

Project Number (Consultant) 30704.51 (AVEC) —
AEA Project Manager ASHLEY STREVELER
Conformed Drawings (Date) _____
Construction Period (From) _____ (To) _____
As-Builts (Date) _____

BULK FUEL UPGRADES SHAGELUK, ALASKA

ISSUED FOR BIDDING
NOVEMBER 2025

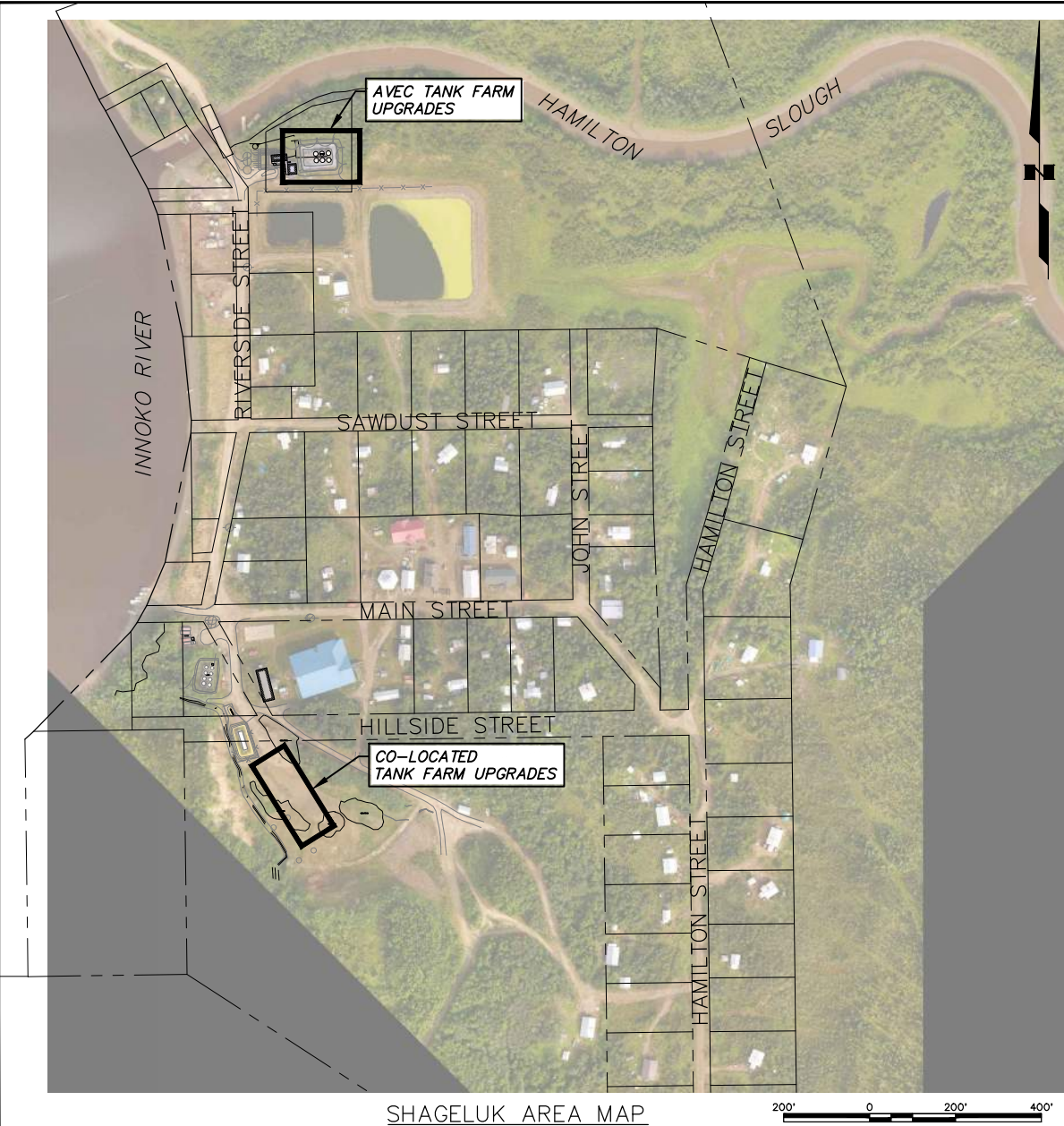


NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

DRAWING INDEX

Sheet List Table	
Sheet Number	Sheet Title
General	
G1.0	COVER
G1.1	NOTES, LEGEND & ABBREVIATIONS
G1.2	SETBACK & SIGNAGE PLAN – AVEC
G1.3	SETBACK & SIGNAGE PLAN – COLOCATED
G1.4	COMPONENT SCHEDULES
G1.5	AVEC TANK FARM OPERATING SCHEMATIC
G1.6	COLOCATED TANK FARM OPERATING SCHEMATIC
G1.7	AVEC DECOMMISSIONING PLAN
G1.8	CORPORATION DECOMMISSIONING PLAN
G1.9	CITY DECOMMISSIONING PLAN
Civil	
C1.1	VICINITY MAP
C1.2	AVEC TANK FARM SITE PLAN
C1.3	AVEC TANK FARM GRADING PLAN
C1.4	AVEC TANK FARM PIPING PLAN
C1.5	AVEC TANK FARM TYPICAL SECTIONS
C1.6	COLOCATED TANK FARM SITE PLAN
C1.7	COLOCATED GRADING PLAN
C1.8	COLOCATED TANK FARM SITE PIPING PLAN
C2.0	COLOCATED TANK FARM TYPICAL SECTIONS
C2.1	AVEC 30,000 GALLON TANK DETAILS
C2.2	30,000 GALLON DUAL COMPARTMENT TANK
C2.3	30,000 GALLON DUAL COMPARTMENT TANK
C2.4	5,000 GALLON PROTECTED DISPENSING TANK DETAILS
C2.5	1,500 GALLON BIG WHEEL DISPENSING TANK
C2.6	ULSD 30,000 GALLON SINGLE WALL TANK
C2.7	MISCELLANEOUS TANK DETAILS
C3.1	HOSE REEL ENCLOSURE DETAILS
C3.2	HOSE REEL DETAILS
C3.3	RETAIL DISPENSER ECLOSURE DETAILS
C3.4	RETAIL DISPENSER DETAILS
C4.1	CONTAINMENT DIKE & STAIR DETAILS
C4.2	DIKE DETAILS
C4.3	FENCE DETAILS
C4.4	PIPING DETAILS
C4.5	ELECTRICAL PANEL CANOPY

Electrical	NOTES, LEGEND, & ABBREVIATIONS
E1.1	ELECTRICAL ONE-LINE
E1.2	ELECTRICAL ONE-LINE
E1.3	ELECTRICAL ONE-LINE
E1.4	ELECTRICAL ONE-LINE
E1.5	CONDUIT SCHEDULE
E2.1	AVEC TANK FARM ELECTRICAL PLAN
E2.2	AVEC TANK FARM GROUNDING PLAN
E2.3	COLOCATED TANK FARM ELECTRICAL PLAN
E2.4	COLOCATED TANK FARM INSTRUMENTATION PLAN
E2.5	COLOCATED TANK FARM GROUNDING PLAN
E3.1	DISPENSER & PUMP CABINET ELECTRICAL PLAN
E4.1	ELECTRICAL DETAILS
E4.2	CONDUIT SUPPORT DETAIL
E4.3	ELEVATIONS
E5.1	DISPENSER & PUMP CABINET CLASSIFICATION PLAN
E5.2	COLOCATED TANK FARM CLASSIFICATION PLAN
E5.3	COLOCATED TYPICAL SECTION CLASSIFICATION PLAN
E6.1	CITY CONTROL PANEL LAYOUT AND NARRATIVE
E6.2	CP-1 LADDER
E6.3	CP-1 LADDER
E6.4	CP-1 LADDER
E6.5	CP-1 LADDER
E7.1	CORPORATION CONTROL PANEL LAYOUT
E7.2	CORPORATION CONTROL PANEL NARRATIVE
E7.3	CP-3 LADDER
E7.4	CP-3 LADDER
E7.5	CP-3 LADDER
E7.6	CP-3 LADDER
E7.7	CP-3 LADDER
E8.1	BIG WHEEL CONTROL PANEL LAYOUT AND NARRATIVE
E8.2	CP-2 LADDER
E8.3	CP-2 LADDER
E8.4	CP-2 LADDER



PROJECT SCOPE

- AVEC BULK FUEL UPGRADES:**
- DECOMMISSION EXISTING AVEC TANKS, PROVIDE TEMPORARY FUEL SUPPLY TO POWER PLANT.
 - CONSTRUCT A NEW BULK FUEL TANK FARM WITHIN THE OLD TANK FARM FOOTPRINT WITH TWO 30,000-GALLON SINGLE WALL, HORIZONTAL ASTs WITHIN A LINED STEEL DIKE CONTAINMENT.
 - INSTALL ALL ASSOCIATED PIPING, CONTROLS, AND ELECTRICAL UPGRADES AS REQUIRED FOR A COMPLETE & OPERABLE SYSTEM.
- COMMUNITY BULK FUEL UPGRADES:**
- CONSTRUCT A NEW COMMUNITY BULK FUEL TANK FARM CONSISTING OF THREE NEW 30,000-GALLON SINGLE WALL AST, ONE 5,000-GALLON, DUAL PRODUCT DISPENSING TANK, & ONE SINGLE PRODUCT DISPENSING TANK WITHIN A LINED DIKE CONTAINMENT.
 - INSTALL TWO RETAIL DISPENSERS (ONE DUAL PRODUCT, ONE SINGLE PRODUCT) AND THREE DIESEL HOSE REELS.
 - INSTALL ALL ASSOCIATED FUEL PIPING, CONTROLS, ELECTRICAL UPGRADES, ETC AS REQUIRED FOR A COMPLETE & OPERABLE SYSTEM.
 - MAINTAIN TEMPORARY RETAIL DISPENSING DURING CONSTRUCTION.

GENERAL NOTES

- THE CONTRACTOR SHALL PROTECT ALL ITEMS NOT SCHEDULED FOR DEMOLITION DURING CONSTRUCTION. DISTURBED AREAS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION.
- 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 "CALL BEFORE YOU DIG" CONTACT INFORMATION ON THIS SHEET.
- 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.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH EXISTING FACILITY OPERATORS, OTHER CONTRACTORS, SUBCONTRACTORS, THE CITY AND STATE AND FEDERAL AUTHORITIES.
- 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.
- ALL ITEMS TO BE INSTALLED ARE NEW UNLESS SPECIFICALLY INDICATED AS EXISTING. INSTALL ALL MATERIALS AND EQUIPMENT IAW MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS, AND INSTALLATION DRAWINGS, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- THE SPECIFICATION OF A NAME BRAND PRODUCT FOLLOWED BY THE "OR EQUAL" PHRASE IS DONE MERELY TO ESTABLISH THE MINIMUM LEVEL OF QUALITY OF MATERIALS AND EQUIPMENT REQUIRED AND IS NOT A PRODUCT ENDORSEMENT. SUBMIT ANY PROPOSED SUBSTITUTIONS FOR REVIEW AND APPROVAL, UNLESS "NO SUBSTITUTIONS" IS SPECIFIED.
- FACILITY DESIGN IS IAW THE CURRENT INTERNATIONAL FIRE CODE, STATE OF ALASKA FIRE AND SAFETY REGULATIONS ADMINISTRATIVE CODES 13 AAC 50, 13 AAC 55, AND THE MEMORANDUM OF AGREEMENT BETWEEN THE AEA AND THE STATE OF ALASKA FIRE MARSHALL AT THE TIME OF DESIGN.
- CONTRACTOR TO PROVIDE SIGNAGE IAW THE SIGN SCHEDULE, AND AS IDENTIFIED ELSEWHERE IN THE DRAWINGS.
- 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 OF GOOD WORKMANSHIP.
- WHERE PIPE SUPPORTS ARE NOT SHOWN THEY SHALL BE SPACED A MAXIMUM OF 10 FEET ON CENTER IAW THE UPC.
- SCHEDULE AND COORDINATE DEMOLITION AND NEW CONSTRUCTION/ RENOVATION ACTIVITIES SUCH THAT COMPLETE AND OPERABLE POWER GENERATION AND BULK FUEL STORAGE AND DISPENSING SYSTEMS ARE MAINTAINED AT ALL TIMES FOR ALL PROJECT PARTICIPANTS.

TESTING, STARTUP AND COMMISSIONING PROCEDURES

- CONTRACTOR SHALL PERFORM SYSTEM TESTING, STARTUP AND COMMISSIONING IAW THE PROCEDURES IN THE CONTRACT DOCUMENTS AND IAW MANUFACTURER INSTRUCTIONS. LEAVE ALL WORK SITES IN AN ORDERLY CONDITION CONSISTENT WITH THAT FOUND UPON ARRIVAL.
- PRESSURE TEST ALL PIPING AND FILL OUT ENGINEER-APPROVED PIPELINE PRESSURE TEST REPORTS, NOTIFY ENGINEER SEVEN DAYS PRIOR TO PLANNED PRESSURE TESTING. THE ENGINEER OR HIS APPROVED REPRESENTATIVE SHALL BE PRESENT DURING ALL PRESSURE TESTING UNLESS DIRECTED OTHERWISE IN WRITING. DELIVER ORIGINAL TEST REPORTS TO THE ENGINEER.
- CONTRACTOR SHALL BE PRESENT DURING INITIAL FILLING OF TANKS. UPON FILLING OF TANKS VERIFY PRODUCT LEVEL WITH GAUGING STICK AND RECALIBRATE ALL TANK GAUGES. REMOVE AND CLEAN ALL STRAINERS AFTER INITIAL FILLING.
- 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 IAW MANUFACTURER'S RECOMMENDATION.

ABBREVIATIONS

ADEC	ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION	LF	LINEAR FEET
ADOT	ALASKA DEPARTMENT OF TRANSPORTATION	LB	POUND
ALCA	ALUMINUM SURVEY CAP	LP	LIGHT POLE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE		
API	AMERICAN PETROLEUM INSTITUTE	M	METERS
APPROX	APPROXIMATE	MAX	MAXIMUM
ASTM	AMERICAN SOCIETY FOR TESTING OF MATERIALS	MIL	0.001 INCH
AST	ABOVEGROUND STORAGE TANK	MIN	MINIMUM
AWS	AMERICAN WELDING SOCIETY	MPT	MALE NATIONAL PIPE TAPERED THREAD
AVEC	ALASKA VILLAGE ELECTRIC COOPERATIVE	N	NORTH
		NC	NORMALLY CLOSED
BLDG	BUILDING	NFS	NON FROST SUSCEPTIBLE (SOIL)
		NIC	NOT IN CONTRACT
		NO	NORMALLY OPEN
CMP	CORRUGATED METAL PIPE	NPT	NATIONAL PIPE TAPERED THREAD
CITY	CITY OF SHAGELUK	NTS	NOT TO SCALE
		NVS	NATIVE VILLAGE OF SHAGELUK
DCCED	DEPARTMENT OF COMMERCE, COMMUNITY & ECONOMIC DEVELOPMENT	OAE	OR APPROVED EQUAL
		OD	OUTSIDE DIAMETER
DEMO	DEMOLISH	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
DFT	DRY FILM THICKNESS		
DIA	DIAMETER	OZ	OUNCE
DWG	DRAWING		
E	EAST	PCC	PORTLAND CEMENT CONCRETE
EA	EACH	PL	PLATE
EL	ELEVATION	PRV	PRESSURE RELIEF VALVE
ELEC	ELECTRIC	PSF	POUNDS PER SQUARE FOOT
EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY	PSI	POUNDS PER SQUARE INCH
ENGINEER	CRW ENGINEERING GROUP, LLC		
E-VENT	EMERGENCY VENT		
		R	RADIUS
		RF	RAISED FACE
F	FAHRENHEIT	S	SEWER
FBE	FUSION BONDED EPOXY	SCH	SCHEDULE
FF	FINISH FLOOR ELEV.	SHPO	STATE HISTORIC PRESERVATION OFFICER
FG	FINISH GRADE		
FLG	FLANGED PIPE END	SIM	SIMILAR
FOE	FLANGED ONE END	SPEC	SPECIFICATION
FOR	FUEL OIL RETURN	SQ	SQUARE
FOS	FUEL OIL SUPPLY	SS	STAINLESS STEEL
FPT	FEMALE NATIONAL PIPE TAPERED THREAD	SSPC	STEEL STRUCTURES PAINTING COUNCIL
FT	FOOT OR FEET	SY	SQUARE YARD
		TBM	TEMPORARY BENCH MARK
GA	GAUGE	TS	TUBE STEEL
GAL	GALLON	TYP	TYPICAL
GALV	GALVANIZED		
GPM	GALLONS PER MINUTE		
		UG	UNDER GROUND
HDPE	HIGH DENSITY POLYETHYLENE	UL	UNDERWRITERS LABORATORY
HP	HORSE POWER	ULSD	ULTRA-LOW SULFUR DIESEL
HR	HOUR	UPC	UNIFORM PLUMBING CODE
		UST	UNDERGROUND STORAGE TANK
IAW	IN ACCORDANCE WITH	UUI	UNITED UTILITIES INCORPORATED
IBC	INTERNATIONAL BUILDING CODE	W/	WITH
ID	INSIDE DIAMETER	W	WATER
IFC	INTERNATIONAL FIRE CODE		
IPC	INTERNATIONAL PLUMBING CODE		

- CONTRACTOR SHALL MAINTAIN A "RECORD" SET OF DRAWINGS TO REFLECT FIELD CHANGES THROUGHOUT CONSTRUCTION. RECORD CONSTRUCTION DRAWINGS SHALL BE SUBMITTED TO ENGINEER AT COMPLETION OF THE PROJECT.
- ALL WORK SHALL BE PERFORMED IAW U.S. ENVIRONMENTAL PROTECTION AGENCY, ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND STATE AND FEDERAL OCCUPATIONAL HEALTH AND SAFETY REGULATIONS.
- IF ANY ARCHAEOLOGICAL, CULTURAL OR PALEONTOLOGY RESOURCES ARE DISCOVERED AS A RESULT OF CONSTRUCTION ACTIVITIES, CONTRACTOR'S SHALL STOP ALL WORK THAT WOULD DISTURB SUCH RESOURCES AND CONTACT THE ENGINEER AND THE STATE OFFICE OF HISTORY AND ARCHEOLOGY (907-269-8721).

CIVIL LEGEND (GENERAL)

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

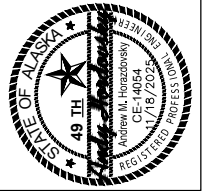
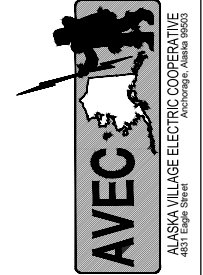
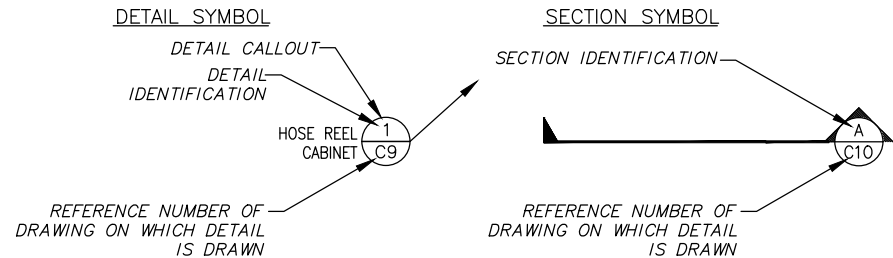
	GENERAL PROPERTY BOUNDARY		ANTI-SIPHON VALVE
	CENTERLINE		BALL VALVE
	CULVERT		MOTOR ACTUATED BALL VALVE
	EDGE OF WATER		SOLENOID VALVE
	DITCH LINE/DRAINAGE SWALE		CHECK VALVE
	DRAINAGE DIRECTION & SLOPE		GATE VALVE
	TRAVELED WAY		PRESSURE RELIEF VALVE
	FILL SLOPE		PRESSURE TEST TAP
	CUT SLOPE		METER
	FENCE LINE		FILTER
	FIRE EXTINGUISHER		FLEXIBLE CONNECTOR
	GROUND ELEVATION CONTOURS		WYE STRAINER (MESH SIZE)
	BOLLARD		FILL LIMITER
	POWER POLE		QUICK COUPLING
	INFORMATION / WARNING SIGN		SUBMERSIBLE PUMP
	SHEET NOTE		CENTRIFUGAL PUMP
	SURVEY MONUMENT		VERTICAL PIPE TRANSITION
	TEST PIT		REDUCER
	FINISH GRADE ELEVATION		LEVEL FLOAT SWITCH
	DIAMETER		HOSE REEL
	MANHOLE		FLOW SWITCH

UTILITY LINE/PIPELINE DESIGNATIONS

F	FUEL		UNDERGROUND UTILITY LINE/PIPELINE: EXISTING
D	DIESEL FUEL		UNDERGROUND UTILITY LINE/PIPELINE: NEW
G	GASOLINE		ABOVEGROUND UTILITY LINE/PIPELINE: EXISTING
S	SANITARY SEWER		ABOVEGROUND UTILITY LINE/PIPELINE: NEW
W	WATER		UTILITY LINE/PIPELINE TO BE DECOMMISSIONED

CALL BEFORE YOU DIG	
WATER/SEWER	CITY (907) 473-8221
ELECTRIC	AVEC (907) 561-1818

DETAIL/SECTION REFERENCES



SHAGELUK BULK FUEL UPGRADES
NOTES, LEGEND & ABBREVIATIONS
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date: 11/20/25	Designed: AMH	Drawn: CMK	Approved: AMH
---------------------	---------------	------------	---------------

NOTES:

1. INSTALL 4A:80-B:C PORTABLE FIRE EXTINGUISHERS AT LOCATIONS SHOWN (1). 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 AVEC TANK FARM REPLACES THE EXISTING FUEL STORAGE FACILITY AND WILL PROVIDE FUEL STORAGE FOR POWER GENERATION. ALL TANKS ARE INSTALLED ABOVE GROUND. TO COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL FIRE CODE, THE 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.

WARNING SIGNS & INFORMATION PLACARD SCHEDULE:

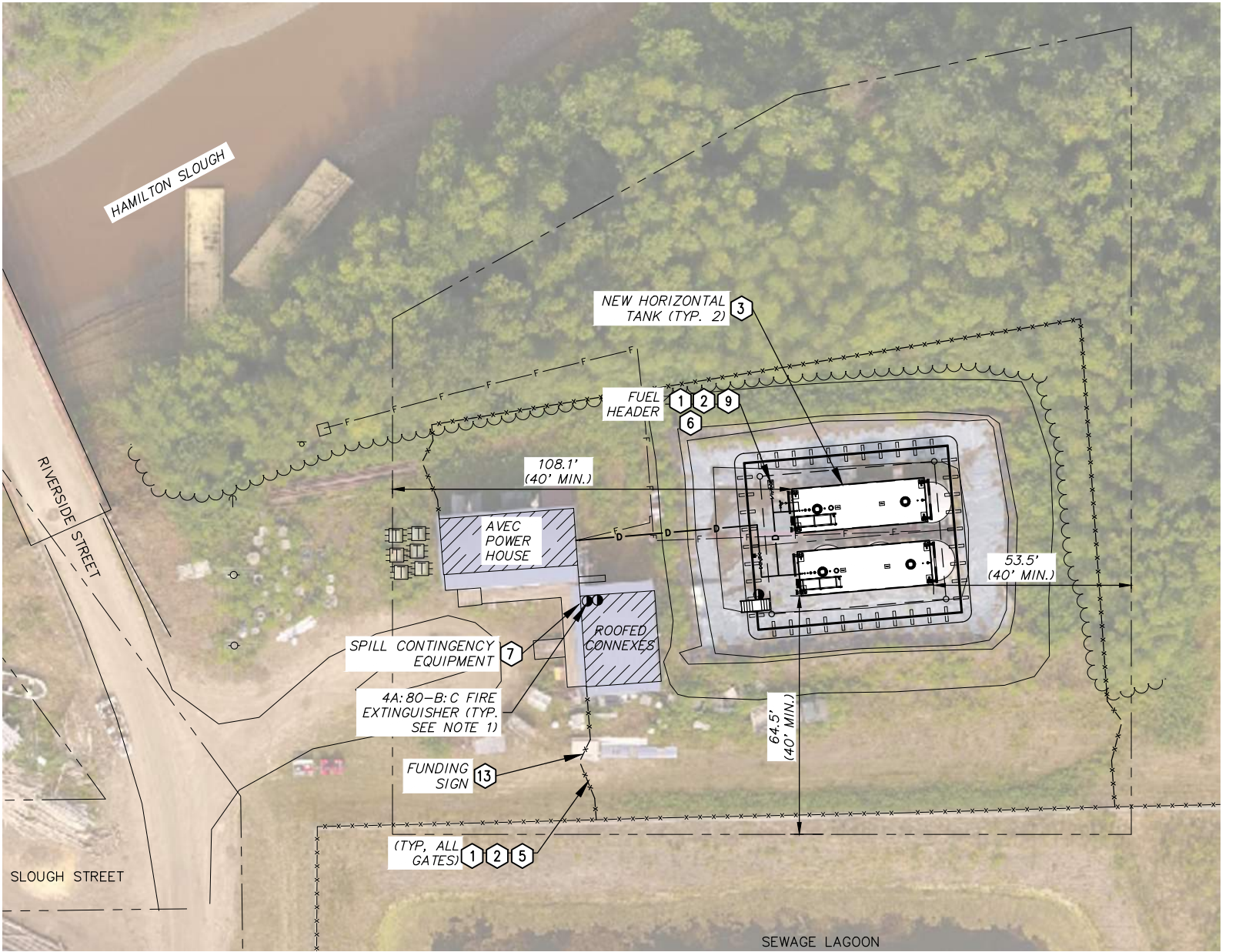
PROVIDE ALL SIGNS INDICATED IN THE SCHEDULE BELOW, QUANTITY & LOCATION AS INDICATED ON THE DRAWINGS. ALL SIGNS SHALL BE CONSTRUCTED FROM 0.08" ALUMINUM PLATE, AND SIZED IAW 2012 IFC. SIGN LETTERING IS SHOWN BELOW IN QUOTATIONS. PROVIDE 3/16" HOLES IN ALL FOUR CORNERS. PROVIDE NON-REFLECTIVE VINYL BACKGROUND, 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.

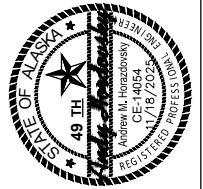
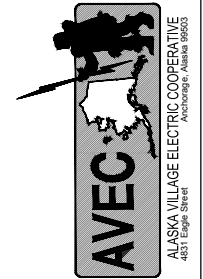
INFORMATIONAL PLACARDS – BLACK LETTERING ON WHITE BACKGROUND (2" HIGH 1/2" STROKE LETTERS)

- 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 (NOT USED)
9 "PRESSURE NOT TO EXCEED 75 PSI" (NOTE THIS SIGN SHALL BE PERMANENTLY AFFIXED TO THE BARGE HEADER SUPPORT). SEE DETAIL 5 C4.4
13 INSTALL OWNER PROVIDED FUNDING SOURCE SIGN AT EACH FACILITY (TYP 2)



AVEC TANK FARM SITE PLAN

SCALE: GRAPHIC



SHAGELUK BULK FUEL UPGRADES
SETBACK & SIGNAGE PLAN – AVEC
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date	1/20/25
Designed	AMH
Drawn	CMK
Approved	AMH

Sheet No. G1.2

NOTES:

1. INSTALL 4A:80-B:C PORTABLE FIRE EXTINGUISHERS AT LOCATIONS SHOWN (1). 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 CO-LOCATED TANK FARM WILL PROVIDE BULK STORAGE AND FUEL TRANSFER FACILITIES FOR THE CORPORATION, CITY, & BIG WHEEL TRANSPORT. ALL TANKS ARE INSTALLED ABOVE GROUND. TO COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL FIRE CODE, THE 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.
50' FROM THE DISPENSER TO ALL UNPROTECTED TANKS. (INCLUDES PARKED TANK TRUCKS)

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)

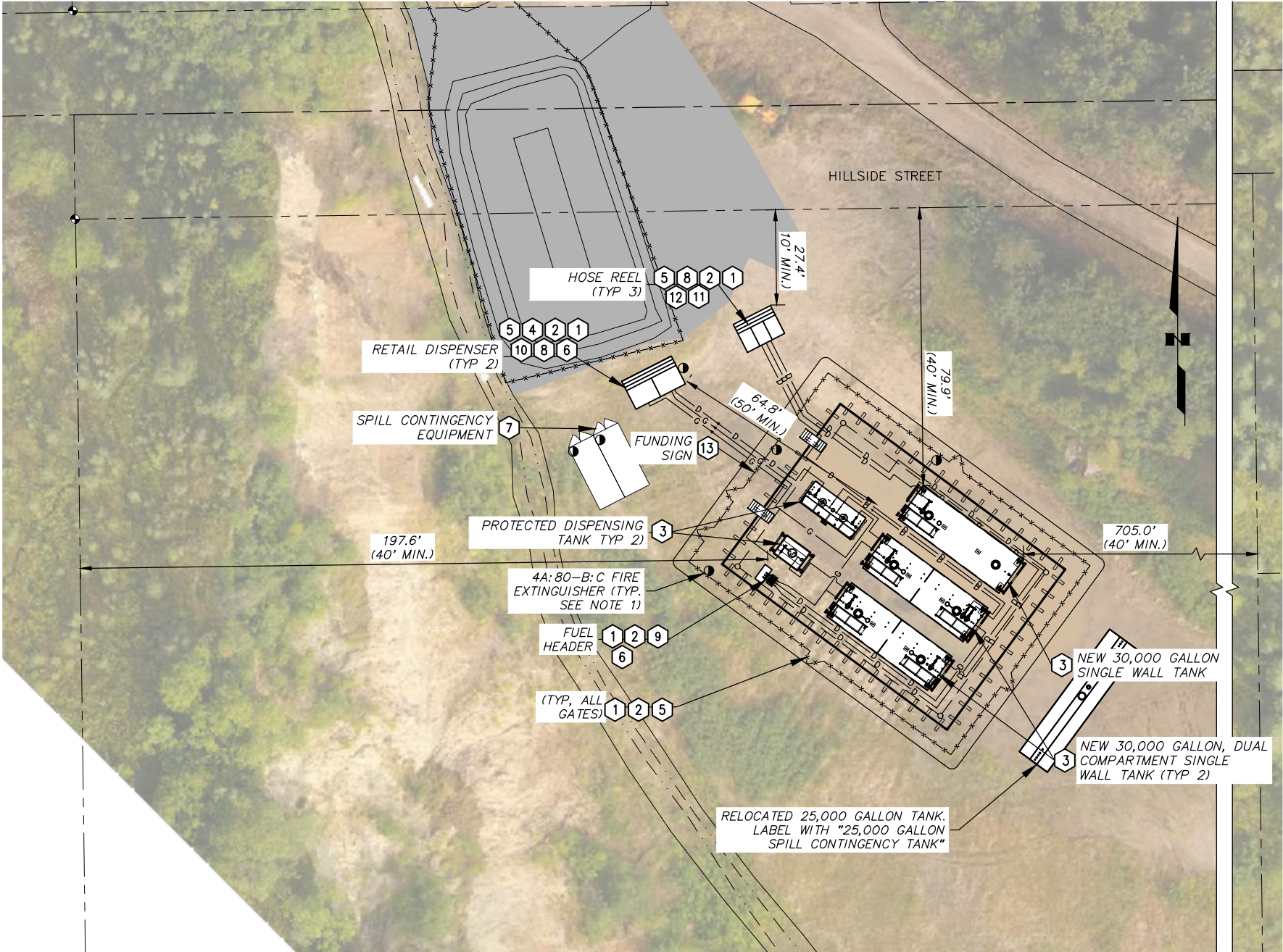
- 1 "DANGER FLAMMABLE LIQUIDS"
2 "NO SMOKING NO OPEN FLAMES"
3 "FLAMMABLE _____ GALLONS GASOLINE" OR "COMBUSTIBLE _____ GALLONS DIESEL", INSERT VOLUME IN GALLONS AS APPROPRIATE.

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 5 C4.4

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

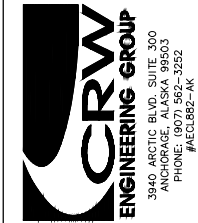
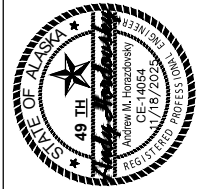
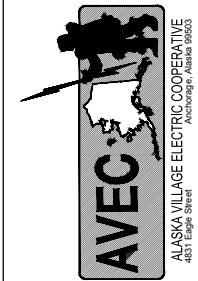
- 10 "RETAIL DISPENSING:
1. SEE ATTENDANT TO PRE-PAY FOR FUEL
2. REMOVE NOZZLE, LIFT LEVER AND BEGIN FUELING
3. REPLACE NOZZLE AFTER FUELING
4. SEE ATTENDANT FOR RECEIPT"
11 "BULK TRANSFER/FLEET DISPENSING:
1. SHUT OFF VEHICLE AND CONNECT GROUNDING REEL.
2. RESET METER - SET TO DESIRED VOLUME
3. DEPRESS "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)



CO-LOCATED TANK FARM SITE PLAN

SCALE: GRAPHIC

20' 0 20' 40'



SHAGELUK BULK FUEL UPGRADES
SETBACK & SIGNAGE PLAN - COLOCATED
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date	11/20/25
Designed	AMH
Drawn	CMK
Approved	AMH

Sheet No. G1.3

COLOCATED TANK FARM VALVE SCHEDULE					
VALVE ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
BALL VALVES (BV)					
BV-1	3"	TANK T1	FLG	TANK FILL	Y
BV-2A & BV-2B	3"	TANK T2A & T2B	FLG	TANK FILL	Y
BV-3A & BV-3B	3"	TANK T3A & T3B	FLG	TANK FILL	Y
BV-4A1 & BV-4B1	2"	TANK T4A & T4B	FLG	TANK ISSUE	Y
BV-4A2 & BV-4B2	2"	TANK T4A & T4B	FLG	TANK FILL	Y
BV-5A & BV-5B	2"	TANK T5	FLG	FILL/DRAW	Y
BV-6, BV-7, BV-8	3"	BARGE HEADER	FLG	TANK FARM FILL	Y
BV-9, BV-10, BV-11	1.5"	RETAIL DISPENSER	FLG	DISPENSER ISO	Y
BV-12	2"	CORP HOSE REEL	FLG	CORP HOSE REEL ISO	Y
BV-13 & BV-14	2"	CITY HOSE REELS	FLG	CITY HOSE REEL ISO	Y
MOTORIZED VALVES (MV)					
MV-1	2"	DIKED AREA	FLG	CITY ULSD HOSE REEL ISO	
MV-2B2	2"	DIKED AREA	FLG	CORP DIESEL HOSE REEL ISO	Y
MV-3B	2"	DIKED AREA	FLG	CITY DIESEL HOSE REEL ISO	Y
CHECK VALVES (CV)					
CV-1, 2, 3	3"	BARGE HEADER	FLG	-	N
CV-4A & CV-4B	2"	TANK T4A & T4B	FLG	-	N
CV-5	2"	TANK T5	FLG	-	N
ANTI SIPHON VALVE (ASV)					
ASV-1	2"	TANK T1	NPT	PUMP P-1 DISCHARGE	N
ASV-2 & 3	2"	TANK T4A & T4B	NPT	PUMP P-4A & P-4B DISCHARGE	N
ASV-4, 5, 6	2"	TANK T2A & T2B	NPT	PUMP P-2A1, P-2B1, P-2B2 DISCHARGE	N
ASV-7	2"	TANK T5	NPT	PUMP P-5 DISCHARGE	N
ASV-8 & 9	2"	TANK T3A & T3B	NPT	PUMP P-3A & P-3B DISCHARGE	N
PRESSURE RELIEF VALVES (PRV)					
PRV-1	1"	TANK T1	FLG	PRESSURE SET AT 25 PSI	Y
PRV-2A & 2B	1"	TANK T2A & T2B	FLG	PRESSURE SET AT 25 PSI	Y
PRV-3A & 3B	1"	TANK T3A & T3B	FLG	PRESSURE SET AT 25 PSI	Y
PRV-6, 7, 8	1"	MV-1, MV-2B2, MV-3B	FLG	PRESSURE SET AT 25 PSI	Y
PRV-9, 10, 11	1"	HOSE REELS	FLG	PRESSURE SET AT 25 PSI	Y
COLOCATED TANK FARM MISCELLANEOUS COMPONENTS					
COMPONENT ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
FLEX CONNECT (FC)					
FC-1, 2, 3, 4, 5	3" X 18"	TANK T1, T2A, T2B, T3A, T3B	FLG	TANK FILL	N
FC-6	2" X 12"	TANK T1	FLG X MNPT	PUMP P-1, THREAD TO ASV	N
FC-7	2" X 12"	TANK T4A	FLG	AT GRADE	
FC-8 & FC-9	2" X 12"	TANK T4A & T4B	FLG X MNPT	THREAD TO ASV ON PUMP	
FC-10	2" X 12"	TANK T4B	FLG	AT GRADE	
FC-11 & 12	2" X 12"	TANK T4A & T4B FILL	FLG	TOP OF TANK	
FC-13, 14, 15	2" X 12"	TANK T2A & T2B	FLG X MNPT	THREAD TO ASV ON PUMP	
FC-16	2" X 12"	TANK T5	FLG	AT GRADE	
FC-17	2" X 12"	TANK T5	FLG X MNPT	THREAD TO ASV ON PUMP	
FC-18	2" X 12"	TANK T5	FLG	AT GRADE	
FC-19	2" X 12"	TANK T3A	FLG	AT GRADE	
FC-20 & FC-21	2" X 12"	TANK T3A & T3B	FLG X MNPT	THREAD TO ASV ON PUMP	
FC-22, 23, 24	2" X 12"	HOSE REELS	FLG	AT GRADE	
FC-25, 26, 27	1.5" X 12"	HOSE REELS	FLG	THREAD OR FLANGE AT HOSE REEL	
FC-28, 29, 30	1.5" X 12"	DISPENSER BASE	FLG		
STRAINERS (S)					
S-1, 2, 3	3"	BARGE HEADER	FLG	-	N
QUICK COUPLER (QC)					
QC-1, 2, 3	3"	BARGE HEADER	-	-	N
PRESSURE TEST POINT (P)					
PT-ALL	-	LOCATIONS AS INDICATED	-	SEE DETAIL 2, C4.4	N
FLOW SWITCH (FS)					
FS-1	2"	MV-1	FLG	SEE ELECTRICAL	Y
FS-2B2	2"	MV-2B2	FLG	SEE ELECTRICAL	Y
FS-3B	2"	MV-3B	FLG	SEE ELECTRICAL	Y
FILTER (F)					
F-1, 2, 3	-	HOSE REELS	FLG	-	N
MISCELLANEOUS COMPONENTS					
PADLOCKS	-	BALL VALVES AND FENCE GATES	-	CORDINATE KEY CODES w/ ENGINEER	N

NOTES:

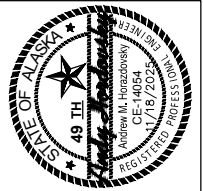
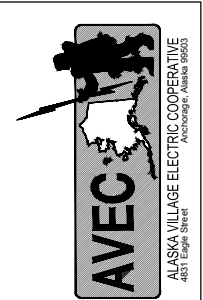
- COMPONENT SCHEDULES ARE PROVIDED TO ASSIST CONTRACTOR DURING PROJECT PROCUREMENT. HOWEVER, SCHEDULES DO NOT INCLUDE ALL FITTINGS AND APPURTENANCES NECESSARY TO CONSTRUCT THE PROJECT. CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR FURNISHING ALL NECESSARY MATERIALS TO PROVIDE A FULLY OPERATIONAL FACILITY.
- INSTALL PADLOCKS ON ALL VALVES AND FENCE GATES. PROVIDE AVEC LOCKS TO MATCH EXISTING AVEC KEYS. PROVIDE FOUR SPARE LOCK AND KEY SETS FOR EACH OWNER AND VERIFY LOCK MODEL WITH OWNER.

COLOCATED PUMP SCHEDULE					
PUMP ID	TYPE	PRODUCT	LOCATION	MOTOR (HP)	ELECTRICAL
P-1	SUB	ULSD	T1	3/4	208/230 VAC, 1-PH
P-2A1	SUB	GASOLINE	T2A	3/4	208/230 VAC, 1-PH
P-2B1	SUB	DIESEL	T2B	3/4	208/230 VAC, 1-PH
P-2B2	SUB	DIESEL	T2B	3/4	208/230 VAC, 1-PH
P-3A	SUB	GASOLINE	T3A	3/4	208/230 VAC, 1-PH
P-3B	SUB	DIESEL	T3B	3/4	208/230 VAC, 1-PH
P-4A	SUB	DIESEL	T4A	3/4	208/230 VAC, 1-PH
P-4B	SUB	GASOLINE	T4B	3/4	208/230 VAC, 1-PH
P-5	SUB	GASOLINE	T5	3/4	208/230 VAC, 1-PH
COLOCATEDTANK FARM TANK SCHEDULE					
TANK NUMBER	NOMINAL CAPACITY GALLONS	TANK TYPE	PRODUCT	NOTES	OWNER
T1	30,000	HORIZONTAL SINGLE WALL	ULSD	NEW 30K TANK	CITY
T2A	14,000	HORIZONTAL SINGLE WALL	GASOLINE	NEW, 30K SPLIT TANK	CORP
T2B	16,000	HORIZONTAL SINGLE WALL	DIESEL	NEW, 30K SPLIT TANK	CORP
T3A	15,000	HORIZONTAL SINGLE WALL	GASOLINE	NEW, 30K SPLIT TANK	BIG WHEEL
T3B	15,000	HORIZONTAL SINGLE WALL	DIESEL	NEW, 30K SPLIT TANK	CITY
T4A	2,500	HORIZONTAL PROTECTED	DIESEL	NEW, 5K SPLIT TANK	CORP
T4B	2,500	HORIZONTAL PROTECTED	GASOLINE	NEW, 5K SPLIT TANK	CORP
T5	2,500	HORIZONTAL PROTECTED	GASOLINE	NEW PROTECTED TANK	BIG WHEEL

AVEC TANK FARM VALVE SCHEDULE					
VALVE ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
BALL VALVES (BV)					
BV-1	3"	TANK T1	FLG	Fill/Draw	Y
BV-2	3"	TANK T2	FLG	Fill/Draw	Y
BV-3	2"	MOTORIZED VALVE ASSEMBLY	FLG	-	Y
BV-4	3"	AVEC HEADER	FLG	-	Y
BV-5	2"	AVEC POWER PLANT	FLG	SEE DETAIL 7. C4.4	Y
MOTORIZED VALVES (MV)					
MV-1	2"	MOTORIZED VALVE ASSEMBLY	FLG	-	Y
CHECK VALVES (CV)					
CV- 1	3"	AVEC HEADER	FLG	-	Y
PRESSURE RELIEF VALVES (PRV)					
PRV-1	1"	TANK T2	FLG	PRESSURE SET AT 25 PSI	Y
PRV-2	1"	MOTORIZED VALVE ASSEMBLY	FLG	PRESSURE SET AT 25 PSI	Y

AVEC TANK FARM MISCELLANEOUS COMPONENTS					
COMPONENT ID	SIZE	LOCATION	END CONNECTION	COMMENT	ID TAG REQ'D
FLEX CONNECT (FC)					
FC-1 TO FC-2	3" X 18"	TANK T1 TO TANK T4	FLG	-	N
FC-3	2" X 12"	AVEC POWER HOUSE TIE-IN	FLG	SEE DETAIL 7. C4.4	N
STRAINERS (S)					
S-1	3"	AVEC HEADER	FLG	-	N
S-2	2"	MOTORIZED VALVE ASSEMBLY	FLG	-	N
QUICK COUPLER (QC)					
QC-1	3"	AVEC HEADER	-	-	N
PRESSURE TEST POINT (P)					
PT-1	-	AVEC HEADER	-	SEE DETAIL 2, C4.4	N
PT-2	-	MOTORIZED VALVE ASSEMBLY	-	SEE DETAIL 2, C4.4	N
MISCELLANEOUS COMPONENTS					
PADLOCKS	-	BALL VALVES AND FENCE GATES	-	SEE NOTE 2	N

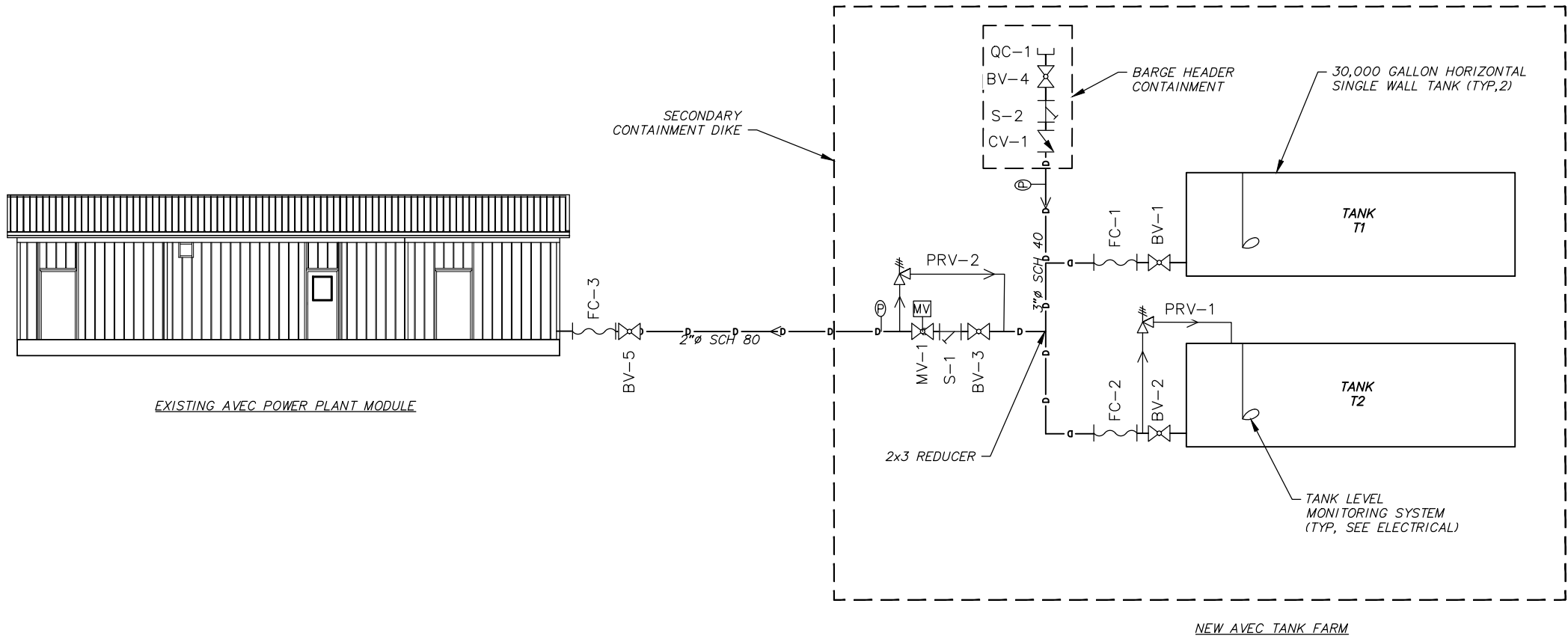
AVEC TANK FARM TANK SCHEDULE					
TANK NUMBER	NOMINAL CAPACITY GALLONS	TANK TYPE	PRODUCT	NOTES	OWNER
T1	30,000	HORIZONTAL SINGLE WALL	DIESEL	NEW	AVEC
T2	30,000	HORIZONTAL SINGLE WALL	DIESEL	NEW	AVEC



SHAGELUK BULK FUEL UPGRADES		COMPONENT SCHEDULES		SHAGELUK, ALASKA	

NO.	REVISION	DATE	BY	DATE
A	ISSUED FOR BIDDING	11/18/25	AH	

Plot Date: 11/20/25	Designed: AMH	Drawn: CMK	Approved: AMH
---------------------	---------------	------------	---------------



1

AVEC TANK FARM OPERATING SCHEMATIC

NTS

TANK FARM OPERATIONAL NARRATIVE

FILLING TANK FARM FROM VIA BARGE HEADER:

THE TANK FARM IS FILLED VIA THE DIESEL BARGE HEADER LOCATED WITHIN THE STEEL DIKED AREA. BEFORE BEGINNING THE FILL PROCESS THE OPERATOR SHALL CONFIRM 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 FUEL PUMPING SYSTEM. THE TANK FARM OPERATOR WILL MONITOR THE FILLING PROCESS VIA CLOCK GAUGES AND GAUGING ROD AT EACH TANK. AT THE CONCLUSION OF FILLING, CLOSE HEADER ISOLATION VALVE, TANK ISOLATION VALVES, AND DISCONNECT FILL HOSE.

FILLING POWER PLANT DAY TANK:

FUEL IS TRANSFERRED FROM THE TANK FARM TO THE EXISTING INTERIOR POWER PLANT DAY TANK VIA A NEW 2-INCH, WELDED STEEL PIPELINE. THE NEW MOTORIZED VALVE & EXISTING DAY TANK PUMP WILL BE ENERGIZED BY THE OPERATOR UPON PRESSING THE PUMP START BUTTON ON THE EXISTING DAY TANK CONTROL PANEL. FLOATS WITHIN THE DAY TANK WILL DE-ENERGIZE THE PUMP WHEN THE TANK IS FULL. ALL TRANSFERS SHALL BE CONTINUOUSLY MONITORED.

NOTES

- SYSTEM REPRESENTATIONS ON THIS SHEET ARE SCHEMATIC. ALL ITEMS ARE NEW UNLESS DESIGNATED OTHERWISE.
- NOT ALL TANK APPURTENANCES (VENTS, TANK LEVEL MONITORING, ETC) ARE SHOWN ON THIS SHEET.
- SEE SHEET G1.1 FOR SYMBOL LEGEND.
- SEE SHEET G1.4 FOR TANK SCHEDULE.

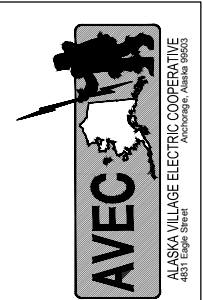
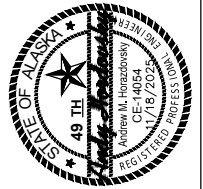
Plot Date 11/20/25	Designed AMH	Drawn CMK	Approved AMH	NO.	A	ISSUED FOR BIDDING	REVISION	BY	DATE
								AH	11/18/25

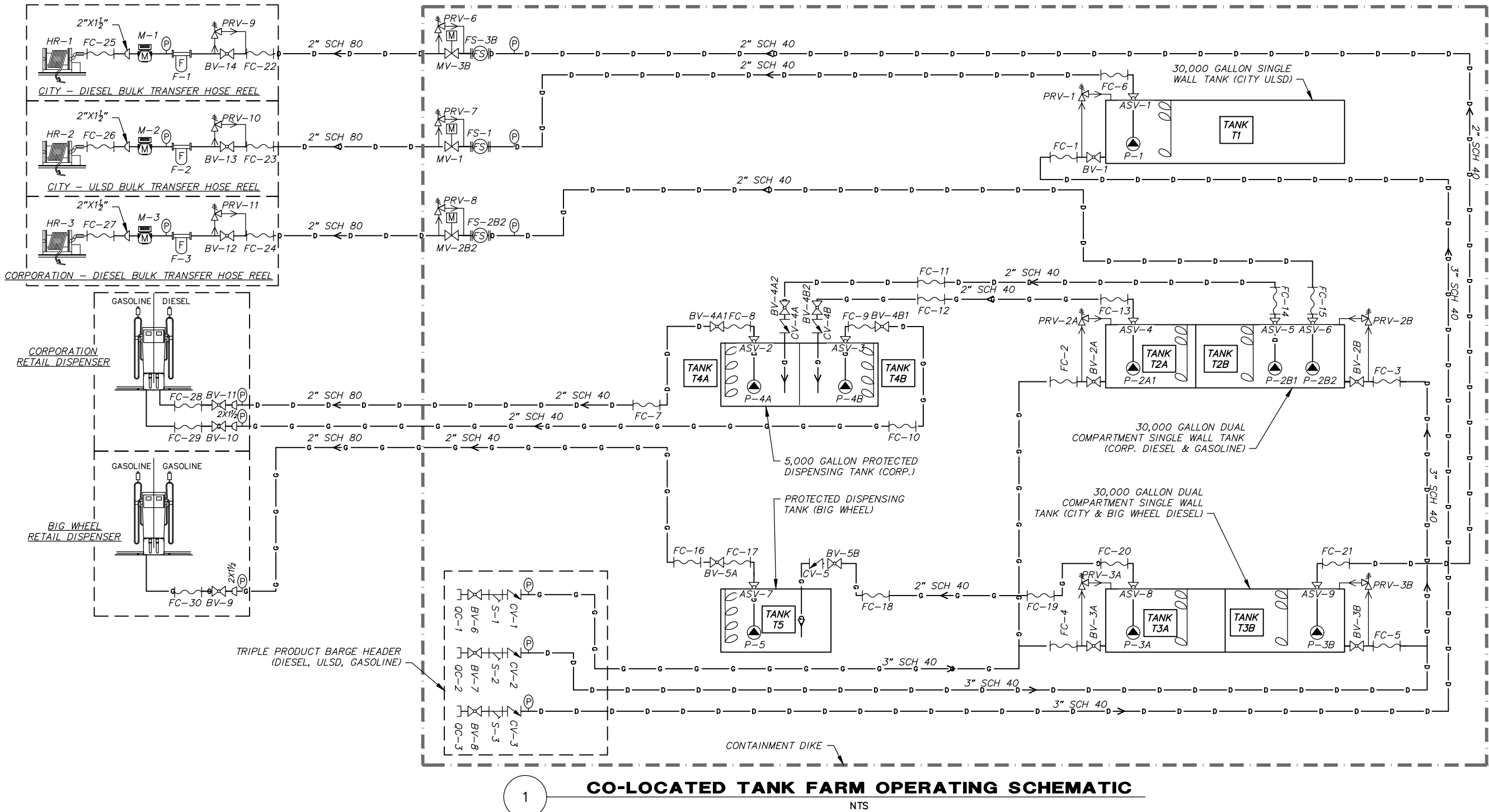
Sheet No.

G1.5

SHAGELUK BULK FUEL UPGRADES
AVEC TANK FARM OPERATING SCHEMATIC

SHAGELUK, ALASKA





CO-LOCATED TANK FARM OPERATIONAL NARRATIVE

FILLING TANK FARM FROM BARGE HEADER:

THE CITY, CORPORATION, AND BIG WHEEL BULK TANKS ARE FILLED VIA THE BARGE HEADERS LOCATED WITHIN THE STEEL DIKED AREA. BEFORE BEGINNING THE FILL PROCESS THE OPERATOR SHALL CONFIRM 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 FUEL PUMPING SYSTEM. THE TANK FARM OPERATOR WILL MONITOR THE FILLING PROCESS VIA CLOCK GAUGES AND 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, AN ALARM WILL SOUND. AT THE CONCLUSION OF FILLING, CLOSE HEADER ISOLATION VALVE, TANK ISOLATION VALVES, AND DISCONNECT FILL HOSE.

FILLING THE DISPENSING TANKS:

BIG WHEEL AND CORPORATION DISPENSING TANKS ARE FILLED FROM THEIR RESPECTIVE BULK TANKS VIA CONTROLS LOCATED AT THE CONTROL PANEL. FLOAT SWITCHES MONITOR THE LEVEL. IF THE DISPENSING TANK FALLS BELOW 40% A LOW LEVEL LIGHT WILL ILLUMINATE ON THE CP ALERTING THE OPERATOR. PRIOR TO FILLING THE DISPENSING TANK, THE OPERATOR MUST VERIFY THERE IS SUFFICIENT FUEL IN THE BULK TANK AND OPEN ASSOCIATED BALL VALVES. THE FILLING PROCESS IS INITIATED WHEN THE OPERATOR PRESSES THE PUMP START BUTTON ON THE CP. HIGH LEVEL FLOAT SWITCHES IN THE DISPENSING TANK AUTOMATICALLY DE-ENERGIZE THE TRANSFER PUMP WHEN FUEL LEVEL REACHES 90% FULL.

RETAIL FUEL SALES -BIG WHEEL & CORPORATION:

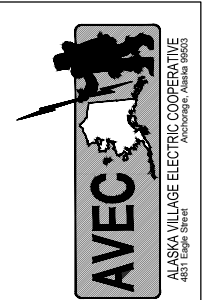
RETAIL FUEL SALES WILL BE CONDUCTED AT THE NEW BIG WHEEL (GASOLINE) & CORPORATION (DIESEL & GAS) RETAIL DISPENSERS. RETAIL SALES TRANSACTIONS WILL BE PROCESSED VIA THIRD PARTY SOFTWARE (CLOVER, SQUARE, ETC.) THE ATTENDANT WILL AUTHORIZE THE SALE AMOUNT AT THE DISPENSER KEYPAD AND THE DISPENSER WILL LIMIT FUEL TRANSFER TO THE PAID AMOUNT.

BULK TRANSFER HOSE REELS:

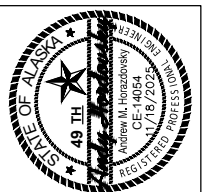
THREE HOSE REELS ARE PROVIDED TO FACILITATE BULK TRANSFER OF DIESEL FUEL. CITY DIESEL, CITY ULSD, & CORPORATION DIESEL. THE ATTENDANT SHALL INPUT DESIRED FUEL VOLUME INTO THE PRE-SET METER, SET SPRING LOADED MECHANICAL VALVE AND DEPRESS PUMP START BUTTON TO INITIATE TRANSFER. PROVIDE CONTINUOUS MONITORING DURING FUELING PROCESS. FLOW WILL STOP AT PRE-SET VOLUME BUT PUMP WILL CONTINUE TO RUN UNTIL THE PUMP STOP BUTTON IS DEPRESSED. REMOVE NOZZLE, WIND HOSE AND NOTE VOLUME OF FUEL DISPENSED.

NOTES


1. SYSTEM REPRESENTATIONS ON THIS SHEET ARE SCHEMATIC. ALL ITEMS ARE NEW UNLESS DESIGNATED OTHERWISE.
2. NOT ALL TANK APPURTENANCES (VENTS, ETC) ARE SHOWN ON THIS SHEET.
3. SEE SHEET G1.1 FOR SYMBOL LEGEND.
4. SEE SHEET G1.4 FOR TANK SCHEDULE.



ALASKA VILLAGE ELECTRIC COOPERATIVE
4831 Edge Street
Anchorage, Alaska 99503



ANDREW M. HORODOVSKY
REGISTERED PROFESSIONAL ENGINEER
CE-14054
1/18/2026



CRW
ENGINEERING GROUP
3540 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES
COLOCATED TANK FARM OPERATING
SCHEMATIC

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25
Date: 11/20/25

Designed: AMH
Drawn: CMK
Approved: AMH

Sheet No. **G1.6**

File: J:\Jobs\Date\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Decommissioning Plan.dwg Plot Date: 11/20/2025 10:56 AM

GENERAL NOTES:

1. THE PROJECT WILL REPLACE THE EXISTING AVEC TANK FARM WITHIN THE SAME FOOTPRINT. MISCELLANEOUS DEBRIS INCLUDING FENCING, OLD EQUIPMENT, SAND BAGS, TIMBERS, CONSTRUCTION MATERIALS ETC. ARE LOCATED IN AND NEAR THE PROJECT AREA. CONTRACTOR SHALL COORDINATE WITH AVEC AS NECESSARY TO RELOCATE MATERIALS THAT INTERFERE WITH PROPOSED IMPROVEMENTS TO AN OWNER APPROVED LOCATION. DISPOSE OF ALL UNWANTED MATERIALS.

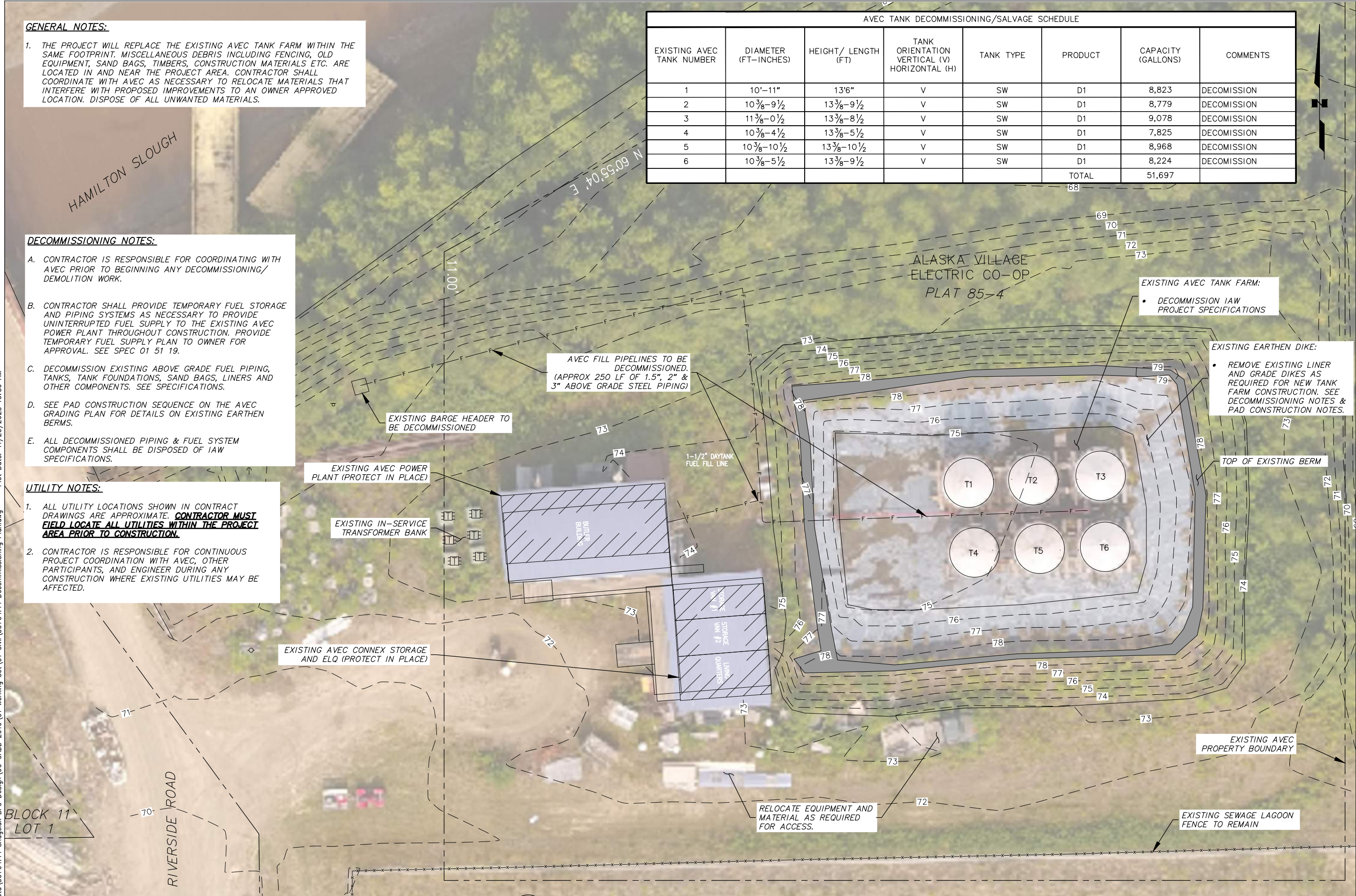
DECOMMISSIONING NOTES:

- A. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH AVEC PRIOR TO BEGINNING ANY DECOMMISSIONING/DEMOLITION WORK.
- B. CONTRACTOR SHALL PROVIDE TEMPORARY FUEL STORAGE AND PIPING SYSTEMS AS NECESSARY TO PROVIDE UNINTERRUPTED FUEL SUPPLY TO THE EXISTING AVEC POWER PLANT THROUGHOUT CONSTRUCTION. PROVIDE TEMPORARY FUEL SUPPLY PLAN TO OWNER FOR APPROVAL. SEE SPEC 01 51 19.
- C. DECOMMISSION EXISTING ABOVE GRADE FUEL PIPING, TANKS, TANK FOUNDATIONS, SAND BAGS, LINERS AND OTHER COMPONENTS. SEE SPECIFICATIONS.
- D. SEE PAD CONSTRUCTION SEQUENCE ON THE AVEC GRADING PLAN FOR DETAILS ON EXISTING EARTHEN BERMS.
- E. ALL DECOMMISSIONED PIPING & FUEL SYSTEM COMPONENTS SHALL BE DISPOSED OF IAW SPECIFICATIONS.

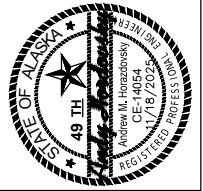
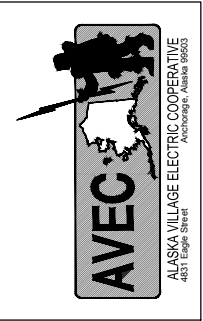
UTILITY NOTES:

1. ALL UTILITY LOCATIONS SHOWN IN CONTRACT DRAWINGS ARE APPROXIMATE. **CONTRACTOR MUST FIELD LOCATE ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION.**
2. CONTRACTOR IS RESPONSIBLE FOR CONTINUOUS PROJECT COORDINATION WITH AVEC, OTHER PARTICIPANTS, AND ENGINEER DURING ANY CONSTRUCTION WHERE EXISTING UTILITIES MAY BE AFFECTED.

AVEC TANK DECOMMISSIONING/SALVAGE SCHEDULE							
EXISTING AVEC TANK NUMBER	DIAMETER (FT-INCHES)	HEIGHT/ LENGTH (FT)	TANK ORIENTATION VERTICAL (V) HORIZONTAL (H)	TANK TYPE	PRODUCT	CAPACITY (GALLONS)	COMMENTS
1	10'-11"	13'6"	V	SW	D1	8,823	DECOMISSION
2	10 ³ / ₈ -9 ¹ / ₂	13 ³ / ₈ -9 ¹ / ₂	V	SW	D1	8,779	DECOMISSION
3	11 ³ / ₈ -0 ¹ / ₂	13 ³ / ₈ -8 ¹ / ₂	V	SW	D1	9,078	DECOMISSION
4	10 ³ / ₈ -4 ¹ / ₂	13 ³ / ₈ -5 ¹ / ₂	V	SW	D1	7,825	DECOMISSION
5	10 ³ / ₈ -10 ¹ / ₂	13 ³ / ₈ -10 ¹ / ₂	V	SW	D1	8,968	DECOMISSION
6	10 ³ / ₈ -5 ¹ / ₂	13 ³ / ₈ -9 ¹ / ₂	V	SW	D1	8,224	DECOMISSION
TOTAL						51,697	



1 **AVEC DECOMMISSIONING PLAN**
SCALE: GRAPHIC



SHAGELUK BULK FUEL UPGRADES
AVEC DECOMMISSIONING PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date: 11/20/25	Designed: AMH
Drawn: CMK	Approved: AMH

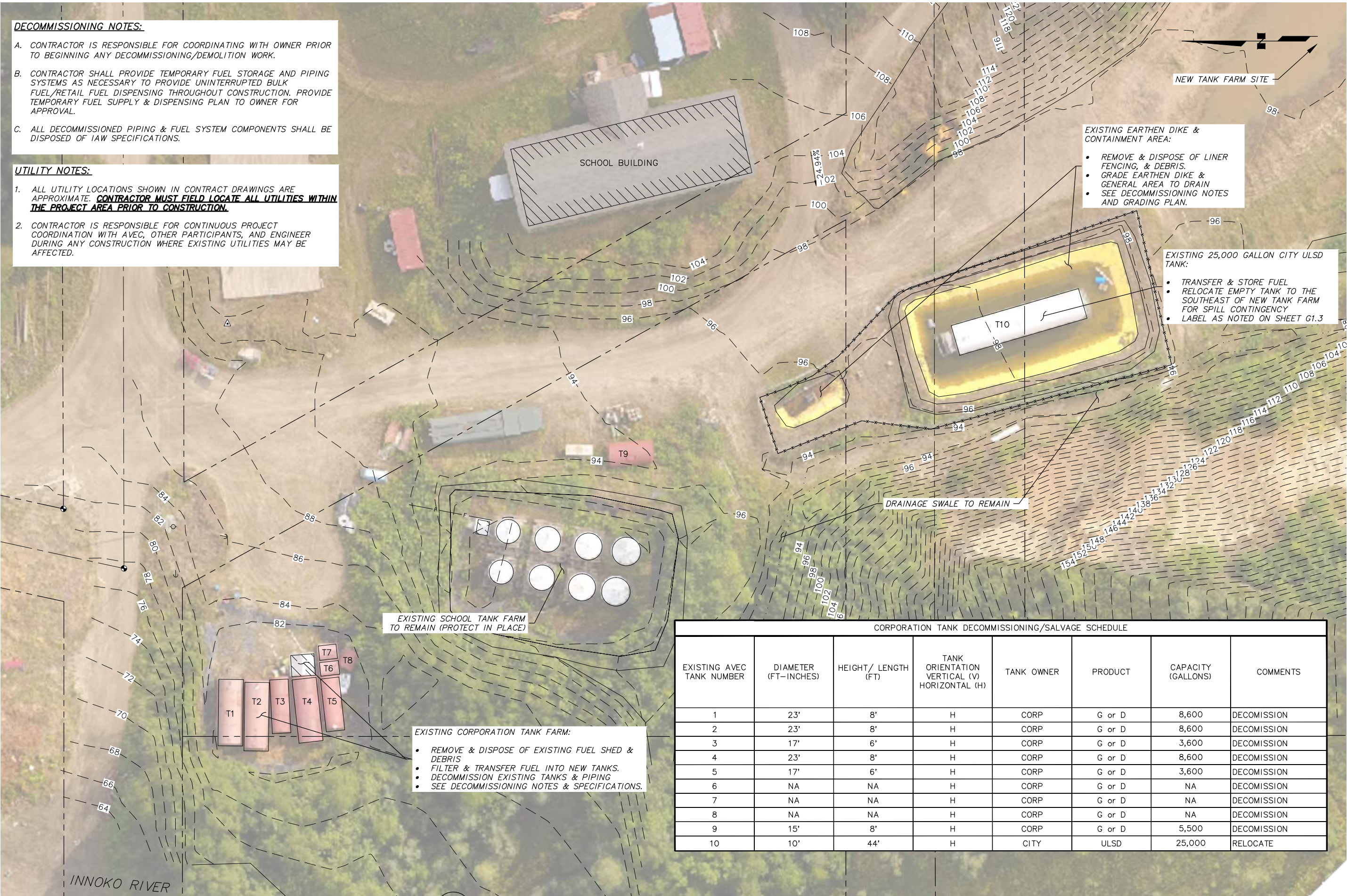
Sheet No. **G1.7**

DECOMMISSIONING NOTES:

- A. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH OWNER PRIOR TO BEGINNING ANY DECOMMISSIONING/DEMOLITION WORK.
- B. 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.
- C. ALL DECOMMISSIONED PIPING & FUEL SYSTEM COMPONENTS SHALL BE DISPOSED OF IAW SPECIFICATIONS.

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.**
2. CONTRACTOR IS RESPONSIBLE FOR CONTINUOUS PROJECT COORDINATION WITH AVEC, OTHER PARTICIPANTS, AND ENGINEER DURING ANY CONSTRUCTION WHERE EXISTING UTILITIES MAY BE AFFECTED.



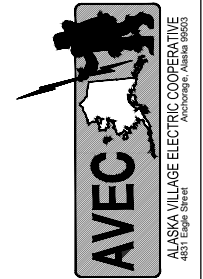
1

CORPORATION DECOMMISSIONING PLAN

SCALE: GRAPHIC



CORPORATION TANK DECOMMISSIONING/SALVAGE SCHEDULE							
EXISTING AVEC TANK NUMBER	DIAMETER (FT-INCHES)	HEIGHT/ LENGTH (FT)	TANK ORIENTATION VERTICAL (V) HORIZONTAL (H)	TANK OWNER	PRODUCT	CAPACITY (GALLONS)	COMMENTS
1	23'	8'	H	CORP	G or D	8,600	DECOMISSION
2	23'	8'	H	CORP	G or D	8,600	DECOMISSION
3	17'	6'	H	CORP	G or D	3,600	DECOMISSION
4	23'	8'	H	CORP	G or D	8,600	DECOMISSION
5	17'	6'	H	CORP	G or D	3,600	DECOMISSION
6	NA	NA	H	CORP	G or D	NA	DECOMISSION
7	NA	NA	H	CORP	G or D	NA	DECOMISSION
8	NA	NA	H	CORP	G or D	NA	DECOMISSION
9	15'	8'	H	CORP	G or D	5,500	DECOMISSION
10	10'	44'	H	CITY	ULSD	25,000	RELOCATE



SHAGELUK BULK FUEL UPGRADES
CORPORATION DECOMMISSIONING PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date: 11/20/25	Designed: AMH
Drawn: CMK	Approved: AMH

File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Decommissioning Plan.dwg Plot Date: 11/20/2025 10:56 AM

DECOMMISSIONING NOTES:

- A. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH OWNER PRIOR TO BEGINNING ANY DECOMMISSIONING/DEMOLITION WORK.
- B. COORDINATE TEMPORARY FUEL STORAGE NEEDS WITH CITY.
- C. ALL DECOMMISSIONED PIPING & FUEL SYSTEM COMPONENTS SHALL BE DISPOSED OF IAW SPECIFICATIONS.

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.**
2. CONTRACTOR IS RESPONSIBLE FOR CONTINUOUS PROJECT COORDINATION WITH AVEC, OTHER PARTICIPANTS, AND ENGINEER DURING ANY CONSTRUCTION WHERE EXISTING UTILITIES MAY BE AFFECTED.

SEWAGE LAGOON

CITY TANK DECOMMISSIONING/SALVAGE SCHEDULE							
EXISTING AVEC TANK NUMBER	DIAMETER (FT-INCHES)	HEIGHT/ LENGTH (FT)	TANK ORIENTATION VERTICAL (V) HORIZONTAL (H)	TANK TYPE	PRODUCT	CAPACITY (GALLONS)	COMMENTS
1	10'-0"	NA	V	SW	D1	NA	DECOMISSION
2	7 ³ / ₈ -6 ¹ / ₂	NA	V	SW	D1	NA	DECOMISSION

RIVERSIDE ROAD

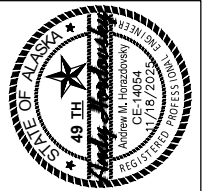
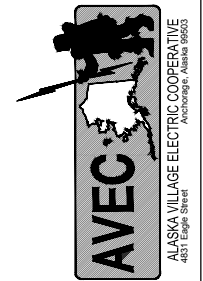
EXISTING STORAGE YARD (NIC)

- EXISTING CITY TANK FARM:
- NOTE: EXISTING TANKS HAVE BEEN RELOCATED NEAR RIVERSIDE ROAD.
 - REMOVE & DISPOSE OF EXISTING LINER & DEBRIS
 - FILTER & TRANSFER FUEL TO NEW TANK FARM.
 - DECOMMISSION EXISTING TANKS & PIPING
 - SEE DECOMMISSIONING NOTES & SPECIFICATIONS.

1

CITY DECOMMISSIONING PLAN

SCALE: GRAPHIC



SHAGELUK BULK FUEL UPGRADES
CITY DECOMMISSIONING PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date 11/20/25	Designed AMH
Drawn CMK	Approved AMH

Sheet No. G1.9

HORIZONTAL AND VERTICAL DATUM

CRW ENGINEERING GROUP CREATED A LOCAL LOW DISTORTION PROJECTION (LDP) SURFACE GRID COORDINATE SYSTEM FOR THE COMMUNITY OF SHAGELUK WATER AND SEWER IMPROVEMENTS PROJECTS.

CRW LOCAL COORDINATE SYSTEM LDP PARAMETERS:
NAME: SHAGELUK TM LDP GRS80
LINEAR UNIT: US SURVEY FEET
GEODETIC DATUM: NAD83 (2011)
ELLIPSOID: GRS80
PROJECTION: TRANSVERSE MERCATOR
LATITUDE OF ORIGIN: 62° 37' 00.00" N
CENTRAL MERIDIAN: 159° 32' 00.00" W
FALSE NORTHING = 40,000.00
FALSE EASTING = 80,000.00
SCALE FACTOR = 1.00000615

THE VERTICAL DATUM IS A LOCAL DATUM THAT WAS PREVIOUSLY ESTABLISHED BY OTHERS FOR THE SEWER AND WATER IMPROVEMENT PROJECTS. CRW FOUND THE LOCAL VERTICAL DATUM ELEVATIONS ARE APPROXIMATELY 4.1 FEET LOWER THAN THE COMPUTED GEOID 12B ELEVATIONS FOUND ON THE PREVIOUSLY SET CONTROL. THESE PREVIOUS CONTROL POINTS HAVE BEEN LOST DURING THE WATER AND SEWER CONSTRUCTION. CRW CONTROL POINTS, 1-2, AND TBM 351 ELEVATIONS ARE SHOWN IN THE LOCAL VERTICAL DATUM.

NOTES:

- ALL COORDINATES AND DIMENSIONS ARE SHOWN IN U.S. SURVEY FEET.
- THE SET CONTROL POINTS WERE ESTABLISHED IN AUGUST, 2019 BY CRW ENGINEERING GROUP. THE FOUND AND SET PROPERTY CORNERS SHOWN ARE FROM SURVEYS CONDUCTED IN AUGUST 2019, SEPTEMBER AND OCTOBER, 2023.
- FIELD NOTES ARE CONTAINED IN CRW FIELD BOOKS 162, 167, 246, AND 247.
- ALL CONTROL POINTS ARE SUBJECT TO SEASONAL DISTURBANCE. HORIZONTAL AND VERTICAL CONTROL POSITIONS MUST BE VALIDATED PRIOR TO USE FOR CONSTRUCTION.
- WHETHER LISTED OR NOT, ALL MONUMENTS OR PROPERTY MARKERS, CORNERS, OR ACCESSORIES, WHICH WILL BE DISTURBED OR BURIED, SHALL BE REFERENCED OR RE-ESTABLISHED IN THE ORIGINAL POSITION AND RECORDED PER ALASKA STATUTES 19.10.260 & 34.65.040 RESPECTIVELY.
- SEE SHEET G2.1 FOR CAP DIAGRAMS OF SET AND FOUND CONTROL POINTS.

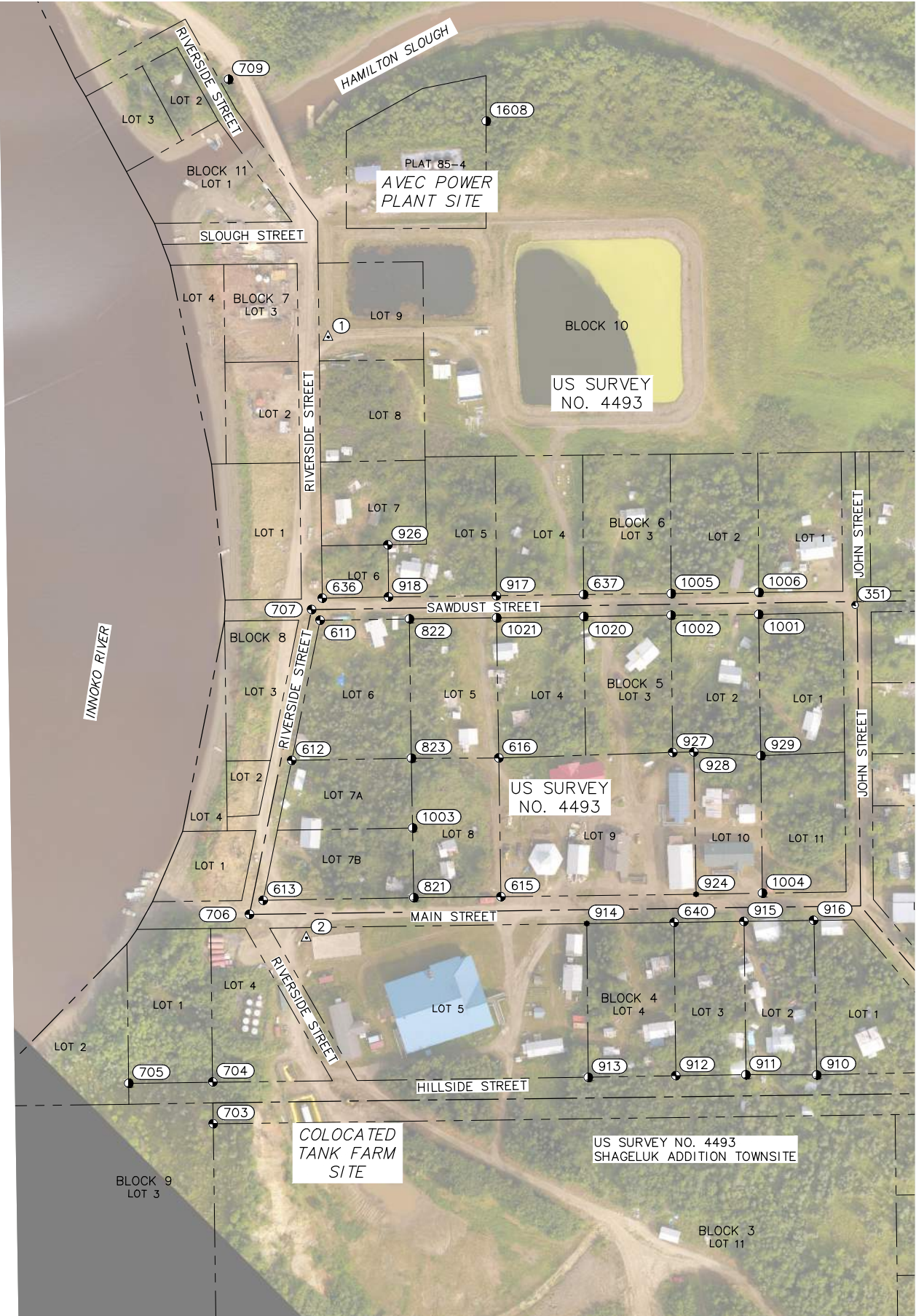
HORIZONTAL CONTROL			
POINT	NORTHING	EASTING	DESCRIPTION
611	54493.80	79932.89	FOUND 1 1/2" BRASS CAP
612	54293.34	79892.44	FOUND 1 1/2" BRASS CAP
613	54093.31	79851.47	FOUND 1 1/2" BRASS CAP
615	54098.36	80191.64	FOUND 1 1/2" BRASS CAP
616	54296.72	80188.52	FOUND 1 1/2" BRASS CAP
636	54525.35	79936.17	FOUND 1 1/2" BRASS CAP
637	54530.54	80309.79	FOUND 1 1/2" ALUM. CAP
640	54061.58	80439.35	FOUND 1 1/2" BRASS CAP
703	53773.48	79779.99	FOUND 1 1/2" BRASS CAP
704	53833.43	79779.37	FOUND 1 1/2" BRASS CAP
705	53831.41	79659.16	FOUND 1 1/2" ALUM. CAP
706	54073.00	79831.94	FOUND 3 1/4" BRASS CAP
707	54509.03	79920.83	FOUND 3 1/4" BRASS CAP
821	54096.82	80066.92	SET 2" ALUM. CAP
822	54495.51	80060.63	SET 2" ALUM. CAP
823	54296.32	80063.46	SET 2" ALUM. CAP
910	53843.32	80643.10	FOUND 1 1/2" ALUM. CAP
911	53843.52	80541.83	FOUND 1 1/2" ALUM. CAP
912	53842.36	80441.76	FOUND 1 1/2" BRASS CAP
913	53839.82	80316.34	FOUND 1 1/2" ALUM. CAP

HORIZONTAL CONTROL			
POINT	NORTHING	EASTING	DESCRIPTION
914	54059.97	80314.48	FOUND 1/2" STAINLESS ROD
915	54063.02	80539.15	FOUND 1 1/2" BRASS CAP
916	54064.52	80638.74	FOUND 1 1/2" BRASS CAP
917	54528.81	80185.16	FOUND 1 1/2" BRASS CAP
918	54527.08	80030.83	FOUND 1 1/2" BRASS CAP
924	54101.84	80470.74	FOUND YELLOW PLASTIC CAP
926	54601.61	80029.88	FOUND 1 1/2" BRASS CAP
927	54304.78	80437.40	FOUND 1 1/2" BRASS CAP
928	54305.41	80467.56	FOUND 1 1/2" BRASS CAP
929	54300.09	80563.35	FOUND 1 1/2" ALUM. CAP
1001	54502.24	80560.15	SET 2" ALUM. CAP
1002	54500.91	80434.86	SET 2" ALUM. CAP
1003	54196.57	80065.19	SET 2" ALUM. CAP
1004	54103.37	80565.59	SET 2" ALUM. CAP
1005	54531.94	80435.14	SET 2" ALUM. CAP
1006	54533.57	80560.62	SET 2" ALUM. CAP
1020	54499.11	80310.11	SET 2" ALUM. CAP
1021	54497.31	80185.37	SET 2" ALUM. CAP
1608	55207.68	80170.49	FOUND 1 1/2" ALUM. CAP

HORIZONTAL & VERTICAL CONTROL				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	54898.97	79944.58	71.57	SET 2" ALUM CAP - CRW CONTROL
2	54039.64	79913.53	91.78	SET 2" ALUM CAP - CRW CONTROL
351	54515.24	80698.18	81.50	CHISELED X IN SSMH RIM
709	55267.35	79801.94	69.56	FOUND 3 1/4" ALUM. CAP - DOT GPS

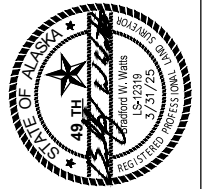
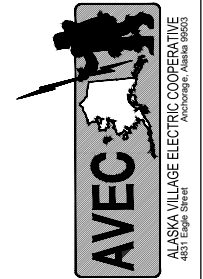
LEGEND

- FOUND OR SET ALUMINUM CAP
- FOUND BRASS CAP OR COPPERWELD
- FOUND REBAR OR STAINLESS STEEL ROD
- SET CRW CONTROL - 2" ALUMINUM CAP
- SET TEMPORARY BENCHMARK (TBM)



SURVEY CONTROL

SCALE: GRAPHIC

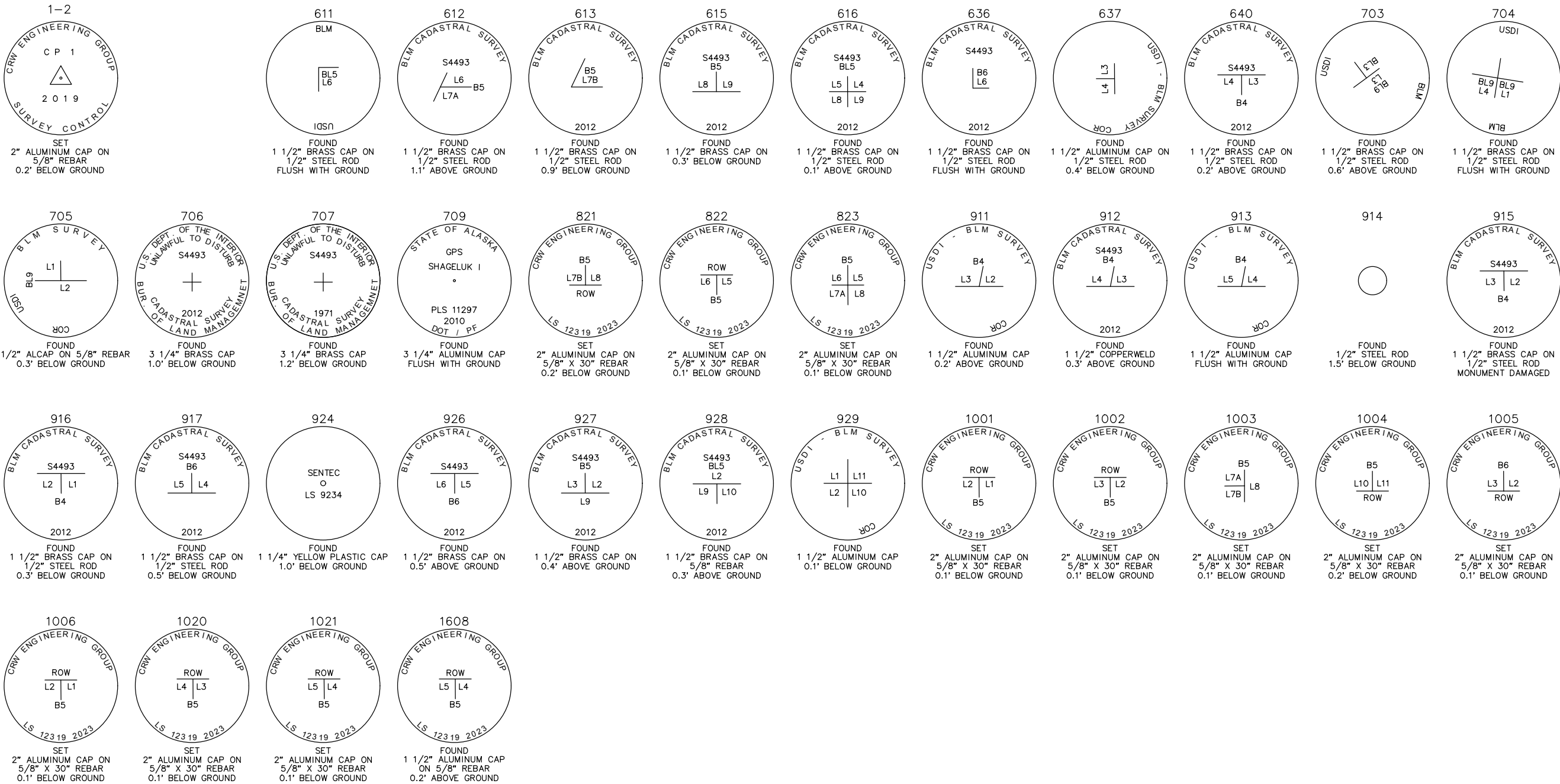


SHAGELUK BULK FUEL UPGRADES
SURVEY CONTROL
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date: 3/31/25	Designed: AMH
Drawn: BWW	Approved: AMH

Sheet No. G2.0



NOTES:

- 1. ALL CAP DIAGRAMS SHOWN ARE ORIENTED NORTH.

SHAGELUK BULK FUEL UPGRADES

SURVEY CONTROL

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date: 3/31/25

Designed: AMH

Drawn: BWW

Approved: AMH

Sheet No.

G2.1



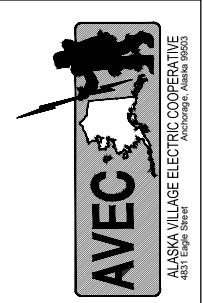
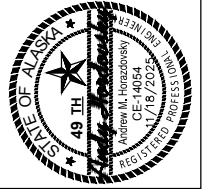
VICINITY MAP
SCALE: GRAPHIC



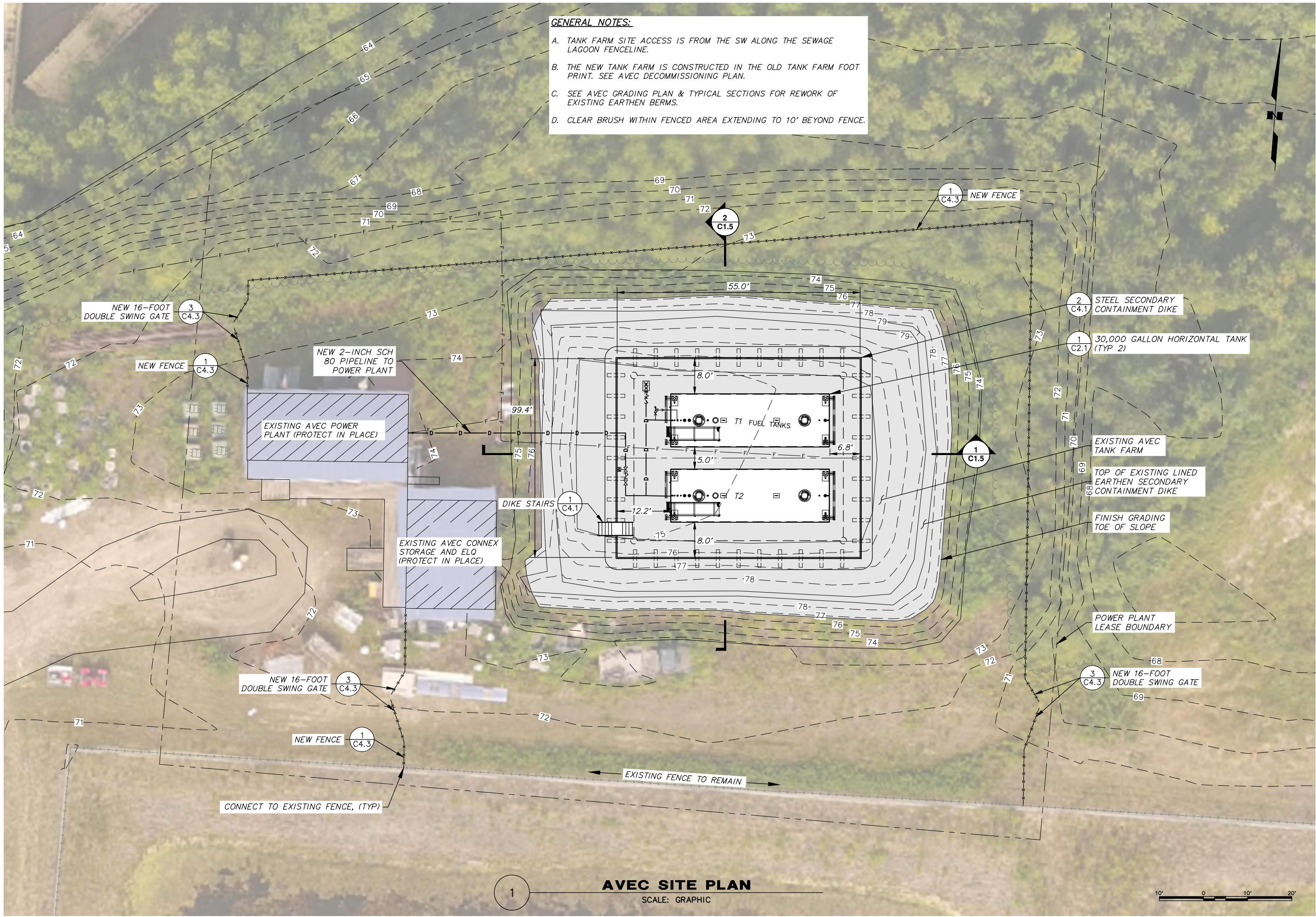
Plot: 11/20/25	Designed: AMH
Date:	Drawn: CMK
	Approved: AMH

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

SHAGELUK BULK FUEL UPGRADES
VICINITY MAP
SHAGELUK, ALASKA



File: J:\JobsData\30704.44 Shageluk Bfu Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Site Plan - AVEC.dwg Plot Date: 11/20/2025 11:00 AM



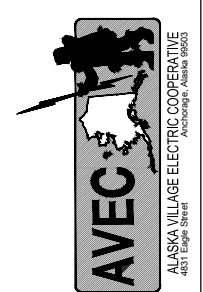
GENERAL NOTES:

A. TANK FARM SITE ACCESS IS FROM THE SW ALONG THE SEWAGE LAGOON FENCELINE.

B. THE NEW TANK FARM IS CONSTRUCTED IN THE OLD TANK FARM FOOT PRINT. SEE AVEC DECOMMISSIONING PLAN.

C. SEE AVEC GRADING PLAN & TYPICAL SECTIONS FOR REWORK OF EXISTING EARTHEN BERMS.

D. CLEAR BRUSH WITHIN FENCED AREA EXTENDING TO 10' BEYOND FENCE.



SHAGELUK BULK FUEL UPGRADES
AVEC TANK FARM SITE PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date: 11/20/25	Designed: AMH
Drawn: CMK	Approved: AMH

Sheet No. C1.2

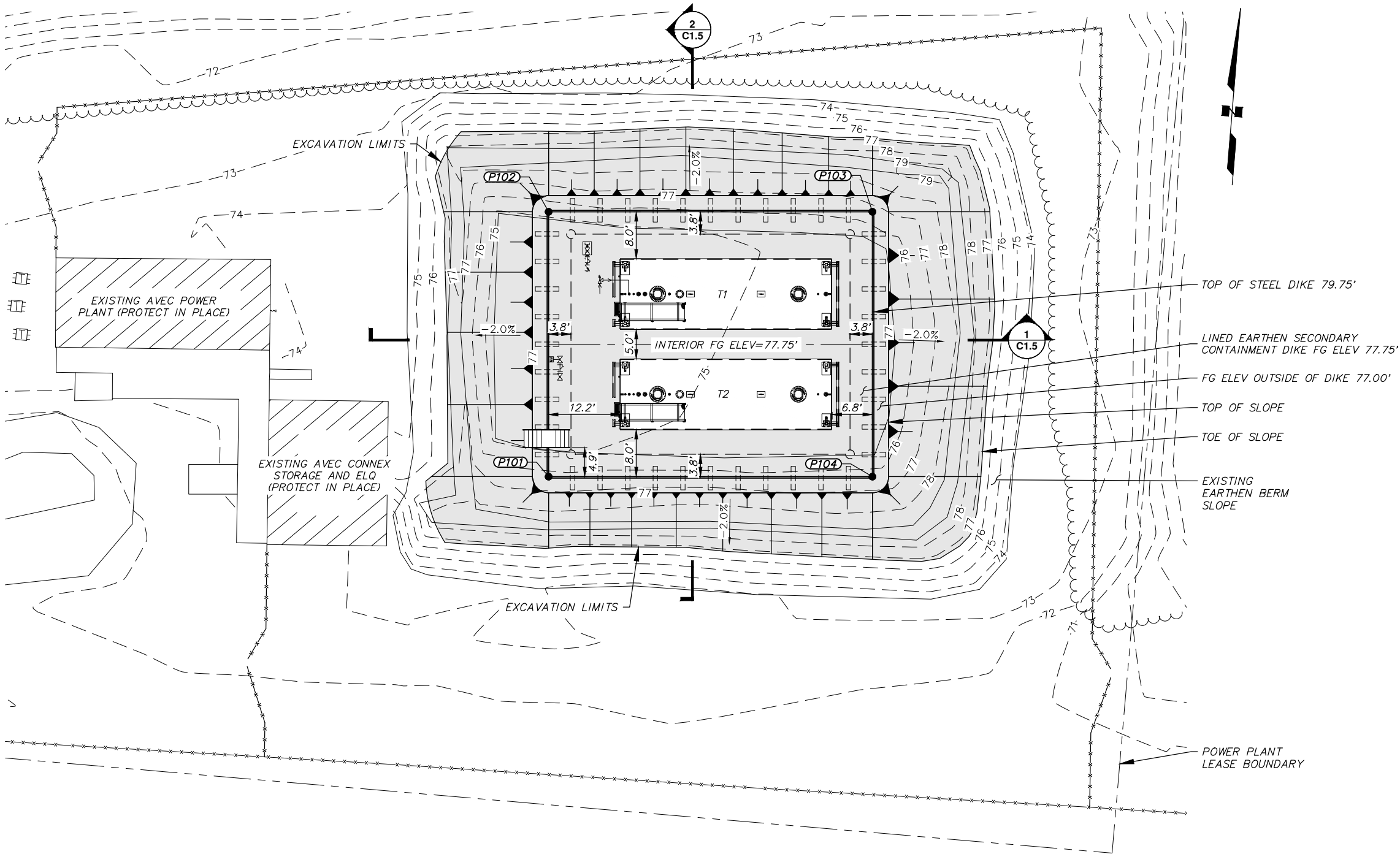
GRADING POINT TABLE					
POINT	EASTING	NORTHING	ELEVATION	POINT DESCRIPTION	NOTES
101	80069.6549'	55109.7150'	77.00'	AVEC DIKE & PAD CORNER, R=2.75'	
102	80065.8039'	55154.5499'	77.00'	AVEC DIKE & PAD CORNER, R=2.75'	
103	80120.6022'	55159.2566'	77.00'	AVEC DIKE & PAD CORNER, R=2.75'	
104	80124.4531'	55114.4217'	77.00'	AVEC DIKE & PAD CORNER, R=2.75'	

AVEC PAD CONSTRUCTION SEQUENCE:

1. DECOMMISSION EXISTING TANK FARM. SEE DECOMMISSIONING PLAN. REMOVE TANKS AND DEBRIS FROM WITHIN THE PAD FOOTPRINT. CLEAR BRUSH FROM SITE TO 10- FEET BEYOND NEW FENCELINE.
2. PROOF COMPACT THE INSITU SOILS BENEATH THE TANK FARM. REPORT ANY UNDESIRABLE MATERIAL OR SOFT SPOTS TO THE ENGINEER PRIOR TO BACKFILLING.
3. BASED ON VISUAL OBSERVATION AND HAND DUG TESTHOLES, THE EXISTING TANK FARM EARTHEN BERM APPEARS TO BE CONSTRUCTED OF GRANULAR FILL FROM THE LOCAL BORROW SOURCE. HOWEVER, A PORTION OF THE WESTERN BERM APPEARS TO CONTAIN ORGANIC SOILS. GRADE ORGANIC SOILS AND SILTS ONTO THE FINISHED PAD SLOPE AND REPLACE WITH

CLASSIFIED MATERIAL.

4. PLACE AND COMPACT CLASSIFIED FILL MATERIAL TO THE ELEVATION AND GRADES SHOWN ON THE GRADING PLAN AND TYPICAL SECTIONS.
5. THE EXISTING TOP OF BERM EXCEEDS FINAL GRADE ELEVATIONS. GRADE EXCESS MATERIAL ONTO FILL PAD SLOPE AS INDICATED IN THE TYPICAL SECTIONS.
6. INSTALL CONTAINMENT LINER SYSTEM, SUMPS, AND CONTAINMENT FILL IAW PROJECT SPECIFICATIONS AND MANUFACTURE'S RECOMMENDATIONS.



1
AVEC GRADING PLAN
SCALE: GRAPHIC

ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Edge Street
Anchorage, Alaska 99503

STATE OF ALASKA
49 TH
Andrew M. Horodovskiy
CE-14054
1/18/2026
REGISTERED PROFESSIONAL ENGINEER

CRW
ENGINEERING GROUP
3640 ARCTIC BLVD, SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0602-AK

SHAGELUK BULK FUEL UPGRADES
AVEC TANK FARM GRADING PLAN

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date: 11/20/25

Designed: AMH

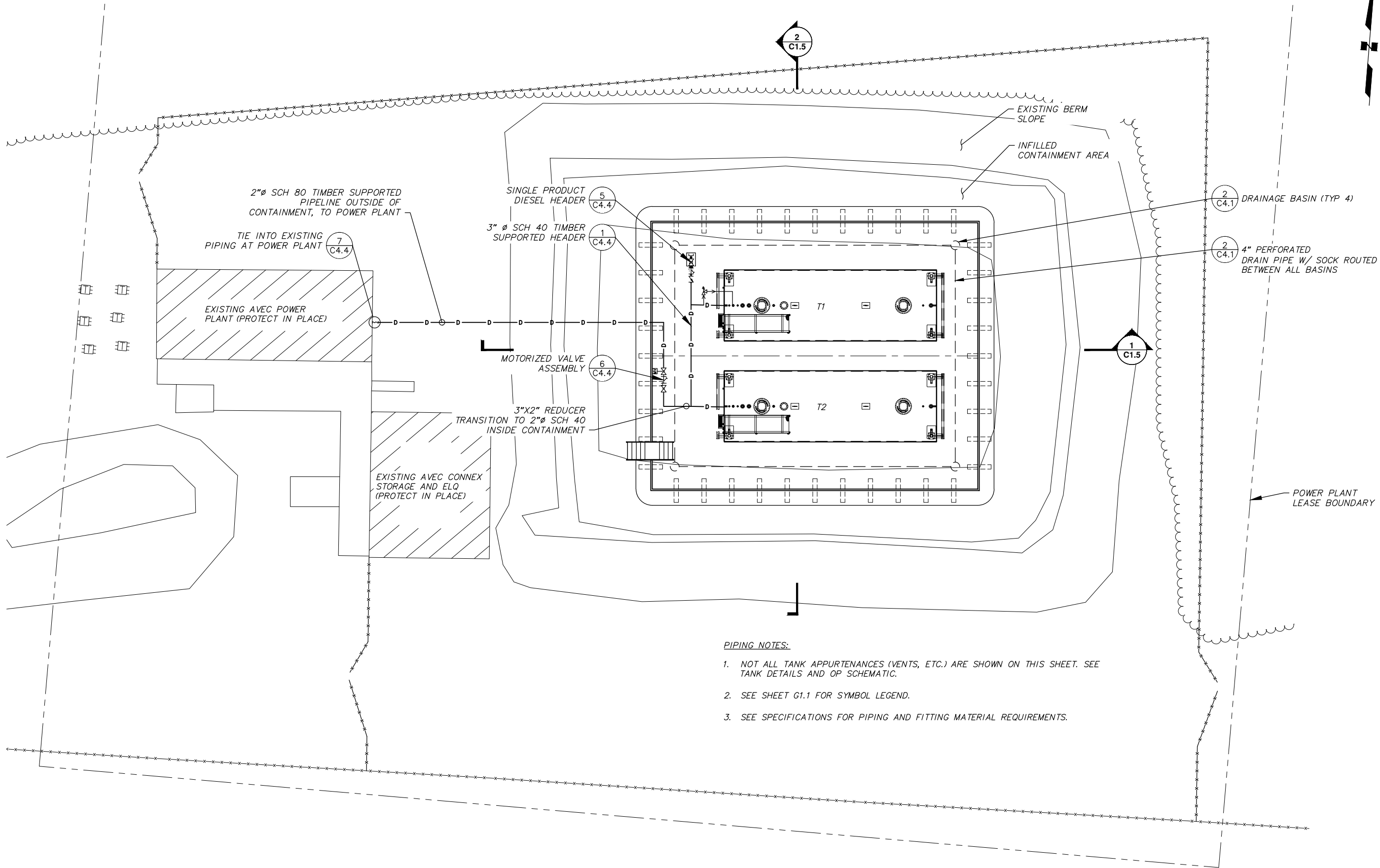
Drawn: CMK

Approved: AMH

Sheet No.

C1.3

File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Piping Plan - AVEC.dwg Plot Date: 11/20/2025 11:02 AM



- PIPING 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 SPECIFICATIONS FOR PIPING AND FITTING MATERIAL REQUIREMENTS.

1

AVEC TANK FARM PIPING PLAN
SCALE: GRAPHIC



ALASKA VILLAGE ELECTRIC COOPERATIVE
4831 Edge Street
Anchorage, Alaska 99503

CRW
ENGINEERING GROUP
3540 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES
AVEC TANK FARM PIPING PLAN

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25
Date: 11/20/25

Designed: AMH

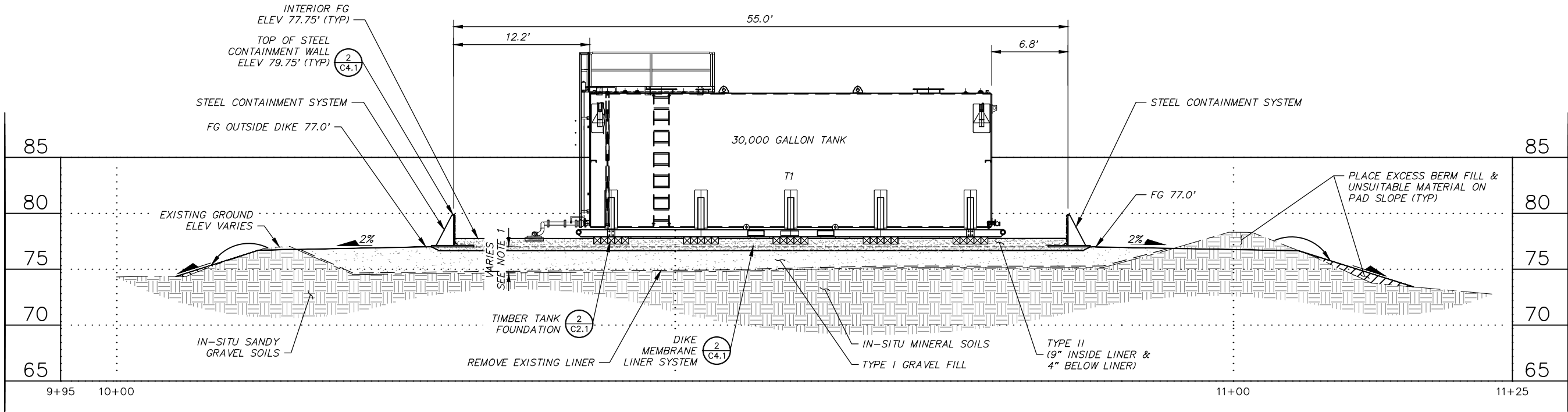
Drawn: CMK

Approved: AMH

Sheet No. **C1.4**

File: J:\JobsData\30704.44 Shageluk BFD Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Sections - AVEC.dwg Plot Date: 11/20/2025 11:02 AM

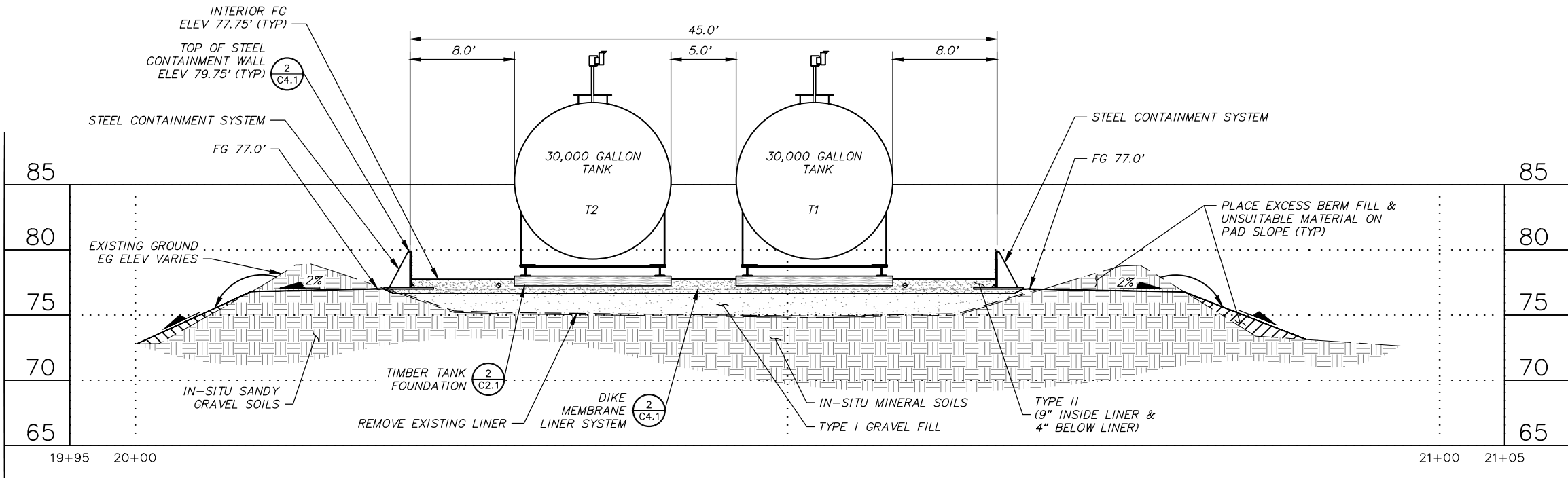
NOTES:
1. SEE PAD CONSTRUCTION SEQUENCE ON GRADING PLAN.



1

AVEC TYPICAL SECTION

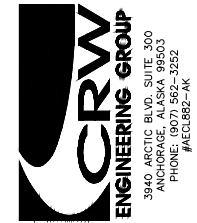
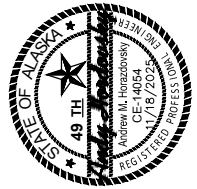
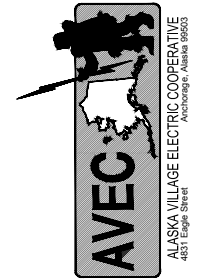
SCALE: GRAPHIC



2

AVEC TYPICAL SECTION

SCALE: GRAPHIC



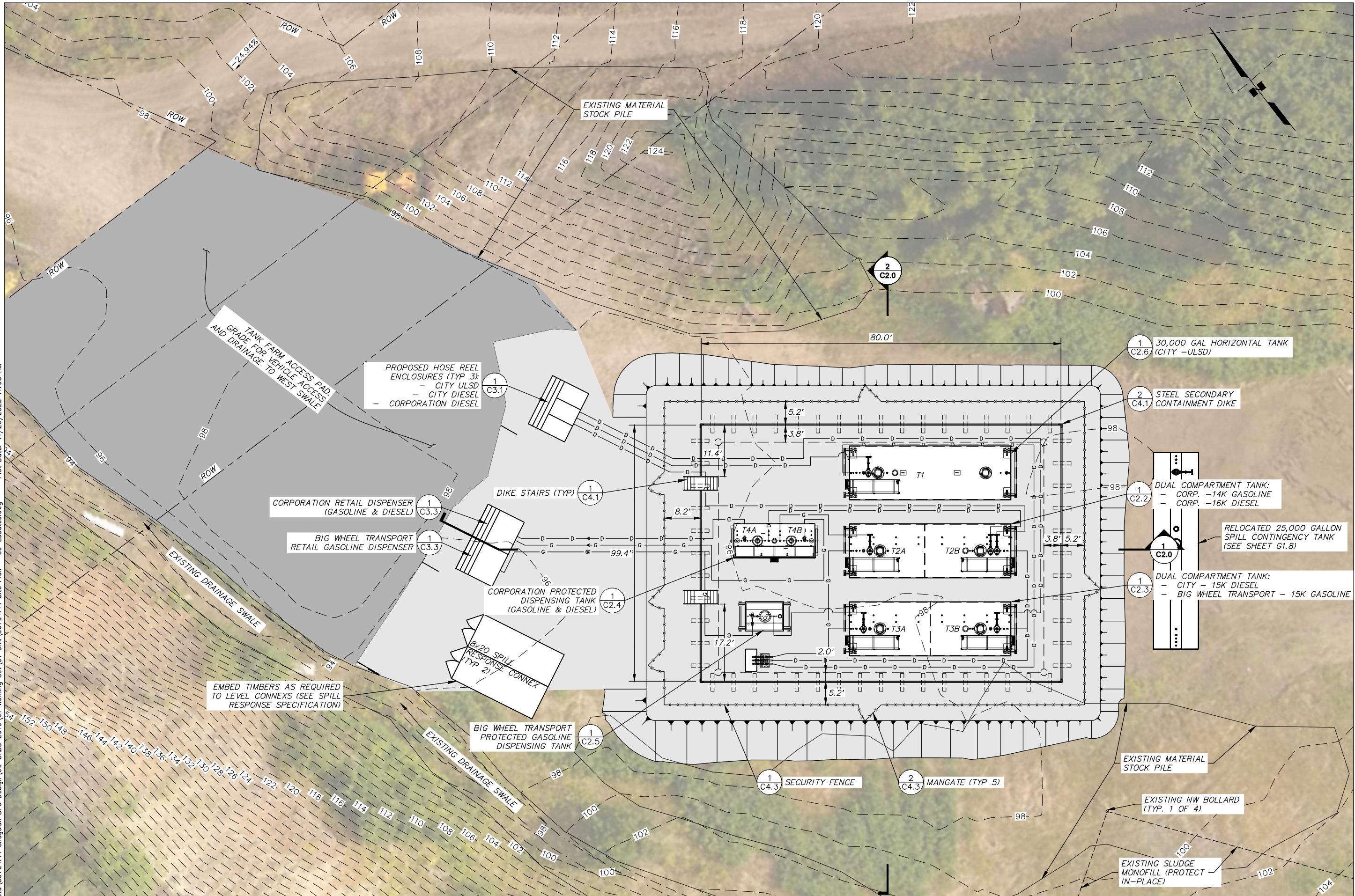
SHAGELUK BULK FUEL UPGRADES
AVEC TANK FARM TYPICAL SECTIONS
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

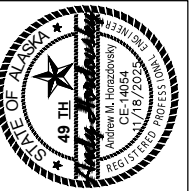
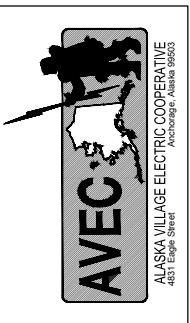
Plot Date: 11/20/25	Designed: AMH	Drawn: CMK	Approved: AMH
---------------------	---------------	------------	---------------

Sheet No. **C1.5**

File: J:\JobsData\30704.44 Shageluk BFD Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Site Plan - Co-Located.dwg Plot Date: 11/20/2025 11:03 AM



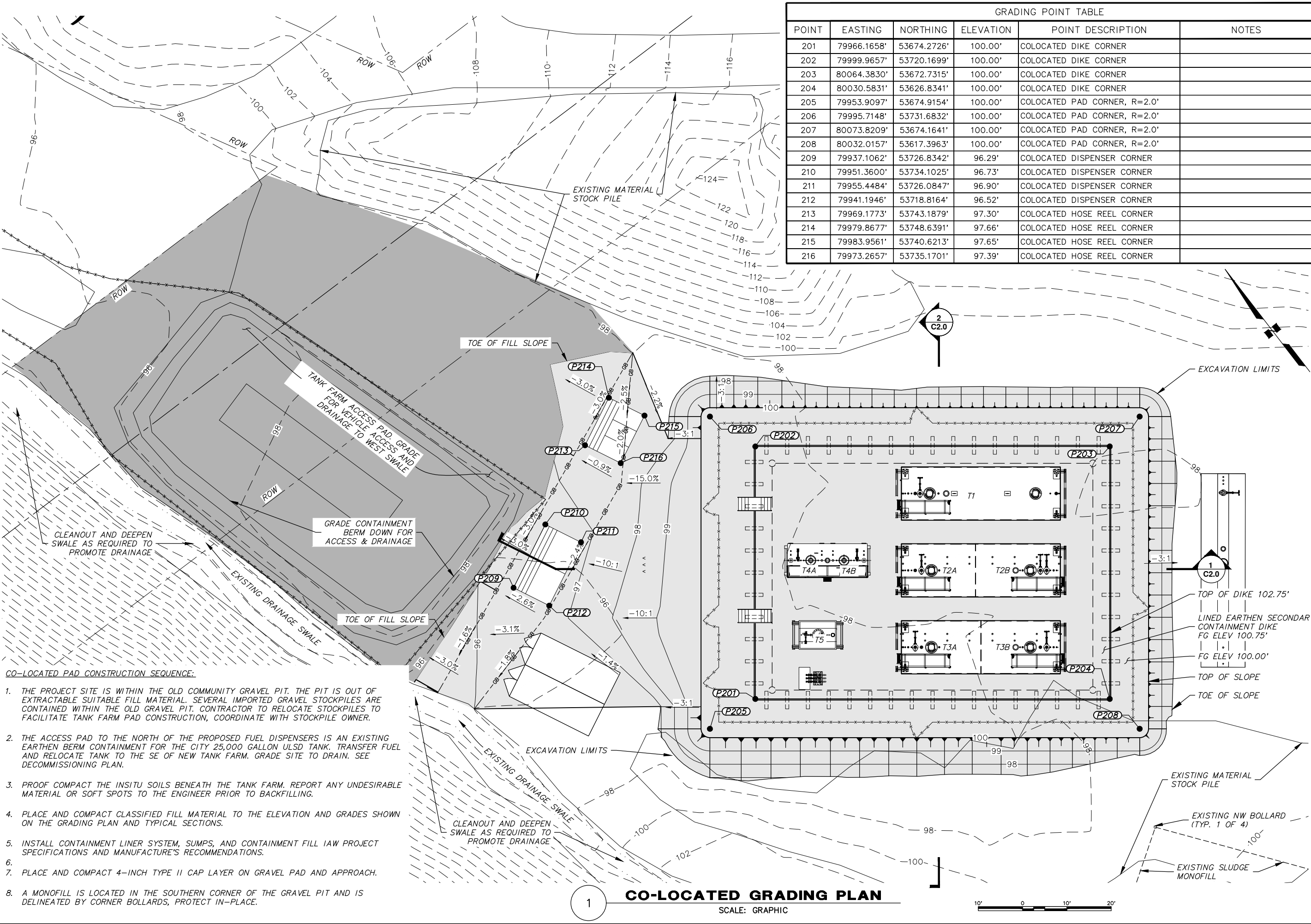
1 **COLOCATED TANK FARM SITE PLAN**
SCALE: GRAPHIC



SHAGELUK BULK FUEL UPGRADES
COLOCATED TANK FARM SITE PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25	Designed: AMH
Date: 11/20/25	Drawn: CMK
	Approved: AMH



GRADING POINT TABLE					
POINT	EASTING	NORTHING	ELEVATION	POINT DESCRIPTION	NOTES
201	79966.1658'	53674.2726'	100.00'	COLOCATED DIKE CORNER	
202	79999.9657'	53720.1699'	100.00'	COLOCATED DIKE CORNER	
203	80064.3830'	53672.7315'	100.00'	COLOCATED DIKE CORNER	
204	80030.5831'	53626.8341'	100.00'	COLOCATED DIKE CORNER	
205	79953.9097'	53674.9154'	100.00'	COLOCATED PAD CORNER, R=2.0'	
206	79995.7148'	53731.6832'	100.00'	COLOCATED PAD CORNER, R=2.0'	
207	80073.8209'	53674.1641'	100.00'	COLOCATED PAD CORNER, R=2.0'	
208	80032.0157'	53617.3963'	100.00'	COLOCATED PAD CORNER, R=2.0'	
209	79937.1062'	53726.8342'	96.29'	COLOCATED DISPENSER CORNER	
210	79951.3600'	53734.1025'	96.73'	COLOCATED DISPENSER CORNER	
211	79955.4484'	53726.0847'	96.90'	COLOCATED DISPENSER CORNER	
212	79941.1946'	53718.8164'	96.52'	COLOCATED DISPENSER CORNER	
213	79969.1773'	53743.1879'	97.30'	COLOCATED HOSE REEL CORNER	
214	79979.8677'	53748.6391'	97.66'	COLOCATED HOSE REEL CORNER	
215	79983.9561'	53740.6213'	97.65'	COLOCATED HOSE REEL CORNER	
216	79973.2657'	53735.1701'	97.39'	COLOCATED HOSE REEL CORNER	



ALASKA VILLAGE ELECTRIC COOPERATIVE
4831 Edge Street
Anchorage, Alaska 99503



ANDREW M. HORADOVSKY
CE-14054
1/18/2025
REGISTERED PROFESSIONAL ENGINEER
STATE OF ALASKA
49 TH



CRW
ENGINEERING GROUP
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES
COLOCATED GRADING PLAN
SHAGELUK, ALASKA

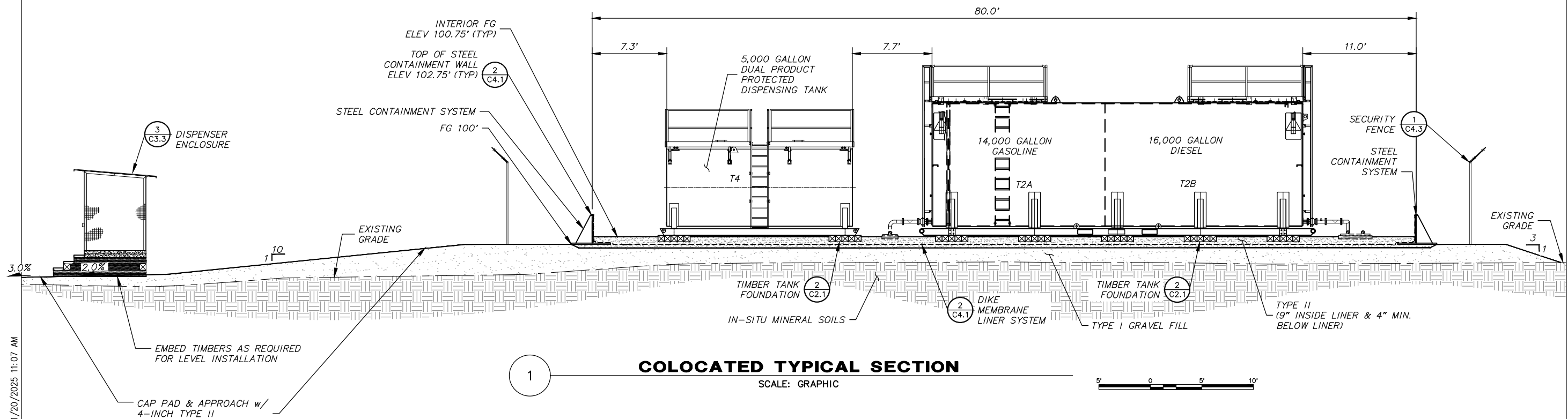
NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25
Date: 11/20/25
Designed: AMH
Drawn: CMK
Approved: AMH

Sheet No. **C1.7**

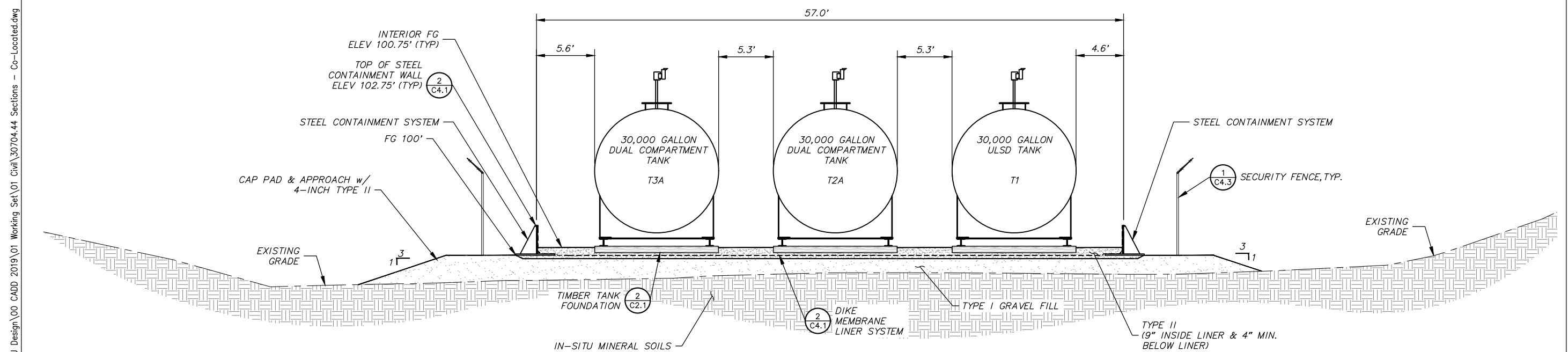


NOTES:
1. SEE PAD CONSTRUCTION SEQUENCE ON GRADING PLAN.



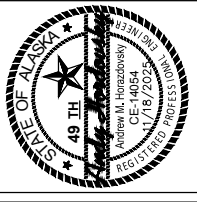
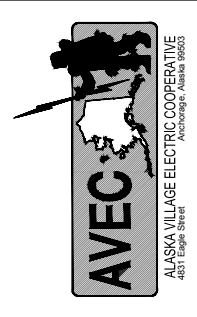
COLOCATED TYPICAL SECTION

SCALE: GRAPHIC



COLOCATED TYPICAL SECTION

SCALE: GRAPHIC



SHAGELUK BULK FUEL UPGRADES
COLOCATED TANK FARM TYPICAL SECTIONS
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25	Designed: AMH
Date: 11/20/25	Drawn: CMK
	Approved: AMH

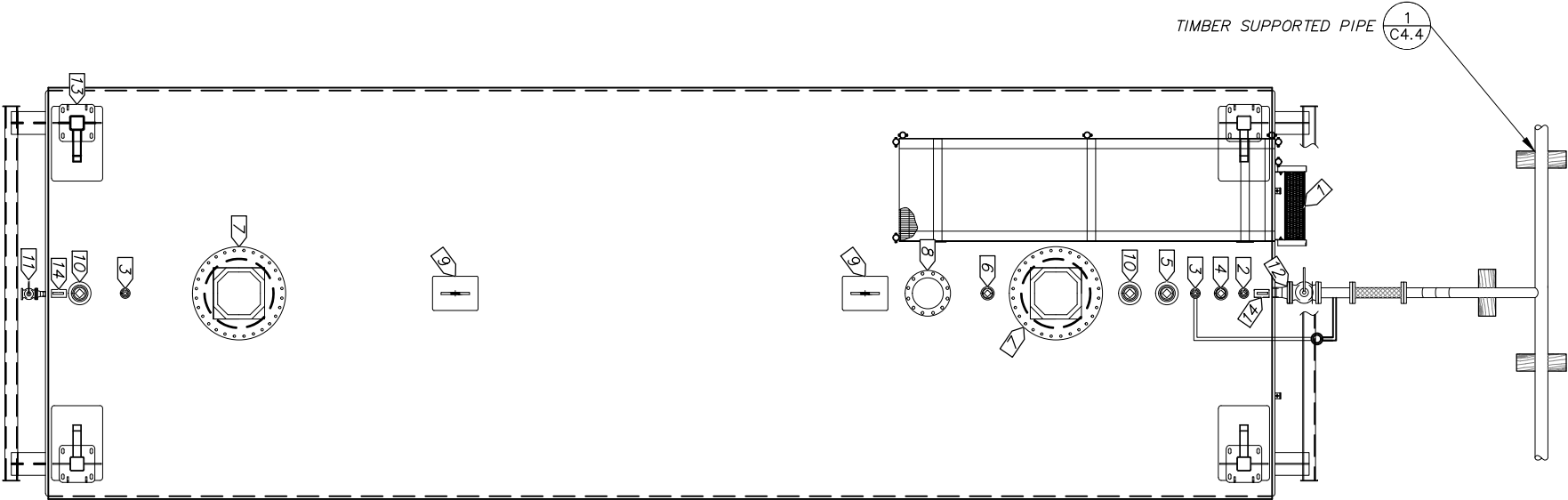
Sheet No. **C2.0**

File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Sections - Co-Located.dwg Plot Date: 11/20/2025 11:07 AM

File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Tanks.dwg Plot Date: 11/20/2025 11:07 AM

SPECIFIC NOTES:

- 1
- SHOP FABRICATED BOLT ON ACCESS LADDER & CATWALK
- 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
- 5
- 4" NPT THREADED TANK OPENING – LEVEL SENSOR PROBE
- 6
- 3" NPT THREADED TANK OPENING – PRESSURE/VACUUM VENT WITH WHISTLE ALARM
- 7
- 24" FLANGED ACCESS HATCH WITH COVER
- 8
- 10" FLANGED PENETRATION – EMERGENCY VENT
- 9
- LIFTING LUG
- 10
- 4" NPT THREADED TANK OPENING – SPARE WITH PLUG
- 11
- 1" ANSI#300 R.F FLANGED TANK NOZZEL – WATER DRAW
- 12
- 3" FLANGED NOZZLE w/BALL VALVE – FILL/DRAW
- 13
- INTEGRAL TANK STACKING SUPPORT, (TYP OF 4)
- 14
- PERSONNEL TIE OFF



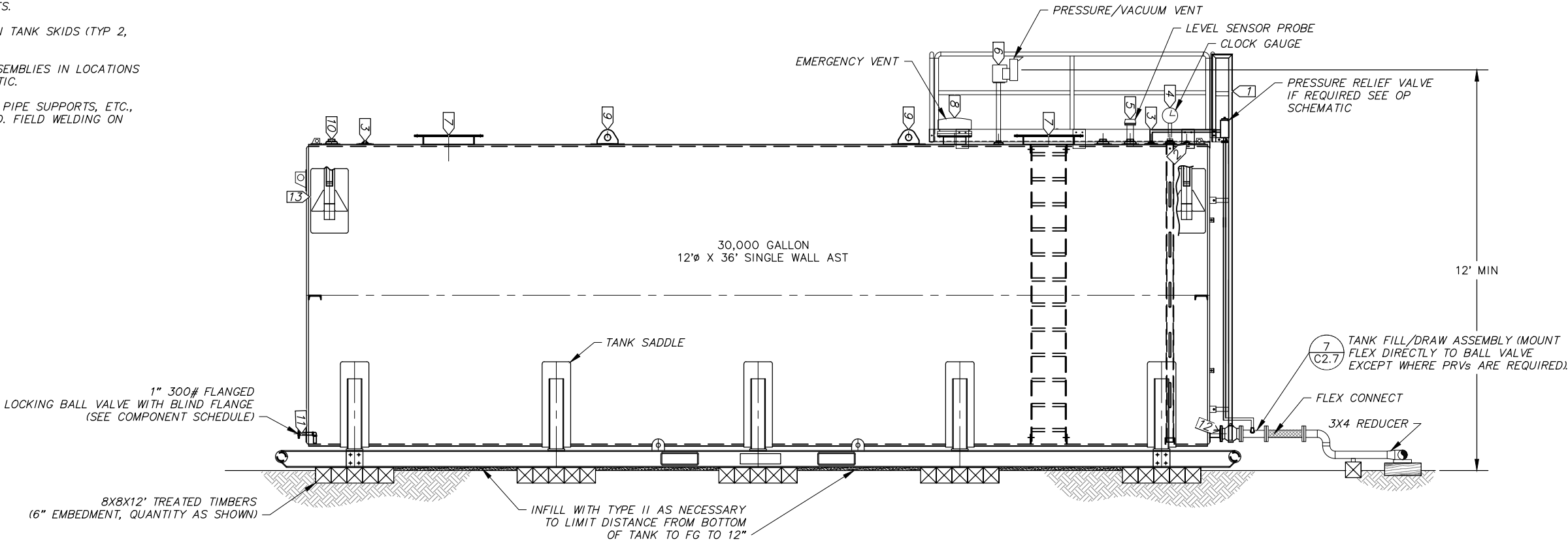
NOTES:

1.
- 30,000 GALLON TANKS ARE **OWNER PROVIDED**. TANK IS A NOMINAL 30,000 GALLON 12'Øx36' UL 142 LISTED TANK. SEE SHOP DRAWINGS WITH FINAL DIMENSIONS, WEIGHT, LADDER CONFIGURATIONS, LOCATIONS OF TANK PENETRATIONS AND APPURTENANCES.
2.
- CONTRACTOR SHALL FURNISH AND INSTALL ALL VALVES, NORMAL VENTS, EMERGENCY VENTS, LEVEL GAUGES, SAMPLE HATCHES, FLOATS, PLUGS AND OTHER APPURTENANCES.
4.
- PROVIDE UL APPROVED GROUNDING LUG ON TANK SKIDS (TYP 2, OPPOSITE CORNERS).
5.
- INSTALL PRESSURE RELIEF VALVE (PRV) ASSEMBLIES IN LOCATIONS INDICATED ON PIPING PLAN & OP SCHEMATIC.
6.
- ALL REQUIRED PENETRATIONS, STANDOFFS, PIPE SUPPORTS, ETC., SHALL BE BOLT ON OR FACTORY INSTALLED. FIELD WELDING ON TANKS IS PROHIBITED.

1

AVEC 30,000 GALLON SINGLE WALL TANK PLAN VIEW

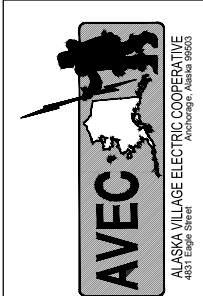
SCALE: NTS



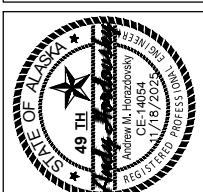
2


AVEC 30,000 GALLON SINGLE WALL TANK ELEVATION VIEW

SCALE: NTS



ALASKA VILLAGE ELECTRIC COOPERATIVE
Anchorage, Alaska 99503





CRW
ENGINEERING GROUP
3840 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES

AVEC 30,000 GALLON TANK DETAILS

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25

Date: 11/20/25

Designed: AMH

Drawn: CMK

Approved: AMH

Sheet No. C2.1

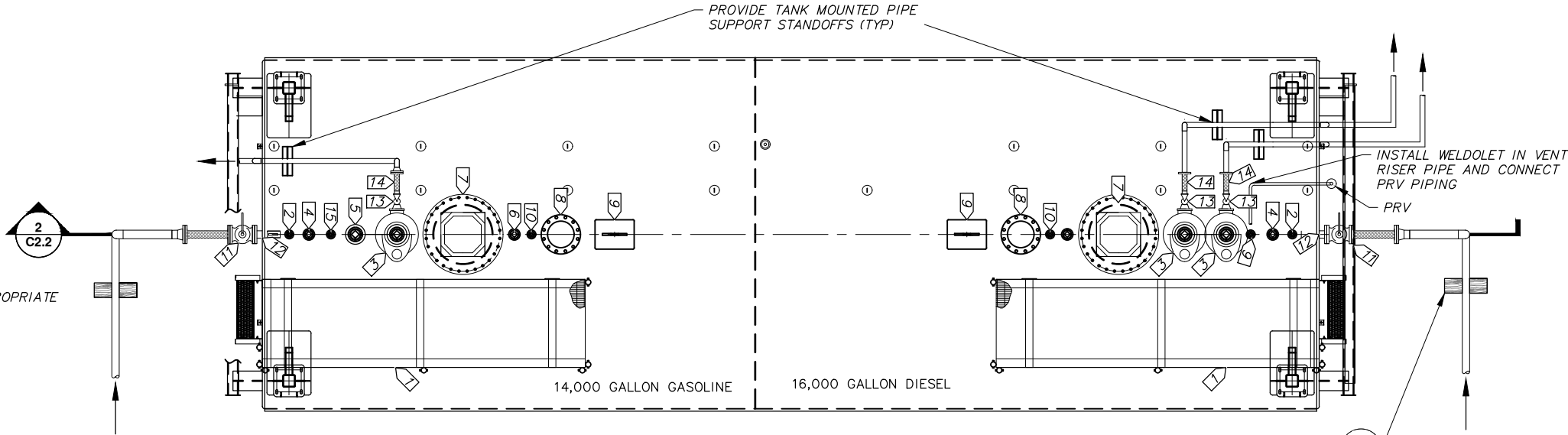
File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Tanks.dwg Plot Date: 11/20/2025 11:07 AM

SPECIFIC NOTES:

- 1
- SHOP FABRICATED BOLT ON ACCESS LADDER & CATWALK
- 2
- 2" NPT THREADED TANK OPENING – GAUGE HATCH
- 3
- 4" NPT THREADED – SUBMERSIBLE PUMP
- 4
- 3" NPT THREADED TANK OPENING – CLOCK GAUGE PORT
- 5
- 3" OR 4" NPT THREADED TANK OPENING – LEVEL SENSOR FLOATS (PROVIDE REDUCING BUNG AS REQUIRED)
- 6
- 3" NPT THREADED TANK OPENING – VACUUM/WHISTLE VENT
- 7
- 24" FLANGED ACCESS HATCH W/COVER
- 8
- 8" EMERGENCY VENT FLANGE ADAPTER
- 9
- PHOENIX FORGE LIFT LUG
- 10
- WATER DRAW
- 11
- LOCKING BALL VALVE
- 12
- 3" FLANGED NOZZLE – FILL/DRAW
- 13
- ANTI-SIPHON VALVE
- 14
- 2"Ø X 12"L FLEXIBLE CONNECTOR (NPT x FLOAT FLG)
- 15
- 2" NPT THREADED TANK OPENING – PRV OR SPARE WITH PLUG AS APPROPRIATE

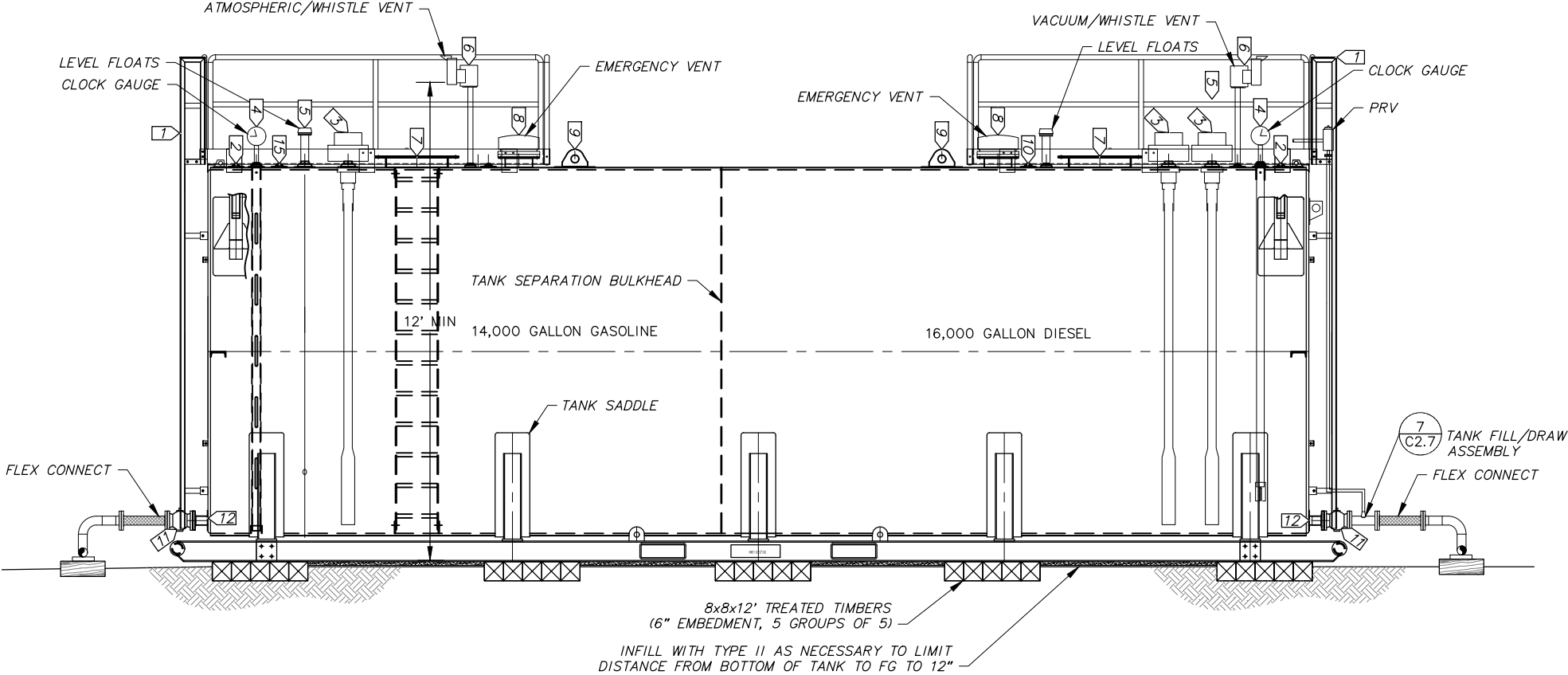
NOTES:

1.
- 30,000 DUAL COMPARTMENT TANKS ARE OWNER PROVIDED. THE TANK IS A NOMINAL 30,000 GALLON 12'Øx36' UL 142 LISTED TANK WITH TWO COMPARTMENTS. SEE SHOP DRAWINGS WITH LOCATIONS OF TANK PENETRATIONS, LADDER CONFIGURATION, WEIGHT, AND APPURTENANCES.
2.
- THERE ARE TWO 30,000 GALLON SPLIT TANKS.
- 2.1.
- 30,000 GALLONS SPLIT INTO 16,000 & 14,000 (THIS SHEET)
- 2.2.
- 30,000 GALLONS SPLIT INTO EQUAL 15,000 GALLON COMPARTMENTS
3.
- INSTALL PRESSURE RELIEF VALVE (PRV) ASSEMBLY AS INDICATED ON PIPING PLAN & OP SCHEMATIC.
4.
- PROVIDE UL APPROVED GROUNDING LUG ON TANK SKIDS (TYP 2, OPPOSITE CORNERS).
5.
- ALL REQUIRED PENETRATIONS, STANDOFFS, PIPE SUPPORTS, ETC., SHALL BE BOLT ON OR FACTORY INSTALLED. FIELD WELDING ON TANKS IS PROHIBITED.
6.
- ALL TANK APPURTENANCES (VENTS, VALVES, GAUGES, ETC.) ARE CONTRACTOR PROVIDED.



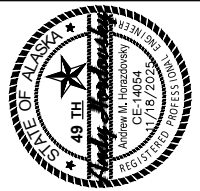
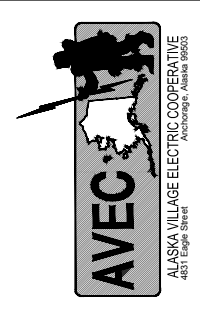
30,000 GALLON SINGLE WALL DUAL COMPARTMENT TANK PLAN VIEW

SCALE: NTS



30,000 GALLON SINGLE WALL DUAL COMPARTMENT TANK SECTION VIEW

SCALE: NTS



SHAGELUK BULK FUEL UPGRADES
30,000 GALLON DUAL COMPARTMENT TANK
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25	Designed: AMH
Date: 11/20/25	Drawn: CMK
	Approved: AMH

Sheet No. C2.2

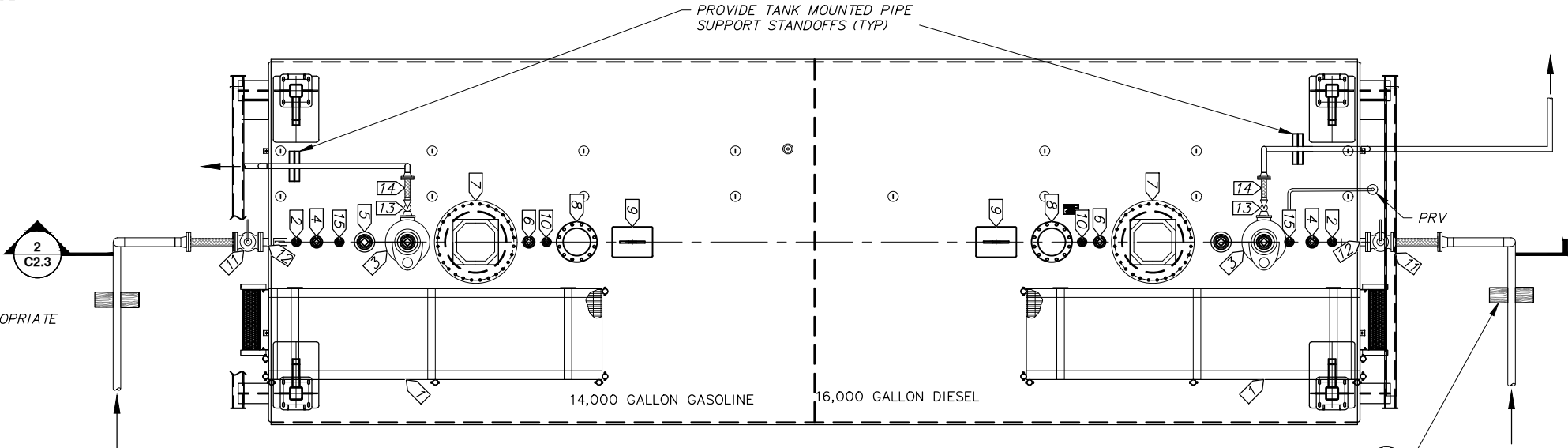
File: J:\JobsData\30704.44 Shageluk BFDU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Tanks.dwg Plot Date: 11/20/2025 11:07 AM

SPECIFIC NOTES:

- 1
- SHOP FABRICATED BOLT ON ACCESS LADDER & CATWALK
- 2
- 2" NPT THREADED TANK OPENING – GAUGE HATCH
- 3
- 4" NPT THREADED – SUBMERSIBLE PUMP
- 4
- 3" NPT THREADED TANK OPENING – CLOCK GAUGE PORT
- 5
- 3" OR 4" NPT THREADED TANK OPENING – LEVEL SENSOR FLOATS (PROVIDE REDUCING BUNG AS REQUIRED)
- 6
- 3" NPT THREADED TANK OPENING – VACUUM/WHISTLE VENT
- 7
- 24" FLANGED ACCESS HATCH W/COVER
- 8
- 8" EMERGENCY VENT FLANGE ADAPTER
- 9
- PHOENIX FORGE LIFT LUG
- 10
- WATER DRAW
- 11
- LOCKING BALL VALVE
- 12
- 3" FLANGED NOZZLE – FILL/DRAW
- 13
- ANTI-SIPHON VALVE
- 14
- 2"Ø X 12"L FLEXIBLE CONNECTOR (NPT x FLOAT FLG)
- 15
- 2" NPT THREADED TANK OPENING – PRV OR SPARE WITH PLUG AS APPROPRIATE

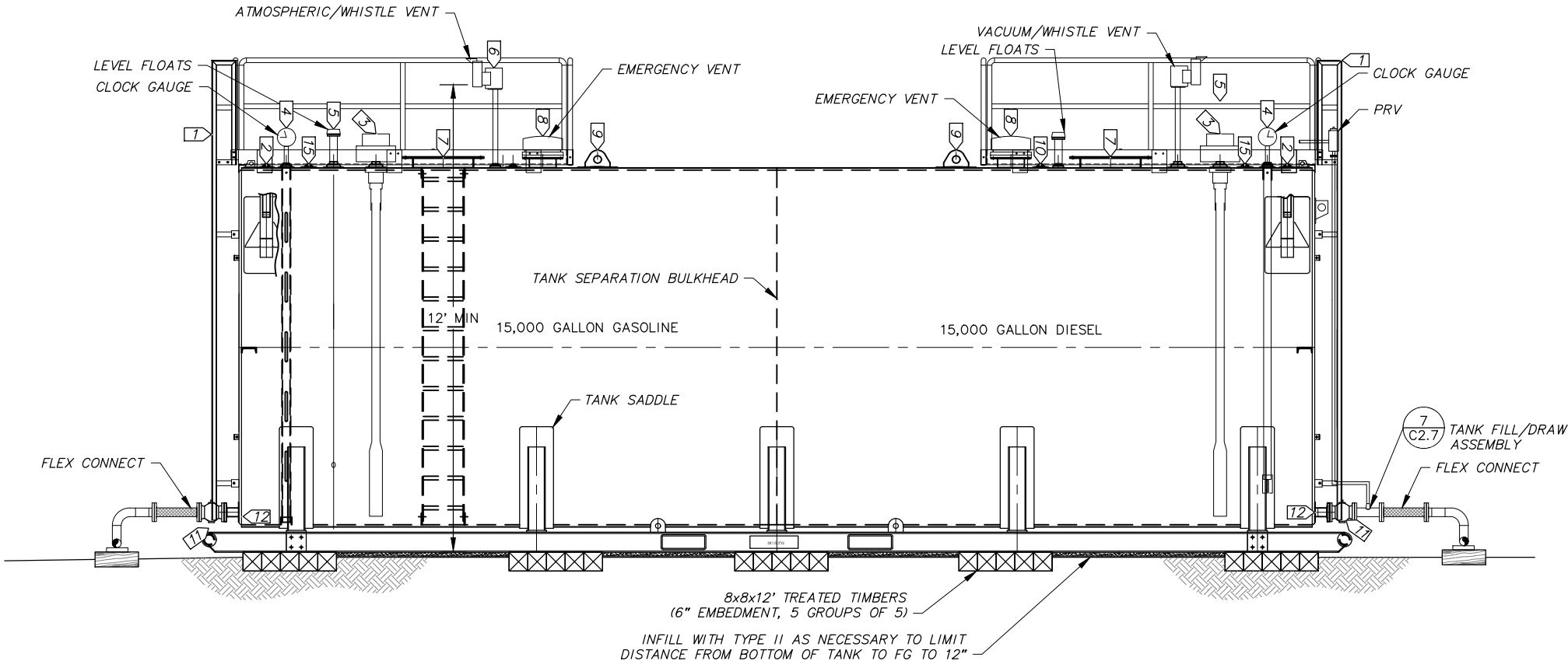
NOTES:

1.
- 30,000 DUAL COMPARTMENT TANKS ARE OWNER PROVIDED. THE TANKS IS A NOMINAL 30,000 GALLON 12'Øx36' UL 142 LISTED TANK WITH TWO COMPARTMENTS. SEE SHOP DRAWINGS FOR FINAL LOCATIONS OF TANK PENETRATIONS, LADDER CONFIGURATION, WEIGHT, AND APPURTENANCES.
2.
- THERE ARE TWO 30,000 GALLON SPLIT TANKS.
- 2.1.
- 30,000 GALLONS SPLIT INTO 16,000 & 14,000
- 2.2.
- 30,000 GALLONS SPLIT INTO EQUAL 15,000 GALLON COMPARTMENTS (THIS SHEET)
3.
- INSTALL PRESSURE RELIEF VALVE (PRV) ASSEMBLY AS INDICATED ON PIPING PLAN & OP SCHEMATIC.
4.
- PROVIDE UL APPROVED GROUNDING LUG ON TANK SKIDS (TYP 2, OPPOSITE CORNERS).
5.
- ALL REQUIRED PENETRATIONS, STANDOFFS, PIPE SUPPORTS, ETC., SHALL BE BOLT ON OR FACTORY INSTALLED. FIELD WELDING ON TANKS IS PROHIBITED.
6.
- ALL TANK APPURTENANCES (VENTS, VALVES, GAUGES, ETC.) ARE CONTRACTOR PROVIDED.



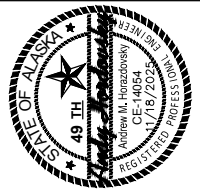
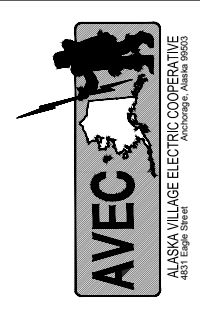
30,000 GALLON SINGLE WALL DUAL COMPARTMENT TANK PLAN VIEW

SCALE: NTS



30,000 GALLON SINGLE WALL DUAL COMPARTMENT TANK SECTION VIEW

SCALE: NTS



SHAGELUK BULK FUEL UPGRADES
30,000 GALLON DUAL COMPARTMENT TANK
SHAGELUK, ALASKA

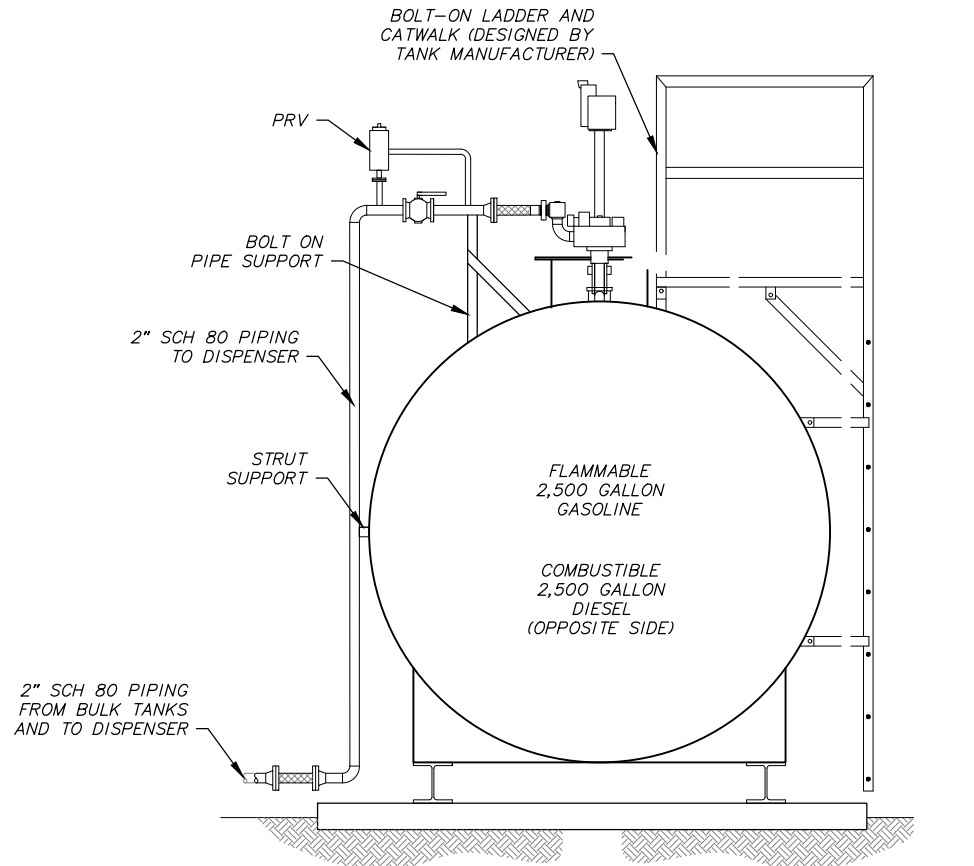
NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25	Designed: AMH
Date:	Drawn: CMK
	Approved: AMH

File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Tanks.dwg Plot Date: 11/20/2025 11:07 AM

SPECIFIC NOTES:

- 1
- SHOP FABRICATED BOLT ON LADDER AND PLATFORM
- 2
- 2" FPT SECONDARY TANK MONITORING BUNG WITH MPT PLUG
- 3
- SUBMERSIBLE PUMP
- 4
- 2" CLOCK GAUGE INSTALLED ON 2"x18" NIPPLE. SET GREEN ARROW AT 50% LEVEL AND RED ARROW AT 90%
- 5
- 3" FLANGED 4-POSITION LEVEL SWITCH. SENSOR POSITIONS FACTORY SET AS SHOWN.
- 6
- 2" PRESSURE VACUUM VENT WITH WHISTLE ALARM. INSTALL ON 3" BUNG WITH 3X2 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.
- 7
- 2" FPT GAUGE HATCH INSTALLED ON 2"x4" LONG NIPPLE
- 8
- 8" FLANGED PRIMARY EMERGENCY VENT
- 9
- 1" THREADED WATER DRAW
- 10
- 20" MANHOLE
- 11
- 2" FILL w/ DROP TUBE
- 12
- 8" FLANGED SECONDARY EMERGENCY VENT
- 13
- ANTI-SIPHON VALVE
- 14
- 2"Ø X 12"L FLEXIBLE CONNECTOR (NPT x FLOAT FLG)
- 15
- 2" FLANGED CHECK VALVE
- 16
- 2" FLANGED BALL VALVE

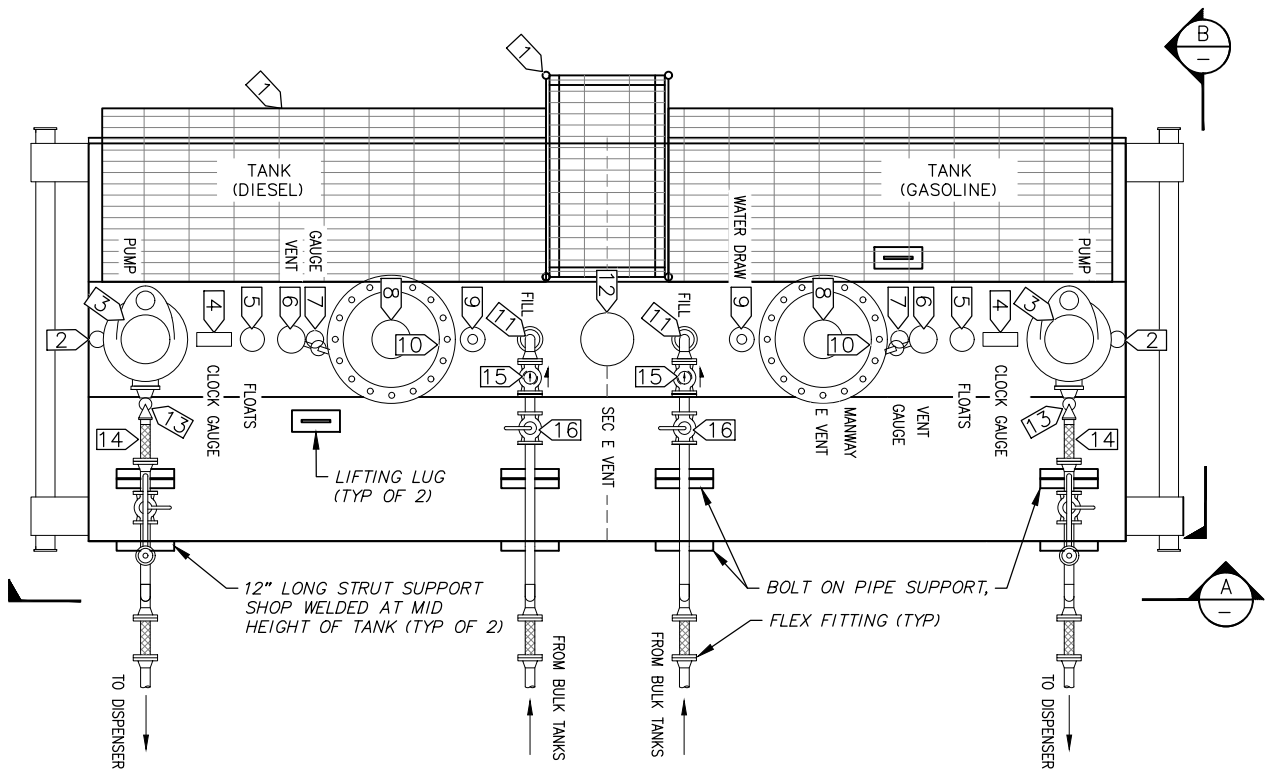


END VIEW
SCALE: NTS



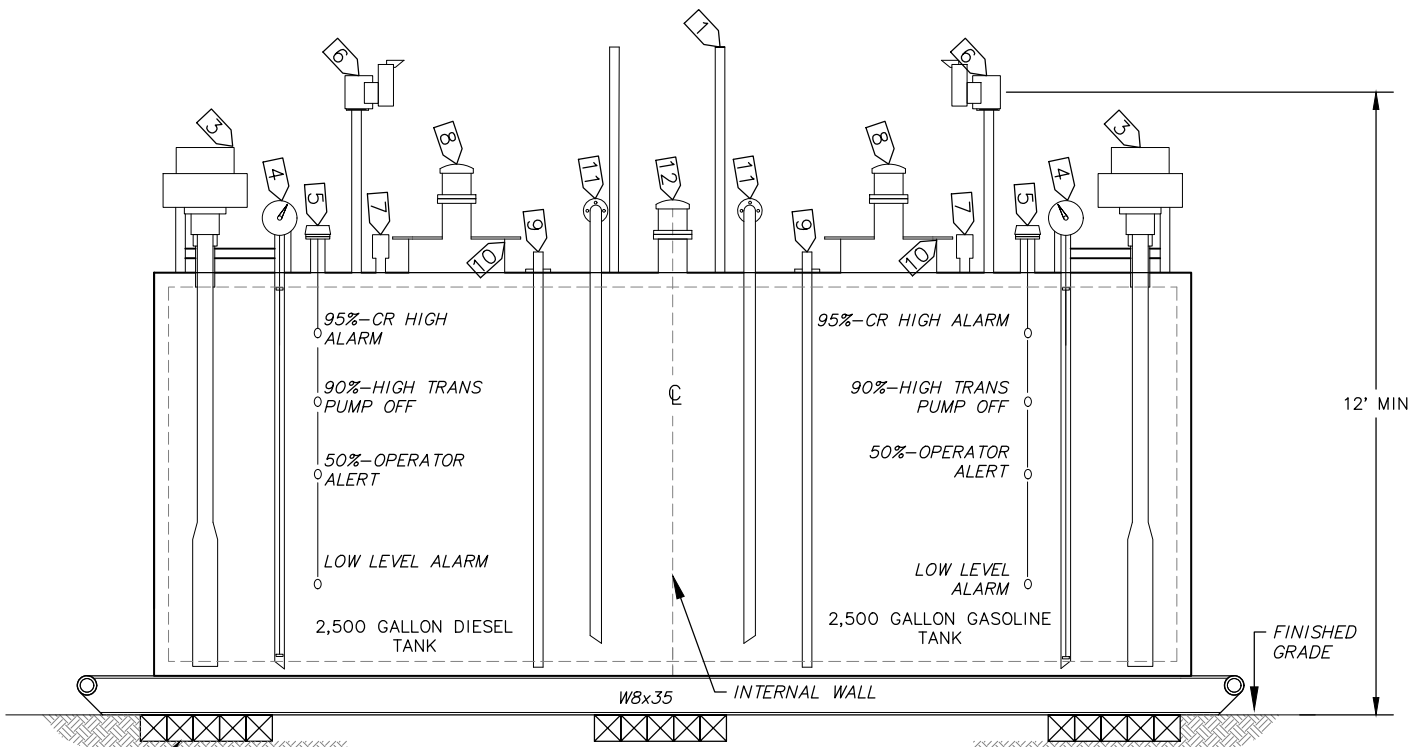
GENERAL NOTES:

1.
- TANK SHALL BE A CONTRACTOR PROVIDED NEW, UL142 2085 LISTED AND LABELED, APPROXIMATELY 7'Øx17.5' HORIZONTAL PROTECTED AST AS DETAILED. SUBMIT SHOP DRAWINGS FOR ENGINEER APPROVAL.
2.
- SEE SPECIFICATIONS FOR DETAILED COMPONENT SPECIFICATIONS.
3.
- PROVIDE UL APPROVED GROUNDING LUG ON TANK SKIDS (TYP 2, ON OPPOSITE CORNERS).
4.
- FIELD WELDING ON TANKS IS PROHIBITED.



5,000 GALLON DUAL PRODUCT PROTECTED DISPENSING TANK

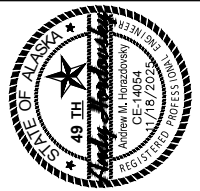
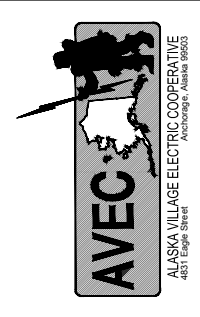
SCALE: NTS



SECTION VIEW
SCALE: NTS

8x8x10' TREATED TIMBERS (BURY 6-INCHES)

5,000 GALLON DUAL PRODUCT SINGLE WALL AST



SHAGELUK BULK FUEL UPGRADES
5,000 GALLON PROTECTED DISPENSING TANK DETAILS
SHAGELUK, ALASKA

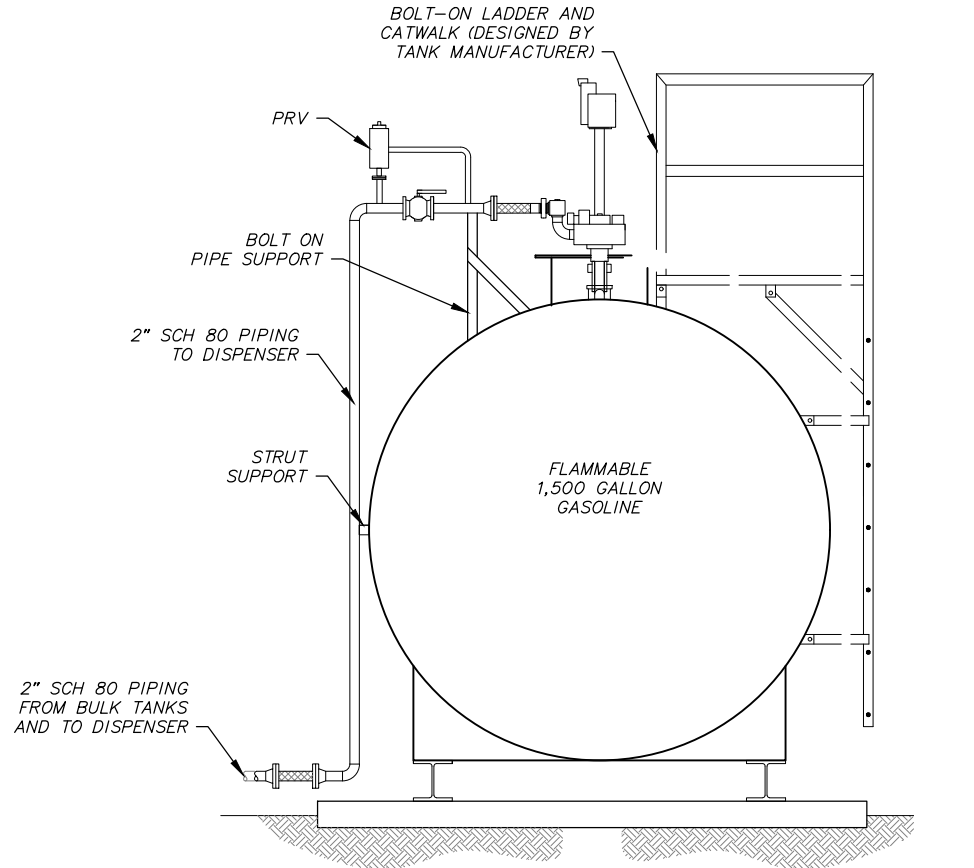
NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date	11/20/25
Designed	AMH
Drawn	CMK
Approved	AMH

File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Tanks.dwg Plot Date: 11/20/2025 11:07 AM

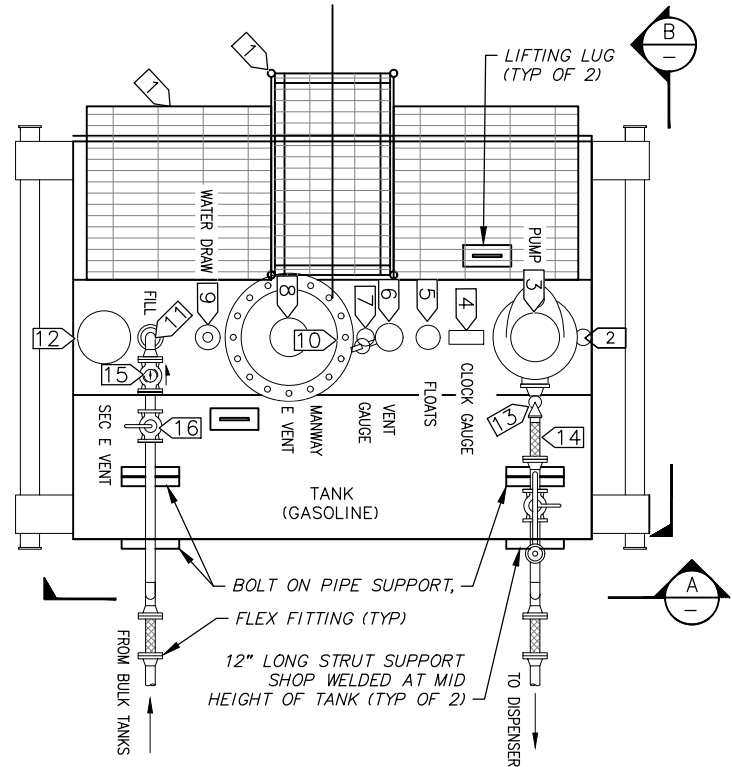
SPECIFIC NOTES:

- 1
- SHOP FABRICATED BOLT ON LADDER AND PLATFORM
- 2
- 2" FPT SECONDARY TANK MONITORING BUNG WITH MPT PLUG
- 3
- SUBMERSIBLE PUMP
- 4
- 2" CLOCK GAUGE INSTALLED ON 2"x18" NIPPLE. SET GREEN ARROW AT 50% LEVEL AND RED ARROW AT 90%
- 5
- 3" FLANGED 4-POSITION LEVEL SWITCH. SENSOR POSITIONS FACTORY SET AS SHOWN.
- 6
- 2" PRESSURE VACUUM VENT WITH WHISTLE ALARM. INSTALL ON 3" BUNG WITH 3X2 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.
- 7
- 2" FPT GAUGE HATCH INSTALLED ON 2"x4" LONG NIPPLE
- 8
- 8" FLANGED PRIMARY EMERGENCY VENT
- 9
- 1" THREADED WATER DRAW
- 10
- 20" MANHOLE
- 11
- 2" FILL w/ DROP TUBE
- 12
- 8" FLANGED SECONDARY EMERGENCY VENT
- 13
- ANTI-SIPHON VALVE
- 14
- 2"Ø X 12"L FLEXIBLE CONNECTOR (NPT x FLOAT FLG)
- 15
- 2" FLANGED CHECK VALVE
- 16
- 2" FLANGED BALL VALVE



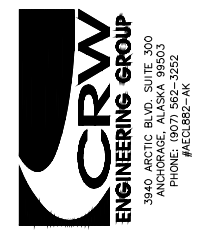
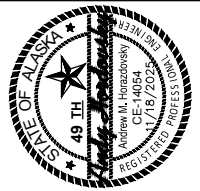
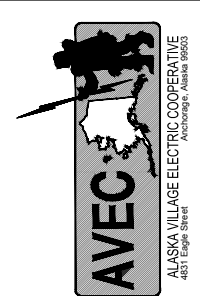
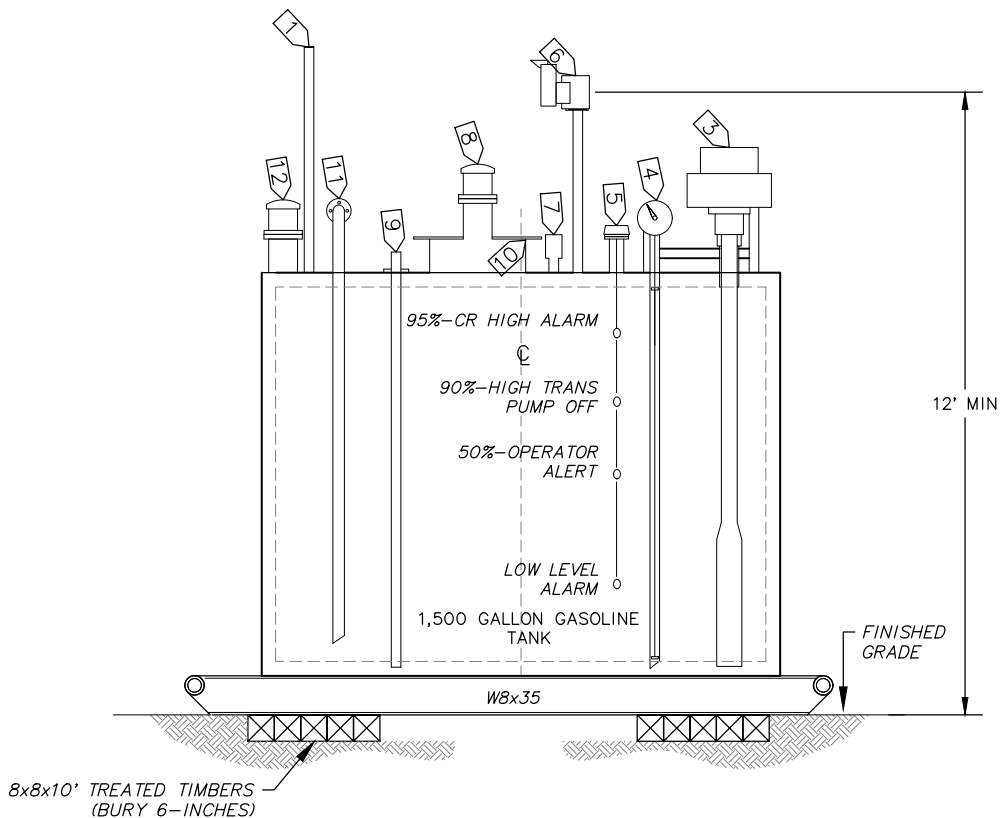
GENERAL NOTES:

- TANK SHALL BE A CONTRACTOR PROVIDED NEW, UL142 2085 LISTED AND LABELED, APPROXIMATE 5'Øx10' HORIZONTAL PROTECTED AST AS DETAILED. SUBMIT SHOP DRAWINGS FOR ENGINEER APPROVAL.
- SEE SPECIFICATIONS FOR DETAILED COMPONENT SPECIFICATIONS.
- PROVIDE UL APPROVED GROUNDING LUG ON TANK SKIDS (TYP 2, ON OPPOSITE CORNERS).
- FIELD WELDING ON TANKS IS PROHIBITED.



1,500 GALLON DUAL PRODUCT PROTECTED DISPENSING TANK

SCALE: NTS



SHAGELUK BULK FUEL UPGRADES
1,500 GALLON BIG WHEEL DISPENSING TANK
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

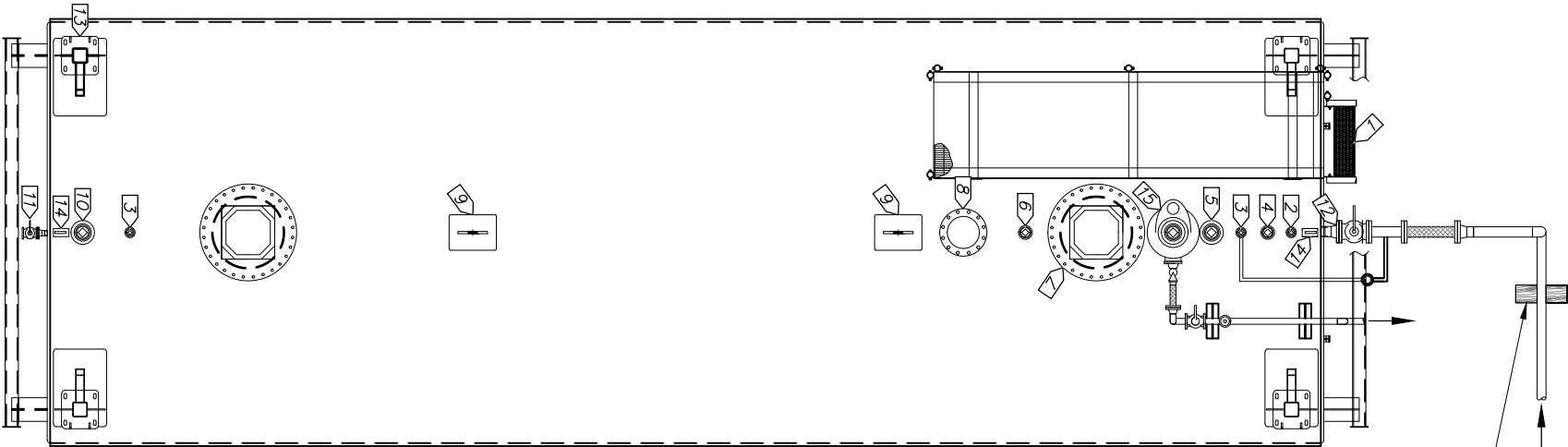
Plot Date	11/20/25
Designed	AMH
Drawn	CMK
Approved	AMH

Sheet No. C2.5

File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Tanks.dwg Plot Date: 11/20/2025 11:07 AM

SPECIFIC NOTES:

- 1
- SHOP FABRICATED BOLT ON ACCESS LADDER & CATWALK
- 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
- 5
- 4" NPT THREADED TANK OPENING – LEVEL SENSOR PROBE
- 6
- 3" NPT THREADED TANK OPENING – PRESSURE/VACUUM VENT WITH WHISTLE ALARM
- 7
- 24" FLANGED ACCESS HATCH WITH COVER
- 8
- 10" FLANGED PENETRATION – EMERGENCY VENT
- 9
- LIFTING LUG
- 10
- 4" NPT THREADED TANK OPENING – SPARE WITH PLUG
- 11
- 1" ANSI#300 R.F FLANGED TANK NOZZEL – WATER DRAW
- 12
- 3" FLANGED NOZZLE – FILL/DRAW
- 13
- INTEGRAL TANK STACKING SUPPORT, (TYP OF 4)
- 14
- PERSONNEL TIE OFF
- 15
- SUBMERSIBLE PUMP



TIMBER SUPPORTED PIPE

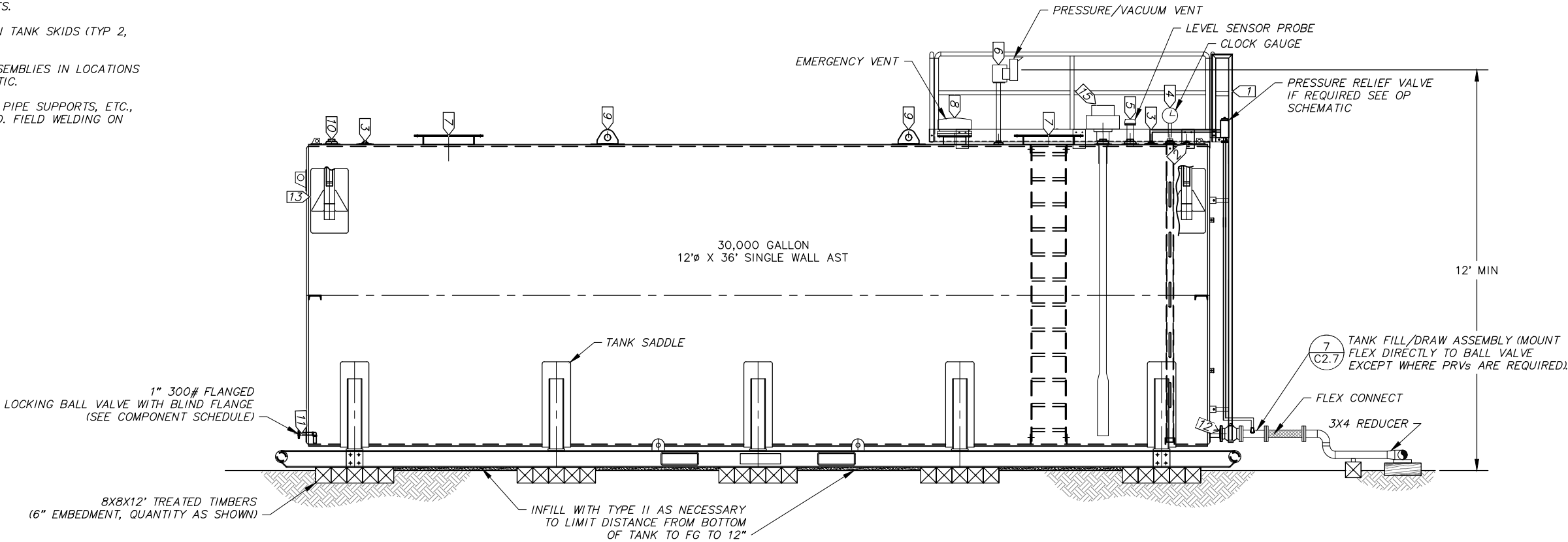
1
C4.4

NOTES:

1.
- 30,000 GALLON TANKS ARE **OWNER PROVIDED**. TANK IS A NOMINAL 30,000 GALLON 12'Øx36' UL 142 LISTED TANK. SEE SHOP DRAWINGS WITH FINAL DIMENSIONS, WEIGHT, LADDER CONFIGURATIONS, LOCATIONS OF TANK PENETRATIONS AND APPURTENANCES.
2.
- CONTRACTOR SHALL FURNISH AND INSTALL ALL VALVES, NORMAL VENTS, EMERGENCY VENTS, LEVEL GAUGES, SAMPLE HATCHES, FLOATS, PLUGS AND OTHER APPURTENANCES.
4.
- PROVIDE UL APPROVED GROUNDING LUG ON TANK SKIDS (TYP 2, OPPOSITE CORNERS).
5.
- INSTALL PRESSURE RELIEF VALVE (PRV) ASSEMBLIES IN LOCATIONS INDICATED ON PIPING PLAN & OP SCHEMATIC.
6.
- ALL REQUIRED PENETRATIONS, STANDOFFS, PIPE SUPPORTS, ETC., SHALL BE BOLT ON OR FACTORY INSTALLED. FIELD WELDING ON TANKS IS PROHIBITED.

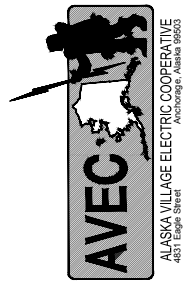
1
ULSD 30,000 GALLON SINGLE WALL TANK PLAN VIEW

SCALE: NTS



2
ULSD 30,000 GALLON SINGLE WALL TANK ELEVATION VIEW

SCALE: NTS



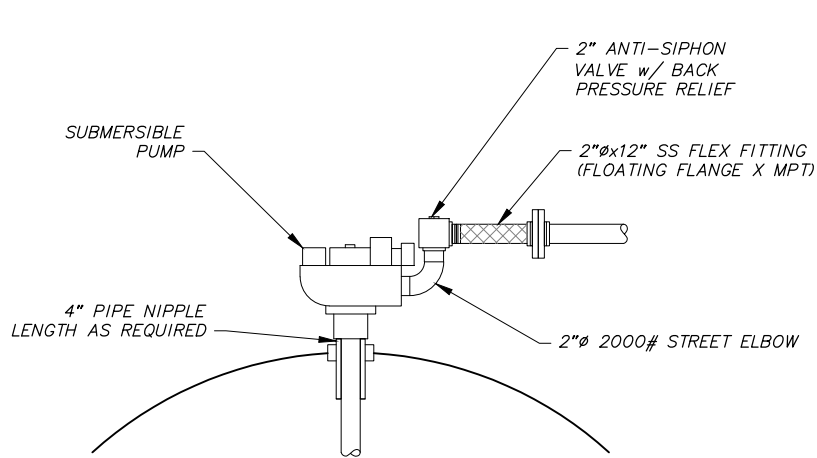
SHAGELUK BULK FUEL UPGRADES
ULSD 30,000 GALLON SINGLE WALL TANK
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

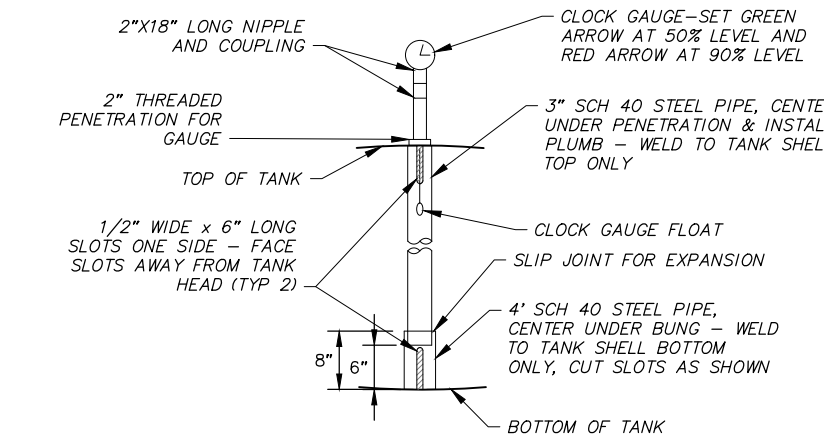
Plot: 11/20/25	Designed: AMH
Date: 11/20/25	Drawn: CMK
	Approved: AMH

Sheet No. C2.6

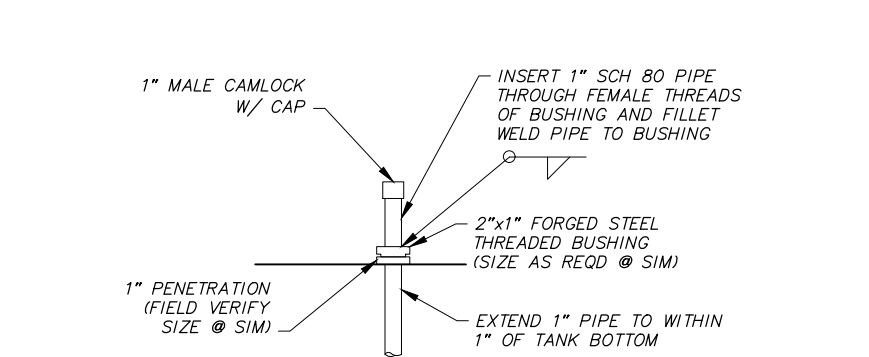
File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Tanks.dwg Plot Date: 11/20/2025 11:07 AM



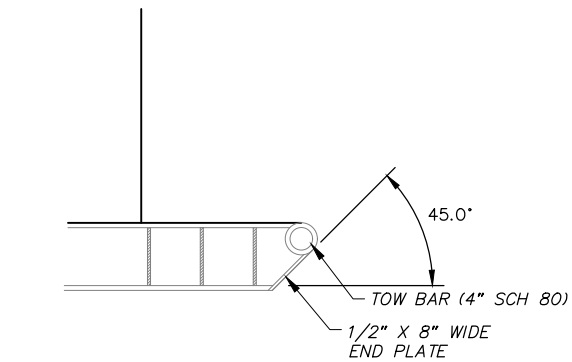
1 **SUBMERSIBLE PUMP ASSEMBLY**
SCALE: NTS



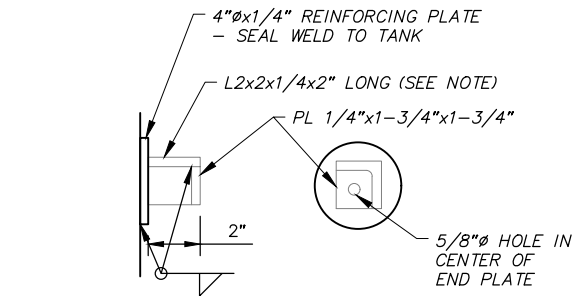
2 **CLOCK GAGE STILLING WELL**
SCALE:NTS



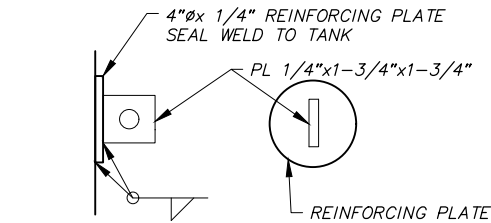
3 **TYP TOP MOUNTED WATER DRAW**
SCALE:NTS



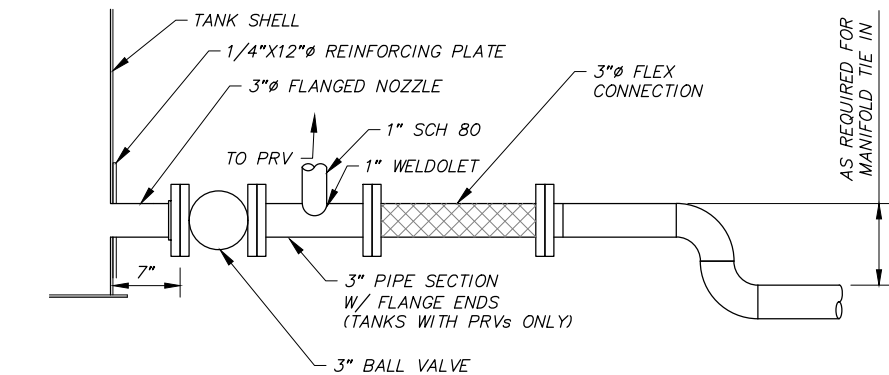
4 **END OF TANK SKID**
SCALE: NTS



5 **STRUT STAND OFF**
SCALE: NTS



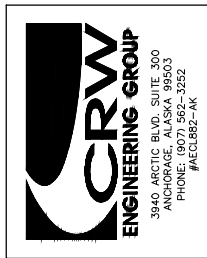
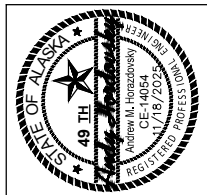
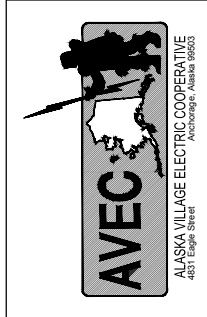
6 **LADDER STAND OFF**
SCALE: NTS



7 **TANK FILL/DRAW DETAIL**
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.



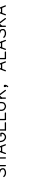
SHAGELUK BULK FUEL UPGRADES
MISCELLANEOUS TANK DETAILS
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25	Designed: AMH
Date: 11/20/25	Drawn: CMK
	Approved: AMH

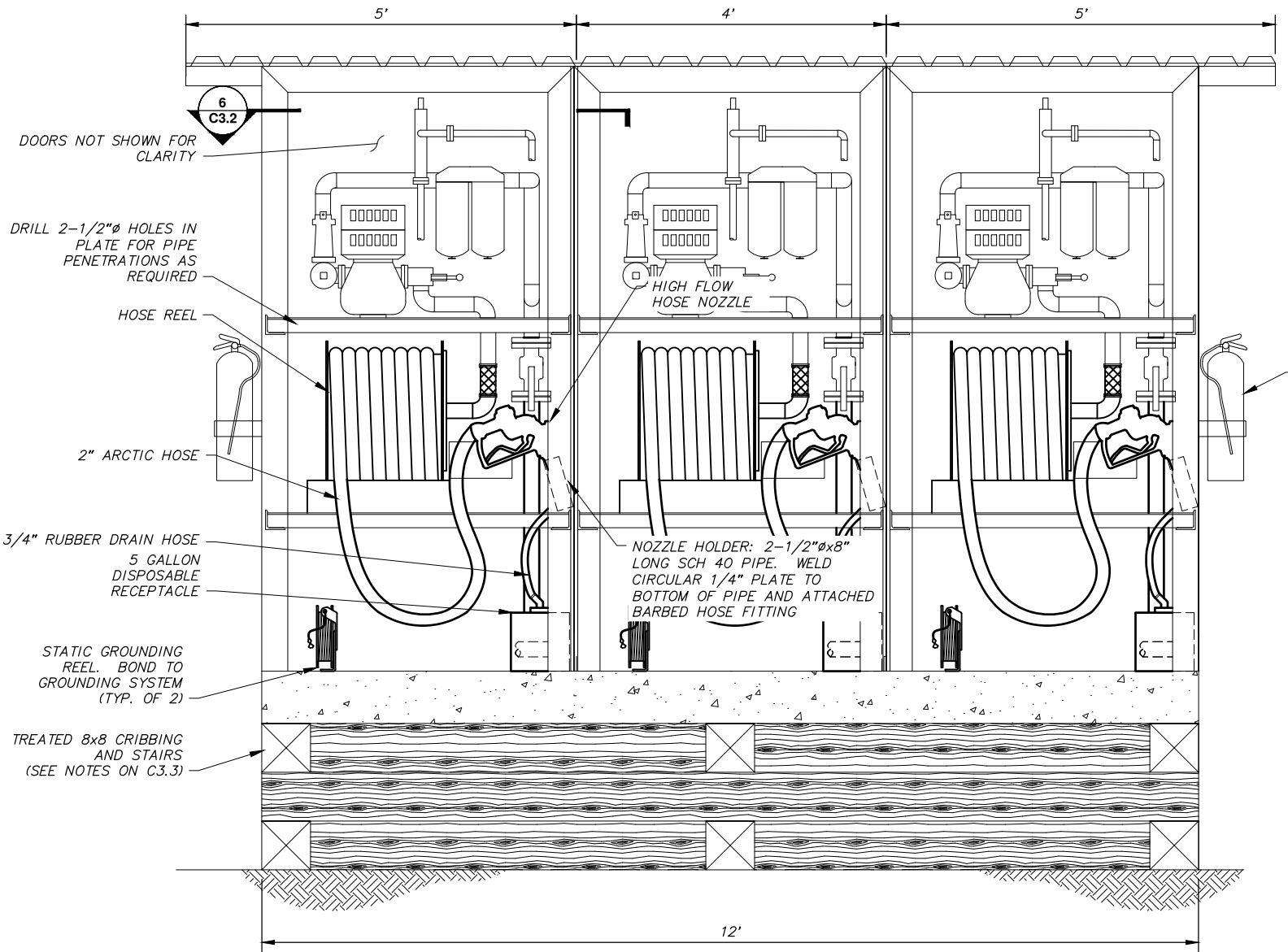


1. *TIMBER CRIBBING TO CONSIST OF 6X8 PRESSURE TREATED TIMBERS IN ACCORDANCE WITH THE SPECIFICATIONS. CUT ENDS TO BE TREATED WITH APPROVED PRESERVATIVE SOLUTION.*
2. *THOROUGHLY COMPACT AND LEVEL THE GROUND SURFACE WITHIN FOOTPRINT AREA OF TIMBER CRIBBING.*
3. *LAYOUT FIRST COURSE OF TIMBERS AND PIN 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.*



Plot Date	11/20/25
Designed	AMH
Drawn	CMK
Approved	AMH

File: J:\JobsData\30704.44 Shageluk BFD Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Dispenser.dwg Plot Date: 11/20/2025 11:08 AM

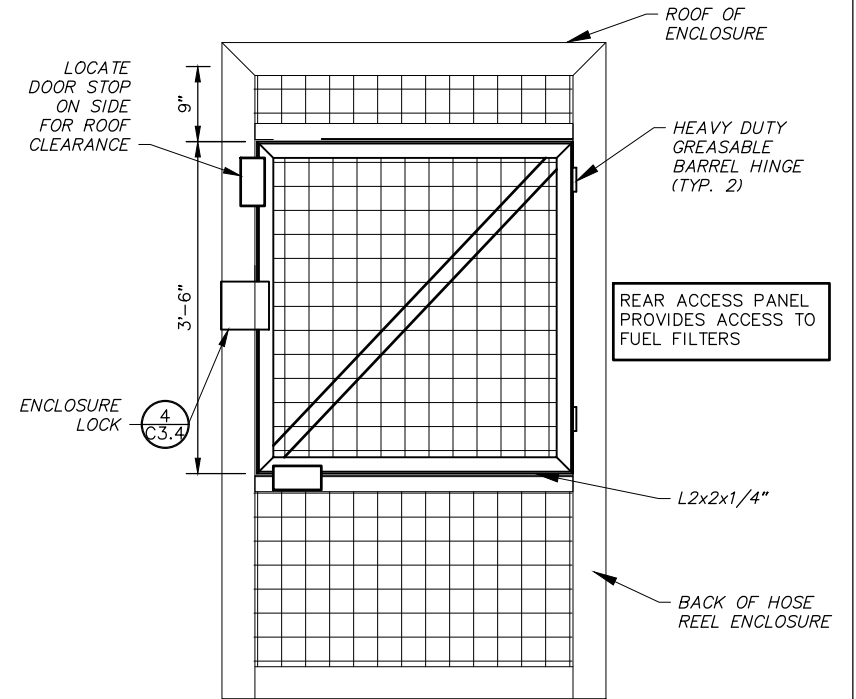


HOSE REEL ELEVATION VIEW

SCALE: NTS

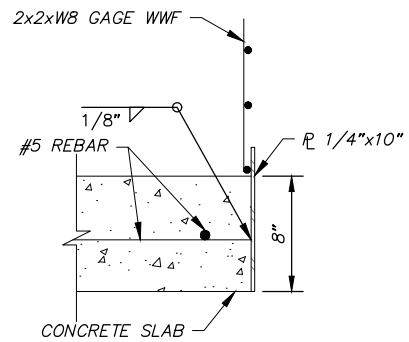
GENERAL NOTES:

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



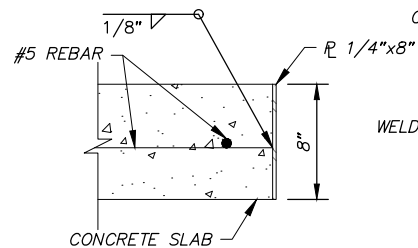
FILTER ACCESS PANEL

SCALE: NTS



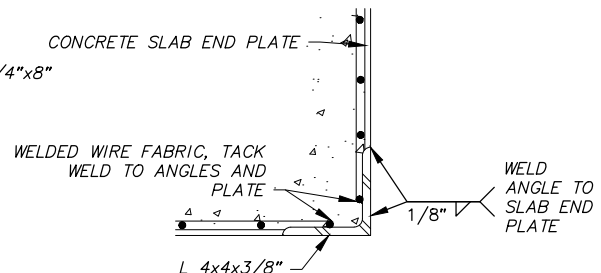
CONCRETE SLAB END SECTION

SCALE: NTS



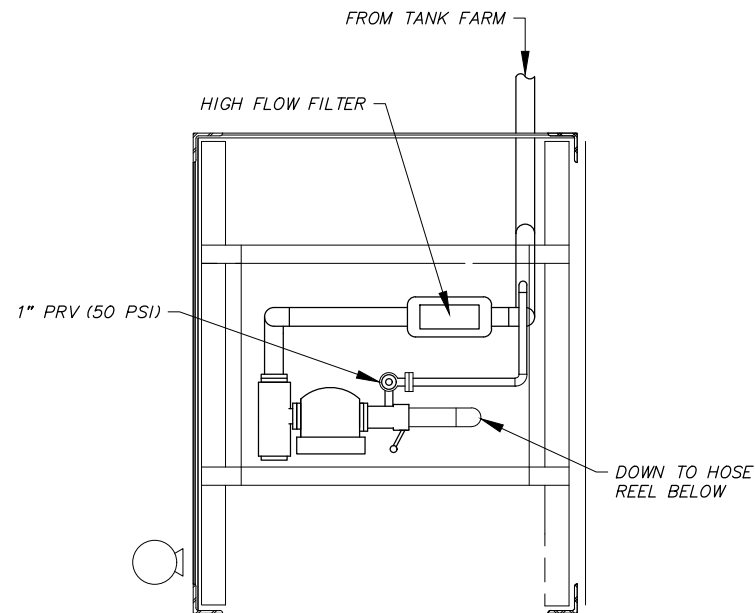
CONCRETE SLAB END SECTION

SCALE: NTS



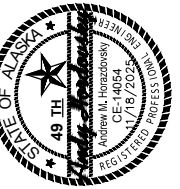
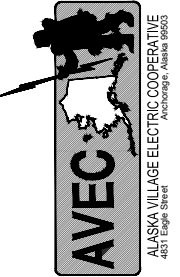
CORNER DETAIL AT SLAB

SCALE: NTS



HOSE REEL SYSTEM PLAN VIEW

SCALE: NTS



SHAGELUK BULK FUEL UPGRADES

HOSE REEL DETAILS

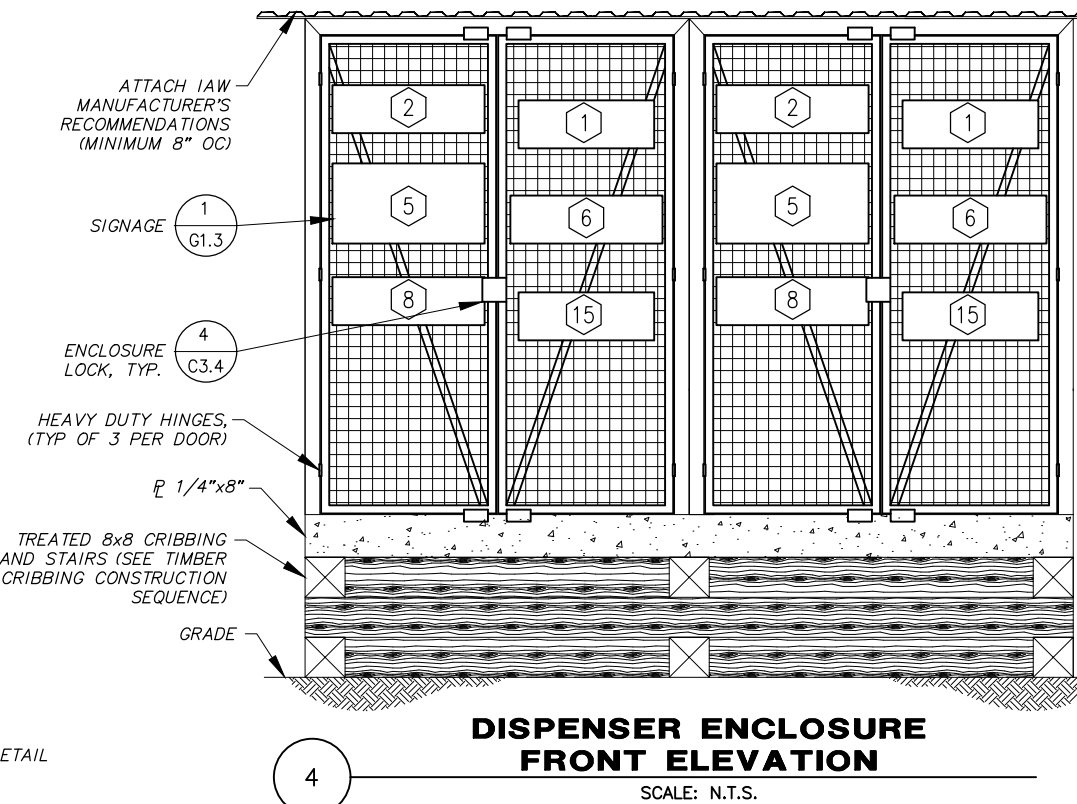
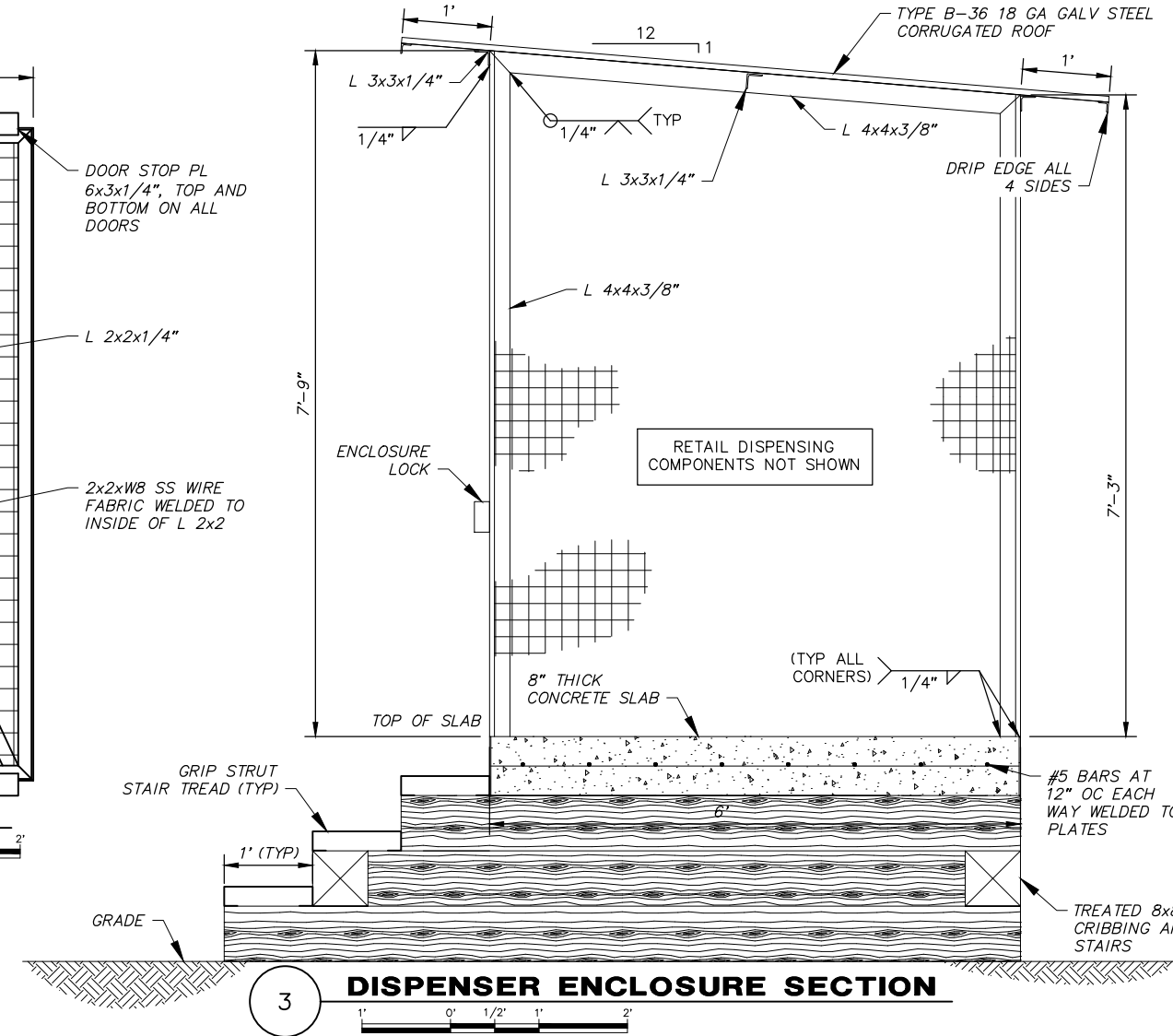
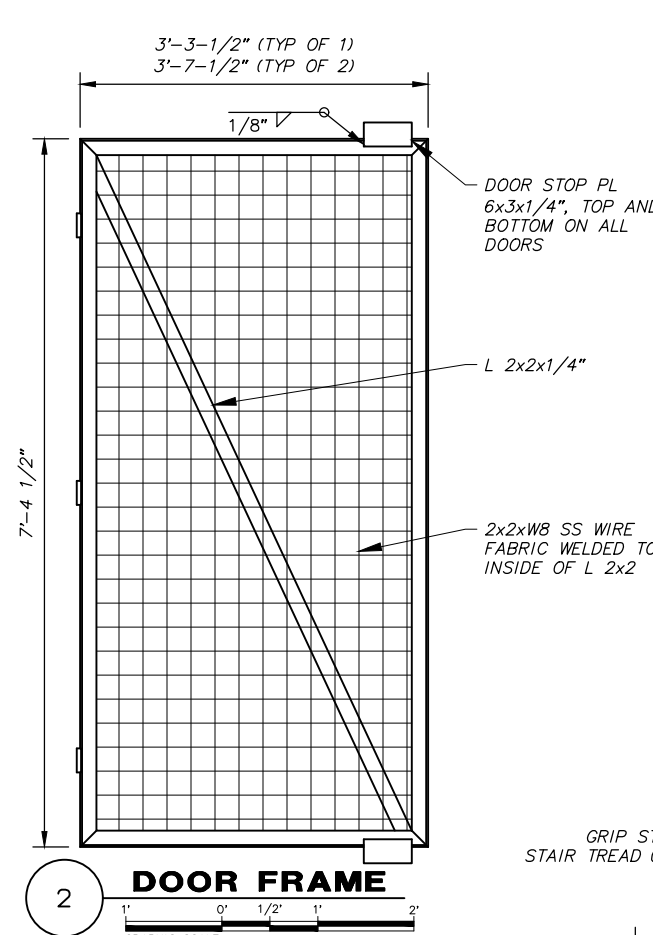
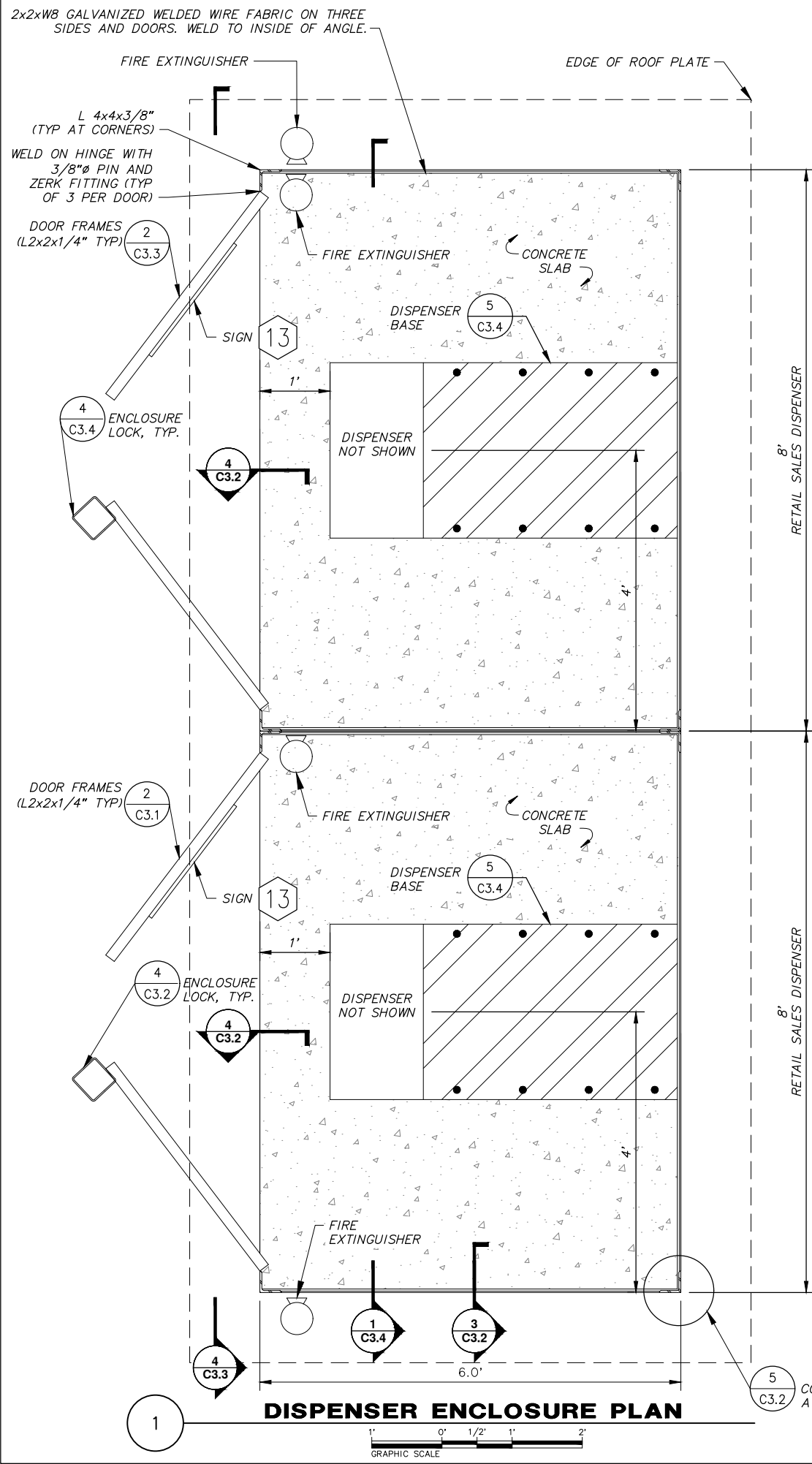
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date: 11/20/25	Designed: AMH
Drawn: CMK	Approved: AMH

Sheet No.

C3.2



- NOTES**
- ALL STEEL TO BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
 - THE DISPENSER ENCLOSURE CONTAINS 2 COMPLETE RETAIL DISPENSING SYSTEMS, ONE EACH FOR BIG WHEEL (GASOLINE ONLY) & CORPORATION (GASOLINE & DIESEL).
 - CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ENGINEER APPROVAL.
- TIMBER CRIBBING CONSTRUCTION SEQUENCE:**
- TIMBER CRIBBING TO CONSIST OF 8x8 PRESSURE TREATED TIMBERS IN ACCORDANCE WITH THE SPECIFICATIONS. CUT ENDS TO BE TREATED WITH APPROVED PRESERVATIVE SOLUTION.
 - THOROUGHLY COMPACT AND LEVEL THE GROUND SURFACE WITHIN FOOTPRINT AREA OF TIMBER CRIBBING.
 - LAYOUT FIRST COURSE OF TIMBERS AND PIN TO GROUND SURFACE BY DRIVING #5 X 4' LONG REBAR THROUGH PRE-DRILLED 3/8" Ø HOLES AT MAXIMUM 2'-FT SPACING.
 - 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.
 - INSTALL LAGS IN PRE-DRILLED HOLES AND COUNTERSINK ALL LAG HEADS.
 - PLACE WOVEN GEOTEXTILE ALONG INTERIOR SIDES AND BOTTOM OF CRIBBING AND BACKFILL WITH TYPE 1 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 VILLAGE ELECTRIC COOPERATIVE
4831 Edge Street
Anchorage, Alaska 99503





CRW
ENGINEERING GROUP
3640 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC062-AK

SHAGELUK BULK FUEL UPGRADES
RETAIL DISPENSER ENCLOSURE DETAILS

SHAGELUK, ALASKA

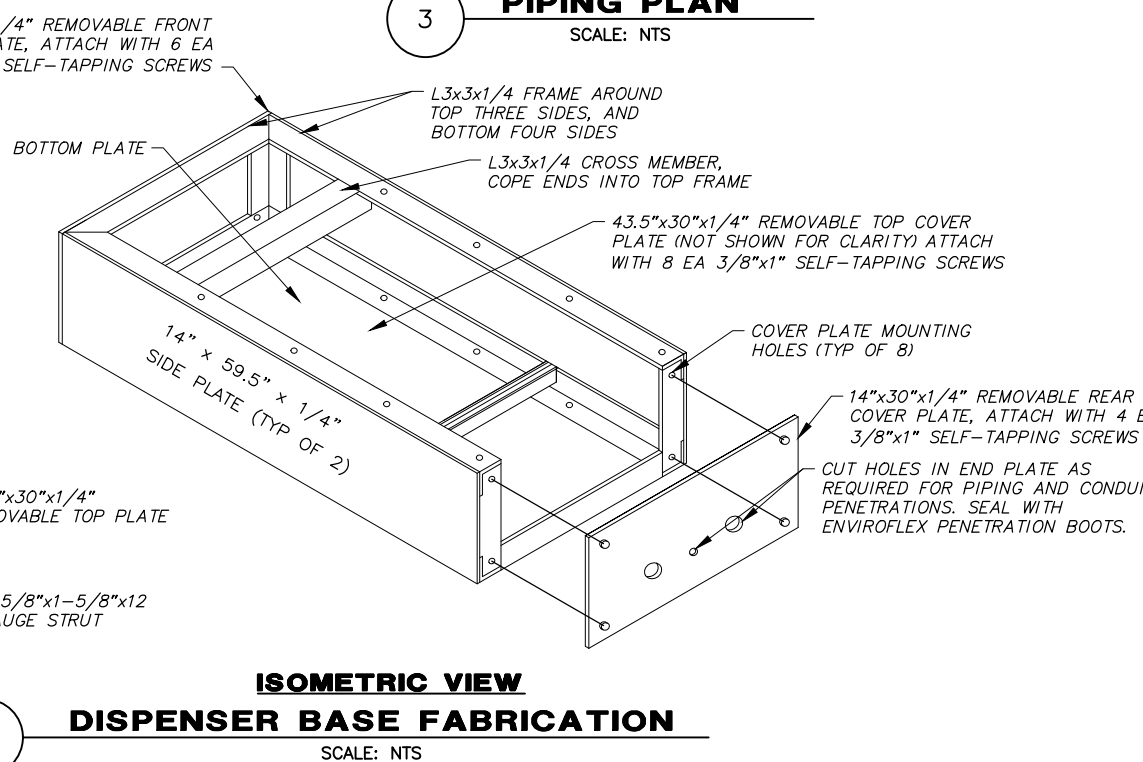
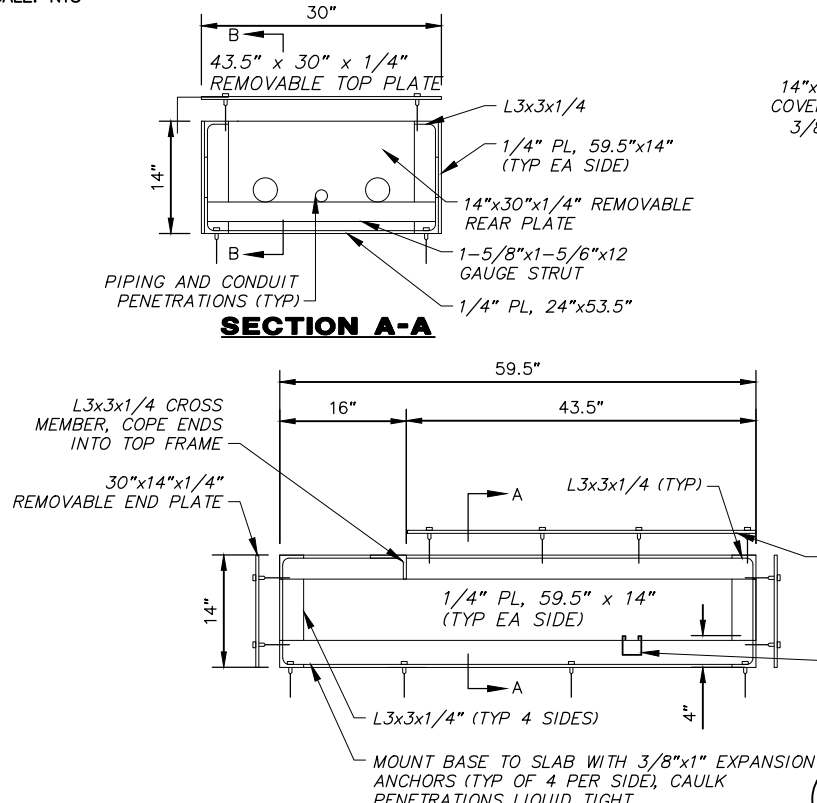
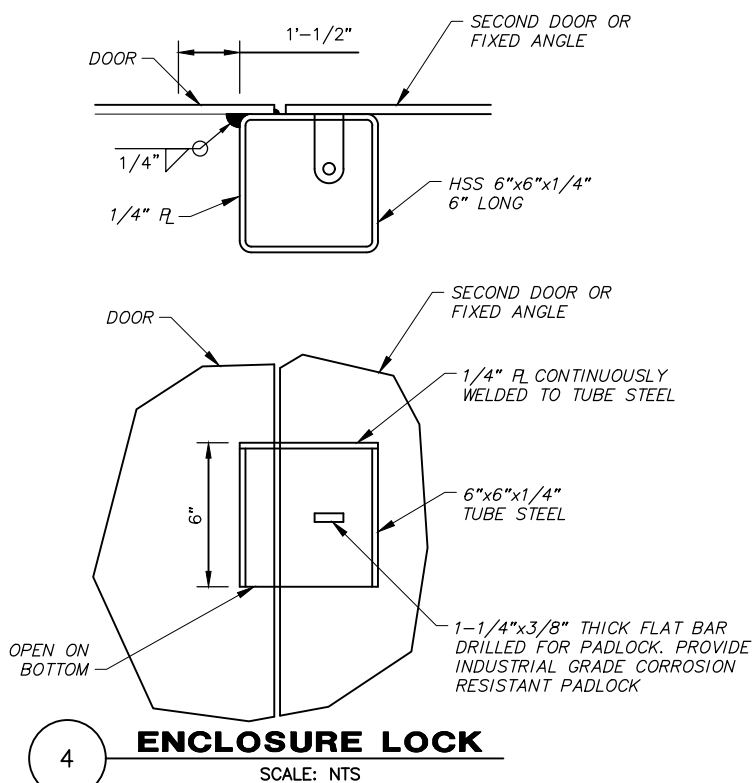
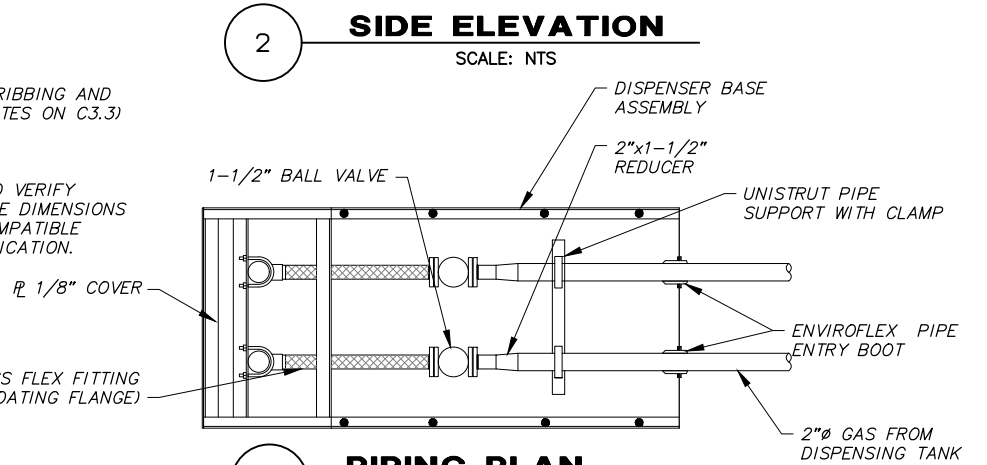
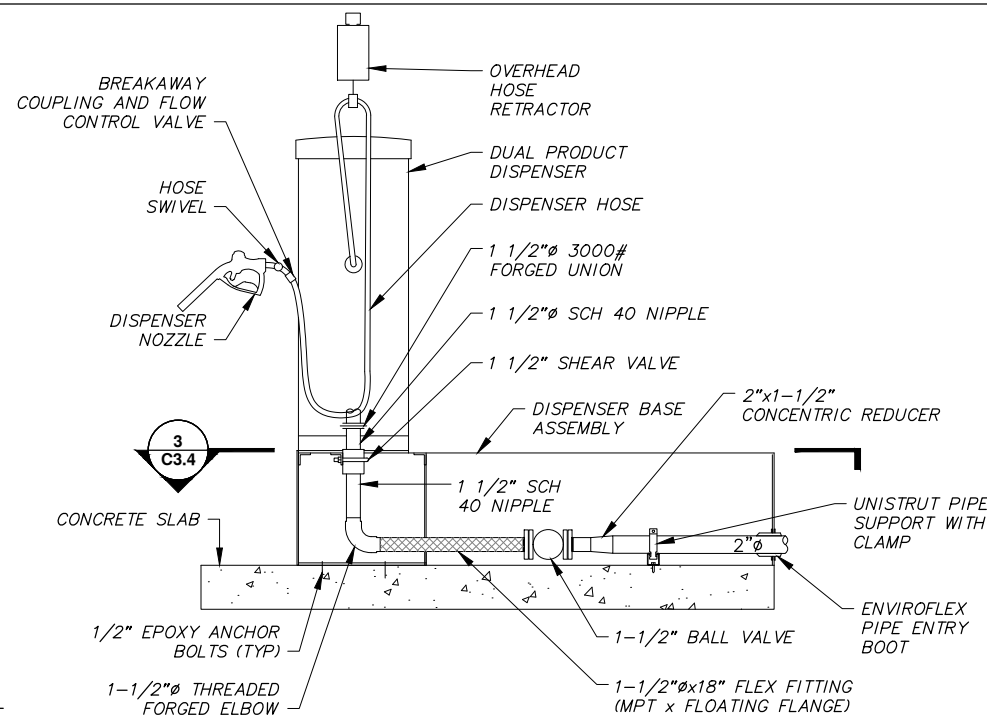
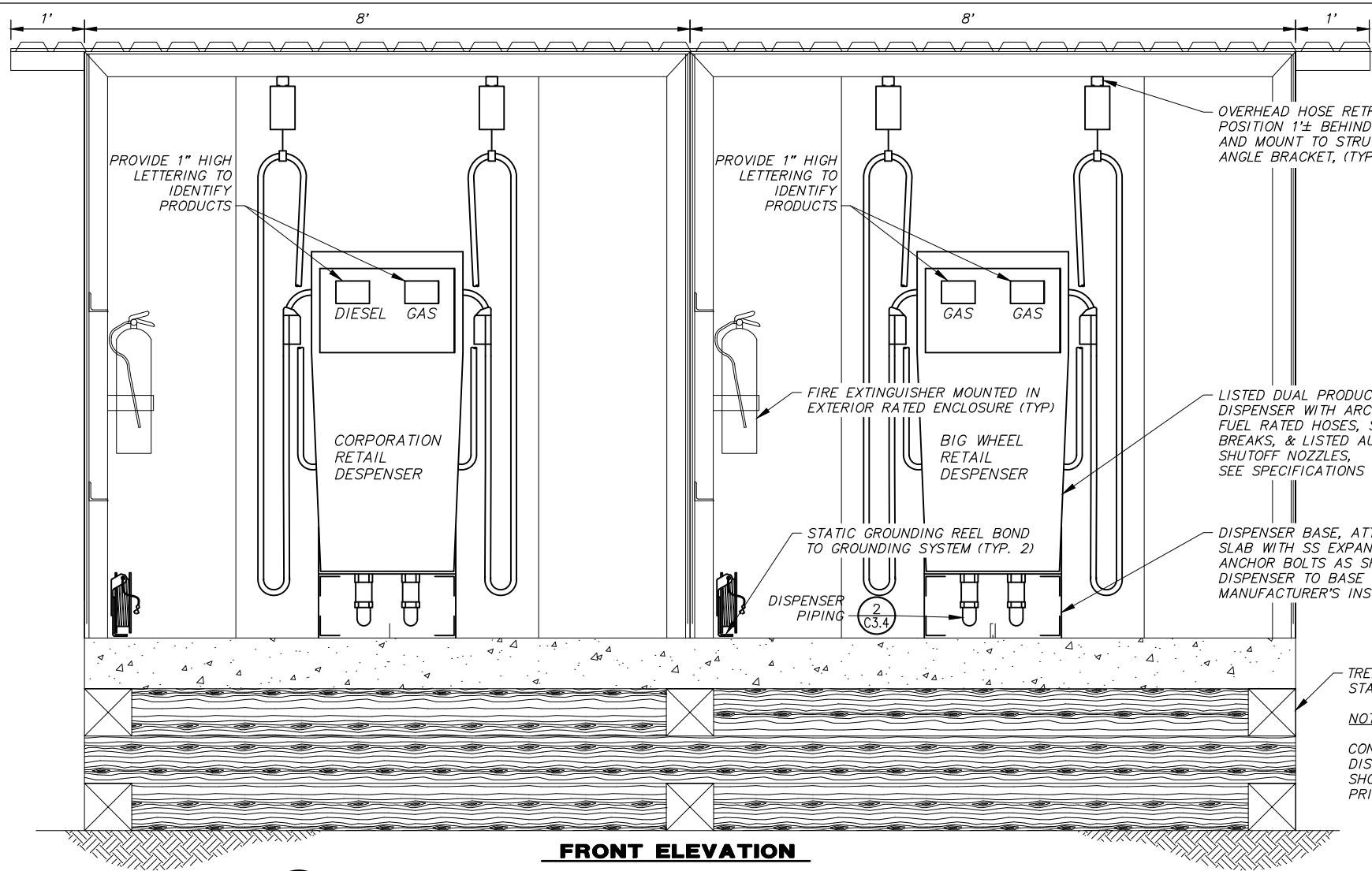
NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AMH	11/18/25

Plot: 11/20/25
Date: 11/20/25

Designed: AMH
Drawn: CMK
Approved: AMH

Sheet No. C3.3

File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Dispenser.dwg Plot Date: 11/20/2025 11:08 AM





ALASKA VILLAGE ELECTRIC COOPERATIVE
4831 Edge Street
Anchorage, Alaska 99503



STATE OF ALASKA
PROFESSIONAL ENGINEER
49 TH
Andrew M. Horzovskiy
CE-14054
1/18/2018
REGISTERED PROFESSIONAL ENGINEER



CRW
ENGINEERING GROUP
3640 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES
RETAIL DISPENSER DETAILS
SHAGELUK, ALASKA

NO.	REVISION	DATE	BY
A	ISSUED FOR BIDDING	11/18/25	AH

Plot: 11/20/25
Date: 11/20/25
Designed: AMH
Drawn: CMK
Approved: AMH

Sheet No. C3.4



SCALE: GRAPHIC

- FASTEN LINER SYSTEM TO TOP PLATE
IAW MANUFACTURER'S INSTRUCTIONS

BRACE (APPROX 4'-8 1/4" OC)

TOP OF DIKE

PRE-ENGINEERED CONTAINMENT
SYSTEM (SEE NOTES)

33" HIGH
CORRUGATED STEEL
WALL SHEET (TYP)

CONTAINMENT
INTERIOR

PERFORATED DRAIN BASIN
/w/GRATE (SEE NOTE 3)

4"Ø PERFORATED DRAIN
PIPE w/ SOCK

AS REQUIRED

STEEL DIKE LINER
COVER, SEE C4.2 (TYP)

TYPE II

SEE GRADING PLAN-

1.5% MIN
2.0% MAX

CROSS-TIE CABLE
(INSTALL IAW MANUFACTURER'S RECOMMENDATIONS)

IN-SITU SOILS

TYPE 1 GRAVEL FILL-

BASE OF
EXCAVATION

GEOMEMBRANE LINER SYSTEM

3-LAYERS:

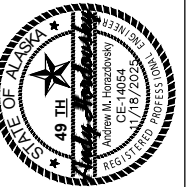
— NON-WOVEN GEOTEXTILE —
— PRIMARY MEMBRANE LINER —

- PRIMARY MEMBRANE LINER
- NON-WOVEN GEOTEXTILE

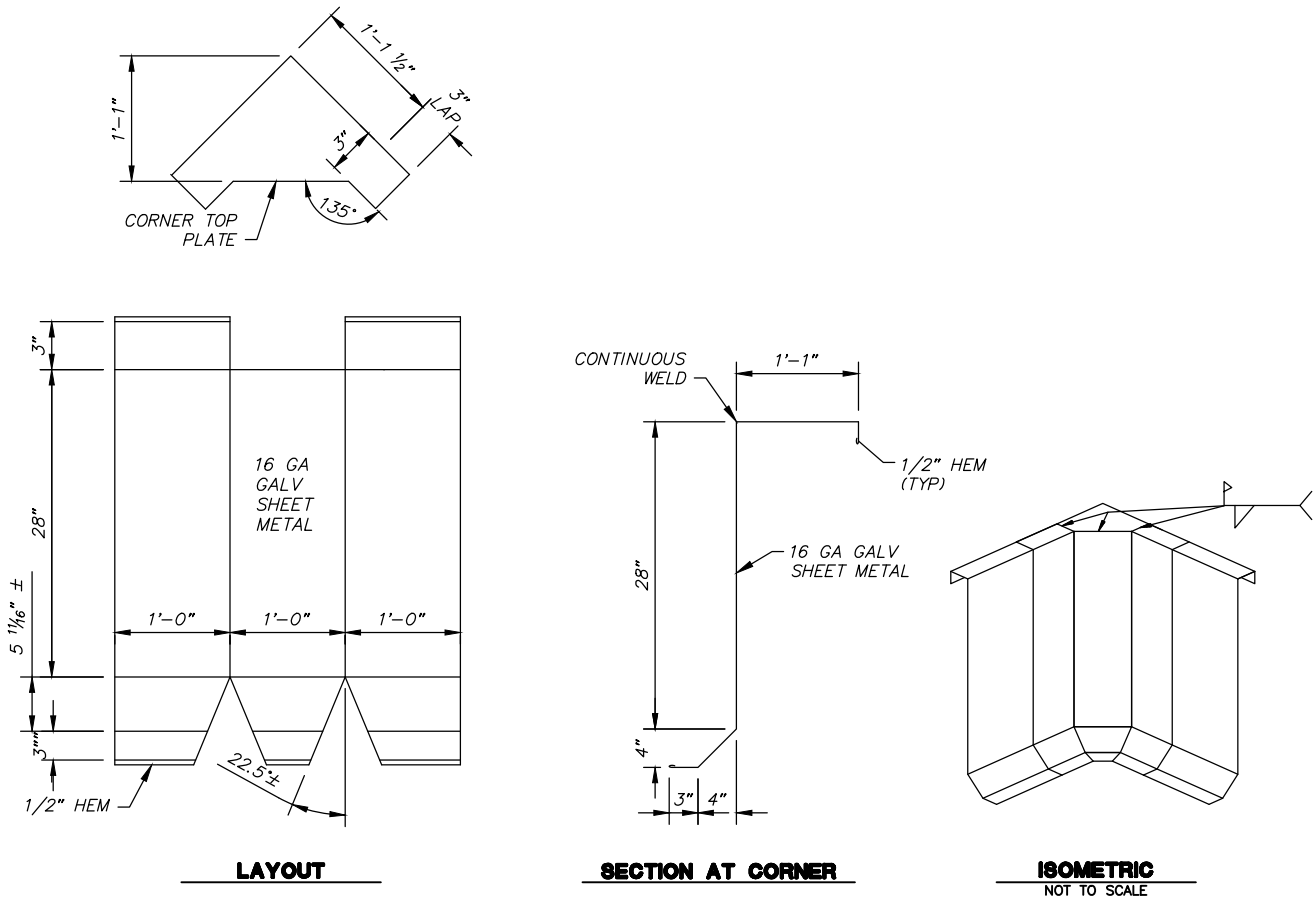
NON-WOVEN GLOVE/PAPEL

LOCATE SUMP BETWEEN CROSS-TIE
CABLES. DEPRESS CONTAINMENT LINER
TO ACCOMMODATE SUMP

SCALE: GRAPHIC



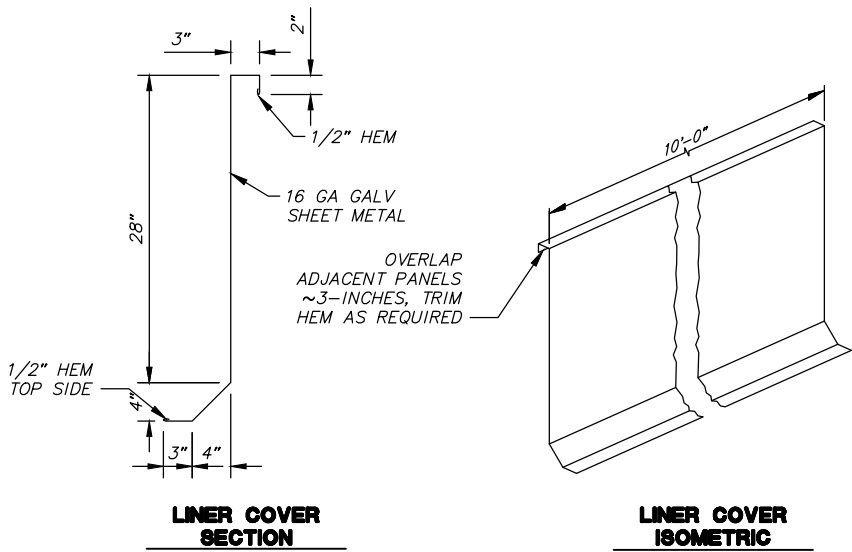
Plot Date 11/20/25
Designed AMH
Drawn CMK
Approved AMH



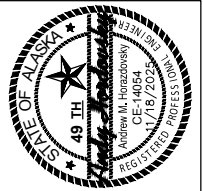
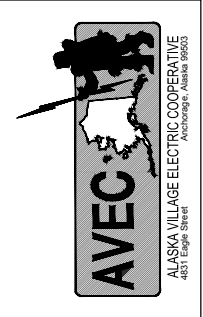
1 **LINER COVER CORNER DETAILS**
SCALE: NTS

NOTES

1. FABRICATE & INSTALL GALV STEEL DIKE LINER COVER AND FASTEN TO TOP OF PRE-ENGINEERED STEEL DIKE WALL.



2 **DIKE LINER COVER DETAILS**
SCALE: NTS



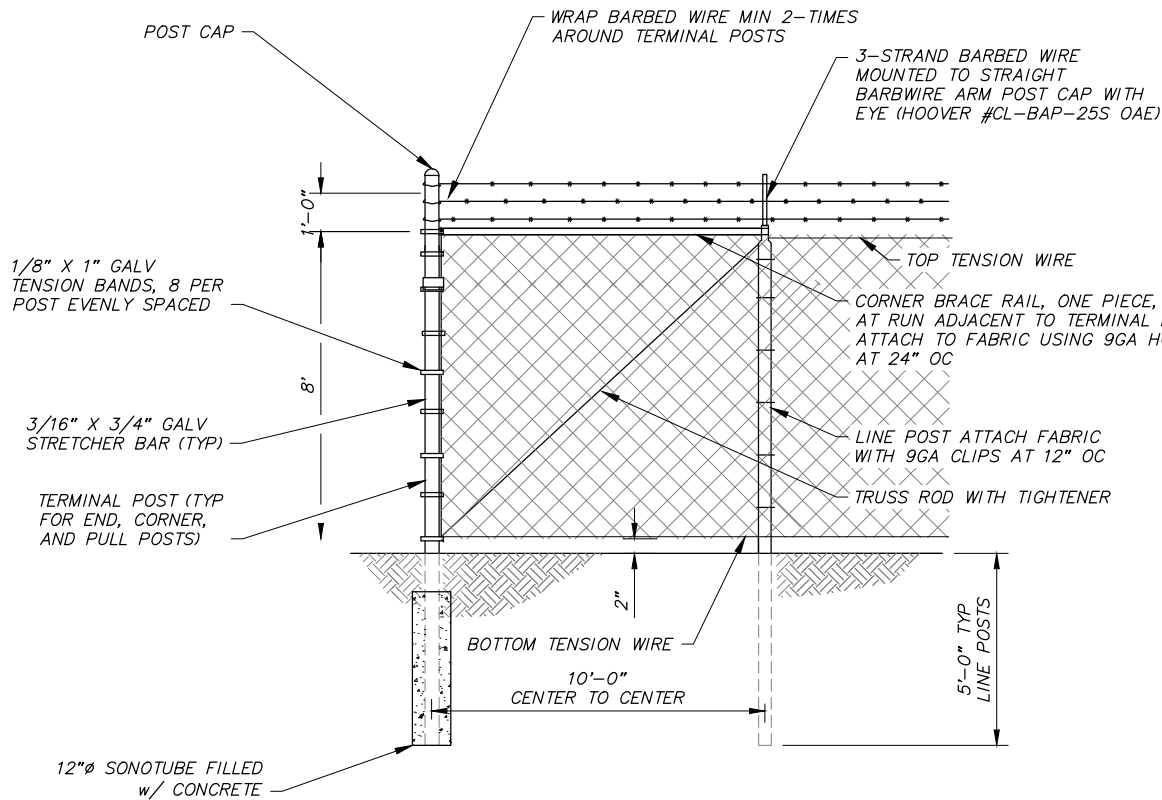
SHAGELUK BULK FUEL UPGRADES
DIKE DETAILS
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

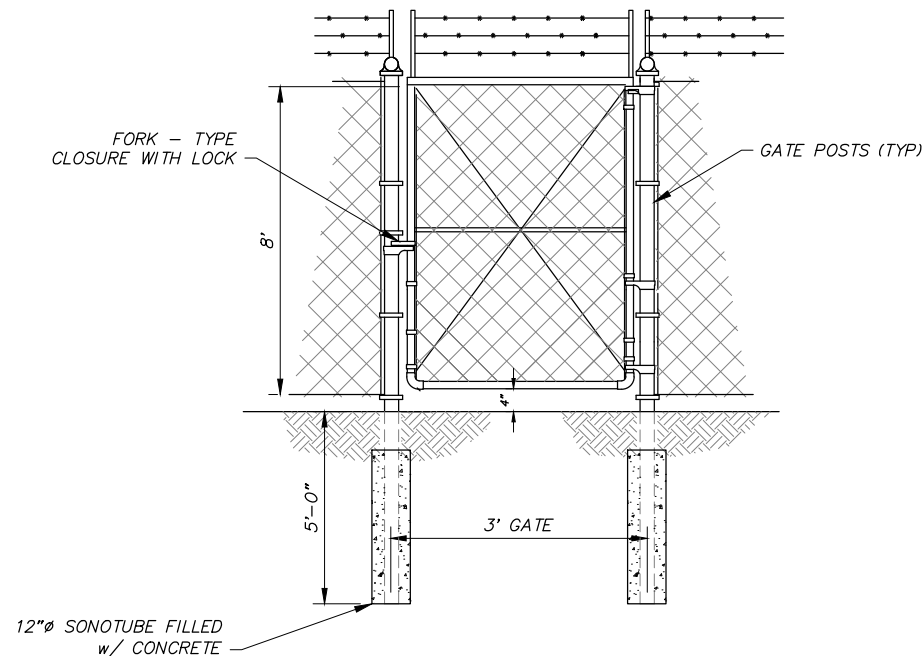
Plot Date	11/20/25
Designed	AMH
Drawn	CMK
Approved	AMH

Sheet No.	C4.2
-----------	------

File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Fenced.dwg Plot Date: 11/20/2025 11:29 AM



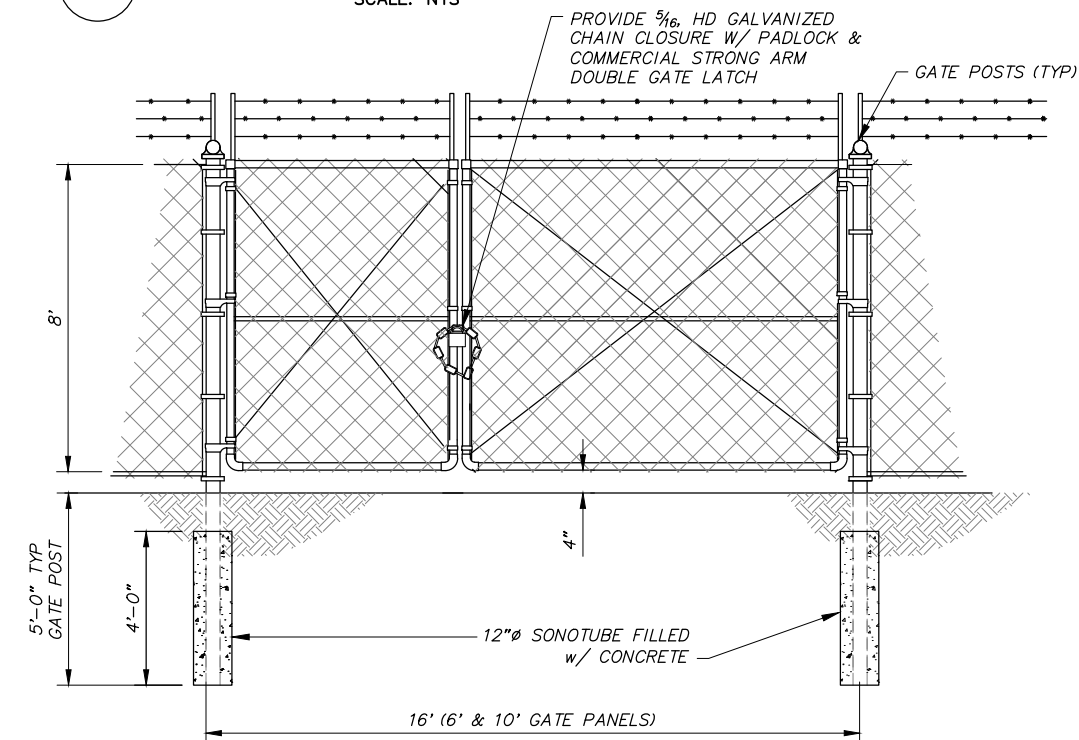
1 **FENCE DETAIL**
SCALE: NTS



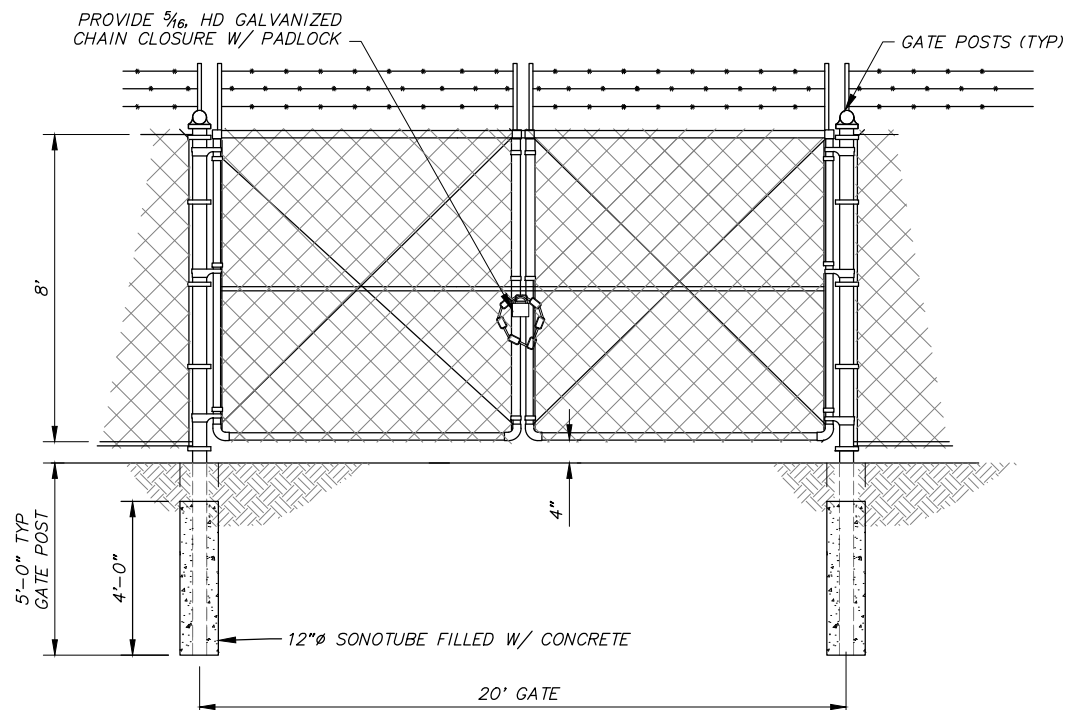
2 **MAN GATE DETAIL**
SCALE: NTS

FENCE NOTES:

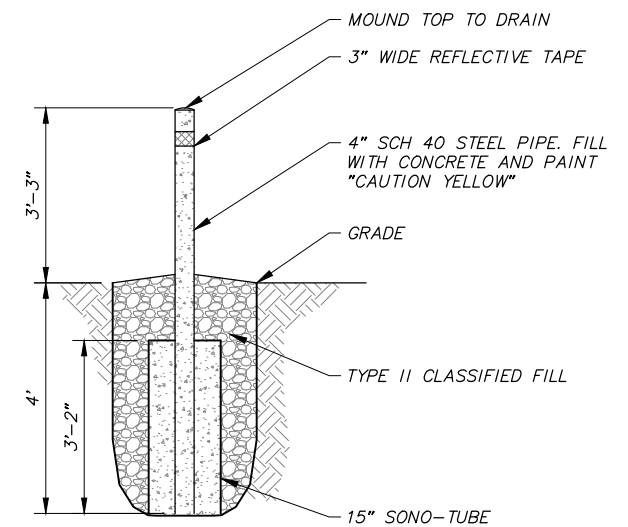
1. LINE POSTS MAY BE DRIVEN AT CONTRACTORS RISK IF APPROVED BY ENGINEER. CORNER POSTS SHALL BE BEDDED IN CONCRETE AS SHOWN.
2. GROUNDING: SEE ELECTRICAL AND AVEC STANDARD FENCE GROUNDING DETAILS.



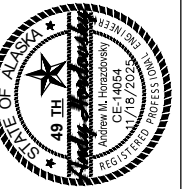
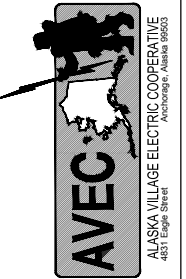
3 **16-FOOT DOUBLE SWING GATE DETAIL**
SCALE: NTS



4 **20-FOOT DOUBLE SWING GATE DETAIL**
SCALE: NTS



5 **BOLLARD DETAIL**
SCALE: NTS



SHAGELUK BULK FUEL UPGRADES

FENCE DETAILS

SHAGELUK, ALASKA

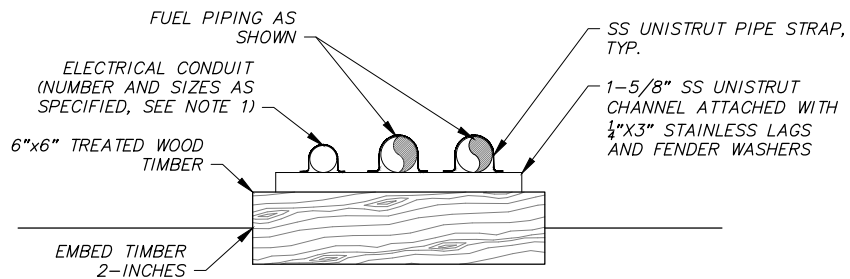
NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot: 11/20/25	Designed: AMH
Date: 11/20/25	Drawn: CMK
	Approved: AMH

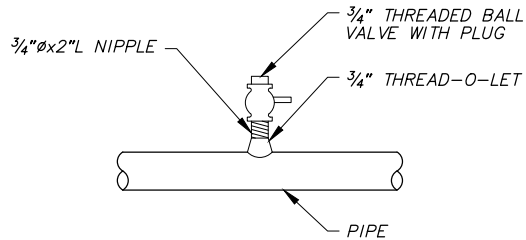
Sheet No.

C4.3

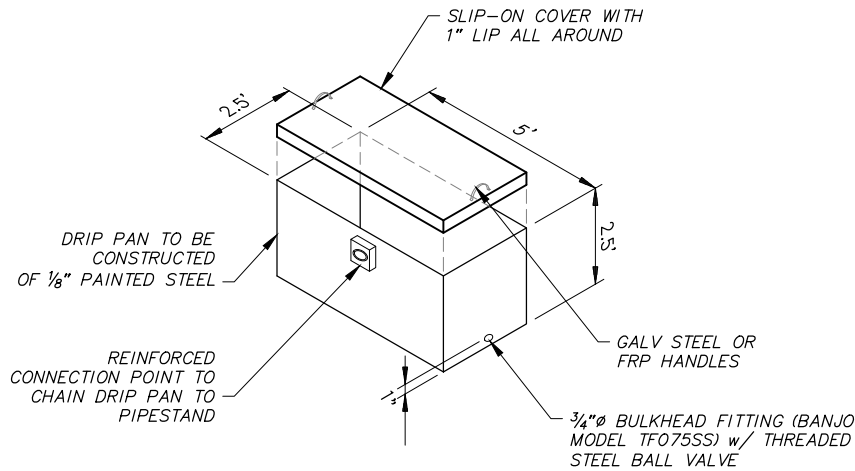
File: J:\Jobs\Bids\30704.44 Shageluk BFU Design\00 CAD\2019\01 Working Set\01 Civil\30704.44 Details-Piping.dwg Plot Date: 11/20/2025 11:09 AM



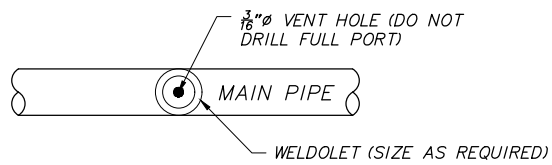
1 **TIMBER PIPE SUPPORT**
SCALE: NTS



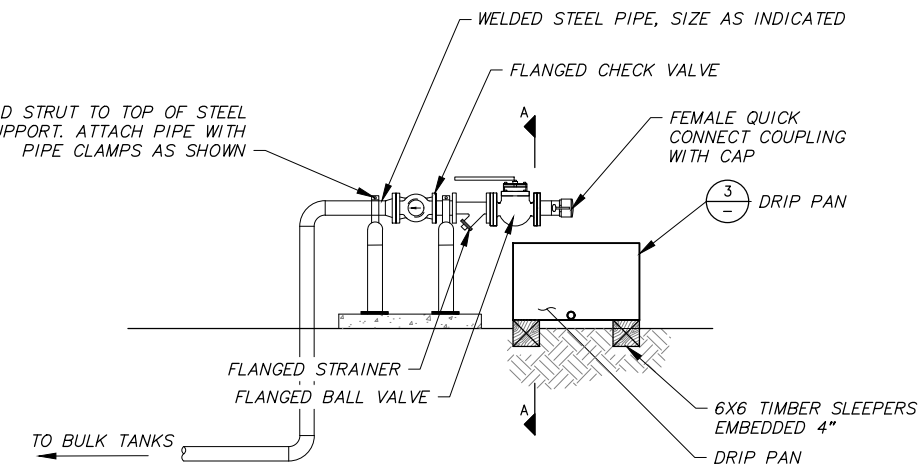
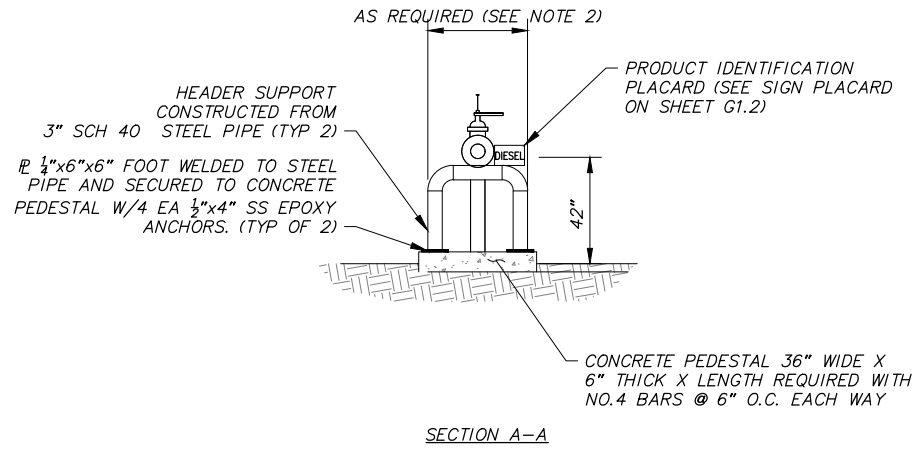
2 **PRESSURE TEST PORT**
SCALE: NTS



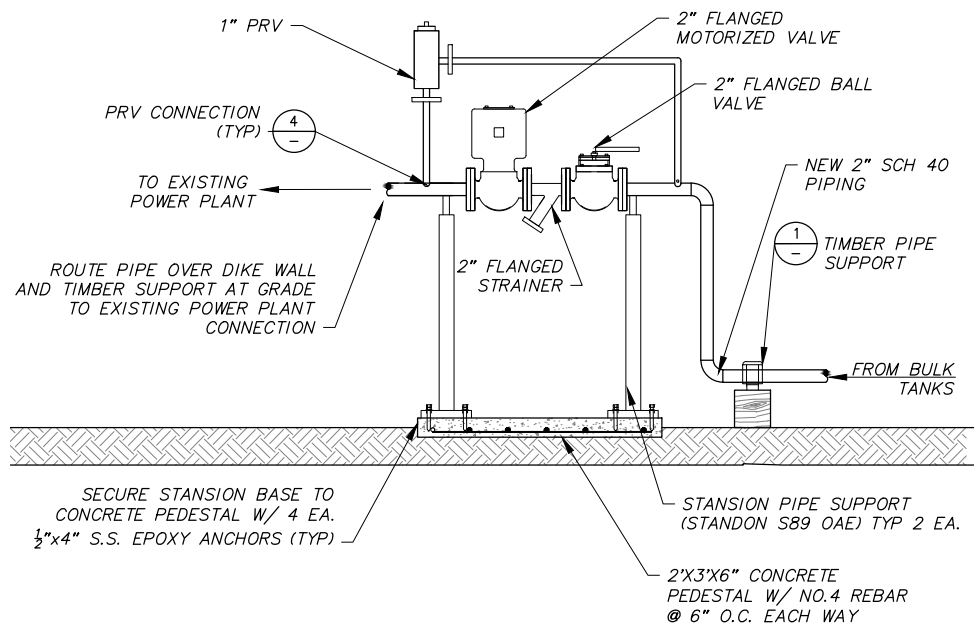
3 **DRIP PAN**
SCALE: NTS



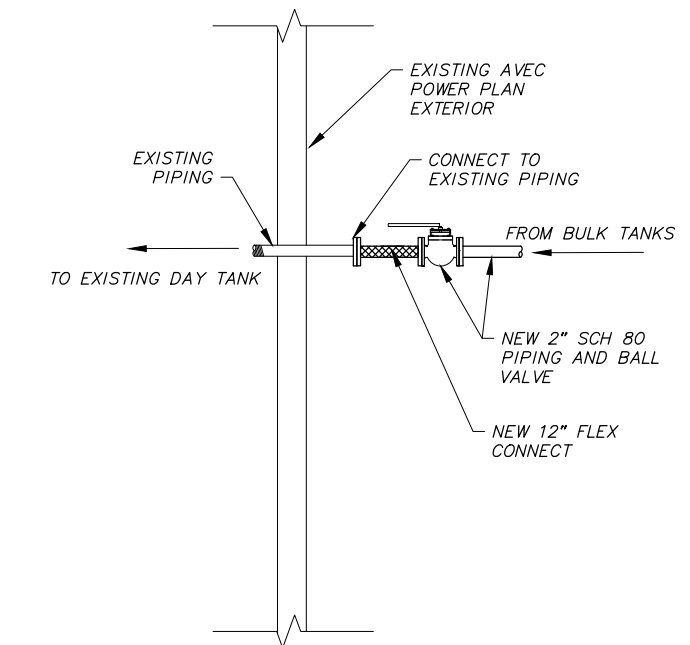
4 **PRV CONNECTION DETAIL**
SCALE: NTS



5 **BARGE HEADER (SEE NOTE 2)**
SCALE: NTS



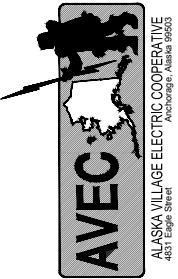
6 **AVEC MOTORIZED VALVE DETAIL**
SCALE: NTS



7 **TIE-IN AT EXISTING POWER PLANT**
SCALE: NTS

NOTES

- ROUTE ALL CONDUIT IN THE AVEC TANK FARM ABOVE THE TOP OF CONTAINMENT DIKE ELEVATION.
- AVEC SINGLE HEADER SHOWN. CO-LOCATED TRIPLE PRODUCT HEADER SIMILAR. FABRICATE ASSOCIATED SUPPORTS, STANDS AND DRIP PAN AS NECESSARY TO ACCOMMODATE.



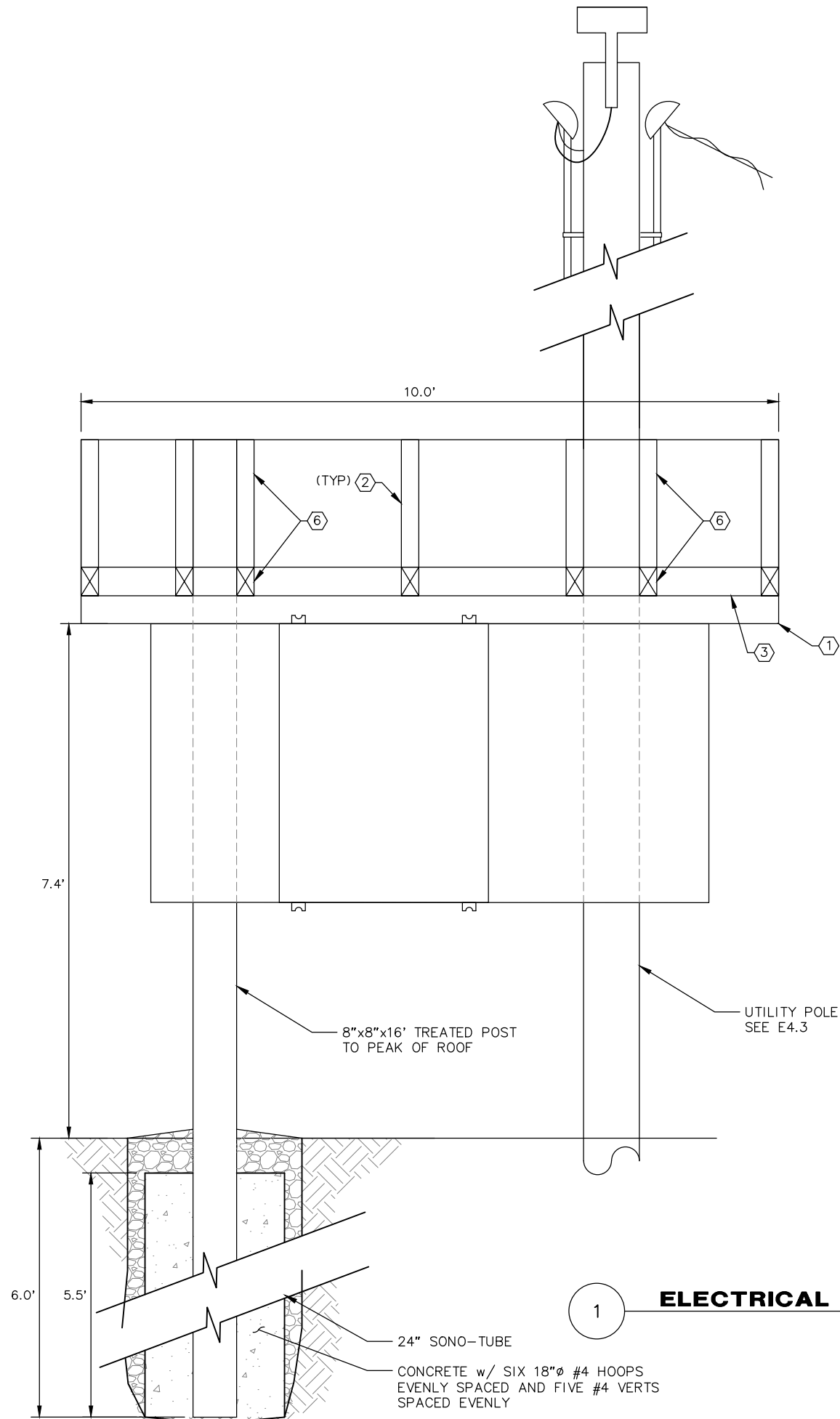
SHAGELUK BULK FUEL UPGRADES
PIPING DETAILS
SHAGELUK, ALASKA

NO.	REVISION	DATE	BY
A	ISSUED FOR BIDDING	11/18/25	AH

Plot Date	1/20/25
Designed	AMH
Drawn	CMK
Approved	AMH

Sheet No. **C4.4**

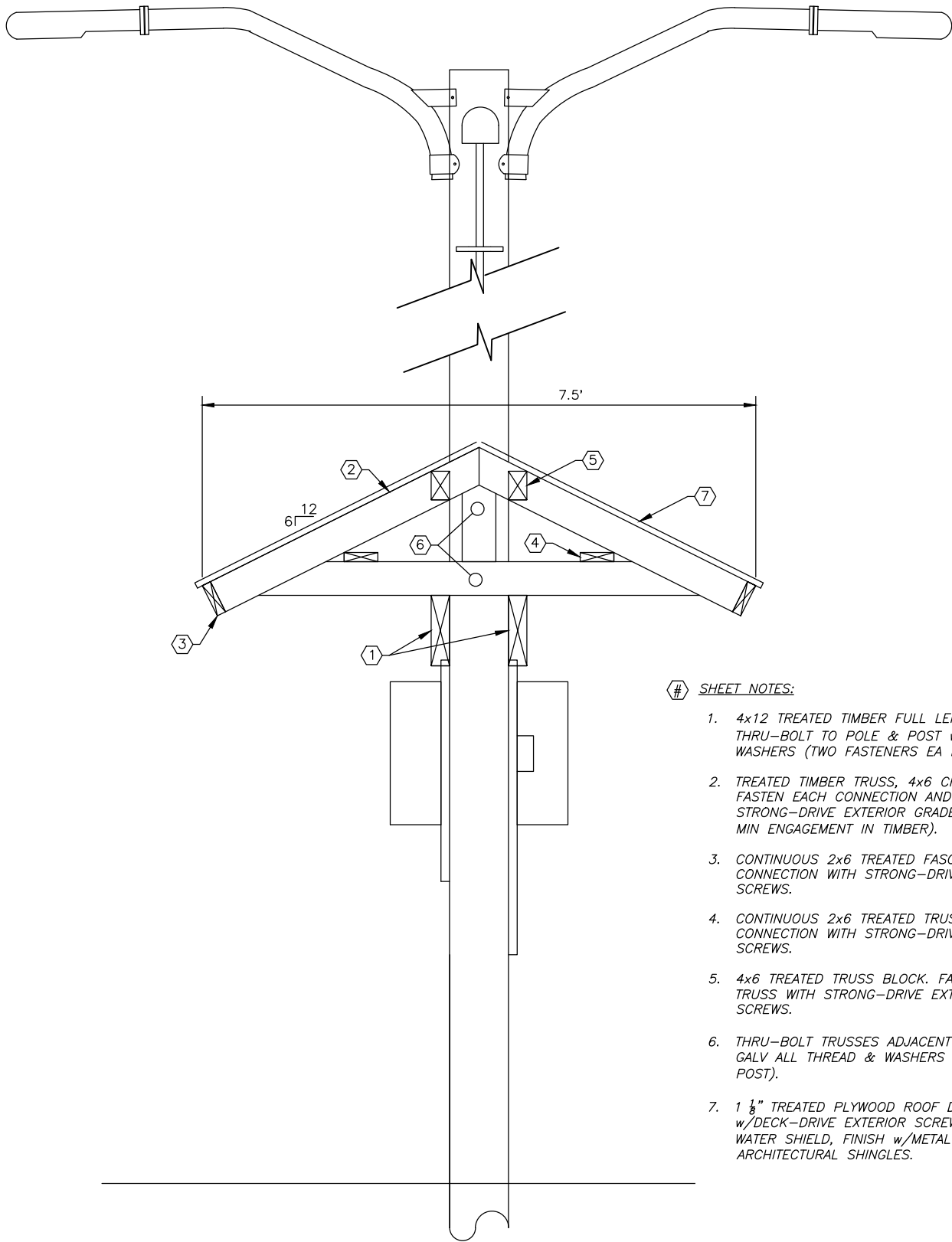
File: J:\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\01 Civil\30704.44 Details-Piping.dwg Plot Date: 11/20/2025 11:09 AM



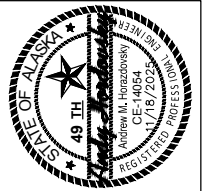
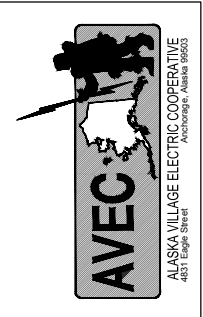
1

ELECTRICAL PANEL ROOF & POST FOUNDATION

SCALE: NTS



- # SHEET NOTES:
1. 4x12 TREATED TIMBER FULL LENGTH OF CANOPY, THRU-BOLT TO POLE & POST w/ 3/4" GALV ALL THREAD & WASHERS (TWO FASTENERS EA POST).
 2. TREATED TIMBER TRUSS, 4x6 CHORDS & KING POST. FASTEN EACH CONNECTION AND TO 4x12 BEAMS WITH STRONG-DRIVE EXTERIOR GRADE TIMBER SCREWS (2.5" MIN ENGAGEMENT IN TIMBER).
 3. CONTINUOUS 2x6 TREATED FASCIA. FASTEN EACH CONNECTION WITH STRONG-DRIVE EXTERIOR GRADE TIMBER SCREWS.
 4. CONTINUOUS 2x6 TREATED TRUSS BRACE. FASTEN EACH CONNECTION WITH STRONG-DRIVE EXTERIOR GRADE TIMBER SCREWS.
 5. 4x6 TREATED TRUSS BLOCK. FASTEN TO POLE/POST & TRUSS WITH STRONG-DRIVE EXTERIOR GRADE TIMBER SCREWS.
 6. THRU-BOLT TRUSSES ADJACENT TO POLE/POST w/ 3/4" GALV ALL THREAD & WASHERS (TWO FASTENERS EA POST).
 7. 1 1/2" TREATED PLYWOOD ROOF DECK, FASTEN w/DECK-DRIVE EXTERIOR SCREWS. COVER WITH ICE & WATER SHIELD, FINISH w/METAL FLASHING AND ARCHITECTURAL SHINGLES.



SHAGELUK BULK FUEL UPGRADES
ELECTRICAL PANEL CANOPY
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	AH	11/18/25

Plot Date	11/20/25
Designed	AMH
Drawn	CMK
Approved	AMH

Sheet No. C4.5

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Legend And Specs.dwg

LEGEND

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

FIXTURE SCHEDULE				
SYMBOL	LAMP SIZE	MOUNTING	DESCRIPTION	MANUFACTURER
	54W LED	35’ CLASS 5 POLE	TANK FARM POLE MOUNTED LIGHT, 54W LED WITH 2’ MOUNTING ARM, –40F RATED, AND PHOTOCCELL	WESCO – PHILIPS STREETLIGHT: PN#RFS54W16LED4KG2R3MUNVDMGRCD7GY3 AVEC PN#593–0669 LITHONIA CANTILEVER ARM: PN#SMAWT14US2–5GALV AVEC PN#593–0464
	25W LED	SURFACE MOUNT	VAPORTITE L.E.D AREA LIGHT SURFACE MOUNT. CLASS 1, DIV. 2.	CROUSE HINDS: V2LCA3/UNV1 WITH J–BOX VXFT20

GROUNDING PLAN LEGEND			
SYMBOL	ITEM	ITEM DESCRIPTION	NOTES
	GROUND ROD	3/4”Ø x 10’ LENGTH	—
	BOND TO GROUND	—	—
	NEW FENCE	CHAINLINK	—
	EXISTING FENCE	CHAINLINK	—
	FENCE POST BOND	PIPE CLAMP	—
	SURFACE GROUNDING CONDUCTOR	#2/0 AWG B.C., UON	BURY 30” BELOW GRADE, UON
	BURIED GROUNDING CONDUCTOR	#2/0 AWG B.C., UON	BURY 30” BELOW GRADE, UON

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISH FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
AVEC	ALASKA VILLAGE ELECTRIC COOPERATIVE
B.C.	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
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT–AMPERES
WP	WEATHER PROOF
XFMR	TRANSFORMER

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

ELECTRICAL EQUIPMENT SCHEDULE		
ITEM NO.	DESCRIPTION	MANUFACTURER
	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 MIN.	ALLEN BRADLEY 800T–FX6D4 WITH 800T–1TZ ENCLOSURE & 800T–N247R HEAD
	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
	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
	LOCKABLE SWITCH. 4, 7, 9 EXPLOSION PROOF CONSTRUCTION WITH 3/4” FEED THRU HUB, 4PST, 250V, 20A.	KILLARK
	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.
	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.
	LIQUID LEVEL MONITOR SYSTEM FOR AVEC DIESEL TANKS. PROVIDE INSTRUMENTS FOR EACH TANK AS REQUIRED. INSTALL AND CONNECT MONITOR PANEL IN DAY TANK ROOM PER OPERATORS DIRECTION.	PANEL: FRANKLIN FUEL, SYSTEM EVO550, PROBE: FRANKLIN FMP–LL3–137–1, PROBE: INSTALL KIT TSP–C2A, FLOAT: TSP–IDF2 (2” FOR DIESEL), CABLE TO PROBE: BELDEN #89182

ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Eagle Street
Anchorage, Alaska 99503

CRW
ENGINEERING GROUP
3540 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562–3252
#AEC0562–AK

SHAGELUK BULK FUEL UPGRADES

NOTES, LEGEND, & ABBREVIATIONS

SHAGELUK, ALASKA

NO.	A	ISSUED FOR BIDDING	REVISION	BY	DATE

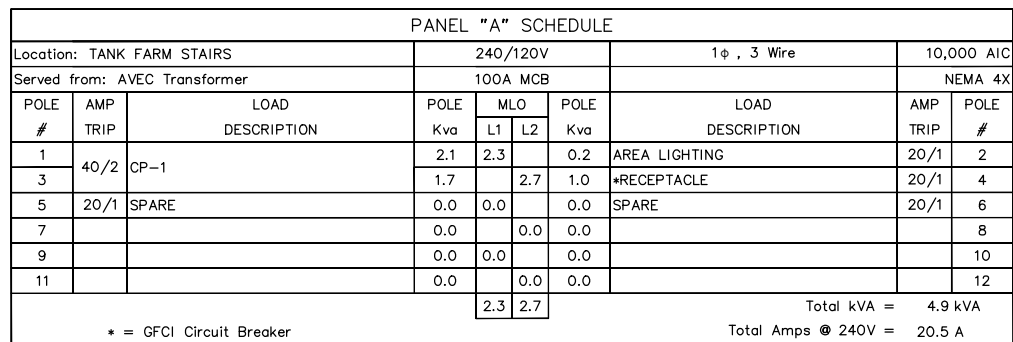
Plot Date 4/1/25

Designed BC

Drawn ESC:JB

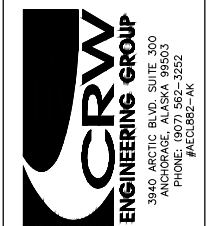
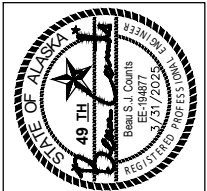
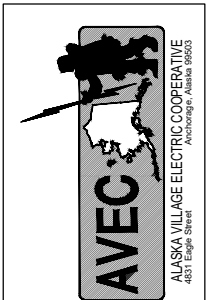
Approved BC

Sheet No. E1.1



-
- Control Panel "CP-1"
- INCOMING SUPPLY
120/240V
SINGLE PHASE
- 45/2
(9) TYP
- 15/2
- 15/2
- 10/1
- Pump Controls
- ESD
- 15/1
- SPARE
- 10/1
- SPARE
- 20/1
- SPARE
- 15/1
- Panel Heater
- 15/1
- Power Conditioner
- (4)
- 14
- P-T1 (3/4)
- P-T3B (3/4)
- 4
- Dispenser
- TOTAL CONNECTED LOAD=
3.7kVA / 15.5A @ 240v
- ESTIMATED MAXIMUM
DEMAND BASED ON AUTO
LOCKOUT FEATURES=
2.5kVA / 10.3A @ 240V

COMPONENT SCHEDULE	
#	
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 N307UNSA3N 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 #0-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 E1.1 FOR FIELD MOUNTED ELECTRICAL EQUIPMENT SCHEDULE.



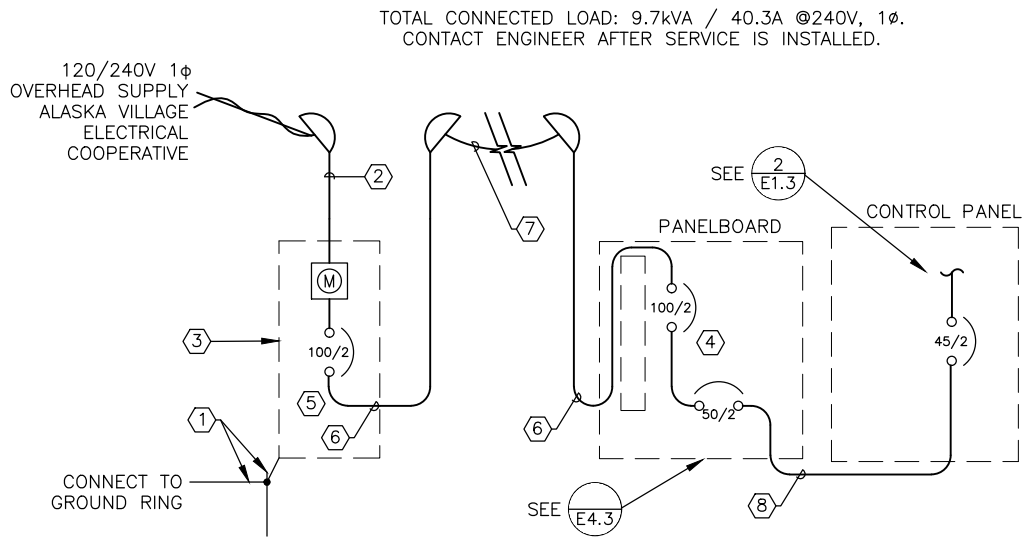
SHAGELUK BULK FUEL UPGRADES
ELECTRICAL ONE-LINE
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot	4/1/25
Date	
Designed	BC
Drawn	ESC,JB
Approved	BC

Sheet No. **E1.2**

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFI Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 One-Line.dwg



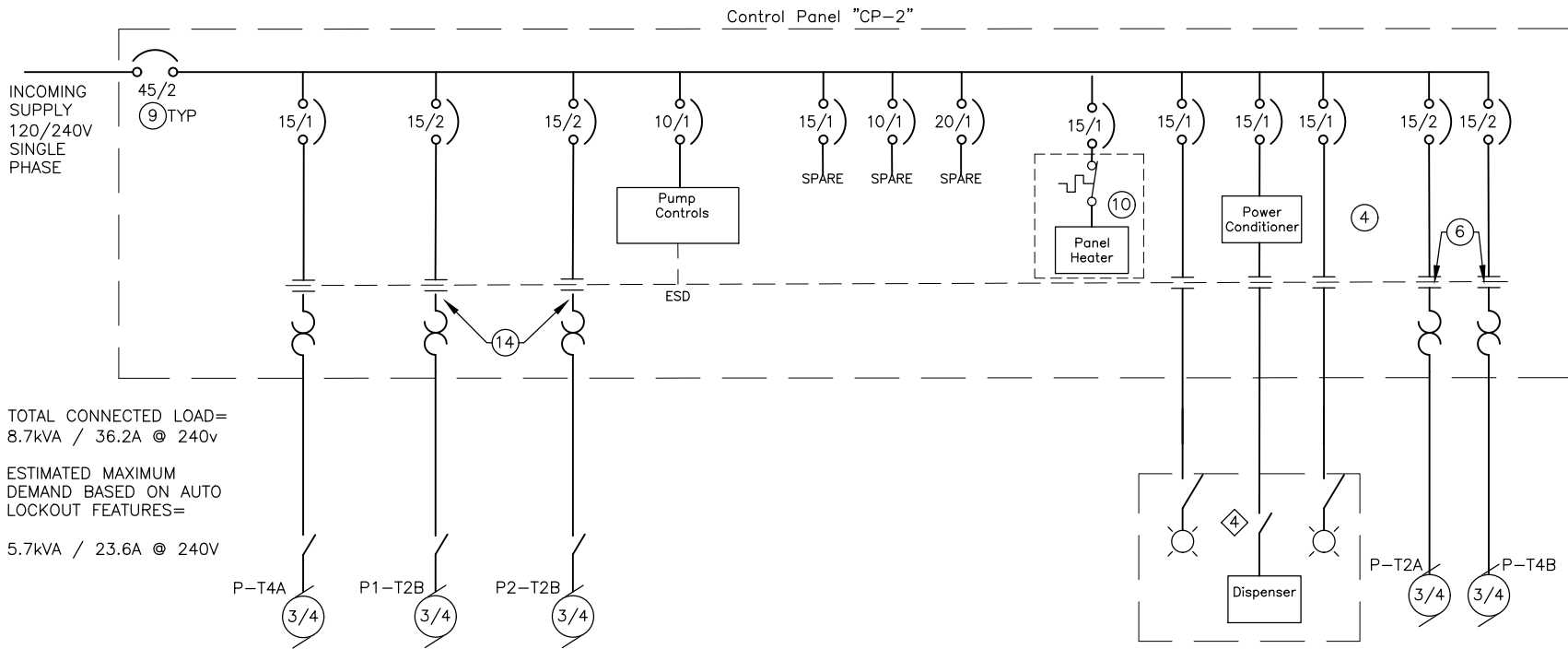
CORP POWER ONE-LINE

SCALE: NTS

PANEL "B" SCHEDULE									
Location: FRONT GATE				240/120V			1 ϕ , 3 Wire		10,000 AIC
Served from: AVEC Transformer				100A MAINS					NEMA 4X
POLE #	AMP TRIP	LOAD DESCRIPTION		POLE Kva	MLO L1 L2	POLE Kva	LOAD DESCRIPTION	AMP TRIP	POLE #
1	40/2	CP-2		4.5	4.5	0.0	SPARE	20/1	2
3				4.1	5.1	1.0	*RECEPTACLE	20/1	4
5	20/1	SPARE		0.0	0.0	0.0	SPARE	20/1	6
7				0.0		0.0			8
9				0.0	0.0	0.0			10
11				0.0		0.0			12
				4.5	5.1				
				Total kVA = 9.7 kVA					
				Total Amps @ 240V = 40.3 A					
* = GFCI Circuit Breaker									

SHEET NOTES:

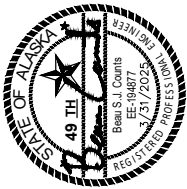
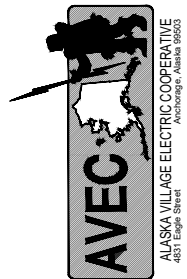
- SEE GROUNDING PLAN
- 1-1/2"C, (3)#2 (2H, N) XHHW-2 CU SERVICE RISER.
- MILBANK METER MAIN, 120/240V, 100A. SINGLE-PHASE, SUPPLY AND INSTALL IN COMPLIANCE WITH AVEC SPECIFICATIONS.
- 100A, 120/240V, 1 ϕ , 3 WIRE, 12 SPACE, NEMA 4X LOAD CENTER.
- PROVIDE SHORT CIRCUIT AND ARC FLASH WARNING PLACARD TO READ "AIC RATING OF X,XXX A CALCULATED ON X/X/2025". PROVIDE PPE LABEL FOR LEVEL 1 PER NFPA 70E. CONTACT ENGINEER WITH SERVICE TRANSFORMER FOR SHORT CIRCUIT CALCULATION.
- 2"C, (3)#2 (2H, N), (1)#4 (G)
- #2 TRIPLEX- BOND GROUND TO MESSENGER CABLE
- 3/4"C, (4)#8 (2H, N, G)



CP-2 AND FIELD EQUIPMENT POWER ONE-LINE

SCALE: NTS

COMPONENT SCHEDULE	
#	
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 N307UNSA3N 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 E1.1 FOR FIELD MOUNTED ELECTRICAL EQUIPMENT SCHEDULE.	



SHAGELUK BULK FUEL UPGRADES
ELECTRICAL ONE-LINE
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot Date 4/1/25	Designed BC	Drawn ESC,JB	Approved BC
------------------	-------------	--------------	-------------

Sheet No. E1.3

Conductors													
Conduit		Control		Signal		Power		Ground		From	To	Insulation	Remarks
NO.	Size (In.)	#	AWG/MCM	#	AWG/MCM	#	AWG/MCM	#	AWG/MCM				
1	3/4			1	1Pr#18TWS			1	14	Probe	JBox	PE	Liquid tight flexible conduit; splice pigtail to 1Pr#18TWS
2	3/4			2	1Pr#18TWS			1	14	JBox	Pole	PE	Use aerial drop from pole to pole.
3	3/4			2	1Pr#18TWS			1	14	Pole	JBox	PE	
4	1			2	1Pr#18TWS			1	14	JBox	Building	PE	
5	3/4					4	12	1	12	MV	JBox	XHHW-2	
6	3/4					4	12	1	12	JBox	Building	XHHW-2	
7	3/4					4	12	1	14	Pole	JBox	XHHW-2	
8	3/4					4	12	1	14	JBox	Building	XHHW-2	
9	1/2			4	14			1	14	Float	Jbox	XHHW-2	Liquid tight flexible conduit
10	1/2			4	14			1	14	Jbox	Jbox	XHHW-2	Follow pipelines
11	1/2			8	14			1	14	Jbox	Jbox	XHHW-2	Follow pipelines
12	1/2			8	14			1	14	Jbox	CP-1	XHHW-2	Follow pipelines
13	1/2			8	14			1	14	Jbox	CP-3	XHHW-2	Follow pipelines
14	1			16	14			2	14	Jbox	CP-2	XHHW-2	Follow pipelines
15	1/2			2	14			1	14	Jbox	FS	XHHW-2	
16	1/2			6	14			1	14	Jbox	MV	XHHW-2	
17	1			16	14			2	14	Jbox	Jbox	XHHW-2	
18	1			24	14			1	14	Jbox	CP-1	XHHW-2	
19	1/2					2	12	1	12	Pump	Jbox	XHHW-2	Liquid tight flexible conduit
20	1/2					2	12	1	12	Jbox	Jbox	XHHW-2	Follow pipelines
21	1/2					4	12	1	12	Jbox	Jbox	XHHW-2	Follow pipelines
22	3/4					6	12	1	12	Jbox	Jbox	XHHW-2	Follow pipelines
23	1/2					4	12	1	12	Jbox	CP-1	XHHW-2	Follow pipelines
24	1					10	12	1	12	Jbox	CP-2	XHHW-2	Follow pipelines
25	1/2					4	12	1	12	Jbox	CP-3	XHHW-2	Follow pipelines
26	1/2					2	12	1	12	Pump	Disc	XHHW-2	In enclosure
27	1/2					4	12	1	12	Pole	Panel	XHHW-2	Follow pipelines
28	1/2					2	12	1	12	Light	Switch	XHHW-2	In enclosure
29	1/2					2	12	1	12	ESD-4	CP-2	XHHW-2	Follow pipelines
30	1/2					2	12	1	12	Switch	Jbox	XHHW-2	In enclosure
31	1/2					4	12	1	12	Jbox	Panel C	XHHW-2	In enclosure
32	1/2					2	12			Button	Disc	XHHW-2	In enclosure
33	1/2					4	12	1	12	Disp	Disc	XHHW-2	
34	1/2					2	12	1	12	Disc	CP-2	XHHW-2	Follow pipelines
35	1/2					2	12	1	12	Light	Jbox	XHHW-2	
36	1/2					3	12			Switch	Jbox	XHHW-2	
37	1/2					2	12	1	12	Light	Jbox	XHHW-2	
38	1/2					5	12	1	12	Jbox	Jbox	XHHW-2	
39	3/4					7	12	1	12	Jbox	Jbox	XHHW-2	Follow pipelines
40	1/2					2	12	1	12	Light	Jbox	XHHW-2	
41	3/4					4	12	1	12	Jbox	Panel A	XHHW-2	In enclosure
42	1/2					2	12			ESD-1	CP-3	XHHW-2	Follow pipelines
43	1					4	12	1	12	Jbox	Panel B	XHHW-2	Follow pipelines
44	1/2					2	12			ESD-2	CP-2	XHHW-2	
45	1/2					4	12			Disc	CP-3	XHHW-2	Follow pipelines
46	1/2					2	12	1	12	Jbox	CP-1	XHHW-2	Follow pipelines
47	1/2					2	12	1	12	ESD-3	CP-1	XHHW-2	Follow pipelines



ALASKA VILLAGE ELECTRIC COOPERATIVE
4831 Edge Street
Anchorage, Alaska 99503



BEAU S.J. COUNTS
EE 19487
3/31/2025
REGISTERED PROFESSIONAL ENGINEER
STATE OF ALASKA



CRW
ENGINEERING GROUP
3840 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES

CONDUIT SCHEDULE

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

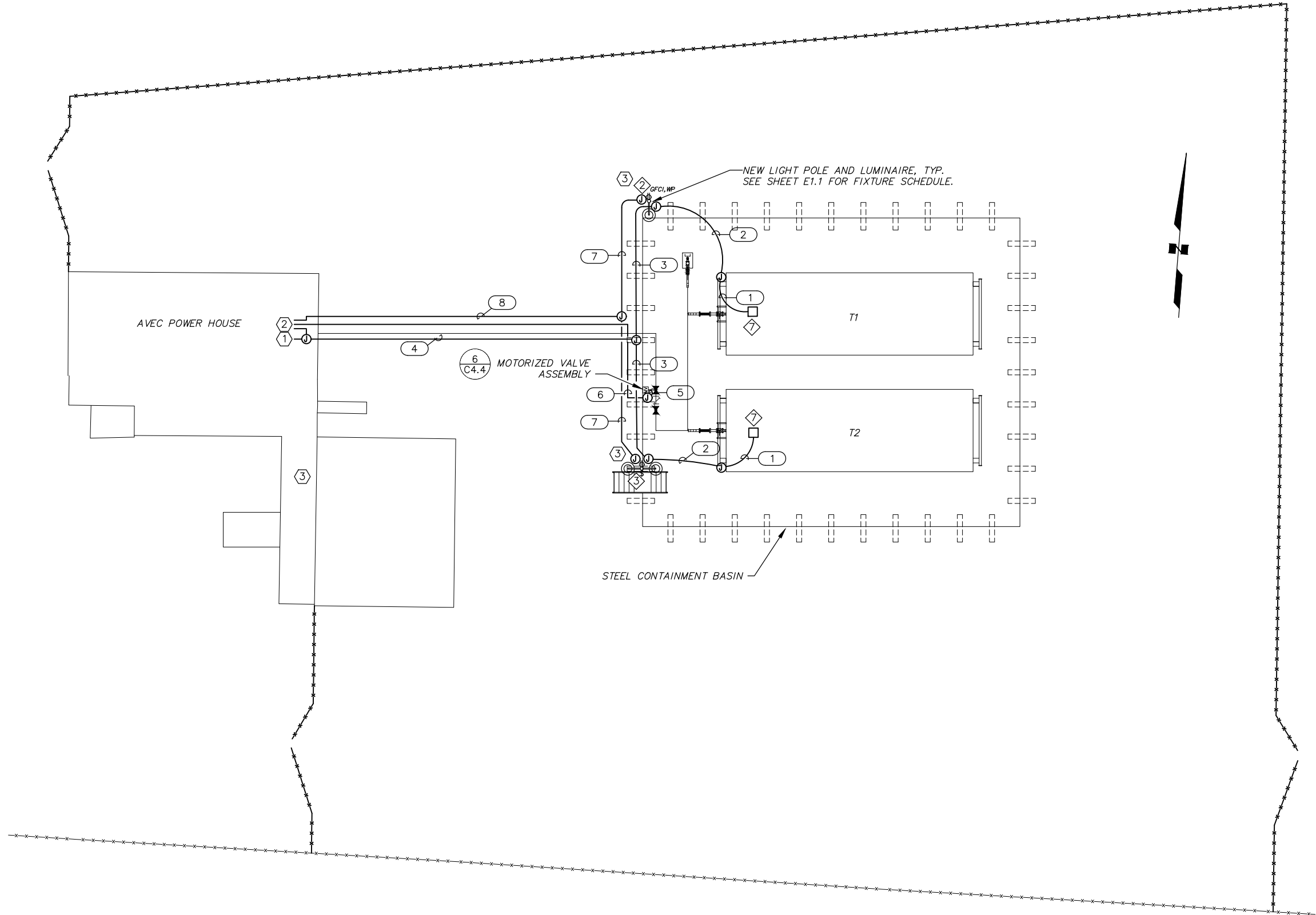
Plot Date	4/1/25
Designed	BC
Drawn	ESC,JB
Approved	BC

Sheet No. E1.5

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Tank Farm Plans.dwg

1

AVEC TANK FARM ELECTRICAL PLAN



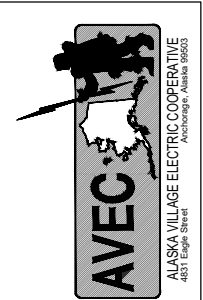
GENERAL NOTES:

1. ALL ELECTRICAL CONDUIT AND CONDUCTORS WITHIN DIKED SECONDARY CONTAINMENT SHALL BE ELEVATED TO MATCH THE TOP OF DIKE HEIGHT UNLESS NOTED OTHERWISE.

SHEET NOTES:

1. FIELD LOCATE DAY TANK CONTROL PANEL AND EXTEND CIRCUIT.
2. PROVIDE (1)15/1 AND (1)20/1 CIRCUIT BREAKER IN EXISTING PANELBOARD. CIRCUIT BREAKERS SHALL BE COMPATIBLE AND LISTED FOR USE WITH EXISTING PANELBOARD.
3. PROVIDE CONNECTION TO LIGHT FIXTURE AND CONVENIENCE RECEPTACLE FROM EXISTING PANELBOARD. CONNECT LIGHTING TO NEW 15/1 CIRCUIT BREAKER AND RECEPTACLES TO NEW 20/1 CIRCUIT BREAKER. SEE SHEET NOTE 2.

⊠ ELECTRICAL EQUIPMENT TAG, SEE SCHEDULE ON E1.1.



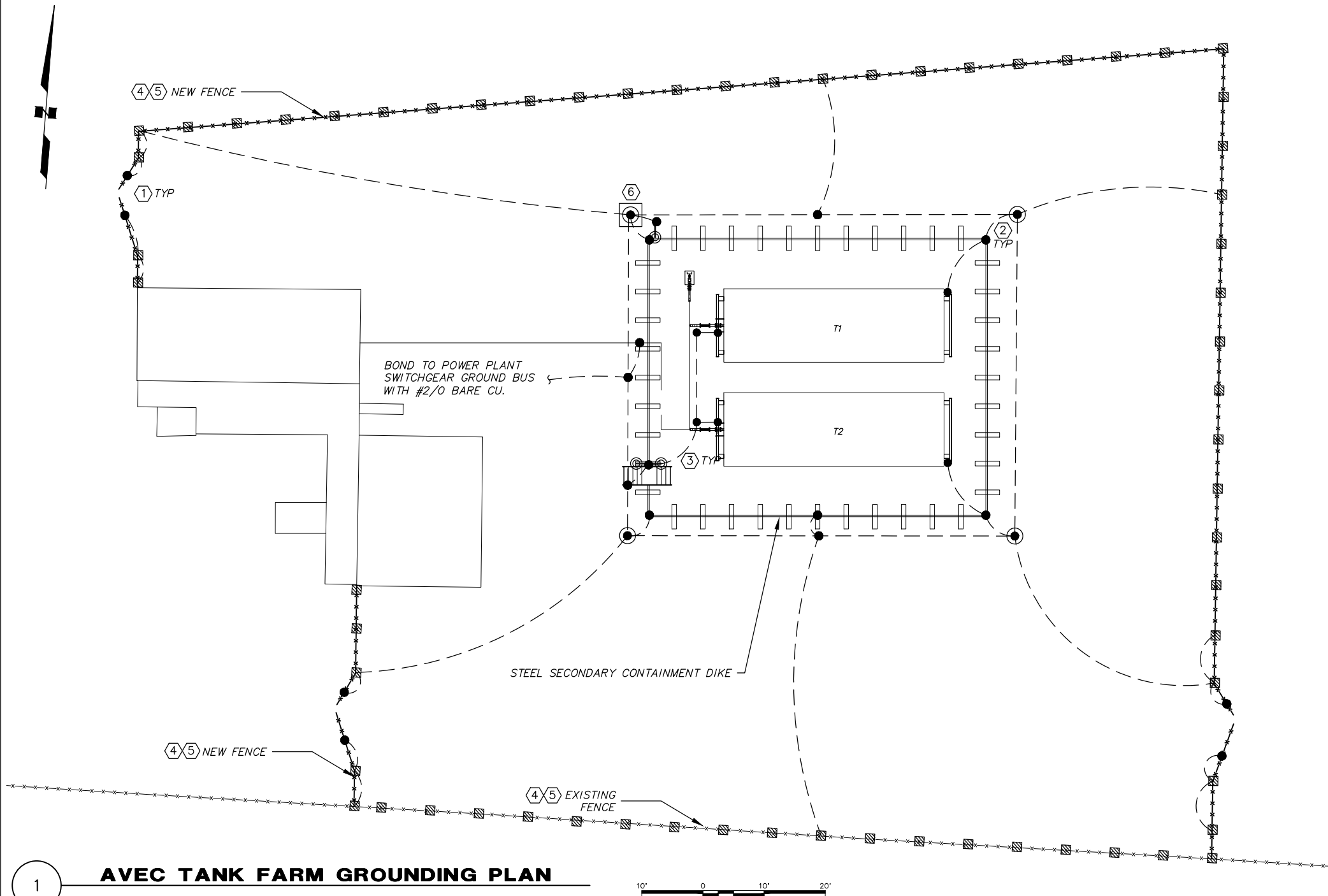
SHAGELUK BULK FUEL UPGRADES
AVEC TANK FARM ELECTRICAL PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE

Plot Date	4/1/25
Designed	BC
Drawn	ESC,JB
Approved	BC

Sheet No. E2.1

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFI Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Tank Farm Plans.dwg



1

AVEC TANK FARM GROUNDING PLAN

- GENERAL NOTES:**
1. POWER PLANT SITE GROUND GRID SYSTEM CONSISTS OF ROD ELECTRODES, BURIED COPPER GROUNDING ELECTRODE CONDUCTORS, AND BONDING CONNECTIONS TO DRIVEN STEEL FENCE POST ELECTRODES. EARTH RESISTANCE OF THE GROUND ELECTRODE SYSTEM AS DESIGNED IS WITHIN THE RANGE OF 5 TO 25 OHMS, NOT TO EXCEED 25 OHMS AT FROZEN GROUND DESIGN CONDITION WITH ASSUMED SOIL RESISTIVITY OF $250K < \rho \leq 400K \text{ CM}-\Omega$.
 2. ALL GROUND GRID CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC WELDMENTS OR IRREVERSIBLE COMPRESSION TYPE, LISTED FOR DIRECT EARTH BURIAL. ABOVE GRADE CONNECTIONS SHALL BE BOLTED OR COMPRESSION TYPE AS INDICATED BY DETAILS OR IN ACCORDANCE WITH AVEC STANDARD DETAILS.
 3. BOND GROUND GRID TO THE FOLLOWING:
 - #2/0 BCU TO SWITCHGEAR GROUND BUS
 - #4 BCU TO SERVICES
 - #6 BCU TO FENCE POSTS.
 4. WHERE BONDING REQUIRED BUT EQUIPMENT NOT IN PLACE, PROVIDE 15 FT PIGTAIL.
 5. PROVIDE BONDING JUMPERS AS FOLLOWS, UNLESS OTHERWISE INDICATED:
 - #6 BCU FLEXIBLE STRAP AT ALL GATES IN FENCING.
 - #6 BCU FOR BONDING FENCE FABRIC AND BARBED WIRE TABS.
 - #4 BCU FOR MODULE SERVICES, TRANSFORMERS, AND PIPELINES.
 6. BOND PIPELINES AS THEY CROSS FENCE LINE AND AT MODULE ENTRANCE. #4 BCU.
 7. FIELD LOCATE AND BOND EXISTING TANK FARM GROUNDING TO THE 2/0 BCU GRID IN TWO PLACES. IF 2 SEPARATE LOCATIONS ARE NOT FEASIBLE, PROVIDE INDEPENDENT PAIRS FROM ADJACENT LOCATIONS. INTENT IS TO PROVIDE DUAL CONNECTIONS.
 8. SHALLOW BURY GROUND AND JUMPERS WITHIN THE DIKED AREA. DO NOT DAMAGE OR EXPOSE LINER.

- # SHEET NOTES:**
1. SEE SHEET E4.1 DETAILS FOR FENCE GROUNDING / BONDING CONNECTIONS AT GATES.
 2. #2 BARE CU GROUNDING ELECTRODE CONDUCTOR (GEC) AT 30" BURY.
 3. #4 bCU GROUND TO TANKS.
 4. PROVIDE #6 BARE CU FENCE GROUNDING CONDUCTOR RUN THROUGH FENCE FABRIC AT 6 INCHES ABOVE GRADE, IN CONTINUOUS RUN BETWEEN SPECIFIED TERMINAL POSTS AROUND PERIMETER OF SITE, WITH BONDING CONNECTION TO PIPE CLAMP AT TERMINAL FENCE POST (#6 NOT SHOWN). REGARDLESS OF SEPARATION DISTANCE ALL CORNERS AND TERMINAL POLES AT GATES AND MANDOORS MUST BE BONDED.
 5. PROVIDE #6 BCU BONDING CONNECTION TO BARBED WIRE AT TOP OF FENCE AT CORNERS, GATE, AND MANWAY POSTS.
 6. GROUND TEST POINT, SEE 4/E4.1 FOR DETAIL.



AVEC
ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Edge Street
Anchorage, Alaska 99503



STATE OF ALASKA
BEAULIEU J. COUNTS
EE19487
3/31/2025
REGISTERED PROFESSIONAL ENGINEER



CRW
ENGINEERING GROUP
3840 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES
AVEC TANK FARM GROUNDING PLAN

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25	Designed BC
Date	Drawn ESC,JB
	Approved BC

Sheet No. E2.2

GENERAL NOTES:

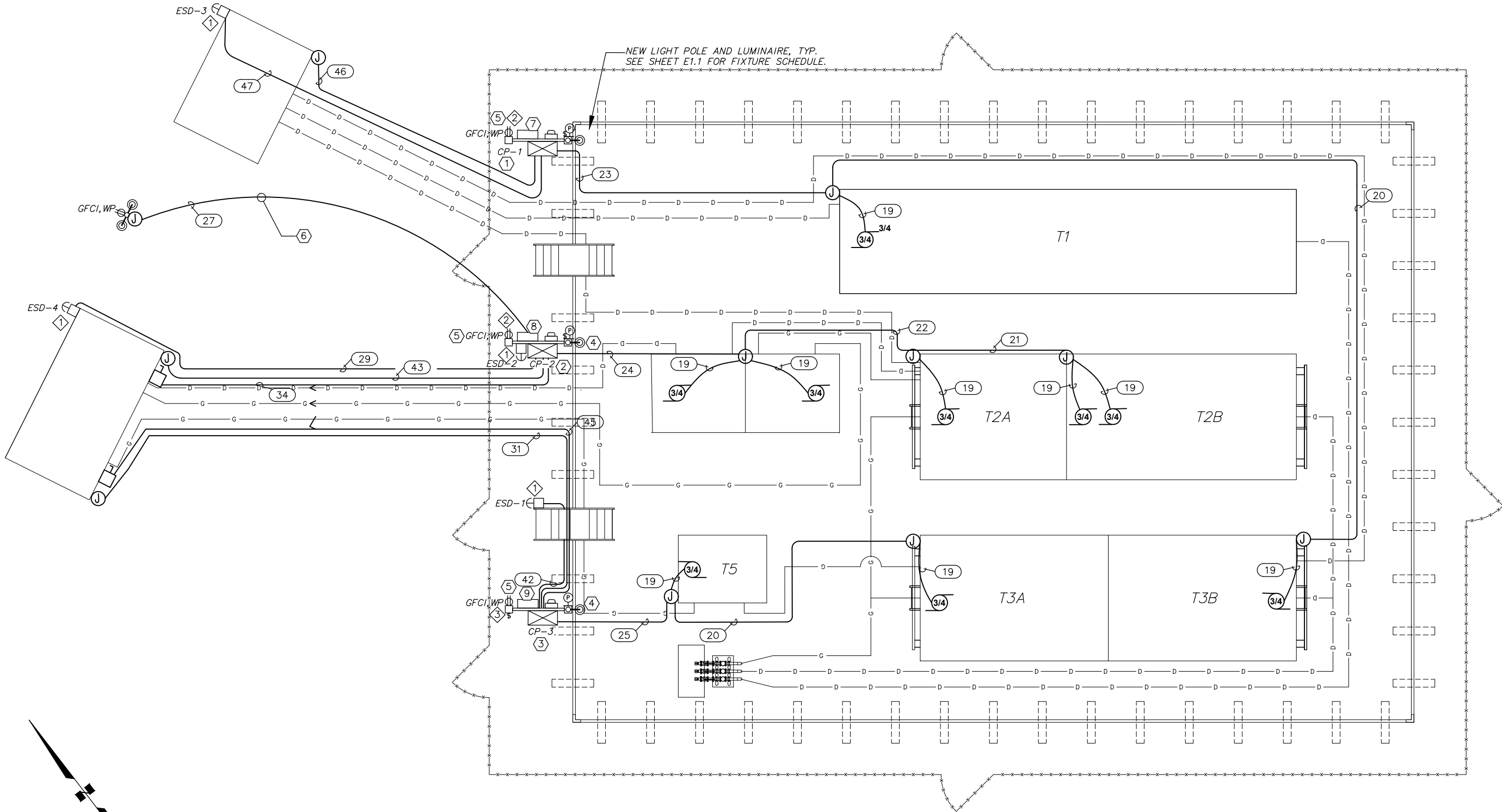
1. ALL ELECTRICAL CONDUIT AND CONDUCTORS WITHIN DIKED SECONDARY CONTAINMENT SHALL CONFORM TO THE REQUIREMENTS OF THE NEC FOR CLASSIFIED HAZARDOUS LOCATIONS AND SHALL BE ELEVATED TO MATCH THE TOP OF DIKE HEIGHT UNLESS NOTED OTHERWISE.

SHEET NOTES:

1. LOCATION OF BACKBOARD MOUNTED CITY ELECTRICAL SERVICE AND PANEL 'A'. CP-1 MOUNTED TO OPPOSITE SIDE.
2. LOCATION OF BACKBOARD MOUNTED CORP ELECTRICAL SERVICE AND PANEL 'B'. CP-2 MOUNTED TO OPPOSITE SIDE.
3. LOCATION OF BACKBOARD MOUNTED BIG WHEEL ELECTRICAL SERVICE AND PANEL 'C'. CP-3 MOUNTED TO OPPOSITE SIDE.

4. PROVIDE CONNECTION TO LUMINAIRE FROM NEARBY PANELBOARD. PROVIDE CONNECTION TO PHOTO CELL AND LIGHT SWITCH FOR CONTROL.
5. PROVIDE CONNECTION TO CONVENIENCE RECEPTACLE FROM SERVICE/PANELBOARD INDICATED.
6. PROVIDE AERIAL POWER RUN FROM 35' POLE TO 35" POLE FOR CONNECTION TO LIGHTING AND CONVENIENCE RECEPTACLE.

7. PANEL 'A', SEE E1.2.
8. PANEL 'B', SEE E1.3.
9. PANEL 'C', SEE E1.4.



COLOCATED TANK FARM ELECTRICAL PLAN



ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Edge Street
Anchorage, Alaska 99503

STATE OF ALASKA
49 TH
Brian S. J. Counts
EE 19487
3/31/2025
REGISTERED PROFESSIONAL ENGINEER

CRW
ENGINEERING GROUP
3840 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC062-AK

SHAGELUK BULK FUEL UPGRADES
COLOCATED TANK FARM ELECTRICAL
PLAN

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25
Date

Designed BC

Drawn ESC,JB

Approved BC

Sheet No.

E2.3

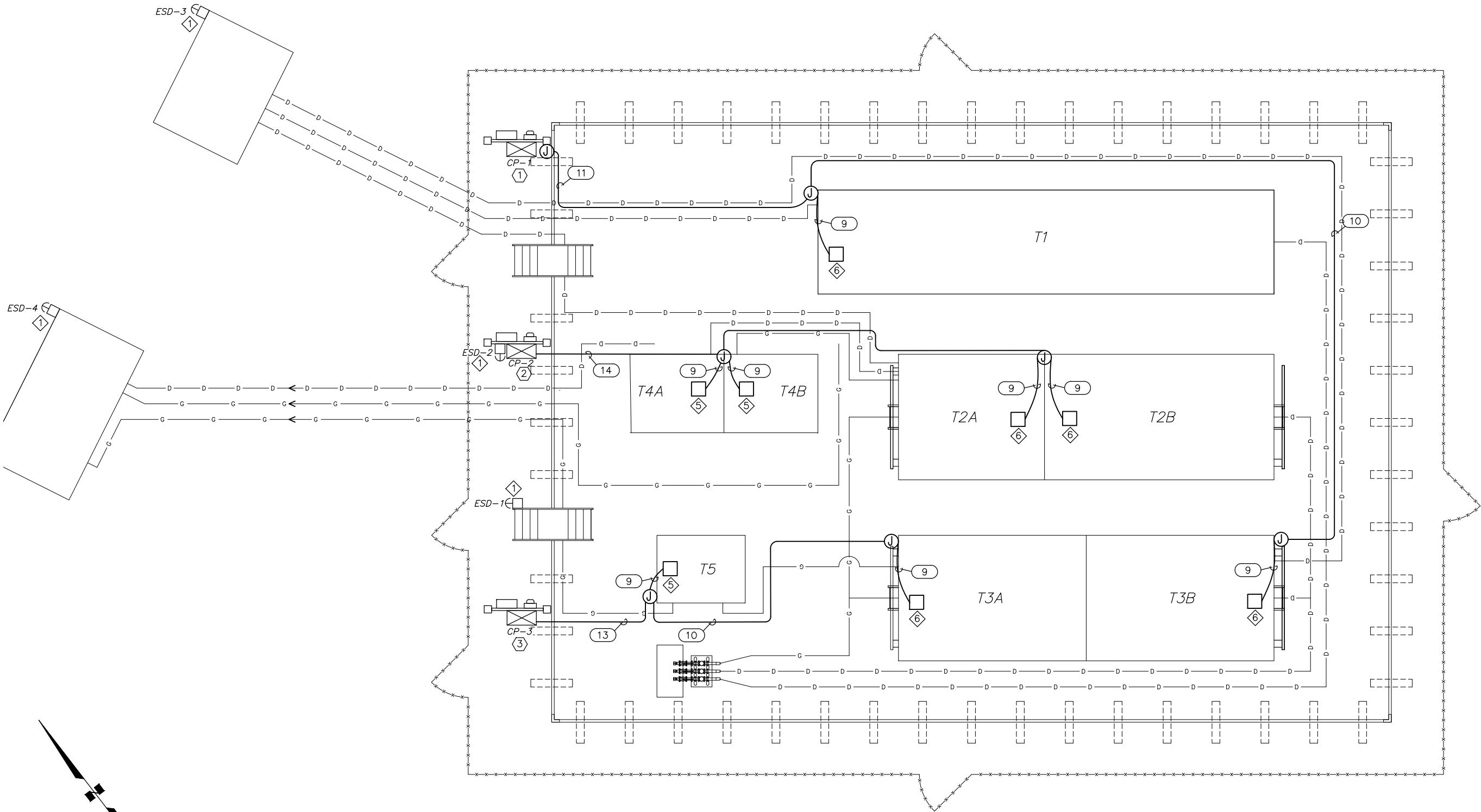
File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Tank Farm Plans.dwg

GENERAL NOTES:

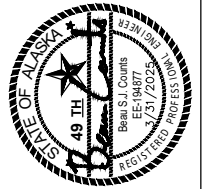
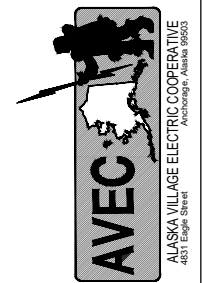
1. SEE GENERAL NOTES ON SHEET E2.3..

SHEET NOTES:

1. LOCATION OF BACKBOARD MOUNTED CITY ELECTRICAL SERVICE AND PANEL 'A'. CP-1 MOUNTED TO OPPOSITE SIDE.
2. LOCATION OF BACKBOARD MOUNTED CORP ELECTRICAL SERVICE AND PANEL 'B'. CP-2 MOUNTED TO OPPOSITE SIDE.
3. LOCATION OF BACKBOARD MOUNTED BIG WHEEL ELECTRICAL SERVICE AND PANEL 'C'. CP-3 MOUNTED TO OPPOSITE SIDE.



1 COLOCATED TANK FARM INSTRUMENTATION PLAN



SHAGELUK BULK FUEL UPGRADES
COLOCATED TANK FARM
INSTRUMENTATION PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

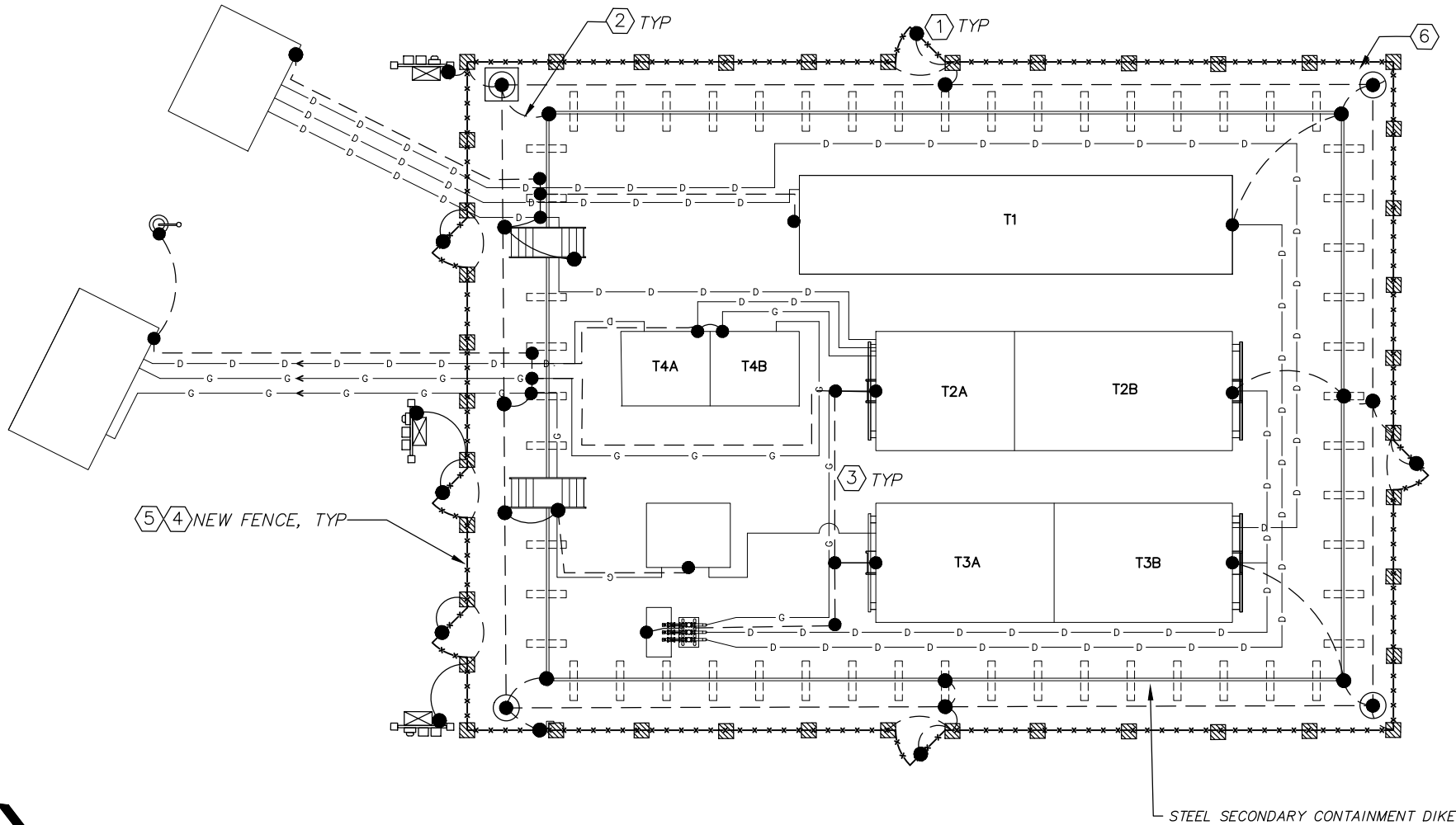
Plot 4/1/25	Designed BC
Date	Drawn ESC,JB
	Approved BC

Sheet No. E2.4

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Tank Farm Plans.dwg

1

COLOCATED TANK FARM GROUNDING PLAN

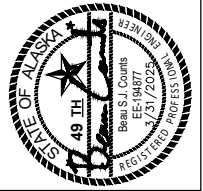
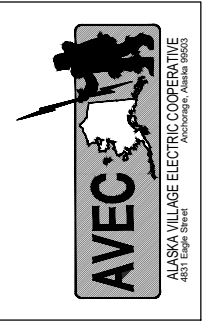


GENERAL NOTES:

1. POWER PLANT SITE GROUND GRID SYSTEM CONSISTS OF ROD ELECTRODES, BURIED COPPER GROUNDING ELECTRODE CONDUCTORS, AND BONDING CONNECTIONS TO DRIVEN STEEL FENCE POST ELECTRODES. EARTH RESISTANCE OF THE GROUND ELECTRODE SYSTEM AS DESIGNED IS WITHIN THE RANGE OF 5 TO 25 OHMS, NOT TO EXCEED 25 OHMS AT FROZEN GROUND DESIGN CONDITION WITH ASSUMED SOIL RESISTIVITY OF $250K < P \leq 400K \text{ CM}-\Omega$.
2. ALL GROUND GRID CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC WELDMENTS OR IRREVERSIBLE COMPRESSION TYPE, LISTED FOR DIRECT EARTH BURIAL. ABOVE GRADE CONNECTIONS SHALL BE BOLTED OR COMPRESSION TYPE AS INDICATED BY DETAILS OR IN ACCORDANCE WITH AVEC STANDARD DETAILS.
3. BOND GROUND GRID TO THE FOLLOWING:
 - #4 BCU TO SERVICES
 - #6 BCU TO FENCE POSTS.
4. WHERE BONDING REQUIRED BUT EQUIPMENT NOT IN PLACE, PROVIDE 15 FT PIGTAIL.
5. PROVIDE BONDING JUMPERS AS FOLLOWS, UNLESS OTHERWISE INDICATED:
 - #6 BCU FLEXIBLE STRAP AT ALL GATES IN FENCING.
 - #6 BCU FOR BONDING FENCE FABRIC AND BARBED WIRE TABS.
 - #4 BCU FOR MODULE SERVICES, TRANSFORMERS, AND PIPELINES.
6. BOND PIPELINES AS THEY CROSS FENCE LINE AND AT MODULE ENTRANCE. #4 BCU.
7. SHALLOW BURY GROUND AND JUMPERS WITHIN THE DIKED AREA. DO NOT DAMAGE OR EXPOSE LINER.

SHEET NOTES:

1. SEE SHEET E4.1 DETAILS FOR FENCE GROUNDING / BONDING CONNECTIONS AT GATES.
2. #2 BARE CU GROUNDING ELECTRODE CONDUCTOR (GEC) AT 30" BURY.
3. #4 bCU GROUND TO TANKS.
4. PROVIDE #6 BARE CU FENCE GROUNDING CONDUCTOR RUN THROUGH FENCE FABRIC AT 6 INCHES ABOVE GRADE, IN CONTINUOUS RUN BETWEEN SPECIFIED TERMINAL POSTS AROUND PERIMETER OF SITE, WITH BONDING CONNECTION TO PIPE CLAMP AT TERMINAL FENCE POST (#6 NOT SHOWN). REGARDLESS OF SEPARATION DISTANCE ALL CORNERS AND TERMINAL POLES AT GATES AND MANDOORS MUST BE BONDED.
5. PROVIDE #6 BCU BONDING CONNECTION TO BARBED WIRE AT TOP OF FENCE AT CORNERS, GATE, AND MANWAY POSTS.
6. GROUND TEST POINT, SEE 4/E4.1 FOR DETAIL.



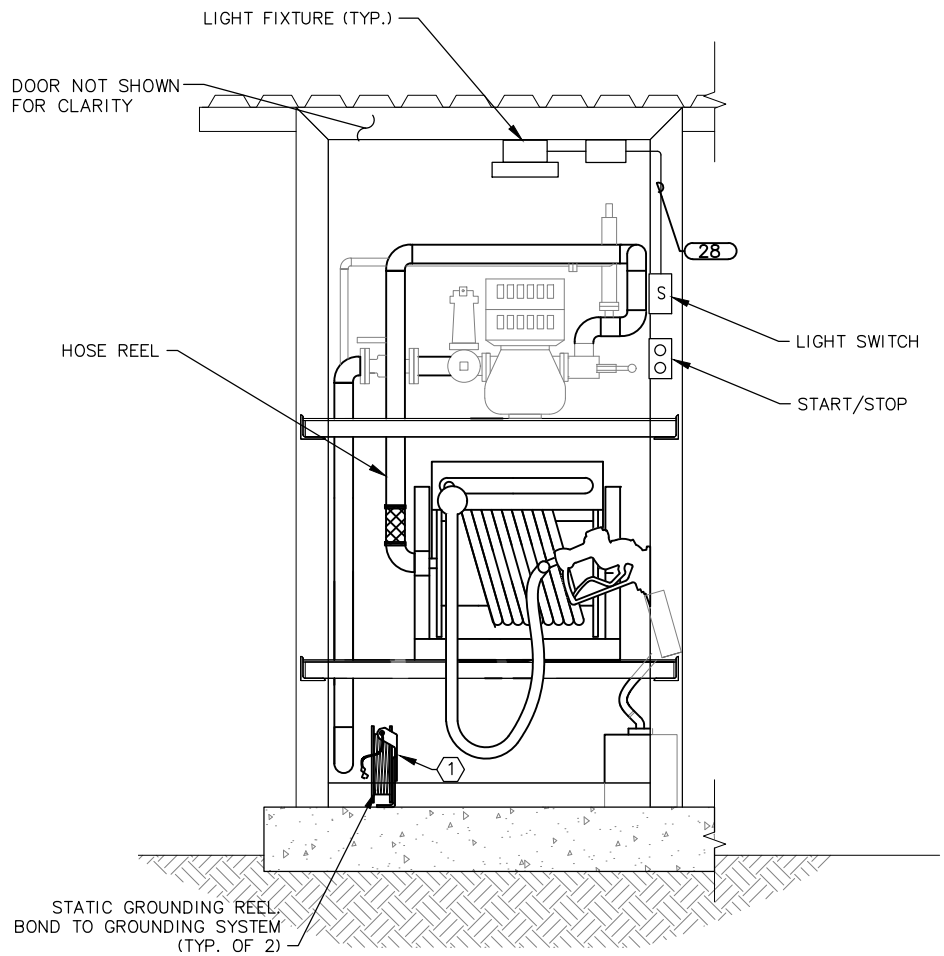
SHAGELUK BULK FUEL UPGRADES
COLOCATED TANK FARM GROUNDING
PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

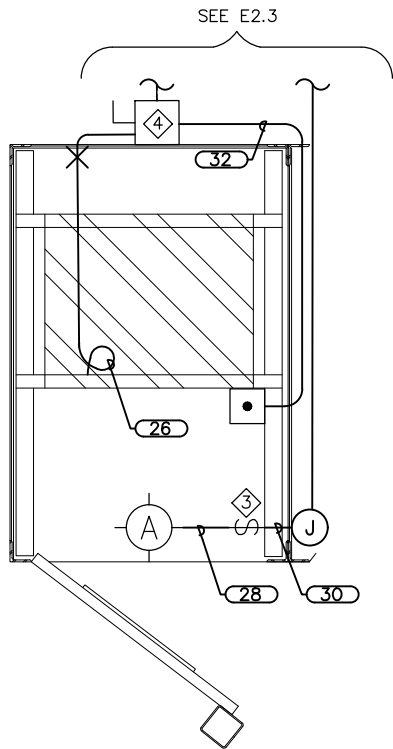
Plot 4/1/25	Designed BC
Date	Drawn ESC,JB
	Approved BC

Sheet No. E2.5

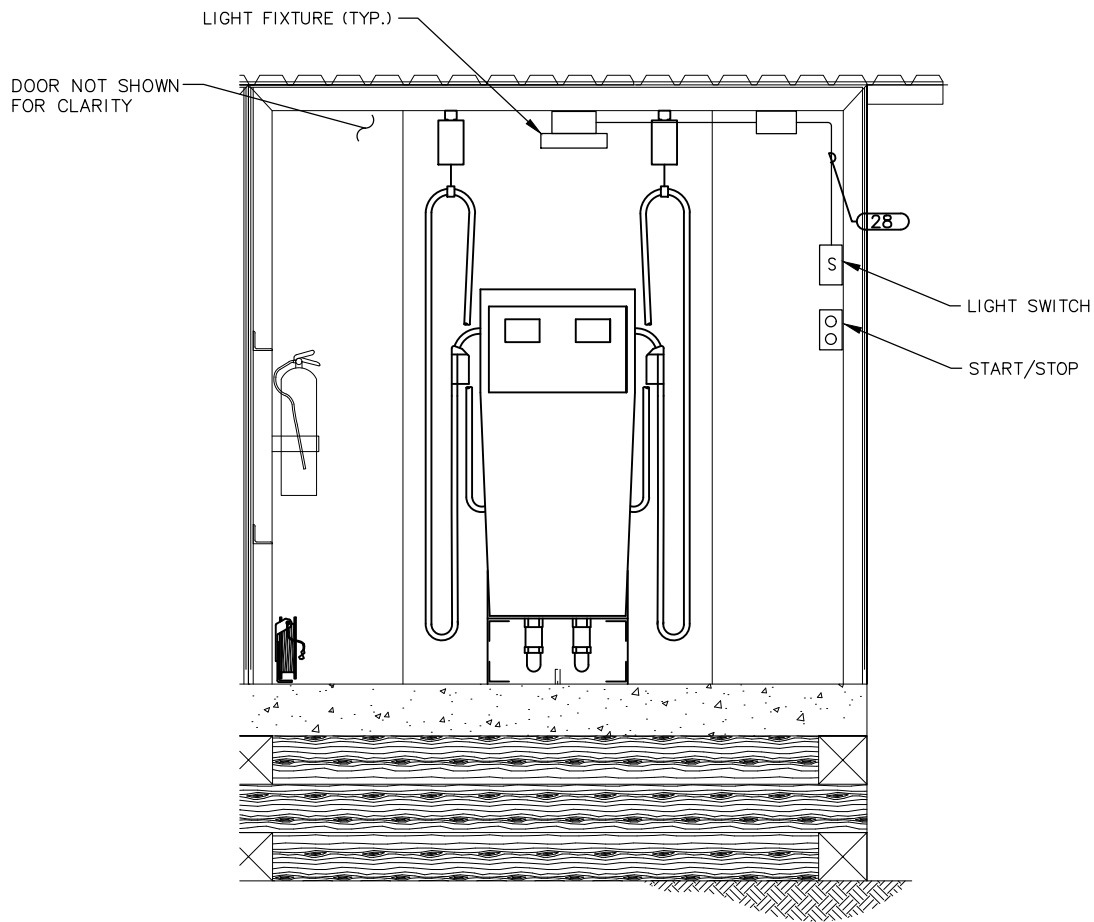
File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Pump Cabinet And Dispenser Details.dwg



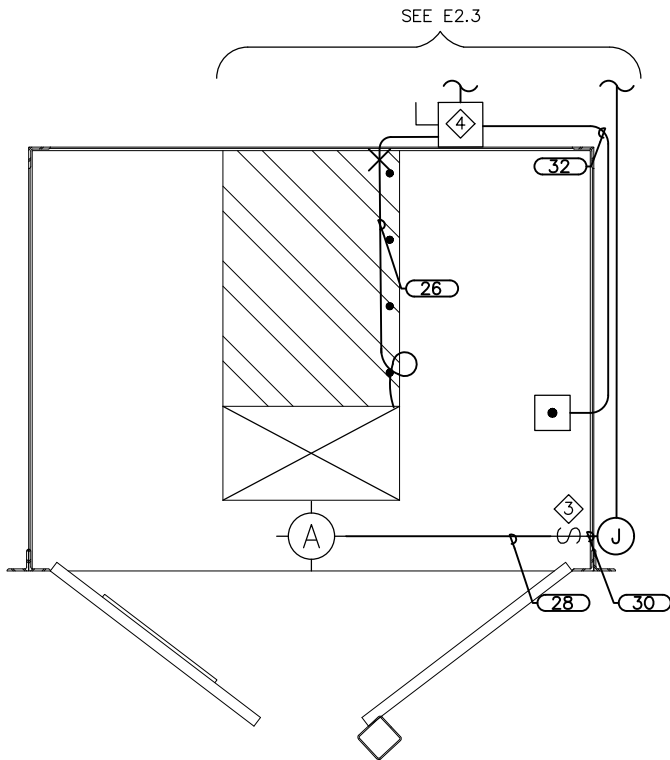
1 **HOSE REEL ELEVATION**
NOT TO SCALE



3 **HOSE REEL PLAN**
NOT TO SCALE



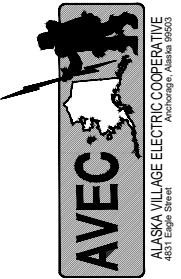
2 **DISPENSER ELEVATION**
NOT TO SCALE



4 **DISPENSER PLAN**
NOT TO SCALE

NOTES

- ① PROVIDE ATTACHMENT POINT FOR GROUND REEL AT DISPENSER. COORDINATE LOCATION AND CONNECTION MEANS WITH GROUND REEL SUPPLIER.
- X CONDUIT/CONDUCTOR SCHEDULE ON E1.5
- ◇ EQUIPMENT SCHEDULE ON E1.1



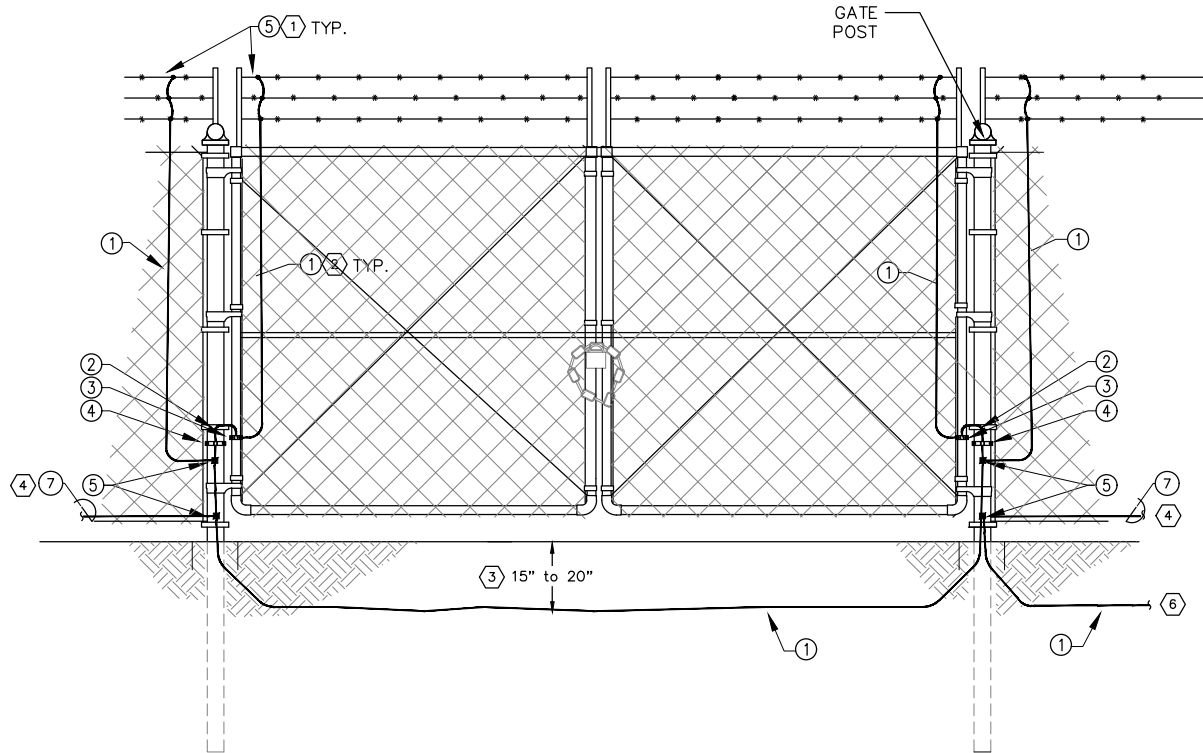
SHAGELUK BULK FUEL UPGRADES
DISPENSER & PUMP CABINET
ELECTRICAL PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25	
Date	
Designed	
Drawn	
Approved BC:AMH	

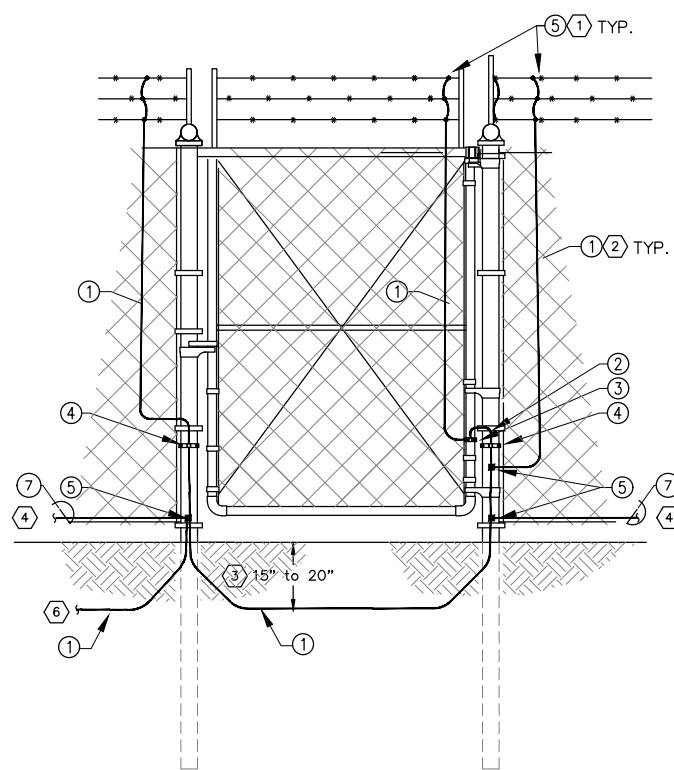
Sheet No. **E3.1**

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Details And Elevations.dwg



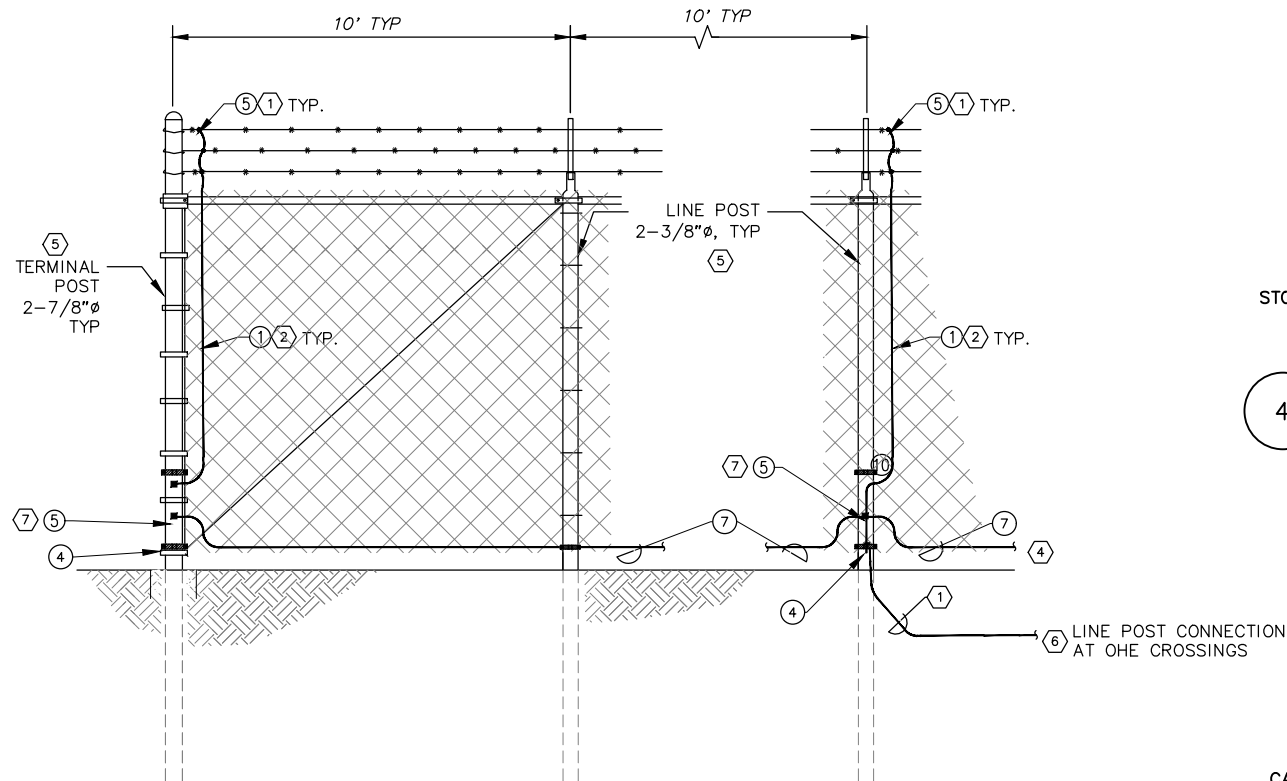
**DOUBLE LEAF GATE
GROUNDING DETAIL**

SCALE: NTS



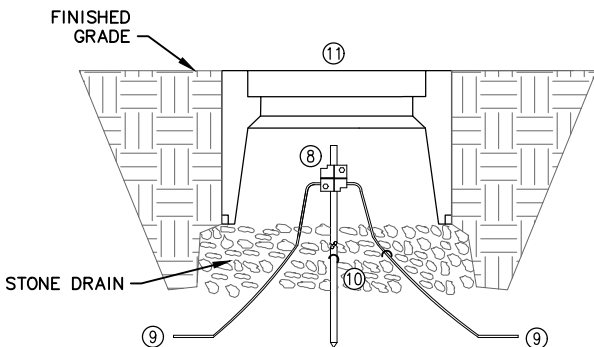
**SINGLE LEAF MAN GATE
GROUNDING DETAIL**

SCALE: NTS



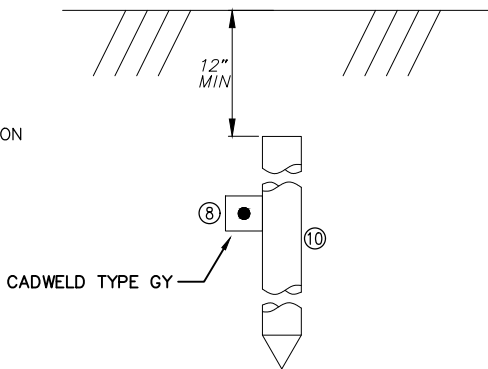
**SECURITY FENCE SECTION
GROUNDING DETAILS**

SCALE: NTS



GROUND TEST POINT ELEVATION

SCALE: NTS



GROUND ROD CONNECTION

SCALE: NTS

GENERAL NOTES:

1. REFERENCE GROUNDING PLANS.

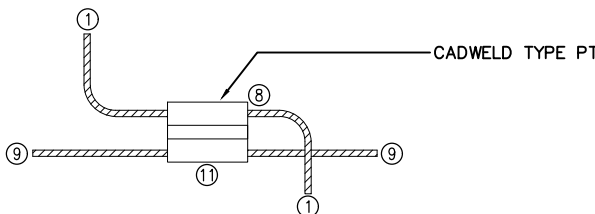
SHEET NOTES:

1. BOND BARBED WIRE STRANDS ABOVE WIRE FABRIC FENCE SECTIONS AND GATES AT 20 FT MAXIMUM INTERVALS IN AREAS WITHIN 20 FT MEASURED HORIZONTALLY FROM OVERHEAD CONDUCTORS AND WHERE SHOWN ON PLANS AND WHERE REQUIRED, CONNECT ALL BARBED WIRE STRANDS ABOVE FENCE TO THE BONDING CONDUCTOR WITH COMPRESSION CONNECTORS.
2. WEAVE BONDING CONDUCTOR THROUGH FENCE WIRE MESH WHERE BARBED WIRE BONDING IS REQUIRED.
3. PROVIDE BURIED GROUNDING ELECTRODE CONDUCTOR (GEC) UNDER ALL GATES WITH PIPE CLAMP BONDING CONNECTION TO FENCE POSTS AS INDICATED. PROVIDE RED WARNING TAPE 6 INCHES ABOVE THE BURIED CONDUCTOR.
4. WEAVE BONDING CONDUCTOR THROUGH FENCE WIRE MESH WITHIN 6 INCHES OF GRADE WITH A PIPE CLAMP BONDING CONNECTION AT EVERY OTHER FENCE POST, TERMINAL POSTS AND WHERE SHOWN ON PLANS.
5. BOND TERMINAL AND LINE POSTS TO GEC / BONDING CONDUCTORS WITH HARDWARE AS INDICATED, AT LOCATIONS INDICATED ON PLANS.
6. PROVIDE BURIED GEC CONNECTION AT 30 1/2" BURY (MIN. COVER) TO TANK FARM GROUND GRID AS INDICATED ON PLANS.
7. WHERE #2 GEC / BONDING CONDUCTOR AT FENCE POST IS NOT PRESENT, BOND #6 BONDING CONDUCTOR TO A PIPE CLAMP CONNECTION AT EACH FENCE POST.

MATERIAL LIST:

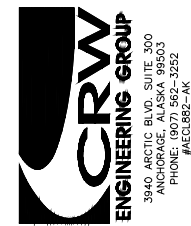
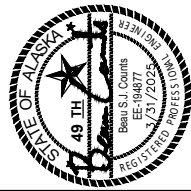
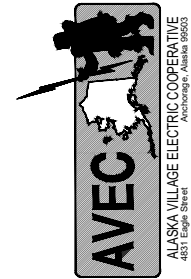
- ① #2 BARE STRANDED COPPER WIRE
- ② #2 COPPER FLEXIBLE WELDING CABLE (LENGTH AS REQUIRED BY GATE SWING TO FULL OPEN)
- ③ PIPE GROUNDING CLAMP, 1-5/8" TO 2-3/8" OD, #6 TO #2 WIRE
- ④ PIPE GROUNDING CLAMP, 2-7/8" TO 4.0" OD, #6 TO #2 WIRE
- ⑤ COPPER COMPRESSION TAP CONNECTOR AS REQUIRED; APPLY COPPER-BASED INHIBITOR BEFORE CRIMPING.
- ⑥ GROUND ROD CONNECTOR AS REQUIRED, IRREVERSIBLE (COMPRESSION OR EXOTHERMIC) TYPE.
- ⑦ #6 BARE SOFT COPPER WIRE
- ⑧ EXOTHERMIC WELDMENT
- ⑨ 2/0 BCU GROUND GRID
- ⑩ 3/4" 10' COPPER CLAD STEEL GROUND ROD
- ⑪ 14"x14"x18"D UNDERGROUND JUNCTION BOX WITH CAST COVER.

NOTE: PROVIDE QUANTITIES AS REQUIRED BY PLANS.



GROUND GRID BOND DETAIL

SCALE: NTS



SHAGELUK BULK FUEL UPGRADES

ELECTRICAL DETAILS

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25	Designed BC	Drawn ESC,JB	Approved BC
Date			

Sheet No.

E4.1



CONDUIT SUPPORT DETAIL

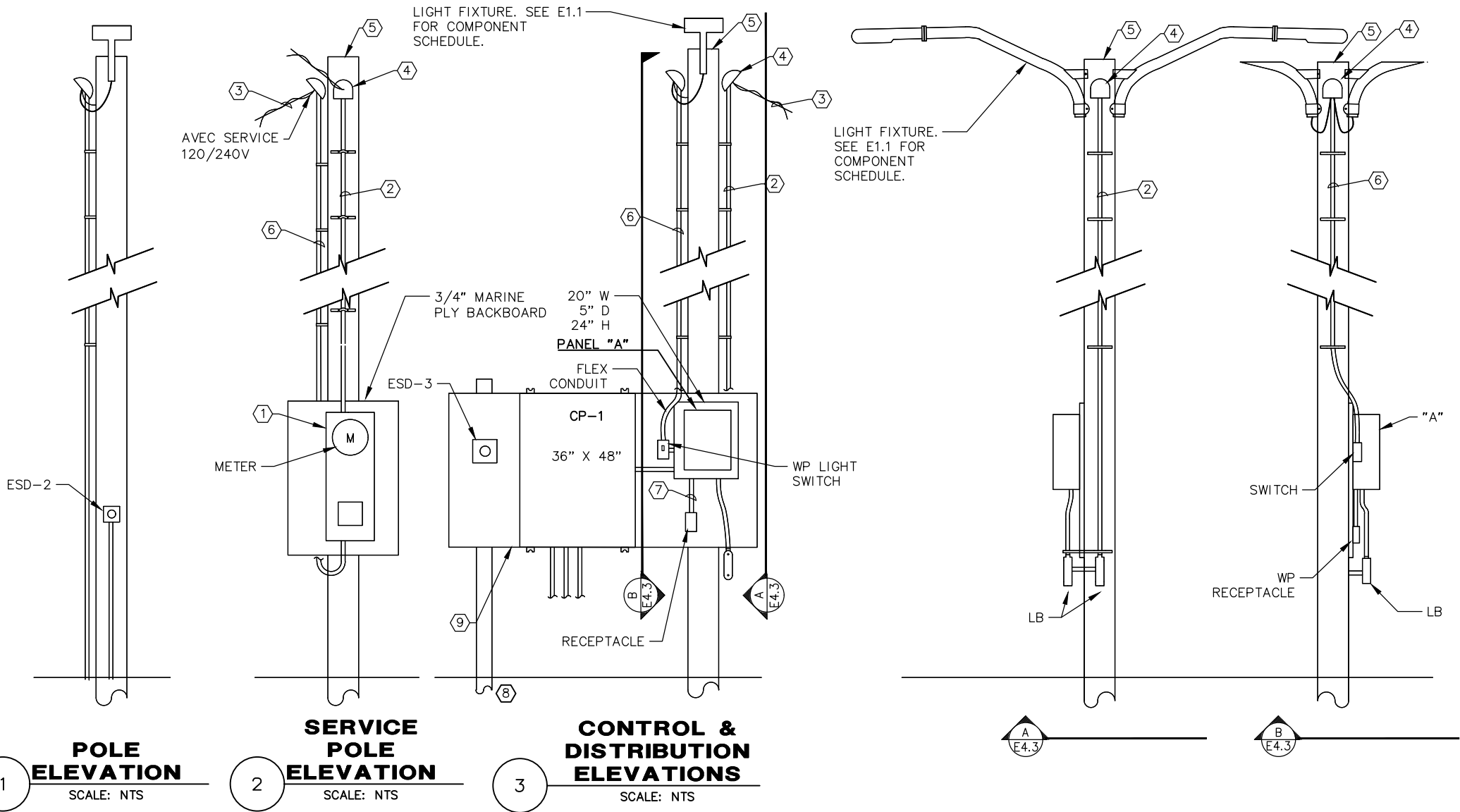
SHAGELUK, ALASKA

[illegible]

Plot	4/1/25
Date	
Designed	BC
Drawn	ESC,JB
Approved	BC

E4.2

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Details And Elevations.dwg



- # SHEET NOTES:
- MILBANK METER MAIN, 120/240V, 100A. SINGLE-PHASE, SUPPLY AND INSTALL IN COMPLIANCE WITH AVEC SPECIFICATIONS.
 - 2" C, (3) #2 (2H, N), (1) #4 (G)
 - #2 TRIPLEX- BOND GROUND TO MESSENGER CABLE
 - WEATHERHEAD (TYP.)
 - CLASS 5, 35' STUB POLE. BURIAL DEPTH 7' MINIMUM.
 - 1" C, (5) #12 (2H, 2N, 2G)
 - 1/2" C, (2) #10, (1) #10 G
 - PROVIDE 12'X8"X8" PRESSURE TREATED POST. SEE CIVIL FOR POST FOUNDATION & COVER.
 - PROVIDE A 4'X8'X3/4" MARINE DUTY RATED PLY BACKBOARD WITH 2 COATS EPOXY BASED PAINT (GRAY). SECURE BACKBOARD TO SUPPORTS WITH GALVANIZED HARDWARE. MOUNT CONTROL PANEL TO BACKBOARD USING (2) VERTICAL STAINLESS STEEL UNISTRUT SECTIONS EXTENDING ABOVE AND BELOW THE BACKBOARD SUFFICIENT TO ALLOW SECURING THE PANEL MOUNTING TABS TO THE STRUT WITH STAINLESS STEEL SPRING NUTS AND BOLTS.
 - PROVIDE ATTACHMENT POINT FOR GROUND REEL AT FLEET DISPENSER. COORDINATE LOCATION AND CONNECTION MEANS WITH GROUND REEL SUPPLIER.



ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Eagle Street
Anchorage, Alaska 99503





CRW
ENGINEERING GROUP
3640 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES
ELEVATIONS
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot Date 4/1/25

Designed BC

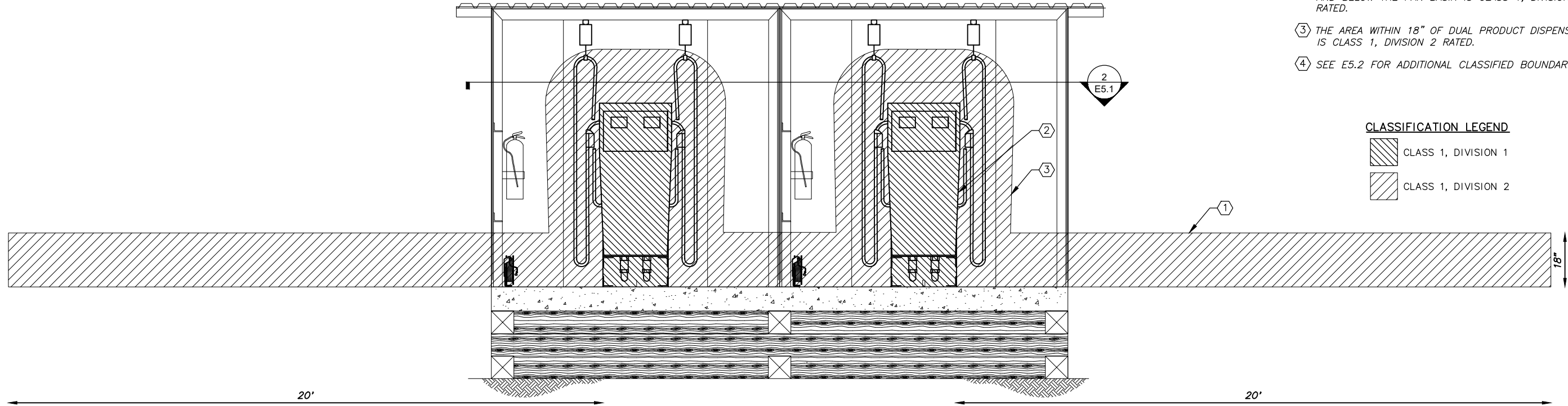
Drawn ESC, JB

Approved BC

Sheet No.

E4.3

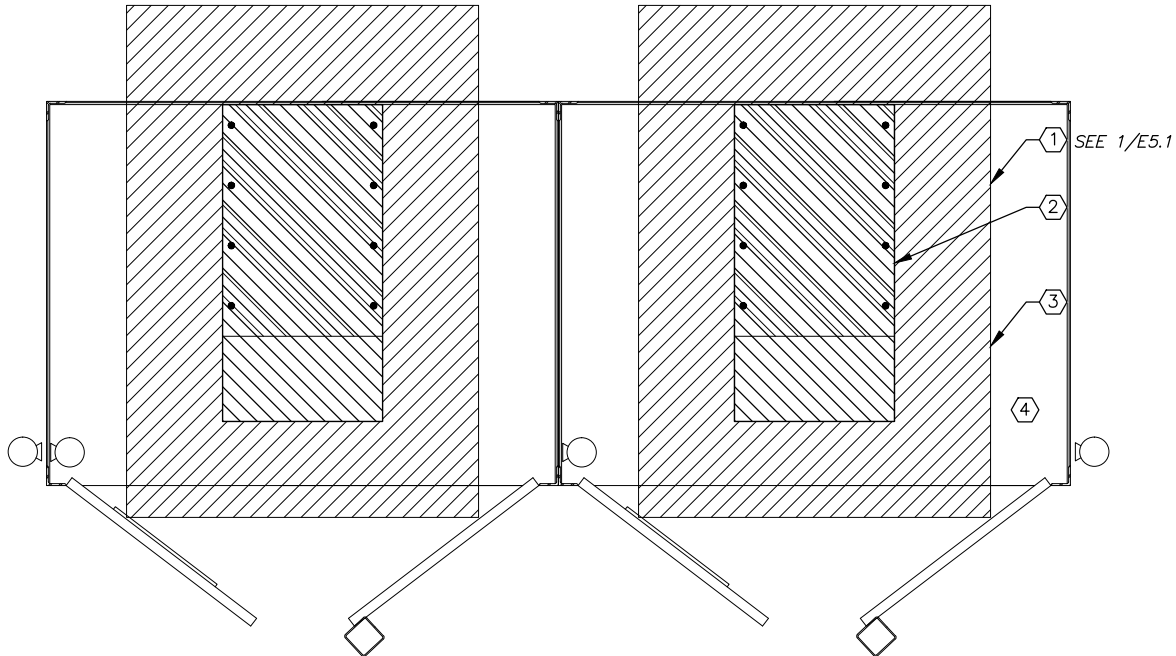
File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Pump Cabinet And Dispenser Details.dwg



1

**DUAL PRODUCT DISPENSER AREA
CLASSIFICATION ELEVATION**

NOT TO SCALE



2

**DUAL PRODUCT DISPENSER AREA
CLASSIFICATION PLAN**

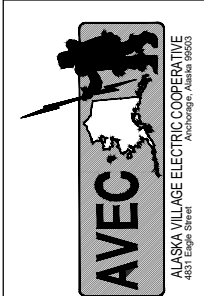
NOT TO SCALE

NOTES

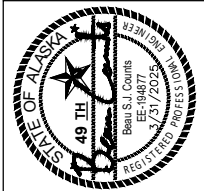
- 1 THE AREA 18" ABOVE GRADE WITHIN 20' OF DUAL DISPENSER IS CLASS 1, DIVISION 2 RATED.
- 2 THE AREA INSIDE THE DUAL DISPENSER AND INSIDE AND BELOW THE PAN BASIN IS CLASS 1, DIVISION 1 RATED.
- 3 THE AREA WITHIN 18" OF DUAL PRODUCT DISPENSER IS CLASS 1, DIVISION 2 RATED.
- 4 SEE E5.2 FOR ADDITIONAL CLASSIFIED BOUNDARIES.

CLASSIFICATION LEGEND

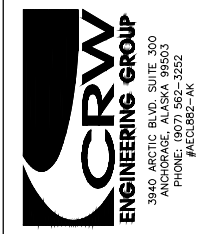
- CLASS 1, DIVISION 1
- CLASS 1, DIVISION 2



ALASKA VILLAGE ELECTRIC COOPERATIVE
4831 Edge Street
Anchorage, Alaska 99503



BEAU S. J. COUNTS
EE-19487
3/31/2025
REGISTERED PROFESSIONAL ENGINEER
STATE OF ALASKA



CRW
ENGINEERING GROUP
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES
DISPENSER & PUMP CABINET
CLASSIFICATION PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

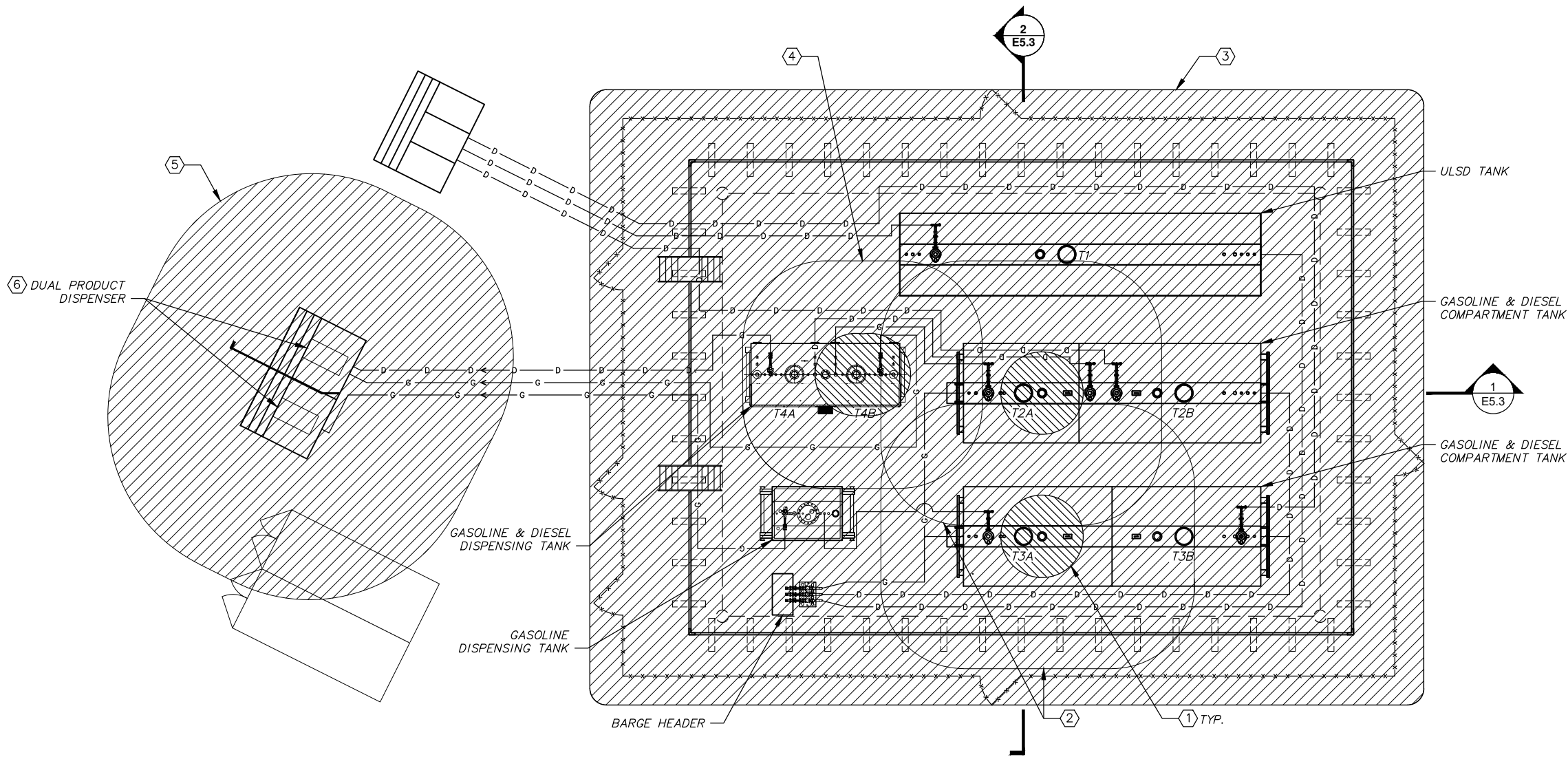
Plot 4/1/25
Date

Designed
Drawn

Approved BC:AMH



Sheet No. **E5.1**

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFI Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Pump Cabinet And Dispenser Details.dwg



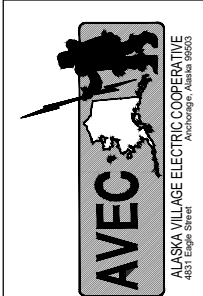
1 **COLOCATED TANK FARM AREA CLASSIFICATION PLAN**
SCALE: GRAPHIC

CLASSIFICATION LEGEND

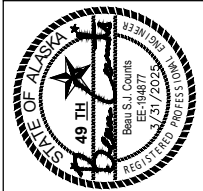
-  CLASS 1, DIVISION 1
-  CLASS 1, DIVISION 2

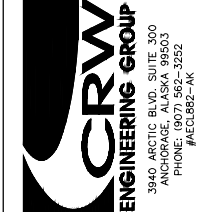
NOTES

- 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 WITHIN 10' OF THE GASOLINE SIDE OF THE DUAL PRODUCT DISPENSER TANK (T4B) IS A CLASS 1, DIVISION 2 LOCATION.
- 5 THE AREA 18" ABOVE GRADE WITHIN 20' OF DUAL DISPENSER IS CLASS 1, DIVISION 2 RATED.
- 6 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.



ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Edge Street
Anchorage, Alaska 99503





CRW
ENGINEERING GROUP
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES
COLOCATED TANK FARM CLASSIFICATION
PLAN
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25
Date

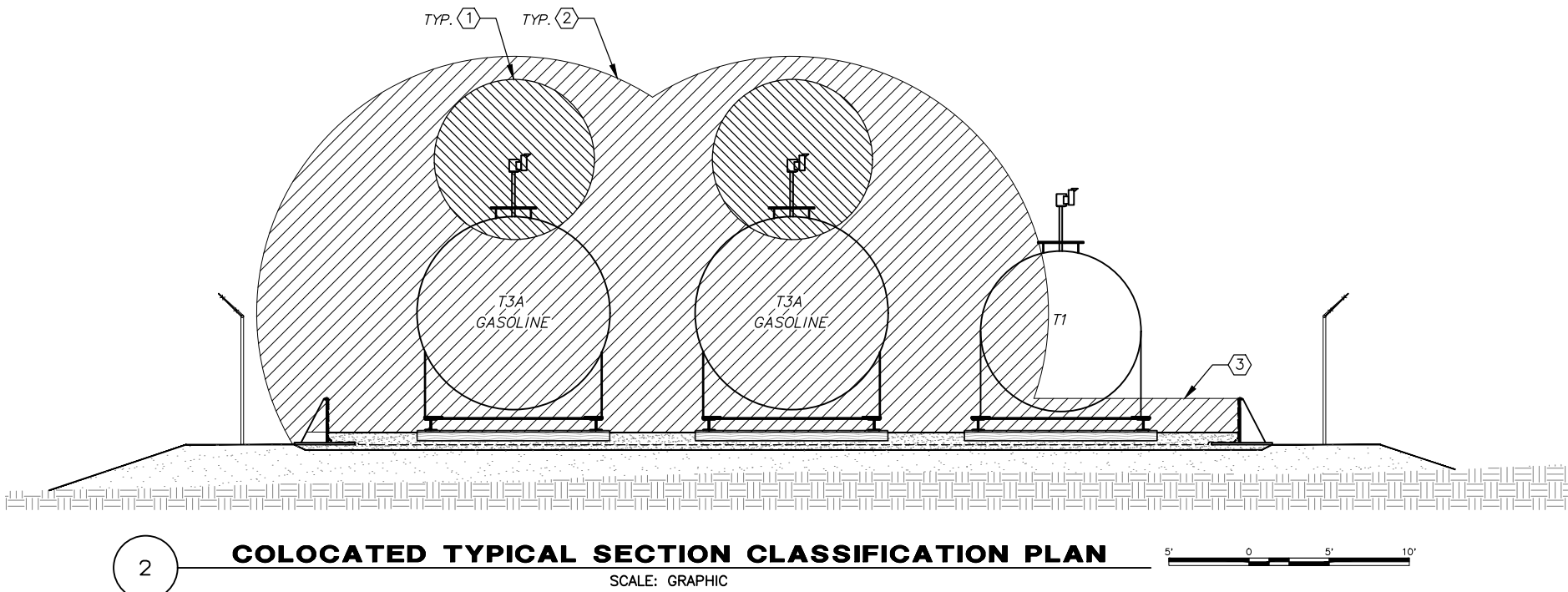
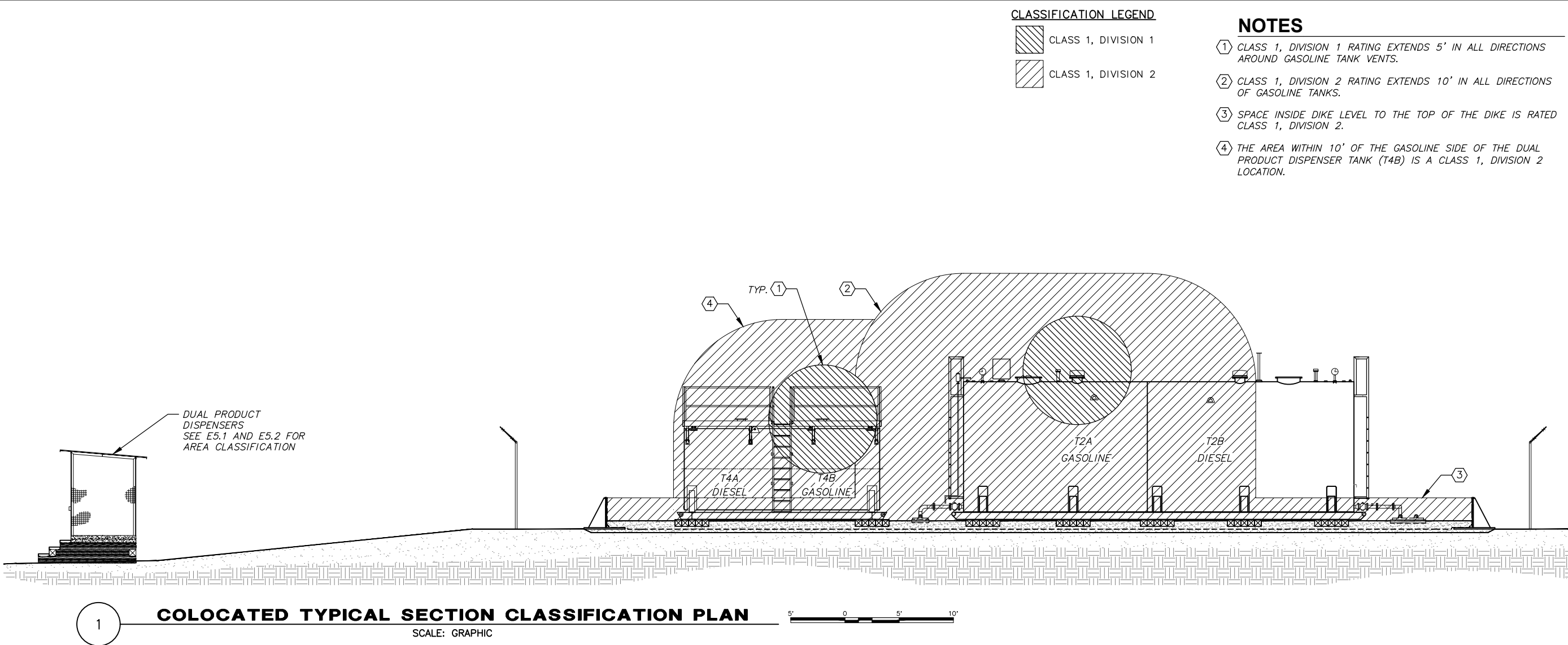
Designed

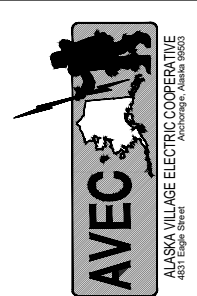
Drawn

Approved BC:AMH

Sheet No. **E5.2**


File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Pump Cabinet And Dispenser Details.dwg





ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Edge Street
Anchorage, Alaska 99503





CRW
ENGINEERING GROUP
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES

COLOCATED TYPICAL SECTION CLASSIFICATION PLAN

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25

Date

Designed

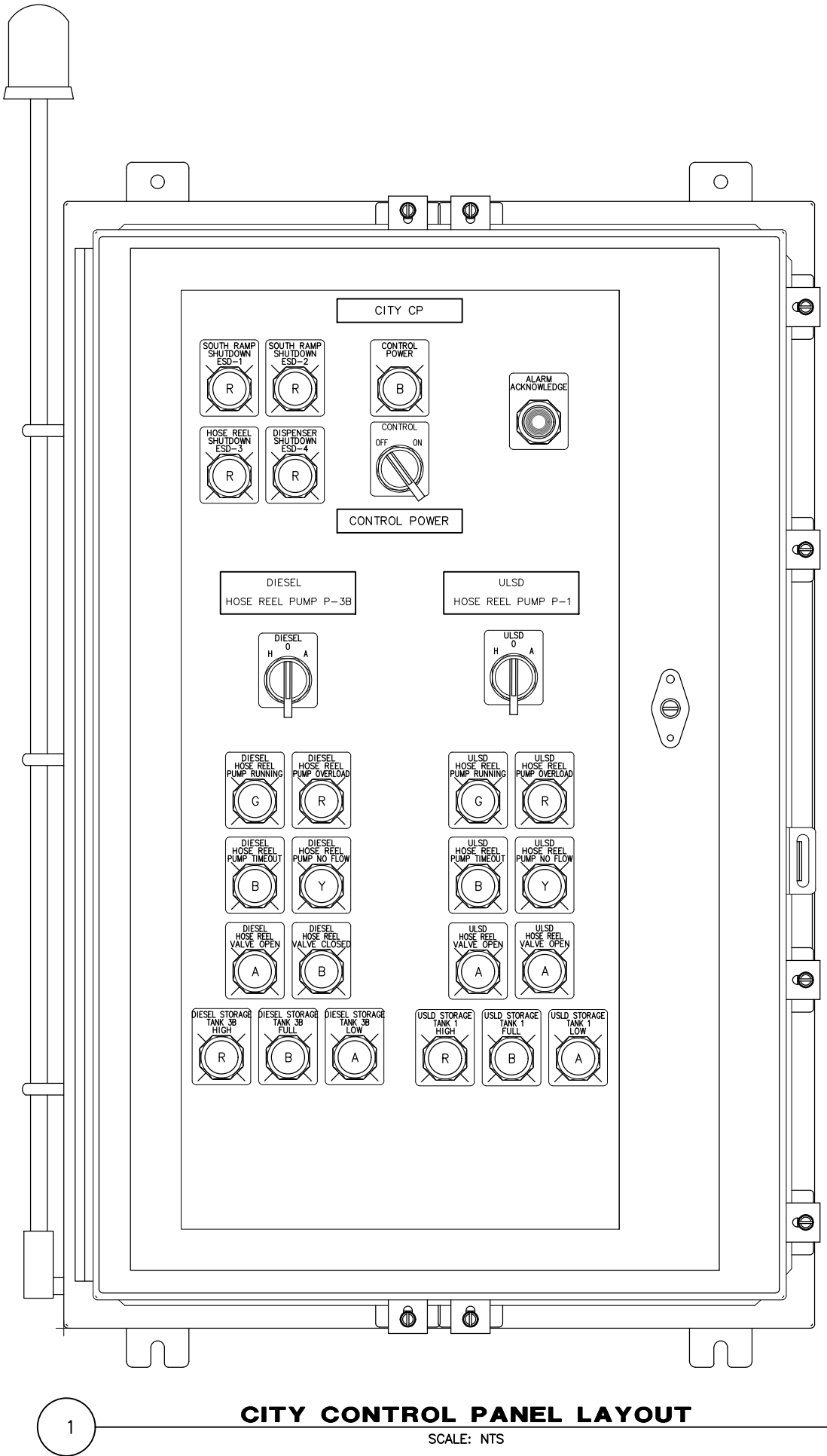
Drawn

Approved BC:AMH

Sheet No.

E5.3

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFI Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 City Control Panel Layout And Narrative.dwg



PUMP CONTROL NARRATIVE

The control panel operates the gasoline and diesel pumps supplying the hose reels, controls, and area lighting in addition to providing emergency shutdown for the entire fuel system.

EMERGENCY SHUTDOWN

The Emergency shutdown system, when engaged, will cause the alarm horn/strobe to be energized. There is one ESD, located on the edge of the connex in the truck fill area. The alarm is enabled by pushing the ESD button and is extinguished by pulling the ESD button "out", clearing the signal. When an ESD button is pushed, all powered conductors to the hose reel enclosure 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.

HOSE REEL PUMPS

The hose reel pumps can be either manual or automatic. The following applies to both the gasoline and Diesel systems.

Normal operation is for the pumps to operate in AUTO mode. The hose reels are each equipped with an automatic volume control valve that is set with amount of fuel in gallons that is desired. A local controller offers START and STOP pushbuttons that will cause the pump to start and stop when pressed. Pressing the START pushbutton will cause the related pump to begin pumping and will continue to pump until the STOP pushbutton is pressed or the pump has timed out. IF the pump timeout caused the shutdown, the control HOA switch should be turned OFF then back to AUTO and then when the START button is pressed the pump will continue to pump until the valve limit is reached.

Manual operation

By placing (and holding) the HOA switch in the HAND position, the hose reel pump will start and run. Its RUN light will turn on and the pump will continue running until either it experiences an overload condition or the operator releases the HOA switch. An overload condition occurs when either the panel mounted motor starter control is opened internally or an internal temperature sensor in the motor detects an overheat condition. 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 bulk transfer system in the event of control failure.

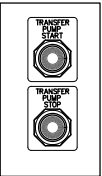
ALARMS

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.



HOSE REEL CONTROL LAYOUT

SCALE: NTS

ALASKA VILLAGE ELECTRIC COOPERATIVE
4831 Eagle Street
Anchorage, Alaska 99503

CRW ENGINEERING GROUP
3640 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0862-AK

SHAGELUK BULK FUEL UPGRADES
CITY CONTROL PANEL LAYOUT AND
NARRATIVE

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25
Date

Designed
Drawn BRP
Approved BC,AMH

Sheet No.

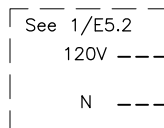
E6.1



SCALE: NTS



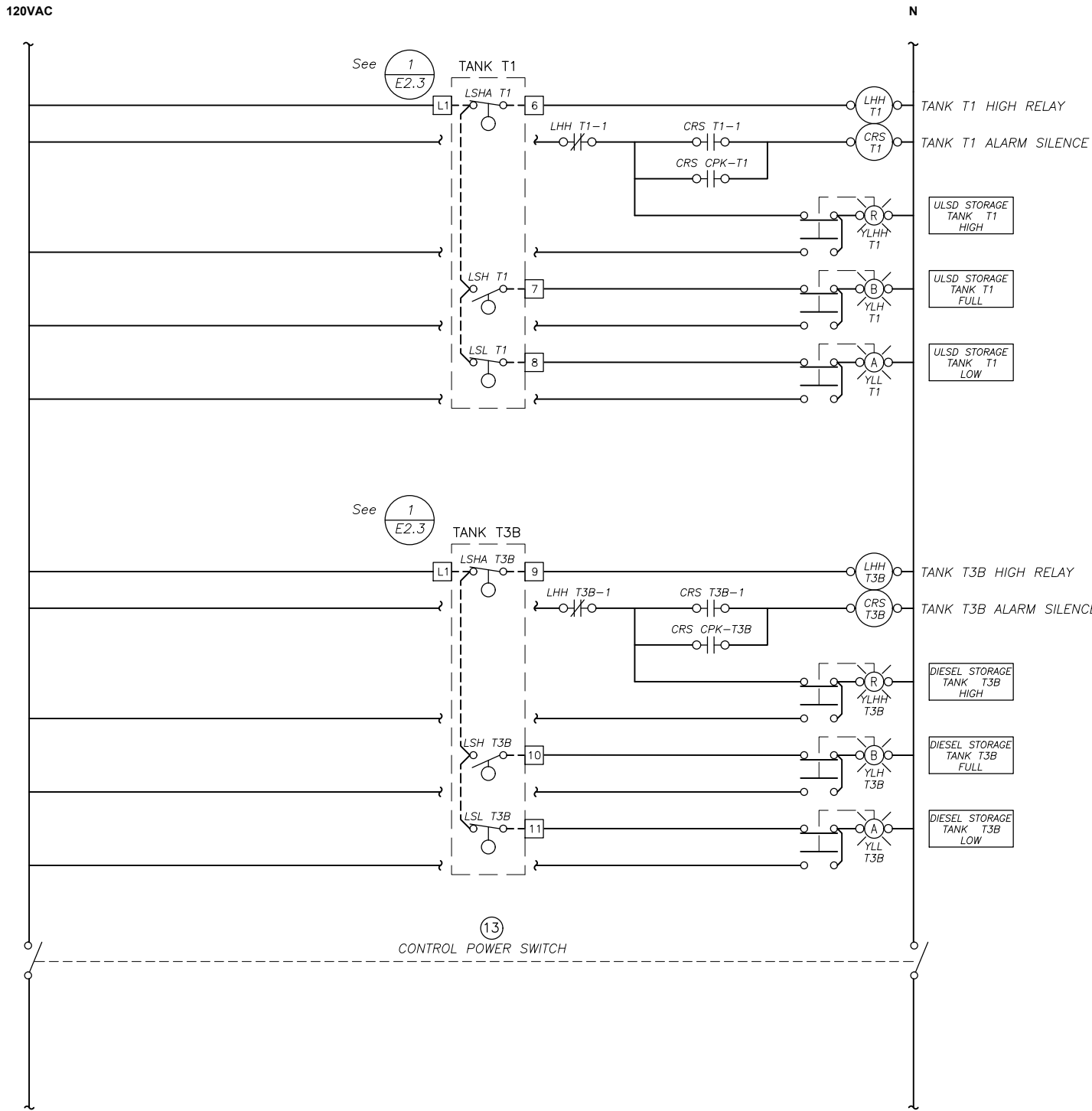
SCALE: NTS



SCALE: NTS

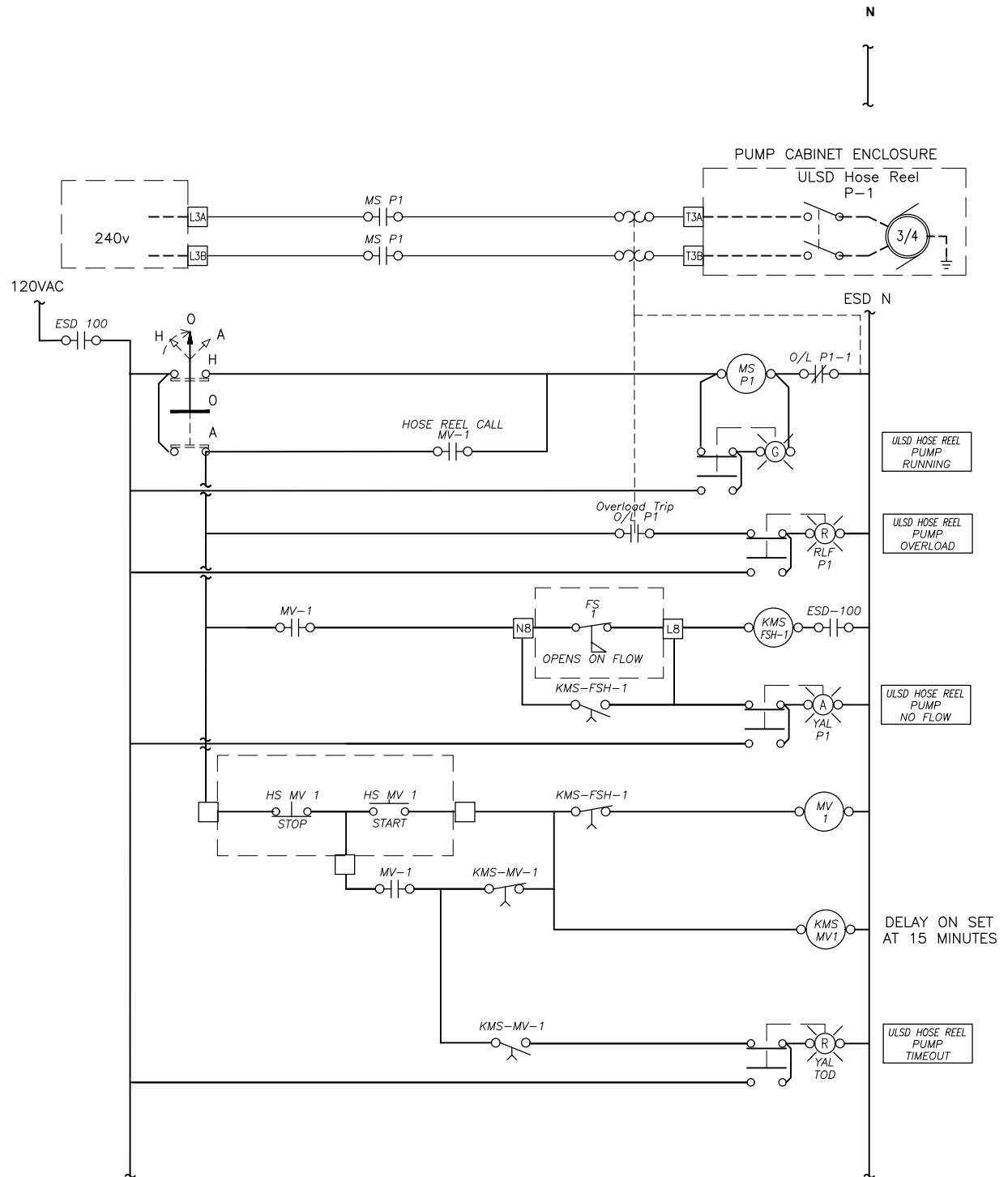


File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFI Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 City Control Panel Layout And Narrative.dwg



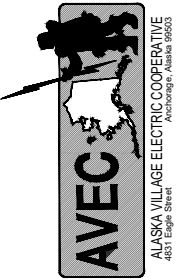
LADDER DIAGRAM, CONTINUED

SCALE: NTS



LADDER DIAGRAM, CONTINUED

SCALE: NTS



SHAGELUK BULK FUEL UPGRADES

CP-1 LADDER

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25	Designed BC
Date	Drawn ESC
	Approved BC,AMH

Sheet No.

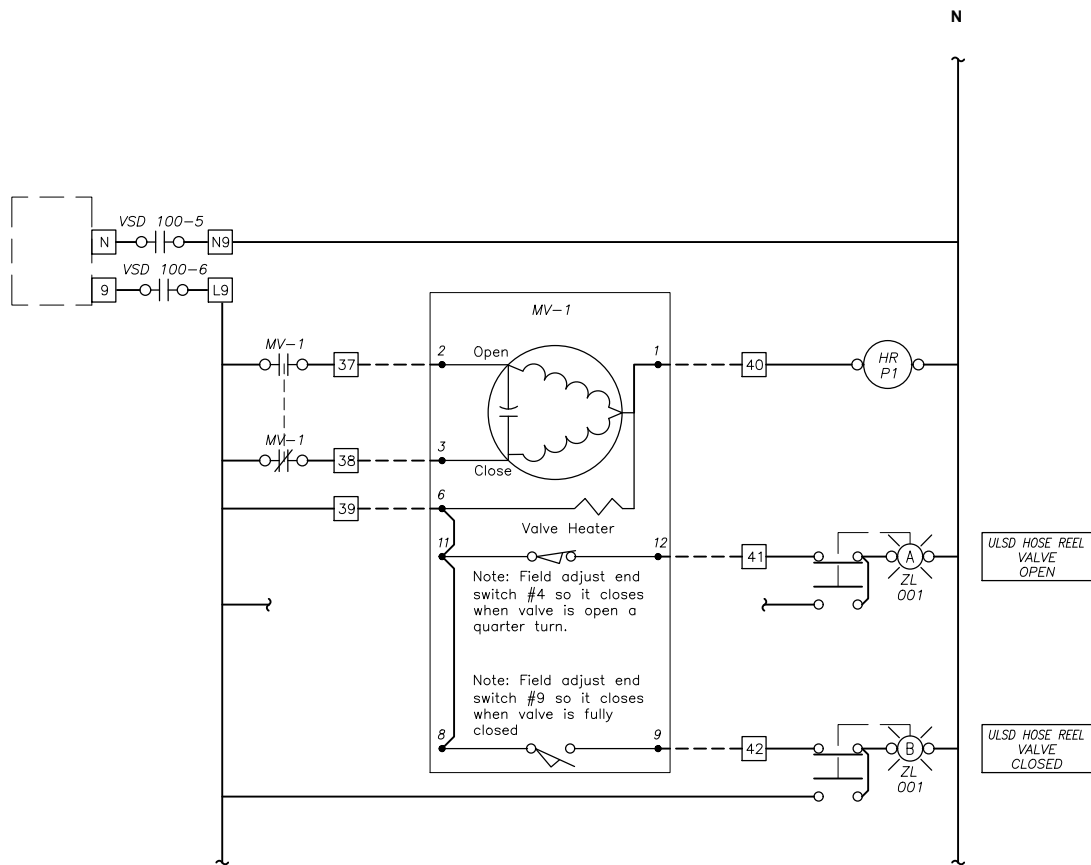
E6.3

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 City Control Panel Layout And Narrative.dwg

1

LADDER DIAGRAM, CONTINUED

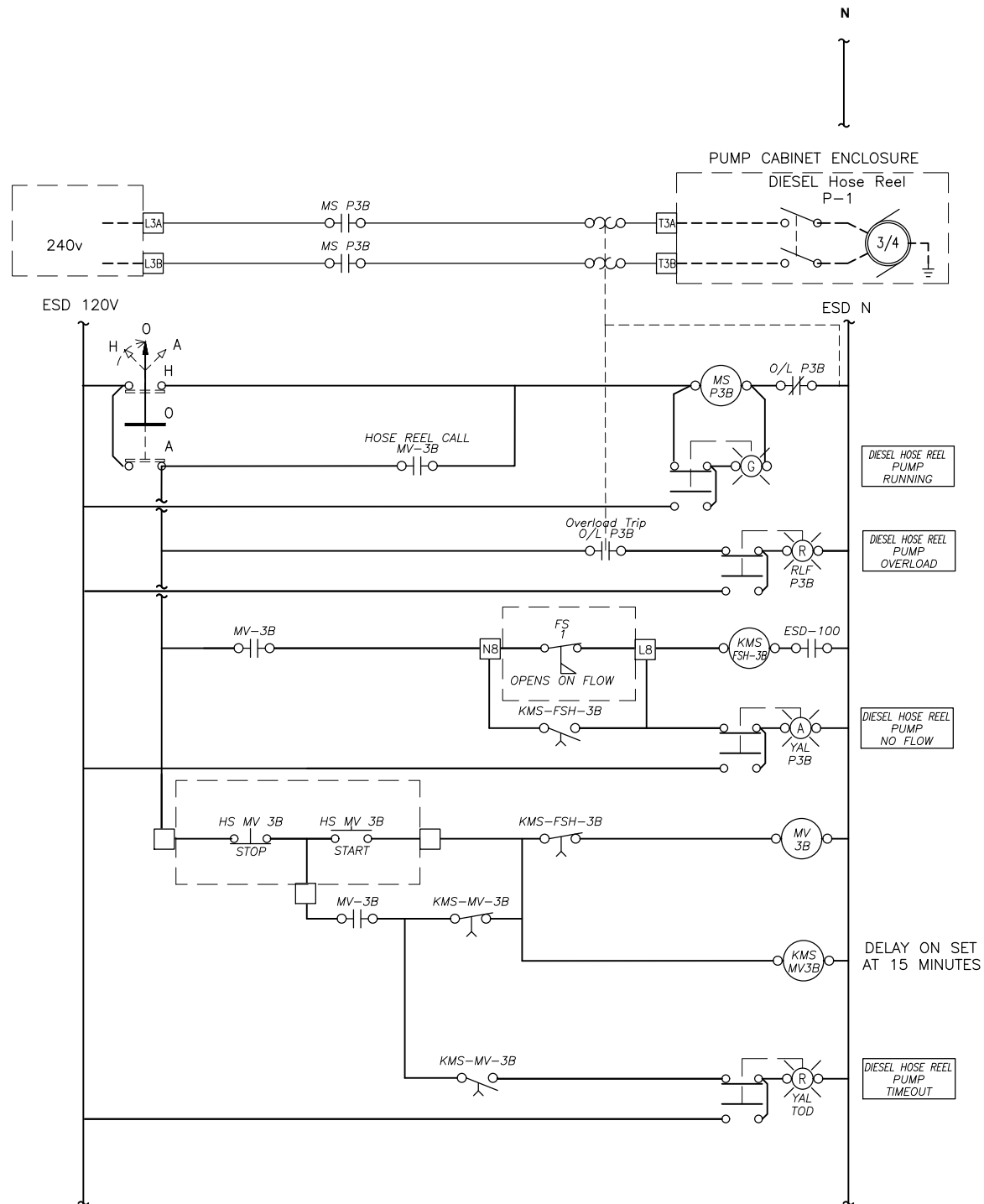
SCALE: NTS



2

LADDER DIAGRAM, CONTINUED

SCALE: NTS



Plot 4/1/25
Date
Designed BC
Drawn ESC
Approved BC,AMH

Sheet No.

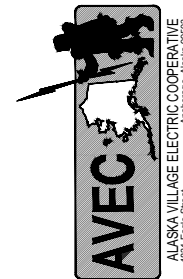
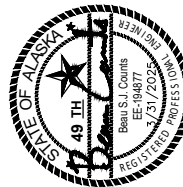
E6.4

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

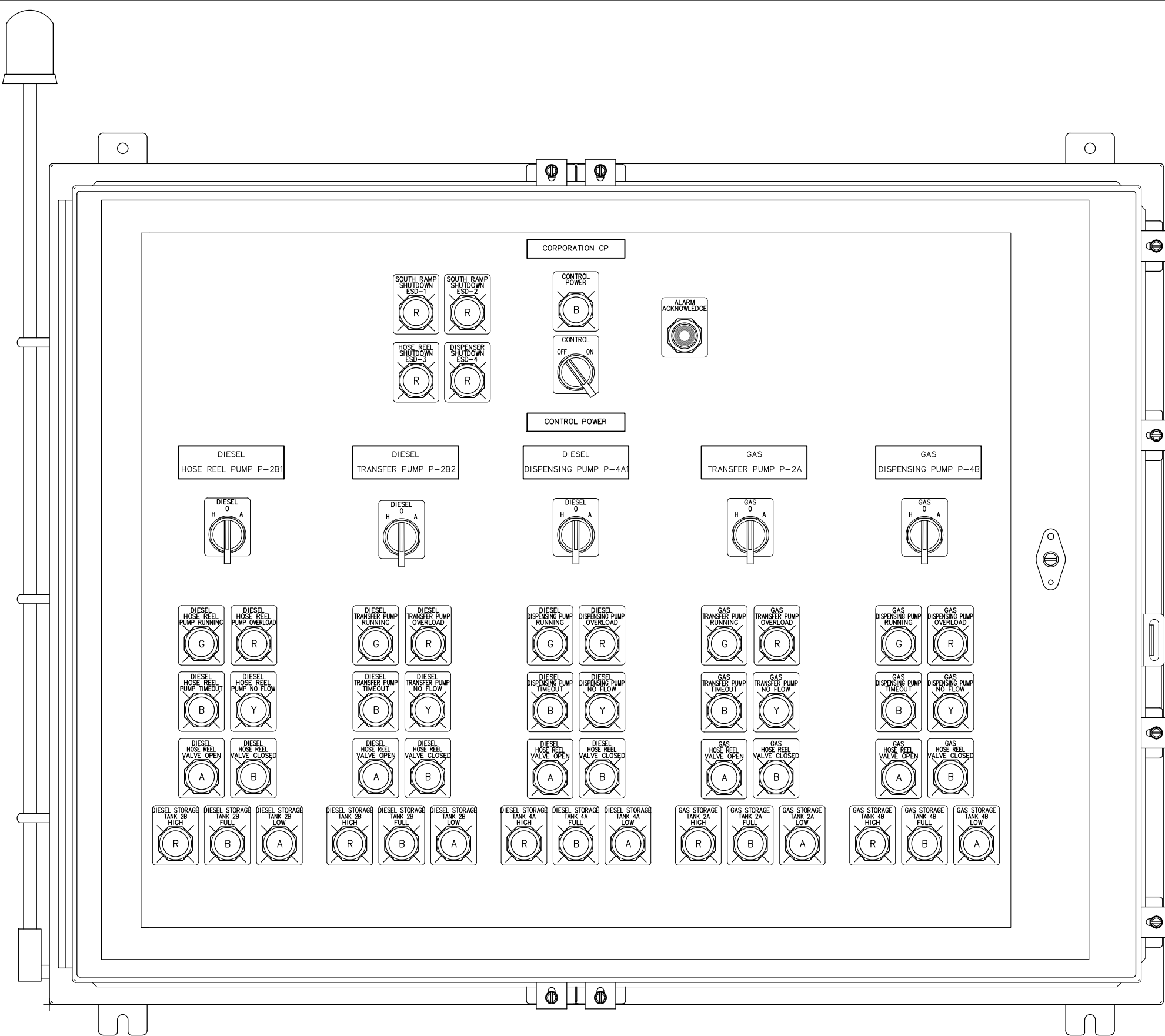
SHAGELUK BULK FUEL UPGRADES

CP-1 LADDER

SHAGELUK, ALASKA



File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFI Design\00 CADD 2019\01 Working Set\03 Electrical\E7.1 CORPORATION CONTROL PANEL LAYOUT AND NARRATIVE.dwg



CORPORATION CONTROL PANEL LAYOUT
SCALE: NTS



HOSE REEL CONTROL LAYOUT
SCALE: NTS



AVEC
ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Edge Street
Anchorage, Alaska 99503





CRW
ENGINEERING GROUP
3840 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0862-AK

SHAGELUK BULK FUEL UPGRADES
CORPORATION CONTROL PANEL LAYOUT
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot Date
4/1/25

Designed
BRP

Drawn
BRP

Approved
BC,AMH

Sheet No.
E7.1

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFI Design\00 CADD 2019\01 Working Set\03 Electrical\E7.1 CORPORATION CONTROL PANEL LAYOUT AND NARRATIVE.dwg

CORPORATION PUMP CONTROL NARRATIVE

The control panel operates the gasoline and diesel pumps supplying the hose reels, controls, and area lighting in addition to providing emergency shutdown for the entire fuel system.

ALARMS

Each tank is equipped with a CRITICAL HIGH (LSHA – XX) Level Float switch that, when fuel reaches its level, opens a circuit (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. Refer to sheet E.### for emergency shutdown narrative.

FUEL TRANSFER

The fuel transfer between the bulk and dispensing 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. 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.

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.

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. Other operating parameters are identical to the manual mode.


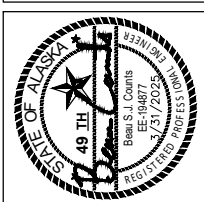
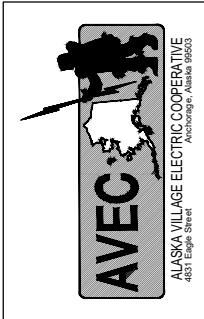
HOSE REEL PUMPS

The hose reel pumps can be either manual or automatic. The following applies to both the gasoline and Diesel systems.

Normal operation is for the pumps to operate in AUTO mode. The hose reels are each equipped with an automatic volume control valve that is set with amount of fuel in gallons that is desired. A local controller offers START and STOP pushbuttons that will cause the pump to start and stop when pressed. Pressing the START pushbutton will cause the related pump to begin pumping and will continue to pump until the STOP pushbutton is pressed or the pump has timed out. IF the pump timeout caused the shutdown, the control HOA switch should be turned OFF then back to AUTO and then when the START button is pressed the pump will continue to pump until the valve limit is reached.

Manual operation

By placing (and holding) the HOA switch in the HAND position, the hose reel 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 bulk transfer system in the event of control failure.



SHAGELUK BULK FUEL UPGRADES

CORPORATION CONTROL PANEL NARRATIVE

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

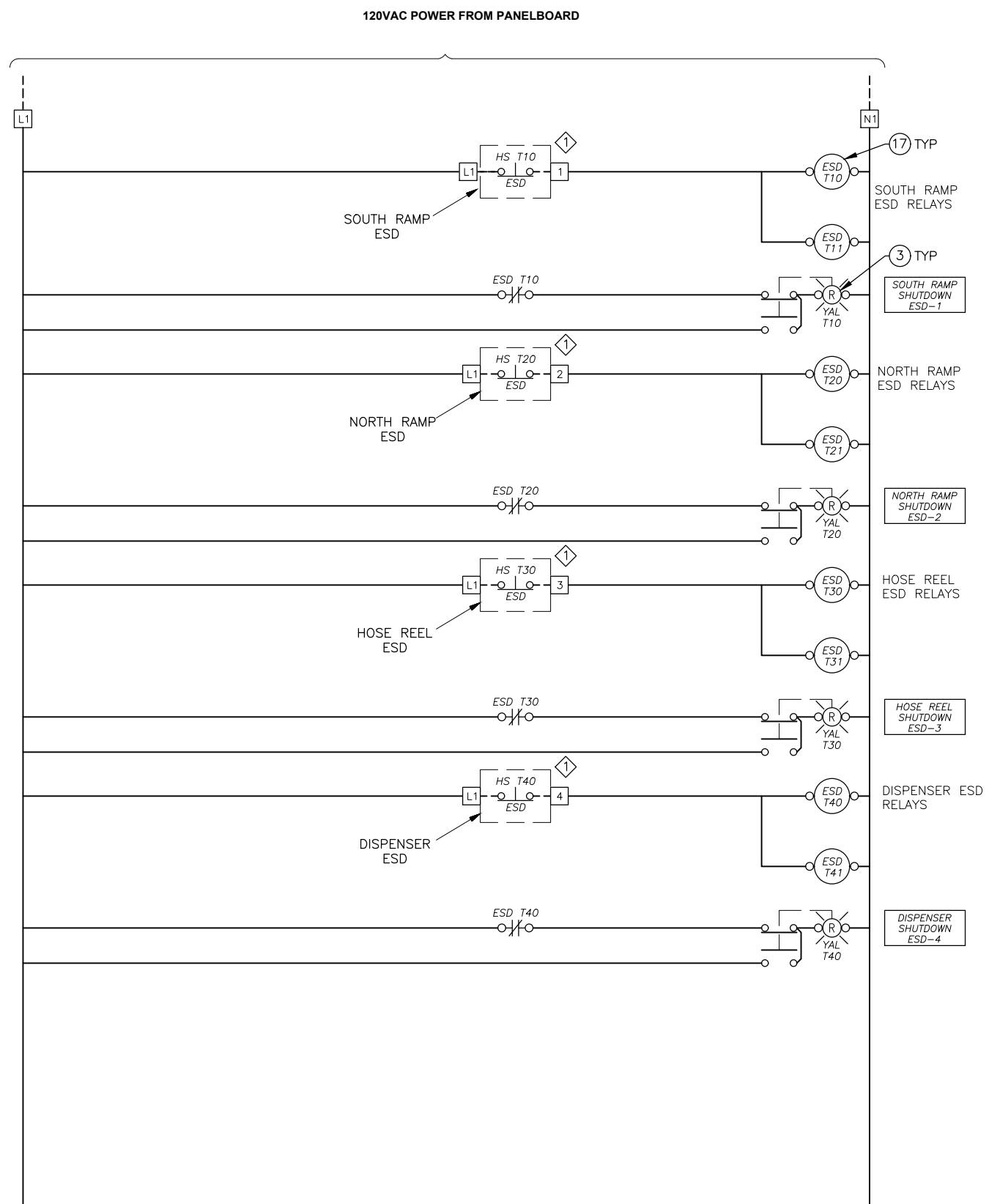
Plot Date4/1/25

Designed

DrawnBRP

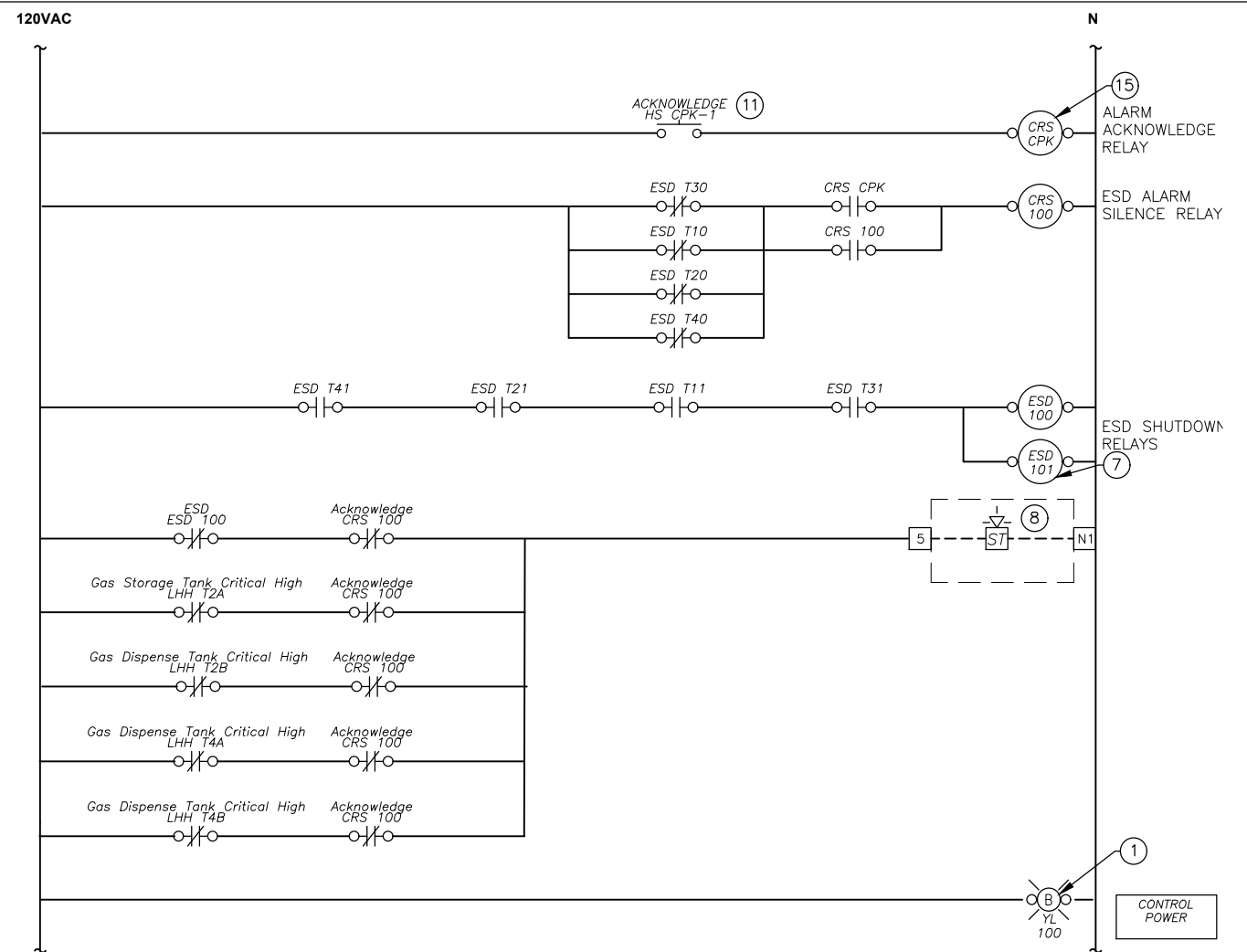
ApprovedBC,AMH

Sheet No. E7.2



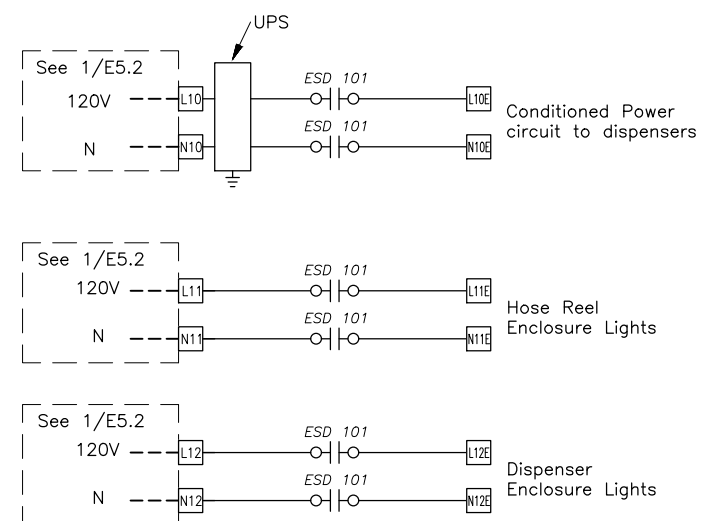
LADDER DIAGRAM

SCALE: NTS



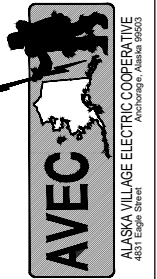
LADDER DIAGRAM, CONTINUED

SCALE: NTS



ESD CONTACTS TO DISPENSER AND ENCLOSURE LIGHTS

SCALE: NTS



CP-3 | ADDER

0
1
2
3
4
5

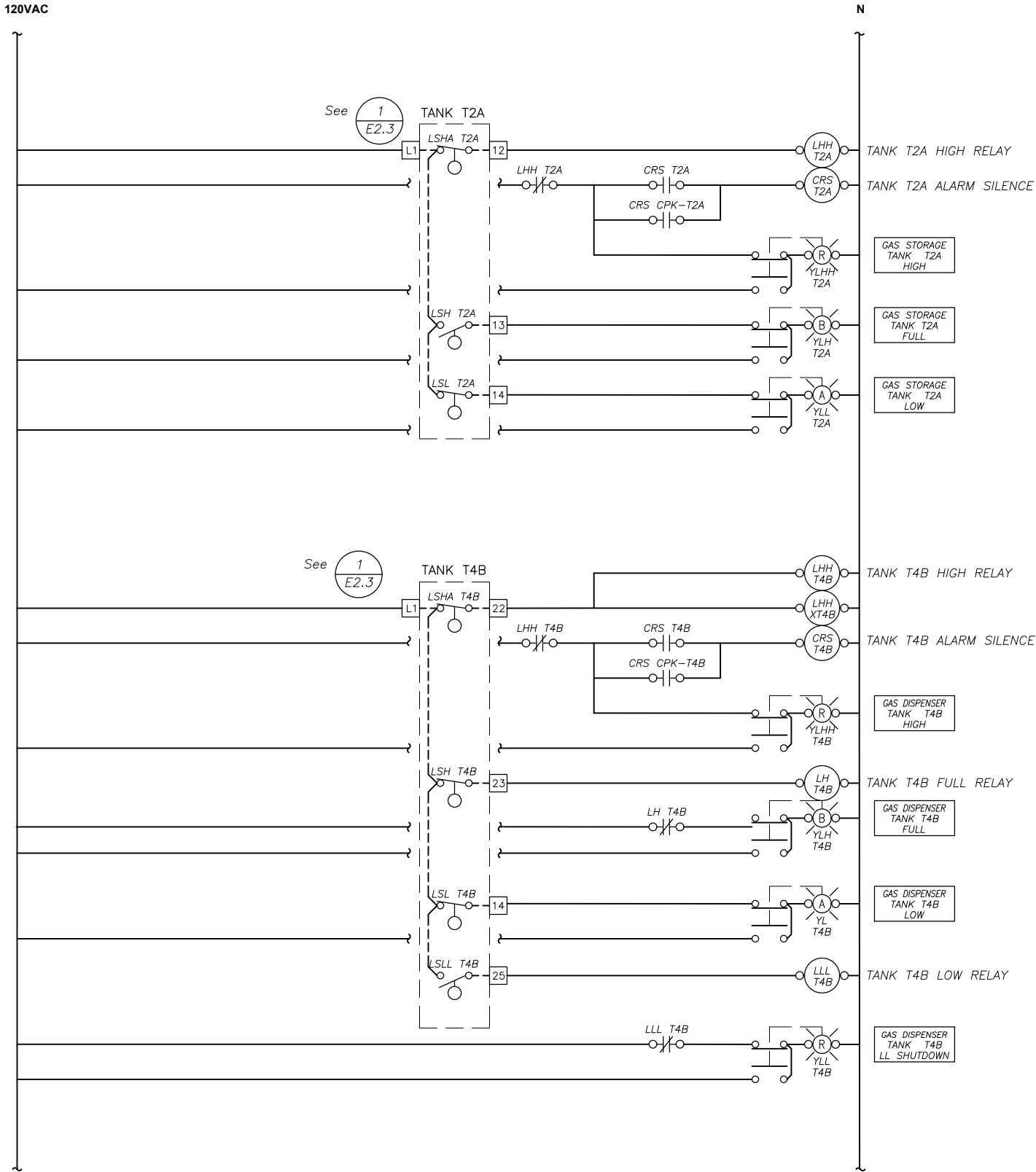
[illegible]

Plot	4/1/25
Date	
Designed	
Drawn	BRP
Approved	BC,AMH

Sheet No.

7.3

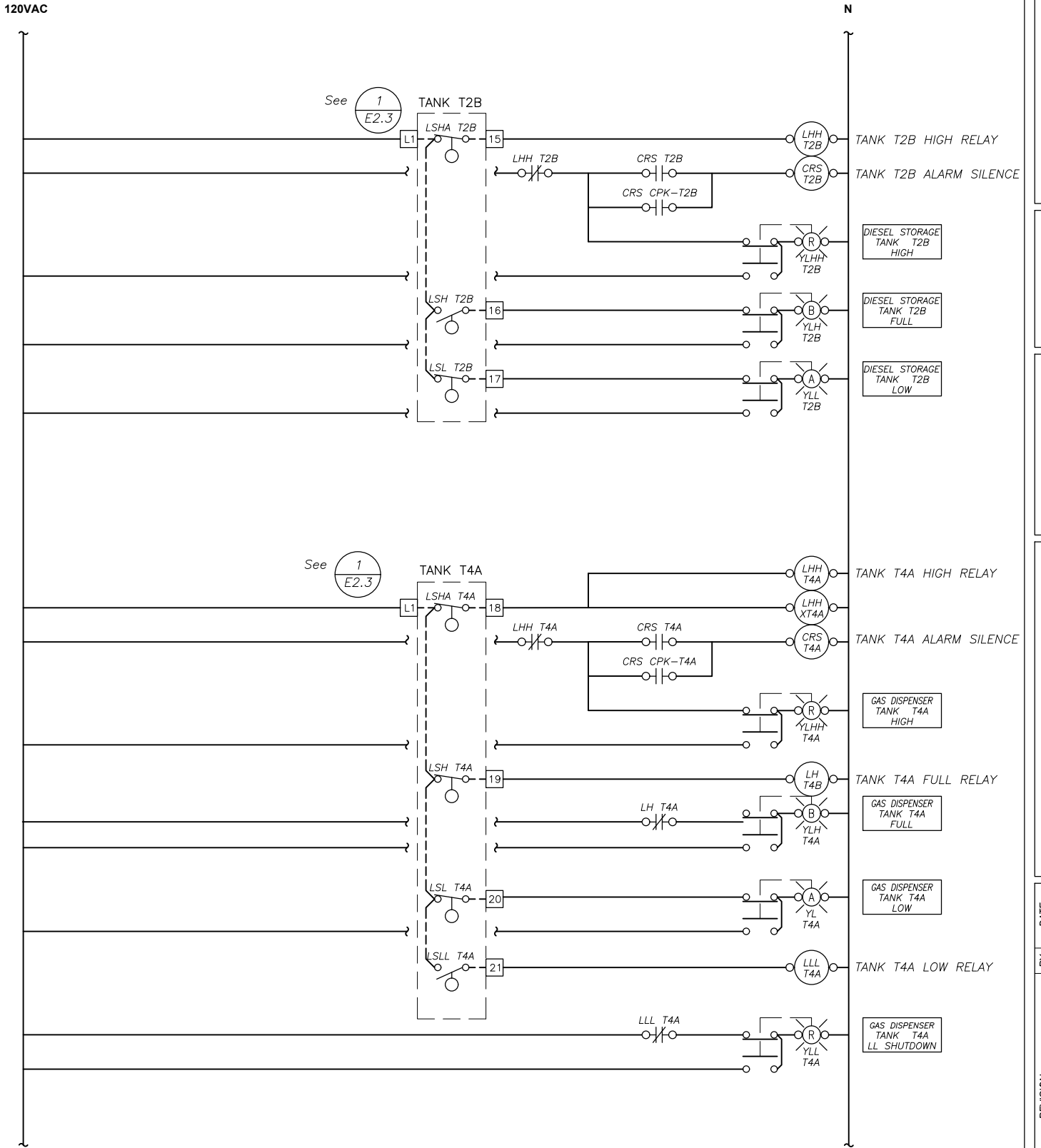
File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\E7.1 CORPORATION CONTROL PANEL LAYOUT AND NARRATIVE.dwg



1

LADDER DIAGRAM, CONTINUED

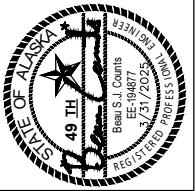
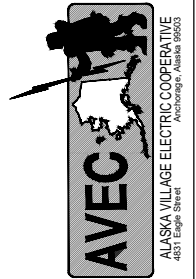
SCALE: NTS



2

LADDER DIAGRAM, CONTINUED

SCALE: NTS



SHAGELUK BULK FUEL UPGRADES

CP-3 LADDER

SHAGELUK, ALASKA

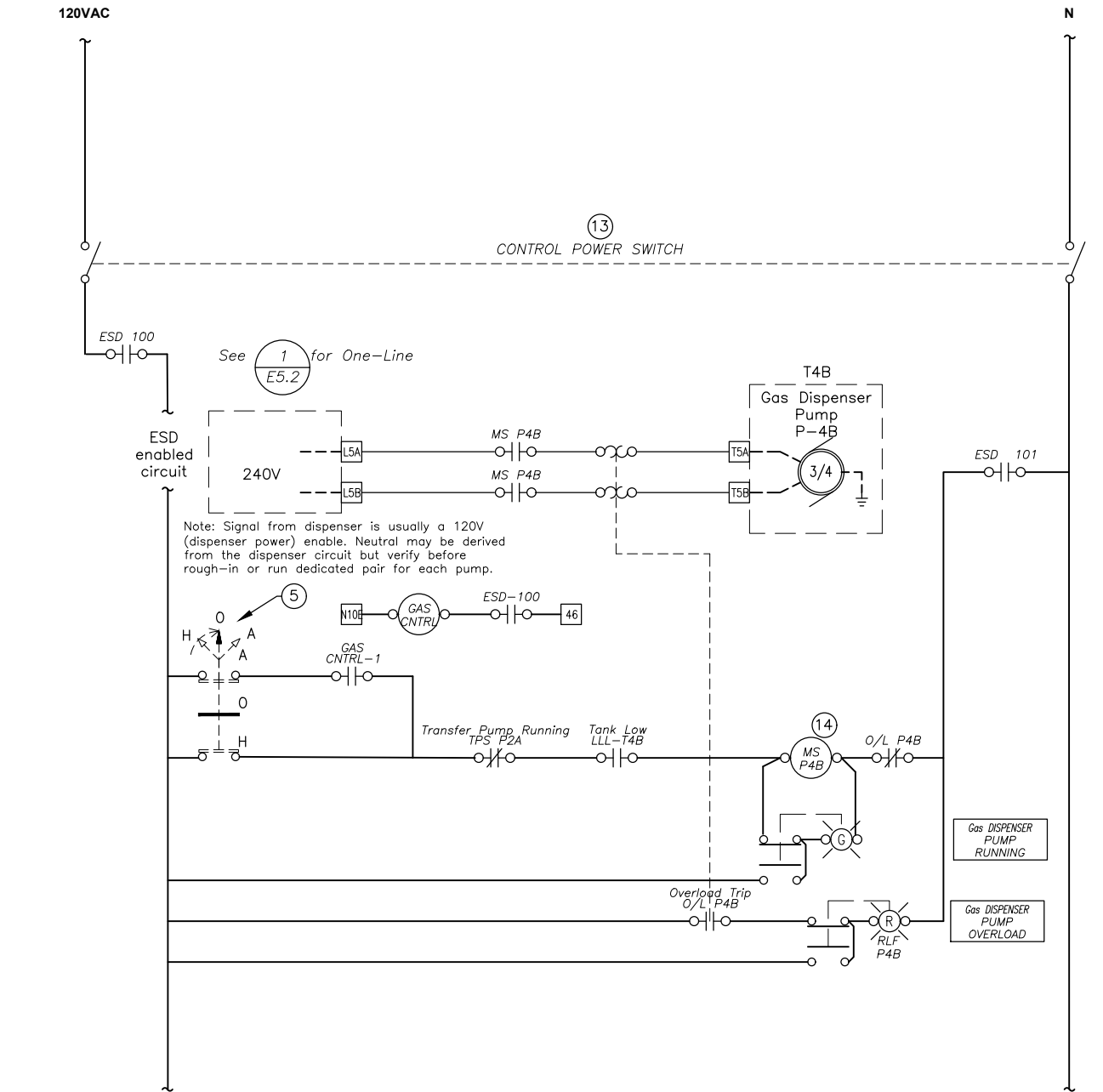
NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25	Designed	Drawn	BRP	Approved	BC.AMH
-------------	----------	-------	-----	----------	--------

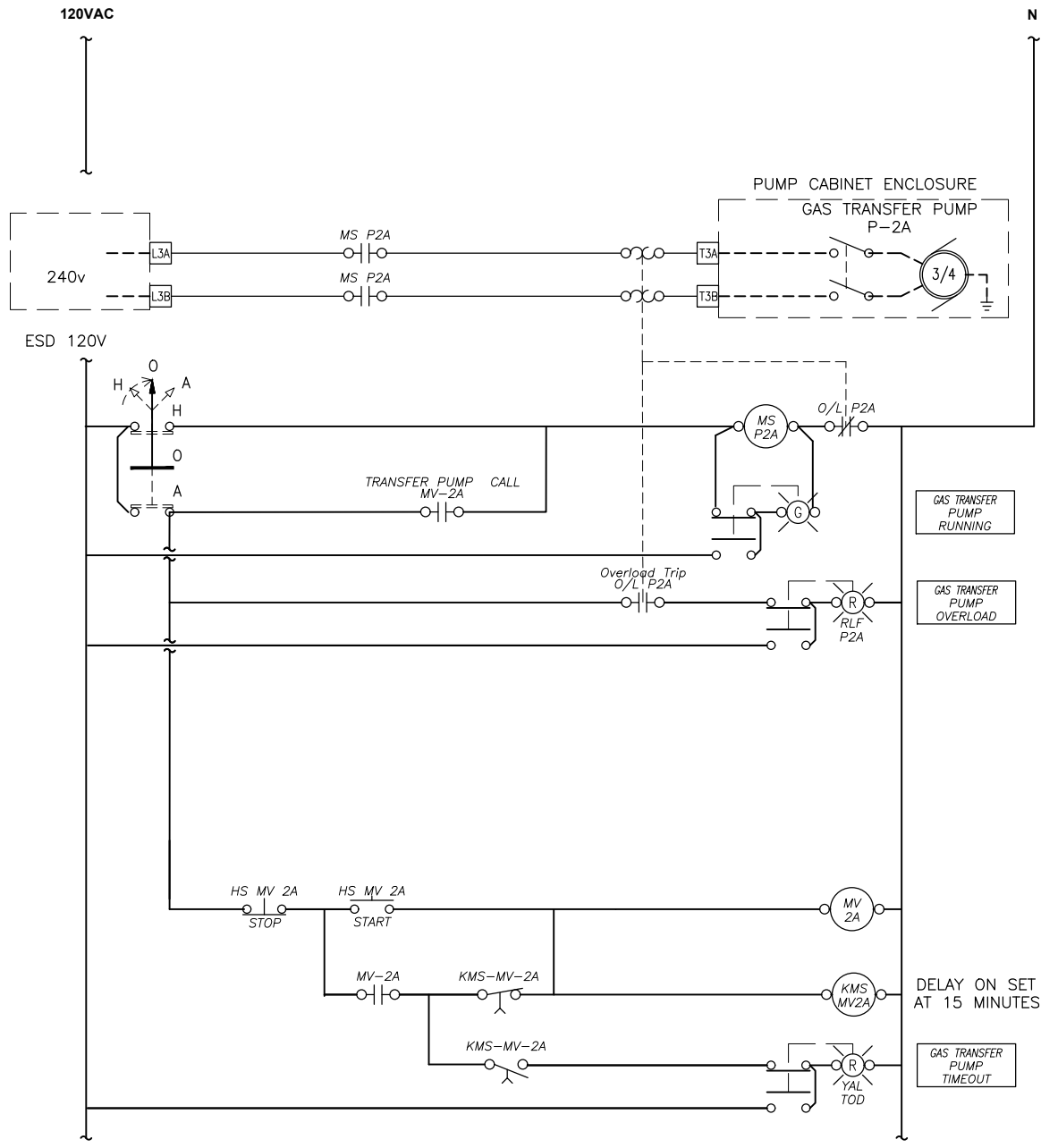
Sheet No.

E7.4

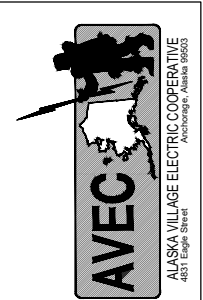
File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFU Design\00 CADD 2019\01 Working Set\03 Electrical\E7.1 CORPORATION CONTROL PANEL LAYOUT AND NARRATIVE.dwg



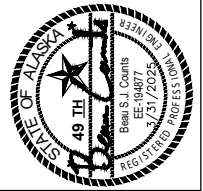
1 **LADDER DIAGRAM, CONTINUED**
SCALE: NTS




2 **LADDER DIAGRAM, CONTINUED**
SCALE: NTS



AVEC
ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Edge Street
Anchorage, Alaska 99503



49 TH
BEAR S.J. Counts
EE-19487
7/31/2025
REGISTERED PROFESSIONAL ENGINEER
STATE OF ALASKA



CRW
ENGINEERING GROUP
3640 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC082-AK

SHAGELUK BULK FUEL UPGRADES
CP-3 LADDER
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25
Date

Designed
Drawn
Approved

BRP
BC.AMH

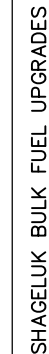
Sheet No. **E7.5**



SCALE: NTS

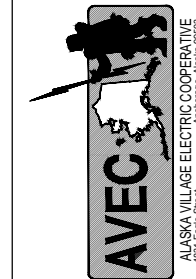


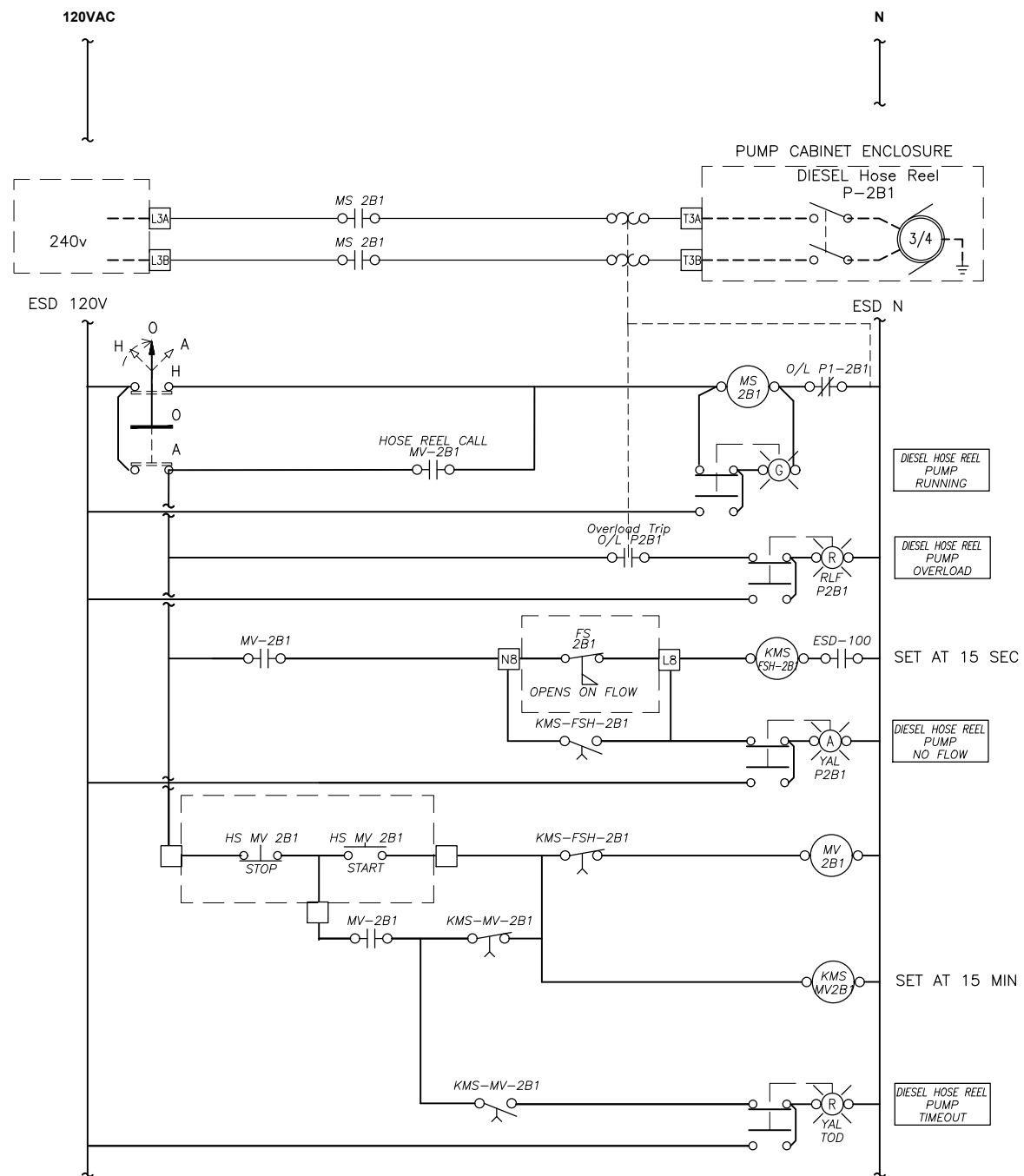
SCALE: NTS

Sheet No.

CP-3 LADDER

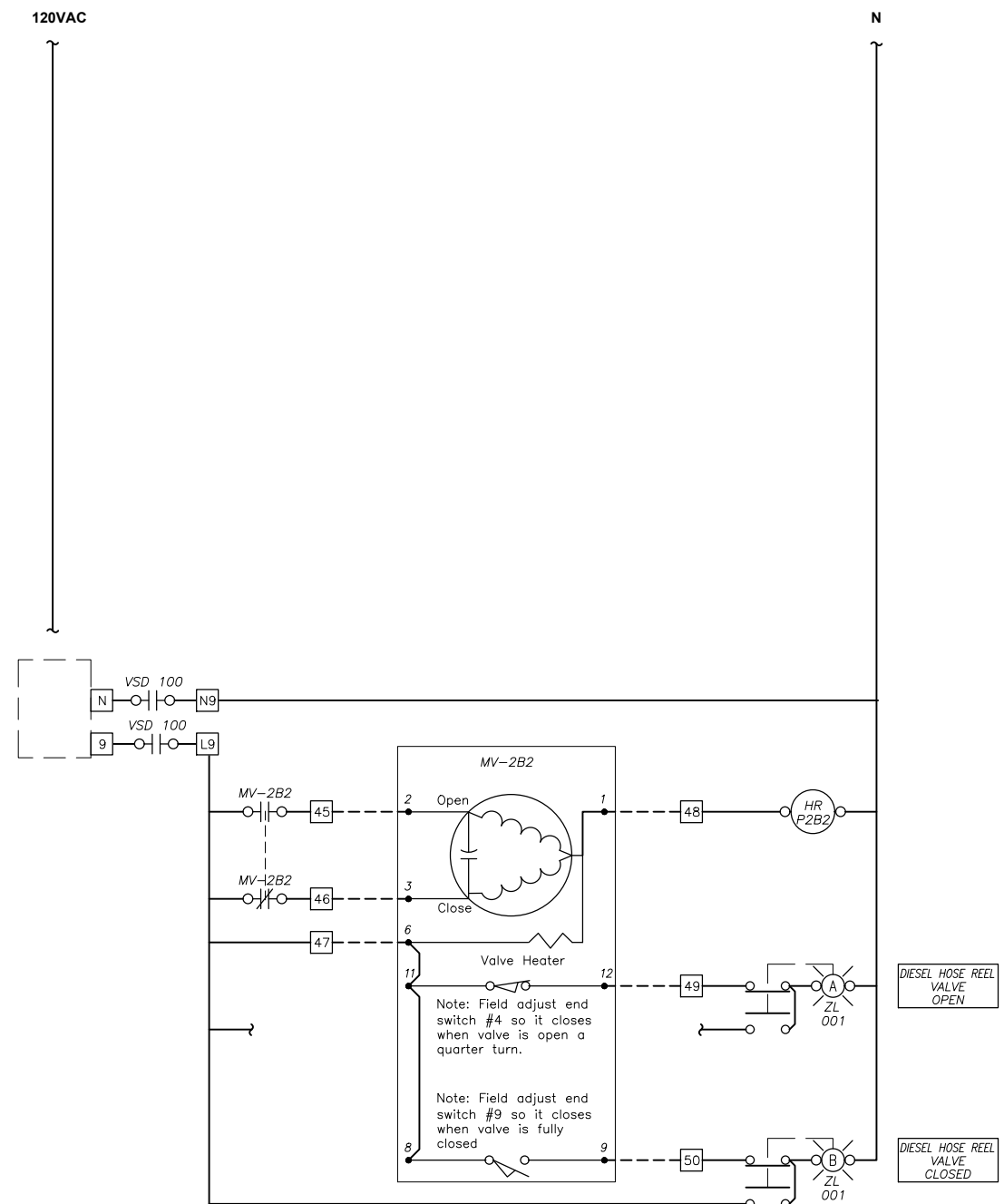
SHAGELUK, ALASKA





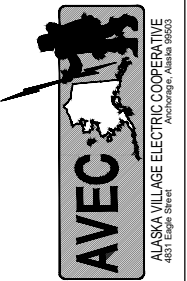
LADDER DIAGRAM, CONTINUED

SCALE: NTS



LADDER DIAGRAM, CONTINUED

SCALE: NTS



SHAGELUK BULK FUEL UPGRADES

CP-3 LADDER

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot Date	4/1/25
Designed	
Drawn	BRP
Approved	BC,AMH

Sheet No.

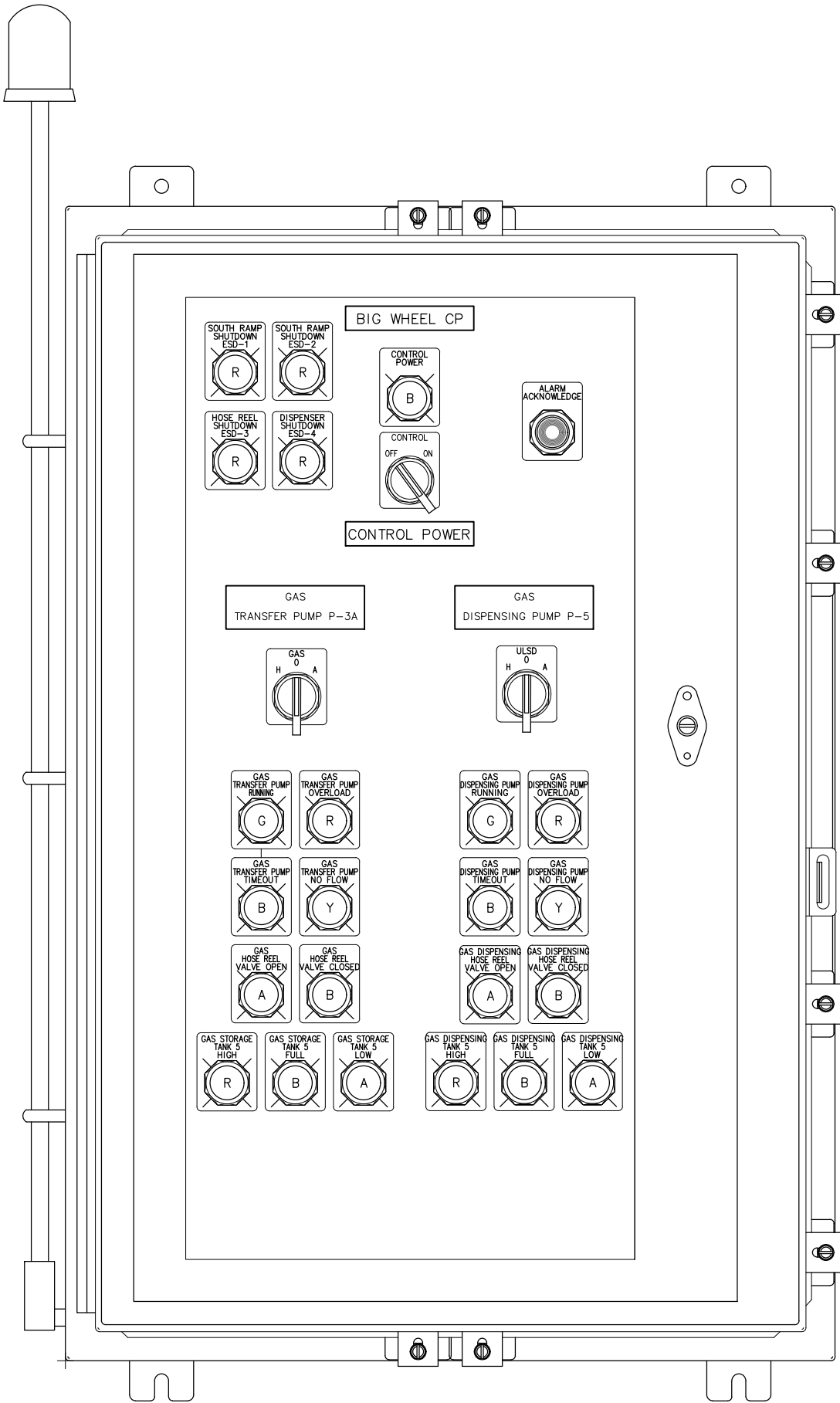
E7.7

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFI Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Big Wheel Control Panel Layout And Narrative.dwg

1

BIG WHEEL CONTROL PANEL LAYOUT

SCALE: NTS



PUMP CONTROL NARRATIVE

The control panel operates the gasoline and diesel pumps supplying the hose reels, controls, and area lighting in addition to providing emergency shutdown for the entire fuel system.

ALARMS

Each tank is equipped with a CRITICAL HIGH (LSHA – XX) Level Float switch that, when fuel reaches its level, opens a circuit (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. Refer to sheet E.### for emergency shutdown narrative.

FUEL TRANSFER

The fuel transfer between the bulk and dispensing 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. 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.

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.

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. Other operating parameters are identical to the manual mode.



AVEC
ALASKA VILLAGE ELECTRIC COOPERATIVE
4831 Eagle Street
Anchorage, Alaska 99503



STATE OF ALASKA
49 TH
Beal S. J. Counts
EE-19487
7/31/2025
REGISTERED PROFESSIONAL ENGINEER



CRW
ENGINEERING GROUP
3640 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0862-AK

SHAGELUK BULK FUEL UPGRADES

BIG WHEEL CONTROL PANEL LAYOUT AND NARRATIVE

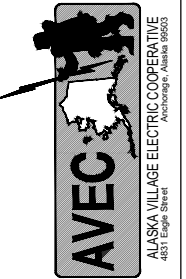
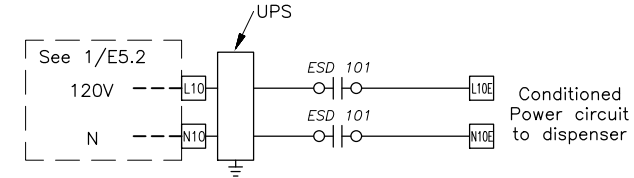
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25
Date

Designed
Drawn BRP
Approved BC,AMH

Sheet No. E8.1



SHAGELUK BULK FUEL UPGRADES

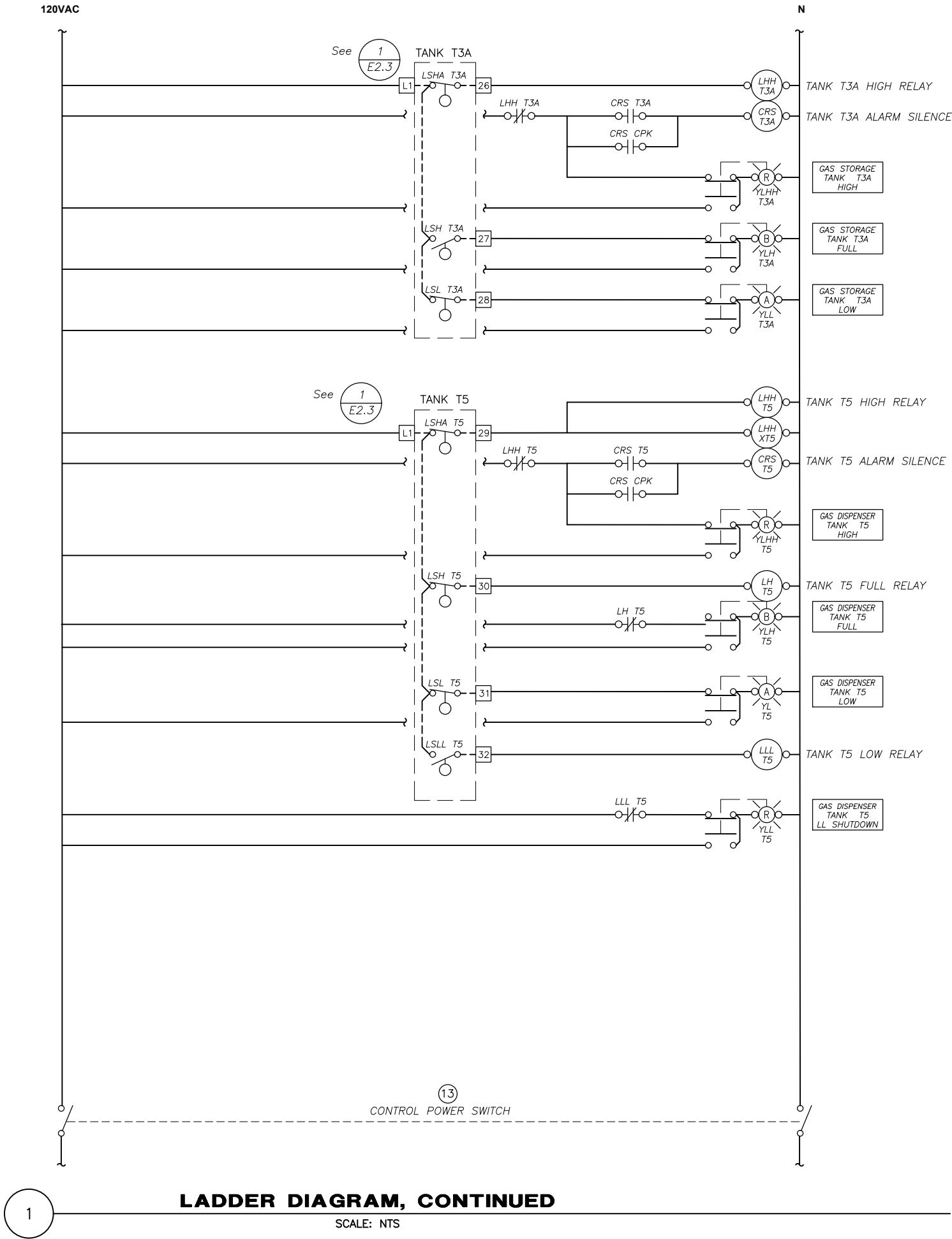
CP-2 LADDER

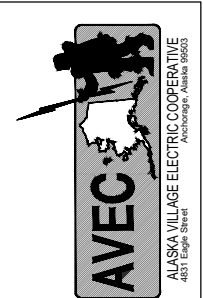
SHAGELUK, ALASKA

NO.	ISSUED FOR BIDDING	REVISION	BY	DATE
A			BC	3/31/25

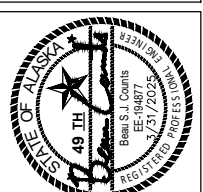
Plot	4/1/25
Date	
Designed	
Drawn	BRP
Approved	BC,AMH


File: \\crweng.com\Projects\JobsData\30704.44 Shageluk Bfu Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Big Wheel Control Panel Layout And Narrative.dwg





AVEC
ALASKA VILLAGE ELECTRIC COOPERATIVE
4851 Edge Street
Anchorage, Alaska 99503





CRW
ENGINEERING GROUP
3840 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0562-AK

SHAGELUK BULK FUEL UPGRADES
CP-2 LADDER
SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25
Date

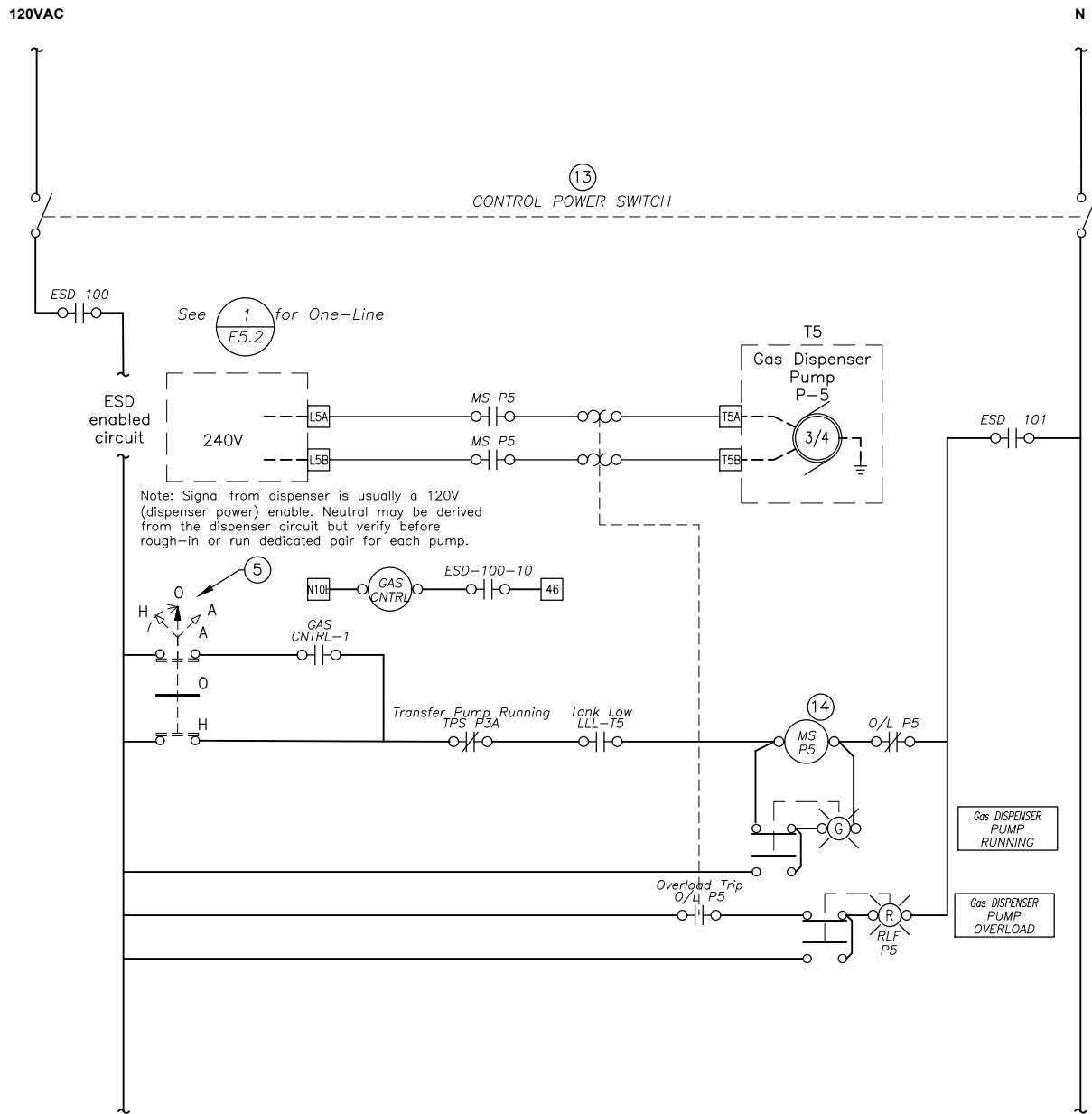
Designed
BRP

Drawn
BC.AMH

Approved
BC.AMH

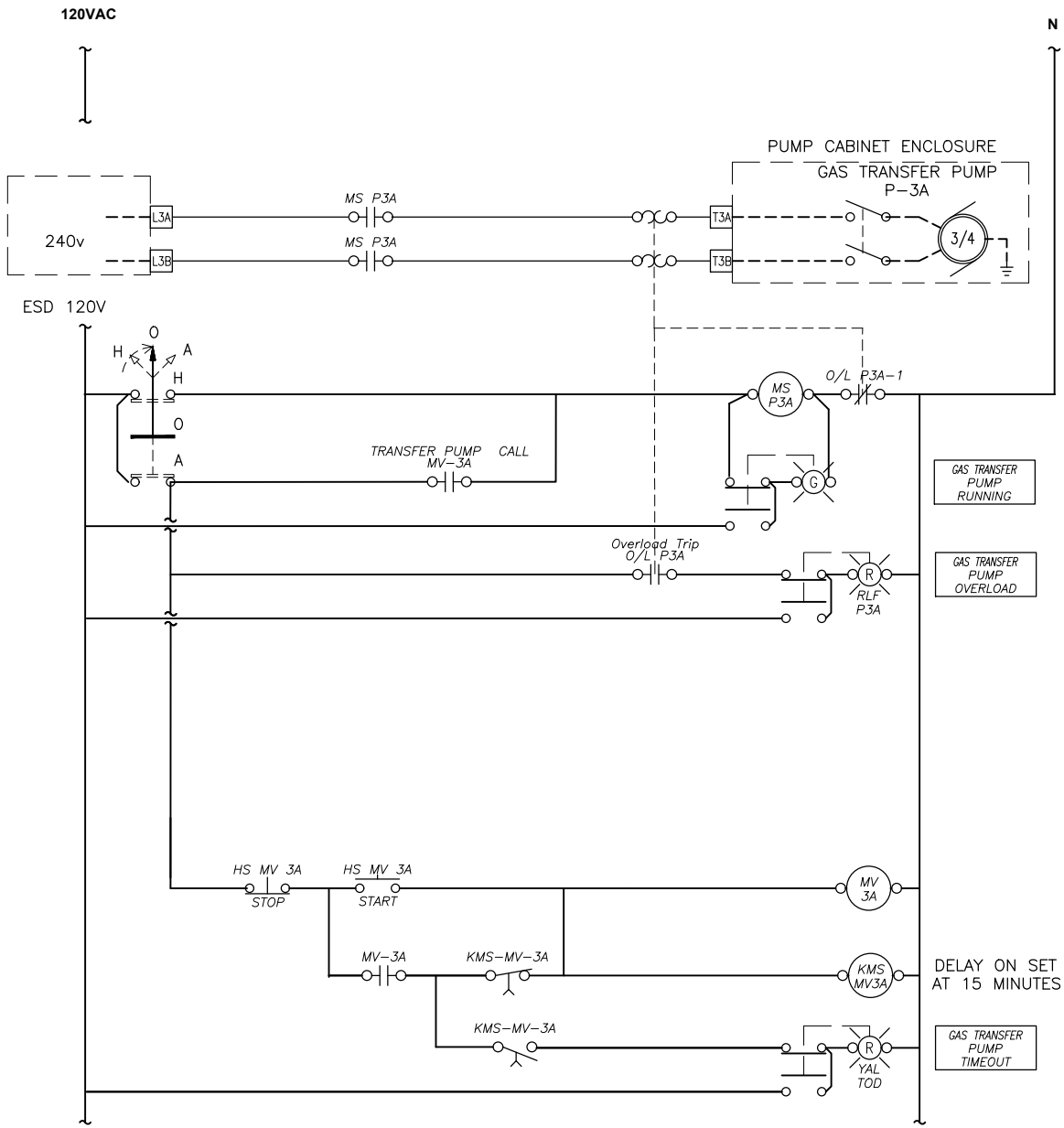
Sheet No.
E8.3

File: \\crweng.com\Projects\JobsData\30704.44 Shageluk BFI Design\00 CADD 2019\01 Working Set\03 Electrical\30704.44 Big Wheel Control Panel Layout And Narrative.dwg



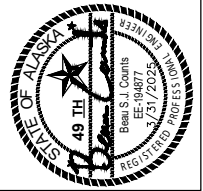
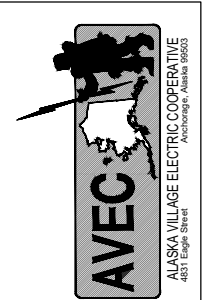
LADDER DIAGRAM, CONTINUED

SCALE: NTS



LADDER DIAGRAM, CONTINUED

SCALE: NTS



SHAGELUK BULK FUEL UPGRADES

CP-2 LADDER

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25

Plot 4/1/25	Designed	Drawn	BRP	Approved	BC.AMH
-------------	----------	-------	-----	----------	--------

Sheet No.

E8.4