⑦ PUMP SCHEDULE (RED JACKET PUMPS ONLY)

PUMP	GPM	HEAD	HP	VOLT/PH	TANK DIA.	NOTES
UNLEADED	120	91.1	2-(2)	208/1-PHASE	10'	①②③④⑤⑥ CONFIRM TANK DIA.
PREMIUM	50	82.5	2	208/1-PHASE	10'	①②③ CONFIRM TANK DIA.
CLEAR	40	81.8	2	208/1-PHASE	10'	①②③ CONFIRM TANK DIA.
DEF	20	93.1	2	208/1-PHASE	10'	①②③ CONFIRM TANK DIA.
DIESEL	160	89.5	2-(2)	208/1-PHASE	10'	①②③④⑤⑥ CONFIRM TANK DIA.

NOTES:
1. DOUBLE WALL FIBERGLASS TANK.
2. TANK MOUNTED PUMP.
3. INSTALL RED JACKET IQ CONTROL BOX. INSTALL DEF PUMP WITH CONTROL BOX & COMPACITOR.
4. INSTALL TWO (2) FUEL PUMPS IN TANK SUMP.
5. PROVIDE INTELLIGENT PUMP CONTROL TO OPERATE DIESEL & UNLEADED PUMPS TO HELP PRIMARY PUMP TO MAINTAIN FLOW.
6. PROVIDE HIGH PRESSURE CHECK VALVE (RED JACKET #410153-002) WHEN MULTIPLE PUMPS ARE MANIFOLDED TOGETHER. THE PRIMARY FUEL PUMP SHALL HAVE INSTALLED THE STANDARD LOW PRESSURE CHECK VALVE (RED JACKET #410153-001) AND BE IN THE LARGEST VOLUME TANK.
7. PUMP SUBSTITUTION MUST BE APPROVED BY MAVERIK.

PIPE LOSS CALCULATIONS (DEF)

PIPE SIZE:	1-1/2"	FLOW: 20 GPM	5.0 FT/100
LENGTH OF PIPE:			345 FT.
NUMBER OF TEE'S:	3	X 2.5	7.5 FT.
NUMBER OF ELBOWS:	2	X 4.0	8.0 FT.
TOTAL LENGTH OF PIPE:			360.5 FT.
TOTAL PIPE HEAD LOSS:			18.1 FT. HD.
DISPENSER LOSS (@ 10 GPM):			52 FT. HD.
TANK DIA. FT.			10 FT. HD.
TOP OF TANK TO GRADE FT.			4 FT. HD.
DISPENSER HEIGHT FT.			9 FT. HD.
		TOTAL HEAD:	93.1 FT. HD.

PIPE LOSS CALCULATIONS (UNLEADED)

PIPE SIZE:	2"	FLOW: 60 GPM	6.9 FT/100
LENGTH OF PIPE:			204 FT.
NUMBER OF TEE'S:	6	X 3.5	21.0 FT.
NUMBER OF ELBOWS:	2	X 4.0	8.0 FT.
TOTAL LENGTH OF PIPE:			233.0 FT.
TOTAL PIPE HEAD LOSS:			16.1 FT. HD.
DISPENSER LOSS (@ 10 GPM):			52 FT. HD.
TANK DIA. FT.			10 FT. HD.
TOP OF TANK TO GRADE FT.			4 FT. HD.
DISPENSER HEIGHT FT.			9 FT. HD.
		TOTAL HEAD:	91.1 FT. HD.

PIPE LOSS CALCULATIONS (DIESEL)

PIPE SIZE:	3"	FLOW: 140 GPM	4.4 FT/100
LENGTH OF PIPE:			304 FT.
NUMBER OF TEE'S:	5	X 3.5	17.5 FT.
NUMBER OF ELBOWS:	2	X 4.0	8.0 FT.
TOTAL LENGTH OF PIPE:			329.5 FT.
TOTAL PIPE HEAD LOSS:			14.5 FT. HD.
DISPENSER LOSS (@ 10 GPM):			52 FT. HD.
TANK DIA. FT.			10 FT. HD.
TOP OF TANK TO GRADE FT.			4 FT. HD.
DISPENSER HEIGHT FT.			9 FT. HD.
		TOTAL HEAD:	89.5 FT. HD.

PIPE LOSS CALCULATIONS (PREMIUM)

PIPE SIZE:	2"	FLOW: 30 GPM	3.5 FT/100
LENGTH OF PIPE:			188 FT.
NUMBER OF TEE'S:	5	X 3.5	17.5 FT.
NUMBER OF ELBOWS:	2	X 4.0	8.0 FT.
TOTAL LENGTH OF PIPE:			213.5 FT.
TOTAL PIPE HEAD LOSS:			7.5 FT. HD.
DISPENSER LOSS (@ 10 GPM):			52 FT. HD.
TANK DIA. FT.			10 FT. HD.
TOP OF TANK TO GRADE FT.			4 FT. HD.
DISPENSER HEIGHT FT.			9 FT. HD.
		TOTAL HEAD:	82.5 FT. HD.

PIPE LOSS CALCULATIONS (CLEAR)

PIPE SIZE:	2"	FLOW: 20 GPM	3.0 FT/100
LENGTH OF PIPE:			200 FT.
NUMBER OF TEE'S:	5	X 3.5	17.5 FT.
NUMBER OF ELBOWS:	2	X 4.0	8.0 FT.
TOTAL LENGTH OF PIPE:			225.5 FT.
TOTAL PIPE HEAD LOSS:			6.8 FT. HD.
DISPENSER LOSS (@ 10 GPM):			52 FT. HD.
TANK DIA. FT.			10 FT. HD.
TOP OF TANK TO GRADE FT.			4 FT. HD.
DISPENSER HEIGHT FT.			9 FT. HD.
		TOTAL HEAD:	81.8 FT. HD.

FUEL TANK DIRECTIVES

- FUEL TANK SHALL BE 3'-6" BELOW GRADE UNLESS THE GOVERNING AGENCY DICTATES OTHERWISE.
- 12,000 & 15,000 GALLON TANKS ARE 8'-0" DIAMETER.
- 25,000 GALLON TANKS ARE 10'-0" DIAMETER.
- INSTALL BURIED TANKS WITH 2'-0" BETWEEN 8'-0" DIA. TANKS.
- INSTALL BURIED TANKS WITH 3'-0" BETWEEN 10'-0" DIA. TANKS.
- THE FUEL TANKS SHALL BE AIR TESTED BEFORE THEY ARE INSTALLED INTO THE FUEL PIT.
- THE FUEL CONCRETE PAD SHALL BE 10" THICK.
- FIVE (5) OR LESS DISPENSERS
  PIPE SIZE: 2"
  PUMP H.P./VOLTAGE: 2 H.P./208V/1 PHASE
  ALL FLEXIBLE PIPE SHALL BE LAID STRAIGHT & FLAT (NO WAVES)
  OVER SIX (6) DISPENSERS
  PIPE SIZE: 2"
  PUMP H.P./VOLTAGE: 2 H.P./208V/1 PHASE
- NO TRACER WIRE SHALL BE INSTALLED WITH FUEL PIPING.
- ALL FUEL FLEX PIPING SHALL BE INSTALLED UNDER THE CONCRETE PAD. (DO NOT INSTALL FUEL PIPING UNDER ASPHALT PAVING.

SPECIAL NOTES

1. WHEN THE PETROLEUM CONTRACTOR IS AWARDED THE FUELS CONTRACT, HE SHALL CONTACT MAVERIK COUNTRY STORES ENVIRONMENTAL DIRECTOR. AT THIS TIME THE CONTRACTOR AND THE ENVIRONMENTAL DIRECTOR SHALL DETERMINE WHO IS MAKING PHONE CALLS AND SCHEDULING INSPECTIONS WITH THE REGULATORY AGENCIES. THE CONTRACTOR SHALL FAX TO ENGINEER OF RECORD AND ENVIRONMENTAL DIRECTOR A COMPILED LIST OF REGULATORY AGENCIES, CONTACT INFORMATION AND PHONE NUMBERS.
2. THE PETROLEUM CONTRACTOR MUST PREPARE AND SUBMIT ALL REQUIRED CERTIFICATION AND DOCUMENTATION TO ALL CITY, COUNTY, STATE, ENVIRONMENTAL & HEALTH AGENCIES & JURISDICTIONS. THE CONTRACTOR SHALL FORWARD A COPY TO MAVERIK'S ENVIRONMENTAL DIRECTOR.
3. THE PETROLEUM CONTRACTOR MUST SEND NOTICES TO ALL REQUIRED JURISDICTIONS CITY, COUNTY, STATE, ENVIRONMENTAL AND HEALTH AGENCIES AT LEAST 45 DAYS BEFORE FIRST DROP OF FUEL IS TO BE PLACED IN THE TANKS. THE CONTRACTOR SHALL FORWARD A COPY TO MAVERIK'S ENVIRONMENTAL DIRECTOR.
4. THE PETROLEUM CONTRACTOR MUST COPY ALL CORRESPONDENCE, RECEIPTS, FORMS, ETC. TO MAVERIK'S ENVIRONMENTAL DIRECTOR WITH IN 7 DAYS.
5. THE PETROLEUM CONTRACTOR MUST CONTACT MAVERIK'S ENVIRONMENTAL DIRECTOR BEFORE WORK MAY PROCEED & ACKNOWLEDGE IN WRITTEN FORM CONFIRMATION OF THE AUTHORIZED/REQUIRED JURISDICTION.
6. FUEL CONTRACTOR SHALL COORDINATE FUEL TANK, PERMIT & INSPECTIONS WITH THE FIRE DEPARTMENT. THE PLANS SHALL BE SUBMITTED TO THE FIRE DEPARTMENT WITH INFORMATION ON THE TANK CONSTRUCTION, LISTINGS, SIZE, ETC. THE FIRE DEPARTMENT SHALL WITNESS & VERIFY THE SOAPING OF THE TANKS, INSTALLATION OF THE TANKS INTO THE PIT, INSTALLATION OF THE PEA GRAVEL INTO THE PIT, AND TESTING OF THE PIPING LINES. THE FUEL LINES SHALL NOT BE COVERED UP WITHOUT A TEST WITNESSED BY THE FIRE DEPT. TESTING SHALL BE IN ACCORDANCE WITH UNIFORM OR INTERNATIONAL FIRE CODE.

GENERAL NOTES FOR ALL P.E. PLANS

1. FUEL CONTRACTOR SHALL COORDINATE ALL OWNER PROVIDED EQUIPMENT AND LOCATION OF FUEL PRODUCT LINES. COORDINATION SHALL TAKE PLACE PRIOR TO MODIFICATION OF DEEP DISPENSER SUMPS AND ROUTING OF PRODUCT.
2. ENTIRE FUEL SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL CURRENT LAWS, CODES AND REGULATIONS IN PARTICULAR BUT NOT LIMITED TO THE FOLLOWING:
   EPA "MUSTS FOR UNDERGROUND STORAGE TANKS"
   NFPA 30 "FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE"
   NFPA 30A "AUTOMOTIVE AND MARINE SERVICE STATION CODE"
   NFPA 70 "NATIONAL ELECTRICAL CODE"
   UNIFORM FIRE CODE OR INTERNATIONAL FIRE CODE.
   STATE & LOCAL AUTHORITY HAVING JURISDICTION 40 CFR 280
3. ONLY A QUALIFIED LICENSED FUEL INSTALLATION CONTRACTOR IS TO PERFORM THE REQUIRED WORK. EVIDENCE OF SUCH QUALIFICATION SHALL BE FURNISHED TO THE OWNER'S REPRESENTATIVE.
4. FUEL TANK WILL BE SUPPLIED BY THE OWNER. DELIVERY SYSTEM EQUIPMENT, FLEXIBLE FUEL PIPING, FLEXIBLE CONDUIT DUCTING, AND VENT PIPING WILL BE SUPPLIED AND INSTALLED BY FUEL CONTRACTOR. SEE SHEET PE1.3 FOR DETAILED SCOPE OF WORK.
5. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, SEAL-OFFS AND LONG CONDUCTOR RUNS. FUEL CONTRACTOR SHALL COORDINATE CONDUIT, SEAL-OFFS, CONDUCTOR REQUIREMENTS AND ROUTING WITH ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION. SEE SHEET PE1.3 FOR DETAILED SCOPE OF WORK.
6. ELECTRICAL CONTRACTOR SHALL TERMINATE, TEST AND CALIBRATE ALL FUEL SYSTEM RELATED ELECTRICAL AND ELECTRONIC EQUIPMENT.
7. OWNERS CONTRACTOR SHALL PERFORM ALL FUEL STORAGE AND DELIVERY SYSTEM TIGHTNESS AND LEAK TESTING IN COMPLIANCE WITH ALL AGENCIES & AUTHORITIES HAVING JURISDICTION.
8. FUEL CONTRACTOR SHALL CALIBRATE AND CERTIFY ALL DISPENSERS ONE WEEK PRIOR TO STORE OPENING AND NOTIFY THE DEPARTMENT OF WEIGHTS AND MEASURES OF STORE OPENING.
9. FUEL CONTRACTOR SHALL COMPLETE AND ISSUE ALL DOCUMENTS ONE WEEK REQUIRED BY AGENCIES AND AUTHORITIES HAVING JURISDICTION FOR THE PERMITTING AND REGISTRATION OF THE FUEL CENTER ONE WEEK PRIOR TO STORE OPENING.
10. FUEL CONTRACTOR SHALL CHANGE OUT PUMP FILTERS AFTER FUEL LINES ARE PURGED.
11. PROVIDE AS BUILT PLANS TO OWNER & ENGINEER FOR HISTORY.
12. FUELING CONTRACTOR SHALL USE CONVEYOR OR SHOOTER TRUCK TO BACK FILL TANK FARM AND PIPE TRENCHES.

SIGNAGE BY MAVERIK INSTALLED BY FUEL CONTRACTOR

PROVIDE THE FOLLOWING SIGNAGE REQUIRED BY IFC SECTION 2204.3.5 AND 2205.6 AND POST IN A CONSPICUOUS LOCATION.
EMERGENCY PROCEDURES: IN CASE OF FIRE, SPILL OR RELEASE.
1. USE EMERGENCY PUMP SHUTOFF. 2. REPORT THE ACCIDENT!
FIRE DEPARTMENT TELEPHONE # 911 FACILITY ADDRESS, ALASKA FRONTAGE RD. & FRANK RD. BELGRADE, MT. WARNING SIGNS: POSTED WITHIN SIGHT OF EACH DISPENSER.
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 FIRE STARTS, DO NOT REMOVE NOZZLE--BACK AWAY IMMEDIATELY.
6. IT IS UNLAWFUL AND DANGEROUS TO DISPENSE GASOLINE INTO UNAPPROVED CONTAINERS.
7. NO FILLING OF PORTABLE CONTAINERS IN OR ON A MOTOR VEHICLE. PLACE CONTAINER ON GROUND BEFORE FILLING.

FUEL & TANK MONITORING EQUIPMENT

ALL FUEL AND TANK MONITORING EQUIPMENT SHALL BE PROVIDED BY THE OWNER. SEE SPECIFICATION 13210 AND PLANS PE1.1 & PE1.3 FOR A TYPICAL LIST OF OWNER PROVIDED EQUIPMENT. CONTRACTOR SHALL RECIEVE & INSTALL THE OWNER PROVIDED FUEL & TANK MONITORING EQUIPMENT AS PER THE MANUFACTURERS WRITTEN INSTALLATION DOCUMENTS.

OBTAIN MAVERIK'S FUEL SKETCH

FUEL CONTRACTOR SHALL OBTAIN FROM MAVERIK PROJECT MANAGER THE SITE FUEL SKETCH TO CONFIRM AND VERIFY FUEL LAYOUT DESIGN.

FUEL PUMP MANIFOLD NOTE

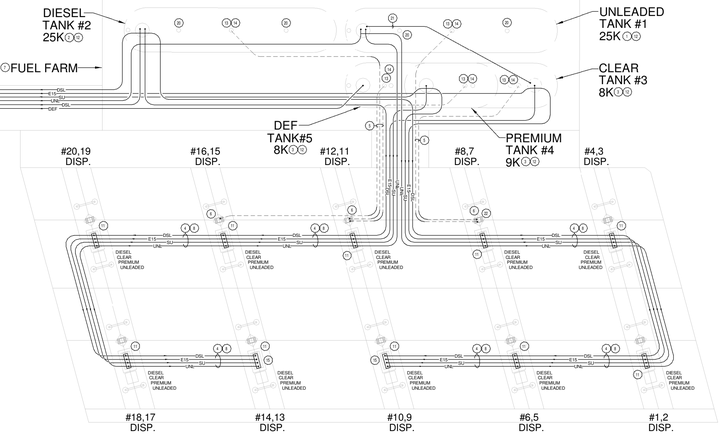
WHEN TWO (2) PUMPS ARE SPECIFIED IN A TANK PUMP SUMP THEY SHALL BE MANIFOLDED OR PIPED TOGETHER. PROVIDE ISOLATION VALVES FOR EACH PUMP.

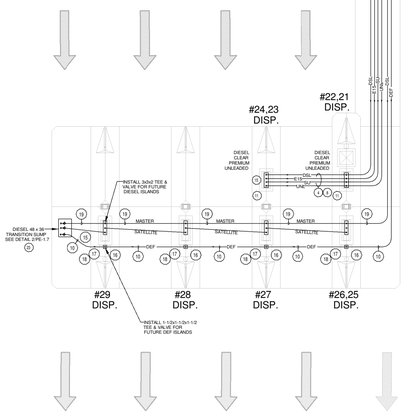
DISPENSER PIPING SCHEDULE DIRECTIVE

- AUTO/RV MULTI GRADE AND DIESEL SUPPLY PIPING SHALL BE 1-1/2" TO THE DISPENSERS NPT PRODUCT INLET
- MASTER DIESEL SUPPLY PIPING SHALL BE 2" TO THE DISPENSERS NPT PRODUCT INLET.
- SLAVE DIESEL SUPPLY PIPING SHALL BE 1-1/2" TO THE DISPENSERS NPT PRODUCT INLET.
- DEF SUPPLY PIPING SHALL BE 1-1/2" TO THE DISPENSERS NPT PRODUCT INLET.

KEY NOTES

1. 25,000 GALLON DOUBLE WALL FIBERGLASS UNDERGROUND UNLEADED STORAGE TANK. RE:PE1.1, SPEC. SECTIONS 13205, 13210, 13215, RE: ARCHITECTURAL DRAWINGS FOR TANK LOCATION. TANK SHALL BE PROVIDED BY XERXES.
2. 25,000 GALLON DOUBLE WALL FIBERGLASS UNDERGROUND DIESEL STORAGE TANK, RE: PE1.1, SPEC. SECTIONS 13205, 13210, 13215, RE: ARCHITECTURAL DRAWINGS FOR TANK LOCATION. TANK SHALL BE PROVIDED BY XERXES.
3. 25,000 GALLON DOUBLE WALL FIBERGLASS UNDERGROUND CLEAR/PREMIUM/DEF STORAGE TANK, RE: PE1.1, SPEC. SECTIONS 13205, 13210, 13215, RE: ARCHITECTURAL DRAWINGS FOR TANK LOCATION. TANK SHALL BE PROVIDED BY XERXES.
4. 2" DOUBLE WALL FLEXIBLE PRODUCT PIPE BY O.P.W. ROUTED IN 4" FLEXIBLE CONDUIT ACCESS PIPE. 2 FOOT MINIMUM RADIUS BENDS. SLOPE BETWEEN DISPENSERS AND BACK TO TANK SUMPS AT 1/4" PER FOOT, (1/8" MIN) INSTALLED WITHOUT SAGS OR TRAPS.
5. 2" RIDGID FIBERGLASS VENT PIPE. 2 FOOT MINIMUM RADIUS BENDS. SLOPE BACK TO TANKS AT 1/4" PER FOOT, (1/8" MIN) INSTALLED WITHOUT SAGS OR TRAPS. RE: PE1.2/3.
6. (2) 2" VENT RISERS IN EACH CANOPY COLUMN. RE: RE: PE1.2/2.3 MAKE CONNECTIONS TO VENTS IN COLUMN.
7. CONTRACTOR TO BE RESPONSIBLE FOR PROTECTING THE FUEL FARM PIT FROM WATER RUN-OFF. PROVIDE BERMS AND WATER FENCING.
8. ROUTE PRODUCT LINES TO MEET ZERO DEGREE DEFLECTION ANGLE WHEN PENETRATING DISPENSER AND TANK SUMPS. (TYP. ALL SUMPS.)
9. NOT USED.
10. 1-1/2" DOUBLE WALL FLEXIBLE PRODUCT PIPE BY O.P.W. ROUTED IN 4" FLEXIBLE CONDUIT ACCESS PIPE, 2 FOOT MINIMUM RADIUS BENDS. SLOPE BETWEEN DISPENSERS AND BACK TO TANK SUMPS AT 1/4" PER FOOT, (1/8" MIN) INSTALLED WITHOUT SAGS OR TRAPS.
11. DISPENSER SHALL HAVE MULTI GRADE FUEL AND DIESEL DISPENSING. ALL HOSES ON THE INSIDE SHALL BE OF STANDARD LENGTH. ALL OUTSIDE HOSES SHALL BE 16' IN LENGTH WITH HOSE EXTRACTOR.
12. FUEL CONTRACTOR SHALL INSTALL THE TANK DEADMAN ANCHORING SYSTEM. COORDINATE WITH MAVERIK CONSTRUCTION MANAGER.
13. PETROLEUM CONTRACTOR SHALL PROVIDE AND INSTALL OVERFILL PREVENTIONS DEVICES. VEEDER-ROOT TLS (90%) OVERFILL ALARM. SEE DETAIL 13/PE1.2.
14. ADD FUEL MARKERS PER FUEL IDENTIFICATION MARKERS NOTE THIS SHEET & PE1.1.
15. INSTALL TEST PORTS ON THE END OF EACH FUEL LINE FEED TO EACH DISPENSER PRODUCT INLET. SEE DETAILS 7 & 8/PE-1.2.
16. PROVIDE AND WRAP THERMON D/1-8SX SELF REGULATING HEATING CABLE AROUND THE DEF FILL PIPE ALSO PROVIDE THERMON E4X7-3323/IB ADJUSTABLE CONTROL THERMOSTAT AND ACCESSORIES. POWER BY ELECTRICAL CONTRACTOR.
17. FUEL CONTRACTOR SHALL PROVIDE SPLIT FUEL SUMPS ON THE HIGH FLOW ISLAND DIESEL APT LMM-3617-DEF, VERIFY MODEL # WITH DISPENSER. HIGH FLOW DISPENSER CONCRETE PADS SHALL BE 6'-2" X 3'-0".
18. DISPENSER SHALL BE HIGH-FLOW, MASTER/SLAVE OR MASTER/MASTER W/DEF DISPENSING. THE DIESEL HOSES SHALL BE 16 FEET IN LENGTH WITH HOSE EXTRACTORS.
19. 3" DOUBLE WALL FLEXIBLE PRODUCT PIPE BY O.P.W. ROUTED IN 6" FLEXIBLE CONDUIT ACCESS PIPE, 3 FOOT MINIMUM RADIUS BENDS. SLOPE BETWEEN DISPENSERS AND BACK TO TANK SUMPS AT 1/4" PER FOOT, (1/8" MIN) INSTALLED WITHOUT SAGS OR TRAPS. PIPE DIESEL SATELLITE WITH 1-1/2" DOUBLE WALL FLEXIBLE PIPE.
20. THE DIESEL & UNLEADED TANKS SHALL HAVE TWO (2) FILL DROP PORTS.
21. INSTALL 2" SYPHON SYSTEM BETWEEN UNLEADED TANK #1 AND CLEAR TANK #3 SEE DETAIL 1/PE-1.7. TANK #1 WILL BE PRIMARY DUMPING TANK.
22. ROUTE THE UNLEADED AND CLEAR TANK (SYPHON) VENT PIPES IN THE SAME CANOPY COLUMN. ABOVE THE CANOPY CONNECT BOTH THE VENT PIPES TOGETHER TO ONE PRESSURE/VACUUM VENT. SEE DETAIL 2/PE-1.2 & 1/PE-1.7.
23. INSTALL 48 X 36 TRANSITION SUMP WITH TRAFFIC LID. PROVIDE PIPING WITH ENTRY BOOTS, VALVES, CAPS, TEE'S & LEAK DETECTOR FOR FUTURE ISLAND ADDITION. SEE DETAIL 2/PE-1.7. CENTER TRANSITION SUMP AT 9 FEET PASS THE LAST DISPENSER. INSTALL 4'-0" BY 10 INCH THICK CONCRETE CURBING ALL AROUND TRANSITION SUMP AND LID.





6 PE-1.0 FUEL LINES
SCALE: 1/16" = 1'-0"

LEGEND

SYMBOL	DESCRIPTION
UN	UNLEADED PRODUCT PIPE AND DUCT
PRM	PREMIUM PRODUCT PIPE AND DUCT
DSL	DIESEL PRODUCT PIPE AND DUCT
CLR	CLEAR PRODUCT PIPE AND DUCT
E15	E15 PRODUCT PIPE AND DUCT
DEF	DIESEL EXHAUST PRODUCT PIPE AND DUCT
V	TANK VENT PIPE
VR	VAPOR RECOVERY PIPE
	ARROW INDICATES FLOW DIRECTION

HYDROSTATIC SENSOR NOTE

"THE INSTALLATION OF HYDROSTATIC SENSORS IN THE INTERSTITIAL TANK SPACE IS DETERMINED BY THIS PROJECT SOILS INVESTIGATION REPORT (REPORT) AND EXISTING CONDITIONS. A DUAL POINT HYDROSTATIC SENSOR IS REQUIRED IF THE REPORT AND/OR EXISTING CONDITIONS INDICATE STATIC GROUND WATER LEVEL AT THREE FEET (3'-0") OR LESS. A SINGLE POINT HYDROSTATIC SENSOR IS REQUIRED IF THE REPORT AND/OR EXISTING CONDITIONS INDICATES STATIC GROUND WATER LEVEL AT THREE FEET (3'-0") OR MORE."

CHECK OR INDICATE BELOW WHICH TYPE OF SENSOR INSTALLED.

☐ DUAL POINT SENSOR.
☐ SINGLE POINT SENSOR.

FUEL IDENTIFICATION MARKERS

"INSTALL AT THE TANK PAD & IN THE FILL BUCKET MARKERS TO IDENTIFY EACH TANK PRODUCT. EMBEDDED MARKER IN THE CONCRETE. LABEL LID & PROVIDE A TAG IN THE BUCKET." IN ADDITION ADD "CLEAN STENCILED COLOR CODED PAINT LABELS IDENTIFY TANK NUMBERS, PRODUCT & STORE NUMBER. STENCILS MUST BE AT LEAST 3" TALL.

AUTO ISLANDS

PRODUCT PIPING SIZE, USE 1-1/2" OPW DW FLEX PIPING FOR 6 PRODUCT NOZZLES FOR REGULAR (UNLEADED) AND PREMIUM (SUPREME) PRODUCTS, CLEAR (NON-ETHANOL) AND DIESEL.
PRODUCT PIPING MAXIMUM FOR 2" PIPING IS 12 NOZZLE OF A HIGH USE PRODUCT: FOR REGULAR (UNLEADED) & PREMIUM (SUPREME) PRODUCTS FOR LOW USE PRODUCTS: 2" PIPING CAN DO 18 NOZZLES FOR CLEAR (NON-ETHANOL) AND AUTO DIESEL.

DIESEL ISLANDS

PRODUCT PIPING FOR HIGH FLOW DIESEL PUMPS, FOR MAIN SUPPLY LINES TO BE 3" AND MASTER/SATELLITE TIE LINES TO BE 2".
PRODUCT PIPING FOR DEF TO BE 1-1/2" OPW DW FLEX.

DISPENSER FOOT PRINT

FUEL CONTRACTOR SHALL VERIFY DISPENSER MANUFACTURER AND MODEL NUMBERS BEFORE BEGINNING UNDERGROUND DISPENSER WORK. CONTRACTOR SHALL CONTACT DISPENSER SUPPLIER AND OBTAIN INSTALLATION SUMP AND DISPENSER DETAILS. THE DETAILS ON THE PLANS ARE TO GIVE THE BEST INFORMATION AT DESIGN TIME, BUT ARE NOT THE FINAL.

FUEL SHUT-OFF NOTE

SEE SHEET E-1.0 FOR EMERGENCY SHUT-OFF SWITCH LOCATIONS.

FUEL NOTE

"NO TRACER WIRE TO BE INSTALLED"

UNDERGROUND SECONDARY BRINE CONTAINMENT TANK TEST

NFPA30-4.4.2.3 UNDERGROUND SECONDARY CONTAINMENT TANKS AND HORIZONTAL ABOVEGROUND SECONDARY CONTAINMENT TANKS SHALL HAVE THE PRIMARY (INNER) TANK TESTED FOR TIGHTNESS EITHER HYDROSTATICALLY OR WITH AIR PRESSURE AT NOT LESS THAN A GUAGE PRESSURE OF 3 psig AND NOT MORE THAN A GUAGE PRESSURE OF 5 psig. THE INTERSTITIAL SPACE (ANNULUS) OF SUCH TANKS SHALL BE TESTED EITHER HYDROSTATICALLY OR WITH AIR PRESSURE AT A GUAGE PRESSURE OF 3 TO 5 psig, BY VACUUM AT 5.3 in. Hg, OR IN ACCORDANCE WITH THE TANKS LISTING OR MANUFACTURER'S INSTRUCTIONS. THE PRESSURE OR VACUUM SHALL BE HELD FOR NOT LESS THAN 1 HOUR OR FOR THE DURATION SPECIFIED IN THE LISTING PROCEDURES FOR THE TANK. CARE SHALL BE TAKEN TO ENSURE THAT THE INTERSTITIAL SPACE IS NOT OVERPRESSURED OR SUBJECTED TO EXCESSIVE VACUUM.

1/18/2024 12:25:32 PM

MAVERIK
185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:
Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2577
FAX (208) 234-0918

STAMP:

MICHAEL S. HARKINS — LICENSED — 28524 — KANSAS — PROFESSIONAL ENGINEER

MAVERIK, INC.
MAVERIK - BELGRADE
ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

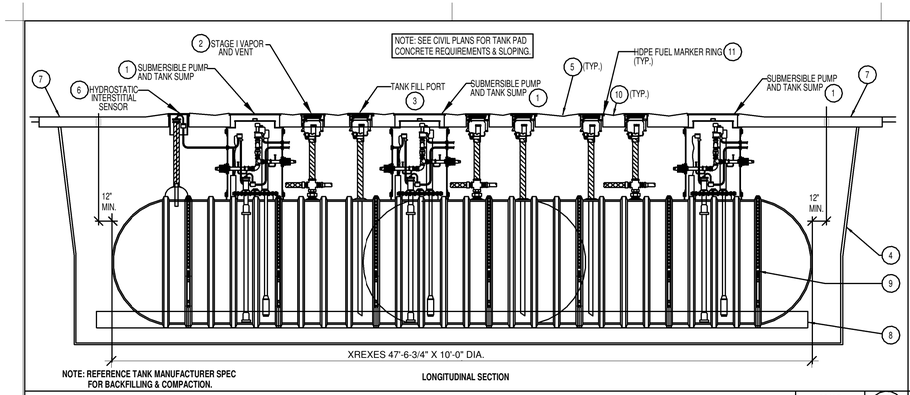
△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE
PERMIT DRAWINGS 12/21/2023
PROJECT NUMBER: 23.113

SHEET NAME
FUEL PIPING PLAN AND NOTES

SHEET NUMBER
PE1.0

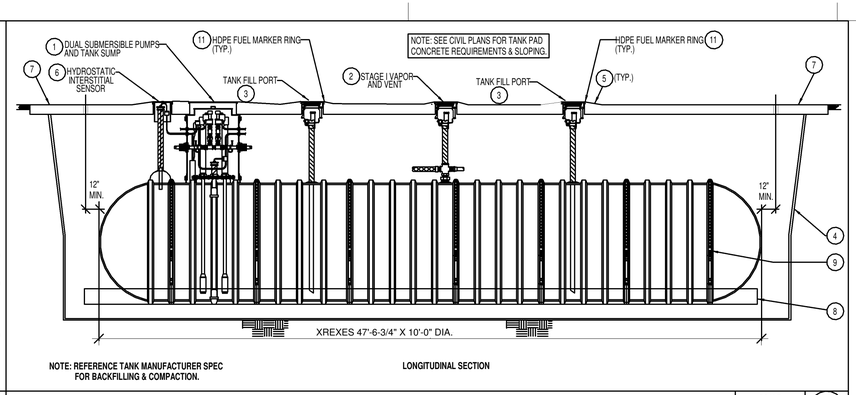


NOTE: REFERENCE TANK MANUFACTURER SPEC FOR BACKFILLING & COMPACTION.

LONGITUDINAL SECTION

25K GALLON/10' DIA. 3 COMPARTMENT UNDERGROUND STORAGE TANK SECTIONS

SCALE NTS | 1A PE1.1

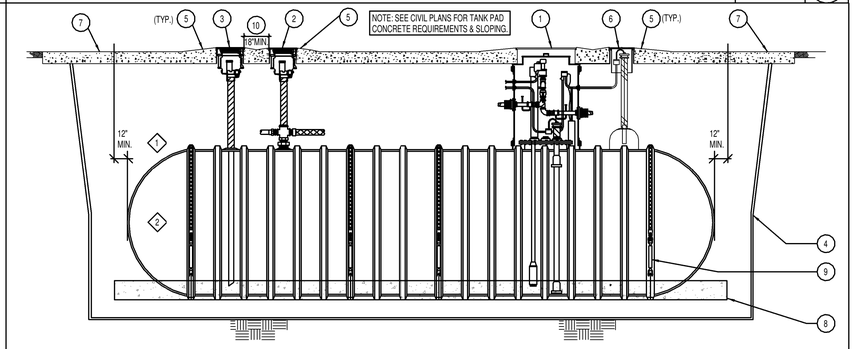


NOTE: REFERENCE TANK MANUFACTURER SPEC FOR BACKFILLING & COMPACTION.

LONGITUDINAL SECTION

25K GALLON/10' DIA. UNDERGROUND COMPARTMENT STORAGE TANK SECTION (DUAL PUMPS)

SCALE NTS | 1 PE1.1

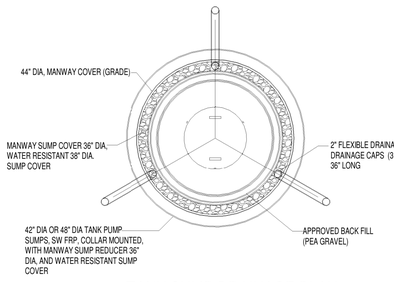


NOTE: REFERENCE TANK MANUFACTURER SPEC FOR BACKFILLING & COMPACTION.

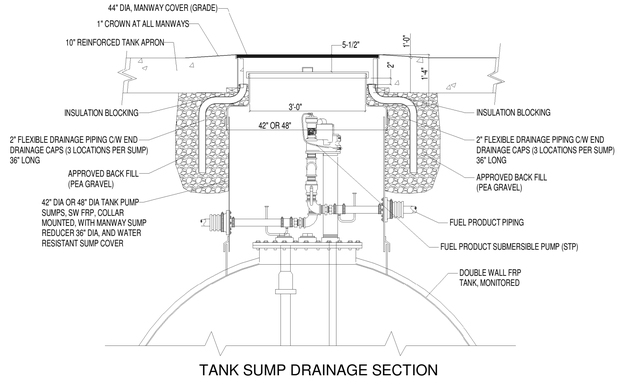
LONGITUDINAL SECTION

NOT USED

SCALE NTS | 2A PE1.1



TANK SUMP DRAINAGE PLAN



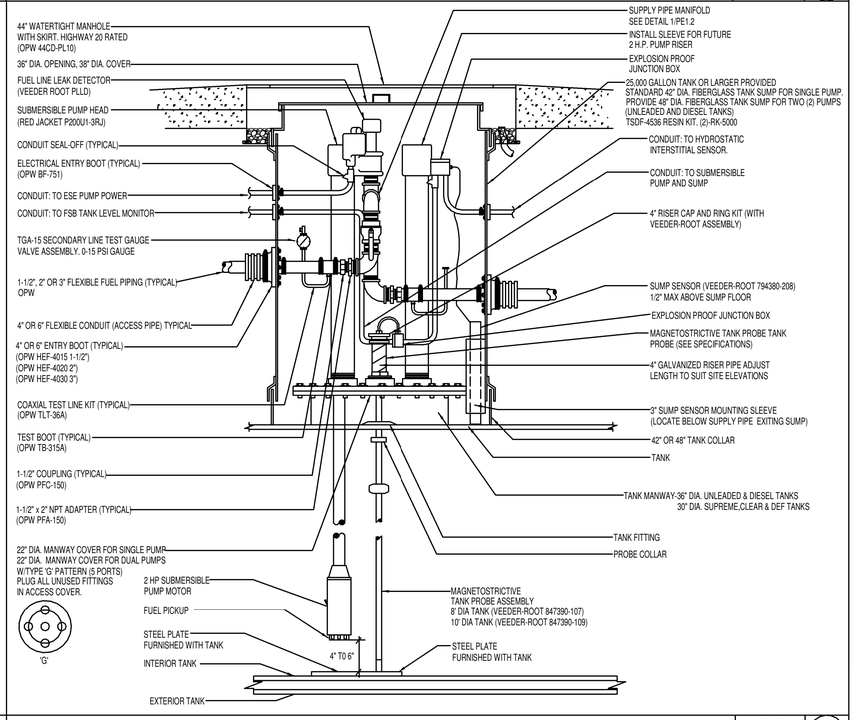
TANK SUMP DRAINAGE SECTION

PUMP SUMP DRAINAGE DETAIL

SCALE NTS | 4 PE1.1

TYPICAL UNDERGROUND STORAGE TANK SECTION

SCALE NTS | 2 PE1.1



DETAIL - SUBMERSIBLE PUMPS (NO. 1-5) AND TANK SUMP

SCALE NTS | 3 PE1.1

GENERAL NOTES

1. FUEL TANK PROVIDED BY XERXES INSTALLED BY FUEL CONTRACTOR. INSTALL TANKS PER MANUFACTURER RECOMMENDATIONS.
2. TANKS SHALL BE BALLASTED WITH WATER, SEE SPECIFICATIONS SECTION 13205.3.3.H

KEY NOTES

1. SUBMERSIBLE PUMP AND TANK SUMP, RE: PE1.1/2
2. STAGE I VAPOR RECOVERY, RE: PE1.2/5 PAINT STAGE I VAPOR RECOVERY MANHOLE LID PER SPECIFICATION SECTION 09900 PER SPECIFICATION SECTION 09900 COLORS AS FOLLOWS: PROVIDE AND INSTALL COVER I.D. TAGS
   - UNLEADED - 1TAG-7000 (ORANGE)
   - SUPREME - 1TAG-7000 (ORANGE)
   - DIESEL - 1TAG-7000 (ORANGE)
   - CLEAR - 1TAG-7000 (ORANGE)
   - DEF - 1TAG-7000 (ORANGE)
3. TANK FILL TUBE, RE: PE1.2/4 PAINT TANK FILL MANHOLE LID PER SPECIFICATION SECTION 09900 COLORS AS FOLLOWS: PROVIDE AND INSTALL COVER I.D. TAGS.
   - UNLEADED - 1TAG-1000 (WHITE)
   - SUPREME - 1TAG-3000 (RED)
   - DIESEL - 1TAG-4000 (GREEN)
   - CLEAR - 1TAG-2000 (BLUE)
   - DEF - 1TAG-2000 (BLACK)
4. REFERENCE TANK MANUF. SPEC AND/OR CIVIL DRAWINGS FOR FILTER FABRIC LINER TO COVER ENTIRE BOTTOM AND WALLS OF TANK PIT AND COVER PEA GRAVEL BACKFILL BELOW STRUCTURAL BACKFILL. **(FUEL CONTRACTOR SHALL PROVIDE AND INSTALL FABRIC.)**
5. SEE CIVIL SHEET FOR SLOPE OF CONCRETE AROUND ALL OPENINGS AND LIDS.
6. HYDROSTATIC INTERSTITIAL SENSOR.
7. TANK SLAB BY GENERAL CONTRACTOR SHALL EXTEND 3'-0" MIN. PAST THE TANKS DIMENSIONS ON ALL FOUR SIDES.
8. REFERENCE MANUFACTURER SPEC/REQUIREMENTS AND/OR CIVIL DOCUMENTS FOR PRECAST DEADMAN TANK ANCHOR AND BUOYANCY CALCULATIONS.
9. TANK HOLD DOWN SYSTEM, VERIFY QUANTITY AND SPACING OF STRAPS WITH TANK MANUFACTURER PRIOR TO INSTALLATION. INSTALL PER MANUFACTURERS INSTRUCTIONS. IF DEADMAN EYE BOLTS SLOTS ARE LOCATED IN THE PROPER POSITION USE TURNBUCKLE SHACKLE METHOD, OTHERWISE, USE WIRE CABLE AND TRIPLE CLAMPS.
10. PROVIDE MINIMUM 18" CONCRETE BETWEEN BUCKETS.
11. HDPE FUEL MARKER RING INSTALLED BY CONCRETE CONTRACTOR IN WET CONCRETE, FLUSH MOUNTED.

HYDROSTATIC SENSOR NOTE

"THE INSTALLATION OF HYDROSTATIC SENSORS IN THE INTERSTITIAL TANK SPACE IS DETERMINED BY THIS PROJECT SOILS INVESTIGATION REPORT (REPORT) AND EXISTING CONDITIONS. A DUAL POINT HYDROSTATIC SENSOR IS REQUIRED IF THE REPORT AND/OR EXISTING CONDITIONS INDICATE STATIC GROUND WATER LEVEL AT THREE FEET (3'-0") OR LESS. A SINGLE POINT HYDROSTATIC SENSOR IS REQUIRED IF THE REPORT AND/OR EXISTING CONDITIONS INDICATES STATIC GROUND WATER LEVEL AT THREE FEET (3'-0") OR MORE."

CHECK OR INDICATE BELOW WHICH TYPE OF SENSOR INSTALLED.

- ☐ DUAL POINT SENSOR.
- ☐ SINGLE POINT SENSOR.

VEEDER-ROOT HARDWARE TLS450

(ALL FUEL & TANK MONITORING EQUIPMENT SHALL BE PROVIDED BY THE OWNER.) (CONTRACTOR & SUPPLIER TO VERIFY THE EQUIPMENT QUANTITIES FOR EACH SITE)

QTY.	MODEL #	DESCRIPTION
		TANK GUAGING AND LEAK DETECTION: TLS-450 CONSOLE AND HARDWARE
1	0860091-302	TLS-450PLUS CONSOLE WITH 8" WVGA COLOR TOUCH SCREEN DISPLAY, PRINTER, 3 ETHERNET & DUAL USB EXPANSION, DUAL RS-232/RS-485, UL/cUL
1	033545-001	TLS-450 PLUS APPLICATION SOFTWARE
3	0332812-001	UNIVERSAL SENSOR MODULE (USM) INTERFACE FOR PROBES, SENSORS, & DPLLD (TLS-450PLUS)
1	0332813-001	UNIVERSAL INPUT/OUTPUT INTERFACE MODULE (UIOM) FOR RELAY CONTROL AND INPUT SIGNAL MONITORING (TLS-450PLUS)
0	0860390-100	TLS-XB EXPANSION BOX, UL
0	0330020-761	TLS-XB INSTALL KIT WITH 3'-0" CABLE
1	0349889-001	CENTRALIZED DEVICE MANAGEMENT (CDM) SOFTWARE
1	0334054-001	CDM BACKUP FEATURE
1	0332972-028	IPC SOFTWARE ENHANCEMENT FOR TLS-450PLUS CONSOLES
1	0332972-008	RISK MANAGEMENT: DIGITAL LINE LEAK DETECTION FOR TLS-450PLUS*
1	0332869-001	DUAL RS-485 DUAL INTERFACE MODULE
4	0846397-1xx	SS PROBE, 0.1 MAG PLUS, HGP, WATER DETECTION, UL (GAS & DIESEL)
1	0846397-4xx	SS PROBE, 0.1 MAG PLUS, NO WATER DETECTION, UL (DEF)
3	0886100-000	INSTALL KIT, MAG PLUS, PHASE TWO WATER DETECTOR, 4" FLOAT, 5' CABLE (GAS)
1	0846400-001	INSTALL. KIT, MAG PLUS, DIESEL, 4" FLOAT, 5 FOOT CABLE (DIESEL)
1	0846400-004	INSTALL KIT, MAG PLUS, ALT FLUID, 4" FLOAT, 5 FOOT CABLE (DEF)
5	0312020-952	4" NPT RISER CAP AND RING KIT FOR IN-TANK PROBES
1	0857080-111	MAG PAN/SUMP SENSOR FOR GAS & DIESEL, 12" - UL (DEF)
22	0794380-208	SUMP SENSOR 12 FOOT CABLE
3	0794380-301	SINGLE-POINT HYDROSTATIC SENSOR WITH VENTED LOCKING RISER CAP
5	0859080-001	DIGITAL PRESSURIZED LINE LEAK DETECTOR WITHOUT SWIFTCHECK VALVE, UL
2	0410153-002	RED JACKET CHECK VALUE KIT, HIGH PRESSURE (DISTRIBUTOR RED JACKET DISCOUNT APPLIES)
1	0790091-001	OVERFILL ALARM BOX
1	0790095-001	OVERFILL ALARM ACKNOWLEDGE SWITCH/RESET

MAVERIK

185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:

Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2577
FAX (208) 234-0918

OWNERSHIP OF DOCUMENTS

STAMP:

MAVERIK, INC.
MAVERIK - BELGRADE, MT

ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE

BID SET 07/19/2024

PROJECT NUMBER: 23.113

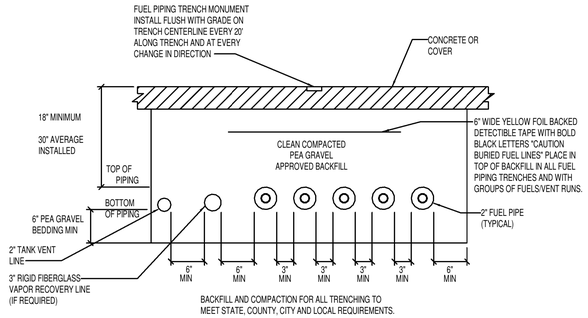
SHEET NAME

FUEL EQUIPMENT DETAILS

SHEET NUMBER

PE1.1

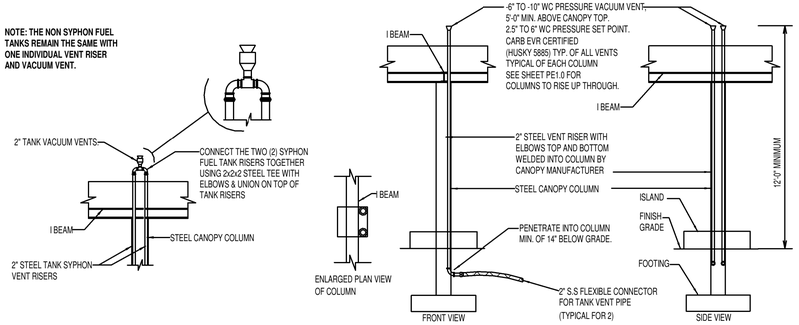
1/18/2024 12:25:33 PM



DETAIL - FUEL PIPE TRENCH

SCALE	
NTS	3 / PE1.2

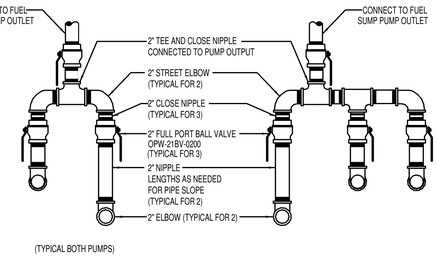
NOTE: THE NON SYPHON FUEL TANKS REMAIN THE SAME WITH ONE INDIVIDUAL VENT RISER AND VACUUM VENT.



DETAIL - GASOLINE SYPHON TANK VENT LINE

SCALE	
NTS	2 / PE1.2

NOTE: PROVIDE 3" PIPE WHERE SPECIFIED ON SHEET PE-1.0



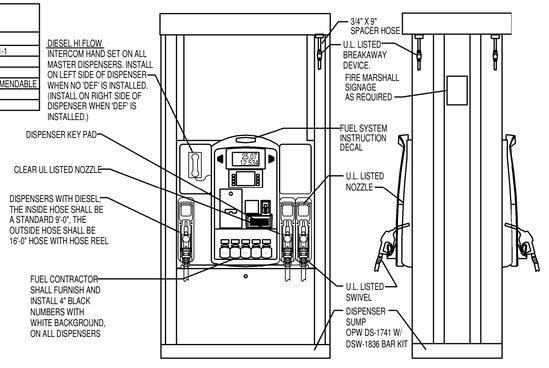
(TYPICAL BOTH PUMPS)

DETAIL - SUPPLY PIPE MANIFOLD

SCALE	
NTS	1 / PE1.2

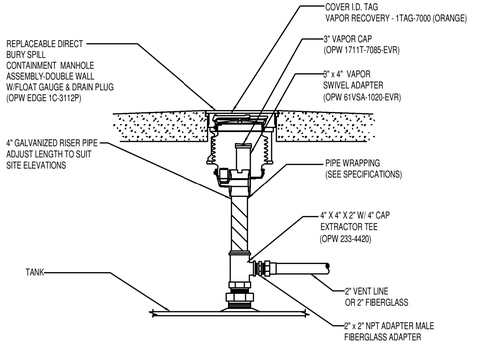
STAGE II VAPOR RECOVERY SYSTEM IS NOT REQUIRED	
EQUIPMENT USED	MODEL NUMBERS
DISPENSERS	GILBARCO ENCORE NL3, 3-1-1
HOSES	CURB HOSE
WHIPS	SPACER HOSE
BREAKAWAYS	OPW (66 REC-1000) RECOMMENDABLE
SWIVELS	OPW 241TPS-0241
NOZZLES	OPW 11B

SEE SHEET PE 1.7 FOR SUMP DIMENSIONS



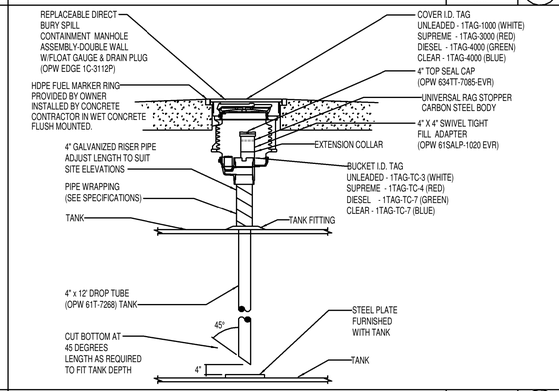
GILBARCO DISPENSER DETAIL

SCALE	
NTS	6 / PE1.2



DETAIL - STAGE I VAPOR RECOVERY

SCALE	
NTS	5 / PE1.2

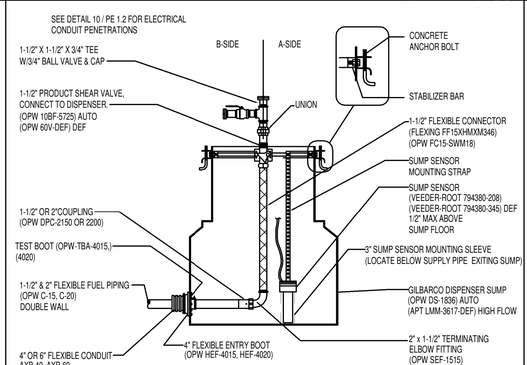


DETAIL - TANK FILL TUBE

SCALE	
NTS	4 / PE1.2

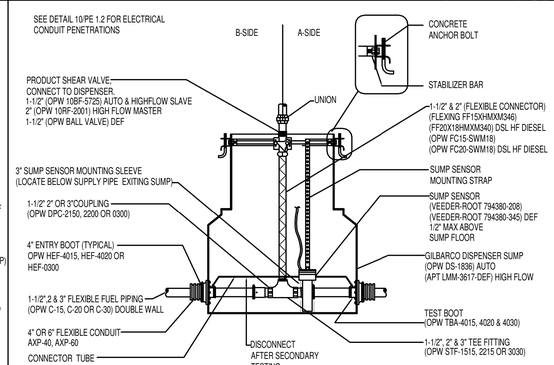
NOT USED

SCALE	
NTS	9 / PE1.2



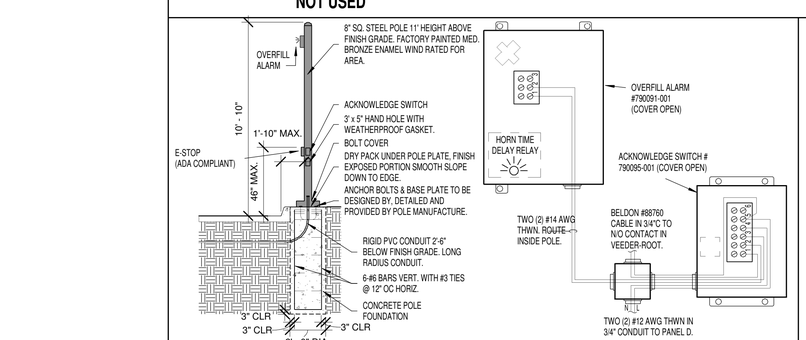
TERMINATING DISPENSER SUMP CROSS SECTION

SCALE	
NTS	8 / PE1.2



DETAIL - JUNCTION DISPENSER SUMP CROSS SECTION

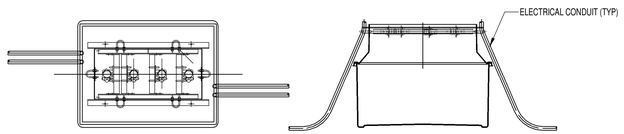
SCALE	
NTS	7 / PE1.2



OVERFILL ALARM POLE & WIRING DIAGRAM

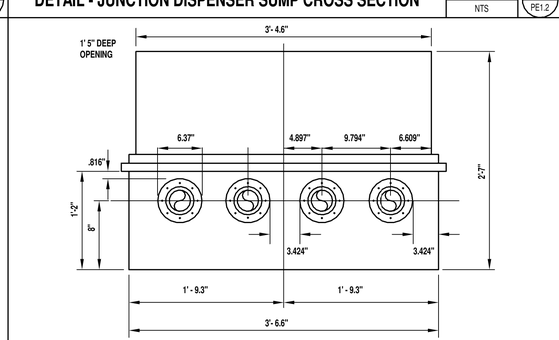
SCALE	
NTS	12 / PE1.2

ELECTRICAL CONTRACTOR NOTE: DO NOT PENETRATE SUMP. ALL CONDUITS SHALL RISE UP OUTSIDE THE DISPENSER AS DETAILED. SEE ELECTRICAL PLAN.



CONDUIT DISPENSER SUMP DETAIL

SCALE	
NTS	11 / PE1.2



OPW DS-1741 DISPENSER SUMP WITH 4 FUEL LINES

SCALE	
NTS	10 / PE1.2

1/18/2024 12:25:35 PM

MAVERIK

185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:

Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2577
FAX (208) 234-0918

OWNERSHIP OF DOCUMENTS

STAMP:

MAVERIK, INC.
MAVERIK - BELGRADE

ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --

PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE

BID SET 07/19/2024

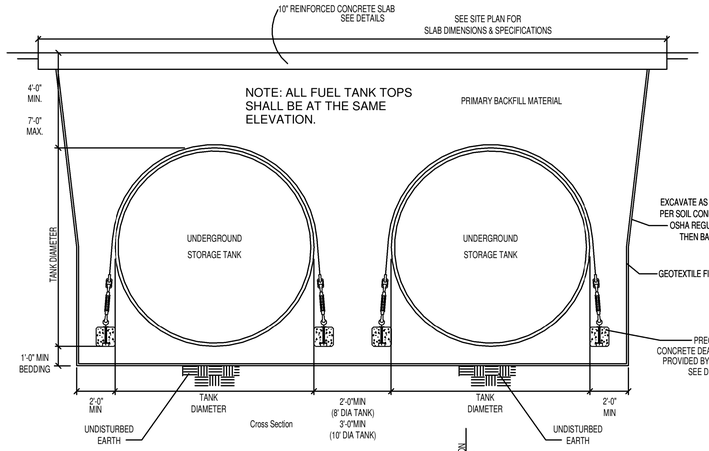
PROJECT NUMBER: 23.113

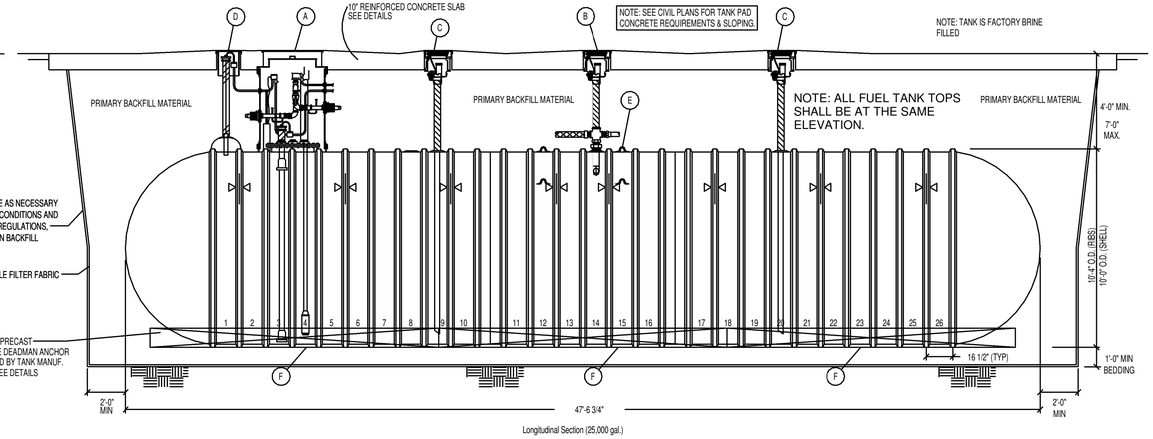
SHEET NAME

FUEL SYSTEM DETAILS

SHEET NUMBER

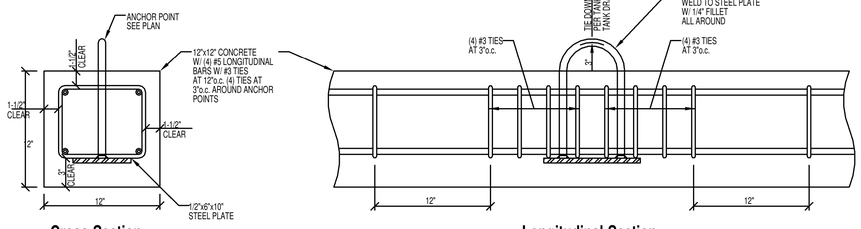
PE1.2





Underground Storage Tank Sections

SCALE: NONE



Cross-Section **Longitudinal-Section**

Precast Concrete Deadman Anchor

Deadmen Installation Instructions for Fiberglass Underground Storage Tanks

1. GENERAL
   - 1.1. These instructions supplement the Anchoring Tanks section of the Xerxes Installation Manual and Operating Guidelines (subsequently referred to as "Installation Manual").
   - 1.2. It is important to follow the procedures and instructions in the Installation Manual in order to safely and properly install a Xerxes underground storage tank and accessories. Failure to follow those instructions may void the tank warranty and cause tank failure, death, serious personal injury or property damage.
   - 1.3. Deadmen help anchor tanks in installations in which there is potential for a high water table or trapped water.
   - 1.4. Deadmen come in various lengths. Generally, there are 1 to 4 deadman sections per side of tank, with both sides having an equal number.
2. ANCHORING TANKS
   - 2.2. Placement of Deadmen
     - 2.2.1. The minimum spacing between tanks must be increased as needed to accommodate deadmen.
     - 2.2.2. Always provide sufficient clearance to allow the deadmen to be set outside of the tank "shadow." See Tank Spacing subsection in the Excavation Parameters section of the Installation Manual. (See FIGURE 2-1.)
     - 2.2.3. When multiple sections are used, the deadmen are to be butted together end to end on each side of the tank.

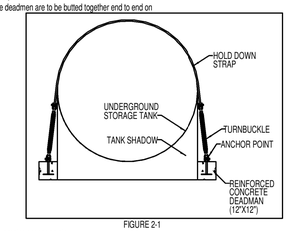


FIGURE 2-1

   - 2.3. Positioning of anchor points
     - 2.3.1. Deadman are constructed with 3/4" diameter anchor points.
     - 2.3.2. Use only one strap per anchor point.
     - 2.3.3. Align the anchor points with the hold-down strap locations on the tank (marked by arrowhead >< symbols). See Anchoring Tanks section of the Installation Manual.
     - 2.3.4. When using deadmen in man-out-of-hole strapping applications, align the anchor points with the proper ribs before setting the deadmen in the hole.
     - 2.3.5. Care should be taken to keep backfill from entering the alignment slots until final adjustment is made. Placing something (for example, a piece of wood) over the slots during during backfill placement may help keep backfill from entering the alignment slots.
   - 2.4. Installation of deadmen
     - 2.4.1. The top of the deadman should be aligned to the bottom of the tank.
     - 2.4.2. The deadmen are typically placed directly on the the excavation floor.
     - 2.4.4. Make sure the anchor points are positioned correctly.
     - 2.4.5. Some contractors use the deadmen as a guide for proper depth of bedding.
3. TURNBUCKLES
   - 3.1. General
     - 3.1.1. Xerxes offers a turnbuckle (See FIGURE 3-1.) that will connect the deadman anchor point to the Xerxes FRP hold-down strap. See Hold-down Straps subsection in the Anchoring Tanks section of the Installation Manual for more detail. (Also see FIGURE 2-1.)

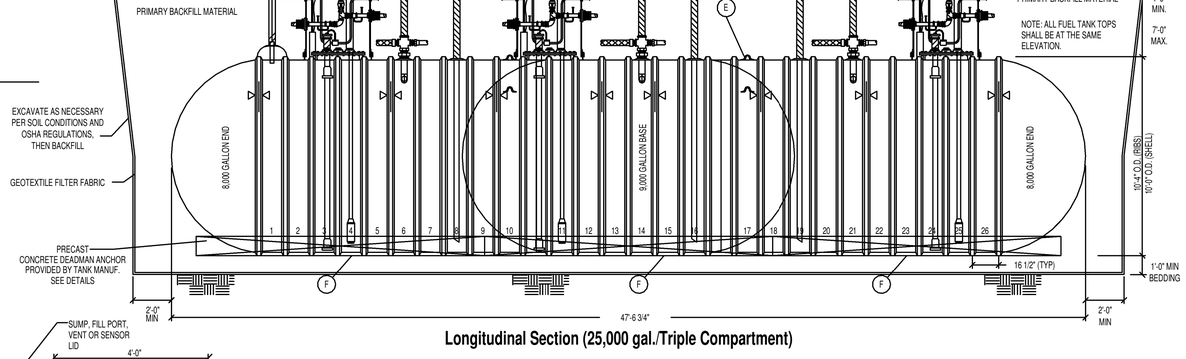
FIGURE 3-1

XERXES CORPORATION - 7901 XERXES AVENUE SOUTH, MINNEAPOLIS, MN 55431-1288
(952) 887-1890 * FAX (952) 887-1882 * www.xerxescorp.com ®

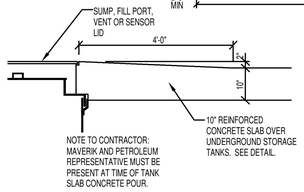
General Notes:

1. INSTALL TANKS PER MANUFACTURER RECOMMENDATIONS AS SPECIFIED WITHIN THE "INSTALLATION MANUAL & OPERATING GUIDELINES FOR FIBERGLASS UNDERGROUND STORAGE TANKS."
2. CONTRACTOR TO BE RESPONSIBLE FOR PROTECTING THE FUEL FARM PIT FROM WATER RUN-OFF. PROVIDE BERMS AND WATER/SILT FENCING.
3. TANK SLAB BY CONTRACTOR, SEE CIVIL SITE PLAN FOR DIMENSIONS & DESIGN. CONCRETE SLAB TO EXTEND A MINIMUM 12" BEYOND TANK IN ALL DIRECTIONS.
4. SEE CIVIL GRADING PLAN FOR SLOPES & GRADES OF CONCRETE.
5. SEE CIVIL SITE PLANS FOR GRADING ENSURING THAT THE FUEL DISPENSERS WILL BE INSTALLED ON A MINIMUM 6" HIGH CONCRETE ISLAND.
6. PRIMARY BACKFILL:
   PRIMARY BACKFILL MATERIAL MUST MEET THE FOLLOWING SPECIFICATIONS:
   * MATERIAL IS TO BE CLEAN, FREE-FLOWING, AND FREE OF DIRT, SAND, LARGE ROCKS, ROOTS, ORGANIC MATERIALS, DEBRIS, ICE AND SNOW. BACKFILL MATERIAL SHALL NOT BE FROZEN OR CONTAIN LUMPS OF FROZEN MATERIAL AT ANY TIME DURING PLACEMENT.
   * AN IMPORTANT CHARACTERISTIC OF GOOD BACKFILL MATERIAL IS HARDNESS OR STABILITY WHEN EXPOSED TO WATER OR LOADS. MOST MATERIALS HAVE NO PROBLEM MEETING THE HARDNESS REQUIREMENT. MATERIALS LIKE SOFT LIMESTONE, SANDSTONE, SEA SHELLS OR SHALE SHOULD NOT BE USED AS BACKFILL BECAUSE THEY MAY BREAK DOWN OVER TIME.
   * WHEN USING SELECT ROUNDED STONES, THEY MUST CONFORM TO THE SPECIFICATIONS OF ASTM C-33, SIZE NUMBERS 6, 67 OR 7.
   * WHEN USING SELECT CRUSHED STONES, THEY MUST CONFORM TO THE SPECIFICATIONS OF ASTM C-33, SIZE NUMBERS 7 OR 8.
7. TEST MANIFOLD FOR EACH AIR-TESTABLE TANK OR COMPARTMENT; TEST AT 6 PSIG (4 PSIG FOR 12-FOOT DIAMETER TANKS) PER SECTION 1.3.1.7 & .8 OF THE "INSTALLATION MANUAL AND OPERATING GUIDELINES FOR FIBERGLASS UNDERGROUND STORAGE TANKS."
8. ALWAYS LIFT TANKS BY USING THE LIFTING LUGS PROVIDED WITH THE TANK. DISTRIBUTE THE LIFTING LOAD EVENLY BETWEEN THE LIFTING LUGS. USE SPREADER BARS AND EQUAL LENGTH SLINGS AS REQUIRED. USE A CRANE FOR PROPER MOVEMENT OF THE TANKS, PER SECTION 2.1.3 OF THE "INSTALLATION MANUAL AND OPERATING GUIDELINES FOR FIBERGLASS UNDERGROUND STORAGE TANKS."
9. ALL EXCAVATED PETROLEUM LINE TRENCHES ARE TO BE BACKFILLED WITH PRIMARY BACKFILL MATERIAL.
10. TANKS ARE TO BE LOCATED A MINIMUM OF 3 FEET FROM PROPERTY LINES.
11. GEOTEXTILE FILTER FABRIC:
    * COVER OVER THE ENTIRE SURFACE OF BACKFILL MATERIAL.
    * ALL JOINTS IN THE FILTER FABRIC MUST BE OVERLAPPED A MINIMUM OF 12".
    * GEOTEXTILE FABRIC ALLOWS THE PASSAGE OF WATER IN AND OUT OF THE EXCAVATION BUT PREVENTS THE MIGRATION AND MIXING OF IN SITU SOIL AND THE SELECT BACKFILL MATERIAL. GEOTEXTILE HELPS PRESERVE THE INTEGRITY OF THE SELECT BACKFILL ENVELOPE THAT SURROUNDS AND SUPPORTS THE TANK.
    * USE FILTER FABRIC PER XERXES SPECIFICATIONS.
12. PRECAST DEADMAN TANK ANCHOR TO BE SPECIFIED BY WATER TABLE REQUIREMENTS AND GEOTECHNICAL REPORT. PLACE DEADMAN ON TANK PIT BEDDING. DEADMAN LENGTH SHALL MEET OR EXCEED TANK LENGTH. PETROLEUM CONTRACTOR SHALL PROVIDE ALL EQUIPMENT i.e. CRANE AND ETC. FOR INSTALLING AND SETTING TANK ANCHOR SYSTEM. WHEN THE SUB WATER IS MORE THAN 16 FEET BELOW THE CONCRETE PAD ELEVATION DELETE DEADMAN.
13. TANK HOLD DOWN SYSTEM TO BE INSTALLED WITH DEADMAN ANCHORS AS SPECIFIED BY WATER TABLE AND GEOTECHNICAL REPORT. VERIFY QUANTITY AND SPACING OF STRAPS WITH TANK MANUFACTURER PRIOR TO INSTALLATION. INSTALL PER MANUFACTURERS INSTRUCTIONS. IF DEADMAN EYE BOLTS SLOTS ARE LOCATED IN THE PROPER POSITION USE TURNBUCKLE SHACKLE METHOD, OTHERWISE, USE WIRE CABLE AND TRIPLE CLAMPS.

(A) SUBMERSIBLE PUMP AND TANK SUMP
(B) STAGE 1 VAPOR RECOVERY
(C) TANK FILL TUBE
(D) HYDROSTATIC INTERSTITIAL SENSOR
(E) LIFTING LUG (2 EXTRA (25,000 gal.))
(F) POURED IN PLACE CONCRETE DEADMAN (IF REQUIRED) 15' LONG FOR 25,000 GAL. TANKS
HOLD DOWN STRAP LOCATION



Longitudinal Section (25,000 gal./Triple Compartment)



UST Lid/Concrete Detail

MAVERIK
185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:

Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2577
FAX (208) 234-0918

OWNERSHIP OF DOCUMENTS

STAMP:

MICHAEL S. HARKER 28524 KANSAS PROFESSIONAL ENGINEER

MAVERIK, INC.
MAVERIK - BELGRADE

ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE
BID SET 07/19/2024
PROJECT NUMBER: 23.113

SHEET NAME
UNDERGROUND STORAGE TANK DETAILS

SHEET NUMBER
PE1.3

1/18/2024 12:25:37 PM

SCOPE OF WORK DIVISION

CONTRACTOR ABBREVIATIONS: OWNER GENERAL = OWN GC | FUEL ELECTRICAL = FC EC | CANOPY MANUFACTURER = CM

SUBJECT GROUP	EQUIPMENT OR TASK (BASIC ORDER OF INSTALLATION)	FURNISHED BY OWN	GC	FC	EC	CM	INSTALLED OR PERFORMED BY OWN	GC	FC	EC	CONNECTION OR TERMINATION BY OWN	GC	FC	EC	CM
TANK PIT AND FUEL TANKS	TANK PIT & PRODUCT LINE EXCAVATION/BACKFILL							●							
	FILTER FABRIC			●					●						
	PEA GRAVEL BEDDING AND BACKFILL		●					●							
	FUEL TANKS	●							●						
	TANK STRAP, TURNBUCKLES	●							●				●		
	CRANE FOR SETTING TANK AND TANK ANCHORS			●					●				●		
	18" HIGHWAY 20 RATED MANHOLE (WHEN REQUIRED)			●					●						
CANOPY FOOTINGS	EXCAVATION		●					●							
	ANCHOR BOLTS		●					●							
	CONCRETE FOOTING		●					●							
	CANOPY COLUMNS		●					●							
FUEL PUMPS	SUBMERSIBLE FUEL PUMPS (RED JACKET PREFERRED)			●					●				●		
	LINE LEAK DETECTORS			●					●				●		
	FUEL PUMP CONTROLLER (STP) (IQ)	●								●				●	
FUEL PUMP SUMPS	FIBERGLASS BURIAL TANK SUMP	●							●						
	TANK SUMP COLLAR, RISER AND LID	●							●						
	44" HIGHWAY 20 RATED MANHOLE			●					●						
TANK RISER PIPES	STAGE I EXTRACTOR TEE			●					●				●		
	FUEL TANK STEEL RISER PIPES AND FITTINGS			●					●				●		
	PIPE WRAPPING			●					●				●		
TANK PROBE	16" HIGHWAY 20 RATED MANHOLE			●					●				●		
	MAGNETOSTRICTIVE PROBE			●					●				●		
STAGE I VAPOR RECOVERY	SPILL CONTAINMENT MANHOLE			●					●				●		
	TANK VAPOR RECOVERY ADAPTER			●					●				●		
	TANK VAPOR CAP			●					●				●		
FILL TUBE	SPILL CONTAINMENT MANHOLE			●					●				●		
	TIGHT FILL ADAPTER			●					●				●		
	TOP SEAL CAP			●					●				●		
	DROP TUBE			●					●				●		
DISPENSER SUMPS	DISPENSER SUMP			●					●				●		
	STABILIZER BARS			●					●				●		
	SHEAR VALVE MOUNTING PLATE			●					●				●		
TRENCHING	TRENCHING FOR PIPES AND CONDUITS		●					●							
	BACKFILL		●					●							
	MARKER TAPE EACH PRODUCT LINE FROM FUEL FARM TO			●				●							
	DISPENSERS BOX (BRAIDED WIRE), TRENCH MONUMENT MARKERS			●					●						
	BACKFILL SAND (BUILDING TO FUEL ISLAND 6" BOTTOM & 6" TOP)			●					●						
PRODUCT SUPPLY PIPES	STEEL SUPPLY NIPPLES AND FITTINGS			●					●				●		
	1-1/2", 2" & 3" FULL PORT BALL VALVES			●					●				●		
	NPT TO FLEX COUPLING ADAPTERS			●					●				●		
	FLEXIBLE SUPPLY PIPE END COUPLINGS			●					●				●		
	DOUBLE WALL FLEXIBLE SUPPLY PIPE			●					●				●		
	TEST BOOTS			●					●				●		
	CONNECTOR TUBES			●					●				●		
	TEST TUBES			●					●				●		
	FLEX COUPLING TO NPT TEE FITTINGS			●					●				●		
	FLEX COUPLING TO NPT TERMINATING ELBOW FITTINGS			●					●				●		
	STEEL PIPE RISERS			●					●				●		
	SHEAR VALVES			●					●				●		
	SUMP WALL FLEXIBLE ENTRY BOOTS			●					●				●		
TANK VENT PIPES	NPT TO FLEX COUPLING ADAPTERS			●					●				●		
	FLEXIBLE SUPPLY PIPE END COUPLINGS			●					●				●		
	FIBERGLASS VENT PIPE			●					●				●		
	SUMP WALL FLEXIBLE ENTRY BOOTS			●					●				●		
	STEEL VENT PIPE, NIPPLES AND ELBOWS			●					●				●		
	PRESSURE-VACUUM VENT			●					●				●		
	VENT RISERS IN CANOPY COLUMN BY CANOPY CONTRACTOR				●										●
	OPEN VENT CAP			●					●				●		

SCOPE OF WORK DIVISION

CONTRACTOR ABBREVIATIONS: OWNER GENERAL = OWN GC | FUEL ELECTRICAL = FC EC | CANOPY MANUFACTURER = CM

SUBJECT GROUP	EQUIPMENT OR TASK (BASIC ORDER OF INSTALLATION)	FURNISHED BY OWN	GC	FC	EC	CM	INSTALLED OR PERFORMED BY OWN	GC	FC	EC	CONNECTION OR TERMINATION BY OWN	GC	FC	EC	CM
ELECTRICAL CONDUIT	ELECTRICAL CONDUITS, JUNCTION BOXES AND SEAL-OFFS				●					●					
	ELECTRICAL UNION				●					●					
CONCRETE	TANK SLAB		●					●							
	FUEL ISLAND		●					●							
	FLATWORK		●					●							
SUMP SENSORS	TANK SUMP SENSOR			●					●				●	●	
	DISPENSER SUMP SENSOR			●					●				●	●	
	SENSOR BRACKET			●					●				●	●	
DISPENSERS	3-1-1 PRODUCT DISPENSER, CARD READER, GRAPHICS	●							●				●		
	DISPENSER VALANCE	●							●				●		
	FUEL INTERCOM SPEAKER	●							●				●	●	
	FUEL INTERCOM CALL BUTTON	●							●				●	●	
	FUEL INTERCOM HAND SET (HIGH FLOW DISP. ONLY)	●							●				●	●	
	SPACER HOSE	●							●				●		
	BREAKAWAY	●							●				●		
	OPW FLEXSTEEL HOSE			●					●				●		
	SWIVEL	●							●				●		
	NOZZLE AND SPLASH GUARD	●							●				●		
	PUMP TOPPER FRAME	●							●				●		
ALL APPROPRIATE DECALS-REFERENCE DETAIL FROM STANDARDS	"NO SMOKING" DECAL	●							●				●		
	WARNING DECAL	●							●				●		
	DISPENSER NUMBER DECALS	●							●				●		
	ACCESSIBLE DISPENSER KEY PAD	●							●				●		
CANOPY	CANOPY		●					●							
	CANOPY LIGHTING PENETRATIONS IN CANOPY		●				●	●							
	CANOPY LIGHTING CONDUITS, J-BOXES AND CONDUCTORS				●					●					●
	CANOPY LIGHTING FIXTURES	●								●					●
	CANOPY LIGHTED SIGNAGE		●					●							●
	CANOPY SECURITY CONDUITS AND J-BOXES				●					●					●
	CANOPY SECURITY CONDUIT				●					●					●
ELECTRICAL SERVICE AND DISTRIBUTION	ELECTRICAL PANELBOARDS (SEE ELECTRICAL PLANS)	●								●					●
FUEL SYSTEMS BOARD (FCB)	PANELS BOARDS AND BREAKERS				●					●				●	●
	CONDUIT STUB-UP WIREWAYS				●					●					●
	CONDUIT SEALS				●					●					●
	FCB BACKBOARD-PLYWOOD		●					●							
	FCB CONDUIT AND RECEPTACLES				●					●					●
	WIRE DUCTING				●					●					
	WAYNE OR GILBARCO	●							●					●	●
	WAYNE OR GILBARCO	●							●					●	●
	WAYNE OR GILBARCO	●							●					●	●
	VEEDER-ROOT TANK LEVEL MONITOR PANEL (TLS-450+)	●							●					●	●
	OWNERS COMMUNICATION EQUIPMENT (3M INTERCOM)	●								●					●
EMERGENCY SHUT-OFF	EMERGENCY FUEL SHUT-OFF SWITCHES	●								●				●	●
CASHIER AREA	PUMP AUTHORIZER AND CABLE	●								●				●	●
	FUEL INTERCOM TERMINAL BOARD ENCLOSURE				●					●				●	
	FUEL INTERCOM TERMINAL BOARD	●								●					●
	FUEL INTERCOM CONTROL PANEL	●								●					●
	CASH REGISTERS/CARD READERS, TELEPHONES	●							●				●		
ELECTRICAL WIRING RE: E3.0, E3.1 FOR SPECIFIC CONDUITS AND CONDUCTORS NOTE: DESIGNATIONS WITH DOTS IN 'EC' AND 'FC' ARE TERMINATED BY 'EC' AS DIRECTED BY 'FC'	POWER AND LIGHTING WIRING				●					●					●
	CASH REGISTER/CARD READER, TELEPHONE WIRING				●					●				●	
	FUEL SYSTEM POWER AND CONTROL WIRING				●					●				●	●

FUEL CONTRACTOR PROVIDES ALL STEEL PIPING & FITTINGS

1/18/2024 12:25:38 PM

MAVERIK

185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:

Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2477
FAX (208) 234-0918

STAMP:

MICHAEL S. HARKER
28524
KANSAS
PROFESSIONAL ENGINEER

MAVERIK, INC.
MAVERIK - BELGRADE
ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

△	DESCRIPTION	DATE

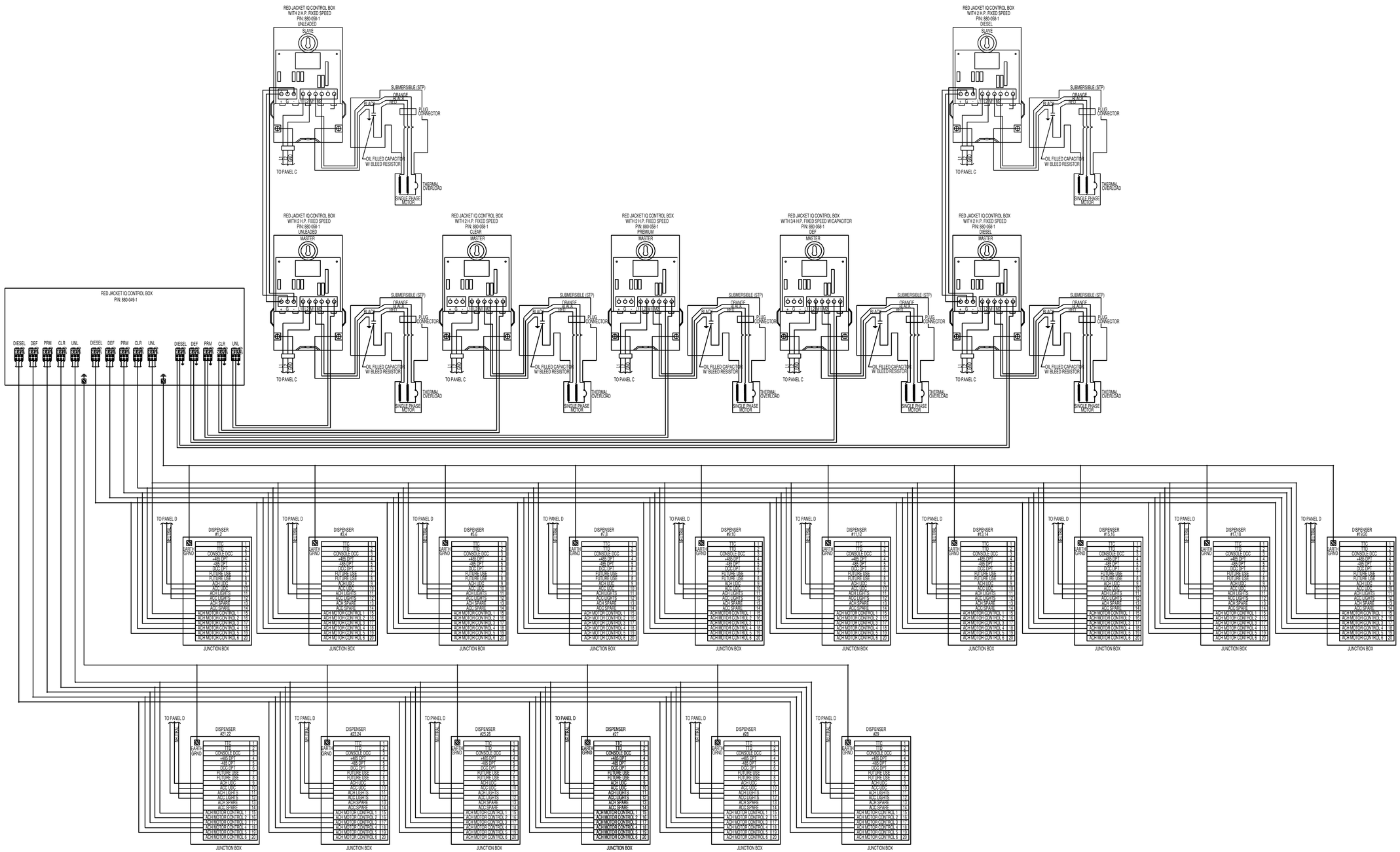
DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE
BID SET 07/19/2024
PROJECT NUMBER: 23.113

SHEET NAME
FUEL SYSTEM SCOPE OF WORK

SHEET NUMBER
PE1.4

SPECIAL NOTE:
THIS WIRING SCHEMATIC WAS DEVELOPED FROM SHOP DRAWINGS PROVIDED TO THE ENGINEER. CONTRACTOR SHALL CONFIRM SCHEMATIC LAYOUT AND MAKE ALL FINAL CONNECTIONS AND INSTALLATIONS AS PER MANUFACTURES REQUIREMENTS.



185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:

Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2577
FAX (208) 234-0918

STAMP:

MICHAEL S. HARKER
28524
KANSAS
PROFESSIONAL ENGINEER

MAVERIK, INC.

MAVERIK - BELGRADE

ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE

BID SET 07/19/2024
PROJECT NUMBER: 23.113

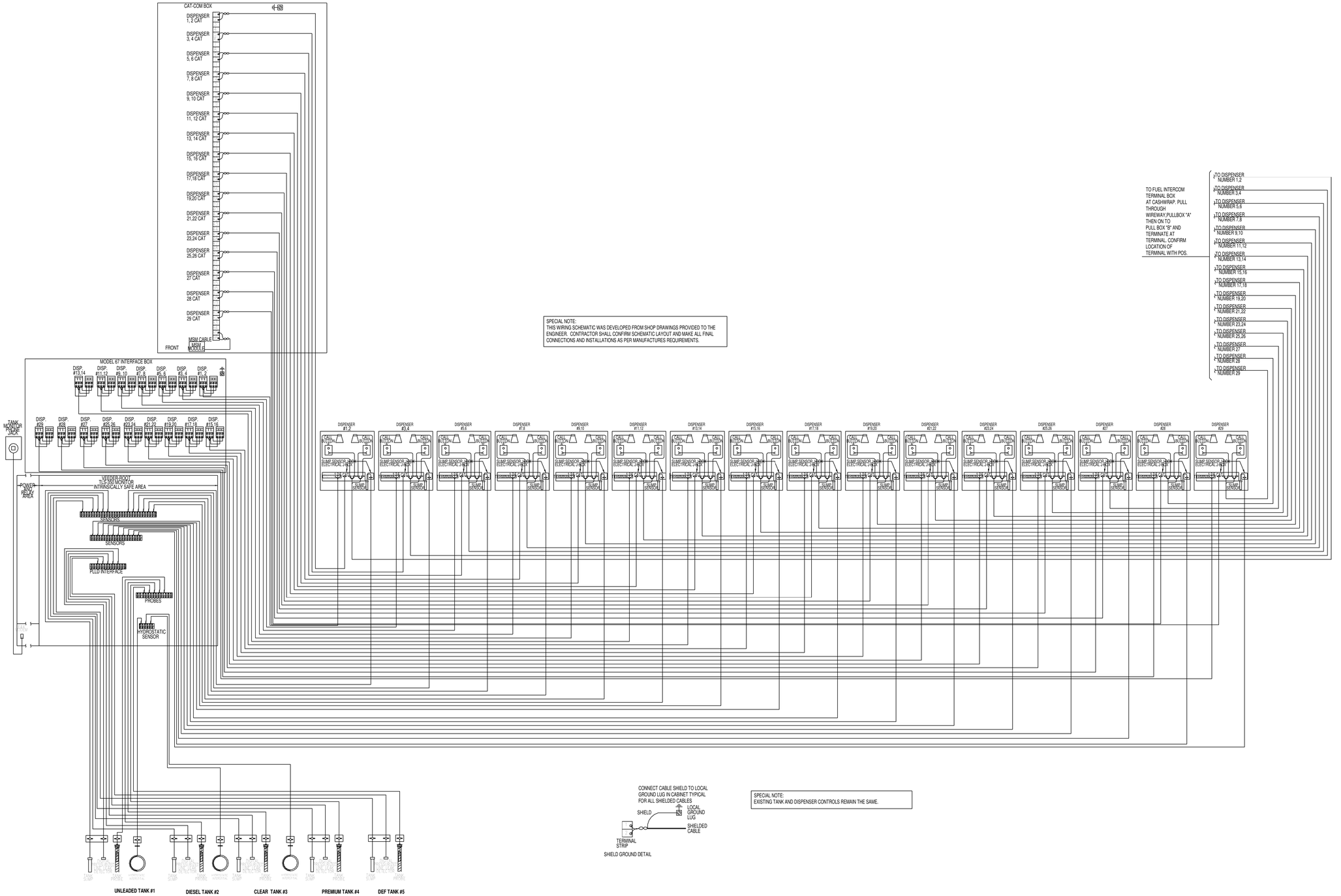
SHEET NAME

FUEL SYSTEM WIRING DIAGRAM

SHEET NUMBER

PE1.5

1/18/2024 12:25:40 PM



SPECIAL NOTE:
THIS WIRING SCHEMATIC WAS DEVELOPED FROM SHOP DRAWINGS PROVIDED TO THE ENGINEER. CONTRACTOR SHALL CONFIRM SCHEMATIC LAYOUT AND MAKE ALL FINAL CONNECTIONS AND INSTALLATIONS AS PER MANUFACTURES REQUIREMENTS.

SHIELD GROUND DETAIL

SPECIAL NOTE:
EXISTING TANK AND DISPENSER CONTROLS REMAIN THE SAME.

1/18/2024 12:25:41 PM

MAVERIK

185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:

Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-3577
FAX (208) 234-0918

OWNERSHIP OF DOCUMENTS

STAMP:

MAVERIK, INC.
MAVERIK - BELGRADE
ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

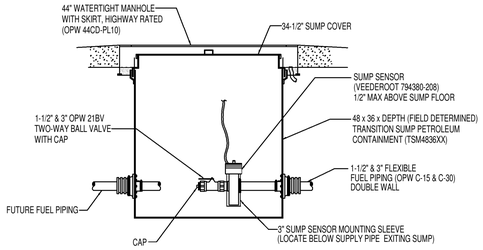
△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

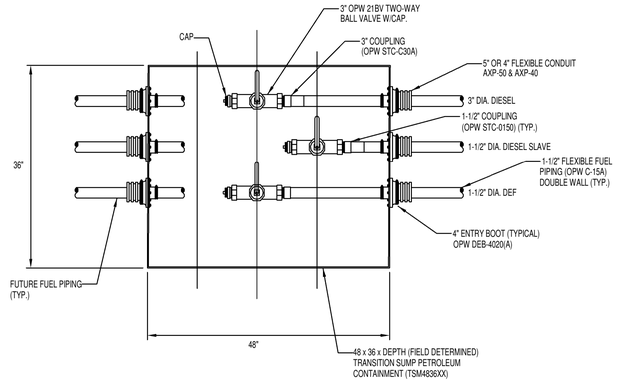
DRAWING ISSUE
BID SET 07/19/2024
PROJECT NUMBER: 23.113

SHEET NAME
FUEL SYSTEM CONTROL WIRING DIAGRAM

SHEET NUMBER
PE1.6

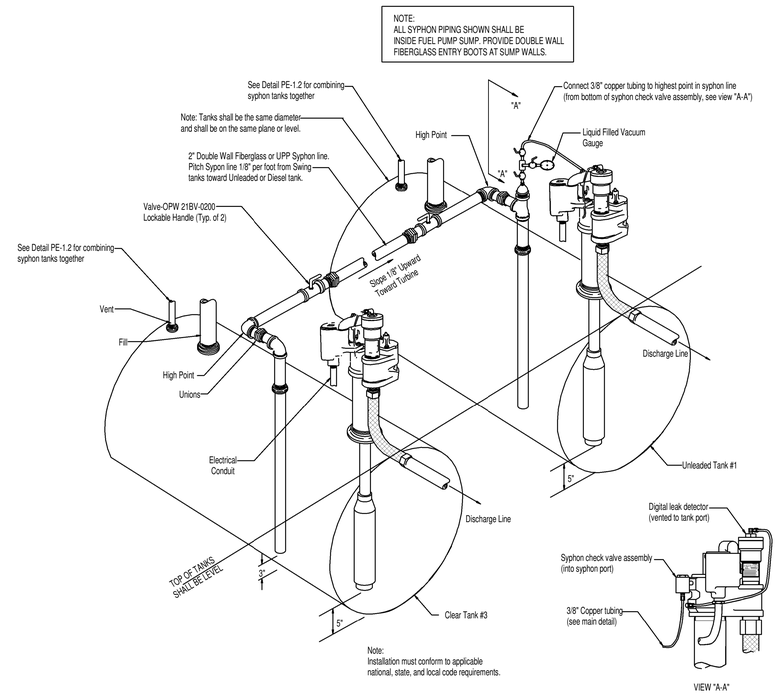


FUEL TRANSITION SUMP CROSS SECTION



FUEL TRANSITION SUMP PLAN VIEW

2 DETAIL - TRANSITION SUMP DETAIL
N.T.S.



Note:
Installation must conform to applicable
national, state, and local code requirements.

1 SWING TANK DETAIL
N.T.S.

MAVERIK
185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:

Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2177
FAX (208) 234-0918

OWNERSHIP OF DOCUMENTS

STAMP:

MAVERIK, INC.
MAVERIK - BELGRADE
ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE
BID SET 07/19/2024
PROJECT NUMBER: 23.113

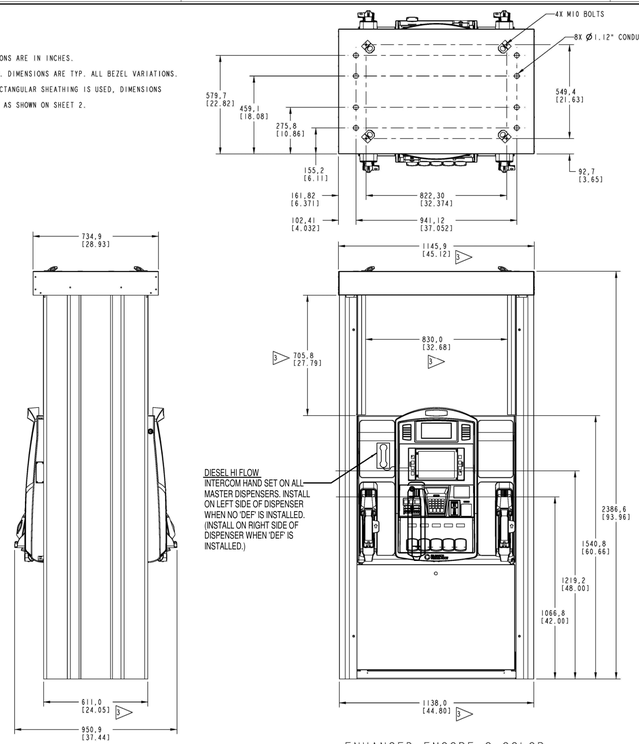
SHEET NAME
FUEL DETAILS

SHEET NUMBER
PE1.7

1/18/2024 12:25:42 PM

NOTES

1. TOP DIMENSIONS ARE IN MM. BOTTOM DIMENSIONS ARE IN INCHES.
2. 4 + 1 BLENDER WITH ALL CIM OPTIONS SHOWN. DIMENSIONS ARE TYP. ALL BEZEL VARIATIONS.
3. ▷ THE "S" CURVED SHEATHING IS SHOWN. IF RECTANGULAR SHEATHING IS USED, DIMENSIONS & KNOCKOUT QUANTITY MARKED ▷ WILL BE AS SHOWN ON SHEET 2.



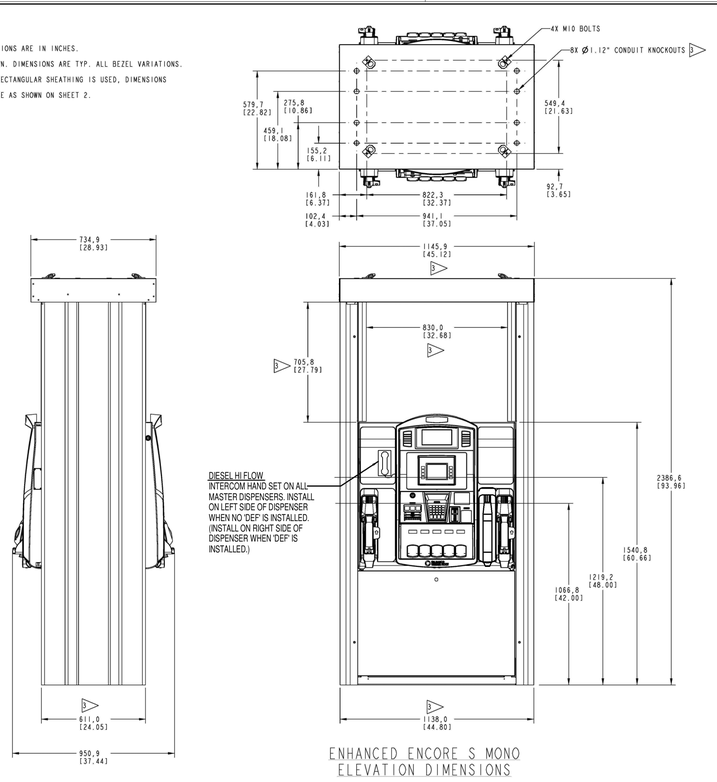
ENHANCED ENCORE S COLOR
ELEVATION DIMENSIONS

FUEL CONTRACTOR SHALL VERIFY DISPENSER MANUFACTURER AND MODEL NUMBERS BEFORE BEGINNING UNDERGROUND DISPENSER WORK. CONTRACTOR SHALL CONTACT DISPENSER SUPPLIER AND OBTAIN INSTALLATION SUMP AND DISPENSER DETAILS. THE DETAILS ON THE PLANS ARE TO GIVE THE BEST INFORMATION AT DESIGN TIME, BUT ARE NOT THE FINAL.

GILBARCO ENCORE S DISPENSER DETAIL

SCALE	3
NTS	PE-1.7

4ENSIONS ARE IN MM. BOTTOM DIMENSIONS ARE IN INCHES.
3LENDER WITH ALL CIM OPTIONS SHOWN. DIMENSIONS ARE TYP. ALL BEZEL VARIATIONS.
" CURVED SHEATHING IS SHOWN. IF RECTANGULAR SHEATHING IS USED, DIMENSIONS
(OUT QUANTITY MARKED ▷ WILL BE AS SHOWN ON SHEET 2.



ENHANCED ENCORE S MONO
ELEVATION DIMENSIONS

GILBARCO ENCORE S DISPENSER DETAIL

SCALE	1
NTS	PE-1.7

MAVERIK

185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:

NSI
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2577
FAX (208) 234-0918
Nielson Engineering, Inc.
Consulting Engineers

OWNERSHIP OF DOCUMENTS

STAMP:

MICHAEL S. HARKER
LICENSED
28524
KANSAS
PROFESSIONAL ENGINEER

MAVERIK, INC.
MAVERIK - BELGRADE
ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE
BID SET 07/19/2024
PROJECT NUMBER: 23.113

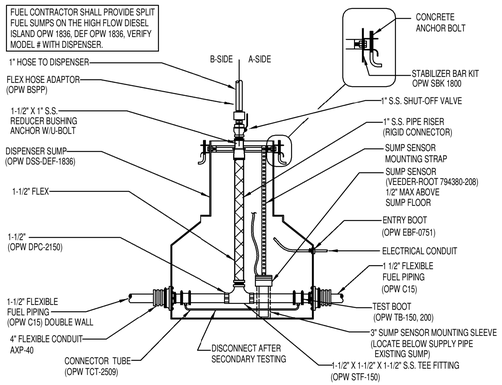
SHEET NAME

FUEL SYSTEM DETAILS

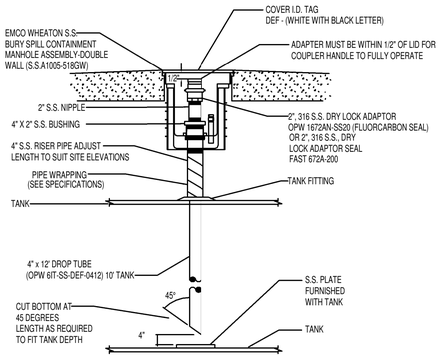
SHEET NUMBER

PE1.8

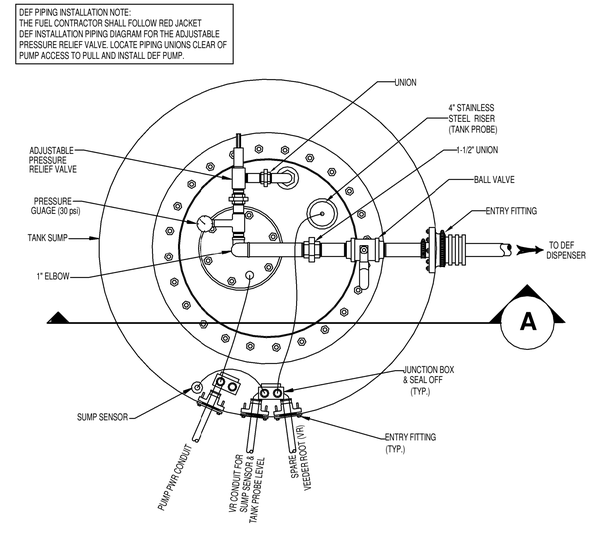
1/18/2024 12:25:44 PM



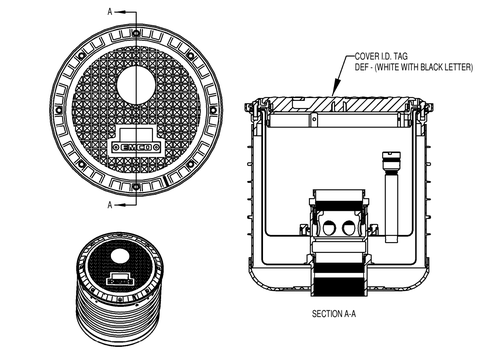
6 DETAIL - DEF DISPENSER CROSS SECTION
N.T.S.



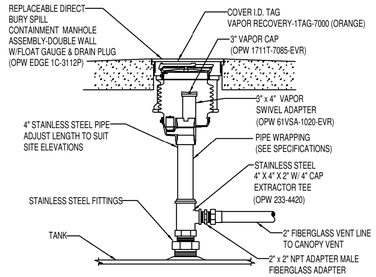
7 DEF DOUBLE WALL S.S. SPILL CONTAINMENT
N.T.S.



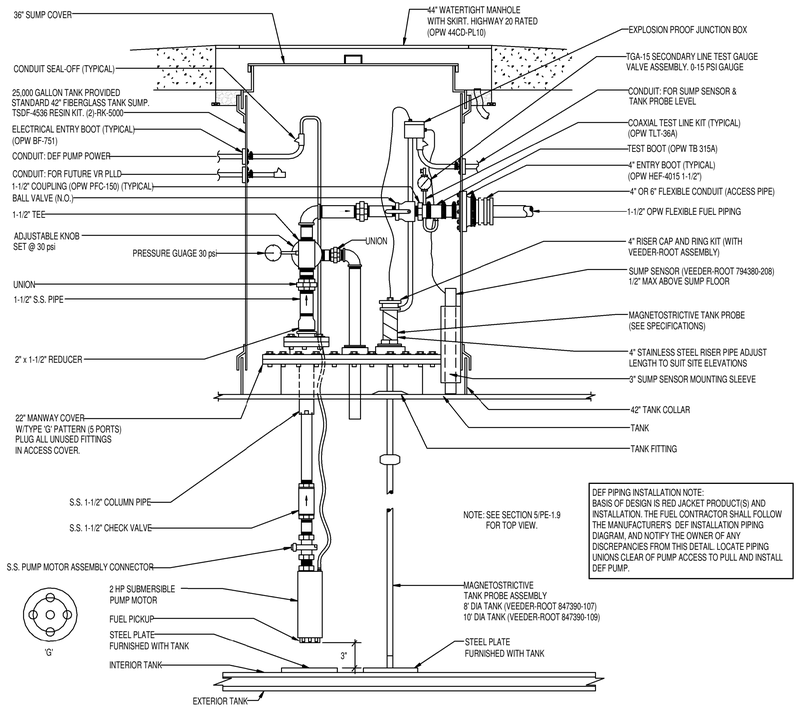
3 TANK SUMP - ONE PUMP - DEF PRODUCT ONE LINE
N.T.S.



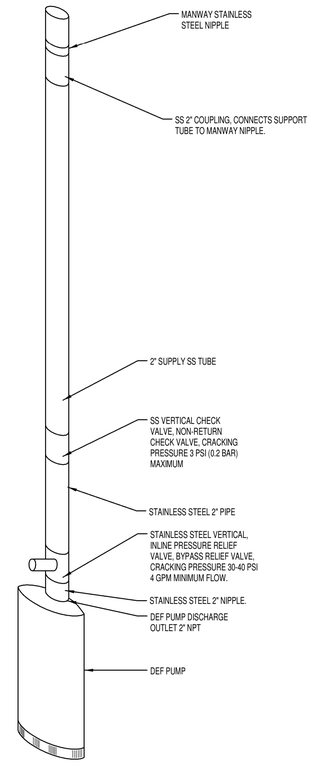
4 DEF CAP
N.T.S.



5 DEF VENT EXTRACTOR RISER
N.T.S.



2 DETAIL DEF PUMP MOTOR - SECTION-A
N.T.S.



1 DEF SUBMERSIBLE PUMP DETAIL
N.T.S.

DEF TANK SUMP AND PIPING NOTES

1. Regular GASOLINE is not DEF compatible, drawings specify the GASOLINE -DEF product model OR USE APPROVED DRIPSTOP 940..
2. Tank excavations are noted on drawings as OHSA approved holes. The contractor is to evaluate the excavation, shore or slope sides to meet this requirement.
3. An air test to be completed after all tank top equipment has been installed and prior to backfill is to be performed with clean air per manufacturer's requirements.
4. The DEF Coefficient of Expansion is 0.0024.
5. Maximum length of SELF REGULATING HEAT TRACE piping is 200 feet.
6. Runs over 200 feet may require an additional power circuit and controls. The sites over 200 feet will be addressed in the engineering drawings for locations of the additional conduits and wiring.
7. Contractor to review and understand the following list of equipment prior to starting construction: Thermon heat trace installation cut sheet , OPW Flex piping specification for piping sizes and details,
8. Each Thermon thermostat can carry 25 amp load max, additional thermostats controls maybe required on longer runs the 200 feet on larger sites.
9. Wire sizing to dispenser and pumps needs to be adjusted for length of runs and 3% voltage drope as per NEC. Wire sizes may not be sufficient when the amperage of the additional equipment, (approximately 5 amps) is added onto an existing circuit. (Please see site drawings for correct wire size.)
10. Piping size / flow limits. 1 ½ piping run is sufficient for eight dispensers to a max piping run of 250' with additional power circuits for cover the additional piping length over the 200 foot max. Sites over these size requirements need to be verified for correct flow and pressures.
11. Test DEF product piping at 50 psi.
12. Set Thermon Thermostat at 55 degrees.

MAVERIK
185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:
Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2577
FAX (208) 234-0918

STAMP:
MICHAEL S. UNRUH
LICENSED
28524
KANSAS
PROFESSIONAL ENGINEER

MAVERIK, INC.
MAVERIK - BELGRADE
ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE
BID SET 07/19/2024
PROJECT NUMBER: 23.113

SHEET NAME
DEF TANK SUMP AND PIPING DETAILS

SHEET NUMBER
PE1.9

1/18/2024 12:25:46 PM

KEY NOTE

1. INTELLIGENT PUMP RELAY MONITOR: CONNECT M1 TO TLS-450 PLUS HV EXTERNAL INPUT. THIS WILL BE ADDRESSED AS A "PUMP RELAY MONITOR" AND ALLOWS THE ATG TO MONITOR THE STP FOR UNEXPECTED ACTIVITY. THIS WILL PREVENT AGAINST EXTENDED RUNS FROM STUCK RELAYS.
2. PROVIDE CORRECT 4 H.P. I-QBOX FOR 3 PHASE PUMPS AND ADDITIONAL CONDUCTOR FROM I-QBOX TO PUMP.

PIN 4 (+)
PIN 5 (GND)
PIN 3 (-)
PIN 1 (REF.)
RJ-45 PLUG
RJ-45 PLUG
NOTE: PINS 1,2,6,7 & 8 NOT USED.

BOTTOM OF TLS-450 PLUS CONSOLE COMM. BAY

RS 485 COMM PORTS #1-5 (PORT ASSIGNMENTS MAY VARY SEE VEEDER ROOT START-UP INSTRUCTIONS).

THE CABLE FROM THE LAST CONTROLLER TERMINATES IN A RJ-45 MALE PLUG THAT CONNECTS TO THE ATG.

UNLEADED #1A IQ CONTROL BOX — NEUTRAL FROM PANEL D — L1, L2 FROM PANEL D
UNLEADED #1B IQ CONTROL BOX — NEUTRAL FROM PANEL D — L1, L2 FROM PANEL D
DIESEL #2A IQ CONTROL BOX — NEUTRAL FROM PANEL D — L1, L2 FROM PANEL D (2)
DIESEL #2B IQ CONTROL BOX — NEUTRAL FROM PANEL D — L1, L2 FROM PANEL D (2)
E15 #3 IQ CONTROL BOX — NEUTRAL FROM PANEL D — L1, L2 FROM PANEL D
PREMIUM #4 IQ CONTROL BOX — NEUTRAL FROM PANEL D — L1, L2 FROM PANEL D
DEF #5 IQ CONTROL BOX — NEUTRAL FROM PANEL D — L1, L2 FROM PANEL D

C23 TB1 Z2 Z3
COM+ COM- SHLD D2 D1 M2 M1 L1 L2 GND
(1)

ALL COMMUNICATION WIRES SHALL BE RS-485 2-CONDUCTOR PLUS GROUND. IF USING 8-CONDUCTOR CAT-5 CABLE, CUT BACK AND TAPE UNUSED WIRES.

ALL COMMUNICATION WIRES SHALL BE RS-485 2-CONDUCTOR PLUS GROUND. IF USING 8-CONDUCTOR CAT-5 CABLE, CUT BACK AND TAPE UNUSED WIRES.

UNL. TANK #1A — STP 1
UNL. TANK #1B — STP 2
DSL. TANK #2A — STP 1
DSL. TANK #2B — STP 2
E15 TANK #3 — STP 1
PREMIUM TANK #4 — STP 1
DEF TANK #5 — STP 1

STP POWER/CONTROL WIRING BY OTHERS (TYP. OF ALL) SEE ELECTRICAL SHEET E-1.1.

DISPENSER #21, #22
DISPENSER #11, #12
DISPENSER #1, #2
DISPENSER #23, #24
DISPENSER #13, #14
DISPENSER #3, #4
DISPENSER #25, #26
DISPENSER #15, #16
DISPENSER #5, #6
DISPENSER #27
DISPENSER #17, #18
DISPENSER #7, #8
DISPENSER #29
DISPENSER #28
DISPENSER #19, #20
DISPENSER #9, #10

FROM PANEL D DISP. BREAKER
DISP. POWER
PRODUCT HOOK SIGNAL
FROM PANEL D
DISP. POWER
PRODUCT HOOK SIGNAL

ADDITION DISPENSERS WIRED SIMILAR

PCB DISP. #1- 4
PCB DISP. #5- 8
PCB DISP. #9-12
PCB DISP. #13-16
PCB DISP. #17-20
ADDITIONAL PCB's IN SERIES AS NEEDED

PANEL D

TLS-450PLUS CONSOLE MODULE BAY
MODULE SLOT NUMBERS PER VEEDER ROOT FUEL STARTUP INSTRUCTIONS

UNIVERSAL I/O MODULE — HOOK SIGNAL — NEUTRAL — MOTOR — NO — C — E15
UNIVERSAL I/O MODULE — HOOK SIGNAL — NEUTRAL — MOTOR — NO — C — DSL#2D — DSL#2C — PRM#4 — DEF#5 — E15#3
UNIVERSAL I/O MODULE — HOOK SIGNAL — NEUTRAL — MOTOR — NO — C — DEF — E15 — PRM — DSL — UNL — DSL#2B — DSL#2A — UNL#1B — UNL#1A

L1 VOLTAGE FROM SUPPLY PANEL
L1 VOLTAGE FROM SUPPLY PANEL

MAVERIK
185 S. State Street | Salt Lake City, Utah 84111

ARCHITECT:

ENGINEER:
Nielson Engineering, Inc.
Consulting Engineers
156 North Twelfth Avenue
Pocatello, Idaho 83201
PHONE (208) 232-2577
FAX (208) 234-0918

STAMP:

MICHAEL S. HARKER
28524
KANSAS
PROFESSIONAL ENGINEER

MAVERIK, INC.
MAVERIK - BELGRADE
ALASKA FRONTAGE RD & FRANK RD
BELGRADE, MT

ISSUANCE

△	DESCRIPTION	DATE

DRAWN BY: --
APPROVED BY: --
PROTOTYPE VERSION: 60_L_RR_2302

DRAWING ISSUE
BID SET 07/19/2024
PROJECT NUMBER: 23.113

SHEET NAME
INTELLIGENT PUMP CONTROL WIRING SCHEMATIC

SHEET NUMBER
PE1.10

1/18/2024 12:25:48 PM