ALASKA ENERGY AUTHORITY

Date: **February 5, 2026**
Project: **Shageluk Bulk Fuel Upgrades**
Solicitation No.: **ITB 26030**
Addendum No.: **03**

TO ALL PLAN HOLDERS:

The following changes, additions, clarifications, and/or deletions are hereby made a part of the ITB Documents for the above noted project, fully and completely as if the same were fully contained therein. All other terms, conditions, and specifications of the original Invitation to Bid remain unchanged.

Bidders must acknowledge receipt of this addendum prior to the hour and date set for the bid due date. This addendum must be acknowledged by email.

The modifications directed by this Addendum Three are described on this page.

The ITB Package is hereby clarified, changed or modified by the following:

CONTRACT PROVISIONS AND SPECIFICATIONS

1. **Question:** Sheet G1.6 show MV-1, MV-2B2, and MV-3B. These motor valves are not shown on C1.8 pr E2.4. Please revise the drawings to show the complete system.

   Answer: Design Drawing E2.3 & E2.4 with revised sheets of the same number attached to this addendum. Revisions are clouded and show the required motorized valves and flow switches.

2. **Question:** The bid documents specifications index show section "Section 26 09 20 Fuel Oil and Gasoline Control Panel" This section is missing from the documents. We need that section to properly bid the fuel control panels. Please advise how to proceed.

   Answer: The following specification sections are attached to this Addendum and shall be added to the Project Manual:
   - 26 08 00 – Commissioning of Electrical and Control Systems (6 Pages)
   - 26 09 20 – Fuel Oil and Gasoline Control Panel (6 Pages)

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QUESTIONS AND ANSWERS:

1. **Question:** What is the yearly bulk fuel delivery schedule and anticipated delivery volumes for gas and diesel for each tank farm?

   Answer: Fuel is typically delivered August 1st – 15th but depends on river levels and barge availability. Coordinate with Ruby Marine.

Project Participant	Average Annual Use	Peak Annual Use	Exisiting Net Capacity (90% Gross)	Existing Gross Capcacity
AVEC (Diesel)	35,500.00	37,500.00	51,360.00	57,066.00
Corporation Diesel	10,000.00	11,900.00	7,219.00	8,021.00
Corporation Gasolin	16,000.00	17,500.00	18,746.00	20,829.00
City Diesel	10,000.00	11,000.00	11,254.00	12,505.00
Big Wheel Gasoline	12,000.00	N/A	N/A	N/A
Existing Total			117,554.00	130,617.00

2. **Question:** Please define the 25K gallon relocated tank foundation type after moving to final location.

   Answer: Relocate the 7 timbers currently supporting the 25,000-gallon tank to the new tank location and place the tank on the timbers.

3. **Question:** Sheet G1.7 – What is the expected quantity of fuel to be transferred from existing AVEC bulk fuel tanks, that will be left over from winter operations, prior to 2026 fuel delivery?

   Answer: Approximately 15,000 gallons.

4. **Question:** Sheet G1.8 – What is the quantity of fuel to be filtered and transferred from existing Corporation tank farm, tanks 1-9, prior to fuel delivery?

   Answer: Approximately 10,000 gallons.

5. **Question:** Sheet C1.9/G1.7 & Specification section 11 95 13 – Where is the AVEC spill response equipment to be stored and if in existing storage location will the contractor need to clear and make room for new equipment?

   Answer: AVEC will place the spill response equipment in Shageluk. Contractor shall store and protect the materials until AVEC personnel are available onsite to take delivery. Coordinate with AVEC.

6. **Question:** Sheet G1.6 & C1.6 – What foundation type and location will hold the 3ea motorized valve/ PRV system?

   Answer: See revised Design Drawing Sheets E2.3 & E2.4 for location of motorized valves and flow switches. Support similar to Detail 6, Sheet C4.4.

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7. **Question:** Sheet C2.4/ C2.5 & G1.4/G1.6 – PRVs shown on C2.4/C2.5 from intermediate tanks to dispensers are not shown on G1.4/G1.6. Please clarify if required.

   Answer: Yes, please provide 1-inch flanged PRVs at the dispensing tank to relieve pressure on the dispenser fuel line (TYP 3 locations). Revisions will be shown on the Conformed Drawings provided after bid award.

8. **Question:** Sheet C2.4/C2.5 Note 11, G1.6 - Will intermediate tank fill lines require a mechanical fill limiting valve?

   Answer: No, a mechanical fill limiting valve is not required on the dispensing tanks.

9. **Question:** On Plan E2.1 states under general notes that all electrical conduit and conductors within the diked secondary containment shall be elevated to match the top of dike height unless noted otherwise. Do you have a Detail for an elevated pad for the conduit.

   Answer: Note: This requirement is specific to the AVEC tank farm and does not apply to the Colocated facility.
   Conduit and conductor within the AVEC diked area is limited to the motorized valve and the tank level monitoring system. Conduit to the motorized valve can be routed & attached to the exterior of the steel dike wall. Once the conduit run is adjacent to the elevated motorized valve within the diked area, cross over the dike directly to the valve. See Detail 6, Sheet C4.4 for elevated valve assembly detail. Example photos will be provided upon request after bid award.
   Overhead and tank-mounted routing of the tank level monitoring system conductors is shown on Sheet E4.2.

The bid opening date remains unchanged.

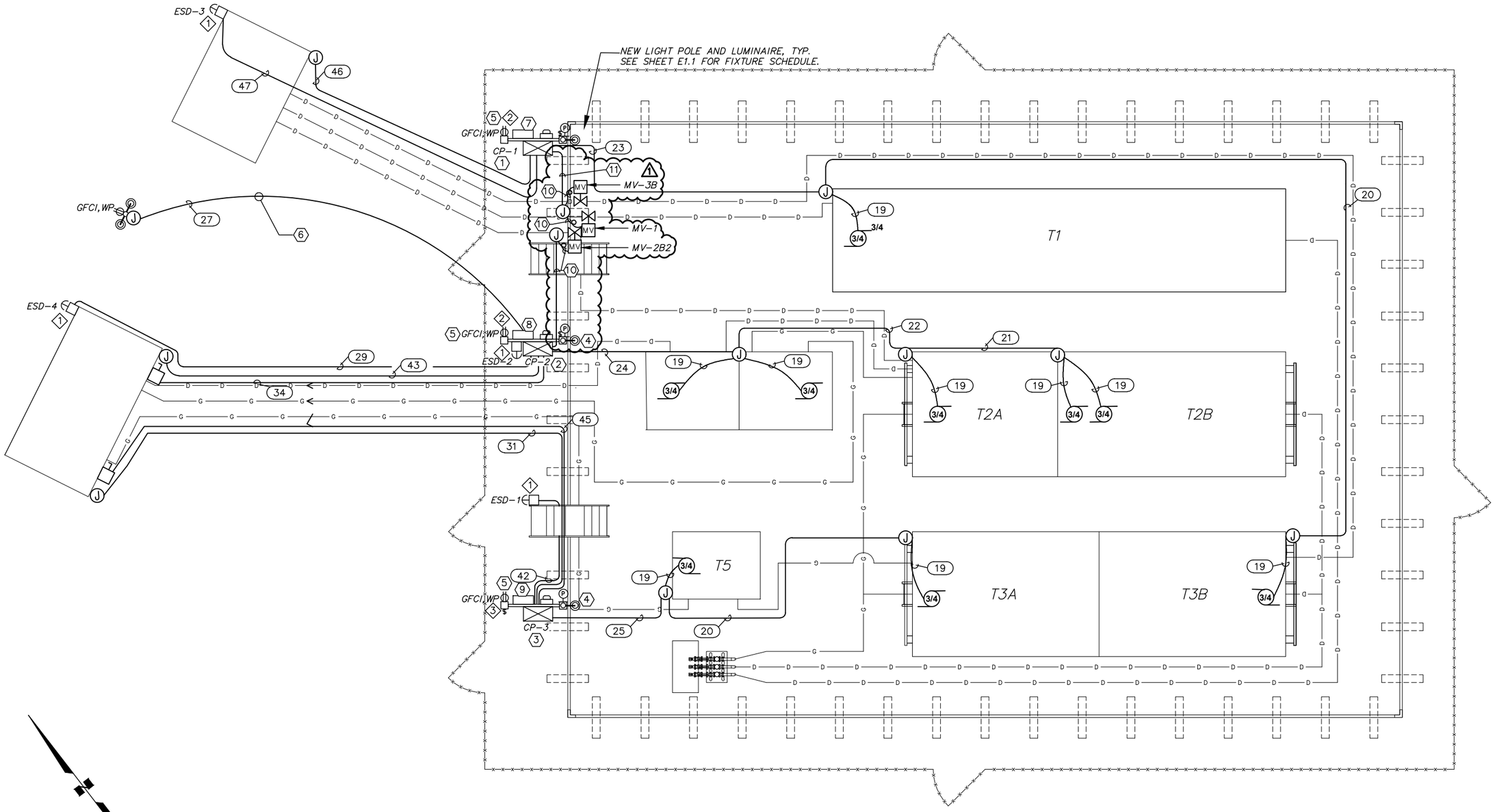
END OF ADDENDUM #03

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.
10. 1"C, 7#12 (6MV, G).
11. 1-1/2"C, 13#12 (12MV, G).



1 COLOCATED TANK FARM ELECTRICAL PLAN

5' 0 5' 10'

File: J:\JobsData\30704.44 Shageluk Bfu Design\00 Cadd 2019\01 Working Set\03 Electrical\30704.44 Tank Farm Plans.dwg

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

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER
Brian S. Counts
EE-194877
7/31/2025

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

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

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25
1	ADDED MOTORIZED VALVES	TK	1/29/26

Plot Date 1/29/26
Designed BC
Drawn ESC,JB
Approved BC

Sheet No. E2.3

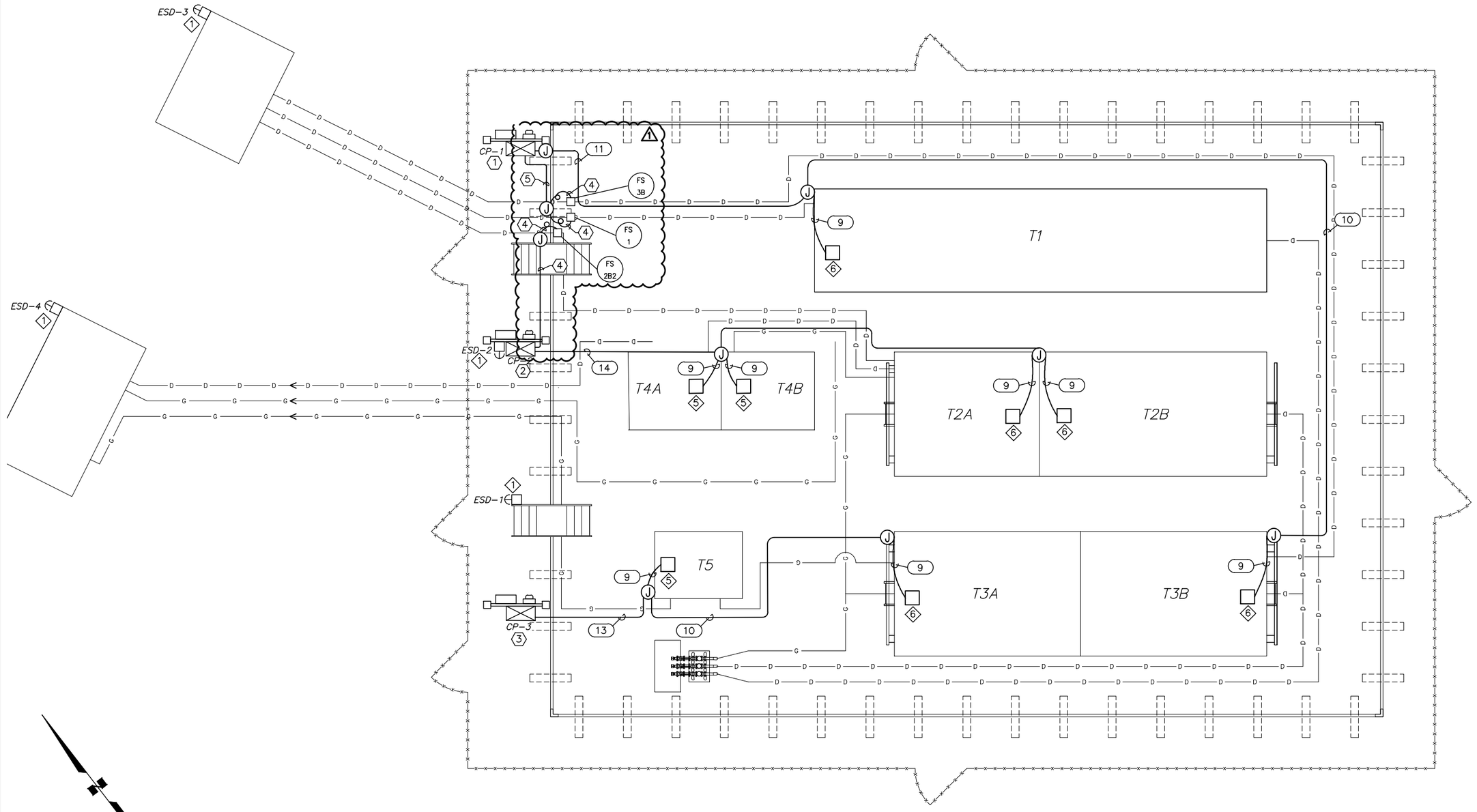
GENERAL NOTES:

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.

4. 1/2"C, 3#12 (2SIGNAL, G).
5. 3/4"C, 5#12 (4SIGNAL, G).



1 COLOCATED TANK FARM INSTRUMENTATION PLAN

5' 0 5' 10'

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

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER
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SHAGELUK BULK FUEL UPGRADES

COLOCATED TANK FARM
INSTRUMENTATION PLAN

SHAGELUK, ALASKA

NO.	REVISION	BY	DATE
A	ISSUED FOR BIDDING	BC	3/31/25
1	ADDED FLOW SWITCHES	TK	1/29/26

Plot Date 1/29/26
Designed BC
Drawn ESC,JB
Approved BC

Sheet No. E2.4

File: J:\JobsData\30704.44 Shageluk Bfu Design\00 Cadd 2019\01 Working Set\03 Electrical\30704.44 Tank Farm Plans.dwg

SECTION 26 08 00

COMMISSIONING OF ELECTRICAL AND CONTROL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. The requirements of this section apply to all sections of Divisions 26

B. This project will have selected building systems commissioned.

C. Related Sections:
   1. Division 01 and 26 Specifications

1.2 REFERENCES

A. National Electrical Testing Agency.

1.3 COMMISSIONED SYSTEMS

A. Commissioning of a system or systems specified in Divisions 26 is part of the construction process. Documentation and testing of these systems, as well as training of the Owner's Operation and Maintenance personnel in accordance with the requirements of Division 26, is required.

B. The Facility electrical systems commissioning will include all of the control panels provided or modified under this project.

C. Electrical and Controls Systems commissioning process includes the following tasks:

   1. Testing and startup of Electrical and Control equipment and systems.
   2. Equipment and system verification checks.
   3. Assistance in functional performance testing to verify testing and equipment and system performance.
   4. Provide qualified personnel to assist in commissioning tests.
   5. Complete and endorse functional performance test checklists provided by Engineer to assure equipment and systems are fully operational and ready for functional performance testing.
   6. Provide equipment, materials, and labor necessary to correct deficiencies found during commissioning process to fulfill contract and warranty requirements.
   7. Provide operation and maintenance information and record drawings to Engineer for review verification and organization, prior to distribution.
   8. Provide assistance to Engineer to develop, edit, and document system operation descriptions.

9. Provide training for systems specified in this Section with coordination by Engineer.

D. Equipment and Systems to Be Commissioned:

1. New Electrical and Control systems that were installed under this Contract.
2. Existing Electrical and Control systems that were modified, adjusted, upgraded, or affected by the work performed under this Contract.

E. The following is a partial list of equipment that may be included in this Commissioning:
1. Corporation Fuel System Controls
2. City Fuel System Controls
3. AVEC Plant Fuel Supply Controls and Inventory Monitor
4. All instrumentation related to new control and alarm panels.

1.4 COMMISSIONING SUBMITTALS

A. Draft Forms: Submit draft of system verification form and functional performance test checklist.

B. Test Reports: Indicate data on system verification form for each piece of equipment and system as specified.

C. Field Reports: Indicate deficiencies preventing completion of equipment or system verification checks equipment or system to achieve specified performance.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 77 19 - Closeout Requirements

B. Project Record Documents: Record revisions to equipment and system documentation necessitated by commissioning.

C. Operation and Maintenance Data: Submit revisions to operation and maintenance manuals when necessary revisions are discovered during commissioning.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NETA requirements.

B. Maintain one copy of each document on site.

1.7 COMMISSIONING RESPONSIBILITIES

A. Equipment or System Installer Commissioning Responsibilities:

1. Attend commissioning meetings.
2. Ensure controls installer performs assigned commissioning responsibilities as specified below.
3. Ensure calibration agency performs assigned commissioning responsibilities as specified.
4. Provide instructions and demonstrations for Owner's personnel.
5. Ensure subcontractors perform assigned commissioning responsibilities.
6. Ensure participation of equipment manufacturers in appropriate startup, testing, and training activities when required by individual equipment specifications.
7. Develop startup and initial checkout plan using manufacturer’s startup procedures and functional performance checklists for equipment and systems to be commissioned.
8. During verification check and startup process, execute process related portions of checklists for equipment and systems to be commissioned.
9. Perform and document completed startup and system operational checkout procedures, providing copy to Engineer.
10. Provide manufacturer’s representatives to execute starting of equipment. Ensure representatives are available and present during agreed upon schedules and are in attendance for duration to complete tests, adjustments and problem-solving.
11. Coordinate with equipment manufacturers to determine specific requirements to maintain validity of warranties.
12. Provide personnel to assist Engineer during equipment or system verification checks and functional performance tests.
13. Prior to functional performance tests, review test procedures to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during tests.
14. Prior to startup, inspect, check, and verify correct and complete installation of equipment and system components for verification checks included in commissioning plan. When deficient or incomplete work is discovered, ensure corrective action is taken and re-check until equipment or system is ready for startup.
15. Provide factory supervised startup services for equipment and systems specified in Division 26. Coordinate work with manufacturer and Engineer.
16. Perform verification checks and startup on equipment and systems as specified.
17. Assist Engineer in performing functional performance tests on equipment and systems as specified.
18. Perform operation and maintenance training sessions scheduled by Engineer.
19. Conduct process system orientation and inspection.

B. Controls Installer Commissioning Responsibilities:

1. Attend commissioning meetings.
2. Review design for ability of systems to be controlled including the following:

    a. Confirm proper hardware requirements exists to perform functional performance testing.
    b. Confirm proper safeties and interlocks are included in design.
    c. Confirm proper sizing of system control valves and actuators and control valve operation will result capacity control identified in Contract Documents.

d. Confirm proper sizing of system control dampers and actuators and damper operation will result in proper damper positioning.
e. Confirm sensors selected are within device ranges.
f. Review sequences of operation and obtain clarification from Architect/Engineer.
g. Provide written sequences of operation for packaged controlled equipment. Equipment manufacturers' stock sequences may be included, when accompanied by additional narrative to reflect Project conditions.

3. Inspect, check, and confirm proper operation and performance of control hardware and software provided in other Electrical and Controls sections.
4. Submit proposed procedures for performing automatic control system point-to-point checks to Engineer and Architect/Engineer.
5. Inspect check and confirm correct installation and operation of automatic control system input and output device operation through point-to-point checks.
6. Perform training sessions to instruct Owner's personnel in hardware operation, software operation (if applicable) , programming, and application in accordance with commissioning plan and requirements of Divisions 26..
7. Demonstrate system performance and operation to Engineer during functional performance tests including each mode of operation.
8. Provide control system technician to assist during Engineer verification check and functional performance testing.
9. Provide control system technician to assist testing, adjusting, and balancing agency during performance of testing, adjusting, and balancing work.
10. Assist in performing operation and maintenance training sessions scheduled by Engineer.

C. Testing, Adjusting, and Calibration Agency Commissioning Responsibilities:

1. Attend commissioning meetings.
2. Participate in verification of testing, adjusting, and calibration report for verification or diagnostic purposes.
3. Assist in performing operation and maintenance training sessions scheduled by Engineer.

1.8 COMMISSIONING MEETINGS

A. Attend initial commissioning meeting and progress commissioning meetings as required by Engineer.

1.9 COORDINATION

A. Section 01 31 19 – Project Meetings.

B. Notify Engineer minimum of four weeks in advance of the following:

1. Scheduled equipment and system startups.
2. Scheduled automatic temperature control system checkout.

3. Scheduled start of testing, adjusting, and calibration work.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 CONSTRUCTION INSPECTIONS

A. Commissioning of Electrical systems will require inspection of individual elements of the electrical systems construction throughout the construction period. The Contractor shall coordinate with the Engineer to schedule electrical systems inspections as required to support the Commissioning Process.

3.2 PRE-FUNCTIONAL CHECKLISTS

A. The Contractor shall complete Pre-Functional Checklists to verify systems, subsystems, and equipment installation is complete and systems are ready for Systems Functional Performance Testing.

B. The Engineer will prepare Pre-Functional Checklists to be used to document equipment installation. The Contractor shall complete the checklists. Completed checklists shall be submitted to the Owner and to the Engineer for review. The Engineer may spot check a sample of completed checklists.

C. If the Engineer determines that the information provided on the checklist is not accurate, the Engineer will return the marked-up checklist to the Contractor for correction and resubmission. If the Engineer determines that a significant number of completed checklists for similar equipment are not accurate, the Engineer will select a broader sample of checklists for review.

D. If the Engineer determines that a significant number of the broader sample of checklists is also inaccurate, all the checklists for the type of equipment will be returned to the Contractor for correction and resubmission.

3.3 CONTRACTORS TESTS

A. Contractor tests as required by other sections of Division 26 shall be scheduled and documented in accordance with Section 01 00 00 GENERAL REQUIREMENTS. All testing shall be incorporated into the project schedule. Contractor shall provide no less than 7 calendar days' notice of testing. The Engineer will witness selected Contractor tests at the sole discretion of the Engineer. Contractor tests shall be completed prior to scheduling Systems Functional Performance Testing.

3.4 SYSTEMS FUNCTIONAL PERFORMANCE TESTING

A. The Commissioning Process includes Systems Functional Performance Testing that is intended to test systems functional performance under steady state conditions, to test system reaction to changes in operating conditions, and system performance under emergency conditions. The Engineer will prepare detailed Systems Functional Performance Test procedures for review and approval by the Engineer. The Contractor shall review and comment on the tests prior to approval. The Contractor shall provide the required labor, materials, and test equipment identified in the test procedure to perform the tests. The Engineer will witness and document the testing. The Contractor shall sign the test reports to verify tests were performed.

3.5 TRAINING OF OWNER'S PERSONNEL

A. Training of the operation and maintenance personnel is required. Provide competent, factory authorized personnel to provide instruction to operation and maintenance personnel concerning the location, operation, and troubleshooting of the installed systems. Contractor shall submit training agendas and trainer resumes. The instruction shall be scheduled in coordination with the Engineer after submission and approval of formal training plans.

END OF SECTION

SECTION 26 09 20
FUEL OIL AND GASOLINE CONTROL PANEL

PART 1 - GENERAL

1.1 SCOPE

A. Contractor shall furnish industrial control panels as required for use with a fuel oil and gasoline tank farm.

1.2 DESCRIPTION

A. The control panel controls all motor-driven and other electrically operated equipment comprising the fuel oil and gasoline control system. The various components are fully interlocked for fail-safe operation as shown on the drawings. The operation of all driven components can be manually overridden for equipment startup or troubleshooting. The status of all components and alarms is indicated via illuminated devices located at the control panel enclosure.

1.3 SUBMITTALS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section. Provide in addition:

1. Identifying Listing / Labeling Third Party Laboratory on plans.

2. Complete schematic drawings with OEM developed wire numbering system and terminal. Submit the following information and shop drawings for approval prior to panel fabrication:

   a. Ladder diagram showing control logic.

   b. Scaled, panel layout drawing showing terminal blocks, relays, switches, lamps, and etc.

   c. Material list, of all components.

   d. Labeling information showing compliance with UL 508A.

   e. Spare parts list (fuses, lamps, relays).

   f. Shop acceptance test procedure.

   g. Complete Bill of Materials on plans.

1.4 SUMMARY

A. Provide control panels as shown on drawings. General arrangement and control characteristics are shown, contractor is responsible for final panel design. Panels are to be discrete relay logic, programmable controllers are not acceptable.

B. Panels shall be assembled and listed per UL 508a standard for safety for industrial control panels, and the NEC.

C. Submit the following information and shop drawings for approval prior to panel fabrication:

1. Ladder diagram showing control logic.

2. Scaled, panel layout drawing showing terminal blocks, relays, switches, lamps, and etc.

3. Material list, of all components.

4. Labeling information showing compliance with UL 508A.

5. Spare parts list (fuses, lamps, relays).

6. Shop acceptance test procedure.

D. Exterior mounted panels shall be NEMA 4X SS dead front construction with clear access windows displaying status and alarms as shown, interior mounted panels shall be NEMA 12 construction. Properly seal any un-used openings. Panel fronts may not have any plugged or un-plugged openings.

E. Exterior panels shall include a lockable hinged cover, with no controls. All controls shall be mounted on a hinged “dead front” panel within the enclosure. Terminal strips, relays, and all wiring shall be mounted behind the hinged “dead front” cover.

F. Interior panels may have the controls mounted on the hinged cover. All terminal strips, relays, and all wiring shall be mounted within the panel.

G. Provide over current protection on power circuits as they enter the control panel. Size over current protection devices per the NEC.

H. All panels shall include a removable backplane for mounting equipment.

I. Panel control equipment (switches, pushbuttons, indicator lamps) shall be 30.5mm size, Allen Bradley bulletin 800t/800h or equal.

J. All wiring shall be terminated on terminal strips or device screw connections. Terminal strips shall be Allen Bradley bulletin 1492, NEMA terminal blocks or terminal block relays, or equal. Size terminal blocks per manufacturers recommendations. Provide 25% spare terminals. Terminals shall be labeled, and shall correspond to identification labels on shop drawings.

K. All relays, power supplies, fuse holders and circuit breakers shall be din rail mounted.

L. Use heat-shrink wire markers to label all wiring within the panel. Wiring shall correspond to ladder diagram terminal block designators where shown. Where not shown panel vendor shall provide terminal assignments and update plans to reflect assignments.

PART 2 - PRODUCTS

2.1 EQUIPMENT DESIGN REQUIREMENTS

A. Control panel shall be designed and built to UL508 Industrial Control Panel requirements.

B. Control panel shall be manufactured in a listed Industrial Control Panel Manufacturing Facility.

C. Control panel enclosure shall be Hoffman or equal, as required for the application.

D. Control panel assemblies.

1. Control panels shall be factory or shop fabricated units completely assembled, wired and tested in the presence of an owner representative before shipment to the job site. Panel construction shall, in general, meet JIC EMP-1-1967 standards and applicable NEMA and IEEE standards. The panels shall be constructed in accordance with the standards of and bear the label of an accredited nationally recognized testing laboratory.

2. All operable selectors and pushbuttons, including motor overload reset, shall be accessible at the panel door exterior.

3. Components mounted in the interior shall be fastened to an interior back panel using machine screws plus adhesive to insure vibration-free attachment.

4. Wiring duct shall be provided for wiring within the panel enclosure including all field wiring. Wiring within the panel shall be labeled with wire numbers and run in wiring duct neatly tied and bundled with tie wraps or similar materials.

5. Line voltage (120 volt or higher) wiring in panels shall be class C stranded copper conductor #16AWG minimum , with type MTW or SIS insulation.

6. Control conductors to be industry standard (NFPA 79) or Listing Agency requirements.

7. White with blue stripe: grounded (current-carrying) dc circuit conductors.

8. Wiring which is an internal part of a device and is not connected to external terminal blocks may be wired using the manufacturer's standard wire designations. Wire which connects to external circuits, to terminal blocks, or the numbers shown on the elementary wiring diagrams shall identify other devices that are connected to external circuits. Every wire termination, including all jumpers, shall be identified with wire markers. Wire markers shall be installed over wire terminators or directly adjacent to them. Markers shall be arranged to permit reading of identification.

9. Terminal blocks shall be provided for the termination of power and control wiring. Where multiple terminal blocks are shown for a given wire number or common circuit, additional blocks shall be provided and jumpered as necessary to provide terminal spaces for each individual outgoing wire.

10. Terminal strips shall be mounted on a flat steel channel or strut which raises them to the level of the adjacent wire gutters (2 inch to 3 inch above back panel). Terminal strips shall be mounted at least 6 inches from panel inner walls. Terminal strips shall be labeled by machine print – hand lettered terminal numbered are not permitted.

11. Provide space for a minimum of 25 percent additional control wiring terminal blocks on each side.

12. Nameplates shall be provided for all relays, timers, transformers, fuses, terminal block, switches mounted internally, and other components that are mounted to the internal mounting panel. These nameplates shall be sized to the scale of the device to which they refer. The engraving shall be as shown on the panel layout drawing.

13. The assembled panel shall be meggered and tested to be free from grounds and shorts. All controllers, circuits and interlocks shall be rung out and tested to assure that they function correctly before the panel is shipped. Revise all drawings upon completion of the work to show "as shipped" condition of the panel.

14. After completion of shop assembly and testing, panels shall be enclosed in heavy-duty polyethylene envelopes or secured sheeting to provide complete protection from dust and moisture. Dehumidifiers shall be placed inside the polyethylene covering. The equipment shall then be skid-mounted or crated for final transport. Shipping weight shall be shown on shipping tags, together with instructions for unloading, transporting, storing, and handling on job site.

E. Control panel components shall be industrial quality. Component schedules shown on the plans provide Manufacturer and part number references.

F. All panels shall function as indicated in the Panel Narrative the plans.

PART 3 - EXECUTION

3.1 GENERAL

A. Testing: Factory tests simulating operation of all of the features described in the narrative shall be performed in the presence of the Owners representative. If the panel test is to take place beyond 50 miles from Anchorage, Alaska, all expenses, including airfare and lodging for one person shall be paid for by the vendor.

B. Control panelshall be installed in accordance with manufacturer’s recommendations, including but not limited to the following:

1. The control panel shall be installed by a licensed electrician. The National Electrical Code and all applicable state and local codes shall be followed when installing this equipment. The installation shall be executed in a neat and workmanlike manner.

2. At no time shall any individual tamper with or change any of the wiring in the control panel without the knowledge and consent of the manufacturer. The installer shall only land wires on the field terminals provided and install or remove any jumpers as shown and indicated on the control schematics to achieve proper operation. Any changes made to the panel wiring other than those just mentioned or those approved by Owner, in writing, will result in the voiding of any warranty associated with the control panel or any of the connected equipment.

3.2 COMMISSIONING

A. Commissioning shall be in accordance with Division 26 requirements and 26 08 00 Commissioning of Electrical and Control Systems.

END OF SECTION