Travel Stop & Country Stores

FUEL SYSTEM STANDARDS

STORE #724
FUEL CANOPY ADDITION
LAKE CITY, FL

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PROJECT DATA

2020 FLORIDA BUILDING CODE 7TH EDITION
2020 FLORIDA PLUMBING CODE 7TH EDITION
2017 NATIONAL ELECTRICAL CODE OF FLORIDA
2020 FLORIDA MECHANICAL CODE 7TH EDITION
2020 FLORIDA FIRE CODE 7TH EDITION

NFPA 30 FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE
NFPA 30A CODE FOR MOTOR FUEL DISPENSING FACILITIES AND REPAIR GARAGES
NFPA 1 UNIFORM FIRE CODE HANDBOOK

GENERAL SCOPE

1. ASPHALT, CONCRETE AND PEA GRAVEL REMOVAL.
2. TRENCHING AND CANOPY COLUMN FOOTING INSTALLATION.
3. STORM DRAINAGE PIPING FROM NEW CANOPY EXPANSION COLUMN.
4. (2) NEW FUEL DISPENSER SUMPS, DISPENSER ISLANDS, 3+1 DISPENSERS AND HANGING HARDWARE.
5. (1) REUSE EXISTING RV FUEL DISPENSER, NEW DISPENSER ISLANDS AND 3+1 DISPENSERS UDC.
6. NEW FRP PRODUCT PIPING.
7. FRP FITTING INSTALLATION.
8. CANOPY ADDITION TO EXTEND EXISTING AUTO CANOPY 34FT.
9. CANOPY COLUMNS, FOOTINGS, STRUCTURAL FRAMING, DECKING AND FASCIA.
10. ELECTRICAL CONNECTION AT NEW DISPENSERS.
11. PEA GRAVEL AND CONCRETE WORK.
12. RE-GRADING AROUND NEW CONCRETE SLAB AREA.
13. ASPHALT WORK.

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Creative Solutions Meaningful Places
HARRISON FRENCH & ASSOCIATES, LTD
t 479.273.7780
1705 S. Walton Blvd., Suite 3
Bentonville, Arkansas 72712
www.hfa-ac.com

LAKE CITY, FL
STORE #724

FUELING

PROJECT NUMBER: 07-22-98010

Travel Stop & Country Stores

1

RYAN R. VAUGHN LICENSE No. 76630 STATE OF FLORIDA PROFESSIONAL ENGINEER

Ryan Roger Vaughn

Digitally signed by Ryan Roger Vaughn
DN: C=US, E=ryan.vaughn@hfa-ac.com, CN=Ryan Roger Vaughn, O=Harrison French & Associates, Ltd, L=Bentonville, S=Arkansas
Reason: I am the author of this document
Date: 2023.10.31 16:22:44-05'00'

This item has been digitally signed and sealed by RYAN R. VAUGHN on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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COVER SHEET AND INDEX

SHEET: F-1

GENERAL SPECIFICATIONS FOR UNDERGROUND STORAGE TANKS, PIPING, AND DISPENSERS.

I. GENERAL

1. THE GENERAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, SERVICES AND EQUIPMENT NOT FURNISHED BY OWNER.

2. FUEL CONTRACTOR TO INCLUDE IN SCOPE OF WORK FOR A SERVICE TECH TO BE ON SITE FOR 12 HOURS ON OPENING DAY. SERVICE TECH TO HAVE TOOLS AND SPARE PARTS ON SITE.

3. THE GENERAL ARRANGEMENT PLAN ((SHEET F-2) WILL GOVERN THE EXACT LOCATION, NUMBER, SIZE AND TYPE OF EQUIPMENT TO BE INSTALLED. THESE PLANS AND SPECIFICATIONS REPRESENT MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL FOLLOW THIS SCOPE OF WORK, ALL THE SPECIFICATIONS, REFERENCE DRAWINGS AND INSTALLATION DETAILS FURNISHED TO THE GENERAL CONTRACTOR AND ANY SPECIFIC INSTRUCTION NOTED BY THE OWNER REPRESENTATIVE. THE COMPLETE INSTALLATION SHALL BE DONE IN ACCORDANCE WITH THE LATEST STATE AND LOCAL REGULATIONS AND ORDINANCES GOVERNING THE INSTALLATION OF UNDERGROUND FUELING FACILITIES WHEN SUCH ORDINANCES EXCEED THESE MINIMUMS.

4. FUEL CONTRACTOR TO FILL OUT AN OWNER PROVIDED "FUEL SYSTEM CHECKLIST" AND RETURN TO THE OWNER UPON COMPLETION OF THE PROJECT AND SUPPLY LOVES WITH COPIES.

5. CONTRACTOR SHALL ARRANGE FOR AND PAY FOR ALL INSPECTIONS, AND TESTS. THE COST OF ALL PERMITS AND FEES SHALL BE INCLUDED IN THE BID, UNLESS INDICATED OTHERWISE BY THE OWNER REPRESENTATIVE. COST SHALL BE INCLUDED IN BID UNLESS OTHERWISE NOTED

6. THE WORK SHALL INCLUDE THE COST OF TEMPORARY UTILITY CONNECTIONS IF REQUIRED, TRANSPORTATION AND RELATED ITEMS AS WELL AS ANY OTHER ADDITIONAL WORK PRESCRIBED IN THE CONTRACT OR DRAWINGS DEEMED NECESSARY FOR THE COMPLETION OF THE IMPROVEMENTS.

7. THESE INSTALLATION SPECIFICATIONS ARE INTENDED TO COMPLEMENT THE SPECIFICATIONS AND DRAWINGS SUBMITTED FOR BID AND CONSTRUCTION, AND WILL TAKE PRECEDENCE OVER ANY INSTRUCTION WHEN THEY DIFFER. THE FORGOING DESCRIPTIONS PERTAIN TO THE INSTALLATION OF DOUBLE WALL FIBERGLASS UNDERGROUND STORAGE TANKS IN CONJUNCTION WITH THE INSTALLATION OF A NEW RETAIL FACILITY AS WELL AS THE REPLACEMENT OF EXISTING UNDERGROUND TANKS AND RELATED EQUIPMENT IN AN EXISTING FACILITY. SOME OF THE INSTRUCTIONS ARE APPLICABLE TO THE TANK REPLACEMENT ONLY AND THE CONTRACTOR WILL STRICTLY ADHERE TO THOSE INSTRUCTIONS WHEN THAT IS THE CASE.

8. ITEM NOT USED.

9. THE MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION AND OPERATIONAL TESTING SHALL BE FOLLOWED TO AVOID THE POSSIBILITY OF DAMAGE TO THE EQUIPMENT.

10. ITEM NOT USED.

11. UNKNOWN SITUATIONS OR CONDITIONS NOT COVERED IN THESE AND THE MANUFACTURER'S INSTRUCTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR. MANUFACTURER'S SPECIALISTS ARE AVAILABLE FOR CONSULTATION. THE PRESENCE OF THE MANUFACTURER OR OBSERVER AT AN INSTALLATION SITE DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR THE PROPER INSTALLATION OF THE TANKS AND/OR EQUIPMENT.

12. ITEM NOT USED.

13. ITEM NOT USED.

14. ITEM NOT USED.

15. CONDITIONS

    A. THE CONTRACTOR SHALL BECOME ACQUAINTED AND COMPLY WITH ALL THE PROVISIONS OUTLINED IN THE OWNER GENERAL CONDITIONS, CONTRACT CONDITIONS AND THE REQUIREMENTS FOR INSURANCE, SAFETY AND WORK PROCEDURES CURRENTLY ADOPTED BY OWNER.

    B. THE CONTRACTOR SHALL INSPECT THE SITE, DRAWINGS AND SPECIFICATIONS PRIOR TO SUBMITTING HIS BID. SHOULD THE CONTRACTOR FIND DISCREPANCIES OR QUESTIONS, SUBMIT INQUIRIES TO THE OWNER REPRESENTATIVE FOR CLARIFICATION. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A COMPLETE SCHEDULE FOR THE COMPLETION OF THE PROJECT BEFORE THE CONTRACT IS AWARDED.

16. EXTRA WORK AND CONTRACT SUPPLEMENTS

    CHANGES AND EXTRAS SHALL BE AUTHORIZED IN WRITING. THE CONTRACTOR SHALL SUBMIT QUOTATIONS FOR THIS WORK IN A REASONABLE AMOUNT OF TIME AND NO EXTRA WORK SHALL COMMENCE UNTIL THE QUOTATION IS SUBMITTED AND ACCEPTED BY THE OWNER REPRESENTATIVE. ORAL AGREEMENTS WILL NOT BE RECOGNIZED BY OWNER.

17. INSPECTION OF WORK

    THE OWNER REPRESENTATIVE WILL INSPECT ALL MATERIAL AND WORKMANSHIP FURNISHED UNDER THE CONTRACT. IF IN HIS OPINION, ANY PART IS UNSATISFACTORY, THE CONTRACTOR SHALL REPLACE OR CORRECT IT AT CONTRACTOR'S EXPENSE.

18. CLEAN-UP

    CONTRACTOR SHALL REMOVE FROM THE CONSTRUCTION SITE AND ADJACENT PROPERTIES EXCESS AND WASTE MATERIAL FROM THIS WORK, AND PROPERLY DISPOSE.

19. GUARANTEE OF MATERIAL AND WORKMANSHIP

    IF WITHIN ONE YEAR AFTER THE DATE OF COMPLETION AND ACCEPTANCE OF THIS WORK, ANY OF THE MATERIAL OR WORKMANSHIP FURNISHED BY THE CONTRACTOR SHALL PROVE DEFECTIVE, CONTRACTOR SHALL UPON RECEIPT OF OWNER WRITTEN REQUEST, REPLACE OR REPAIR IT AT CONTRACTOR'S EXPENSE.

20. CODES

    PLANS AND SPECIFICATIONS REPRESENT MINIMUM REQUIREMENTS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE AND THE RULES AND REGULATIONS OF LOCAL JURISDICTIONS HAVING AUTHORITY, WHEN THOSE REQUIREMENTS EXCEED THESE MINIMUMS.

21. COORDINATION

    CONTRACTOR SHALL COORDINATE ALL ACTIVITIES SUCH AS DELIVERY OF EQUIPMENT, DISPOSAL, INSPECTIONS, TESTING AND THE WORK TO BE PERFORMED BY OTHERS FOR OWNER. PREPARE IN A TIMELY MANNER, AREAS OF WORK TO BE DONE BY OTHERS AND PROVIDE REASONABLE ASSISTANCE FOR THE PERFORMANCE OF THEIR WORK.

II. WORK DESCRIPTION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL THE EXCAVATION, TRENCHING, BACKFILLING AND REPAIRS INVOLVED IN THE PROJECT, INCLUDING THE EXCAVATION WORK REQUIRED FOR THE MECHANICAL AND ELECTRICAL INSTALLATIONS. THE WORK INVOLVED IN THE INSTALLATION OF UNDERGROUND TANKS CONSISTS OF THE FOLLOWING ACTIVITIES:

    A. PLANNING AND PREPARATION FOR THE PROJECT

    B. DEMOLITION AND REMOVALS OF EXISTING EQUIPMENT AND RELATED PIPING, ELECTRICAL WHEN APPLICABLE.

2. PLANNING AND PREPARATION FOR THE PROJECT

    A. THE CONTRACTOR SHALL INSURE THAT ALL THE PERMITS TO BE FURNISHED BY OTHERS AND HIS OWN ARE ON HAND, PAID FOR AND READY FOR POSTING AT THE JOB SITE.

    B. VERIFY THAT ALL THE MATERIAL AND EQUIPMENT TO BE FURNISHED BY OWNER IS IN HIS POSSESSION, INSPECTED AND READY FOR INSTALLATION. IF THAT IS NOT THE CASE, THE CONTRACTOR SHALL IMMEDIATELY INFORM THE OWNER REPRESENTATIVE.

    C. THE CONTRACTOR SHALL NOTIFY THE OWNER REPRESENTATIVE, AT LEAST 48 HOURS IN ADVANCE, THE EXACT DATE READY TO COMMENCE WORK. IF THE STATION IS TO REMAIN OPEN FOR ANY PERIOD OF TIME DURING CONSTRUCTION, THE CONTRACTOR SHALL REVIEW WITH THE OWNER REPRESENTATIVE THE WORK SCHEDULE, SEQUENCE OF EVENTS AND ANY OTHER FACTOR THAT MAY ADVERSELY IMPACT THE OPERATION OR THE TIMELY COMPLETION OF THE PROJECT.

    D. LAYOUT THE AREAS FOR SAWCUTTING AND EXCAVATION IN THE CANOPY AREAS, PIPING AND ELECTRICAL TRENCHES AS SHOWN IN THE GENERAL ARRANGEMENT PLAN. IF THE DEMARCATION IS NOT SHOWN OR OBSTACLES ARE PRESENT, REVIEW THE LAYOUT WITH THE OWNER REPRESENTATIVE FOR ALTERNATIVES.

    E. SELECT AREAS WHERE THE EXCAVATION MATERIAL SHALL BE PLACED FOR FUTURE USE OR DISPOSAL. INSURE EXCAVATED MATERIAL DOES NOT BECOME A NUISANCE TO THE SITE OR ADJACENT PROPERTIES. BARRICADE AREAS THAT MAY PRESENT SAFETY PROBLEMS OR EXPOSE PROPERTIES TO DAMAGE.

3. DEMOLITION, REMOVAL AND DISPOSAL

    A. CONTRACTOR SHALL PROVIDE OWNER WITH PROOF OF THE CONTRACTOR'S CERTIFICATION TO PERFORM THIS TYPE OF WORK.

    B. WARNING! ALL GASOLINES, DIESEL, WASTE OIL AND CONTAMINATED SOILS ARE CONSIDERED HAZARDOUS MATERIALS, AND AS SUCH, THEY MUST BE HANDLED AND DISPOSED OF UNDER CURRENT FEDERAL AND STATE LAWS. IF CONTAMINATED SOILS ARE ENCOUNTERED, THE OWNER REPRESENTATIVE SHALL BE NOTIFIED IMMEDIATELY. THE COST OF ADDITIONAL EXCAVATION, HANDLING, TRANSPORTATION AND DISPOSAL OF CONTAMINATED SOILS WILL BE HANDLED UNDER SEPARATE CONTRACT OR ADDITIONAL COST.

III. PIPING SPECIFICATIONS

1. THE SITE PLAN, PIPING PLAN AND THESE SPECIFICATIONS WILL GOVERN THE EXACT LOCATION, NUMBER AND SIZE OF ALL UNDERGROUND PIPING AS WELL AS THE TYPE OF EQUIPMENT TO BE INSTALLED. REFER TO DETAIL DRAWINGS FOR INSTALLATION PROCEDURES TO BE FOLLOWED. NOTE: ALL REFERENCES TO VAPOR LINES ARE APPLICABLE ONLY TO COMMON HEADER SYSTEM FOR VAPOR I, VAPOR II AND VENT, AND THOSE AREAS WHERE INDIVIDUAL VAPOR PHASE I, PHASE II AND VENTS LINES ARE REQUIRED. NON STATE II AREAS DO NOT REQUIRE STAGE II PIPING.

2. REFER TO SECTIONS I. GENERAL, II. CONDITIONS AND III. SCOPE OF WORK OF THESE SPECIFICATIONS FOR INFORMATION AND CONDITIONS ALSO APPLICABLE TO THE INSTALLATION OF PIPING (EXCEPT WHERE APPLICABLE TO TANKS ONLY).

3. MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION AND OPERATIONAL TESTING OF PUMPS, FILTERING SYSTEM, TANK GAUGING AND DISPENSERS SHALL BE FOLLOWED TO AVOID POSSIBILITY OF DAMAGE TO EQUIPMENT.

4. ALL INSTALLATIONS SHALL INCLUDE THE INSTALLATION OF AMERON DUALOY 3000 LCX. ALL VAPOR RECOVERY AND VENTING SYSTEMS SHALL BE SINGLE WALL FRP PIPE, MANUFACTURED BY AMERON OR EQUAL (EXCEPT CALIFORNIA - REQUIRES DOUBLE WALL). ALL PIPING, RISERS, AND FITTINGS (EXCEPT FOR VALVES, BOOTS, AND STAINLESS STEEL FLEX CONNECTORS) ARE PROVIDED BY FUEL CONTRACTOR.

5. TRENCH EXCAVATION

    A. ALL TRENCHES SHALL BE EXCAVATED TO NEAT LINES AND SHALL BE OF SUFFICIENT WIDTH, DEPTH AND ALIGNMENT AS TO PERMIT THE INSTALLATION OF DOUBLE WALL PIPING, FITTINGS, AND LAYING OF PIPES THEREIN OR OF INSTALLATION OF CONDUITS.

    B. THE DITCH SHALL BE EXCAVATED TO SLOPE FROM THE TANK HOLE AREAS UP TO THE DISPENSER OR VENT AREA (SLOPE 1/8" PER FOOT) AND ALLOW A 6" PEA GRAVEL BED BENEATH THE PIPING.

    C. PROVIDE A MINIMUM 24" PEA GRAVEL COVER OVER THE VENT LINES AND CONDUITS. TRENCH DIMENSIONS SHALL ALLOW FOR A 6-INCH PEA GRAVEL ALL AROUND THE PIPES AND CONDUITS. ALL PIPE TRENCHES ARE TO BE LINED WITH FILTER FABRIC - PROPEX 2002 OR EQUIVALENT.

6. IF PIPING WORK IS FOR REPLACEMENT AT EXISTING LOCATION, FOLLOW THESE ADDITIONAL GUIDELINES:

    A. SURVEY THE SITE TO DETERMINE WHERE POSSIBLE, THE LOCATION OF OTHER EXISTING UNDERGROUND FACILITIES SUCH AS SEWER LINES, WATER, CONDUITS ETC., TO MINIMIZE DAMAGE DURING THE EXCAVATION PROCESS. HAND DIG AREAS OF POTENTIAL DAMAGE.

    B. SAWCUT CLEAN AND SQUARE THE AREAS TO BE EXCAVATED. BREAK OUT AND REMOVE CONCRETE AND PAVING WITHIN SAWCUT LINES. DISPOSE OF ALL DEBRIS TO MINIMIZE INTERFERENCE.

7. TRENCH BACKFILLING

    A. BED AND BACKFILLING MATERIAL SHALL BE PEA GRAVEL OR OTHER EQUIVALENT MATERIAL DESIGNATED BY THE OWNER ENGINEER.

    B. REMOVE ALL FORM LUMBER AND CONSTRUCTION DEBRIS PRIOR TO DEPOSITION OF BACKFILL.

    C. BACKFILL MATERIAL SHALL BE PLACED IN THIN UNIFORM LAYERS AROUND AND OVER PIPING, VENT LINES OR CONDUITS AND THEN COMPACTED. BACKFILL REQUIRED UNDER CONCRETE IN LOCATIONS WHERE HAND TAMPING IS NECESSARY, SHALL BE PLACED IN LAYERS NOT EXCEEDING SIX INCHES OF COMPACTED THICKNESS, MOISTENED AND HAND TAMPED WITH PNEUMATIC OR HAND TAMPERS WEIGHING NO LESS THAN 2-1/2 POUNDS PER SQUARE INCH OF TAMPING AREA. THOROUGHLY TAMP ENTIRE AREA TO A DENSITY OF 90% MAXIMUM DENSITY.

    D. ALL BACKFILLING OF ANY EXCAVATION SHALL BE DONE ONLY AFTER TESTING, REQUIRED INSPECTION AND APPROVAL HAVE BEEN OBTAINED FROM PROPER AUTHORITIES AND THE OWNER REPRESENTATIVE.

    E. BACKFILL OR FILL IN PLANTING AND UNIMPROVED AREAS, MAY BE CONSOLIDATED BY PUDDLING WITH WATER.

    F. IN EXISTING OPERATING LOCATIONS, THE CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION THE AREAS DISTURBED BY TRENCHING AND REGRADE NATURAL AREAS AS REQUIRED TO MATCH EXISTING ELEVATIONS IN ORDER TO FACILITATE THE PROPER DRAINAGE OF THE SITE.

8. ITEM NOT USED.

9. PIPING SYSTEM - FRP

    MATERIALS

    A. ALL PRODUCT PIPING MUST BE DOUBLE WALL FRP WITH FITTINGS AND BOOTS AS REQUIRED.

    B. ALL UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH NFPA No. 30 AND ALL APPLICABLE LOCAL CODES.

10. PRODUCT PIPING HANDLING AND STORAGE

    REFER TO MANUFACTURER'S CURRENT INSTALLATION MANUALS.

11. SPECIAL INSTRUCTIONS FOR FRP PIPING: (VERY IMPORTANT)

    A. IT IS REQUIRED THAT THE FUEL CONTRACTOR BE A CERTIFIED INSTALLER OF FRP PIPING AND HAVE ON SITE THE CURRENT MANUFACTURER'S INSTALLATION MANUALS, BULLETINS AND LITERATURE PERTAINING TO FRP PIPE.
    CONTRACTOR SHALL STRICTLY ADHERE TO MANUFACTURER'S RECOMMENDED PROCEDURES FOR INSTALLATION. NO DEVIATION FROM THESE SPECIFICATIONS WILL BE ALLOWED.

    B. SPECIAL CARE SHALL BE TAKEN TO PREVENT THE INTERMIXING OF STONES, DIRT CLODS OR OTHER DEBRIS WITH THE CLEAN PEA STONE AROUND THE PIPE.

    C. BY REFERRING TO MECHANICAL DRAWINGS, CONTRACTOR SHALL PERMIT NO STAKES BEING DRIVEN IN THE VICINITY OF ANY FRP UNDERGROUND PIPING.

    D. ALL PIPE RUNS SHALL HAVE DETECTABLE TRACER TAPE INSTALLED.

12. NOT USED

13. NOT USED

14. PIPING SYSTEM - METALLIC

    A. STEEL PIPE, WHERE SPECIFIED, IF FOR PRODUCT, AND ALL UNIONS SHALL HAVE BRASS TO METAL GROUND JOINT SEAT (250# UNIONS) (EXCEPT D.E.F). REMOVE BURRS FROM PIPE ENDS AND REMOVE ALL FOREIGN MATTER FROM THE INSIDE BEFORE ASSEMBLING. UTILIZE GASOIL E SEAL FOR ALL THREADED CONNECTIONS EXCEPT D.E.F. UTILIZE GASOIL A DEF. ALL BURIED STEEL PIPING SHALL BE COATED & WRAPPED. ALL VENT PIPE RISERS SHALL BE PAINTED BLACK BY FUEL CONTRACTOR. ALL TERMINATION FITTINGS SHALL BE BY PRODUCT PIPING MANUFACTURER TERMINATION FITTINGS WITH THE VALVE STEM POINTED IN THE 4 TO 8 O'CLOCK POSITION (UNLESS LOCAL JURISDICTION REQUIRES VALVE STEMS TO BE LOCATED AT 6 O'CLOCK. REMOVE SCHRADER" VALVES FOR PROPER DRAINAGE AFTER TESTING.

    B. METALLIC PIPE AND FITTING SPECIFICATIONS

    (1) PIPE: ALL PIPING SHALL BE MINIMUM SCHEDULE 40 WELDED OR SEAMLESS STEEL PIPE PER ASTM A-53 & ASTM-120 SPECIFICATION.

    (2) FITTINGS: ALL SCREWED FITTINGS SHALL BE BLACK IRON 300 LB MALLEABLE IRON PER SPECIFICATION ASTM A 197 AND DIMENSIONAL STANDARD ASA B 6-20

    i. METAL PRODUCT PIPE FITTINGS IN UNDERGROUND DISPENSER CONTAINMENT SHALL BE STAINLESS STEEL (TEE AND ELBOWS)

    (3) WRAPPING: STREET ELLS AND "ALL THREAD" NIPPLES SHALL NOT BE USED. PIPELINES SHALL BE PLACED IN STRAIGHT RUNS. WHEN USING PIPE FITTINGS, THREADS SHALL BE CLEAN, FULL LENGTH, COATED WITH PETROLEUM RESISTANT THREAD LUBRICANT (PERMATEX NO. 2 OR EQUAL), THEN TIGHTENED TO REFUSAL.

IV. DISPENSER INSTALLATION

1. DEEP SUMPS MUST BE INSTALLED IN THE DISPENSER CORE HOLES FOR COLLECTION OF LIQUIDS AND GRAVITY DRAINAGE INTO THE DOUBLE WALL PRODUCT PIPING. LIQUIDS WILL EVENTUALLY MIGRATE TO THE TURBINE PUMP CONTAINMENT SUMP AND SET OFF THE MONITORING PROBE IN THAT SUMP.

2. DISPENSERS SHALL BE INSTALLED LEVEL AND ANCHORED TO CONCRETE PUMP ISLANDS WITH A STEEL ANCHORAGE BOX (FURNISHED WITH DISPENSER SUMP UNLESS OTHERWISE SPECIFIED BY THE OWNER REPRESENTATIVE).

3. FURNISH AND INSTALL A 2" SLOTTED PIPE AND A LIQUID DETECTOR TO BE CONNECTED TO THE MONITORING DETECTION SYSTEM.

4. DISPENSER CORE HOLES AND SUMPS SHALL BE LEFT EMPTY OF BACKFILL FOR INSPECTION AND MAINTENANCE. FURNISH AND PADLOCK ALL DISPENSER NOZZLES. KEEP DISPENSER SHIPPING CARTONS OVER DISPENSERS FOR PROTECTION.

5. INSTALL AND ADJUST ALL SWIVELS, HOSES, NOZZLES, NOZZLE HANFERS AND HOODS.

6. UNPLUG MANAGERS KEYPAD TO ALL DISPENSERS

7. DISPENSER INSTALLERS SHALL RE-CALIBRATE DISPENSER 60 DAYS AFTER OPENING OF STORE.

V. TESTING

1. CONSTRUCTION TESTING

    A. ITEM NOT USED.

    B. PIPING

    1. GENERAL CONTRACTOR SHALL GIVE REASONABLE ADVANCE NOTICE TO OWNER'S FIELD REPRESENTATIVE AND ANY OTHER REQUIRED LOCAL AUTHORITIES FOR THEIR INSPECTION OF THE UNDERGROUND TANK INSTALLATION AND LINES PRIOR TO BACKFILLING AND ALSO FOR THEIR PRESENCE DURING THE PRESSURE TESTING OF THE SYSTEM.

    2. THE OWNER REPRESENTATIVE SHALL BE NOTIFIED TWENTY-FOUR HOURS IN ADVANCE OF TESTS.

    3. EACH PIPE SYSTEM SHALL BE FLUSHED CLEAN. TEST THE PRODUCT AND IF APPLICABLE TEST THE VAPOR PIPING BY ISOLATING THE LINES FROM PUMPS, DISPENSERS AND TANKS, THEN APPLY AN AIR PRESSURE OF 75 PSI TO EACH PRIMARY LINE AND TEST ALL JOINTS FOR LEAKS THEN APPLY NO MORE THAN 10 PSI TO EACH SECONDARY LINE AND TEST ALL JOINTS.

    4. ALL PRIMARY AND SECONDARY PIPING SHALL BE TESTED BEFORE BACKFILLING AND CONTINUOUSLY THEREAFTER UNTIL BACKFILL AND PAVING IS COMPLETED AND TEST IS ACCEPTED BY LOVE'S REPRESENTATIVE.

    5. IF NO PERCEPTIBLE CHANGE IN PRESSURE HAS OCCURRED AT THE END OF THE TEST PERIOD, THE SYSTEM SHALL BE CONSIDERED ACCEPTABLE BEFORE BACKFILLING,

    6. NO PRODUCT SHALL BE INTRODUCED INTO THE LINES UNTIL AFTER PAVEMENT IS INSTALLED OVER ALL FUEL LINES. LOCAL ORDINANCES AND REQUIREMENTS SHALL TAKE PRECEDENCE IF MORE SEVERE.

2. PRIOR TO POST CONSTRUCTION TESTING

    A. THE SYSTEM MUST BE BLED OF AIR AND PRESSURE TESTED USING GAUGES SUITABLE FOR GASOLINE/DIESEL/DEF SERVICE WITH A MAXIMUM READING OF 60 P.S.I. INSTALLED AT PLUGGED OPENING PROVIDED IN EACH DISPENSER.

    B. THE SYSYTEM SHALL BE COMPLETELY PURGED BY DISCHARGING PRODUCT THROUGH ALL DISPENSERS ON EACH PUMP, STARTING WITH THE MOST REMOTE DISPENSER, USING A SUITABLE HOSE CONNECTED TO THE NOZZLE AND RETURN PURGED FUEL INTO THE APPROPRIATE TANK. PURGE A MINIMUM OF 500 GALLONS THROUGH EACH DISPENSER HOSE. OBSERVE THE GAUGE AND CONTINUOUSLY FLOW PRODUCT UNTIL ALL EVIDENCE OF AIR DISAPPEARS. PUEGED DEF CANNOT BE RETURNED TO THE TANK OR DISPOSED OF IN THE OIL WATER SEPARATOR.

    C. ONCE THE SYSTEM HAS BEEN PURGED THEN ALL FUEL METERS MUST BE CALIBRATED, DOCUMENTED, AND WIRE CALIBRATION SEAL INSTALLED.

3. POST CONSTRUCTION TESTING AND TEST PROCEDURES

    A. ALL THE POST CONSTRUCTION TESTING MUST BE COMPLETED BY A THIRD PARTY.

    B. LINE TIGHTNESS TEST - PEI, RP100, 11.1.4.

    C. HYDROSTATIC UDC AND SUMP TEST - PEI, RP1200, 6.5.6 OR 6.6.

    D. PIPING ANNULAR TEST (ALL SECONDARY PIPING IS REQUIRED TO BE TESTED INCLUDING SYPHON LINES AND VENT PIPING IF APPLICABLE) - PEI, RP1200, 5.7.

    E. LINE LEAK DETECTOR FUNCTIONALITY TEST PEI, RPI 200, 9.2.6.

    F. SENSOR FUNCTIONALITY TEST (ATG PRINT OUTS MUST ACCOMPANY TEST FORM) - PEI, RP1200, 8.3.6.

    G. SHEAR VALVE FUNCTIONALITY TEST - PEI, RP1200, 10.2.5.

    H. TESTING IS NOT LIMITED TO TESTS AND PROCEDURES NOTED ABOVE - VERIFY LOCAL TESTING REQUIREMENTS.

4. AFTER POST CONSTRUCTION TESTING

    A. THE IMPACT VALVE PLUG UNDER EACH DISPENSER SHALL BE SEALED WITH A WIRE SEAL THROUGH THE HOLE IN THE PLUG AND AROUND THE VALVE. QUICK CONNECT TEST FITTINGS CANNOT BE LEFT IN THE SHEAR VALVES.

    B. ALL HYDROSTATIC TEST WATER MUST BE DISPOSED OF PROPERLY. CONTACT LOVE'S ENVIRONMENTAL DEPT WITH ANY DISPOSAL QUESTIONS.

    C. ALL SUMPS, UDCS, AND SPILL BUCKETS MUST BE CLEAN, DRY AND FREE OF DEBRIS.

    D. ALL TESTING DOCUMENTS MUST BE SUBMITTED TO THE LOVE'S ENVIRONMENTAL DEPARTMENT BY THE MONDAY PRIOR TO OPENING UNLESS STATE OR LOCAL AUTHORITIES REQUIRE IT TO BE SUBMITTED IN ADVANCE OF THIS DATE.

    E. ALL TESTING OUTLINED IN 7.2 AND INSTALLATION CHECKLIST (NOTED BELOW) MUST BE SUBMITTED TO LOVE'S ENVIRONMENTAL DEPARTMENT BEFORE FINAL PAYMENT IS RELEASED.

    1. LOVE'S NOV INSTALLATION CHECKLIST
    2. METER CALIBRATION
    3. BRAVO CERTIFICATION AND CHECKLIST (IF APPLICABLE)
    4. ISO FUEL PANEL CHECKLIST

VI. EQUIPMENT

1. THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND MATERIALS NOT FURNISHED BY OWNER BUT NECESSARY FOR THE COMPLETION OF THE PROJECT.

2. REFER TO CHART TITLED "MATERIAL FURNISHED BY OWNER" FOR THE LIST OF EQUIPMENT SCHEDULED TO BE FURNISHED BY OWNER. THE CHART ONLY DESCRIBES AND IDENTIFIES THE ITEMS PER MANUFACTURER. CORRELATE THE SYMBOL NOMENCLATURE TO SYMBOLS SHOWN IN THE REFERENCE DRAWINGS. SEE THE SITE PLAN AND REFERENCE DRAWINGS FOR QUANTITIES REQUIRED.

3. OWNER MAY ELECT TO REQUEST THE CONTRACTOR TO FURNISH ALL OR PART OF THE EQUIPMENT TO BE FURNISHED BY OWNER. SUCH ITEMS WILL BE LISTED IN THE CONTRACT DOCUMENT OR SITE PLAN. NO SUBSTITUTIONS WILL BE ALLOWED UNLESS APPROVED BY THE OWNER REPRESENTATIVE.

VII. SITE EARTHWORK

1. CONTRACTOR SHALL STOCKPILE ANY CONTAMINATED SOIL ON BACK OF SERVICE STATION LOT AND COVER WITH MEMBRANE AS DIRECTED BY OWNER.

2. BACKFILL WITH THE STOCKPILED EXCAVATION MATERIAL AND/OR OTHER APPROVED NATIVE OR IMPORT SOILS. ALL BACKFILL SHOULD BE SPREAD, WATERED, MIXED AND COMPACTED BY MECHANICAL MEANS IN APPROXIMATE 6-INCH THICK LIFTS. THE DEGREE OF COMPACTION OBTAINED SHOULD BE AT LEAST 90 PERCENT OF THE ASTM-D-1557-78 LABORATORY TEST STANDARD.

3. IMPORTED FILL MATERIALS SHOULD CONSIST OF CLEAN GRANULAR SOILS FREE FROM VEGETATION, DEBRIS, OR ROCKS LARGER THAN 3 INCHES. THE EXPANSION INDEX VALUE SHOULD NOT EXCEED A MAXIMUM OF 20 (NON-EXPANSIVE).

4. ALL EARTHWORK OPERATIONS SHOULD BE SUBJECT TO COMPACTION MONITORING OBSERVATION AND TESTING BY A SOILS ENGINEER.

5. CONTRACTOR SHALL HAUL AWAY AND LEGALLY DISPOSE OF ALL EXCESS EXCAVATED MATERIALS, ASPHALT, AND CONCRETE AFTER OWNER CLEARS SOILS.

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Bentonville, Arkansas 72712
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LAKE CITY, FL
STORE #724

FUELING

PROJECT NUMBER: 07-22-98010

Love's
Travel Stop & Country Stores

RYAN R. VAUGHN
LICENSE
No. 76630
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Ryan Roger Vaughn
Digitally signed by Ryan Roger Vaughn
DN: E=ryan.vaughn@hfa-ac.com, CN=Ryan Roger Vaughn, O=Harrison French & Associates, Ltd, OU=Architecture, C=US
Reason: I am approving this document
Date: 2023-10-31 16:33:50-05'00'

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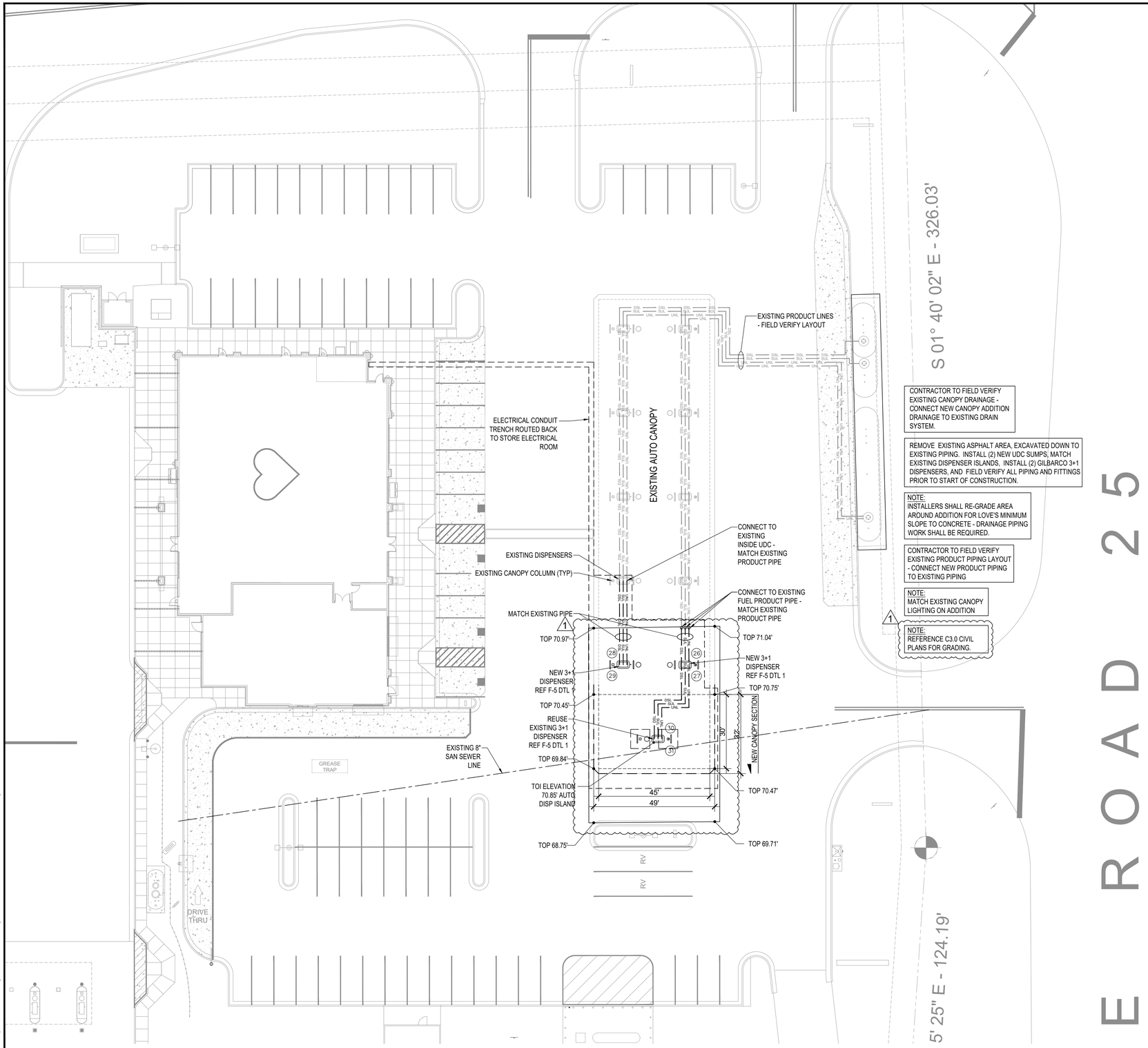
SPECIFICATIONS, MATERIAL, & EQUIPMENT

SHEET: F-2



FUEL PIPING SCHEMATIC PLAN

1 Scale: 1" = 20'

North

GENERAL NOTES:

1. REFER TO "SPECIFICATIONS, MATERIAL & EQUIPMENT" FOR CONDITIONS, INSTALLATION PROCEDURES, MATERIALS, EQUIPMENT AND GENERAL REQUIREMENTS.
2. REFER TO THIS PLAN FOR THE INSTALLATION OF PIPING, DISPENSERS, SLABS AND ELECTRICAL DEVICES.
3. THE LOCATION OF TANK BOXES AND OTHER APPURTENANCES AS WELL AS THE DEVICES INSIDE THE BUILDING MAY VARY FROM THE PROJECT REQUIREMENTS. REFER TO SPECIFIC PLANS.
4. THE CONTRACTOR TO INSTALL CONCRETE CHAIRS IN ALL REINFORCED CONCRETE SLAB CONDITIONS.
5. ALL THREAD SEALANT SHALL BE GASOILA E-SEAL THREAD SEALANT.

PIPING:

1. ALL PRODUCT PIPING SHALL MATCH EXISTING PRODUCT PIPING UNLESS OTHERWISE NOTED. FUEL CONTRACTOR SHALL FIELD VERIFY PRODUCT PIPING ON SITE. (AMERON LCX PIPE)
2. ALL PRODUCT PIPING, VAPOR RECOVERY AND VENT LINES SHALL SLOPE A MINIMUM OF 1/8" PER FOOT DOWN TOWARDS THE TANKS. SLOPE MUST BE FIELD VERIFIED BEFORE INSTALL TO CONFIRM UST DEPTH. REFER TO NOTE 4 UNDER EXCAVATION AND TANK BURIAL.
3. PIPING TRENCH SIDES AND BOTTOM TO BE LINED WITH FILTER FABRIC - MIAFI #160N GEOTEXTILE 6oz. OR EQUIVALENT.
4. ALL PRODUCT PIPING RUNS SHALL HAVE DETECTABLE TAPE BURIED BELOW GRADE.
5. ALL ELECTRICAL CONDUIT RUNS SHALL HAVE DETECTABLE TAPE INSTALLED.

LEGEND

UNL — UNL — UNL — A – ASSIGNED TO UNLEADED 87 OCTANE
SUL — SUL — SUL — B – ASSIGNED TO SUPER UNLEADED 92 OCTANE
DSL — DSL — DSL — C – ASSIGNED TO DIESEL

ABBREVIATIONS

PR-A = PIPING-PRODUCT A
PR-B = PIPING-PRODUCT B
PR-C = PIPING-PRODUCT C
PR-D = PIPING-PRODUCT D

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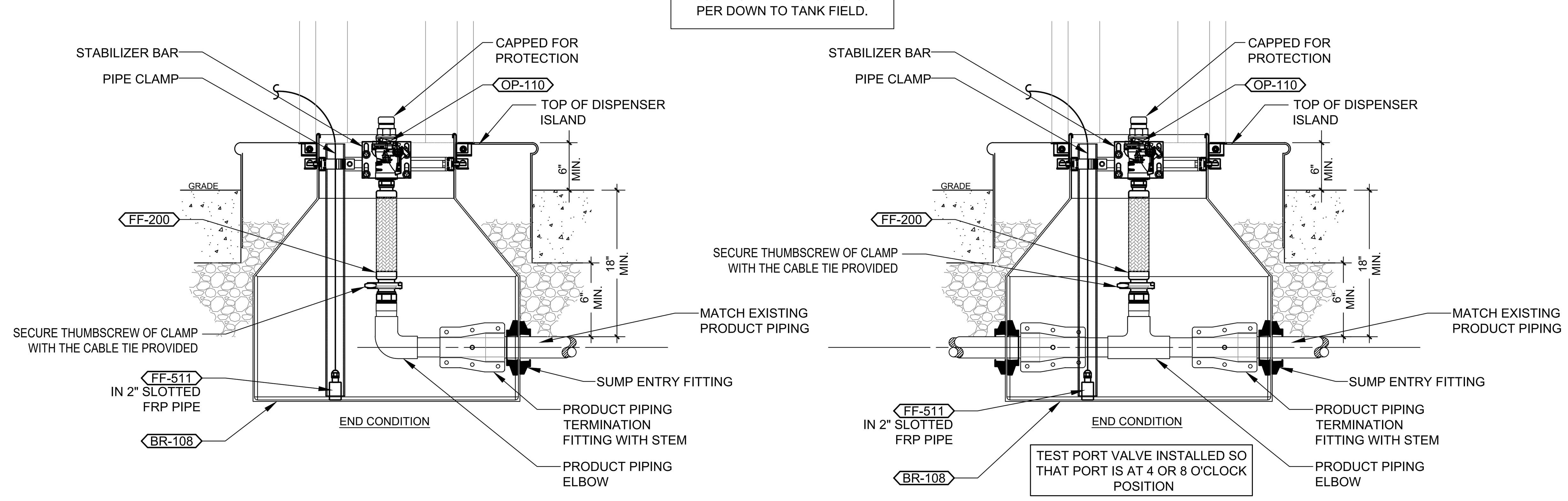
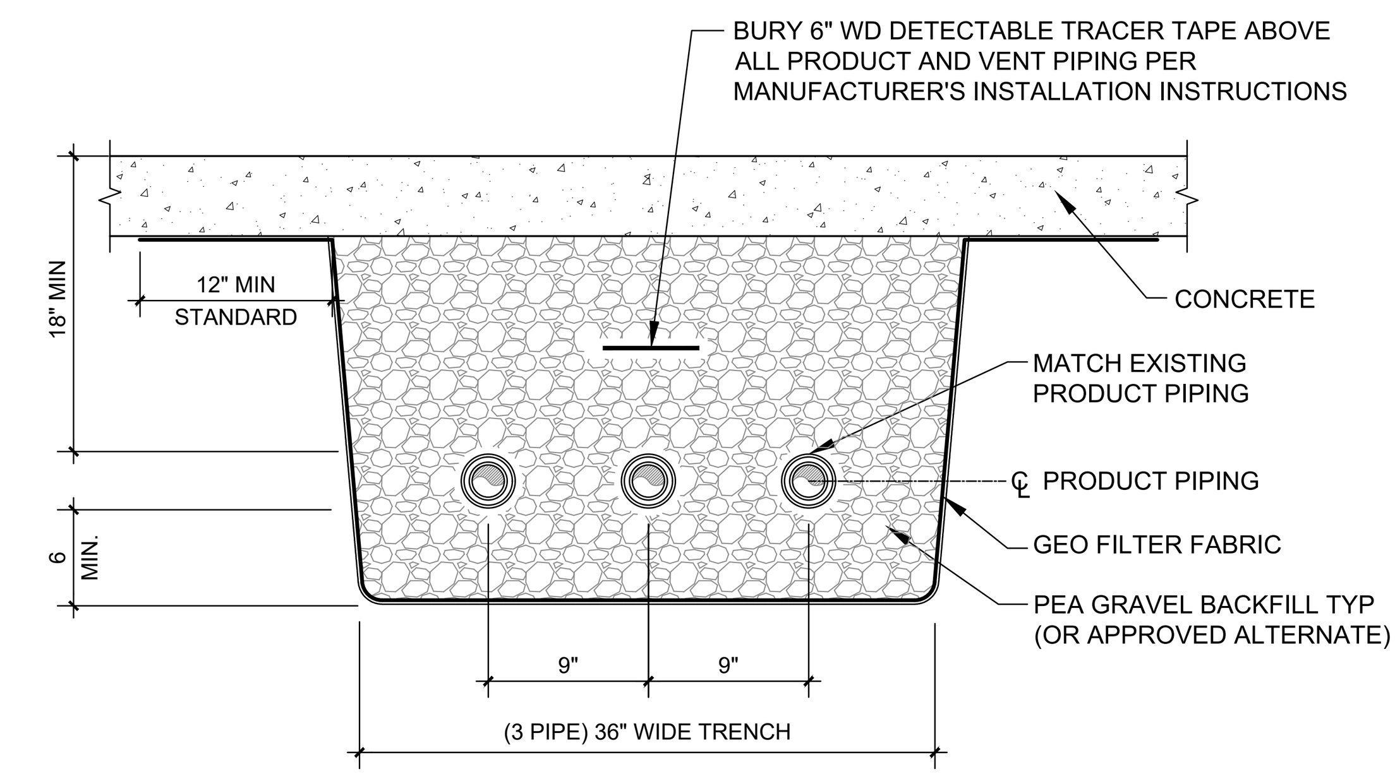
UNDERGROUND PIPING PLAN FOR GASOLINE, AND DIESEL

SHEET: F-3

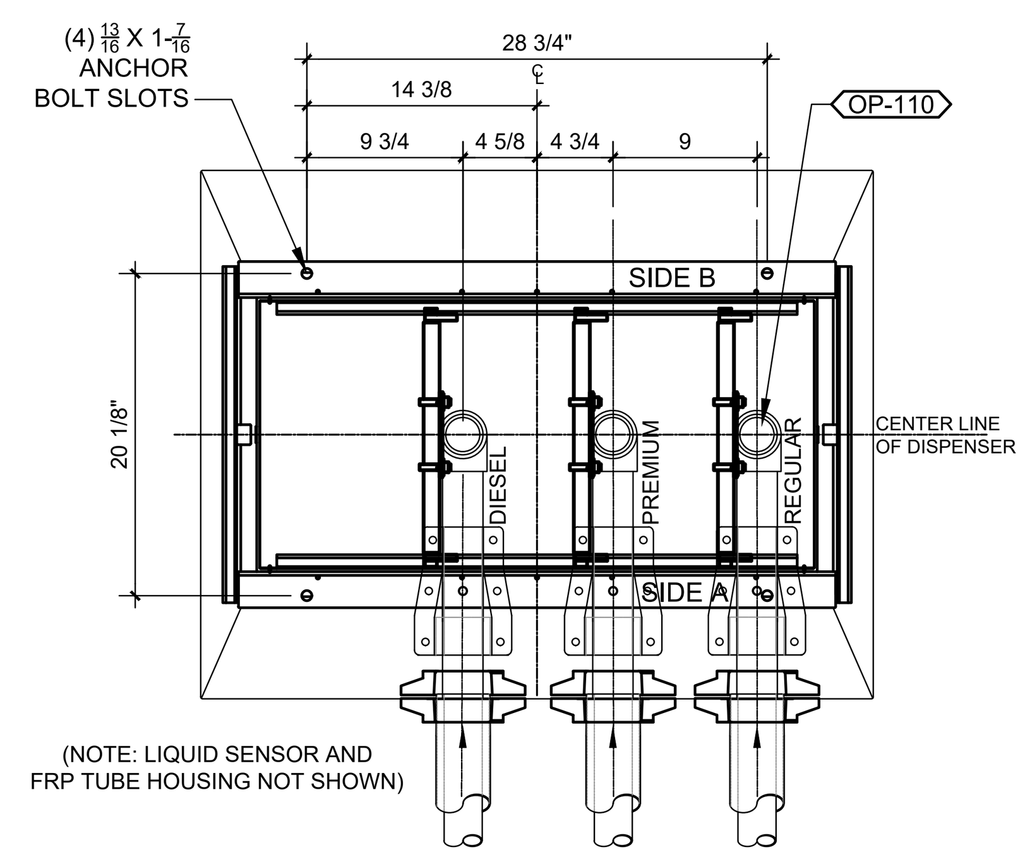
PRODUCT PIPING STARTS AT 24" BELOW TOP OF ISLAND AT FIRST DISPENSER AND SLOPES 1/8" PER DOWN TO TANK FIELD.



3 STANDARD SECTIONS UNDER AUTO DISPENSER AT CANOPY AREA
NTS

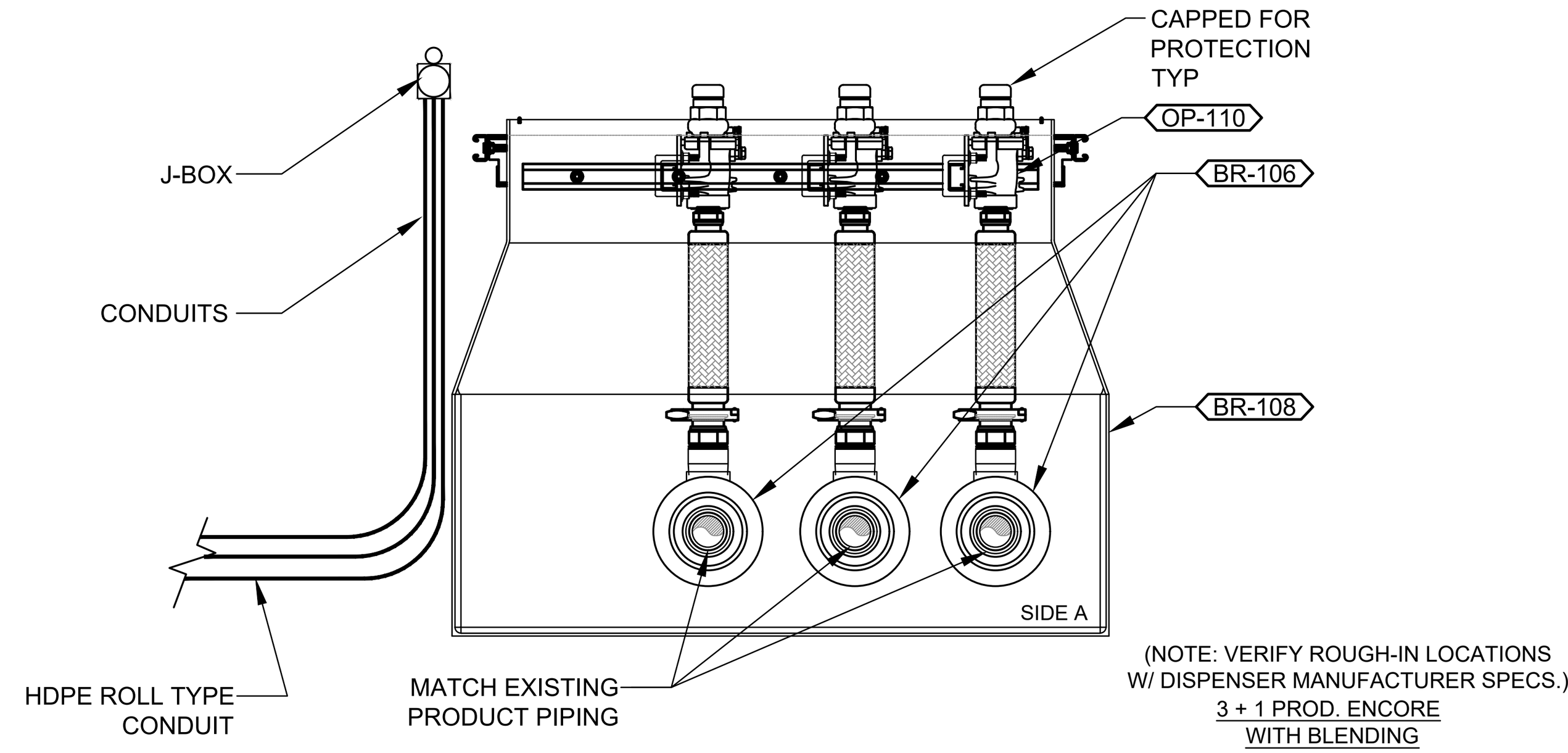


4 PIPING TRENCH DETAILS
NTS

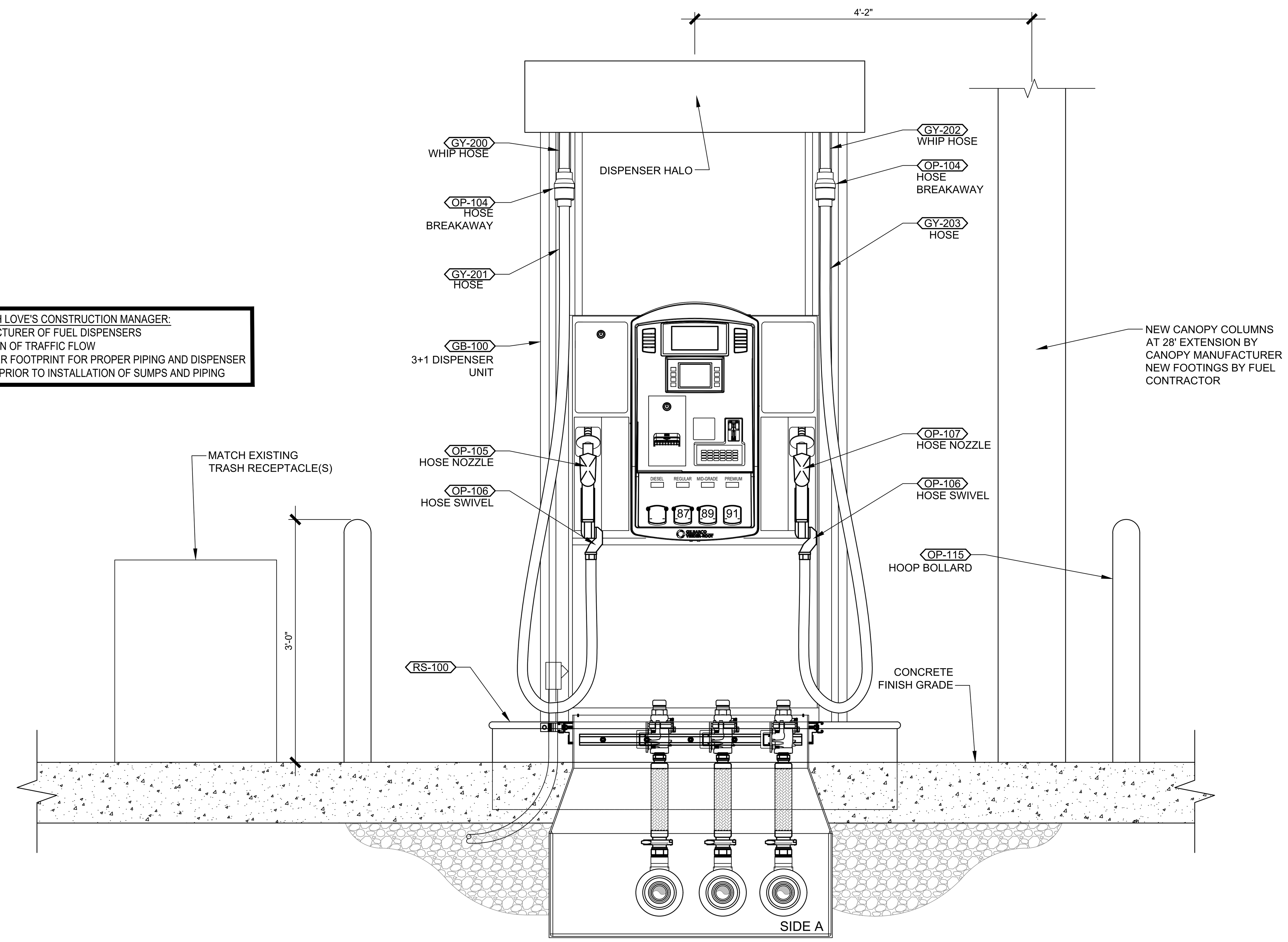


PLAN

VERIFY WITH LOVE'S CONSTRUCTION MANAGER:
A. MANUFACTURER OF FUEL DISPENSERS
B. DIRECTION OF TRAFFIC FLOW
C. DISPENSER FOOTPRINT FOR PROPER PIPING AND DISPENSER ALIGNMENT PRIOR TO INSTALLATION OF SUMPS AND PIPING



2 STANDARD SECTIONS UNDER CAR DISPENSER UDC
NTS



1 AUTO DISPENSER DETAIL
NTS

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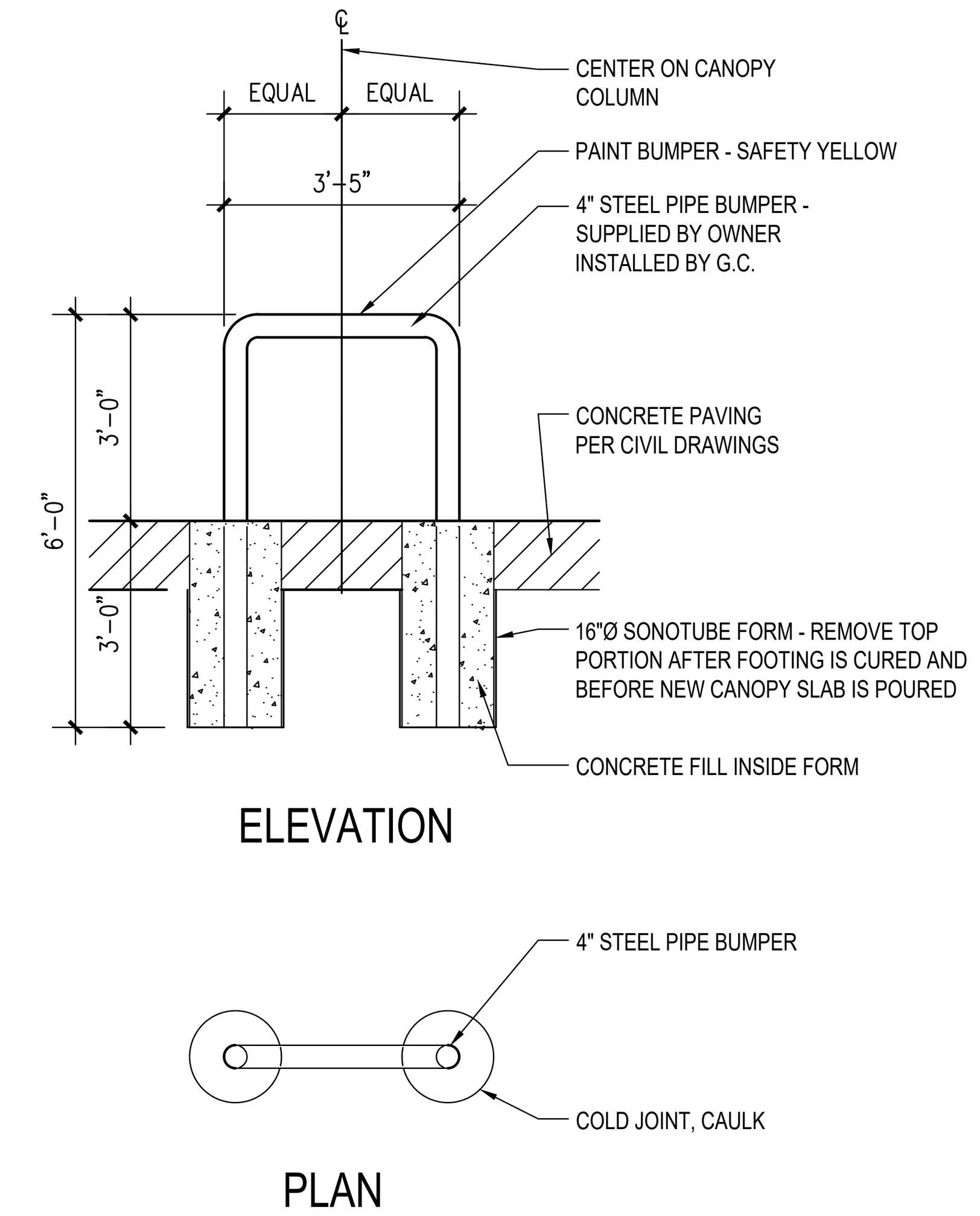
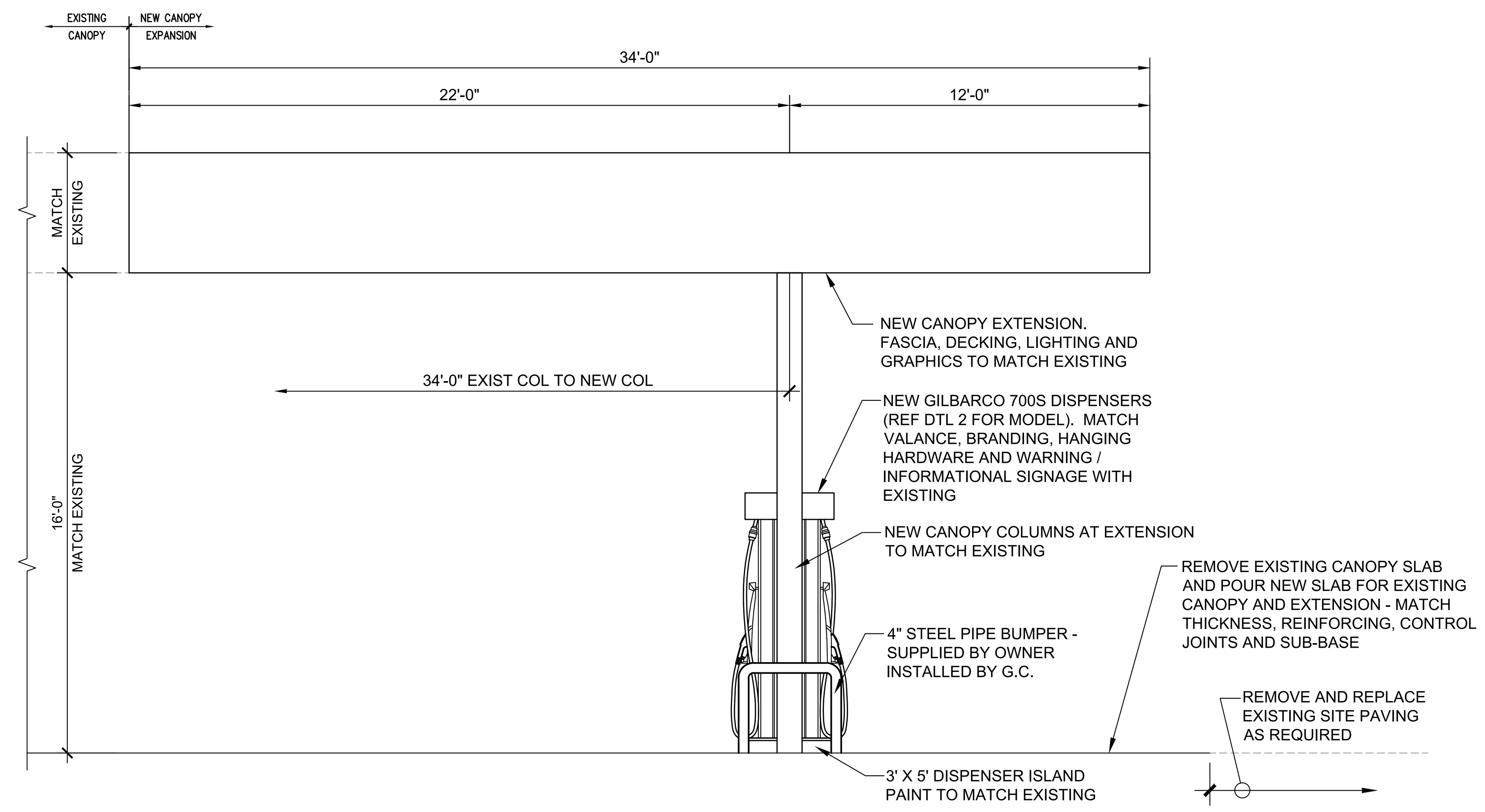
AUTO PIPING CONNECTIONS AT DISPENSERS

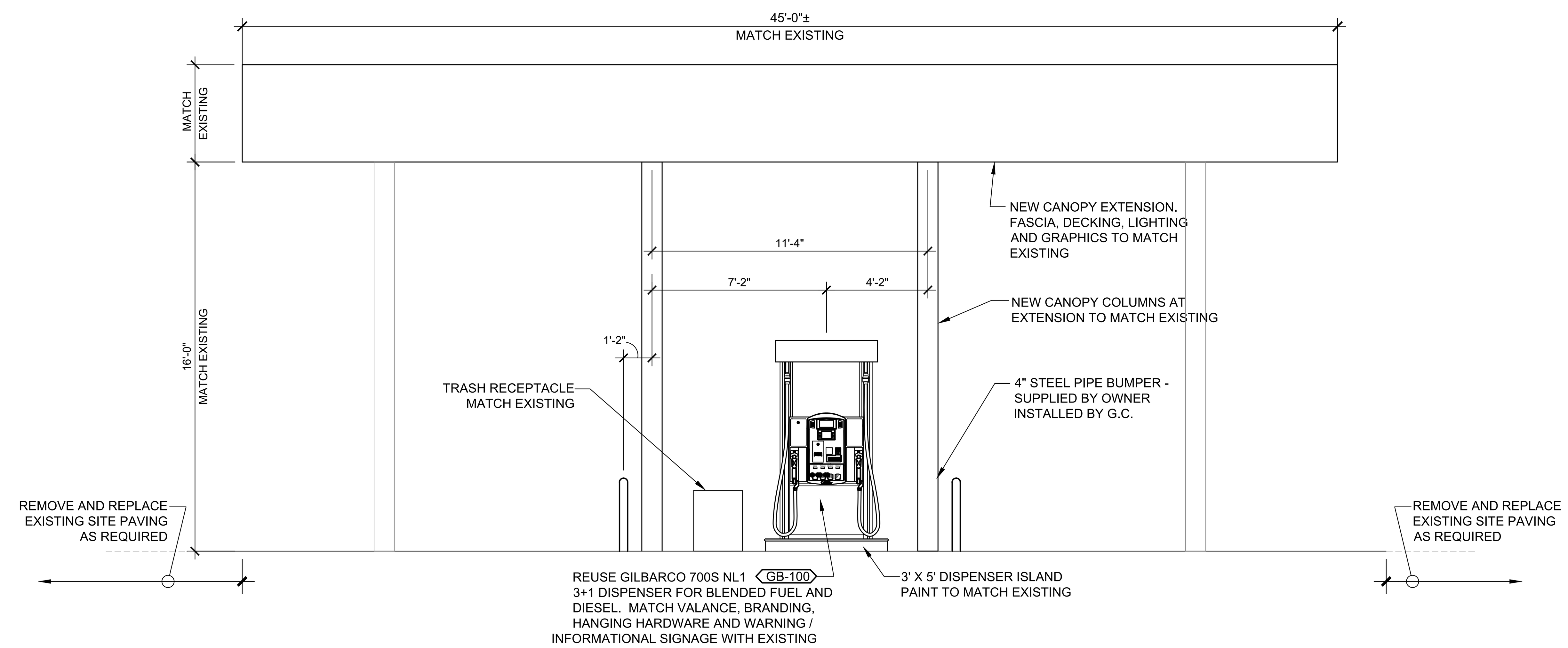
SHEET: F-4



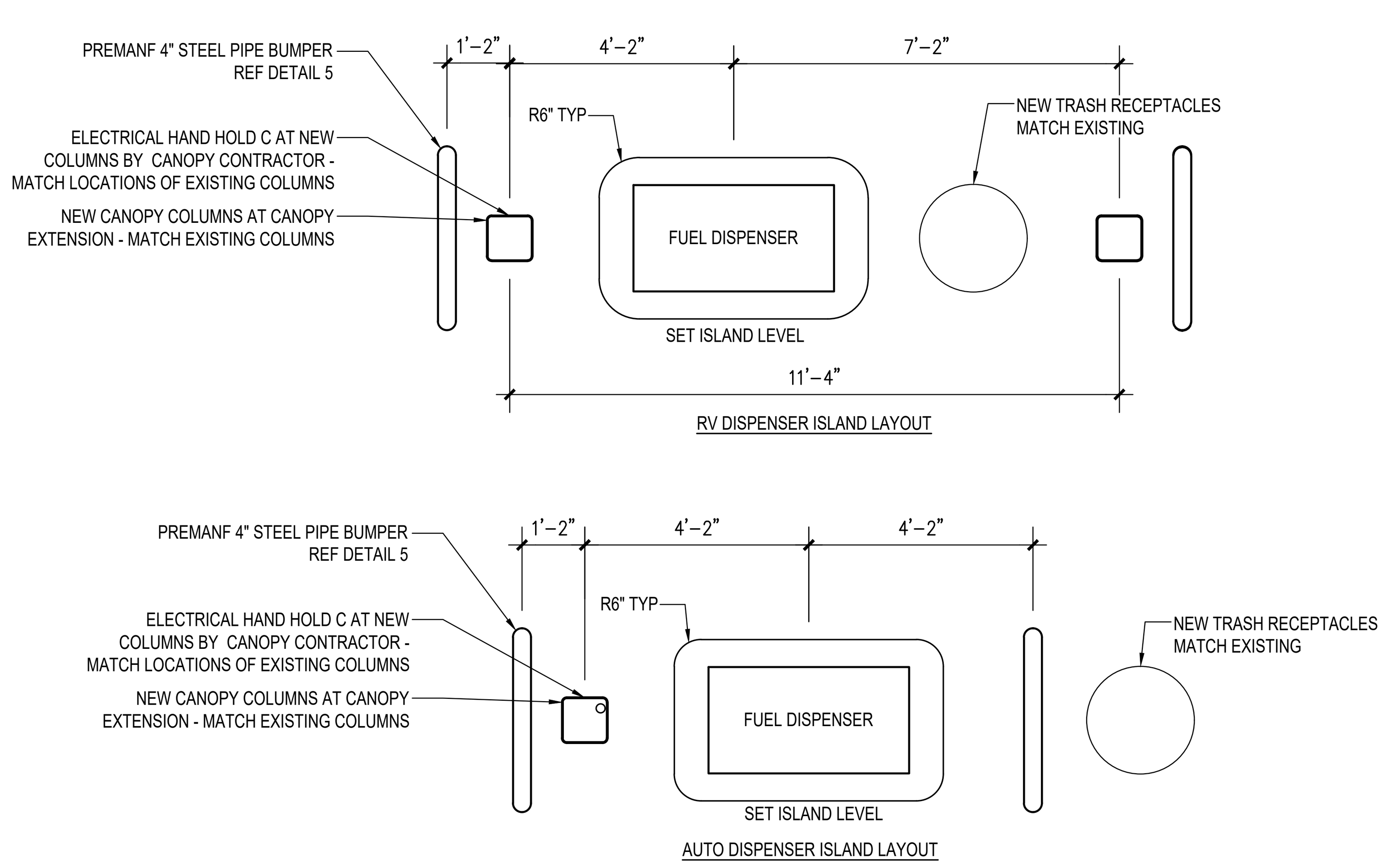
5 HOOP BOLLARD DETAIL
SCALE: 3/8" = 1'-0"



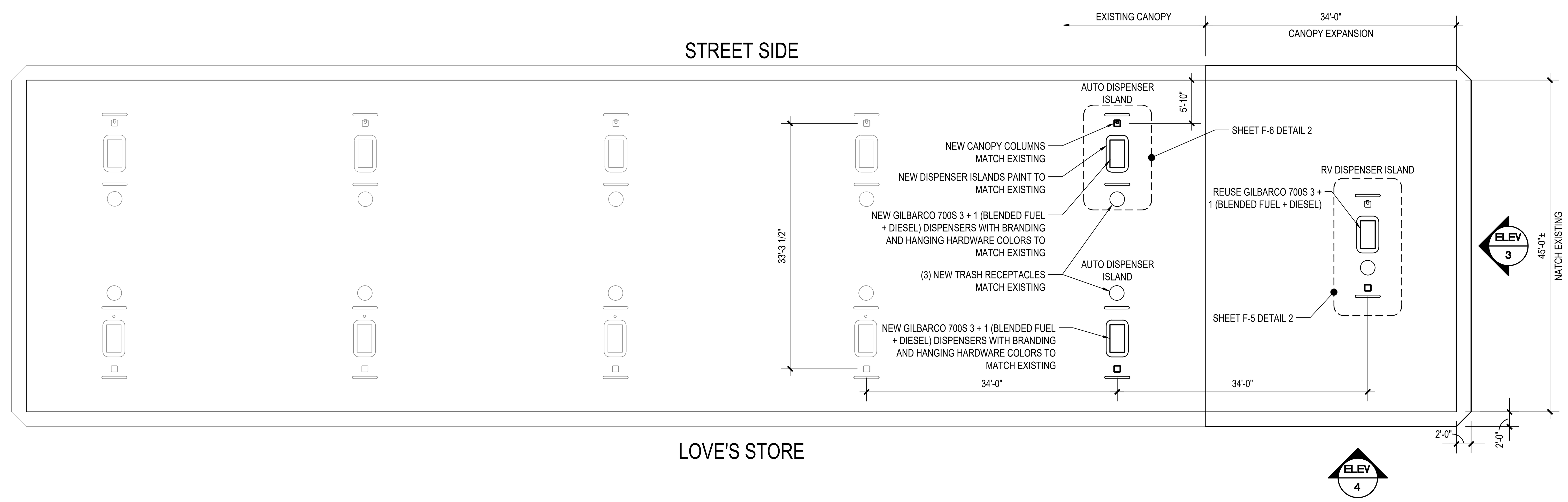
4 CAR ISLAND ELEVATION
SCALE: 1/4" = 1'-0"



3 CAR ISLAND ELEVATION
SCALE: 1/4" = 1'-0"



2 DISPENSER LAYOUT DETAIL
SCALE: 3/8" = 1'-0"



1 CAR CANOPY ADD'N PLAN
SCALE: 3/32" = 1'-0"

Oct31,2023-4:04pm - User:julian.torres
F:\07\07-22-98010 Loves - Lake City, FL 724\04-Design\Fuel\Fuel Drawings\ F05 AUTO CANOPY ADDITION DETAILS.dwg

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AUTO CANOPY ADDITION DETAILS

SHEET: F-5

AMERON - NOV FITTINGS			
ITEM NO.	PART NO.	DESCRIPTION	SUPPLIED BY
AM-100	AM-00002728	JUMPER TUBE	CONTRACTOR
AM-101	SP-GLUE	ADHESIVE 6.5 OZ. - 8014 SMITH/FIBERGLS	CONTRACTOR
AM-102	SP-FILLER	FILLER FOR SECONDARY FITTINGS	CONTRACTOR
AM-103	AM-PSX-20-1	ADHESIVE 8 OZ. - SINGLE	CONTRACTOR
AM-200	AM-LCX-P-2-34	2" LCX PIPE 34' LENGTH	CONTRACTOR
AM-201	AM-LCX-P-2-32	2" LCX PIPE 32' LENGTH	CONTRACTOR
AM-202	AM-P-2-33	2" PRIMARY SW PIPE 33' LENGTH	CONTRACTOR
AM-203	AM-22469206	2" LCX TEST REDUCER W/ AIR STEM	CONTRACTOR
AM-204	AM-SC-2	2" COUPLING	CONTRACTOR
AM-205	AM-LCXSC-2	2" COUPLING-LCX 2 PIECE	CONTRACTOR
AM-206	AM-T-2	2" TEE	CONTRACTOR
AM-207	AM-LCX2PCT-2	2" TEE LCX - 2 PIECE	CONTRACTOR
AM-208	AM-EL90-2	2" 90 DEGREE ELBOW	CONTRACTOR
AM-209	AM-LCX-EL90-2	2" 90 DEGREE ELBOW - LCX - 2 PIECE	CONTRACTOR
AM-210	AM-SXM-2	2" SPIGOT X MALE ADAPTER	CONTRACTOR
AM-211	AM-BXM-2	2" BELL X MALE ADAPTER	CONTRACTOR
AM-213	AM-EL45-2	2" 45 DEGREE ELBOW	CONTRACTOR
AM-214	AM-LCX2PCEL45-2	2" 45 DEGREE ELBOW LCX - 2 PIECE	CONTRACTOR

BRAVO SYSTEM			
ITEM NO.	PART NO.	DESCRIPTION	SUPPLIED BY
BR-105	F-30-SS-D	3" PASS-THROUGH FITTING (IF NEEDED)	CONTRACTOR
BR-106	F-20-SS-D	2" PASS-THROUGH FITTING	CONTRACTOR
BR-107	BR-EP-100	BRAVO ENTRY FITTING ADHESIVE KIT - 7 OZ	CONTRACTOR
BR-108	B1380-S30	DISPENSER UDC - SW	CONTRACTOR

FRANKLING FUELING			
ITEM NO.	PART NO.	DESCRIPTION	SUPPLIED BY
FF-200	FFUL15X18X20EZF	SS FLEX CONNECTOR 1.5"M X 18" X 2" EZF (OR EQUAL)	CONTRACTOR
FF-511	TSP-ULS	LIQUID ONLY SENSOR	CONTRACTOR

GILBARCO SCHEDULE			
ITEM NO.	PART NO.	DESCRIPTION	SUPPLIED BY
GB-100	700S NL1	ENCORE 700S NL1 BENDER 3+1	OWNER

HANGING HARDWARE			
ITEM NO.	PART NO.	DESCRIPTION	SUPPLIED BY
GY-200	GY-34WHP-G	3/4" X 8' FLEX WHIP, AUTO DIESEL - GREEN	CONTRACTOR
GY-201	GY-3408-G	3/4" X 8' FLEXSTEEL HOSE - GREEN DIESEL	CONTRACTOR
GY-202	GY-34WHP	3/4" X 8' FLEX WHIP - BLACK	CONTRACTOR
GY-203	GY-3408	3/4" X 8' FLEXSTEEL HOSE - BLACK	CONTRACTOR

MISCELLANEOUS PARTS SCHEDULE			
ITEM NO.	PART NO.	DESCRIPTION	SUPPLIED BY
RS-100	3X5X13-GALV	3'W X 5'L X 13"H. ISLAND FORM W/ 6" RADIUS ENDS	CONTRACTOR
RS-102	PIPESLEEVE-8X36-GAL	U-GUARD PIPE SLEEVE 8" DIA. X 36" TALL	CONTRACTOR

OPW SCHEDULE			
ITEM NO.	PART NO.	DESCRIPTION	SUPPLIED BY
OP-104	OPW-68EZR-7575	3/4" BREAKAWAY - RECONNECTABLE	CONTRACTOR
OP-105	OPW-11B-8100-UL	AUTO DIESEL NOZZLE - GREEN, UL2586	CONTRACTOR
OP-106	OPW-45-5060	3/4" SWIVEL	CONTRACTOR
OP-107	OPW-11BP-8400-UL	NEW UNLEADED NOZZLE - BLACK, UL 2586	CONTRACTOR
OP-110	OPW-10BHMP-5830	DOUBLE POPPETED EMERGENCY VALVES	CONTRACTOR
OP-111	OPW-60VSP-1001	POPPETED VAPOR LINE SHEAR VALVE (IF NEEDED)	CONTRACTOR
OP-115	6PGR4-4174	U-SHAPED PIPE GUARD 41"X 74" - SCH. 40	CONTRACTOR

XX-XXX MATCHES ITEMS IN PLANS

EQUIPMENT:

1. FUEL CONTRACTOR TO FIELD VERIFY TYPE AND QUANTITIES OF EQUIPMENT NEEDED TO COMPLETE THE PROJECT.

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1

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EQUIPMENT SCHEDULES

SHEET: F-6

ELECTRICAL SCOPE OF WORK

INSTALLATION-REPLACEMENT AND MISCELLANEOUS

I. GENERAL

THIS SECTION COVERS THE REQUIREMENTS FOR THE COMPLETE INSTALLATION AND TESTING OF THE ELECTRICAL DISTRIBUTION OF POWER, CONTROLS AND DEVICES SHOWN IN THESE CONSTRUCTION DOCUMENTS NECESSARY TO INSTALL NEW OR REPLACE THE EXISTING UNDERGROUND STORAGE TANKS AND RELATED EQUIPMENT AT THE SITE REFERRED TO IN THE CONTRACT DOCUMENTS AND THE DRAWINGS FURNISHED BY OWNER.

1. CODES:

ALL WORK DONE UNDER THIS SPECIFICATION SHALL COMPLY WITH THE MOST RIGID REQUIREMENTS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE STATE, COUNTY, AND CITY CODES, LAWS AND REGULATIONS.

NOTHING IN THESE SPECIFICATIONS SHALL RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH THE APPLICABLE PORTIONS OF THE ABOVE REGULATIONS, NOR ANY OTHER PROVISIONS, CODES, OR REGULATIONS HAVING JURISDICTION PERTAINING TO WORK BEING INSTALLED UNDER THIS SECTION.

2. DRAWINGS:

THE DRAWINGS MAY OR MAY NOT BE COMPLETE AS TO DETAILS, AND SHALL BE USED IN CONJUNCTION WITH THESE SPECIFICATIONS, AS INDICATIVE OF THE SCOPE OF WORK SHOWING THE LOCATION AND GENERAL INSTALLATION DETAILS OF ALL ELECTRICAL SYSTEMS.

3. DESIGN:

ALL SCALED AND FIGURED DIMENSIONS ARE APPROXIMATE AND ARE GIVEN FOR ESTIMATION PURPOSES ONLY. BEFORE PROCEEDING WITH ANY WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL LOCATIONS, DIMENSIONS, SIZES, ETC., AND SHALL BE RESPONSIBLE FOR THE FITTINGS OF HIS MATERIALS AND EQUIPMENT TO THE EQUIPMENT OF OTHER CRAFTS AND THE STRUCTURES.

4. SHOP DRAWINGS:

SHOP DRAWINGS BY AN OUTSIDE VENDOR, SHALL BE CHECKED AND APPROVED BY THE CONTRACTOR TO COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

5. GENERAL REQUIREMENTS

A. ELECTRICAL SYSTEM LAYOUTS INDICATED ON THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND THE LOCATIONS OF OUTLETS AND EQUIPMENT ARE APPROXIMATE. EXACT ROUTING OF CONDUITS, WIRING, AND THE PLACEMENT OR EQUIPMENT SHALL BE GOVERNED BY THE LOCATION OF OBSTRUCTIONS AND THE STRUCTURAL CONDITIONS. WIRING FOR EQUIPMENT REQUIRING MAINTENANCE OR INSPECTION SHALL BE READILY ACCESSIBLE.

B. THE CONTRACTOR SHALL FABRICATE, ERECT, INSTALL, CONNECT, AND TEST ALL ELECTRICAL INSTALLATIONS, SYSTEMS, AND EQUIPMENT AS SHOWN ON THE DRAWINGS.

C. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL RACKS, BRACKETS, SUPPORTS, PUSHBUTTON SUPPORTS, HANGERS, AND BRACING INCLUDING CONCRETE PEDESTALS, FOUNDATIONS, STRUCTURES, AND ANCHOR BOLTS, NEEDED TO SUPPORT ALL ELECTRICAL EQUIPMENT, MATERIAL, FIXTURES AND INSTRUMENTS TO ASSURE A STABLE AND WORKMANLIKE JOB WHETHER OR NOT SHOWN IN DETAIL ON THE DRAWINGS, AND SHALL MOUNT ALL ELECTRICAL EQUIPMENT, FIXTURES AND INSTRUMENTS AS SPECIFIED OR SHOWN ON THE DRAWINGS.

D. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS, ADDENDA, DRAWINGS AND SPECIFICATIONS. HE SHALL CHECK THE DRAWINGS OF THE OTHER TRADES AND SHALL CAREFULLY READ THE ENTIRE SPECIFICATIONS AND DETERMINE HIS RESPONSIBILITIES. FAILURE TO DO SO SHALL NOT RELEASE THE CONTRACTOR FROM DOING THE WORK IN COMPLETE ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.

II. WORK DESCRIPTION

THE ELECTRICAL INSTALLATIONS CONSIST OF THE FOLLOWING AREAS OF WORK. VERIFY ADDITIONAL SPECIFIC REQUIREMENTS WITH THE OWNER\ REPRESENTATIVE.

1. POWER DISTRIBUTION PANEL

CONTRACTOR(S) SHALL VERIFY EXISTING POWER PANELS AND NEW EQUIPMENT REQUIREMENTS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL CONNECTIONS AND INSTALLATIONS OF NEW EQUIPMENT PER CODE(S).

2. ITEM NOT USED.

3. ITEM NOT USED.

4. SUMP SENSORS

SENSORS MAY BE PART OF THE MONITOR SENSOR SYSTEM. WIRING FOR SENSORS IS INTRINSICALLY SAFE. DEDICATE ONE CONDUIT TO THIS CIRCUIT AND LOOP TO ALL UNDERGROUND TANKS.

5. TANK GAUGING SYSTEM

INSTALLATION OF THE TANK GAUGING CONTROL PANEL AS SHOWN IN THE DRAWINGS OR AS INDICATED BY THE OWNER REPRESENTATIVE. PROVIDE POWER AND REQUIRED GROUNDING CIRCUITS TO NEW PANEL AND CONNECT PANEL TO ALL PROBES INSTALLED IN THE TANKS. CONTRACTOR SHALL STRICTLY FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR NUMBER OF WIRES, WIRE SIZE, WIRE INSULATION, DEDICATION OF CONDUIT (INTRINSICALLY SAFE PROBES CIRCUITRY) AND CONDUIT DIAMETERS. THE MANUFACTURER WILL REFUSE TO START UP THE SYSTEM AND WILL NOT PROVIDE WARRANTIES IF THE INSTALLATION DOES NOT FULLY COMPLY WITH MANUFACTURER'S INSTRUCTIONS.

ALL TANK GAUGING WIRING SHALL BE CONTINUOUS RUNS (NO SPLICING) WITHOUT APPROVAL FROM LOVE'S PROJECT MANAGER.

6. DISPENSERS

RUN CONDUITS AND WIRES WITH GROUND FOR A.C. CIRCUITS (A.C. AND D.C. AS REQUIRED) TO FUELING ISLANDS AND CONNECT DISPENSERS IF NEW OR REPLACE EXISTING CIRCUITS TO EXISTING DISPENSERS AS SHOWN IN THE G.A. PLAN OR AS INDICATED BY THE OWNER REPRESENTATIVE. VERIFY REQUIREMENTS PRIOR TO SUBMITTING THE BID QUOTATION.

III. MATERIALS

1. GENERAL:

UNLESS NOTED OTHERWISE ON THE DRAWINGS, AND LISTED BY UNDERWRITERS' LABORATORIES, INC., WHEREVER STANDARDS HAVE BEEN ESTABLISHED AND LABEL SERVICE IS REGULARLY FURNISHED BY THAT AGENCY. NO SUBSTITUTIONS SHALL BE MADE FOR MATERIALS SHOWN OR SPECIFIED BY MANUFACTURERS' NAMES OR CATALOG NUMBERS WITHOUT PRIOR WRITTEN APPROVALS OF OWNER.

WHERE THE WORDS "OF EQUAL", "APPROVED", OR WORDS OF SIMILAR MEANING ARE USED, THEY SHALL BE INTERPRETED AS MEANING EQUAL IN THE OWNER'S OPINION. APPROVAL SHALL BE OBTAINED IN WRITING BEFORE A SUBSTITUTION IS MADE.

2. CONDUITS:

CONDUITS SHALL BE DELIVERED TO THE JOB SITE LABELED AND IN ORIGINAL BUNDLES. ALL CONDUIT SHALL BE HDPE ROLL CONDUIT EXCEPT @ CLASSIFIED AREAS. PROVIDE METAL CONDUITS AT CLASSIFIED AREAS, 10'-0" MINIMUM, IN EARTH TRENCH EACH ENDS OF RUNS WITH HDPE ROLL CONDUITS IN BETWEEN. PROVIDE GROUNDING CONDUITS PER CODE. PROVIDE METAL COATED CONDUITS AT CORROSIVE SOIL LOCATIONS. CONTRACTOR TO REFER TO GEO TECHNICAL REPORT IN OWNER'S SPECIFICATION BOOK FOR SOILS RESISTIVELY.

3. CONDUCTORS, WIRE SIZE AND CABLES:

ALL WIRE AND CABLE FURNISHED BY CONTRACTORS SHALL BE NEW, BEAR THE LABEL OF THE UNDERWRITERS' LABORATORIES, INC., AND BROUGHT TO THE BUILDING SITE IN UNBROKEN PACKAGES OR REELS.

POWER, AND CONTROL CONDUCTORS FURNISHED BY THE CONTRACTOR SHALL BE COPPER 600 VOLT, CLASS THWN INSULATED, UNLESS OTHERWISE SPECIFIED.

NO WIRE SMALLER THAN NO. 12 AWG WILL BE USED FOR POWER CIRCUITS 600 VOLT AND BELOW, UNLESS SPECIFIED. CONTROL WIRES SHALL BE NO. 14 AWG AND SIGNAL/DATA/INTRINSICALLY SPECIFIED BY THE EQUIPMENT SUPPLIER. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID AND ALL CONDUCTORS #8 AND LARGER SHALL BE STRANDED.

4. CONDUIT FITTINGS, AND OUTLETS:

ALL FITTINGS IN CLASS I, DIVISION I, SHALL BE EXPLOSION-PROOF TYPE, U/L APPROVED FOR CLASS I, GROUP D, DIVISION I SERVICE.

5. MISCELLANEOUS:

CONTRACTOR SHALL FURNISH STRUCTURAL STEEL SECTIONS AND ANGLE BARS, UNISTRUT SECTIONS, CONDUIT, CONDUIT BENDS, CONDUIT FITTINGS, ELECTRIC WIRE, SWITCHES, RECEPTACLES, BOXES, AND ALL OTHER MATERIALS NECESSARY FOR SYSTEM OPERATION.

CONTRACTOR SHALL FURNISH ALL OTHER MATERIALS INCIDENTAL TO THE WORK WHETHER OR NOT SHOWN ON THE DRAWINGS, INCLUDING BUT NOT LIMITED TO: ELECTRICAL TAPE AND TAPING MATERIALS, SOLDER, FLUX, RED LEAD, GLYPTOL OR OTHER INSULATING ENAMELS, WIRE IDENTIFICATION TAGS, SEALING MATERIALS FOR FITTINGS, ALL FASTENING DEVICES SUCH AS CLIPS, BOLTS, NUTS, WASHERS, SCREWS, CONDUIT STRAPS, HANGERS, CONDUIT PLUGS CAPS AND GASKETS.

IV. CONDUIT INSTALLATION

1. CONDUIT RUNS:

ALL EXPOSED CONDUIT SHALL BE INSTALLED STRAIGHT AND TRUE WITH REFERENCE TO THE ADJACENT WORK. WHEN A NUMBER OF ADJACENT CONDUITS RUN IN THE SAME DIRECTION, THEY SHALL RUN PARALLEL.

ALL CONDUIT RUNS SHALL BE INSTALLED SO AS TO AVOID PIPING. CONDUITS SHALL BE INSTALLED SO THAT THERE SHALL NOT BE LESS THAN 12" CLEARANCE TO PIPING EXCEPT AT CROSSING WHERE THE SPACE WILL BE AS GREAT AS THE CONSTRUCTION WILL PERMIT. CONDUITS MUST BE WRAPPED WHEN WITHIN 12" OF COPPER PIPING.

REFER TO CONSTRUCTION DRAWINGS FOR MINIMUM SIZE OF CONDUITS. OTHERWISE MINIMUM SIZE SHALL BE 3/4" DIA.

ISOLATE FEP VSP/STP's IN SEPARATE CONDUITS.

2. BENDS, DIAMETER, AND RADIUS:

STANDARD BENDS MAY BE USED ABOVE GROUND AND ALL BENDS AND OFFSETS SHALL BE OF AS LARGE A RADIUS AS THE CONSTRUCTION WILL PERMIT BUT IN NO CASE SHALL THE INSIDE RADIUS BE LESS THAN 5-INCH OR SIX TIMES THE NOMINAL DIAMETER OF THE CONDUIT, WHICHEVER IS GREATER.

CHANGES IN DIRECTION LATERALLY CONDUIT RUNS BELOW GRADE OR SLAB SHALL BE MADE WITH LONG RADIUS CONDUIT BENDS. LONG RADIUS BENDS AND OFFSETS SHALL BE NOT LESS THAN TEN TIMES THE NOMINAL DIAMETER OF THE CONDUIT. CONDUIT BENDS 1" OR LARGER OF NOT MORE THAN 45-DEGREE DEFLECTION MAY BE MADE WITH A BENDING MACHINE (NOT A HICKEY) ON THE JOB; 90-DEGREE BENDS SHALL BE LONG RADIUS FACTORY BENT. STANDARD RADIUS ELBOWS MAY BE USED TO BRING UNDERGROUND CONDUITS ABOVE GROUND.

3. HAZARDOUS AREA:

CONSTRUCTION SHALL BE OF THE EXPLOSION-PROOF TYPE. THIS SHALL INCLUDE THE INSTALLATION OF UNDERWRITERS' LABORATORIES, INC. APPROVED HOT DIPPED RIGID STEEL CONDUITS, CAST METAL BODY (FERROUS METAL) FITTINGS, GASKETED COVERS AND SEAL-OFFS WITH SEALING COMPOUND. CONDUIT SEALS SHALL BE ACCESSIBLE.

THREADED COVERS AND GROUND JOINTS OF ALL EXPLOSION--PROOF FITTINGS SHALL BE GREASED WITH U/L APPROVED COMPOUND BEFORE FINAL ASSEMBLY.

SEALING FITTINGS SHALL BE INSTALLED AND SEALED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

4. CONDUIT SUPPORTS:

APPROPRIATE CLAMPS, HANGERS, U-BOLTS, STRAPS AND SPACERS SHALL BE USED ON STEEL STRUCTURES. ALL CONDUITS SHALL RIGIDLY SECURED IN POSITION WITH MINIMUM CODE SPACING OR SUPPORTS.

5. STORAGE AREA CONDUITS:

UNDERGROUND RUNS SHALL BE SUFFICIENTLY BELOW GRADE (24" MINIMUM) TO GUARD AGAINST INJURY DURING BACKFILL, ETC. . . , AND BE SO ARRANGED AS TO AVOID INTERFERENCE WITH OTHER UNDERGROUND LINES OR FOUNDATIONS.

6. PULL AND JUNCTION BOXES:

IN LONG RUNS OF CONDUIT, SUFFICIENT PULL BOXES SHALL BE USED TO FACILITATE PULLING WIRES AND CABLES. ALL PULL BOXES SHALL BE OF AMPLE DIMENSIONS AND SHALL BE ACCESSIBLE WHEN THE WORK IS COMPLETED. WHERE PULL BOXES ARE INSTALLED IN EXPOSED LOCATIONS, LOCATION SHALL BE APPROVED BY THE OWNER REPRESENTATIVE.

7. MOISTURE AND CONDENSATION:

AT LOCATIONS WHERE EXCESSIVE MOISTURE IS PRESENT OR CONDENSATION IS LIKELY TO TAKE PLACE, I.E., PLANTER AREAS, PROVISIONS SHALL BE MADE FOR THE DRAINAGE OF THE CONDUIT SYSTEM BY THE INSTALLATION OF DRAIN TYPE FITTINGS AND BREATHERS IN CONDUITS, JUNCTION BOXES, OR OTHER LOW POINTS.

8. MISCELLANEOUS:

CONDUIT SHALL BE CUT SQUARE AND ALL ENDS SHALL BE REAMED. ALL CONDUIT ENDS SHALL BE THREADED WITH A MINIMUM OF FIVE FULL THREADS. NO RUNNING THREADS SHALL BE PERMITTED. JOINTS SHALL BE MAKE UP WITH RED OR WHITE LEAD.

ALL TEMPORARY ENDS OF CONDUIT SHALL BE PLUGGED DURING CONSTRUCTION. ALL UNUSED TAPS IN CONDUITS, FITTINGS, ETC. . . SHALL BE EQUIPPED WITH RECESSED HEAD GALVANIZED CONDUIT PLUGS.

ANY SPARE CONDUITS SHALL BE TERMINATED WITH A COUPLING AND A GALVANIZED CONDUIT PLUG WITH A NYLON PULL WIRE.

THE ENTIRE CONDUIT WORK SHALL BE FISHED, SNAKED, AND CLEANED BEFORE PULLING IN WIRES OR CABLES.

V. CONDUCTOR INSTALLATION

1. WIRE CARE DURING INSTALLATION

NO WIRE SHALL BE DRAWN INTO ANY CONDUIT OR DUCT UNTIL ALL WORK OF ANY NATURE THAT MAY CAUSE INJURY TO WIRE OR ITS INSULATION IS COMPLETED.

CARE SHALL BE TAKEN IN PULLING IN WIRES TO PREVENT DAMAGE TO THE INSULATION OR WIRES DURING THE PULLING OPERATION.

2. TAGGING AND IDENTIFICATION

ALL FEEDERS, MAINS, AND SPECIAL CIRCUITS SHALL BE TAGGED IN PULL BOXES OR PANEL IN WHICH THEY CONNECT.

ALL TERMINAL BLOCKS REQUIRING NUMBERS SHALL BE NUMBERED BY CONTRACTOR WITH PERMANENT TYPE PAINT, NOT PENCIL OR INK.

ALL CONDUCTORS IN PANELS, STARTERS, PUSH BUTTONS, MOTORS, JUNCTION BOXES, LIGHTING, BRANCH CIRCUITS, CONTROL MAIN FEEDERS, INSTRUMENTATION, AND SPECIAL CIRCUITS SHALL BE IDENTIFIED BY TAGGING WITH SELF-ADHESIVE BRAND OR T & B VINYL LABELS, OR EQUAL.

CONTRACTOR SHALL INSTALL ALL TAGGING IN SUCH A MANNER AS TO BE CLEARLY VISIBLE.

IN CONNECTING WIRES TO SWITCHES OR CONTROLLERS, THE PHASES SHALL BE IDENTIFIED BY THE LOCATION OF THE TERMINAL, WHICH SHALL BE THE SAME FOR ALL EQUIPMENT OF THIS TYPE.

3. JOINTS, TAPS, AND SPLICES:

JOINTS AND TAPS ON LARGE CABLES, #4 AWG OR LARGER, SHALL BE MADE WITH T & B, OR BURNDY SOLDER LESS LUGS AND CONDUCTORS OR EQUAL. JOINTS IN BRANCH CIRCUIT WIRING SHALL BE MADE MECHANICALLY AND ELECTRICALLY SECURE.

UNLESS PROPERLY INSULATED BY THE CONNECTOR, ALL JOINTS SHALL BE TAPED WITH SCOTCH ELECTRICAL TAPE #33 AND COVERED BY ONE LAYER OF FRICTION TAPE IN A MANNER WHICH SHALL MAKE THE INSULATION OF THE JOINT EQUAL TO THAT OF THE CONDUCTOR.

CARE SHALL BE EXERCISED WHEN MAKING JOINTS AT CONDOLE TYPE FITTINGS SO THAT JOINTS WILL NOT BE FORCED INTO THE CONDUITS IN A MANNER WHICH MIGHT INJURE THE JOINT OR BREAK THE INSULATION OF THE WIRES.

NO SPLICES OF ANY KIND WILL BE PERMITTED IN SEALING FITTINGS.

CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICES OR JOINTS WILL BE PERMITTED IN EITHER FEEDERS OR BRANCHES EXCEPT AT OUTLETS OR ACCESSIBLE JUNCTION BOXES.

ALL JOINTS AND SPLICES IN CABLE SHALL BE MADE IN ACCORDANCE WITH THE CABLE MANUFACTURER'S SPECIFICATION.

4. WIRE SIZES AND TYPES:

ALL WIRE AND CABLE SIZES AND TYPES SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE. REFER TO THE CONSTRUCTION DRAWINGS AND FOLLOW THE BEST TRADE PRACTICE.

VI. GROUNDING

1. GROUNDING WILL BE PROVIDE IN ACCORDANCE WITH ALL APPLICABLE REGULATORY CODES.

2. THE FOLLOWING SHALL BE GROUNDED: NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL APPARATUS AND INSTRUMENTS, METALLIC CONDUIT, MACHINERY, MECHANICAL EQUIPMENT, MOTORS, STRUCTURAL STEEL, AND ENCLOSURE FENCES.

3. CONNECTIONS:

GROUNDING CONDUCTORS SHALL TERMINATE ON APPROVED GROUND LUGS. GROUND CONNECTIONS SHALL BE MADE WITH EVERDUR BOLTS, NUTS, AND LOCK WASHERS. UNDERGROUND SPLICES AND INACCESSIBLE CONNECTIONS TO GROUND SHALL BE MADE ONLY BY THE CADWELD PROCESS.

4. CONDUCTORS:

ALL UNDERGROUND GROUNDING CONDUCTORS SHALL BE INSULATED COPPER. ALL CONDUCTOR SHALL BE PROTECTED FROM MECHANICAL INJURY AND BE RIGIDLY SUPPORTED ON STRUCTURES.

5. CONDUIT:

ALL CONDUITS SHALL BE PERMANENTLY BONDED TO THE SYSTEM GROUND BY LOCKNUTS & ALREADY HAVE GROUND WIRE. 10' RIGID MIN. EA. END WITH HDPE ROLL CONDUIT TYPE AT CENTER.

VII. TESTS

1. ALL LABOR, MATERIALS, INSTRUMENTS, AND TOOLS FOR THE VARIOUS TESTS SHALL BE FURNISHED BY CONTRACTOR.

2. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE FREE FROM SHORT CIRCUITS AND IMPROPER GROUNDS. ALL CIRCUITS SHALL BE MEGGERED BEFORE BEING ENERGIZED AND CHECKED FOR PROPER OPERATION BEFORE BEING CONNECTED TO THEIR RESPECTIVE LOADS.

3. THE CONTROL SYSTEM SHALL BE TESTED AND PUT INTO OPERATING CONDITION AND SHALL BE SET AND ADJUSTED AS TO GIVE PROPER CONTROL AND INDICATION OF MECHANICAL EQUIPMENT IN OPERATING SERVICE, TO THE SATISFACTION OF THE OWNER REPRESENTATIVE.

VIII. ACCEPTANCE AND CLEAN-UP

THE CONTRACTOR SHALL MAINTAIN ALL ELECTRICAL SYSTEMS AND EQUIPMENT INSTALLED BY HIM UNTIL FINAL ACCEPTANCE OF THE WORK. IN ADDITION TO THE GUARANTEES INCLUDED IN THE GENERAL CONDITIONS HEREOF, THE CONTRACTOR SHALL ALSO REPAIR OR REPLACE, TO THE SATISFACTION OF THE OWNER REPRESENTATIVE, ALL DEFECTIVE WORKMANSHIP OR MATERIALS FURNISHED BY HIM THAT MAY BECOME APPARENT DURING TESTING, RUN-IN, AND ACCEPTANCE TESTS OF THE CONTRACTOR'S WORK BY OWNER.

THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES CLEAN AND FREE FROM ACCUMULATION OF WASTE MATERIALS AND DEBRIS. ALL EXPOSED WORK SHALL BE THOROUGHLY CLEANED. THE CONTRACTOR SHALL CLEAN ALL CONDUIT AND ELECTRICAL EQUIPMENT DURING THE PROGRESS OF THE WORK AND UPON COMPLETION, THE CONTRACTOR SHALL REMOVE ALL DEBRIS AND LEAVE THE EQUIPMENT AND PREMISES IN A CLEAN CONDITION.

GENERAL NOTES:

1. THE INSTALLATION MUST CONFORM TO THE REQUIREMENTS OF ARTICLE 501, NATIONAL ELECTRICAL CODE (ANSI/NPFA 70) AND ALL OTHER LOCAL OR APPLICABLE CODES. FURNISH AND INSTALL CONDUIT SEALS PER LATEST N.E.C ARTICLES 510 & 514.
2. THE ELECTRICAL DEVICES SHALL BE LOCATED WHERE SHOWN IN THE SITE ELECTRICAL PLAN OR WHERE DESIGNATED BY SITE ENGINEER. THE GENERAL CONTRACTOR SHALL RUN POWER, CONTROLS AND COMMUNICATIONS CONDUITS TO THE SELECTED LOCATION.
3. EACH TYPE OF WIRING SYSTEM MUST BE RUN IN ITS OWN DEDICATED CONDUIT. AC, DC, DATA AND COMMUNICATIONS CIRCUITS MAY NOT BE COMBINED IN ONE CONDUIT UNLESS SPECIFICALLY NOTED IN THE PLANS.
4. ALL WIRING MUST BE RESISTANT TO OIL AND GASOLINE. - TYPE THWN OR THHN.
5. ALL CONDUITS RELATED TO THE FUELING SYSTEM SHALL BE A COMBINATION OF RIGID, COATED RIGID, AND HDPE ROLL TYPE CONDUIT. UNDERGROUND CONDUITS SHALL BE PER SCHEDULES ON SHEET FE-2, FE-3, FE-4. STP SHALL BE ALL PVC COATED RIGID CONDUIT.
6. ALL POWER WIRING SHALL BE A MINIMUM AWG #12. ALL CONTROL WIRING SHALL BE AWG #14, UNLESS OTHERWISE SPECIFIED. DATA SHIELDED CABLES OR OTHER SPECIALTY WIRING SHALL CONFORM TO THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS OR OWNERS INSTRUCTIONS.
7. THIS IS A STANDARD DRAWING FOR GENERAL REQUIREMENTS ONLY. REFER TO THE GENERAL ARRANGEMENT PLAN OR ELECTRICAL SITE PLAN FOR CONDUIT RUNS, NUMBER OF DEVICES REQUIRED AND THE EXACT ORIGIN & TERMINATION OF CONDUITS.
8. ALL CONDUIT AND WIRES SHALL BE LABEL-IDENTIFIED AS SHOWN HEREIN.
9. THE TANK MONITORING SYSTEM SHALL BE LOCATED WHERE SHOWN IN THE SITE ELECTRICAL PLAN OR WHERE DESIGNATED BY THE SITE ENGINEER. THE GENERAL CONTRACTOR SHALL RUN POWER AND PROBE CONDUITS TO THE SELECTED LOCATION.
10. ALL INTRINSIC WIRING MUST BE RUN IN ITS OWN DEDICATED CONDUIT, SEPARATE FROM ALL OTHER A.C. OR D.C. WIRING.
11. ALL CONDUITS RELATED TO THE MONITORING SYSTEM SHALL BE RIGID, METALLIC, METALLIC PVC COATED OR PVC. UNDERGROUND CONDUITS SHALL BE METALLIC PVC COATED.
12. ALL INTRINSIC WIRING MUST BE AWG#18 UNLESS OTHERWISE SPECIFIED.
13. ALL POWER & CONTROL WIRING, EVEN WHEN CONNECTED THROUGH ANY ISOLATING RELAY, MUST BE AWG #12, AND RUN IN THEIR CONDUIT OR OTHER SHARED A.C. CONDUIT.
14. FUEL CONTRACTOR SHALL UTILIZE ONLY MANUFACTURER'S AUTHORIZED TECHNICIANS FOR THE INSTALLATION OF THE EQUIPMENT AND THE FINAL TERMINAL CONNECTIONS, POWER UP, CALIBRATION AND TEST OF THE MONITORING EQUIPMENT. THE GENERAL CONTRACTOR SHALL SUBMIT TO OWNER A COMPLETE REPORT OF THE TESTING, SETTINGS AND CALIBRATION. THE FUEL CONTRACTOR SHALL INCLUDE IN HIS QUOTATION THE COST OF START UP.

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HARRISON FRENCH & ASSOCIATES, LTD
t 479.273.7780
1705 S. Walton Blvd., Suite 3
Bentonville, Arkansas 72712
www.hfa-ae.com

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FUELING

PROJECT NUMBER: 07-22-98010

Love's® Travel Stop & Country Stores

RYAN R. VAUGHN
LICENSE No. 76630
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Ryan Roger Vaughn
Digitally signed by Ryan Roger Vaughn
DN: E=ryan.vaughn@hfa-ae.com, CN=Ryan Roger Vaughn, O=Harrison French and Associates, L=Bentonville, S=ARKANSAS, SERIALNUMBER=MAS20230905956660, C=US
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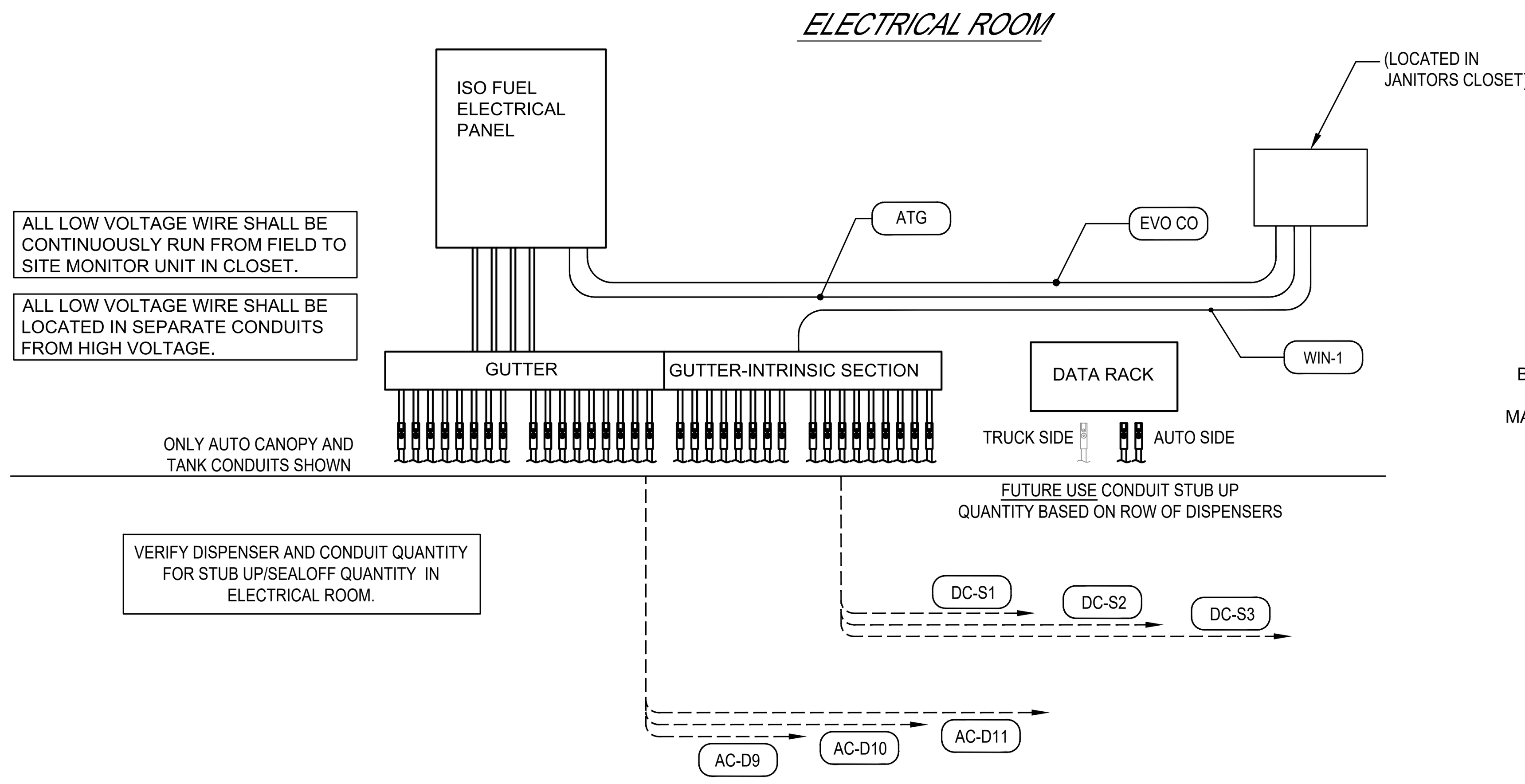
ELECTRICAL SPECIFICATIONS

SHEET: FE-1



2 ELECTRICAL ROOM AND CONDUIT DETAIL

NTS

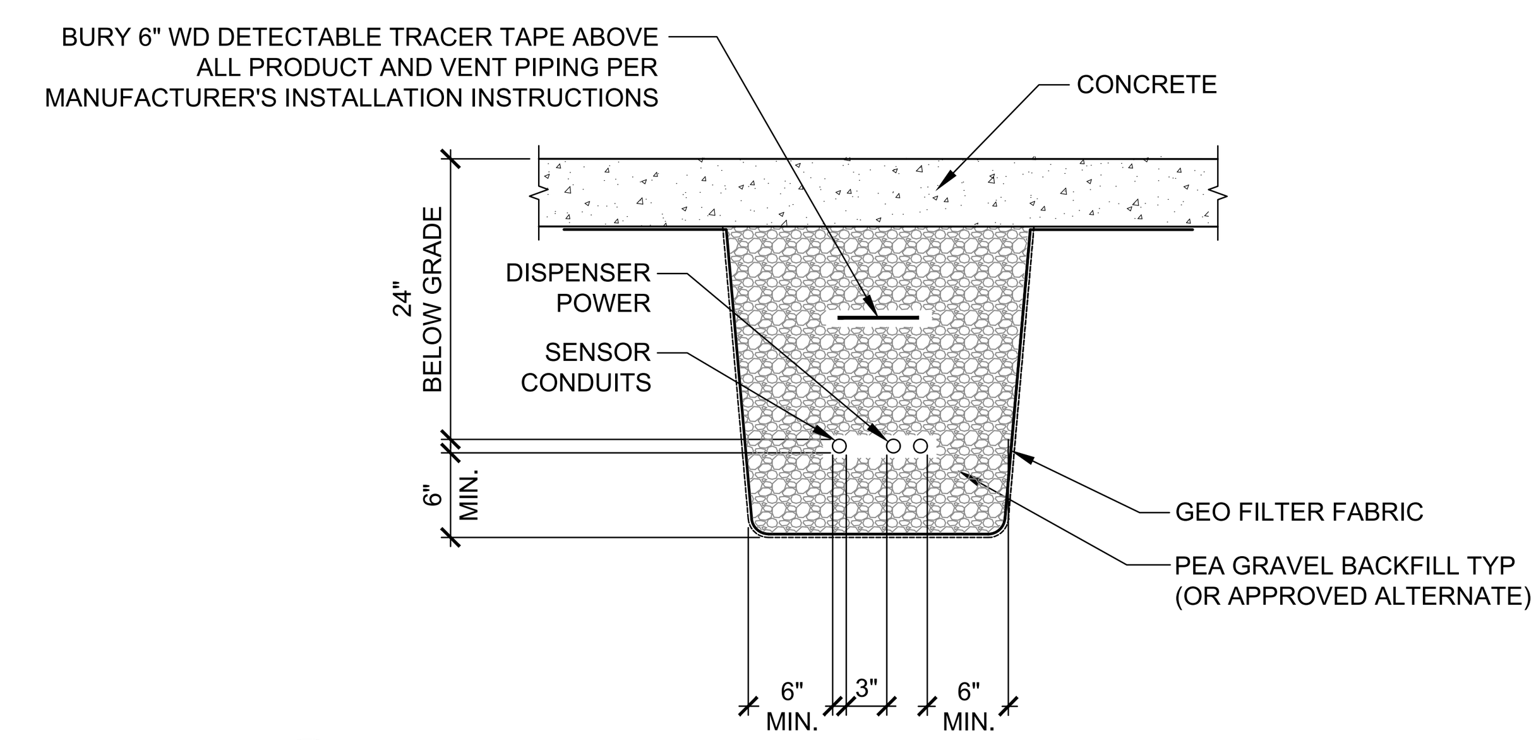
NOTE:
CONDUIT HOME-RUNS SHALL BE FROM THE DISPENSERS FOR MORE DIRECT ROUTE FROM THE CANOPY AREA TO THE BUILDING TERMINATION POINT. REARRANGE THE CONDUITS I.D. TO MATCH SPECIFIC CONDITIONS BUT MAINTAIN THE SEQUENCE SHOWN HEREON.

NOTE:
THE FUEL ELECTRICAL CONTRACTOR SHALL VERIFY AND ACCOUNT FOR VOLTAGE DROP BASED ON LENGTH OF WIRE FROM ELECTRICAL ROOM TO TANK FIELD AND DISPENSERS CONNECTIONS. THE FUEL ELECTRICAL CONTRACTOR SHALL ADJUST WIRE SIZES IF STANDARD WIRE SIZED WILL NOT BE SUFFICIENT ENOUGH TO HANDLE THE LOAD BASED ON THE LENGTH OF WIRE.

POWER CONDUITS TO BE INSTALL AT A MINIMUM OF 24" BELOW GRADE.

FUEL INSTALLER SHALL SEPARATE CONDUITS AND PRODUCT LINE IN ALL TRENCHES FROM BUILDING TO CANOPY AREA AND BUILDING TO UNDERGROUND STORAGE TANK AREA.

CONDUIT AND PRODUCT PIPING ENTERING CANOPY AREAS (TYPICAL)



3 FUELING AREA CONDUIT TRENCH DETAIL

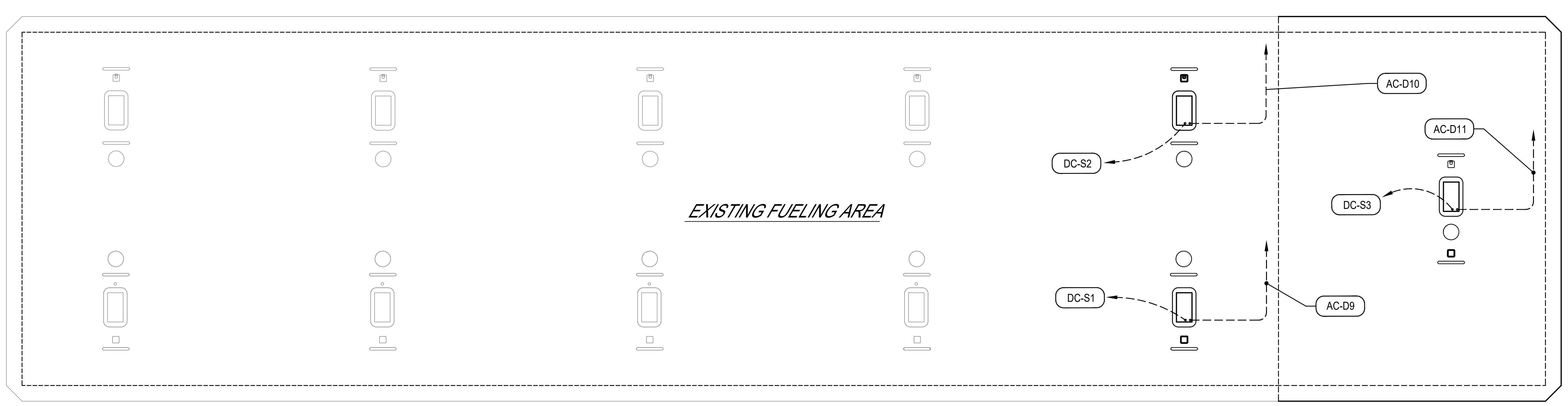
NTS

FUEL CONTRACTOR TO VERIFY CONDUIT SIZE, QUANTITY AND REQUIREMENTS FOR CANOPY LIGHTING, BRANDING, DISPENSER POWER, COMMUNICATIONS, DATA, ETC. WITH THE CONSTRUCTION MANAGER.

REMOVE AND REPLACE EXISTING CANOPY SLAB, DISPENSERS, DISPENSER ISLANDS, DISPENSER SUMPS, PIPING AND FITTINGS. REPLACE EXISTING CONDUIT AND WIRING AS REQUIRED.

UDC SENSOR WIRES

CONDUIT RUN	CONTENTS OF CONDUIT	PAIRS PER CONDUIT
DC-S1	2- COND BELDEN 88760 OR EQUAL	1
DC-S2	2- COND BELDEN 88760 OR EQUAL	1
DC-S3	2- COND BELDEN 88760 OR EQUAL	1



1 FUELING AREA CONDUIT ROUTING

SCHEMATIC ONLY-VERIFY ACTUAL NUMBER OF FUELING BAYS WITH FUEL CANOPY LAYOUT

SITE MONITORING CONDUIT AND WIRE SCHEDULE - POWER SUPPLY, AUTOMATIC SHUTDOWN (A.C.), LIQUID SENSORS AND LEVEL PROBES (INTRINSIC)

IDENTIFICATION OF CONDUIT	SIZE OF CONDUIT	ORIGIN	DESTINATION	QUANTITY & SIZE OF WIRES
AC-D9	1"	JUNCTION BOX - A.C. DISPENSER D-9	SEE PANEL MANUFACTURER DRAWINGS FOR CIRCUIT IDENTIFICATION	3-#12 GA. (HOT NEUTRAL GROUND) SIZE PER LENGTH OF WIRE (SEE NOTES) 2 SETS TWISTED PAIR (14 GAUGE) DISPENSER COMMUNICATION & CREDIT CARD READERS TO D-BOX. 4-#14 GA. SWITCH-HOOK (U/L, PREMIUM, DIESEL, & SPARE) 2 - #14 GA. SPARE
AC-D10	1"	JUNCTION BOX - A.C. DISPENSER D-10	SEE PANEL MANUFACTURER DRAWINGS FOR CIRCUIT IDENTIFICATION	
AC-D11	1"	JUNCTION BOX - A.C. DISPENSER D-11	SEE PANEL MANUFACTURER DRAWINGS FOR CIRCUIT IDENTIFICATION	
DC-S1	1"	J-BOX DISPENSER #1 SUMP	GUTTER-INTRINSIC SECTION	(1) 2- COND BELDEN 88760 OR EQUAL PER SENSOR EA. SENSOR LOOPED THRU CONDUITS BACK TO ELECTRICAL ROOM
DC-S2	1"	J-BOX DISPENSER #2 SUMP	GUTTER-INTRINSIC SECTION	(1) 2- COND BELDEN 88760 OR EQUAL PER SENSOR EA. SENSOR LOOPED THRU CONDUITS BACK TO ELECTRICAL ROOM
DC-S3	1"	J-BOX DISPENSER #3 SUMP	GUTTER-INTRINSIC SECTION	(1) 2- COND BELDEN 88760 OR EQUAL PER SENSOR EA. SENSOR LOOPED THRU CONDUITS BACK TO ELECTRICAL ROOM
WIN-1	1-1/2"	GUTTER-INTRINSIC SECTION	EVO DISPLAY PANEL MOTOR CONTRL. CENTER	(47) BELDEN 88760 OR EQUAL
EVO CO	CABLE	COMM. ENTRANCE AT EVO PANEL	TPI AT ISO FUEL PANEL	
ATG	1"	A.C. POWER CKTS#	A.C. CKTS. ENTRANCE AT THE EVO PANEL	3-#12
WDT-1	3/4"	A.C. POWER CKTS#	GILBARCO D-BOX	3-#12
DATA	1"	GUTTER-INTRINSIC SECTION	GILBARCO D-BOX	CAT 5 CABLE

LEGEND

- AC-D(X) — (AC) AUTO CANOPY - DISPENSER (#)
- DC-S(X) — (AC) AUTO CANOPY - DISPENSER SENSOR CONDUIT (#) *CONDUIT (#) ASSOCIATED WITH DISPENSER (#)*
- AC-F(X) — (AC) AUTO CANOPY - FUTURE DISPENSER CONDUIT (#) *CONDUIT (#) ASSOCIATED WITH DISPENSER (#)*

LEGEND

WIN-1	EVO ENTRANCE CONDUIT (INTRINSIC)
EVOCO	EVO COMMUNICATIONS CONDUIT-D.C. (MODEM WIRING)
ATG	EVO A.C. POWER CONDUIT
WDT-1	D-BOX A.C. POWER CONDUIT
DATA	D-BOX DATA CONDUIT

GENERAL NOTES:

1 THE INSTALLATION MUST CONFORM TO THE REQUIREMENTS OF ARTICLE 501, NATIONAL ELECTRICAL CODE (ANSI/NPFA 70) AND ALL OTHER LOCAL OR APPLICABLE CODES. FURNISH AND INSTALL CONDUIT SEALS PER LATEST N.E.C ARTICLES 510 & 514.

2. THE ELECTRICAL DEVICES SHALL BE LOCATED WHERE SHOWN IN THE SITE ELECTRICAL PLAN OR WHERE DESIGNATED BY SITE ENGINEER. THE GENERAL CONTRACTOR SHALL RUN POWER, CONTROLS AND COMMUNICATIONS CONDUITS TO THE SELECTED LOCATION.

3. EACH TYPE OF WIRING SYSTEM MUST BE RUN IN ITS OWN DEDICATED CONDUIT. A.C., D.C., DATA AND COMMUNICATIONS CIRCUITS MAY NOT BE COMBINED IN ONE CONDUIT UNLESS SPECIFICALLY NOTED IN THE PLANS.

4. ALL WIRING MUST BE RESISTANT TO OIL AND GASOLINE. - TYPE THWN OR THHN.

5. ALL CONDUITS RELATED TO THE FUELING SYSTEM SHALL BE A COMBINATION OF RIGID, COATED RIGID, AND HDPE ROLL TYPE CONDUIT. UNDERGROUND CONDUITS SHALL BE PER SCHEDULES ON SHEET FE-2. STP SHALL BE ALL PVC COATED RIGID CONDUIT.

6. ALL POWER WIRING SHALL BE A MINIMUM AWG #12. ALL CONTROL WIRING SHALL BE AWG #14, UNLESS OTHERWISE SPECIFIED. DATA SHIELDED CABLES OR OTHER SPECIALTY WIRING SHALL CONFORM TO THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS OR OWNERS INSTRUCTIONS.

7. THIS IS A STANDARD DRAWING FOR GENERAL REQUIREMENTS ONLY. REFER TO THE GENERAL ARRANGEMENT PLAN OR ELECTRICAL SITE PLAN FOR CONDUIT RUNS, NUMBER OF DEVICES REQUIRED AND THE EXACT ORIGIN & TERMINATION OF CONDUITS.

8. ALL CONDUIT AND WIRES SHALL BE LABEL-IDENTIFIED AS SHOWN HEREIN.

9. THE TANK MONITORING SYSTEM SHALL BE LOCATED WHERE SHOWN IN THE SITE ELECTRICAL PLAN OR WHERE DESIGNATED BY THE SITE ENGINEER. THE GENERAL CONTRACTOR SHALL RUN POWER AND PROBE CONDUITS TO THE SELECTED LOCATION.

10. ALL INTRINSIC WIRING MUST (VEDDER ROOT) BE RUN IN ITS OWN DEDICATED CONDUIT, SEPARATE FROM ALL OTHER A.C. OR D.C. WIRING.

11. ALL CONDUITS RELATED TO THE MONITORING SYSTEM AND POWER SHALL BE RIGID PVC EXCEPT @ CLASSIFIED AREAS 10'-0" MINIMUM FROM SUMPS. CONDUITS IN CLASSIFIED AREAS SHALL BE RIGID METALLIC PVC COATED CONDUITS.

12. ALL INTRINSIC WIRING MUST BE AWG#18 UNLESS OTHERWISE SPECIFIED.

13. ALL POWER & CONTROL WIRING, EVEN WHEN CONNECTED THROUGH ANY ISOLATING RELAY, MUST BE AWG #12, AND RUN IN THEIR CONDUIT OR OTHER SHARED A.C. CONDUIT.

14. FUEL CONTRACTOR SHALL UTILIZE ONLY MANUFACTURER'S AUTHORIZED TECHNICIANS FOR THE INSTALLATION OF THE EQUIPMENT AND THE FINAL TERMINAL CONNECTIONS, POWER UP, CALIBRATION AND TEST OF THE MONITORING EQUIPMENT. THE GENERAL CONTRACTOR SHALL SUBMIT TO OWNER A COMPLETE REPORT OF THE TESTING, SETTINGS AND CALIBRATION. THE FUEL CONTRACTOR SHALL INCLUDE IN HIS QUOTATION THE COST OF START UP.

NOTE:
FUEL CONTRACTOR SHALL INSTALL EMERGENCY PUMP SHUT-OFF SWITCH PER UNIFORM FIRE CODE DIV IX AND NATIONAL ELECTRICAL CODE ART. 514. ALSO TO INSTALL ACKNOWLEDGMENT SWITCH & OVERFILL ALARM WITH FLASHING RED LIGHT & AUDIBLE HORN. LOCATION SHALL BE INSTALLED OUTSIDE CLASSIFIED AREA OF CLASS I DIV. 2, GROUP D, & WITHIN SIGHT OF U.G TANK STORAGE FILL BY THE LOCAL AUTHORITY OR THE STATE.

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HARRISON FRENCH & ASSOCIATES, LTD
t 479.273.7780
1705 S. Walton Blvd., Suite 3
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RYAN R. VAUGHN LICENSE No. 76630 STATE OF FLORIDA PROFESSIONAL ENGINEER

Ryan Roger Vaughn

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