRED.
12	NORMALLY CLOSED PUSHBUTTON, 120V, 10A, NEMA 4X, ALLEN BRADLEY 800H SERIES - CONTACT BLOCKS AS REQUIRED.
13	2-POSITION SELECTOR SWITCH, 120V, NEMA 4X, ON-OFF, 10A RATED CONTACTS, ALLEN BRADLEY 800H SERIES.
14	2-POLE, SINGLE PHASE, 600V, COMBINATION MOTOR CONTROLLER WITH NEMA SIZE 0 FVNR CONTACTOR SUITABLE FOR GROUP MOTOR PROTECTION. PROVIDE WITH AUX CONTACT SETS AS REQUIRED. CUTLER-HAMMER N307XNSOX3N OR EQUAL W C320TR11 TRIP AND C3320SA20 AUX
15	MULTI-POLE CONTACTOR, 120V COIL, 10A RATED CONTACTS. # OF CONTACTS AS REQUIRED.
16	36"X48" NEMA 4 RATED ENCLOSURE, LOCKABLE DEADFRONT PANEL WITH INNER OPERATOR DOOR AND 19"X29" WINDOW KIT. HOFFMAN OR EQUAL. SIZE AS DRAWN.
17	TERMINAL BLOCK RELAY, 2PDT, 120V COIL 10A RATED ALLEN BRADLEY 700 HLT.
18	ADJUSTABLE TIME DELAY RELAY, MODULE FOR ITEM 3 ABOVE, ALLEN BRADLEY 700-AT3A1.

SEE E1 FOR FIELD MOUNTED ELECTRICAL EQUIPMENT SCHEDULE.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH — REGISTERED PROFESSIONAL ENGINEER — R. Keene EE-11401 — 4/15/2026

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

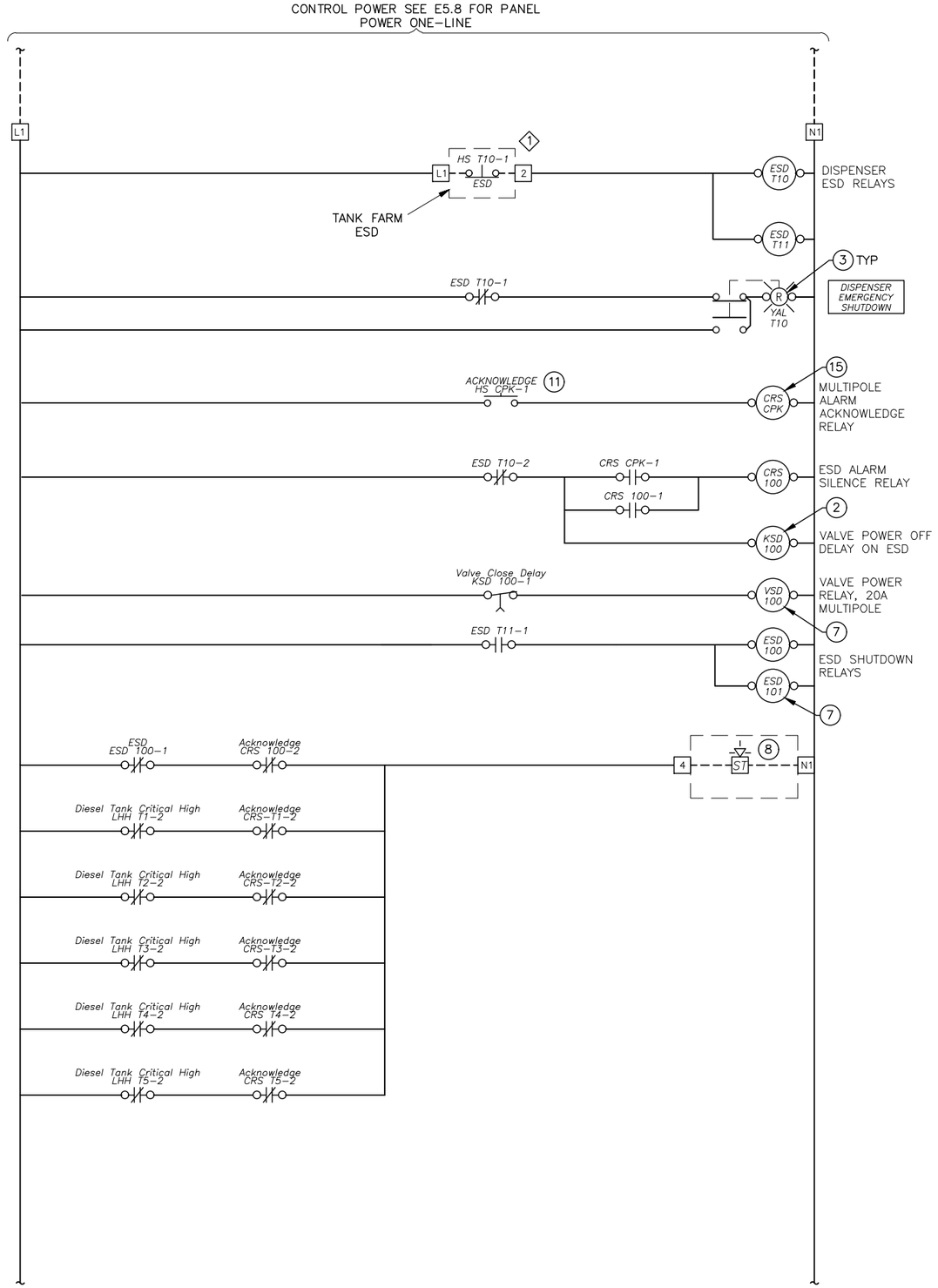
TULUKSAK BULK FUEL UPGRADES
CP-3 POWER ONE-LINE
TULUKSAK, ALASKA

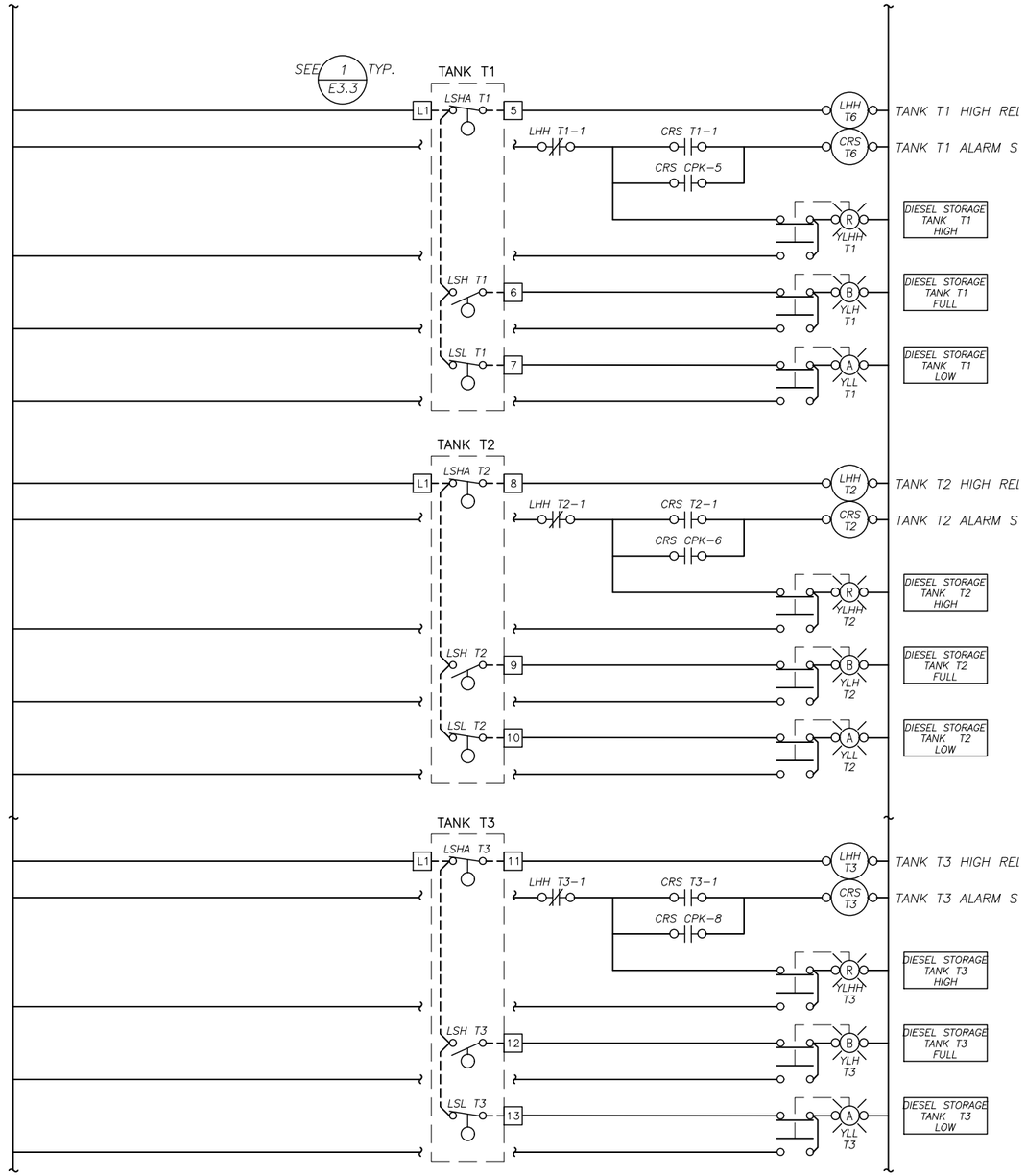
NO.	REVISION	BY	DATE

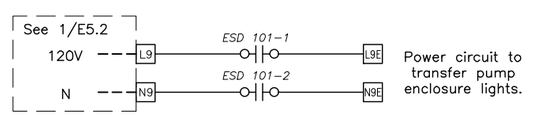
Plot Date 4/15/26
Designed —
Drawn —
Approved —

Sheet No. E5.8

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP2.dwg Plot Date: 4/15/2026 11:03 AM







ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER R. Keene EE-11401 4/15/2026

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

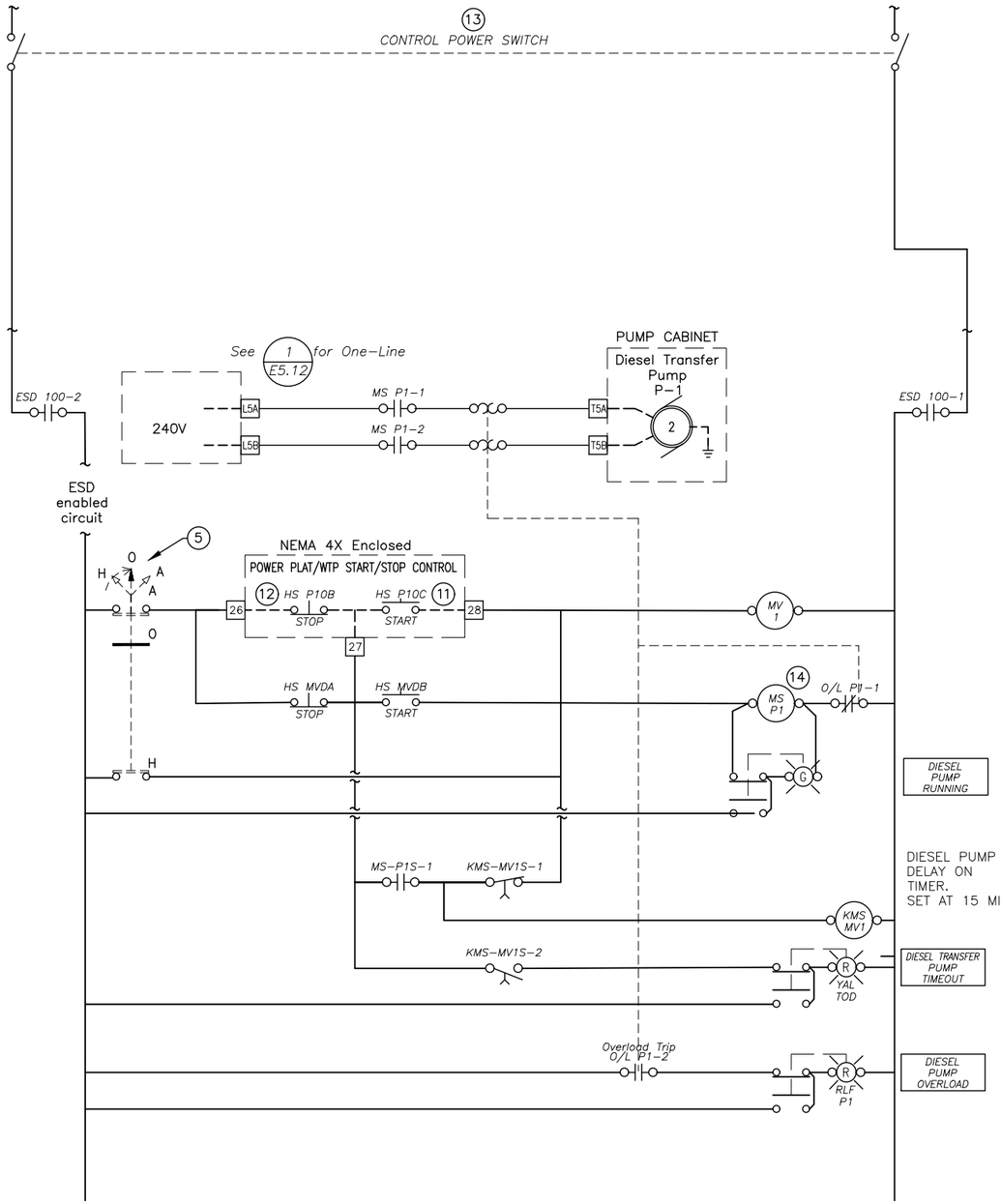
TULUKSAK BULK FUEL UPGRADES
CP-3 LADDER
(1 OF 2)
TULUKSAK, ALASKA

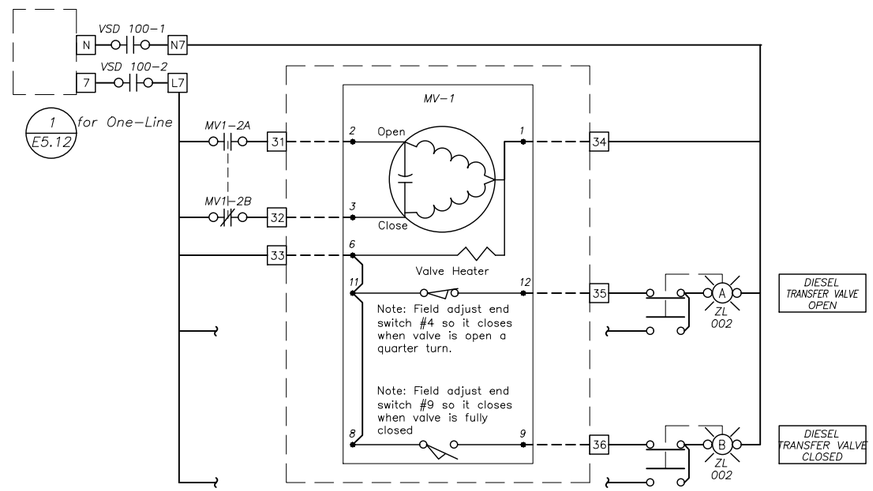
NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed –
Drawn –
Approved –

Sheet No.
E5.9

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP2.dwg Plot Date: 4/15/2026 11:03 AM





ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH
R. Keene
EE-11401
4/15/2026
REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES

CP-3 LADDER (1 OF 2)

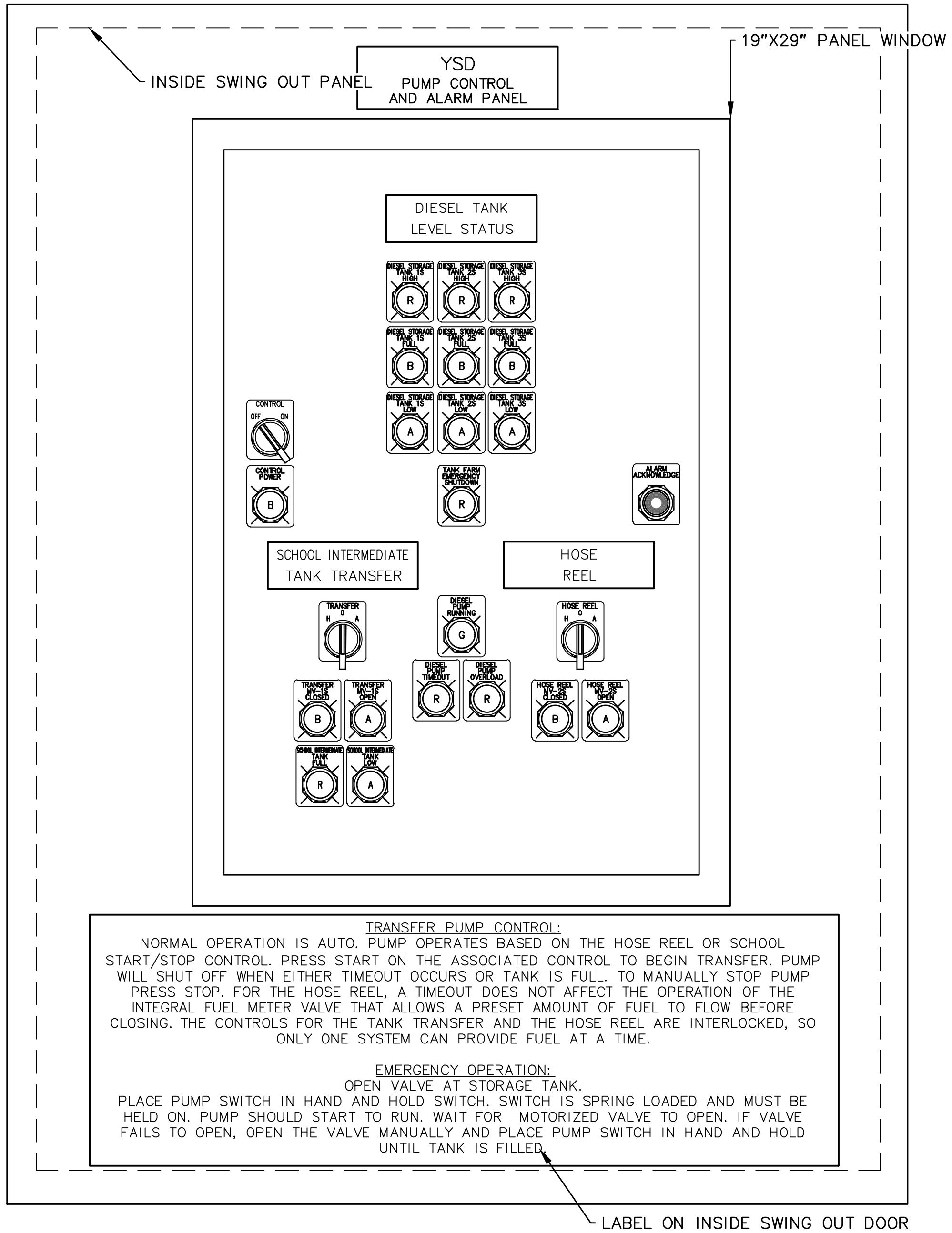
TULUKSAK, ALASKA

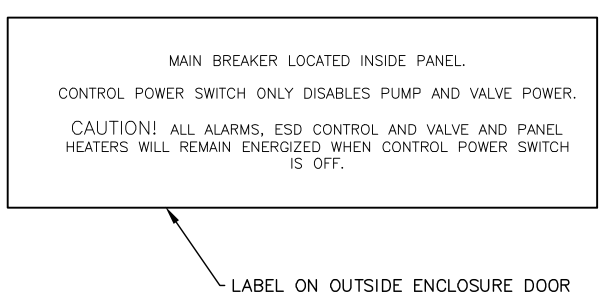
NO.	REVISION	BY	DATE

Plot Date: 4/15/26
Designed —
Drawn —
Approved —

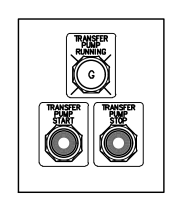
Sheet No. E5.10

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP2.dwg Plot Date: 4/15/2026 11:03 AM

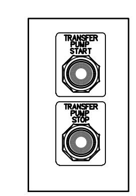




1 **TANK FARM PANEL CP-5 LAYOUT**
SCALE: NTS



2 **TRANSFER START/STOP CONTROL (CP-6)**
SCALE: NTS



3 **HOSE REEL START/STOP CONTROL (CP-7)**
SCALE: NTS

ALARM AND PUMP CONTROL NARRATIVE

THE CONTROL PANEL PROVIDES CRITICAL HIGH ALARMS FOR THE THREE BULK STORAGE TANKS AND CONTROLS THE TRANSFER OF FUEL FROM THE BULK TANKS TO THE SCHOOL INTERMEDIATE TANK AND HOSE REEL, AND PROVIDES EMERGENCY SHUTDOWN FOR THE ENTIRE FUEL SYSTEM.

ALARMS

EACH STORAGE TANK IS EQUIPPED WITH A CRITICAL HIGH (LSHA – XX) LEVEL FLOAT SWITCH THAT, WHEN FUEL REACHES ITS LEVEL, OPENS A CIRCUIT (FAILS 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 IS ONE EMERGENCY SHUTDOWN STATION. 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 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. SITE LIGHTING AND ALARMS ARE NOT DE–ENERGIZED AND WILL REMAIN ACTIVE.

FUEL TRANSFER

THE FUEL TRANSFER BETWEEN THE BULK AND SCHOOL INTERMEDIATE TANK AND HOSE REEL CAN BE EITHER MANUAL OR SEMI–AUTOMATIC.

MANUAL OPERATION

BY PLACING (AND HOLDING) THE HOA SWITCH IN THE HAND POSITION, THE TRANSFER PUMP WILL START AND RUN AND THE ASSOCIATED MOTORIZED VALVE WILL OPEN. ITS RUN LIGHT WILL BE ILLUMINATED CONFIRMING THE PUMP IS POWERED. THE PUMP WILL CONTINUE RUNNING UNTIL EITHER IT EXPERIENCES AN OVERLOAD CONDITION WHERE THE MOTOR STARTER CONTROL IS OPENED INTERNALLY OR THE OPERATOR RELEASES THE HOA SWITCH. IF AN 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) 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 FILL THE SCHOOL INTERMEDIATE TANK SHOULD AUTOMATIC CONTROLS FAIL. THE MANUAL FILL OPERATION WOULD REQUIRE TWO PEOPLE TO PERFORM SAFELY.

WHENEVER THE TRANSFER PUMP IS STARTED, AN "OPEN" SIGNAL IS ALSO SENT TO ITS ASSOCIATED MOTORIZED VALVE WHICH OPENS. WHEN THE PUMP IS SHUT DOWN, THE MOTORIZED VALVE RECEIVES A "CLOSE" SIGNAL AND IT CLOSES. OPEN AND CLOSED STATUS IS DISPLAYED ON THE PANEL.

SEMI–AUTOMATIC OPERATION

AUTO MODE IS THE INTENDED CONTINUOUS MODE FOR THESE CONTROLS. IN AUTO, THE OPERATION OF THE TRANSFER PUMP IS CONTROLLED BY A START/STOP CONTROL AT THE SCHOOL INTERMEDIATE TANK OR HOSE REEL. WHEN THE EITHER START/START CONTROL STARTS THE PUMP, A TIMER IS ACTIVATED AND WHEN THE PRESET TIME HAS ELAPSED THE PUMP IS SHUT DOWN AND THE START BUTTON NEEDS TO BE PRESSED TO RESTART THE PUMP. THE PUMP CAN ALSO BE SHUTDOWN BY PRESSING THE STOP BUTTON ON THE START/STOP CONTROL.

FOR THE HOSE REEL, A TIMEOUT DOES NOT AFFECT THE OPERATION OF THE INTEGRAL FUEL METER VALVE THAT ALLOWS A PRESET AMOUNT OF FUEL TO FLOW BEFORE CLOSING. SHOULD THE TIMER SHUT THE PUMP DOWN BEFORE THE REQUIRED AMOUNT OF FUEL IS PROVIDED, PUSHING THE START BUTTON WOULD CAUSE THE TIMER TO RESET ALLOWING THE PUMP TO RESUME OPERATION.

ALASKA ENERGY AUTHORITY

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

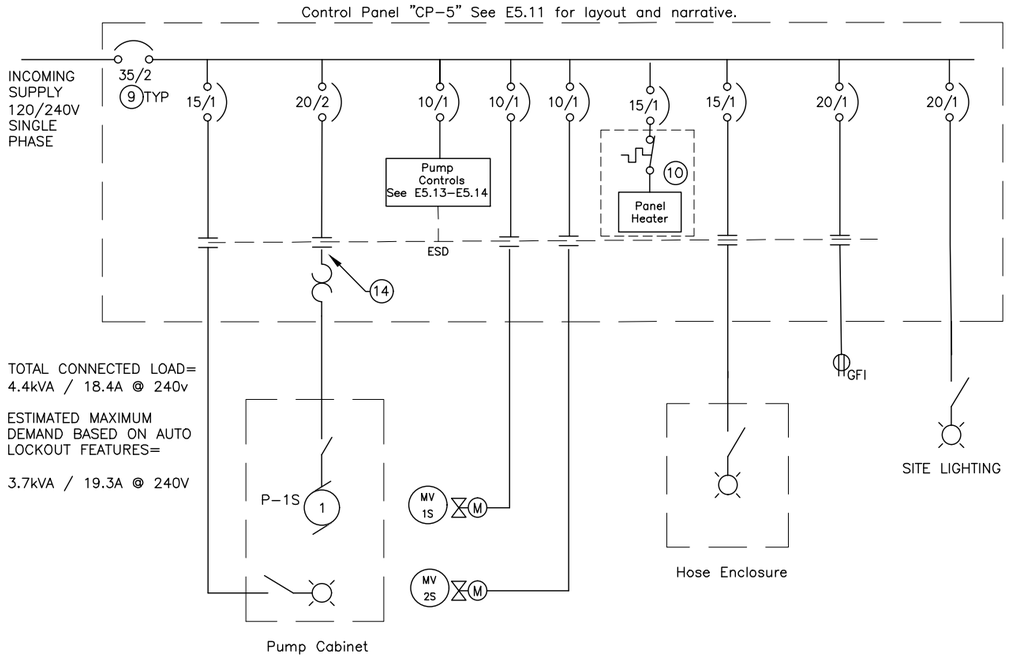
TULUKSAK BULK FUEL UPGRADES
YSD TANK FARM PANEL CP-5
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed –
Drawn –
Approved –

Sheet No. E5.11

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP3.dwg Plot Date: 4/15/2026 10:58 AM



1 CP-5 AND FIELD EQUIPMENT POWER ONE-LINE

SCALE: NTS

COMPONENT SCHEDULE	
#	ITEM
1	PILOT LIGHT, 120V, LED, NEMA 4X, LENS TINT AS SHOWN, ALLEN BRADLEY 800H SERIES
2	120V TERMINAL BLOCK RELAY, SPDT, ALLEN BRADLEY 700HLF
3	PILOT LIGHT, PUSH TO TEST, 120V, LED, NEMA 4X, LENS TINT AS SHOWN ALLEN BRADLEY 800H SERIES
4	DIN RAIL MOUNTED UPS. HARDWIRED DIN RAIL AC UPS, 850kVA, 120V. P/N SPU 850.
5	3-POSITION SELECTOR SWITCH, 120V, NEMA 4X, HAND-OFF-AUTO, WITH SPRING RETURN FROM HAND TO OFF POSITION, ALLEN BRADLEY 800H SERIES
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, NEMA 4X, 120V, FEDERAL FIREBALL W/ RED 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,ALLEN BRADLEY 800H SERIES - CONTACT BLOCKS AS REQUIRED.
12	NORMALLY CLOSED PUSHBUTTON, 120V, 10A, NEMA 4X, ALLEN BRADLEY 800H SERIES - CONTACT BLOCKS AS REQUIRED.
13	2-POSITION SELECTOR SWITCH, 120V, NEMA 4X, ON-OFF, 10A RATED CONTACTS, ALLEN BRADLEY 800H SERIES.
14	2-POLE, SINGLE PHASE, 600V, COMBINATION MOTOR CONTROLLER WITH NEMA SIZE 0 FVNR CONTACTOR SUITABLE FOR GROUP MOTOR PROTECTION. PROVIDE WITH AUX CONTACT SETS AS REQUIRED. CUTLER-HAMMER N30?XNSOX3N OR EQUAL W C320TR11 TRIP AND C3320SA20 AUX
15	MULTI-POLE CONTACTOR, 120V COIL, 10A RATED CONTACTS. # OF CONTACTS AS REQUIRED.
16	36"X48" NEMA 4 RATED ENCLOSURE, LOCKABLE DEADFRONT PANEL WITH INNER OPERATOR DOOR AND 19"X29" WINDOW KIT. HOFFMAN OR EQUAL. SIZE AS DRAWN.
17	TERMINAL BLOCK RELAY, 2PDT, 120V COIL 10A RATED ALLEN BRADLEY 700 HLT.
18	ADJUSTABLE TIME DELAY RELAY, MODULE FOR ITEM 3 ABOVE, ALLEN BRADLEY 700-AT3A1.

SEE E1 FOR FIELD MOUNTED ELECTRICAL EQUIPMENT SCHEDULE.

ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER R. Keene EE-11401 4/15/2026

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

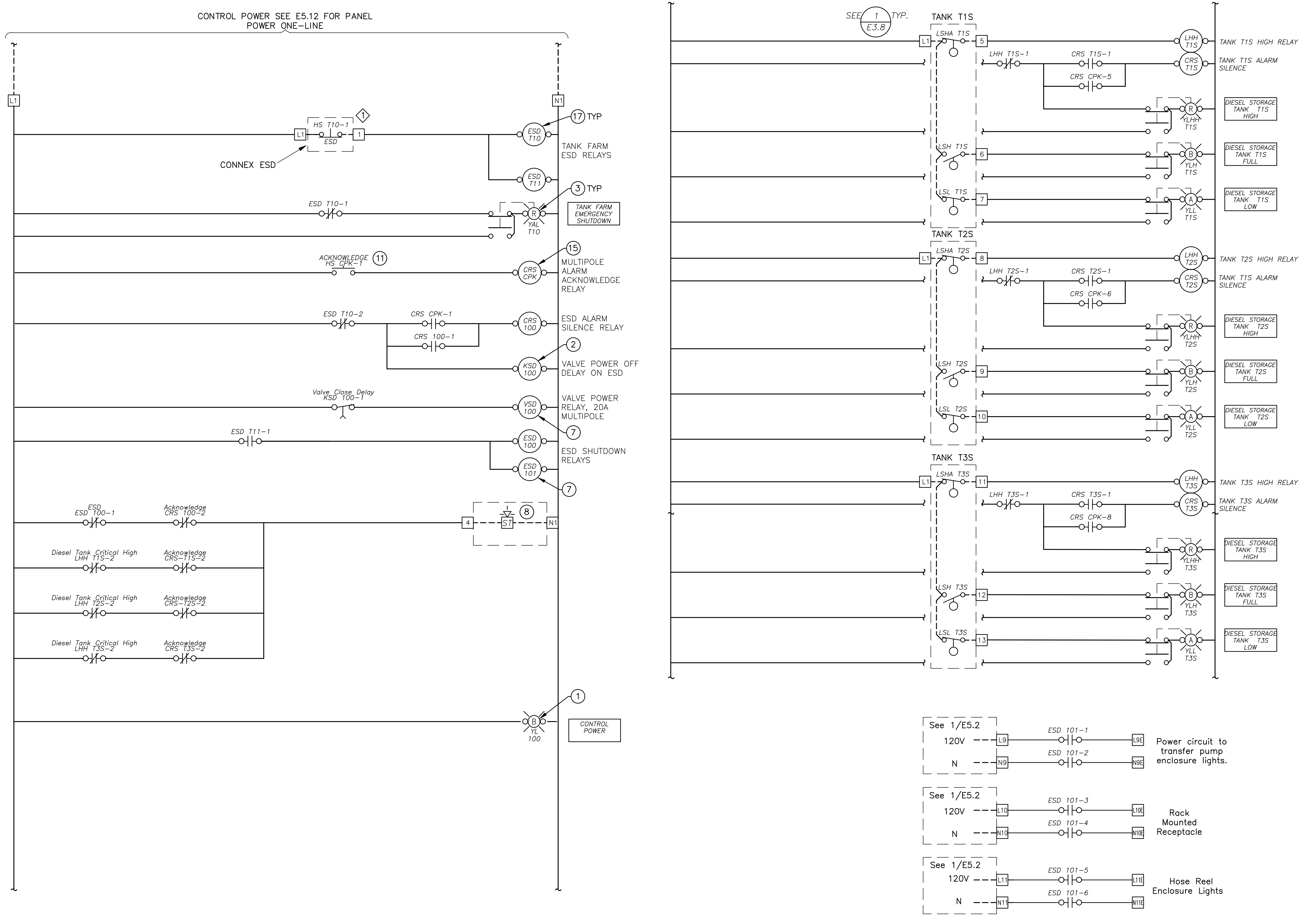
TULUKSAK BULK FUEL UPGRADES
CP-5 POWER ONE-LINE
TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 4/15/26
Designed: -
Drawn: -
Approved: -

Sheet No. E5.12

File: J:\JobsData\30422.02 Aea - Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP3.dwg Plot Date: 4/15/2026 10:58 AM



CONTROL POWER SEE E5.12 FOR PANEL POWER ONE-LINE
L1
N1
HS T10-1
ESD
17 TYP
ESD T10
TANK FARM ESD RELAYS
CONNEX ESD
ESD T11
ESD T10-1
3 TYP
R YAL T10
TANK FARM EMERGENCY SHUTDOWN
ACKNOWLEDGE HS CPK-1
11
15
CRS CPK
MULTIPOLE ALARM ACKNOWLEDGE RELAY
ESD T10-2
CRS CPK-1
CRS 100-1
CRS 100
ESD ALARM SILENCE RELAY
2
KSD 100
VALVE POWER OFF DELAY ON ESD
Valve Close Delay KSD 100-1
VSD 100
VALVE POWER RELAY, 20A MULTIPOLE
7
ESD T11-1
ESD 100
ESD 101
ESD SHUTDOWN RELAYS
ESD ESD 100-1
Acknowledge CRS 100-2
4
ST
8
Diesel Tank Critical High LHH T1S-2
Acknowledge CRS-T1S-2
Diesel Tank Critical High LHH T2S-2
Acknowledge CRS-T2S-2
Diesel Tank Critical High LHH T3S-2
Acknowledge CRS T3S-2
1
B YL 100
CONTROL POWER
SEE 1 E3.8 TYP.
TANK T1S
LSHA T1S
5
LHH T1S
TANK T1S HIGH RELAY
LHH T1S-1
CRS T1S-1
CRS CPK-5
CRS T1S
TANK T1S ALARM SILENCE
R YLHH T1S
DIESEL STORAGE TANK T1S HIGH
LSH T1S
6
B YLH T1S
DIESEL STORAGE TANK T1S FULL
LSL T1S
7
A YLL T1S
DIESEL STORAGE TANK T1S LOW
TANK T2S
LSHA T2S
8
LHH T2S
TANK T2S HIGH RELAY
LHH T2S-1
CRS T2S-1
CRS CPK-6
CRS T2S
TANK T1S ALARM SILENCE
R YLHH T2S
DIESEL STORAGE TANK T2S HIGH
LSH T2S
9
B YLH T2S
DIESEL STORAGE TANK T2S FULL
LSL T2S
10
A YLL T2S
DIESEL STORAGE TANK T2S LOW
TANK T3S
LSHA T3S
11
LHH T3S
TANK T3S HIGH RELAY
LHH T3S-1
CRS T3S-1
CRS CPK-8
CRS T3S
TANK T3S ALARM SILENCE
R YLHH T3S
DIESEL STORAGE TANK T3S HIGH
LSH T3S
12
B YLH T3S
DIESEL STORAGE TANK T3S FULL
LSL T3S
13
A YLL T3S
DIESEL STORAGE TANK T3S LOW
See 1/E5.2
120V
N
L9
N9
ESD 101-1
ESD 101-2
L9E
N9E
Power circuit to transfer pump enclosure lights.
See 1/E5.2
120V
N
L10
N10
ESD 101-3
ESD 101-4
L10E
N10E
Rack Mounted Receptacle
See 1/E5.2
120V
N
L11
N11
ESD 101-5
ESD 101-6
L11E
N11E
Hose Reel Enclosure Lights

ALASKA ENERGY AUTHORITY

STATE OF ALASKA
49 TH
R. Keene
EE-14401
REGISTERED PROFESSIONAL ENGINEER

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

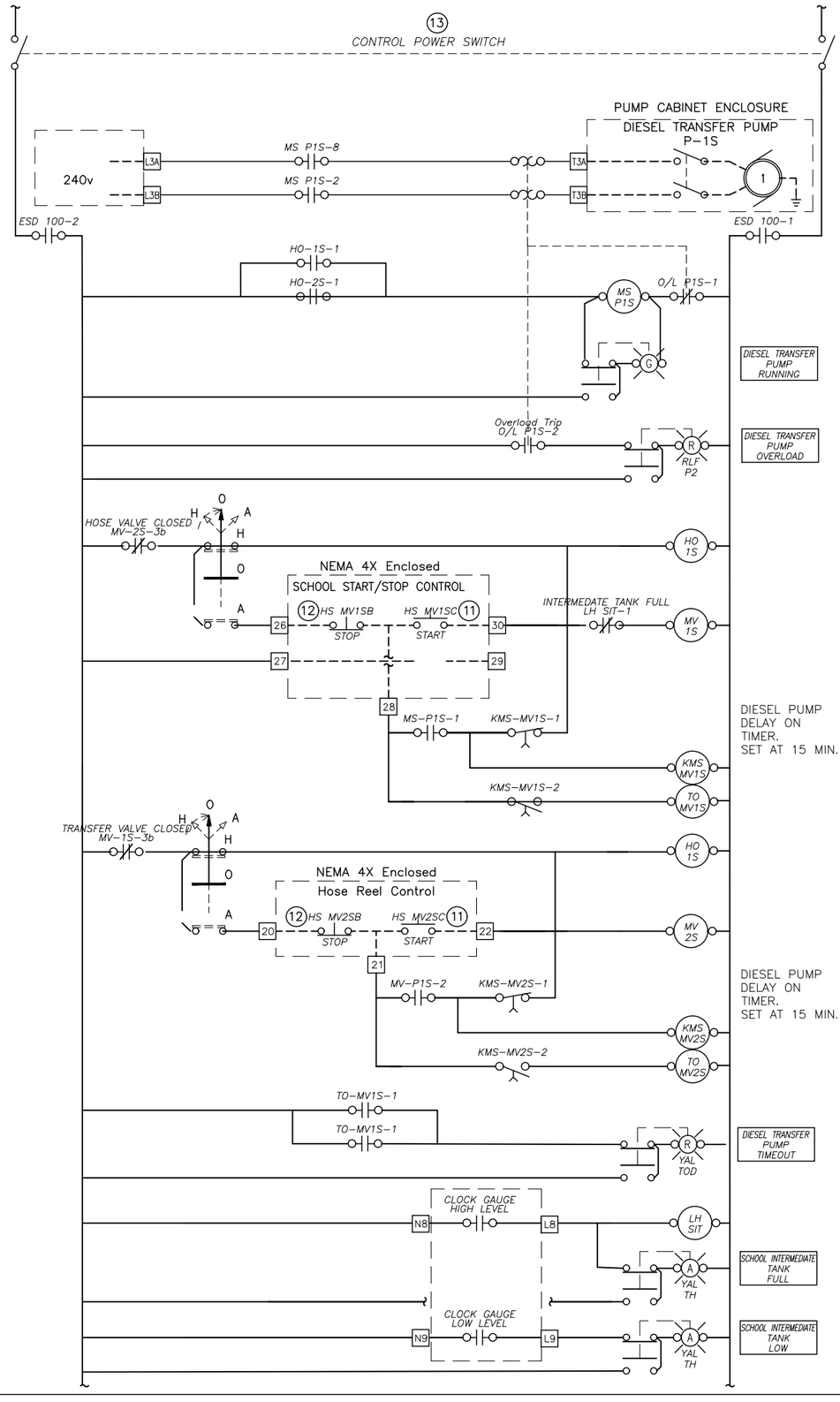
TULUKSAK BULK FUEL UPGRADES
CP-5 LADDER
(1 OF 2)
TULUKSAK, ALASKA

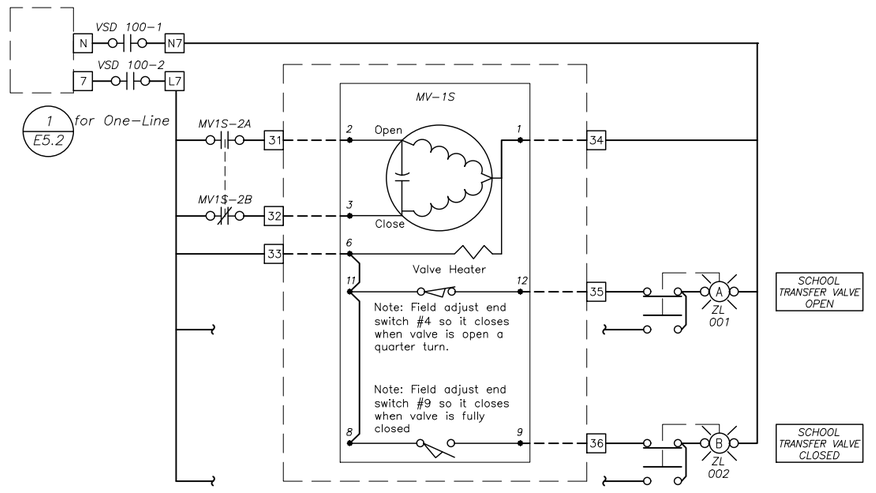
NO.	REVISION	BY	DATE

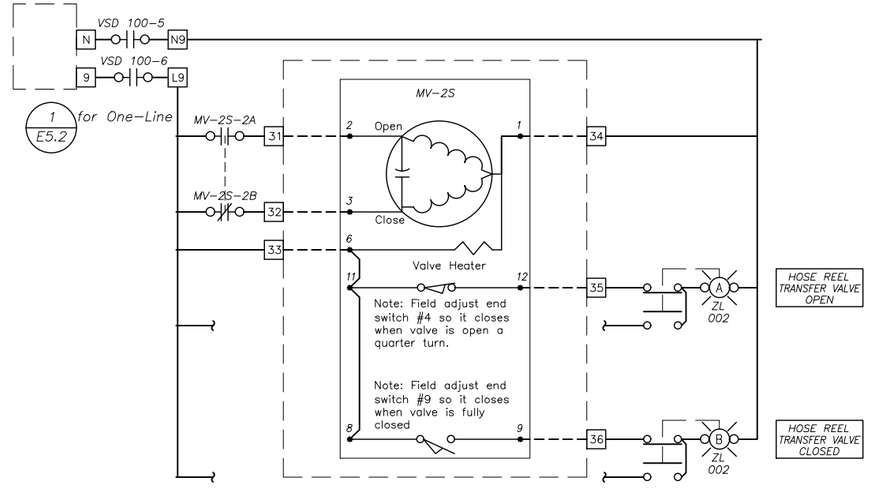
Plot Date 4/15/26
Designed –
Drawn –
Approved –

Sheet No. E5.13

File: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP3.dwg Plot Date: 4/15/2026 10:58 AM







ALASKA ENERGY AUTHORITY

STATE OF ALASKA 49TH
R. Kleene
EE-11401
4/15/2026
REGISTERED PROFESSIONAL ENGINEER

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

TULUKSAK BULK FUEL UPGRADES

CP-5 LADDER
(2 OF 2)

TULUKSAK, ALASKA

NO.	REVISION	BY	DATE

Plot Date 4/15/26
Designed –
Drawn –
Approved –

Sheet No.
E5.14

Files: J:\JobsData\30422.02 Aea – Tuluksak Bfu Phase 2 Design\00 CADD\01 Working Set\03 Electrical\30422.02 CP3.dwg Plot Date: 4/15/2026 10:58 AM