<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>SHEET TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>G-101</td>
<td>DRAWING INDEX</td>
</tr>
<tr>
<td>C-001</td>
<td>COVER SHEET</td>
</tr>
<tr>
<td>G-103</td>
<td>DRAWING INDEX</td>
</tr>
<tr>
<td>C-011</td>
<td>CIVIL ABBREVIATIONS, LEGEND AND NOTES</td>
</tr>
<tr>
<td>C-012</td>
<td>ABOVEGROUND FUEL STORAGE TANKS PLAN</td>
</tr>
<tr>
<td>C-013</td>
<td>ABOVEGROUND FUEL STORAGE TANKS AND CO-LOCATED OFFLOAD/FILLSTAND PLAN</td>
</tr>
<tr>
<td>C-014</td>
<td>UNDERGROUND FUEL STORAGE TANKS PLAN</td>
</tr>
<tr>
<td>C-015</td>
<td>UNDERGROUND FUEL STORAGE TANKS AND CO-LOCATED OFFLOAD/FILLSTAND PLAN</td>
</tr>
<tr>
<td>C-016</td>
<td>PAVEMENT DETAILS</td>
</tr>
<tr>
<td>C-017</td>
<td>CIVIL SITE DETAILS</td>
</tr>
<tr>
<td>C-018</td>
<td>CONTAINMENT BASIN DETAILS</td>
</tr>
<tr>
<td>C-019</td>
<td>FENCE DETAILS</td>
</tr>
<tr>
<td>S-001</td>
<td>STRUCTURAL GENERAL NOTES (1 OF 2)</td>
</tr>
<tr>
<td>S-002</td>
<td>STRUCTURAL GENERAL NOTES (2 OF 2)</td>
</tr>
<tr>
<td>S-010</td>
<td>CONTROL BUILDING FOUNDATION AND ROOF PLANS</td>
</tr>
<tr>
<td>S-011</td>
<td>TANK PAD FOUNDATION PLAN</td>
</tr>
<tr>
<td>S-012</td>
<td>DISPENSER ISLAND CANOPY FOUNDATION PLAN</td>
</tr>
<tr>
<td>S-013</td>
<td>OFFLOAD EQUIPMENT CANOPY ROOF BOUNDARY AND FOUNDATION PLAN</td>
</tr>
<tr>
<td>S-014</td>
<td>UNDERGROUND STORAGE TANK FOUNDATION PLAN</td>
</tr>
<tr>
<td>S-015</td>
<td>FILLSTAND CANOPY OPTION ROOF BOUNDARY AND FOUNDATION PLAN</td>
</tr>
<tr>
<td>S-020</td>
<td>CONTROL BUILDING ROOF SELECTION</td>
</tr>
<tr>
<td>S-021</td>
<td>TANK ACCESS PLATFORM SECTIONS</td>
</tr>
<tr>
<td>S-022</td>
<td>MISCELLANEOUS SECTIONS</td>
</tr>
<tr>
<td>S-023</td>
<td>TYPICAL DETAILS</td>
</tr>
<tr>
<td>S-024</td>
<td>TYPICAL MASONRY DETAILS</td>
</tr>
<tr>
<td>S-025</td>
<td>TYPICAL MASONRY DETAILS</td>
</tr>
<tr>
<td>S-026</td>
<td>TYPICAL EXTERIOR PIPE SHOE AND ANCHOR DETAILS</td>
</tr>
<tr>
<td>A-001</td>
<td>GENERAL INFORMATION</td>
</tr>
<tr>
<td>A-101</td>
<td>CONTROL BUILDING PLANS</td>
</tr>
<tr>
<td>A-102</td>
<td>DISPENSER ISLAND CANOPY PLAN AND ELEVATIONS</td>
</tr>
<tr>
<td>A-201</td>
<td>CONTROL BUILDING ELEVATIONS</td>
</tr>
<tr>
<td>A-301</td>
<td>WALL SECTIONS AND DETAILS</td>
</tr>
<tr>
<td>A-401</td>
<td>OPENING AND FINISH SCHEDULES</td>
</tr>
<tr>
<td>M-010</td>
<td>FUEL SYSTEM LEGEND; ABBREVIATIONS AND GENERAL NOTES</td>
</tr>
<tr>
<td>M-011A</td>
<td>ABOVEGROUND STORAGE TANKS FUEL SYSTEM FLOW DIAGRAM</td>
</tr>
<tr>
<td>M-011B</td>
<td>UNDERGROUND STORAGE TANKS FUEL SYSTEM FLOW DIAGRAM</td>
</tr>
<tr>
<td>M-012</td>
<td>FUEL SYSTEM/DISPENSERS FLOW DIAGRAM</td>
</tr>
<tr>
<td>M-013</td>
<td>ABOVEGROUND STORAGE TANKS PIPING PLAN</td>
</tr>
<tr>
<td>M-014</td>
<td>UNDERGROUND STORAGE TANKS PIPING PLAN</td>
</tr>
</tbody>
</table>
### SPECIFICATIONS THAT MAY BE USED

**AB** ADDITIVE BID ITEM  
**AD** AREA DRAIN  
**AF** AQUEDUCT FILL FORMING FOAM  
**AG** ABOVEGROUND  
**AV** ANTI-VEHICLE TRENCH  
**BBL** BARREL  
**BM** BENCHMARK  
**BSP** BOTTOM OF PIPE  
**BY** BOTTOM OF YIELD  
**CD** CENTER-DRAIN  
**CF** CENTER-FIELD  
**CM** CENTER-MARK  
**CO** CENTER-OF-ENGINEERS  
**CON** CONCRETE  
**COR** CORNER  
**CRI** CUTOFF REINFORCED INJECTION  
**CSP** CUTOFF SLOPE  
**D** DROP-PIECE  
**DI** DIAMETER  
**DP** DUCTILE-IRON PIPE  
**DIV** DIVERGER VALVE  
**EF** ELECTRIC FUSE  
**EH** ELECTRICAL HANDHOLE  
**EM** ELECTRICAL MANHOLE  
**FEF** FIBER ELECTRIC FOIL  
**FG** FINISHED GRADE ELEVATION  
**FH** FIRE HYDRANT  
**FM** FLEXIBLE MEMBRANE LINER  
**FOC** FIBER OPTIC CABLE  
**FOD** FOREIGN OBJECT DAMAGE  
**FP** FIBERGLASS-REINFORCED PIPE  
**GPS** GLOBAL POSITIONING SYSTEM  
**GRL** GREY WATER LINE  
**HH** HANDBOARD  
**HZ** HORIZON  

### DESIGNER NOTES:

1. This military service station standard is based on typical, 15,000 gallon tank sizes for gasoline, diesel, and biodiesel. Fuels suggested site layouts are provided for aboveground and underground storage tanks. An optional high-flow truck fuel fill stand is also included. The final designer should follow the specific project documentation and specifications in this regard.

2. The standard system components and features are included herein, suitable for a typical CONUS project location. Final designer shall investigate and include all required project features to meet local, state, and federal regulations.

3. Truck fill stand function may be deleted per documentation. In this case, the appropriate issue pump, piping, loading equipment, truck spill containment, and other associated components and equipment may be deleted.

4. This military service station standard is based on typical, 15,000 gallon tank sizes for gasoline, diesel, and biodiesel. Fuels suggested site layouts are provided for aboveground and underground storage tanks. An optional high-flow truck fuel fill stand is also included. The final designer should follow the specific project documentation and specifications in this regard.

### LEGEND

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>EXISTING</th>
<th>NEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUILDINGS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROADS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURB &amp; GUTTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WALKS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAILROAD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTURS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIRECTION OF DRAINAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CULVERT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STORM DRAIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBDRAIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBDRAIN OUTLET LINE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATER LINE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WASTE DRAIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBDRAIN FUSING &amp; OBSERVATION READER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MANHOLE SELF EXPLANATORY DEFENSING ON TYPE OF UTILITY LINE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURB INLET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AREA INLET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIRE HYDRANT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GATE VALVE &amp; VALVE BOX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRILL HOLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MONITORING WELL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTROL POINT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SECURITY FENCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WOoden</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. THE SITE LAYOUT SHOWN ON THIS PLAN IS PROVIDED TO SHOW THE TYPICAL COMPONENTS AND GENERAL LAYOUT FOR AN INSTALLATION. THE DESIGNER WILL DESIGN THE SERVICE STATION BASED ON LOCAL CONDITIONS AND SITE CONSTRAINTS.

2. DESIGN SHALL ADHERE TO ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.

3. TANKS SHALL BE "PROTECTED" UL2085 UNLESS OTHERWISE DIRECTED BY SERVICE HEADQUARTERS. REFER TO DRAWING M-001, DESIGNER NOTES FOR TANK REQUIREMENTS. DESIGNER SHALL ADHERE TO REQUIREMENTS IN NFPA 30A/30 FOR SEPARATION/SPACING BETWEEN TANKS, OFFLOAD POSITIONS, FILL STANDS, AND DISCUSSIONS AND SITE FEATURES SUCH AS BUILDINGS, PROPERTY LINES, ROADWAYS, POWER LINES THAT MAY AFFECT THE DESIGN OF THE FACILITY.

4. ARRANGE HORIZONTAL ABOVERGROUND TANKS IN PAIRS WITH A MINIMUM OF 5 FEET BETWEEN EACH TANK IN EACH PAIR AND 10 FEET BETWEEN ADJACENT TANKS OF TWO PAIRS IN THE SAME ROW. SEE UFC 3-460-01 FOR FURTHER DETAILS AND REQUIREMENTS.

5. ARRANGE HORIZONTAL ABOVERGROUND TANKS IN COMPLIANCE WITH NFPA 30A AS APPLICABLE. SET LIMITS AND SETBACKS FROM OFFLOADING AND FILLING VEHICLES SHALL CORRESPOND TO NFPA 30.

6. THE DESIGNER SHALL INVESTIGATE THE MAXIMUM VOLUME OF THE FUEL TANKERS THAT WILL UTILIZE THE FACILITY FOR SECONDARY CONTAINMENT BASIN VOLUME DESIGN FOR FILLSTAND OPTION.

7. THE CONTAINMENT BASIN FOR THE TRUCK OFFLOAD AND FILLSTAND AREAS SHALL BE DESIGNED FOR GENERAL SPILL CONTAINMENT AND/OR PRECIPITATION IN ACCORDANCE WITH 40 CFR 112, UFC 3-460-01, STATE AND LOCAL REGULATIONS.

8. A REMOTE CONTAINMENT BASIN FOR THE TRUCK FILL STAND SHALL BE DESIGNED TO CONTAIN THE MAXIMUM POTENTIAL FUEL SPILL AND/OR PRECIPITATION IN ACCORDANCE WITH UFC 3-460-01, STATE AND LOCAL REGULATIONS.

9. STORM DRAIN MATERIAL THAT HAS THE POTENTIAL OF BEING EXPOSED TO FUEL SHALL BE DUCTILE IRON PIPE (ASTM A746) WITH PETROLEUM-RESISTANT JOINT GASKETS.

10. THE TRUCK OFFLOAD PAD AND FILLSTAND PAD LAYOUT AND DESIGN WILL SUPPORT THE TYPE OF TRUCKS AVAILABLE TO THE SITE. THE PADS DESIGN SHALL BE SIZED TO FULLY ENCLOSE THE TRUCK ON A FLAT SURFACE AND ALLOW PROPER ALIGNMENT FROM THE TRUCK TO THE LOADING/UNLOADING EQUIPMENT.

11. THE INSTALLATION OF THE TRUCK FILL STAND IS OPTIONAL BASED ON THE NEEDS AND OPERATIONS OF THE FACILITY. THIS WOULD INCLUDE ALL APPURTENANCES THAT SERVICE THE TRUCK FILL STAND SUCH AS CONTAINMENT BASIN, FUEL PUMPS, CANOPY, FUEL LINES, EMERGENCY EYEWASH, ETC.
1. THE SITE LAYOUT SHOWN ON THIS PLAN IS PROVIDED TO SHOW THE TYPICAL COMPONENTS AND GENERAL LAYOUT FOR AN INSTALLATION. THE DESIGNER WILL DESIGN THE SERVICE STATION BASED ON LOCAL CONDITIONS AND SITE CONSTRAINTS.

2. DESIGN SHALL ADHERE TO ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.

3. ARRANGE HORIZONTAL ABOVEGROUND TANKS IN PAIRS WITH A MINIMUM OF 5 FEET BETWEEN EACH TANK IN EACH PAIR AND 10 FEET BETWEEN ADJACENT TANKS OF TWO PAIRS IN THE SAME ROW. SEE UFC 3-460-01 FOR FURTHER DETAILS AND REQUIREMENTS.

4. ARRANGE HORIZONTAL ABOVEGROUND TANKS IN COMPLIANCE WITH NFPA 30 AND NFPA 30A AS APPLICABLE. AST CAPACITY LIMITS AND SETBACKS FROM OFFLOADING AND FILLING VEHICLES SHALL CONFORM TO NFPA 30A.

5. ARRANGE HORIZONTAL ABOVEGROUND TANKS IN COMPLIANCE WITH NFPA 30 AND NFPA 30A AS APPLICABLE. AST CAPACITY LIMITS AND SETBACKS FROM OFFLOADING AND FILLING VEHICLES SHALL CONFORM TO NFPA 30A.

6. THE DESIGNER SHALL INVESTIGATE THE MAXIMUM VOLUME OF THE FUEL TANKERS THAT WILL UTILIZE THE FACILITY FOR SECONDARY CONTAINMENT BASIN VOLUME DESIGN FOR FILLSTAND OPTIONS.

7. THE CONTAINMENT BASIN FOR THE TRUCK OFFLOAD AND DISPENSER PAD AREAS SHALL BE DESIGNED TO CONTAIN THE MAXIMUM POTENTIAL FUEL SPILL AND/OR PRECIPITATION IN ACCORDANCE WITH UFC 3-460-01, STATE AND LOCAL REGULATIONS.

8. A SINGLE REMOTE CONTAINMENT BASIN MAY BE UTILIZED FOR PART OR ALL OF THE REQUIRED SPILL VOLUME FROM ONE OR MORE POSITIONS. DESIGNER SHALL ADHERE TO THE REQUIREMENTS OF UFC 3-460-01.

9. STORM WATER MANAGEMENT SHALL ADDRESS STORM WATER QUALITY AND QUANTITY IN ACCORDANCE WITH UFC 3-210-10, LOW IMPACT DEVELOPMENT, ALL FEDERAL, STATE AND LOCAL REGULATIONS.

10. THE DESIGNER SHALL PREPARE AN EROSION AND SEDIMENT CONTROL PLAN FOR THE SITE THAT ADHERES TO ALL FEDERAL, STATE AND LOCAL REGULATIONS. WHEN THE INSTALLATION OF THE TRUCK FILL STAND IS OPTIONAL BASED ON THE NEEDS AND OPERATIONS OF THE FACILITY. THIS WOULD INCLUDE ALL APPURTENANCES THAT SERVICE THE TRUCK FILL STAND SUCH AS CONTAINMENT BASIN, FUEL PUMPS, CANOPY, FUEL LINES, EMERGENCY EYEWASH, ETC.
1. THE SITE LAYOUT SHOWN ON THIS PLAN IS PROVIDED TO SHOW THE TYPICAL COMPONENTS AND GENERAL LAYOUT FOR AN INSTALLATION. THE DESIGNER WILL DESIGN THE SERVICE STATION BASED ON LOCAL CONDITIONS AND SITE CONSTRAINTS.

2. DESIGN SHALL ADHERE TO ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.

3. TANKS SHALL BE DOUBLE WALL STEEL OR FRP UNLESS OTHERWISE DIRECTED BY SERVICE HEADQUARTERS. REFER TO DRAWING M-001, DESIGNER NOTES FOR TANK REQUIREMENTS. DESIGNER SHALL ADHERE TO REQUIREMENTS IN NFPA 30A, UFC 3-460-01 FOR SEPARATION/SPACING BETWEEN TANKS, OFFLOAD POSITIONS, FILL STANDS, DISPENSERS AND SITE FEATURES SUCH AS BUILDINGS, PROPERTY LINES, ROADS, POWER LINES THAT MAY AFFECT THE DESIGN OF THE FACILITY.

4. ARRANGE HORIZONTAL UNDERGROUND TANKS IN PAIRS WITH A MINIMUM OF 5 FEET BETWEEN EACH TANK IN EACH PAIR AND 10 FEET BETWEEN ADJACENT TANKS OF TWO PAIRS IN THE SAME ROW. SEE UFC 3-460-01 FOR FURTHER DETAILS AND REQUIREMENTS.

5. ARRANGE HORIZONTAL ABOVEGROUND TANKS IN COMPLIANCE WITH NFPA 30/30A AS APPLICABLE. AST CAPACITY LIMITS AND SETBACKS FROM OFFLOADING AND FILLING VEHICLES SHALL CONFORM TO NFPA 30A.

6. THE DESIGNER SHALL INVESTIGATE THE MAXIMUM VOLUME OF THE FUEL TANKERS THAT WILL UTILIZE THE FACILITY FOR SECONDARY CONTAINMENT BASIN VOLUME DESIGN.


8. THE CONTAINMENT BASIN FOR THE TRUCK OFFLOAD AND DISPENSER PAD AREAS SHALL BE DESIGNED FOR GENERAL SPILL CONTAINMENT AND/OR PRECIPITATION IN ACCORDANCE WITH 40 CFR 112, UFC 3-460-01.

9. A REMOTE CONTAINMENT BASIN FOR THE TRUCK FILL STAND SHALL BE DESIGNED TO CONTAIN THE MAXIMUM POTENTIAL FUEL SPILL AND/OR PRECIPITATION IN ACCORDANCE WITH UFC 3-460-01.

10. STORM DRAIN MATERIAL THAT HAS THE POTENTIAL OF BEING EXPOSED TO FUEL SHALL BE DUCTILE IRON PIPE (ASTM A746) WITH PETROLEUM-RESISTANT JOINT GASKETS.

11. STEMS AND AGRICULTURAL AREAS SHALL MEET THE REQUIREMENTS AS LISTED IN UFC 3-210-10, LOW IMPACT DEVELOPMENT, ALL FEDERAL, STATE AND LOCAL REGULATIONS.

12. THE DESIGNER SHALL PREPARE AN EROSION AND SEDIMENT CONTROL PLAN FOR THE SITE THAT ADHERES TO ALL FEDERAL, STATE AND LOCAL REQUIREMENTS. THE INSTALLATION OF THE TRUCK FILL STAND IS OPTIONAL BASED ON THE NEEDS AND OPERATIONS OF THE FACILITY. THIS WOULD INCLUDE ALL APPURTENANCES THAT SERVICE THE TRUCK FILL STAND SUCH AS CONTAINMENT BASIN, FUEL PUMPS, CANOPY, FUEL LINES, EMERGENCY EYEWASH, ETC.

FIRE PROTECTION DESIGNER NOTES:

1. PER UFC 3-460-01 3-7.3.3, AND UFC 3-460-01 3-15.2.1, ALL PARTS OF THE STORAGE TANKS AND THE FUELING STATION CONTROL BUILDING MUST BE WITHIN 300 FEET, HOSE LAY DISTANCE OF TWO FIRE HYDRANTS, WITH CONSIDERATION GIVEN TO ACCESSIBILITY AND OBSTRUCTIONS.

2. AVAILABLE WATER FLOW SHALL BE NOT LESS THAN THAT SPECIFIED IN UFC 3-460-01 3-2.2.3.

3. PER NFPA 291 4.1.3, A MINIMUM RESIDUAL PRESSURE OF 20 PSI SHOULD BE MAINTAINED AT HYDRANTS WHEN DELIVERING FIRE FLOW. USE DRY BARREL HYDRANTS IN AREAS SUBJECT TO FREEZING CONSIDERATIONS.

4. VERIFY WATER FOR FIRE PROTECTION AROUND THE TANKS AND FUELING EQUIPMENT MEET THE REQUIREMENTS AS LISTED IN UFC 3-460-01.
1. THE SITE LAYOUT SHOWN ON THIS PLAN IS PROVIDED TO SHOW THE TYPICAL COMPONENTS AND GENERAL LAYOUT FOR AN INSTALLATION. THE DESIGNER WILL DESIGN THE SERVICE STATION BASED ON LOCAL CONDITIONS AND SITE CONSTRAINTS.

2. DESIGN SHALL ADHERE TO ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.

3. TANKS SHALL BE DOUBLE WALL STEEL OR FRP UNLESS OTHERWISE DIRECTED BY SERVICE HEADQUARTERS. REFER TO DRAWING M-001, DESIGNER NOTES FOR TANK REQUIREMENTS. DESIGNER SHALL ADHERE TO REQUIREMENTS IN NFPA 30A, UFC 3-460-01 FOR SEPARATION/SPACING BETWEEN TANKS, OFFLOAD POSITIONS, FILL STANDS, DISPENSERS AND SITE FEATURES SUCH AS BUILDINGS, PROPERTY LINES, ROADS, POWER LINES THAT MAY AFFECT THE DESIGN OF THE FACILITY.

4. ARRANGE HORIZONTAL UNDERGROUND TANKS IN PAIRS WITH A MINIMUM OF 5 FEET BETWEEN EACH TANK IN EACH PAIR AND 10 FEET BETWEEN ADJACENT TANKS OF TWO PAIRS IN THE SAME ROW. SEE UFC 3-460-01 FOR FURTHER DETAILS AND REQUIREMENTS.

5. ARRANGE HORIZONTAL ABOVEGROUND TANKS IN COMPLIANCE WITH NFPA 30/30A AS APPLICABLE. AST CAPACITY LIMITS AND SETBACKS FROM OFFLOADING AND FILLING VEHICLES SHALL CONFORM TO NFPA 30A.

6. THE DESIGNER SHALL INVESTIGATE THE MAXIMUM VOLUME OF THE FUEL TANKERS THAT WILL UTILIZE THE FACILITY FOR SECONDARY CONTAINMENT BASIN DESIGN FOR FILLSTAND OPTION.


8. WATER FOR FIRE PROTECTION AROUND THE TANKS AND FUELING EQUIPMENT MEET THE REQUIREMENTS AS LISTED IN UFC 3-600-01.

9. THE INSTALLATION OF THE TRUCK FILL STAND IS OPTIONAL BASED ON THE NEEDS AND OPERATIONS OF THE FACILITY. THIS WOULD INCLUDE ALL APPURTENANCES THAT SERVICE THE TRUCK FILL STAND SUCH AS CONTAINMENT BASIN, FUEL PUMPS, CANOPY, FUEL LINES, EMERGENCY EYEWASH, ETC.

DESIGNER NOTES:

1. BASED ON LOCAL TOPOGRAPHIC CONDITIONS, THE DESIGNER SHALL GRADE THE SITE TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE CONTAINMENT PADS FOR THE DISPENSER AREA, TRUCK OFFLOAD AND TRUCK FILL STAND AREAS. OUTFLOW FROM THE CANOPY DOWNSPOUTS SHALL OUTLET OUTSIDE THE CONTAINMENT PADS.

2. STORM WATER MANAGEMENT SHALL ADDRESS STORM WATER QUALITY AND QUANTITY IN ACCORDANCE WITH UFC 3-210-10, LOW IMPACT DEVELOPMENT, ALL FEDERAL, STATE AND LOCAL REGULATIONS.

3. FIRE PROTECTION DESIGNER NOTES:

   1. PER UFC 3-600-01 3-7.3.3, AND UFC 3-460-01 2-15.2.1, ALL PARTS OF THE STORAGE TANKS AND THE FUELING STATION CONTROL BUILDING MUST BE WITHIN 300 FEET, HOSE-LAY DISTANCE OF TWO FIRE HYDRANTS, WITH CONSIDERATION GIVEN TO ACCESSIBILITY AND OBSTRUCTIONS.

   2. AVAILABLE WATER FLOW SHALL BE NOT LESS THAN THAT SPECIFIED IN UFC 3-460-01.

   3. PER NFPA 291 4.1.3, A MINIMUM RESIDUAL PRESSURE OF 20 PSI SHOULD BE MAINTAINED AT HYDRANTS WHEN DELIVERING FIRE FLOW. USE DRY BARREL HYDRANTS IN AREAS SUBJECT TO FREEZING CONDITIONS.

   4. VERIFY WATER FOR FIRE PROTECTION AROUND THE TANKS AND FUELING EQUIPMENT MEET THE REQUIREMENTS AS LISTED IN UFC 3-600-01.
1. Provide control joints spaced at a minimum of 2 feet.
2. Provide expansion joints where sidewalk meets pads or structures.

Compacted Subgrade at a minimum of 5 feet.

1/4" R 1" SLOPE TO DRAIN (1/4" PER FT)

6 x 6/ W1.4 x W1.4 WELDED WIRE FABRIC

5'-0" 5"

3'-3" 3'-0"

6" Ø SCHEDULE 40 BOND CONCRETE

3'-0" 3'-3"

8" Ø SCHEDULE 40 BOND CONCRETE

6" WIDE WHITE REFLECTING STRIP

1. Coordinate location and site of dispenser sump openings with dispenser manufacturer prior to construction of islands.
2. Provide fuel resistant sealant around dispenser after installation.

## CONCRETE ISLAND DISPENSER SUMP OPENING DETAIL

### NOTES:
1. Vertical cut-off and seal joints.
2. Provide beddings in accordance with the specifications.

### TRENCH CROSS SECTION

- **PLASTIC/NON-PLASTIC PIPE**
- **IDENTIFICATION TAPE**
- **TRACER WIRE FOR PLASTIC PIPE**
- **BEDDING THICKNESS FOR NON-PLASTIC PIPE**
- **BACKFILL AND FILL**
- **FINISH GRADE**
- **COMMON FILL**
- **FINAL BACKFILL**
- **INITIAL BACKFILL**
- **BEDDING THICKNESS FOR PLASTIC PIPE**

### NONTRAFFIC AREAS / PLASTIC PIPE

### TRAFFIC AREAS / NON-PLASTIC PIPE

### TYPICAL PAVEMENT SECTION, SEE SHT C-2

### BACKFILL AND FILL

### DESIGNER NOTE:
1. If the site topography and layout allows, the designer may use an area drain and pipe to the site's containment basin in lieu of installing a 2" lockable ball valve.

### EXPANSION JOINT WITH FUEL RESISTANT SEALANT (TYP-PAVED AREAS)

### HORIZONTAL CONTROL REFERENCE POINT

### 1.8'

### 1.5'

### 4.0'

### 3.0'

### 3.3'

### CONCRETE FOOTING UNDER DRIVE PAVEMENT

### CONCRETE ISLAND DISPENSER SUMP OPENING DETAIL

### DESIGNER NOTE:
1. The 2" lockable ball valve shall be in accordance with American Water Works Association Spec C-500.
2. Elevation height of island varies, see grading plan.

### ELEVATION

### SECTION

### NOTES:
1. Any penetrations through concrete shall be completely enclosed with sleeve and fuel resistant sealant.
2. Elevation height of island varies, see grading plan.

### FUELING ISLAND SECTION

### 2" LOCKABLE BALL VALVE DETAIL

### 2" LOCKABLE BALL VALVE DETAIL

### DESIGNER NOTE:
1. If the designer is not in accordance with the specifications, the designer may use an area drain and pipe to the site's containment basin in lieu of installing a 2" lockable ball valve.
1. Containment Basin Plan

2. Containment Drain Valve Detail

3. Flap Gate Detail

4. Outfall Detail

5. Step Detail

6. Opening for Steps

7. Handrail Details

Designer Notes:
1. Flap gates shall be provided (as shown) when multiple containment areas drain to a single containment basin to prevent the possibility of a spill from one area backing-up into another area.
2. The top of containment basin elevation must be set at least as high as the highest top of curb containment area elevation.
3. Containment basins exceeding 5-ft in depth must be designed by a structural engineer.
4. Provide confined space signage in accordance with OSHA 29 CFR 1910.146 when depth of containment basin is greater than 6 ft.

Note: Hardware cloth screen shall be provided (as shown) to allow for easy removal. A 1/2" x 1/4" galvanized steel angle shall be provided to support the wire cloth at the vertical wall.

Containment Basin Design:
- Male End in Cap is forged from 2.5/8" Schedule 40 Black Steel Pipe
- 6" DIP Drain Line
- Flap Gate
- Sump
- 2" Flange

Containment Drain Valve Design:
- Male End in Cap is forged from 2.5/8" Schedule 40 Black Steel Pipe
- 6" DIP Drain Line
- Flap Gate
- Sump
- 2" Flange

Handrail Design:
- 1 1/2" Dia. Galvanized Standard Steel Pipe
- Posts @ 6'-0" O.C.
- 1 1/2" Dia. Galvanized Steel Angle
- Base Plate
- 1/4" Galvanized Hardware Cloth Screen

Step Design:
- 3/8" drain hole (typ)
- 1 5/8" 1 1/8" 1 5/8" 1 5/8" 1 1/8" 1 5/8" 1 1/8"

Grade:
- Variance
- 3" min embedment
- 4" min 1/8" max projection

Round Edge:
- 1 1/2" dia. galvanized steel pipe

Handrail Post:
- 1 1/2" dia. galvanized steel pipe

Note: Handrail, posts and base plate shall be hot dipped galvanized after fabrication.
1. REFERENCE ELEVATION 0'-0" FOR CIVIL, FLOOR/TOP OF SLAB ELEVATION: SHALL BE AS DESIGNED BY CONTRACTOR FOR THE ACTUAL SITE LOCATION. SEE CIVIL DRAWINGS FOR ANTICIPATED CIVIL LAYOUT.

2. COORDINATION:
   a. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND THE CONTRACTING OFFICER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY.
   b. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ACCURATE BRACING AND SHORING AT ALL TIMES DURING CONSTRUCTION.
   c. THE STRUCTURAL DRAWINGS SHALL BE COORDINATED WITH ARCHITECTURAL, MECANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL OPENINGS, SLEEVES, ETC. NOT SHOWN ON STRUCTURAL DRAWINGS: COORDINATE LOCATION, SIZE, AND SPACING OF ALL OPENINGS WITH RESPECTIVE TRADES BEFORE FABRICATION.
   d. VERIFY SITE SPECIFIC ELEVATIONS AND DIMENSIONS AT SITE BEFORE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

4. FOR ADDITIONAL TANK NOTES AND INFORMATION SEE T-SERIES DRAWINGS.

5. ALL STRUCTURAL MATERIALS SHALL BE PROTECTED AGAINST CORROSION.

SOILS & FOUNDATION:

1. THE DESIGN FOUNDATION DEPTH (BELLOW FINISHED GRADE) SHALL BE AS SHOWN ON DRAWINGS OR BELOW THE LOCATION'S FROST DEPTH (WHICHEVER IS GREATER).

2. MINIMUM UNLESS NOTED OTHERWISE.

3. SOILS & FOUNDATION NOTES:

   a. THE DESIGN FOUNDATION DEPTH (BELOW FINISHED GRADE) SHALL BE AS STATED ON DRAWINGS OR BELOW THE LOCATION'S FROST DEPTH (WHICHEVER IS GREATER).

   b. WELDING WILL BE DONE AT WORKSHOP. THERE ARE TO BE NO FIELD WELDING OF STRUCTURAL STEEL MEMBERS.

   c. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B, FY = 42 KSI

   d. OTHER ROLLED PLATES AND PLATES SHALL CONFORM TO ASTM A36, FY = 36 KSI

   e. HIGH STRENGTH BOLTS SHALL BE ASTM A325, 3/4" DIA. U.N.O.

   f. ANCHOR BOLTS AND OTHER UNFINISHED BOLTS SHALL CONFORM TO ASTM F1554, GRADE 36 OR ASTM A325.

   g. WELDING ELECTRICALS SHALL CONFORM TO ET700.

   h. WELDING SHALL CONFORM TO AWS D1.1

   i. WELDING WILL BE DONE AT WORKSHOP. THERE ARE TO BE NO FIELD WELDING OF STRUCTURAL STEEL MEMBERS.

   j. UNLESS NOTED OTHERWISE (U.O.) MINIMUM BOLT SPACING SHALL BE 2". THE MINIMUM EDGE DISTANCE SHALL BE 1.5".

   k. ALL CONNECTIONS NOT DETAILED OR OTHERWISE NOTED SHALL BE AS SHOWN ON DRAWINGS OR AS SPECIFIED. ALL BOLTS SHALL BE 3/4" DIA. UNLESS OTHERWISE SPECIFIED. PROVIDE A MINIMUM OF TWO BOLTS PER CONNECTION. WASHERS SHALL BE INSTALLED UNDER NUTS OF FASTENERS.

   l. BOLT CONNECTIONS SHALL BE MADE USING ASTM A325 HIGH STRENGTH BOLTS AS SHOWN ON THE DRAWINGS OR AS SPECIFIED. ALL BOLTS SHALL BE 3/4" DIA. UNLESS OTHERWISE SPECIFIED. PROVIDE A MINIMUM OF TWO BOLTS PER CONNECTION. WASHERS SHALL BE INSTALLED UNDER NUTS OF FASTENERS.

   m. ALL CONNECTIONS NOT DETAILED OR OTHERWISE NOTED SHALL BE AS SHOWN ON DRAWINGS OR AS SPECIFIED. ALL BOLTS SHALL BE 3/4" DIA. UNLESS OTHERWISE SPECIFIED. PROVIDE A MINIMUM OF TWO BOLTS PER CONNECTION. WASHERS SHALL BE INSTALLED UNDER NUTS OF FASTENERS.

   n. MINIMUM UNLESS NOTED OTHERWISE.

   o. NOT ALL BOLT SIZES ARE INCLUDED IN PROJECT.

   p. TOP BARS ARE HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE SPlice.

   q. LAP SPLICE LENGTH AS SHOWN OR AS DESIGNED BY CONTRACTOR FOR THE ACTUAL SITE LOCATION. SEE CIVIL DRAWINGS FOR ANTICIPATED CIVIL LAYOUT.

   r. CONCRETE NOT EXPOSED TO EARTH OR WEATHER = 3.00"

   s. CONCRETE CAST AGAINST & PERMANENTLY EXPOSED TO EARTH = 3.00"

   t. CONCRETE CAST AGAINST & PERMANENTLY EXPOSED TO EARTH = 3.00"

   u. CONCRETE NOT EXPOSED TO EARTH OR WEATHER = 3.00"

   v. CONCRETE CAST AGAINST & PERMANENTLY EXPOSED TO EARTH = 3.00"

   w. CONCRETE CAST AGAINST & PERMANENTLY EXPOSED TO EARTH = 3.00"

   x. CONCRETE CAST AGAINST & PERMANENTLY EXPOSED TO EARTH = 3.00"

   y. CONCRETE NOT EXPOSED TO EARTH OR WEATHER = 3.00"

   z. CONCRETE CAST AGAINST & PERMANENTLY EXPOSED TO EARTH = 3.00"

   { MATERIAL NOTES: (CONCRETE) }

   1. SPECIFIED COMRESSIVE STRENGTH, f'c = 4,500 PSI AT 28 DAYS TYP. W/C RATIO 0.45.

   2. SPECIFIED YIELD STRENGTH, FY = 65 KSI (ASTM A-490).

   3. LAP SPLICE AND CONCRETE COVER OF REINFORCEMENT SHALL CONFORM TO ACI 318 USING CLASS B TENSION SPLICES UNLESS OTHERWISE NOTED. (SEE TABLE, THIS SHEET).

   4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-497.

   5. ALL ISOLATION JOINTS SHALL BE SEALED WITH SINGLE COMPONENT SILICON J0INT SEALANT.
MASONRY NOTES:
1. Masonry and Reinforcement: (shall conform to ACI 530)
2. Vertical reinforcing in grouted cells and pilasters shall be placed per ACI 530 and wired tied at splices unless noted otherwise.
3. Provide vertical control joints in all masonry walls at not more than 24" on center. Coordinate location of control joints with the engineer prior to construction.
4. All reinforcing shown is for illustration only and is not to scale. Actual size, spacing, and quantities are as written on drawings.
5. Cells which contain reinforcing steel shall be filled solidly with grout, including bond beams, lintels and pilasters. Grout shall meet ACI 476 with a minimum compressive strength of 1,500 psi.
6. Vertical cells to be filled shall have vertical alignment sufficient to maintain a clear unobstructed continuous vertical cell not less than 2 x 2 in plan dimensions.
7. Foundation dowels shall extend into the foundation concrete and into the masonry wall as required by ACI 530. There shall be a foundation dowel for each vertical reinforcing bar.
8. Vertical wall reinforcing shall extend continuously from the top of foundation to 2" below top of wall.
9. Control joints shall not extend through continuous bond beams. Instead, the joint shall extend to the bottom of the bond beam and then rise above the bond beam where bond beams are exposed. Exposed to view saw cut a vertical groove approximately 1/2" deep and the same width as the control joint into the continuous bond beam to resemble the control joint. Fill control joints and saw cut joints with sealant.
10. Unless noted otherwise, bond beams shall be continuous at all corners. Use corner bars same size and number as bond beam reinforcing.
11. Concrete masonry units shall meet ACI 530 Type I Normal Weight. The net area compressive strength of the cma/block shall equal 1,850 psi. The net compressive strength of the block mortar assembly shall be 1,500 psi. Only Type S mortar (ACI 476) shall be used.
12. The vehicle fueling station control building exterior concrete masonry shall be fully grouted with cells grouted. Grout shall be CEM I 42.5 R Epoxy. Concrete masonry joint reinforcing shall occur at a maximum of 12". Masonry joint reinforcing shall be galvanized ladder type (6 x 1/4 x 1/4 x 8") and used as specified. See Sheet S-562 for typical masonry details and unil requirements.

PRE-ENGINEERED METAL CANOPY SYSTEMS
1. New canopies shall be manufacturer's standard or custom designed pre-engineered metal structure.
2. Unless justifiable otherwise, provide rigid frames (where required) with pinned column base connections.
3. Pre-engineered metal canopies shall be designed and constructed according to the following standards and codes, if applicable:
   A. Metal Buildings Manufacturers Association (MBMA)
   B. American Institute of Steel Construction (AISC)
   C. American Iron and Steel Institute (AISI)
   D. American Welding Society (AWS)
   E. International Building Code (IBC)
4. Include structural steel framing, supports, bracing and accessories for roof top HVAC units, exhaust systems, and other such devices shown on the plans and as specified.
5. As applicable the canopy shall be designed to include loads induced by the mechanical, process equipment, piping, sprinklers, exhaust system, and other such devices shown on the plans and as specified. Additional gifts or flurling shall be designed and placed in convenient locations for attachment of all devices or equipment. Contractor shall provide the canopy manufacturer with the equipment loads and other information as needed for the canopy design.
6. Permanent canopy bracing may be insufficient during erection, design and provide temporary lateral bracing during construction.
7. Components must be fabricated in the shop to the furthest extent before delivery to the site.
8. Canopies must be maintained during delivery and storage to ensure members are not damaged.
9. Foundation shall be designed by designer based on the equipment loads from the pre-engineered canopy manufacturer and the recommendations from site specific geotechnical report. Drawings pictorially show shallow type footings However if geotechnical report recommends deep footings, foundation designer shall design the pile foundation.
10. Refer to architectural drawings for additional information.

SPECIAL INSPECTION
1. Per UFC 1-200-01, Section 2-17 the contractor shall employ one or more approved agencies to perform inspections during constructions on the types of work listed under section 150 "required verification" and inspection. These inspections are in addition to the inspection section 110 of IBC.
2. To determine required special inspection items, designer and contractor shall refer to section 1705 "required verification" and inspection. These inspections are in addition to section 110 of IBC.
3. Special inspection required on items/components shall be identified by designer on drawings or specifications.

Ralph Aldridge 10/5/2015 1:17:17 PM
NOTES TO DESIGNERS:

1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002
2. ALL LOCATED APPROXIMATE DIMENSIONS AND

MUST BE DESIGNED AND VERIFIED BASED ON SITE
CONDITIONS, WITH MANUFACTURE, MECHANICAL,
AND CIVIL DRAWING REQUIREMENTS.
3. SEE ARCHITECTURAL DWGS. FOR BUILDING
ELEVATIONS.
4. SEE DWGS S-501 THRU S-504 FOR TYPICAL DETAILS.
5. SEE CIVIL DRAWINGS FOR LOCATION.

GRAPHIC SCALE

SCALE: 1/2" = 1'-0"
NOTES TO DESIGNERS:

1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002.

2. CONDUCT APPROXIMATE DIMENSIONS AND MUST BE DESIGNED AND VERIFIED BASED ON SITE CONDITIONS, WITH MANUFACTURER, MECHANICAL, AND CIVIL DRAWING REQUIREMENTS.

3. THE VOLUME OF EACH TANK IS APPROVED BY THE MANUFACTURER. TANK PAD FOUNDATION SHALL BE DESIGNED AS A MAT FOUNDATION. SITE SPECIFIC SOIL PARAMETERS SHALL BE USED BY DESIGNER TO DETERMINE THE MAT THICKNESS AND REINFORCING STEEL DETAILS.

4. TOP OF SLAB SHALL BE SLOPED TO DRAIN. COORDINATE WITH CIVIL AND MECHANICAL DRAWINGS.

5. EACH STEEL TANK WILL BE SUPPLIED WITH ITS SPECIAL STEEL BASE-SUPPORT THAT WILL BE ANCHORED TO THE CONCRETE PEDESTALS WITH CAST-IN-PLACE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. HEIGHT OF EACH STEEL BASE-SUPPORT SHALL BE SUCH THAT EACH TANK SHALL HAVE SLOPE AS INDICATED IN MECHANICAL DRAWINGS.
GENERAL CONTRACTOR SHALL COORDINATE BASE PLATE & BOLTS WITH PRE-ENGINEERED METAL CANOPY DESIGNER

NOTES TO DESIGNERS:
1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002.
2. DENOTES APPROXIMATE DIMENSIONS AND MUST BE DESIGNED AND VERIFIED BASED ON SITE CONDITIONS, WITH MANUFACTURER, MECHANICAL, AND CIVIL DRAWING REQUIREMENTS.
3. COORDINATE SHAPE AND SLOPE OF ROOF WITH ARCH. DRWGS AND OR OWNER RECOMMENDS.
4. GENERAL CONTRACTOR SHALL COORDINATE COLUMN TO FOOTING ANCHOR REQUIREMENTS WITH PRE-ENGINEERED METAL CANOPY MANUFACTURER.
5. FOUNDATION SHALL BE DESIGNED BY DESIGNER BASED ON THE FOOTPRINT LOADS FROM THE PRE-ENGINEERED CANOPY MANUFACTURER AND THE RECOMMENDATIONS FROM SITE SPECIFIC GEOTECHNICAL REPORT. DRAWINGS PICTORIALLY SHOW SHALLOW TYPE FOOTINGS HOWEVER IF GEOTECHNICAL REPORT RECOMMENDS DEEP (PILE) FOUNDATION DESIGNER SHALL DESIGN THE PILE FOUNDATION.

PRE-ENGINEERED CANOPY OVER DISPENSER ISLANDS ROOF BOUNDARY AND FOUNDATION PLAN

GRAPHIC SCALE
SCALE: 1/8" = 1'-0"
NOTES TO DESIGNERS:

1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002.
2. Denotes approximate dimensions and must be designed and verified based on site conditions, with manufacturer, mechanical, and civil drawing requirements.
3. Coordinate shape and slope of roof with site specific and/or owner requirements.
4. Coordinate column to footing anchor requirements with pre-engineered metal canopy manufacturer.
5. Foundation shall be designed by designer based on the footprint loads from the pre-engineered canopy manufacturer and the recommendations from the site specific geotechnical report. Drawings pictorially show shallow type footings. However, if geotechnical report recommends deep footings, designer shall design the deep foundation.
6. Location and elevation of pump pads shall be coordinated with mechanical drawings.
7. The section is similar to 4/S-303 but has no curb.
8. Denotes moment connections.
9. Canopy structure column shapes shown on this drawing can be replaced (as an option) by hollow structural steel (HSS) shapes. This may even be preferred in some project locations where maintenance against corrosion is a real concern. Designer shall consult with owner and shall coordinate with the site specific design criteria.

TRUCK OFF LOAD PARKING PAD (SEE CIVIL)

PORTAL FRAME

PORTAL FRAME

TRUCK OFF LOAD PARKING PAD (SEE CIVIL)

PURLIN BY DESIGNER TY

TYP. STIFFENER AS REQUIRED

NOTE 8 (TYP)

NOTE 8

NOTE 4

NOTE 9 (TYP)

NOTES TO DESIGNERS:

1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002.
2. Denotes approximate dimensions and must be designed and verified based on site conditions, with manufacturer, mechanical, and civil drawing requirements.
3. Coordinate shape and slope of roof with site specific and/or owner requirements.
4. Coordinate column to footing anchor requirements with pre-engineered metal canopy manufacturer.
5. Foundation shall be designed by designer based on the footprint loads from the pre-engineered canopy manufacturer and the recommendations from the site specific geotechnical report. Drawings pictorially show shallow type footings. However, if geotechnical report recommends deep footings, designer shall design the deep foundation.
6. Location and elevation of pump pads shall be coordinated with mechanical drawings.
7. The section is similar to 4/S-303 but has no curb.
8. Denotes moment connections.
9. Canopy structure column shapes shown on this drawing can be replaced (as an option) by hollow structural steel (HSS) shapes. This may even be preferred in some project locations where maintenance against corrosion is a real concern. Designer shall consult with owner and shall coordinate with the site specific design criteria.
NOTES TO DESIGNERS:
1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002
2. ⊗ DENOTES APPROXIMATE DIMENSIONS AND
   SHOULDER BE DESIGNED AND VERIFIED BASED ON SITE
   CONDITIONS, WITH MANUFACTURER, MECHANICAL,
   AND CIVIL DRAWING REQUIREMENTS.
3. DESIGN CONCRETE FOUNDATION THICKNESS AND
   REINFORCING STEEL. PAD THICKNESS SHALL NOT BE
   LESS THAN 15".
4. COORDINATE ANCHORS FOR STRAPS WITH TANK
   MANUFACTURES REQUIREMENT AND MECHANICAL
   DRAWINGS.
NOTES TO DESIGNERS:

1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002.
2. DIMENSIONS IDENTIFIES APPROXIMATE DIMENSIONS AND MUST BE DESIGNED AND VERIFIED BASED ON SITE CONDITIONS, WITH MANUFACTURER, MECHANICAL, AND CIVIL DRAWING REQUIREMENTS.
3. COORDINATE SHAPE AND SLOPE OF ROOF WITH SITE SPECIFIC AND/OR OWNER REQUIREMENTS.
4. COORDINATE COLUMN TO FOOTING ANCHOR REQUIREMENTS WITH PRE-ENGINEERED METAL CANOPY MANUFACTURER.
5. FOUNDATION SHALL BE DESIGNED BY DESIGNER BASED ON THE FOOTPRINT LOADS FROM THE PRE-ENGINEERED CANOPY MANUFACTURER AND THE RECOMMENDATIONS FROM SITE SPECIFIC GEOTECHNICAL REPORT. DRAWINGS PICTORIALLY SHOW SHALLOW TYPE FOOTINGS HOWEVER IF THE GEOTECHNICAL REPORT RECOMMENDS DEEP (PILE) FOUNDATION DESIGNER SHALL DESIGN THE PILE FOUNDATION.
6. THE SECTION IS SIMILAR TO 4/S-303 BUT HAS NO CURB.
7. DEPTH AS REQUIRED BY DESIGN BUT NOT LESS THAN MINIMUM FROST DEPTH.
8. SLAB-ON-GRADE SHALL BE COORDINATED WITH CIVIL DRAWINGS.
**8" C.M.U. BOND BEAM W/2- #4 BARS CONT.**

8" C.M.U., SEE C.M.U. WALL ELEVATIONS FOR REINFORCEMENT

**1 1/2" DEEP 20GA COMPOSITE DECK**

**COMPOSITE STEEL DECK MATERIAL SCHEDULE**

<table>
<thead>
<tr>
<th>DECK TYPE</th>
<th>MINIMUM THICKNESS</th>
<th>MIN. YIELD STRENGTH</th>
<th>MIN. SHEET WIDTH</th>
<th>MIN. SHEET LENGTH</th>
<th>DECK FINISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/2&quot; DEEP COMPOSITE</td>
<td>0.0385 IN.</td>
<td>33 KSI</td>
<td>36&quot;</td>
<td>3 OR MORE SPANS</td>
<td>GALVANIZED</td>
</tr>
</tbody>
</table>

**COMPOSITE STEEL DECK FASTENER SCHEDULE**

<table>
<thead>
<tr>
<th>FASTENER LOCATION</th>
<th>FASTENER REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECK TO JOISTS</td>
<td>5/8&quot; MINIMUM DIAMETER WELD AT 12&quot; C.O.C. MAXIMUM (36/4 PATTERN)</td>
</tr>
<tr>
<td>DECK TO WALL PLATES</td>
<td>1 1/4&quot; SEAM WELD OR EQUIVALENT</td>
</tr>
<tr>
<td>DECK SIDE LAPS</td>
<td>6&quot; SEAM WELD ON ENVELOP</td>
</tr>
<tr>
<td></td>
<td>MECHANICAL FASTENER PER DECK SPAN</td>
</tr>
</tbody>
</table>

NOTES TO DESIGNERS:

1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002.
2. **DENOTES APPROXIMATE DIMENSIONS AND SHALL BE DESIGNED AND VERIFIED BASED ON SITE CONDITIONS, WITH MANUFACTURER, MECHANICAL, AND CIVIL DRAWING REQUIREMENTS.**
3. **DEPTH AS REQUIRED BY DESIGN BUT NOT LESS THAN MINIMUM FROST DEPTH.**
4. **GUTTERS AND FLUSHING ARE NOT SHOWN AND SHALL BE COORDINATED WITH ARCHITECTURE.**

**SECTION @ JOIST END**

**SECTION @ DECK PERPENDICULAR TO WALL**

**STANDING SEAM METAL ROOF (NOTE 4)**

**INSULATION**

**1 1/2" DEEP 20GA COMPOSITE DECK**

**DOWELS TO MATCH VERTICAL BARS**

**U (SEE SECTION 1/S-501)**

**8" SLAB-ON-GRADE**

**NOTES TO DESIGNERS:**

1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002.
2. **DENOTES APPROXIMATE DIMENSIONS AND SHALL BE DESIGNED AND VERIFIED BASED ON SITE CONDITIONS, WITH MANUFACTURER, MECHANICAL, AND CIVIL DRAWING REQUIREMENTS.**
3. **DEPTH AS REQUIRED BY DESIGN BUT NOT LESS THAN MINIMUM FROST DEPTH.**
4. **GUTTERS AND FLUSHING ARE NOT SHOWN AND SHALL BE COORDINATED WITH ARCHITECTURE.**
NOTES TO DESIGNERS:

1. SEE GENERAL NOTES ON DRAWINGS SHEET S-001 & S-002.

2. DENOTES APPROXIMATE DIMENSIONS AND MUST BE DESIGNED AND VERIFIED BASED ON SITE CONDITIONS, WITH MANUFACTURER, MECHANICAL, AND CIVIL DRAWING REQUIREMENTS.

3. DEPTH AS REQUIRED BY DESIGN BUT NOT LESS THAN MINIMUM FROST DEPTH

4. THE GRATING SHALL BE A MINIMUM OF 1 1/4" DEEP WITH THICKNESS AS DESIGNED BY GRATING DESIGNER TO MEET THE REQUIRED LOADING OF 100 POUNDS PER FT^2.

5. REFER TO ELECTRICAL DRAWINGS FOR GROUNDING REQUIREMENTS/DATALES.

6. THE STEEL MANUFACTURER SHALL PROVIDE AN IBC AND OSHA ACCEPTABLE 3'-0" WIDE STAIR WITH GUARDRAIL AND HANDRAIL. THE STAIR ORIENTATION SHALL BE AS APPROXIMATELY SHOWN ON THE ACCESS PLATFORM PLAN.

7. APPROXIMATE TOP OF GRATING (T.O.G.) FROM TOP OF CONCRETE. CONTRACTOR TO COORDINATE FINAL ELEVATION WITH MECHANICAL, PURCHASED EQUIPMENT AND PIPE SYSTEM REQUIREMENTS.

8. ALL STAIR PARTS SHALL BE HOT DIPPED GALVANIZED

---

CONCRETE CURB
2'-0" 2" ASTM A316 SS DRAINAGE PIPE WITH EMBEDDED 1" WIDE BY 1/4" THICK RING PLATE & SS LOCKABLE BALL VALVE

NOTES TO DESIGNERS:

1. SEE GENERAL NOTES ON DRAWINGS SHEET S-001 & S-002.

2. DENOTES APPROXIMATE DIMENSIONS AND MUST BE DESIGNED AND VERIFIED BASED ON SITE CONDITIONS, WITH MANUFACTURER, MECHANICAL, AND CIVIL DRAWING REQUIREMENTS.

3. DEPTH AS REQUIRED BY DESIGN BUT NOT LESS THAN MINIMUM FROST DEPTH

4. THE GRATING SHALL BE A MINIMUM OF 1 1/4" DEEP WITH THICKNESS AS DESIGNED BY GRATING DESIGNER TO MEET THE REQUIRED LOADING OF 100 POUNDS PER FT^2.

5. REFER TO ELECTRICAL DRAWINGS FOR GROUNDING REQUIREMENTS/DATALES.

6. THE STEEL MANUFACTURER SHALL PROVIDE AN IBC AND OSHA ACCEPTABLE 3'-0" WIDE STAIR WITH GUARDRAIL AND HANDRAIL. THE STAIR ORIENTATION SHALL BE AS APPROXIMATELY SHOWN ON THE ACCESS PLATFORM PLAN.

7. APPROXIMATE TOP OF GRATING (T.O.G.) FROM TOP OF CONCRETE. CONTRACTOR TO COORDINATE FINAL ELEVATION WITH MECHANICAL, PURCHASED EQUIPMENT AND PIPE SYSTEM REQUIREMENTS.

8. ALL STAIR PARTS SHALL BE HOT DIPPED GALVANIZED
NOTES TO DESIGNERS:
1. SEE GENERAL NOTES ON DRAWINGS S-001 & S-002.
2. DENOTES APPROXIMATE DIMENSIONS AND MUST BE DESIGNED AND VERIFIED BASED ON SITE CONDITIONS, WITH MANUFACTURER, MECHANICAL, AND CIVIL DRAWING REQUIREMENTS.
3. DEPTH AS REQUIRED BY DESIGN BUT NOT LESS THAN MINIMUM FROST DEPTH.
4. ANCHORS SHALL BE CAST-IN-PLACE. ASTM F1554 GRADE 35, POST-INSTALLED ANCHORS SHALL NOT BE USED UNLESS APPROVED BY OWNER. EMBEDMENT DEPTHS SHALL BE DETERMINED BY DESIGNER BASED ON COLUMN LOADS AND ACI-318.
5. PROVIDE 3-#3 OR 2-#4 TIES WITHIN 5" FROM THE TOP OF CONCRETE.
6. REINFORCING STEEL SHALL BE DESIGNED BY THE DESIGNER.
7. TOP OF CONCRETE ELEVATION TO BE HIGHER OR EQUAL TO THE TOP OF CURB ELEVATION. COORDINATE WITH MECHANICAL.
SECTION NOTES:
1. DETAILS APPLY TO FOOTINGS & WALLS.
2. CORNER BARS TO MATCH SIZE & SPACING OF HORIZONTAL BARS.
3. SEE SPLICE LENGTH TABLE S-001.
4. PLACE BARS EQUAL IN AREA TO ONE HALF THE CUT BARS ON EACH SIDE OF OPENING UNLESS OTHERWISE DETAILED ON THE DRAWINGS.

SECTION NOTES:
1. DCJ AND CJ ARE INTERCHANGEABLE
2. DETAIL IS TYP FOR ALL OPENINGS GREATER THAN 10" IN SLABS (WHERE ADDL REINF IS NOT EXPLICITLY STATED ON PLANS). FOR OPENINGS LESS THAN 10" SPREAD THE REINFORCING TO CLEAR THE OPENING.
3. ADD'L REINFORCING AROUND OPENINGS
4. ADD'L REINFORCING AT WALL JOINTS
5. PROVIDE 2" MIN CLEARANCE FROM REINF. TO EDGE OF OPENING (TYP; UNO)
BOND BEAM BB-2
LINTEL UNIT W/ 2- #5 BARS
OPENING AND WALL BEYOND
LINTEL L-1
LINTEL UNIT W/ 2- #5 BARS T&B
BEARING ELEVATION
SEE WALL ELEVATIONS
VERT. BARS @ OPENING (SEE 6/S-503; TYP.)
LINTEL (L1) (TYP.; SEE 1/S-502)
INTERMEDIATE, CONTINUOUS BOND BEAM (BB-1), TYP. INTERMEDIATE BOND BEAMS SHALL OCCUR AT A MAXIMUM OF 4'-0" O.C. (SEE 2/S-502; TYP.)
VERT. BAR @ CORNERS, (SEE 2 & 3/S-503; TYP)
GRADE WALL SEE PLAN
BOND BEAM BB-1
OPENING AND WALL BEYOND
LINTEL UNIT W/ 2- #5 BARS
CONTINUOUS BOND BEAM TOP COURSE (SIM BB-2) (TYP.; SEE 3/S-502 SIMILAR)
INTERMEDIATE BOND BEAMS SHALL OCCUR AT A MAXIMUM OF 4'-0" O.C. (SEE 2/S-502; TYP.)
JOINT REINFORCING @ 16" OC (BETWEEN BOND BEAMS) NOT SHOWN (SEE 3/S-503 AND MASONRY NOTE 12 ON SHEET S-002; TYP.)
DOEML LAP SPLICE @ EACH VERTICAL BAR (SAME SIZE AND SPACING AS VERTICAL BARS)
BOND BEAM (BB-2) (SEE 3/S-502, TYP.)
CONTINUOUS BOND BEAM BOTTOM COURSE (SIM BB-1) (TYP.; SEE 2/S-502)
NOTES:
2. STRUCTURAL GENERAL DETAILS APPLY TO AREAS WHERE CONDITIONS ARE SIMILAR UNLESS NOTED OTHERWISE ON DRAWINGS.
3. IN STRUCTURAL GENERAL DETAILS, ORIENTATION OF WALL OR SLAB BARS IN EACH DIRECTION IS ARBITRARY. SEE DRAWINGS OF EACH STRUCTURE FOR ORIENTATION REQUIRED AT THAT STRUCTURE.
4. JOINT REINFORCING SHALL OCCUR @ 16" OC VERTICAL BETWEEN CONTINUOUS BOND BEAMS.
5. ALL EXTERIOR CMU WALLS SHALL BE FULLY GROUTED (UNO) SEE MASONRY NOTE 12 ON SHEET S-002 FOR CMU REINFORCING.
6. CONTINUOUS BOND BEAMS SHALL HAVE CORNER BARS AND INTERSECTIONS HOOKED PER DETAIL 2/S-503. NON-CONTINUOUS BOND BEAMS SHALL HAVE REINFORCING HOOKED AT ENDS.
7. FOR MASONRY CONTROL JOINTS SEE ARCH FOR LOCATIONS AND SECTION 4/S-503 FOR SECTION.
8. LINTEL EXTENSION SHALL BE 24" TYPICAL. IF 24" EXTENSION CAN NOT BE ACHIEVED, REINFORCING SHALL BE HOOKED @ LINTEL ENDS.

TYPICAL MASONRY WALL REINFORCING DETAIL

TYPICAL OPENING SECTION
TYPICAL VERTICAL REINFORCING FOR SINGLE AND DOUBLE STIFFENERS

INTERSECTION OF BOND BEAM

CORNER OF BOND BEAM

INTERSECTION OF JOINT REINFORCING

CORNER OF JOINT REINFORCING

DETAIL A

DETAIL B

CMU CONTROL JOINT (M.C.J.)

BOND BEAM UNIT AT CORNER

DETAIL C

DETAIL D

NOTE:
*W = WIDTH OF CMU BETWEEN ADJACENT OPENINGS.
*H = HEIGHT OF ADJACENT CMU OPENING.
STANDARD U-BOLT
GALVANIZED
MIN. 7/16" THICK
TEFLON OR THERMOPLASTIC
SEE NOTE 6

TEFLON COAT INSIDE OF U-BOLT OR UV-STABLE, CROSS-LINKED POLYOLEFIN MATERIAL AROUND U-BOLT

STEEL MEMBER

U-BOLT
GALVANIZED

NOTE 6

3-#3 TIE SETS WITHIN 5" FROM TOP OF CONCRETE (TYP)
CLOSED TIES
GRADE (COORDINATE WITH CIVIL DWGS.)
GALVANIZED ANCHOR BOLTS SEE NOTE 5 (TYP)

W8 NOTE 7
3/8" Gusset Plate
4'-6"
2'-6"

NOTE 8

DEPTH AS REQUIRED BY DESIGN BUT NOT LESS THAN MINIMUM FROST DEPTH
U-BOLTS SHALL NOT BE TIGHTENED SUCH THAT IT RESTRICTS PIPE MOVEMENT OR DAMAGES THE TEFLON COATING

NOTES TO DESIGNERS:
1. SEE GENERAL NOTES ON DWG. S-001 & 002
2. "..." DENOTES APPROXIMATE DIMENSIONS AND MUST BE DESIGNED AND VERIFIED BASED ON SITE CONDITIONS, WITH MANUFACTURER, MECHANICAL, AND CIVIL DRAWING REQUIREMENTS.
3. DESIGN CIRCULAR OR SQUARE CONCRETE PIPE SUPPORT WITH REINFORCING STEEL.
4. ALL STEEL PLATES SHALL BE ASTM A36. ALL PLATES SHALL BE GALVANIZED. LUGS
5. ANCHORS SHALL BE CAST-IN-PLACE. ASTM F1554 GRADE 36. POST-INSTALLED ANCHORS SHALL NOT BE USED UNLESS APPROVED BY OWNER. EMBEDMENT DEPOTS SHALL BE DETERMINED BY DESIGNER BASED ON COLUMN LOADS AND ACI-318
6. THERMOPLASTIC SIMILAR TO DEEPWATER CORROSION SERVICE INC.'S I-ROD OR EQUAL.
7. W8 I-BEAM SHALL BE DESIGNED AND HOT DIPPED GALVANIZED AFTER BOLT HOLES ARE DRILLED AND FINAL WELDING IS COMPLETED. BOLTS, WASHERS, AND NUTS SHALL ALSO BE GALVANIZED.
8. DEPTH AS REQUIRED BY DESIGN BUT NOT LESS THAN MINIMUM FROST DEPTH
9. U-BOLTS SHALL NOT BE TIGHTENED SUCH THAT IT RESTRICTS PIPE MOVEMENT OR DAMAGES THE TEFLON COATING

S-504
FLOOR PLAN

- 1'-0" X 4'-0"
- LED LIGHT FIXTURE -
- 1'-0" X 4'-0"
- LED LIGHT FIXTURE (EMERGENCY) -
- EXTERIOR LIGHT FIXTURE
- EXIT LIGHT FIXTURE

REFLECTED CEILING PLAN

- 2'-0"
- 2'-8"
- 2'-8"
- 2'-0"

STANDING SEAM METAL ROOF

WALL LINE BELOW

STANDING SEAM METAL ROOF

DOWNSPOUT (SEE GENERAL NOTE TO DESIGNER #1)

DOWNSPOUT (SEE GENERAL NOTE TO DESIGNER #1)

SPLASH BLOCK (SEE GENERAL NOTE TO DESIGNER #1)

FLAT ROOF

EXPOSED STEEL JOIST - SEE STRUCTURAL DRAWINGS

GUTTER (SEE GENERAL NOTE TO DESIGNER #1)

GENERAL NOTE TO DESIGNER:

- DESIGNER SHALL REFER TO BASE / FACILITY ARCHITECTURAL DESIGN GUIDE TO DETERMINE IF GUTTERS AND DOWNSPOUTS ARE INSTALLED ON BUILDINGS.
GENERAL NOTE TO DESIGNER

1. CANOPY PLAN AND ELEVATION PROVIDED FOR GENERAL DESIGN PURPOSES ONLY. THE FULL CANOPY DESIGN AND INSTALLATION SHALL BE PROVIDED BY CANOPY MANUFACTURER.

2. DESIGNER SHALL REFER TO BASE 7 FACILITY ARCHITECTURAL DESIGN GUIDE TO DETERMINE IF GUTTERS AND DOWNSPOUTS ARE INSTALLED ON BUILDINGS AND OTHER STRUCTURES.

A-102

SCALE
1/8" = 1'-0"

GUTTER / METAL PANELS

STEEL COLUMN

CONCRETE PIER

FINISHED GRADE

PERIMETER GUTTER

SUPPORT BEAMS - SEE STRUCTURAL

DOWNSPOUT

STEEL COLUMN

CONCRETE PIER

FINISHED GRADE

GUTTER / METAL PANELS

FINISHED GRADE

DOWNSPOUT

GUTTER / METAL PANELS

FINISHED GRADE

FINISHED GRADE
WALL SECTION

5/8" GYPSUM WALLBOARD

3 - LAYERS OF 2 1/4" RIGID BOARD INSULATION - R-38

DOWNSPOUT (SEE A-101 GENERAL NOTE TO DESIGNER #1)

GUTTER (SEE A-101 GENERAL NOTE TO DESIGNER #1)

STANDING SEAM METAL ROOF

EAVE DETAIL

STANDING SEAM METAL ROOF

EAVE DETAIL

R-60 INSULATION

METAL ROOF DECK

6" SPLIT FACE CMU - GROUT FILLED

3 - LAYERS OF 2 1/4" RIGID BOARD INSULATION - R-38

STEEL JOIST

8" CMU WALL - GROUT FILLED

STEEL JOIST

5/8" GYPSUM WALLBOARD

6" METAL STUD FRAMING

6" METAL STUD FRAMING

5/8" GYPSUM WALLBOARD

6" METAL STUD FRAMING

8" CMU WALL - GROUT FILLED

6" METAL STUD FRAMING

GENERAL NOTE TO DESIGNER:

1. DESIGNER SHALL PROVIDE DESIGN OF WALL AND ROOF R-VALUES ON AN INDIVIDUAL PROJECT BASIS. AT A MINIMUM, DESIGNER SHALL REFER TO DLA ENERGY DESIGN REQUIREMENTS.

R-60 INSULATION

INSULATION RIGID BARRIER

R-38 INSULATION RIGID BARRIER

PROVIDE COMBINATION OF RIGID AND BATT INSULATION FOR TOTAL R-60 INSULATION VALUE.

R-38 IS DETERMINED BASED ON THE TOTAL WALL ASSEMBLY;

- 8" CMU, FULL GROUTED, 2 1/4" RIGID INSULATION = R-13
- 2 - LAYERS 2 1/4" RIGID INSULATION + R-26 (R-13 EACH LAYER).

- DESIGNER SHALL PROVIDE DESIGN OF WALL AND ROOF R-VALUES ON AN INDIVIDUAL PROJECT BASIS. AT A MINIMUM, DESIGNER SHALL REFER TO DLA ENERGY DESIGN REQUIREMENTS.
### Door Schedule

<table>
<thead>
<tr>
<th>Opening</th>
<th>Type</th>
<th>Width</th>
<th>Height</th>
<th>Material</th>
<th>Finish</th>
<th>Glass Type</th>
<th>Material</th>
<th>Finish</th>
<th>Head</th>
<th>Sill</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>SL</td>
<td>2'-0&quot;</td>
<td>7'-0&quot;</td>
<td>HM</td>
<td>PT</td>
<td>GL - 1</td>
<td>HM</td>
<td>PT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Door Type Designation:**

- **Abbreviations:**
  - **SL**: Side Light
  - **HM**: Hollow Metal
  - **PT**: Paint

### Finish Schedule

<table>
<thead>
<tr>
<th>Floor</th>
<th>Space Name</th>
<th>Base</th>
<th>North Wall</th>
<th>South Wall</th>
<th>East Wall</th>
<th>West Wall</th>
<th>Ceiling</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>FUELING STATION CONTROL BUILDING</td>
<td>CONC</td>
<td>VCT</td>
<td>RB</td>
<td>GSB</td>
<td>PT</td>
<td>GSB</td>
<td>PT</td>
</tr>
</tbody>
</table>

**Schedule Abbreviations:**

- **CONC**: Concrete
- **VCT**: Vinyl Composite Tile
- **RB**: Rubber Base
- **PT**: Paint
- **EXP**: Exposed

### Window Schedule

<table>
<thead>
<tr>
<th>Window</th>
<th>Frame Date</th>
<th>Detail</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP1</td>
<td>2'-0&quot;</td>
<td>4'-0&quot;</td>
<td>GL - 1</td>
</tr>
</tbody>
</table>

**Schedule Abbreviations:**

- **ALUM**: Aluminum
- **MMF**: Manufacturer Finish

### Glass Schedule

- **Schedule:**
  - **GL-1**: 1" Insulating Glass

**Glass as Suggested:**

- **AS**: As Suggested
- **AS SCH**: As Scheduled

### Door Hardware

1. 3 BUTT HINGES (HEAVY DUTY)
2. STOREROOM LOCK
3. CLOSURE
4. THRESHOLD
5. WEATHER - STRIPPING
6. DRIP CAP

---

**General Notes:**

1. **Finish Materials:** All finish materials shall be selected in accordance with the base/facility architectural design guide.
2. **Colors:** All colors shall be selected in accordance with the base/facility architectural design guide.

**Glass Schedule:**

FUELING STATION CONTROL BUILDING

GL-1: 1" Insulating Glass

**Glass as Suggested:**

- **AS**: As Suggested
- **AS SCH**: As Scheduled

**Floor Plan:**

- **A-601**
### GENERAL NOTES:

- New underground piping shall be stainless steel material, with external corrosion protection from accidental damage, vandalism, etc.
- New underground piping to truck fillers shall be double wall, carbon steel material. Carrier piping will be exterior coated and cathodically protected.
- Underlying pipe to GRP (glass-reinforced plastic) lining will be exposed.
- All aboveground and belowground piping systems will be corrosion resistant, flexible double wall hose, plastic material.
- All underground fuel piping, tanks, and equipment will be corrosion resistant, flexible double wall hose, plastic material.
- Underlying pipe to GRP (glass-reinforced plastic) lining will be exposed.
- DESIGNER SHOULDN'T MODIFY THE PIPING NOTES AND DETAILS AND REQUIREMENTS ON ELECTRICAL DRAWINGS.
- NUMBERING FOR PROPER TANK NUMBERING AND IDENTIFICATION. SEE THE TANK MARKING DETAIL INCLUDED HEREIN.
- SUGGESTED SITE LAYOUTS ARE PROVIDED FOR ABOVEGROUND AND UNDERGROUND STORAGE TANKS. AN OPTIONAL HIGH-FLOW TRUCK OFFLOAD PUMP SHOULD BE EDITED / SIMPLIFIED TO ALLOW IN-SHOP COATING.
- COORDINATE WITH LOCAL PERSONNEL IN CHARGE OF FACILITY REGULATIONS (INCLUDING ANY STAGE II VAPOR RECOVERY REQUIREMENTS).
- DESIGNER SHALL INVESTIGATE AND INCLUDE ALL REQUIRED PROJECT FEATURES TO MEET LOCAL / STATE / HOST NATION CODES AND REQUIREMENTS.
- PROJECT SITE CONDITIONS.
- DESIGNERS SHOULD MODIFY THE PIPING NOTES AND DETAILS AND REQUIREMENTS ON ELECTRICAL DRAWINGS.
- NUMBERING FOR PROPER TANK NUMBERING AND IDENTIFICATION. SEE THE TANK MARKING DETAIL INCLUDED HEREIN.
- PROVIDE SIGHT FLOW INDICATOR TO DISPLAY VOLUME OF FUEL IN TANK TO VISUAL INSPECTORS.
- INSPECTION AND ABRASIVE BLASTING QUALIFICATIONS.
- INSULATING FLANGE.
- SOLENOID-CONTROLLED ANTI-SIPHON VALVE.
- BALL VALVE, FULL PORT.
- CHECK VALVE.
- STREET LAYOUTS ARE PROVIDED FOR ABOVEGROUND AND UNDERGROUND STORAGE TANKS. AN OPTIONAL HIGH-FLOW TRUCK OFFLOAD PUMP SHOULD BE EDITED / SIMPLIFIED TO ALLOW IN-SHOP COATING.
- WHEN SPILL CAPACITIES ARE PROGRAMMED, ENSURE ALL REQUIRED TANK SPILL CONTAINMENT IS PROVIDED.
- PROVIDE SIGHT FLOW INDICATOR TO DISPLAY VOLUME OF FUEL IN TANK TO VISUAL INSPECTORS.
- INSPECTION AND ABRASIVE BLASTING QUALIFICATIONS.
- INSULATING FLANGE.
- SOLENOID-CONTROLLED ANTI-SIPHON VALVE.
- BALL VALVE, FULL PORT.
- CHECK VALVE.
- STREET LAYOUTS ARE PROVIDED FOR ABOVEGROUND AND UNDERGROUND STORAGE TANKS. AN OPTIONAL HIGH-FLOW TRUCK OFFLOAD PUMP SHOULD BE EDITED / SIMPLIFIED TO ALLOW IN-SHOP COATING.
- WHEN SPILL CAPACITIES ARE PROGRAMMED, ENSURE ALL REQUIRED TANK SPILL CONTAINMENT IS PROVIDED.
- PROVIDE SIGHT FLOW INDICATOR TO DISPLAY VOLUME OF FUEL IN TANK TO VISUAL INSPECTORS.
- INSPECTION AND ABRASIVE BLASTING QUALIFICATIONS.
- INSULATING FLANGE.
- SOLENOID-CONTROLLED ANTI-SIPHON VALVE.
- BALL VALVE, FULL PORT.
- CHECK VALVE.
- STREET LAYOUTS ARE PROVIDED FOR ABOVEGROUND AND UNDERGROUND STORAGE TANKS. AN OPTIONAL HIGH-FLOW TRUCK OFFLOAD PUMP SHOULD BE EDITED / SIMPLIFIED TO ALLOW IN-SHOP COATING.
- WHEN SPILL CAPACITIES ARE PROGRAMMED, ENSURE ALL REQUIRED TANK SPILL CONTAINMENT IS PROVIDED.
- PROVIDE SIGHT FLOW INDICATOR TO DISPLAY VOLUME OF FUEL IN TANK TO VISUAL INSPECTORS.
- INSPECTION AND ABRASIVE BLASTING QUALIFICATIONS.
- INSULATING FLANGE.
- SOLENOID-CONTROLLED ANTI-SIPHON VALVE.
- BALL VALVE, FULL PORT.
- CHECK VALVE.
- STREET LAYOUTS ARE PROVIDED FOR ABOVEGROUND AND UNDERGROUND STORAGE TANKS. AN OPTIONAL HIGH-FLOW TRUCK OFFLOAD PUMP SHOULD BE EDITED / SIMPLIFIED TO ALLOW IN-SHOP COATING.
- WHEN SPILL CAPACITIES ARE PROGRAMMED, ENSURE ALL REQUIRED TANK SPILL CONTAINMENT IS PROVIDED.
- PROVIDE SIGHT FLOW INDICATOR TO DISPLAY VOLUME OF FUEL IN TANK TO VISUAL INSPECTORS.
- INSPECTION AND ABRASIVE BLASTING QUALIFICATIONS.
- INSULATING FLANGE.
- SOLENOID-CONTROLLED ANTI-SIPHON VALVE.
- BALL VALVE, FULL PORT.
- CHECK VALVE.
- STREET LAYOUTS ARE PROVIDED FOR ABOVEGROUND AND UNDERGROUND STORAGE TANKS. AN OPTIONAL HIGH-FLOW TRUCK OFFLOAD PUMP SHOULD BE EDITED / SIMPLIFIED TO ALLOW IN-SHOP COATING.
- WHEN SPILL CAPACITIES ARE PROGRAMMED, ENSURE ALL REQUIRED TANK SPILL CONTAINMENT IS PROVIDED.
- PROVIDE SIGHT FLOW INDICATOR TO DISPLAY VOLUME OF FUEL IN TANK TO VISUAL INSPECTORS.
- INSPECTION AND ABRASIVE BLASTING QUALIFICATIONS.
- INSULATING FLANGE.
- SOLENOID-CONTROLLED ANTI-SIPHON VALVE.
- BALL VALVE, FULL PORT.
- CHECK VALVE.
- STREET LAYOUTS ARE PROVIDED FOR ABOVEGROUND AND UNDERGROUND STORAGE TANKS. AN OPTIONAL HIGH-FLOW TRUCK OFFLOAD PUMP SHOULD BE EDITED / SIMPLIFIED TO ALLOW IN-SHOP COATING.
- WHEN SPILL CAPACITIES ARE PROGRAMMED, ENSURE ALL REQUIRED TANK SPILL CONTAINMENT IS PROVIDED.
- PROVIDE SIGHT FLOW INDICATOR TO DISPLAY VOLUME OF FUEL IN TANK TO VISUAL INSPECTORS.
- INSPECTION AND ABRASIVE BLASTING QUALIFICATIONS.
- INSULATING FLANGE.
- SOLENOID-CONTROLLED ANTI-SIPHON VALVE.
- BALL VALVE, FULL PORT.
- CHECK VALVE.
- STREET LAYOUTS ARE PROVIDED FOR ABOVEGROUND AND UNDERGROUND STORAGE TANKS. AN OPTIONAL HIGH-FLOW TRUCK OFFLOAD PUMP SHOULD BE EDITED / SIMPLIFIED TO ALLOW IN-SHOP COATING.
- WHEN SPILL CAPACITIES ARE PROGRAMMED, ENSURE ALL REQUIRED TANK SPILL CONTAINMENT IS PROVIDED.
- PROVIDE SIGHT FLOW INDICATOR TO DISPLAY VOLUME OF FUEL IN TANK TO VISUAL INSPECTORS.
- INSPECTION AND ABRASIVE BLASTING QUALIFICATIONS.
- INSULATING FLANGE.
- SOLENOID-CONTROLLED ANTI-SIPHON VALVE.
- BALL VALVE, FULL PORT.
- CHECK VALVE.
- STREET LAYOUTS ARE PROVIDED FOR ABOVEGROUND AND UNDERGROUND STORAGE TANKS. AN OPTIONAL HIGH-FLOW TRUCK OFFLOAD PUMP SHOULD BE EDITED / SIMPLIFIED TO ALLOW IN-SHOP COATING.
- WHEN SPILL CAPACITIES ARE PROGRAMMED, ENSURE ALL REQUIRED TANK SPILL CONTAINMENT IS PROVIDED.
- PROVIDE SIGHT FLOW INDICATOR TO DISPLAY VOLUME OF FUEL IN TANK TO VISUAL INSPECTORS.
- INSPECTION AND ABRASIVE BLASTING QUALIFICATIONS.
**STORAGE TANK NOZZLE SCHEDULE (ALL 4 TANKS SIMILAR)**

A. 4" NOZZLE FOR DISPENSER ISSUE PUMP
B. 2" NOZZLE FOR MECHANICAL CLOCK TYPE GAUGE
C. 6" NOZZLE FOR ISSUE PUMP FOR OPTIONAL HIGH-FLOW LOADING
D. 4" NOZZLE FOR REMOTE LEVEL ALARMS (HEEDER-ROOT OR ROWAN TYPE)
E. 2" ACCESS MANWAY WITH OPTIONAL LADDER
F. 4" MANUAL GAUGE/SAUSING VALVE
G. 1" EMERGENCY VENT (SECONDARY TANK)
H. 36" MANWAY W/ 1" EMERGENCY VENT (PRIMARY TANK)
I. 4" PV TANK VENT (PRIMARY TANK)
J. 2" VAPOR RECOVERY VALVE AND E-85 ONLY
K. 6" NOZZLE FOR 4" RECEPT PIPING W/ 3" FLOAT-TYPE OVERFLOW PREVENTION VALVE. VALVE SHALL BE SUITABLE FOR PUMPED FUEL RECEIPT
L. 6" NOZZLE FOR 4" RECEPT PIPING W/ 3" FLOAT-TYPE OVERFLOW PREVENTION VALVE. VALVE SHALL BE SUITABLE FOR PUMPED FUEL RECEIPT
M. 2" LEAK DETECTION

**OFFLOAD EQUIPMENT PAD AREA**

- **STAGE I VAPOR RECOVERY PIPING PLAN**
- **OUTLET FLANGE**
- **4" SS CAMLOCK OFFLOAD ADAPTER WITH CAP AND 6" OUTLET FLANGE**
- **5-GALLON SS DRAIN TANK (TYP)**
- **PIPING PLAN SEE DETAIL**
- **FOR ABOVEGROUND STORAGE TANK PLAN**
- **GASOLINE STORAGE TANK**
- **BIOGAS STORAGE TANK**
- **E-85 STORAGE TANK**
- **BIDIESEL STORAGE TANK**
- **DEVELOPMENT CONTROLLED ANTI-SIPHON BALL VALVE (TYP)**
- **SEE DESIGNER NOTES**
- **DESIGNER NOTES:**
  1. EQUIPMENT FOR OPTIONAL DIESEL TRUCK FILLSTAND ADD SIMILAR EQUIPMENT FOR BIODIESEL. GASOLINE AND OR E-85 IF NEEDED.
  2. TYPICAL FILLSTAND FLOW RATE IS 150 GPM. ADJUST SUPPLY PIPE SIZE AS REQUIRED.
DESIGNER NOTES:

1. DEDICATED PUMP ACCESS MANHOLE AND HIGH-FLOW PUMP FOR OPTIONAL DIESEL TRUCK FILLSTAND. ADD SIMILAR EQUIPMENT FOR BIODIESEL, GASOLINE AND OR E-85 IF NEEDED.

2. DELETE IF THERE IS NO TRUCK FILLSTAND.

3. TYPICAL FILLSTAND FLOWRATE IS 150 GPM. OBTAIN SERVICE HEADQUARTERS APPROVAL IF 300 GPM IS REQUIRED.

STORAGE TANK NOZZLE SCHEDULE

A. 2" NOZZLE FOR LEAK DETECTION
B. 2" TANK NOZZLE FOR 1" DRAIN PIPE
C. 4" NOZZLE FOR TANK VENT
D. 4" NOZZLE FOR ATG SYSTEM W/ LEVEL ALARMS (VEEDER-ROOT OR RONAN TYPE)
E. 6" NOZZLE FOR ISSUE PUMP (FOR OPTIONAL HIGH-FLOW LOADING. DELETE IF THERE IS NO BULK LOADING. SEE DESIGNER NOTES FOR ADDITIONAL INFORMATION)
F. 2" NOZZLE FOR MECHANICAL CLOCK TYPE GAUGE
G. 32" ACCESS MANWAY W/ OPTIONAL LADDER
H. 2" NOZZLE FOR STAGE I VAPOR RECOVERY (GASOLINE AND E-85)
I. 4" NOZZLE FOR TIGHT-FILL HOSE ADAPTER AND DROP TUBE WITH FLOAT-TYPE OVERFILL PREVENTION VALVE.
**Dispenser Interface Unit**

**FOR FUEL ISLAND ELEVATIONS SEE DETAIL**

- **Diesel**
  - 1 1/2" Diesel
  - Underground Flexible Double Wall 1 1/2" Supply w/ Crush-Resistant Access Pipe (Typ-4)

- **Biogas**
  - 1 1/2" Biogas

- **Gasoline**
  - 1 1/2" E-85

- **Dispenser Sump with Leak Detection Probe (Typ)**

- **New Dispenser (Typ 4) See Detail**

**Truck Fillstand Equipment Pad**

- **Trap Zon Type Filter (Typ). See Chart at Right and Designer Note 4**

**For Truck Fillstand Piping**

**Plan See Detail**

**Dispenser Filtration Schedule**

<table>
<thead>
<tr>
<th>Product</th>
<th>Particulate Filtration Efficiency</th>
<th>Effluent Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline</td>
<td>5 Micron</td>
<td>--</td>
</tr>
<tr>
<td>E-85</td>
<td>5 Micron</td>
<td>50 PPM Max</td>
</tr>
<tr>
<td>Diesel</td>
<td>25 Micron</td>
<td>50 PPM Max</td>
</tr>
<tr>
<td>Biogas</td>
<td>25 Micron</td>
<td>50 PPM Max</td>
</tr>
</tbody>
</table>

**Designer Notes:**

1. Equipment for Optional Diesel Truck Fillstand shown. Add similar equipment for Biogas, Gasoline and/or E-85 if needed.
2. Delete if there is no Truck Fillstand.
3. Where Truck Fillstans and Dispersing Aviation Fuel, provide API 1581 Type Filters/Seperators with Downstream Stainless Steel or Interior Epoxy Coated Carbon Steel Piping.
4. Filter and Filter Adapter shall be Fuel-Compatible and Corrosion Resistant. Provide additional Filtration/Water Removal Capabilities as directed by Service Headquarters, as appropriate for product type.
5. New Dispenser (Typ 4) See Detail

**Dispenser Filtration Schedule**

- **Particulate Filtration Efficiency**
- **Effluent Water**

**Notes:**

1. Confirm specific requirements with Service Headquarters.

**Dispenser Sump with Leak Detection Probe (Typ)**

**See M-002A/M-002B for Continuation to Tanks**

**See M-002A/M-002B for Continuation to Tanks**

**See Designer Notes 1 & 2**

**TRUCK FILLSTAND EQUIPMENT PAD**

**Similar Equipment for Each Product**

**For Truck Fillstand Piping**

**Plan See Detail**

**Sampling Connection**

**Loading Rack Positive Displacement Meter**

**Mechanical Temperature Compensation**

**Pressure Test Connections**

**For Product and Containment Piping**

**Basket Strainer w/ Drain**

**3" Product Pipe w/ E Containment Pipe**

**Scully System Interconnection**

**Grounding / Overfill System**

**See M-002A/M-002B for Continuation to Tanks**

**New Dispenser (Typ 4) See Detail**

**TRUCK FILLSTAND EQUIPMENT PAD**

**Similar Equipment for Each Product**

**For Truck Fillstand Piping**

**Plan See Detail**

**Sampling Connection**

**Loading Rack Positive Displacement Meter**

**Mechanical Temperature Compensation**

**Pressure Test Connections**

**For Product and Containment Piping**

**Basket Strainer w/ Drain**

**3" Product Pipe w/ E Containment Pipe**

**Scully System Interconnection**

**Grounding / Overfill System**

**See M-002A/M-002B for Continuation to Tanks**

**New Dispenser (Typ 4) See Detail**
NOTES:
1. TANK FEATURES ARE IDENTICAL FOR ALL FOUR TANKS EXCEPT THAT GASOLINE AND E-85 REQUIRE VAPOR RECOVERY PIPING.

TANK PLATFORM NOTES:
1. PLATFORM SHALL PROVIDE ACCESS TO ALL APPURTENANCES ON TOP OF THE TANKS. 
2. TANK PLATFORMS, INTER-CONECTING PLATFORMS, RAILINGS AND LADDER SHALL BE DESIGNED, COORDINATED AND PROVIDED BY THE TANK MANUFACTURER, UTILIZING APPROXIMATE COVERAGE DIMENSIONS SHOWN.
3. PLATFORM GRATING SHALL BE UV RESISTANT FRP MATERIAL.
4. PLATFORM FRAME & HANDRAILS SHALL BE GALVANIZED STEEL.
5. PROVIDE CUT-OUTS IN PLATFORM GRATING FOR TANK NOZZLES AND APPURTENANCES ON TOP OF TANK.
6. PLATFORMS AND GRATING SHALL BE DESIGNED FOR A MINIMUM OF 100 PSF LIVE LOADS.

DESIGNER NOTES:
1. EQUIPMENT SHOWN FOR OPTIONAL DIESEL TRUCK FILLSTAND. ADD SIMILAR EQUIPMENT FOR BIODIESEL, GASOLINE AND OR E-85 IF NEEDED.
2. DELETE IF THERE IS NO TRUCK FILLSTAND.
NOTES:
1. THE OFFLOAD POSITIONS ARE IDENTICAL EXCEPT FOR THE STAGE I VAPOR RECOVERY PIPING AND CONNECTION ASSOCIATED WITH E-85 AND GASOLINE SYSTEMS.
2. PROVIDE 12” X 12” PRODUCT IDENTIFICATION SIGNS AT EACH OFFLOAD POINT, SIMILAR TO THE DISPENSER IDENTIFICATION SIGNS.

DESIGNER NOTES:
1. BASED ON SITE CONSTRAINTS, OPTIONAL FILLSTAND EQUIPMENT CAN BE ELIMINATED. SEE COMBINED SITE PLAN LAYOUTS.
2. VERIFY CONNECTION TYPING (NOZZLE ADAPTER VS. CAM LOCK) WITH LOCAL FUEL PROVIDER.

NOTES:
1. THE OFFLOAD POSITIONS ARE IDENTICAL EXCEPT FOR THE STAGE I VAPOR RECOVERY PIPING AND CONNECTION ASSOCIATED WITH E-85 AND GASOLINE SYSTEMS.
2. PROVIDE 12” X 12” PRODUCT IDENTIFICATION SIGNS AT EACH OFFLOAD POINT, SIMILAR TO THE DISPENSER IDENTIFICATION SIGNS.

DESIGNER NOTES:
1. BASED ON SITE CONSTRAINTS, OPTIONAL FILLSTAND EQUIPMENT CAN BE ELIMINATED. SEE COMBINED SITE PLAN LAYOUTS.
2. VERIFY CONNECTION TYPING (NOZZLE ADAPTER VS. CAM LOCK) WITH LOCAL FUEL PROVIDER.
DESIGNER NOTES:
1. EQUIPMENT FOR OPTIONAL DIESEL TRUCK FILLSTAND.
ADD SIMILAR EQUIPMENT FOR BIODIESEL, GASOLINE AND OR E-85 IF NEEDED.
2. DELETE IF THERE IS NO TRUCK FILLSTAND.

NOTES:
1. TANKS SHALL HAVE PLATFORM W/ RAILING FOR ACCESS TO APPURTENANCES ON TOP OF TANK. SEE SHEET M-101A FOR ADDITIONAL PLATFORM INFORMATION.
2. PROVIDE BONDING/GROUNDING OF ALL PIPING AND EQUIPMENT AS INDICATED ON THE ELECTRICAL DRAWINGS.
3. STRIKER PLATES UNDER THE ATG & GAUGING HATCH SHALL BE FLAT. ALL OTHER STRIKER PLATES CAN BE CURVED TO MATCH THE TANK GEOMETRY. THE FLAT PLATES SHALL BE SEALED TO PREVENT MATERIAL BUILD UP UNDER THE PLATE.

ENGINEER NOTES:
1. EQUIPMENT FOR OPTIONAL DIESEL TRUCK FILLSTAND.
ADD SIMILAR EQUIPMENT FOR BIODIESEL, GASOLINE AND OR E-85 IF NEEDED.
2. DELETE IF THERE IS NO TRUCK FILLSTAND.
**DESIGNER NOTES:**

1. EQUIPMENT FOR OPTIONAL DIESEL TRUCK FILLSTAND, INCLUDING MANWAY W/ SUMP. ADD SIMILAR EQUIPMENT FOR BIO-DIESEL, GASOLINE AND OR E-85 IF NEEDED.
2. DELETE IF THERE IS NO TRUCK FILLSTAND.
3. DOUBLE WALL STEEL TYPE TANK IS SHOWN. ADJUST AS REQUIRED FOR FRP TYPE TANK.
4. FOR SUMPS LOCATED IN THE TRAFFIC AREA SEE DETAIL 3/M-504B.
1. A CARD IS SWIPED THROUGH THE DISPENSER INTERFACE UNIT (DIU), ENERGIZING THE REQUESTED DISPENSER NOZZLE. (ALTERNATIVELY, THE “AUTOMOTIVE INFORMATION MODULE” WILL RECOGNIZE AND VERIFY THE CORRECT DISPENSER AND FUEL TYPE.)

2. THE DISPENSER NOZZLE, WHEN REMOVED FROM THE DISPENSER, SHALL OPEN THE DISPENSER VALVE, OPEN THE ASSOCIATED TANK DISPENSING SOLENOID VALVE AND ENERGY THE ASSOCIATED PUMP.

3. FUEL FLOW STARTED BY SQUEEZING THE NOZZLE HANDLE. FUEL FLOW IS STOPPED BY RELEASING THE HANDLE OR BY AUTOMATIC SENSOR OF THE VEHICLE FUEL TANK BEING FULL.

4. PLACING THE NOZZLE BACK INTO THE DISPENSER SHALL close the DISPENSER VALVE, close the ASSOCIATED TANK DISPENSING SOLENOID VALVE WITH 5 SECOND TIME DELAY, AND DE-ENERGIZE THE ASSOCIATED PUMP.

5. REMOVING THE NOZZLE FROM THE DISPENSER WILL DO NOTHING UNTIL STEP 1 IS REDONE.

6. A CARD IS SWIPED THROUGH THE DIU FOR A PRODUCT ALREADY BEING DISPENSED.
   a. THE DIU ENERGIZES THE REQUESTED DISPENSER NOZZLE.
   b. THE DISPENSER NOZZLE, WHEN REMOVED FROM THE DISPENSER, SHALL OPEN THE DISPENSER VALVE.
   c. FUELING, SEE STEP 4.
   d. THE FIRST NOZZLE RETURNED TO THE DISPENSER SHALL close the ASSOCIATED DISPENSER VALVE.
   e. THE LAST NOZZLE RETURNED TO THE DISPENSER SHALL close the ASSOCIATED DISPENSER VALVE, close the ASSOCIATED TANK DISPENSING SOLENOID VALVE, AND DE-ENERGIZE THE ASSOCIATED PUMP.
   f. REMOVING THE NOZZLE FROM THE DISPENSER WILL DO NOTHING UNTIL STEP 1 IS REDONE.

1. THE FOLLOWING REGULATIONS SHALL TAKE PRECEDENCE OVER ALL INDICATED DATA ON THIS DRAWING. EXCEPT THAT DIESEL FUEL IS EXEMPTED.

16 CFR PART 306 -- AUTOMOTIVE FUEL RATINGS, CERTIFICATION, AND POSTING
16 CFR PART 309 -- LABELING REQUIREMENTS FOR ALTERNATIVE FUELS AND ALTERNATIVE FUELED VEHICLES.

2. DISPENSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE STATE AND LOCAL CODES.

3. ALL LABELS MUST BE ABLE TO WITHSTAND EXTREME WEATHER CONDITIONS FOR AT LEAST ONE YEAR, AND MUST BE RESISTANT TO VEHICLE FUEL, OIL, GREASE, SALT HURTS, DETERGENTS, AND WATER

4. LABELS STANDARD TO THE INDUSTRY AND APPROVED BY THE CONTRACTING OFFICER WILL BE ACCEPTABLE.

5. PROVIDE UNIT LABELS IN ACCORDANCE WITH MIL-STD-161 AND NATO LABELING, INCLUDING YELLOW BANDS, FUEL GRADE DESIGNATION AND SYMBOLS. COORDINATE WITH CONTRACTING OFFICER/ SYSTEM OPERATORS.

6. SEE ADDITIONAL MARKING DETAILS ON DRAWING M-502.
1. STATIC ELECTRICITY WARNING

NEVER fill portable containers that are in or on vehicles.

ALWAYS place containers at least 6 in. from the diesel fuel dispensing nozzle while filling.

A static electric spark can cause a flame to ignite a portable container sitting on the bed frame, or any vehicle containing or holding gasoline.

This spark can explosively ignite a flammable gas and cause serious injury or death.

PLACE ONE ON EACH SIDE OF EACH FUEL DISPENSER (PLACE IN A CONSPICUOUS AREA)

2. ALTERNATIVE FUELS DISPENSER LABEL

TYPICAL DISPENSER LABEL

LABELING NOTES:
1. SEE FUEL DISPENSER REGULATIONS AND LABELING NOTES ON SHEET M-501 FOR ADDITIONAL INFORMATION.

3. DIESEL FUEL

MINIMUM 85% ETHANOL

4. DISPENSER DETAIL

5. SUMP PENETRATION DETAIL

NOTES:
1. DISPENSER SHALL BE COMPATIBLE WITH AUTOMATED FUELS SERVICE STATION EQUIPMENT / SOFTWARE PROVIDED BY DLA ENERGY.

2. ENSURE DISPENSERS / NOZZLES ARE COMPATIBLE WITH ANY LOCAL VEHICLE-MOUNTED "AUTOMOTIVE INFORMATION MODULES".

NO. MARKINGS SHOWN FOR DIESEL FUEL. ADJUST MARKINGS FOR OTHER FUELS ACCORDINGLY.
HOSE SUPPORT STRUCTURE NOTES:

1. The 3" hose and disconnect are shown here as they would appear rigidly extended from the flanged swivel joint. The flexible hose will actually lay in the bottom of the PVC pipe.

2. Handles: Provide two handles.

   Handles shall be stainless steel, 3/8" minimum in diameter and provided with a back plate of 0.06" thick stainless steel to overlap the entire area between the screws, with holes drilled to allow fastening of the handles with the screws.

   Handles shall be mounted a minimum of 15" from centerline of the PVC ID with a maximum of 30" apart.

3. Hinges:

   Provide a minimum of 2, 4'-0" continuous hinges.

   Hinges shall be aluminum or stainless steel with a minimum thickness of 0.08" minimum pin diameter of 0.12" and open width of 2".

   Hinges shall be drilled at 4" on center for both leaves and through bolted with washers on backside of the PVC pipe.

DESIGNER NOTES:

1. Details on this sheet needed for optional truck fillstand. Delete sheet if there is no truck fillstand.

2. Instead of loading hose and rack, provide optional pantograph per DOD pressurized hydrant fueling system type II standards in areas of high UV rays or if there is no canopy, as directed by service headquarters.
ANCHOR STRAP (3 MIN.)
3" x 3" (TYP) 1" AISC STANDARD TURNBUCKLE
1" @ AISI THREAD ROD WITH WASHER AND 2 NUTS AT END.

TOP OF PAD

DETAIL

NOTE: HOLD-DOWN STRAP, TURN BUCKLE AND ANCHOR ROD SHALL BE NON-CORROSIVE OR COATED FOR CORROSION PROTECTION.

LEVEL ALARM HEIGHT

<table>
<thead>
<tr>
<th>RISING LEVEL ACTUATOR POINT</th>
<th>FALLING LEVEL ACTUATOR POINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLA</td>
<td>HLLA</td>
</tr>
<tr>
<td>ALL TANKS 90% VOLUME</td>
<td>95% VOLUME</td>
</tr>
<tr>
<td>15% VOLUME</td>
<td>AT SENSOR PUMP SUBMERGENCE LEVEL</td>
</tr>
<tr>
<td>SYSTEM RESPONSE ACTIVATES AUDIBLE AND VISUAL ALARM</td>
<td>ACTIVATES AUDIBLE AND VISUAL ALARM</td>
</tr>
<tr>
<td>ACTIVATES AUDIBLE AND VISUAL ALARM</td>
<td>ACTIVATES AUDIBLE AND VISUAL ALARM</td>
</tr>
<tr>
<td>SHUTS DOWN DISPENSER PUMP AND THE TRUCK FILLSTAND PUMP (SEE NOTE *)</td>
<td></td>
</tr>
</tbody>
</table>

LEVEL ALARM HEIGHT

TANK LEVEL ALARM

* NOTE: DISPENSER PUMP ONLY IF THERE IS NO FILLSTAND

FRAME AND GRATE (SHALL WITHSTAND H20 LOAD STANDARDS)

FRAME AND GRATE (SHALL WITHSTAND H20 LOAD STANDARDS)

NOTE: HOLD-DOWN STRAP, TURN BUCKLE AND ANCHOR ROD SHALL BE NON-CORROSIVE OR COATED FOR CORROSION PROTECTION.

SUMP INSTALLATION IN TRAFFIC AREA

CONCRETE PAD

6" SAND CUSHION

CONCRETE HOLD-DOWN PAD

1' - 0" - 1' - 2"

UNDERSIDE OF FRAME MUST BE ADEQUATELY SUPPORTED BY CONCRETE (FINAL DESIGN BY DESIGNER)
FIBERGLASS TRANSITION SUMP PLAN

NOTES:
1. IDENTIFY TANKS AS TO PRODUCT SERVICE BY COLOR CODING, BANDING, PRODUCT NAMES, AND NATO DESIGNATION IN ACCORDANCE WITH MIL-STD-161G.
2. SAMPLE TANK LABELING SHOWN IS FOR DIESEL FUEL. FOR OTHER FUELS REFER TO MIL-STD-161G. DIMENSIONS VARY BASED ON TANK SIZE.
3. MARK TANKS WITH EASILY DISCERNIBLE PAINTED NUMBERS AND LETTERS INDICATING THE FOLLOWING IN ADDITION TO THE REQUIREMENTS STATED IN MIL-STD-161: TANK NUMBER, FACILITY NUMBER, "NO SMOKING" ON CLASS 1 TANKS, AND "CONFINED SPACE" ON ROOF MANHOLE/LADDER HATCH.
4. PROVIDE HAZARD IDENTIFICATION SYSTEM LABELING IN ACCORDANCE WITH NFPA 704.

SECTION FRONT VIEW

TANK PRODUCT SYMBOL DETAIL

TANK DATA PLATE

2. LOCATE ON TANK END ON MOST USED APPROACH SIDE AND AT EYE LEVEL.
3. NAMEPLATE DATA SHALL BE ENGRAVED OR CHEMICALLY ETCHED.
### Notes:
1. Pumps shall meet all material, construction and performance requirements of UFGS 33-52-10.
2. Final designer shall perform final pump sizing based on actual piping and component configurations used. Ensure all operational performance requirements are met.
3. Assumed pump motor sizes are shown; verify with final pump sizing.
4. IP-1 may be a vertical turbine type pump if 300 GPM issue flowrate to fillstand is required.
5. Per service headquarters direction, DP-1 / DP-2 flowrate may be increased to 15 GPM for “High-flow” dispenser capability.
6. Guidelines for fillstand pump sizing by final designer: In addition to site-specific elevation changes and friction losses due to lengths / quantities / sizing of piping / fitting / manual valves, ensure calculations account for: 15 PSI drop across PDCV; 15 PSI drop across filter/separator (if applicable); 3 PSI drop through basket strainer; 15 PSI drop across TLCV; 3 PSI drop through meter; 35 PSI backpressure at inlet to loading nozzle.

### TAG DESCRIPTION

### PUMP SCHEDULE (ABOVEGROUND STORAGE TANKS FUEL SYSTEM)

<table>
<thead>
<tr>
<th>TAG</th>
<th>SERVICE</th>
<th>TYPE</th>
<th>FLUID</th>
<th>GPM</th>
<th>INLET SIZE</th>
<th>OUTLET SIZE</th>
<th>HEAD (NOTE 2)</th>
<th>MOTOR DATA</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OP-1</td>
<td>OFFLOAD PUMP</td>
<td>SELF PRIMING</td>
<td>DIESEL</td>
<td>300</td>
<td>4&quot;</td>
<td>3&quot;</td>
<td>25</td>
<td>208/3/60</td>
<td>OFFLOAD PAD</td>
</tr>
<tr>
<td>DP-2</td>
<td>DISCHPUMP ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>DIESEL</td>
<td>10</td>
<td>N/A</td>
<td>1&quot;</td>
<td>1</td>
<td>208/3/60</td>
<td>DIESEL STORAGE TANK</td>
</tr>
<tr>
<td>DP-3</td>
<td>DISCHPUMP ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>BIODIESEL</td>
<td>10</td>
<td>N/A</td>
<td>1&quot;</td>
<td>1</td>
<td>208/3/60</td>
<td>BIODIESEL STORAGE TANK</td>
</tr>
<tr>
<td>DP-4</td>
<td>DISCHPUMP ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>GASOLINE</td>
<td>10</td>
<td>N/A</td>
<td>1&quot;</td>
<td>1</td>
<td>208/3/60</td>
<td>GASOLINE STORAGE TANK</td>
</tr>
<tr>
<td>DP-5</td>
<td>DISCHPUMP ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>E-85</td>
<td>10</td>
<td>N/A</td>
<td>1&quot;</td>
<td>1</td>
<td>208/3/60</td>
<td>E-85 STORAGE TANK</td>
</tr>
<tr>
<td>IP-1</td>
<td>FILLSTAND ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>DIESEL</td>
<td>150</td>
<td>3&quot;</td>
<td>2&quot;</td>
<td>5</td>
<td>208/3/60</td>
<td>DIESEL STORAGE TANK</td>
</tr>
</tbody>
</table>

### PUMP SCHEDULE (UNDERGROUND STORAGE TANKS FUEL SYSTEM)

<table>
<thead>
<tr>
<th>TAG</th>
<th>SERVICE</th>
<th>TYPE</th>
<th>FLUID</th>
<th>GPM</th>
<th>INLET SIZE</th>
<th>OUTLET SIZE</th>
<th>HEAD (NOTE 2)</th>
<th>MOTOR DATA</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP-1</td>
<td>DISCHPUMP ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>BIODIESEL</td>
<td>10</td>
<td>N/A</td>
<td>1&quot;</td>
<td>1</td>
<td>208/3/60</td>
<td>BIODIESEL STORAGE TANK</td>
</tr>
<tr>
<td>DP-2</td>
<td>DISCHPUMP ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>GASOLINE</td>
<td>10</td>
<td>N/A</td>
<td>1&quot;</td>
<td>1</td>
<td>208/3/60</td>
<td>GASOLINE STORAGE TANK</td>
</tr>
<tr>
<td>DP-3</td>
<td>DISCHPUMP ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>E-85</td>
<td>10</td>
<td>N/A</td>
<td>1&quot;</td>
<td>1</td>
<td>208/3/60</td>
<td>E-85 STORAGE TANK</td>
</tr>
<tr>
<td>DP-4</td>
<td>DISCHPUMP ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>DIESEL</td>
<td>10</td>
<td>N/A</td>
<td>1&quot;</td>
<td>1</td>
<td>208/3/60</td>
<td>DIESEL STORAGE TANK</td>
</tr>
<tr>
<td>IP-1</td>
<td>FILLSTAND ISSUE PUMP</td>
<td>SUBMERSIBLE TURBINE</td>
<td>DIESEL</td>
<td>150</td>
<td>3&quot;</td>
<td>2&quot;</td>
<td>5</td>
<td>208/3/60</td>
<td>DIESEL STORAGE TANK</td>
</tr>
</tbody>
</table>

### Control Valve Schedule

<table>
<thead>
<tr>
<th>TAG</th>
<th>SIZE</th>
<th>DESCRIPTION</th>
<th>LOCATION</th>
<th>FEATURES (SEE NOTE 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCV</td>
<td>4&quot;</td>
<td>Flow Control Valve</td>
<td>Offload Pad</td>
<td>Includes &quot;Air Block&quot; interconnection to upstream meter</td>
</tr>
<tr>
<td>CQC</td>
<td>3&quot;</td>
<td>Pump Discharge Control Valve</td>
<td>Storage Tank Nozzle</td>
<td></td>
</tr>
<tr>
<td>TLCV</td>
<td>2&quot;</td>
<td>Truck Loading Control Valve</td>
<td>Truck Fillstand Equipment Pad</td>
<td>Includes deadman control, thermal relief to inlet side, scully interconnection</td>
</tr>
</tbody>
</table>

### Notes:
1. Control valves shall meet all material, construction and performance requirements of UFGS 33-52-14.
2. Provide all valve functions per UFGS specification, except as modified or amended above.
3. PDCV and TLCV are not required unless the optional fillstand is included.
GENERAL NOTES:
1. SEE SHEET MHP-101 FOR SAFETY SHOWER / EYEWASH SELECTION NOTES.

SCALE: N.T.S.

ENCLOSED EMERGENCY FACE/EYE WASH AND SHOWER DETAIL

EMERGENCY FACE/EYE WASH AND SHOWER DETAIL

3" DRAIN

3/4" BY 3/32 STRAP ANCHORED TO WALL

OUTDOOR MOUNTED INSTANTANEOUS WATER HEATER

SCALE: N.T.S.
GENERAL NOTES:

1. THE CONTROL BUILDING FOR THE VEHICLE FUELING STATION WILL REQUIRE COOLING BECAUSE OF THE ELECTRONIC SYSTEMS MOUNTED THERE, INCLUDING THE ATG/LEVEL ALARM/FUEL CUSTODY MANAGEMENT SYSTEM, AND THE TELECOMMUNICATIONS SYSTEM.

2. SUMMER AND WINTER OUTDOOR DESIGN CONDITIONS MUST BE OBTAINED FOR THE LOCALE FROM UFC 3-400-02, ENGINEERING WEATHER DATA.

3. THE CONTROL BUILDING SHOULD BE PROVIDED WITH A WALL MOUNT DUCTLESS SPLIT HEAT PUMP DIRECT EXPANSION UNIT UTILIZING REFRIGERANT R-410A.

4. INDOOR COOLING DESIGN CRITERIA WILL BE 78°F DB AND 50% RH. INDOOR HEATING DESIGN CRITERIA WILL BE 68°F.

5. NO OUTDOOR AIR IS REQUIRED TO BE CONDITIONED BECAUSE THE SPACE IS NOT NORMALLY OCCUPIED. SUFFICIENT OUTDOOR AIR WILL BE INTRODUCED THROUGH INFILTRATION.

1. WALL-MOUNT DUCTLESS SPLIT HEAT PUMP UNIT DETAIL

SECTION THRU PIPE

HEAT TRACE CONTROL BOX DIAGRAM

INSTALLATION DETAIL

2. ELECTRIC RESISTANCE HEAT TRACING DETAIL

NOTES: PROVIDE WEATHER RESISTANT LABELING ON EXTERIOR OF JACKET IDENTIFYING PIPES AS BEING "ELECTRIC TRACED" WITH VOLTAGE INDICATED.
NOTES TO DESIGNER:

1. ALL GROUND CONNECTIONS SHALL BE MADE BY EXOTHERMIC WELD, UNLESS SPECIFICALLY NOTED, DETAILING, OR REQUIRED BY SPECIFICATIONS, ELSEWHERE.

2. ALL GROUND CONDUCTORS SHALL BE ALL COPPER, AND SHALL BE #4/0 FOR COUNTERPOISE, AND #2/0 FOR GROUND BONDING CONDUCTORS FROM COUNTERPOISE TO EQUIPMENT.

3. LIGHTNING PROTECTION AIR TERMINALS, ROOF CONDUCTORS, AND DOWN CONDUCTORS SHALL BE AS REQUIRED TO MEET CRITERIA OF NFPA 780, AND UL 96, WHERE DOWN CONDUCTORS ARE ALLOWED TO BE REMOVED, AND ELECTRICALLY CONTINUOUS STEEL STRUCTURE DOCUMENTATION CAN BE PROVIDED, COMPLY WITH UFC 3-575-01 FOR GROUND POTENTIAL LIMITATIONS.

FUELING STATION CONTROL BUILDING GROUNDING PLAN

FUELING STATION CONTROL BUILDING LIGHTNING PROTECTION PLAN

1/2" = 1'-0"
1. ALL GROUND CONNECTIONS SHALL BE MADE BY EXOTHERMIC WELD, UNLESS SPECIFICALLY NOTED, DETAILED, OR REQUIRED BY SPECIFICATIONS, ELSEWHERE.

2. ALL GROUND CONDUCTORS SHALL BE ALL COPPER, AND SHALL BE #4 FOR COUNTERPOISE, AND #2/0 FOR GROUND BONDING CONDUCTORS FROM COUNTERPOISE TO EQUIPMENT.

3. LIGHTNING PROTECTION AIR TERMINALS, ROOF CONDUCTORS, AND DOWN CONDUCTORS SHALL BE AS REQUIRED TO MEET CRITERIA OF NFPA 780, AND UL 96. WHERE DOWN CONDUCTORS ARE ALLOWED TO BE REMOVED, AND ELECTRICALLY CONTINUOUS STEEL STRUCTURE DOCUMENTATION CAN BE PROVIDED, COMPLY WITH UFC 3-155-01 FOR GROUND POTENTIAL LIMITATIONS.

4. WHERE A SINGLE ISLAND CANOPY IS PROVIDED, OR WHERE A DIFFERENT STRUCTURE TYPE FOR CANOPY IS PROVIDED, ADJUST DESIGN FOR LIGHTNING PROTECTION AND GROUNDING, TO ACCOMMODATE FIELD DESIGN REQUIREMENTS.
NOTES TO DESIGNER:

1. ALL GROUND CONNECTIONS SHALL BE MADE BY EXOTHERMIC WELD, UNLESS SPECIFICALLY NOTED, DETAILED, OR REQUIRED BY SPECIFICATIONS ELSEWHERE.

2. ALL GROUND CONDUCTORS SHALL BE ALL-C Copper, and shall be #4/0 for counterpoise, and #4/0 for ground bonding conductors from counterpoise to equipment.

3. LIGHTNING PROTECTION AIR TERMINALS, ROOF CONDUCTORS, AND DOWN CONDUCTORS SHALL BE AS REQUIRED TO MEET CRITERIA OF NFPA 780, AND UL 96. WHERE DOWN CONDUCTORS ARE ALLOWED TO BE REMOVED, AND ELECTRICALLY CONTINUOUS STEEL STRUCTURE DOCUMENTATION CAN BE PROVIDED, COMPLY WITH UFC 3-575-01 FOR GROUND POTENTIAL LIMITATIONS.

4. ADJUST LAYOUT AND CONFIGURATION OF SYSTEM TO MEET SITE DESIGN PARAMETERS.

NOTES TO DESIGNER:
1. ALL GROUND CONNECTIONS SHALL BE MADE BY EXOTHERMIC WELD, UNLESS SPECIFICALLY NOTED, DETAILED, OR REQUIRED BY SPECIFICATIONS ELSEWHERE.
2. ALL GROUND CONDUCTORS SHALL BE ALL COPPER AND SHALL BE #4/0 FOR COUNTERPOISE, AND #2/0 FOR GROUND BONDING CONDUCTORS FROM COUNTERPOISE TO EQUIPMENT.
3. BOND ALL NON-CURRENT-CARRYING METAL STRUCTURES IN CONCRETE SLAB.
4. ADJUST SITE LAYOUT AND CONFIGURATION TO MEET SITE DESIGN PARAMETERS.
5. SEE UFC 4-022-03 FOR FENCE GROUND REQUIREMENTS.

TYPICAL GROUND CONNECTIONS TO ABOVE-GROUND FUEL PIPING PER UFC CRITERIA. COORDINATE SUPPORT AND CONNECTION TYPE WITH MECHANICAL AND STRUCTURAL REQUIREMENTS.
**LIGHTING FIXTURE SCHEDULE**

<table>
<thead>
<tr>
<th>DEVICE ID</th>
<th>LAMP TYPE / LUMEN</th>
<th>COLOR TEMP (K)</th>
<th>NOMINAL WATTS PER FIXTURE</th>
<th>FIXTURE VOLTAGE</th>
<th>MOUNTING HEIGHT AFF</th>
<th>MOUNTING STYLE</th>
<th>REFERENCE NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>LED4700 LUMEN</td>
<td>4000 K</td>
<td>55</td>
<td>120</td>
<td>SURFACE MOUNT TO CANOPY</td>
<td>SURFACE MOUNT TO CANOPY</td>
<td>1. LIGHTING SHALL COMPLY WITH LOCAL BASE REQUIREMENTS, AND MEET GENERAL LIGHTING LEVELS OF RELATED IESNA RECOMMENDED PRACTICES, AND API RP-540.</td>
</tr>
<tr>
<td>B</td>
<td>LED EXIT</td>
<td>-</td>
<td>120</td>
<td>ABV DOOR WALL</td>
<td>120</td>
<td>CEILING</td>
<td>LOCATE PHOTOCELL FOR LIGHTING CONTROL AS RECOMMENDED BY MANUFACTURER TO AVOID FALSE ACTIVATION OF LIGHTING SYSTEM TYPICAL LOCATION TO BE NORTH SIDE OF BUILDING AND OUT SITE LIGHTING COVERAGE.</td>
</tr>
<tr>
<td>C</td>
<td>LED4700 LUMEN</td>
<td>4000 K</td>
<td>55</td>
<td>120</td>
<td>CEILING SURFACE</td>
<td>SURFACE MOUNT TO CANOPY</td>
<td>2. ADJUST LAYOUT AND CONFIGURATION OF SYSTEM TO ACCOMMODATE SITE DESIGN PARAMETERS.</td>
</tr>
<tr>
<td>C1</td>
<td>LED4700 LUMEN</td>
<td>4000 K</td>
<td>55</td>
<td>120</td>
<td>CEILING</td>
<td>SURFACE MOUNT TO CANOPY</td>
<td>3. WHERE THE HIGH FLOW FILLSTAND OPTION IS EXERCISED, THE CONSTRUCTION AND FEATURES OF THE CANOPY OVER THAT EQUIPMENT SHALL BE SIMILAR IN STYLE AND DESIGN TO THAT OF THE OFFLOAD SHELF.</td>
</tr>
<tr>
<td>E</td>
<td>LED2000 LUMEN</td>
<td>4000 K</td>
<td>24</td>
<td>120</td>
<td>LOUDED WITH ARCH ELEVATION</td>
<td>WALL</td>
<td>NOTES TO DESIGNER:</td>
</tr>
</tbody>
</table>

**NOTES TO DESIGNER:**

1. GENERAL LIGHTING LEVELS OF RELATED IESNA RECOMMENDED PRACTICES, AND API RP-540.
2. LOCATED IN A MODULE WITHIN 15' OF THE MODULAR SUBJECT TO MODULAR ACCESS.
3. PROVIDE CLASSIFIED FIXTURES AS REQUIRED, RATED FOR CLASSIFIED AREAS WHERE REQUIRED.

**LIGHTING FIXTURE SCHEDULE**

<table>
<thead>
<tr>
<th>DEVICE ID</th>
<th>LAMP TYPE / LUMEN</th>
<th>COLOR TEMP (K)</th>
<th>NOMINAL WATTS PER FIXTURE</th>
<th>FIXTURE VOLTAGE</th>
<th>MOUNTING HEIGHT AFF</th>
<th>MOUNTING STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>LED4700 LUMEN</td>
<td>4000 K</td>
<td>55</td>
<td>120</td>
<td>SURFACE MOUNT TO CANOPY</td>
<td>SURFACE MOUNT TO CANOPY</td>
</tr>
<tr>
<td>B</td>
<td>LED EXIT</td>
<td>-</td>
<td>120</td>
<td>ABV DOOR WALL</td>
<td>120</td>
<td>CEILING</td>
</tr>
<tr>
<td>C</td>
<td>LED4700 LUMEN</td>
<td>4000 K</td>
<td>55</td>
<td>120</td>
<td>CEILING</td>
<td>SURFACE MOUNT TO CANOPY</td>
</tr>
<tr>
<td>C1</td>
<td>LED4700 LUMEN</td>
<td>4000 K</td>
<td>55</td>
<td>120</td>
<td>CEILING</td>
<td>SURFACE MOUNT TO CANOPY</td>
</tr>
<tr>
<td>E</td>
<td>LED2000 LUMEN</td>
<td>4000 K</td>
<td>24</td>
<td>120</td>
<td>LOUDED WITH ARCH ELEVATION</td>
<td>WALL</td>
</tr>
</tbody>
</table>

**LIGHTING FIXTURE SCHEDULE**
NOTES TO DESIGNER:
1. LIGHTING SHALL COMPLY WITH LOCAL BASE REQUIREMENTS, AND MEET GENERAL LIGHTING LEVELS OF RELATED IESNA RECOMMENDED PRACTICES, AND API RP-540.
2. ADJUST LAYOUT AND CONFIGURATION OF SYSTEM TO ACCOMMODATE SPECIFIC LAYOUT SITE CONDITIONS INCLUDING ADJUSTMENTS TO STRUCTURE TYPE OR STYLE, AND NUMBER OF FUELING ISLANDS TO BE PROVIDED.
1. MDP IS TO BE A DUAL BREAKER INPUT PANEL, WITH KEY INTERLOCK SELECTION BETWEEN INPUTS, AND TWO OUTPUT BREAKERS TO SERVE THE BRANCH PANELS. FINAL AMPERAGE RATINGS TO BE BASED ON ACTUAL DESIGN LOADS, SEE EP-601 FOR LOAD CALCULATIONS FOR VARYING SERVICE OPTIONS.

2. ADJUST RATINGS FOR PANELS MDP, PA AND PB BASED ON SPECIFIC SITE DESIGN PARAMETERS. ADJUST PANEL RATINGS, AS WELL AS POLE SPACE, SPARE BREAKERS, SERVICE ENTRANCE CONDUCTORS IN PANEL AND RATINGS OF BREAKERS TO COMPLY WITH UFC AND NEC CRITERIA.

3. CONTACTOR AHEAD OF MAIN BREAKER IN PANEL PB IS USED AS PART OF EPDS REQUIREMENT TO CONTROL EMERGENCY SHUTOFF OF ALL FUELING RELATED LOADS.

4. 100% RATED MAIN OR BRANCH BREAKERS ARE ALLOWED FOR USE IN MDP ONLY, IN ORDER TO MINIMIZE PANEL RATINGS, PROVIDED THAT NEC REQUIREMENTS FOR 90C CABLE, 90C TERMINATIONS AND 100% RATED ENCLOSURES ARE MET.

GENERAL NOTES:

1. EACH CONDUIT ORIGINATING IN OR PASSING THROUGH OR UNDER A HAZARDOUS AREA AND PENETRATING CONTROL ROOM WALLS, ROOF, OR FLOOR SHALL HAVE EXPLOSION PROOF SEALING FITTINGS INSTALLED IN THE INTERIOR OF THE CONTROL ROOMS, PRIOR TO CONNECTION WITH ANY EQUIPMENT OR PANELS, PER NEC 501.15. THIS INCLUDES ALL CONDUITS ROUTED TO AND FROM OFFLOAD POSITIONS, TANKS, AND FUELING ISLANDS.

2. ALL METALLIC CONDUITS THAT ARE NOT ATTACHED TO A GROUNDED PANEL OR ENCLOSURE SHALL BE GROUNDED USING A GROUNDING BUSHING.

3. REFER TO SHEET EP-602 FOR FEEDER TYPE AND DISCONNECT INFORMATION INCLUDED ON MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE.

4. PROVIDE CALCULATIONS FOR ARC FLASH HAZARD, AD PROVIDE ARC FLASH WARNING SIGNS ON THE PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR STARTERS AS REQUIRED BY NFPA 70 (NEC) ARTICLE 110.16, AND PER NFPA 70E ARTICLE 130.3, AND UFC 3-560-01 ELECTRICAL SAFETY, O&M.

SERVICE ENTRANCE CONDUCTORS
2 SETS: 4-400 MCM, 1-4/0 AWG GRND.
3-1/2", FOR TEMP GEN.

TO PROPOSED UTILITY TRANSFORMER, COORDINATE FINAL LOCATION AND LENGTH OF CONDUCTORS WITH UTILITY PROVIDER LOCATION.

TO PROPOSED TEMP GENERATOR, MEGA 4X PORTABLE GENERATOR CONNECTOR COORDINATE TYPE OF CONNECTION REQUIRED BY BASE PERSONNEL.

NOTES TO DESIGNER:

1. MDP IS TO BE A DUAL BREAKER INPUT PANEL, WITH KEY INTERLOCK SELECTION BETWEEN INPUTS, AND TWO OUTPUT BREAKERS TO SERVE THE BRANCH PANELS. FINAL AMPERAGE RATINGS TO BE BASED ON ACTUAL DESIGN LOADS, SEE EP-601 FOR LOAD CALCULATIONS FOR VARYING SERVICE OPTIONS.

2. ADJUST RATINGS FOR PANELS MDP, PA AND PB BASED ON SPECIFIC SITE DESIGN PARAMETERS. ADJUST PANEL RATINGS, AS WELL AS POLE SPACE, SPARE BREAKERS, SERVICE ENTRANCE CONDUCTORS IN PANEL AND RATINGS OF BREAKERS TO COMPLY WITH UFC AND NEC CRITERIA.

3. CONTACTOR AHEAD OF MAIN BREAKER IN PANEL PB IS USED AS PART OF EPDS REQUIREMENT TO CONTROL EMERGENCY SHUTOFF OF ALL FUELING RELATED LOADS.

4. 100% RATED MAIN OR BRANCH BREAKERS ARE ALLOWED FOR USE IN MDP ONLY, IN ORDER TO MINIMIZE PANEL RATINGS, PROVIDED THAT NEC REQUIREMENTS FOR 90C CABLE, 90C TERMINATIONS AND 100% RATED ENCLOSURES ARE MET.
1. The areas around the pumps and offload piping and inside containment walls shall be considered a Class I, Division 1 Group D (T3), or Class I, Division 2 hazardous location, per definitions and descriptions given in Article 500 of the NEC. All electrical equipment installed within the hazardous area shall be specifically UL-listed for the area classification.

2. Each conduit originating in or passing through or under a hazardous area and penetrating control room walls, roof, or floor shall have explosion proof sealing fittings installed in the interior of the control room per NEC 501.15.

3. See the mechanical equipment electrical connection schedule on sheet EP-602 for conduit and cable requirements, and further information on disconnect and circuitry.

4. All metallic conduits that are not attached to a grounded panel or enclosure shall be grounded using a grounded bushing.

1. Flow switch with time delay function, interconnected with local start-stop controls, per mechanical sequence of operation. Provide conduit and conductors as required by equipment manufacturer, and per the requirements of NEC Article 500.

2. Route power and controls circuits from each offload position to respective power or controls source in controls building. Coordinate route with other equipment on site, and provide a combined ductbank where possible.

NOTES TO DESIGNER:
1. Adjust configuration and ratings of electrical equipment and circuits to accommodate site specific design requirements.
GENERAL NOTES:
1. THE AREAS AROUND THE TANKS AND INSIDE CONTAINMENT WALLS, SHALL BE CONSIDERED A CLASS 1, DIVISION 1 GROUP D (T3), OR CLASS 1, DIVISION 2 HAZARDOUS LOCATION, PER DEFINITIONS AND DESCRIPTIONS GIVEN IN ARTICLE 500 OF THE NEC. ALL ELECTRICAL EQUIPMENT INSTALLED WITHIN THE HAZARDOUS AREA SHALL BE SPECIFICALLY UL LISTED FOR THE AREA CLASSIFICATION.
2. EACH CONDUIT ORIGINATING IN OR PASSING THROUGH OR UNDER A HAZARDOUS AREA AND PENETRATING CONTROL ROOM WAILS, ROOF, OR FLOOR SHALL HAVE EXPLOSION PROOF SEALING FITTINGS INSTALLED IN THE INTERIOR OF THE CONTROL ROOM PER NEC 501.15.
3. ALL METALLIC CONDUITS THAT ARE NOT ATTACHED TO A GROUNDED PANEL OR ENCLOSURE SHALL BE GROUNDED USING A GROUNDED BUSHING.

KEYED NOTES:
1. PROVIDE INTERLOCK WIRING BETWEEN DISPENSER PUMP AND SOLENOID VALVE AND DISPENSER PUMP AND FLOW SWITCH AS REQUIRED, VERIFY FUNCTION WITH SEQUENCE OF OPERATION ON MECHANICAL PLANS.
2. SEE SITE PLAN ES-151, FOR PROPOSED ROUTING OF POWER AND CONTROLS CONDUITS TO CONTROL BUILDING, INCLUDING DUCTBANK AND PROPOSED HANDHOLE LOCATIONS. PROVIDE FEEDERS FOR MOTORS AND CONTROL DEVICES AS SHOWN ON EP-602.
GENERAL NOTES:
1. THE AREAS AROUND THE TANKS AND INSIDE CONTAINMENT WALLS SHALL BE CONSIDERED A CLASS 1, DIVISION 1 GROUP D (T3), OR CLASS 1, DIVISION 2 HAZARDOUS LOCATION, PER DEFINITIONS AND DESCRIPTIONS GIVEN IN ARTICLE 500 OF THE NEC. ALL ELECTRICAL EQUIPMENT INSTALLED WITHIN THE HAZARDOUS AREA SHALL BE SPECIFICALLY UL LISTED FOR THE AREA CLASSIFICATION.
2. EACH CONDUIT ORIGINATING IN OR PASSING THROUGH OR UNDER A HAZARDOUS AREA AND PENETRATING CONTROL ROOM WALLS, ROOF, OR FLOOR SHALL HAVE EXPLOSION PROOF SEALING FITTINGS INSTALLED IN THE INTERIOR OF THE CONTROL ROOM/FER NEC 501.15.
3. ALL METALLIC CONDUITS THAT ARE NOT ATTACHED TO A GROUNDED PANEL OR ENCLOSURE SHALL BE GROUNDED USING A GROUNDED BUSHING.

NOTES TO DESIGNER:
1. PROVIDE INTERLOCK WIRING BETWEEN DISPENSER PUMP AND FLOW SWITCH AS REQUIRED, VERIFY FUNCTION WITH SEQUENCE OF OPERATION ON MECHANICAL PLANS.
2. UNDERGROUND TANK OPTION SHOWN, INCLUDES LEAK DETECTION DEVICES FOR INTERSTITIAL SPACE OF DOUBLE WALL TANK, AND FOR LOW POINT TYPE SENSORS IN THE SUMPS FOR EQUIPMENT OR MANWAYS.
3. PROVIDE ABOVE GROUND RACK MOUNT LOCAL DISCONNECTS FOR DISPENSER AND ISSUE PUMPS.

BELOW GROUND OPTION-FUEL TANKS POWER/CONTROLS PLAN
GENERAL NOTES:

1. The areas around the fillstand piping, equipment and connections shall be considered a Class 1, Division 1 Group D (T3), or Class 1, Division 2 hazardous location, per definitions and descriptions given in Article 500 of the NEC. All electrical equipment installed within the hazardous area shall be specifically UL listed for the area classification.

2. Each conduit originating in or passing through or under a hazardous area and penetrating control room walls, roof, or floor shall have explosion proof sealing fittings installed in the interior of the control room per NEC 501.15.

3. All metallic conduits that are not attached to a grounded panel or enclosure shall be grounded using a grounded bushing.

NOTES TO DESIGNER FOR OPTIONAL HIGH FLOW FILLSTAND:

1. Coordinate location and equipment requirements for fillstand with mechanical requirements and civil or site layout criteria.

2. Where the optional fillstand is included, it shall be provided with a canopy, as required by UFC criteria. The canopy is intended to be of similar construction as the offload or dispenser island canopy.

3. The canopy shall be provided with appropriate, and code or standard required, grounding and bonding, as well as lightning protection system per NFPA 780.

4. The fillstand canopy shall be provided with lighting to comply with IESNA and API criteria and recommended practices. Fixtures shall be coordinated with structure type, and any necessary site specific environmental requirements. Coordinate fixture and lamp types with offload and dispenser area canopies.
GENERAL NOTES:

1. THE AREAS AROUND THE DISPENSERS ARE CLASSIFIED AS CLASS 1 DIVISION 2, PER NEC ARTICLE 500 REQUIREMENTS, AND THE AREA INSIDE CONTAINMENT SUMP/PIT AND INSIDE THE DISPENSER ENCLOSURE SHALL BE CONSIDERED A CLASS 1, DIVISION 1 GROUP D (T3), HAZARDOUS LOCATION, PER DEFINITIONS AND DESCRIPTIONS GIVEN IN ARTICLE 500 OF THE NEC. ALL ELECTRICAL EQUIPMENT INSTALLED WITHIN THE HAZARDOUS AREA SHALL BE SPECIFICALLY UL LISTED FOR THE AREA CLASSIFICATION.

2. EACH CONDUIT ORIGINATING IN OR PASSING THROUGH OR UNDER A HAZARDOUS AREA AND PENETRATING CONTROL ROOM WALLS, ROOF, OR FLOOR SHALL HAVE EXPLOSION PROOF SEALING FITTINGS INSTALLED IN THE INTERIOR OF THE CONTROL ROOM PER NEC 501.15.

3. REFER TO SHEET EP-602 FOR FEEDER TYPE AND DISCONNECT INFORMATION INCLUDED ON MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE.

4. ALL METALLIC CONDUITS THAT ARE NOT ATTACHED TO A GROUNDED PANEL OR ENCLOSURE SHALL BE GROUNDED USING A GROUNDED BUSHING.

SHEET NOTES:

1. 120 VOLT POWER TO PANEL PB IN CONTROL BUILDING, SEE EP-602 FOR CONDUIT AND CONDUCTOR REQUIREMENTS.

2. CONTROLS - 2" CONDUIT TO FUEL SYSTEM CONTROL PANEL IN CONTROL BUILDING FROM PEDESTAL, FOR FUTURE CONTROLS CABLING.

3. CONTROLS  1" CONDUIT, ROUTED FROM FUELING CONTROLS PEDESTAL TO DISPENSER, FOR FUTURE CONTROLS CABLING.

4. PROVIDE EXPLOSION PROOF 50 AMP 1 POLE MOTOR RATED SWITCH INSIDE DISPENSER BASE FOR LOCAL DISCONNECT.

5. PROVIDE CONDUIT SEALS FOR ALL CONDUITS ENTERING OR LEAVING DISPENSER, CONTROLS PEDESTAL, OR EFSO PEDESTAL.

6. PROVIDE CONDUIT AND CONDUCTORS FOR EPDS, 1" CONDUIT AND #12 CONDUCTORS AS REQUIRED.

7. PROVIDE LEAK DETECTION SENSOR IN DISPENSER SUMP PIT, WITH ALL ASSOCIATED CONTROLS CONNECTIONS TO PANEL IN CONTROL BUILDING.

8. ALL CONDUITS SHALL ENTER DISPENSERS THROUGH THE SUMP. CONDUIT PENETRATIONS INTO THE SUMP SHALL BE IN THE SIDE, AND ABOVE THE LEVEL OF FUEL PIPING PENETRATION, BUT BELOW THE LEVEL OF CONCRETE OR ASPHALT PAVING. COORDINATE WITH FINAL CIVIL AND FUELING PLANS.
POWER AND CONTROL WIRING
RGS CONDUIT (TYPICAL)

NEMA 4X/8 COMBINATION STARTER/DISCONNECT FOR OFFLOAD PUMP CONTROL, HP/AMPACITY/FUSE RATINGS PER MANUFACTURER AND CODE REQUIREMENTS.
GROUNDING REEL WITH SPRING OPERATED AUTOMATIC RETRIEVE REEL, NOMINAL 50' STRANDED CABLE, INSTANT-ACTING LOCKING MECHANISM, AND 100 AMP ALLIGATOR TYPE GROUND CLAMP.
CONDUIT SEAL FITTING. (TYPICAL)
JUNCTION BOX - NEMA 8 / 4X OR NEMA 4X, DEPENDING ON EXTENT OF CLASSIFIED AREA
CONCRETE ANCHOR BOLTS AND BASEPLATE W/ 1" (MIN.) NON-SHRINK GROUT, OR ANCHOR BOLTS AND FOUNDATION, AS REQUIRED BY SITE CONDITIONS.
STRUCTURAL STEEL CHANNEL OR TUBE SUPPORT STRUCTURE. PRIME AND FINISH PAINT.
TO OFFLOAD PUMP

OFFLOAD PUMPS EPS AND GROUNDING STATION

1. NEMA 4X/8 COMBINATION STARTER/DISCONNECT FOR OFFLOAD PUMP CONTROL, HP/AMPACITY/FUSE RATINGS PER MANUFACTURER AND CODE REQUIREMENTS.
   GROUNDING REEL WITH SPRING OPERATED AUTOMATIC RETRIEVE REEL, NOMINAL 50' STRANDED CABLE, INSTANT-ACTING LOCKING MECHANISM, AND 100 AMP ALLIGATOR TYPE GROUND CLAMP.
   CONDUIT SEAL FITTING. (TYPICAL)
   JUNCTION BOX - NEMA 8 / 4X OR NEMA 4X, DEPENDING ON EXTENT OF CLASSIFIED AREA
   CONCRETE ANCHOR BOLTS AND BASEPLATE W/ 1" (MIN.) NON-SHRINK GROUT, OR ANCHOR BOLTS AND FOUNDATION, AS REQUIRED BY SITE CONDITIONS.
   STRUCTURAL STEEL CHANNEL OR TUBE SUPPORT STRUCTURE. PRIME AND FINISH PAINT.
   TO OFFLOAD PUMP

2. WALL MOUNT EMERGENCY POWER DOWN station (EPD) DETAIL

3. EMERGENCY FUELS SHUTOFF STATION (EPDS) DETAIL

4. CAUTION SIGN DETAIL

5. WALL MOUNT EMERGENCY POWER DOWN station (EPD) DETAIL
GENERAL NOTES:
1. COORDINATE LOCATION AND HAZARDOUS RATINGS WITH FILL STAND PIPING AND EQUIPMENT. ADJUST LOCATION AND RATINGS AS REQUIRED.
<table>
<thead>
<tr>
<th>Panel 2 ID</th>
<th>BLR BUS</th>
<th>RSL BUS</th>
<th>GIT BUS</th>
<th>EGT BUS</th>
<th>E/R BUS</th>
<th>RSL BUS</th>
<th>GIT BUS</th>
<th>EGT BUS</th>
<th>E/R BUS</th>
<th>RSL BUS</th>
<th>GIT BUS</th>
<th>EGT BUS</th>
<th>E/R BUS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**
- This is a preliminary schematic for reference only.
- Not for construction.
- All dimensions and specifications are approximate.

**Disclaimer:**
- This document is for reference only and may not be used for construction purposes.
- All details and specifications are subject to change without notice.

**Scale:**
- 1/8" = 1'-0" for all drawings.
<table>
<thead>
<tr>
<th>TAG</th>
<th>EQUIPMENT</th>
<th>VOLT.</th>
<th>FURNISHED FOR</th>
<th>PANEL/CLRIC</th>
<th>MOUNTING</th>
<th>ECONOSTORE</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE1</td>
<td>AIR COMPRESSOR</td>
<td>208V</td>
<td>FALSE</td>
<td>51111</td>
<td>FLOOR</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>DE2</td>
<td>BOILER</td>
<td>120V</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>DE2A</td>
<td>ELECTRIC FURNACE</td>
<td>120V</td>
<td>TRUE</td>
<td>43477</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>DE3</td>
<td>WATER HEATER</td>
<td>120V</td>
<td>TRUE</td>
<td>23477</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>DP1</td>
<td>OPLT 1</td>
<td>25V</td>
<td>TRUE</td>
<td>51111</td>
<td>FLOOR</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>DP2</td>
<td>OPLT 2</td>
<td>25V</td>
<td>TRUE</td>
<td>51111</td>
<td>FLOOR</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>DP3</td>
<td>OPLT 3</td>
<td>25V</td>
<td>TRUE</td>
<td>51111</td>
<td>FLOOR</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>DP4</td>
<td>OPLT 4</td>
<td>25V</td>
<td>TRUE</td>
<td>51111</td>
<td>FLOOR</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP1</td>
<td>BOILER PUMP 1</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP2</td>
<td>BOILER PUMP 2</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP3</td>
<td>BOILER PUMP 3</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP4</td>
<td>BOILER PUMP 4</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP5</td>
<td>BOILER PUMP 5</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP6</td>
<td>STEAM PUMP 1</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP7</td>
<td>STEAM PUMP 2</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP8</td>
<td>STEAM PUMP 3</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP9</td>
<td>STEAM PUMP 4</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
<tr>
<td>EP10</td>
<td>STEAM PUMP 5</td>
<td>1 HP</td>
<td>TRUE</td>
<td>23237</td>
<td>WALL</td>
<td>120/240</td>
<td>WIDE RANGE END 200MM X 1000MM</td>
</tr>
</tbody>
</table>

Notes:
- PRELIMINARY
- NOT FOR CONSTRUCTION
1. SITE LIGHTING IS TO BE DESIGNED PER APPLICABLE IESNA RECOMMENDED PRACTICES, INCLUDING BUT NOT LIMITED TO IESNA RP-8-00, AND IESNA RP-33-14, AS WELL AS API RP-540, AND DLA ENERGY POLICY GUIDELINES.

2. IN GENERAL, SITE LIGHTING IS ANTICIPATED TO BE MINIMUM OF 1 F.C., WITH AN AVERAGE UNIFORMITY OF NOT GREATER THAN 4:1. LIGHTING LEVELS ARE EXPECTED TO BE HIGHER IN AREAS OF FUELING OPERATIONS, WHETHER AT OFFLOAD, FUELING ISLAND, OR AT THE OPTIONAL HIGH-FLOW FILLSTAND. COORDINATE THESE REQUIREMENTS WITH APPLICABLE STANDARDS REFERENCED ABOVE.

3. ALL SITE LIGHTING IS TO BE BASED ON FULL CUT-OFF DISTRIBUTION, UNLESS OTHERWISE REQUIRED BY BASE SPECIFIC STANDARDS. LIGHTING DISTRIBUTION OF FIXTURES MAY INCLUDE A COMBINATION OF IES TYPE II, III, IV, V, AND FORWARD THROW OPTICS TO ACHIEVE THE APPROPRIATE LIGHTING LEVELS AND UNIFORMITY.

4. WHERE REQUIRED, OR REQUESTED BY BASE, MOTION CONTROL IS TO BE PROVIDED AS APPlicable FOR LIGHTING IN AREAS OF LOW NIGHT TIME USE.

5. COORDINATE WITH BASE, AND SPECIFIC SITE SELECTED, TO DETERMINE THE APPLICABILITY AND REQUIREMENTS OF FIXTURES WITH HOUSE-SIDE SHIELDS, OR SIMILAR LIGHTING CONTROL DEVICES OR DISTRIBUTIONS.

6. FOR PROJECT LOCATIONS IN CLOSE PROXIMITY TO BEACHES OR SHORELINE, COORDINATE SPECIAL SITE LIGHTING REQUIREMENTS WITH BASE, ADJUST COLOR TEMPERATURE, AND/OR LAMP SOURCE TO PROVIDE TURTLE FRIENDLY LIGHTING, OR OTHER SPECIAL SITE LIGHTING REQUIREMENTS DUE TO ENVIRONMENTAL CONCERNS, AS NECESSARY.

7. COORDINATE SITE LIGHTING POLE AND FOUNDATION REQUIREMENTS WITH BASE STANDARDS. ADJUST LAYOUT IN RELATION TO POLE HEIGHT AND FIXTURE WATTAGE REQUIREMENTS. FOUNDATIONS SHALL BE DESIGNED TO MEET LOCAL SOILS CONDITION.

8. LOCATIONS SHOWN FOR EPDS (EFSO) STATIONS ARE APPROXIMATE AND BASED ON LAYOUT SHOWN. COORDINATE FINAL LOCATIONS AND REQUIRED DISTANCES BASED ON SPECIFIC SITE REQUIREMENTS, COMPLYING WITH THE REQUIREMENTS OF UFC 3-460-01 AND NEC ARTICLE 514. ADDITIONAL EPDS STATIONS ARE SHOWN ON PLANS FOR OFFLOAD AREA, AND CONTROL BUILDING.

9. GROUND ALL NON-CURRENT CARRYING METAL STRUCTURES PER THE REQUIREMENTS OF UFC 3-460-01, INCLUDING STAIRS OVER PIPING, ABOVE GROUND PIPING, CANOPIES, AND FENCES.

10. COORDINATE SITE ELECTRICAL UTILITY CONNECTION POINT AND TYPE OF SERVICE REQUIRED WITH BASE. SERVICE IS ANTICIPATED TO BE 208/120 VOLT, THREE PHASE, FOUR WIRE. PROVIDE OVERHEAD OR UNDERGROUND UTILITY LATERAL AND TRANSFORMERS AS REQUIRED.

11. COORDINATE SITE TELECOM CONNECTION POINT, AS WELL AS OSP CABLE TYPE REQUIREMENTS FROM BASE INFRASTRUCTURE TO CONTROLS BUILDING.

12. FOR FILLSTAND OPTION, IF EXERCISED, PROVIDE CANOPY OVER EQUIPMENT AS REQUIRED BY UFC 3-460-01. CANOPY IS TO BE PROVIDED WITH LIGHTING, GROUNDING AND LIGHTNING PROTECTION SYSTEMS SIMILAR TO THOSE PROVIDED FOR THE OFFLOAD CANOPY, AS WELL GROUND PROVING / SCULLY, AND INTERCONNECTION OF FLOW SWITCH WITH CONTROL VALVES AS REQUIRED.

13. TYPICAL ABOVEGROUND TANK CONFIGURATION, WITH OPTIONAL FILLSTAND, IS SHOWN. ADJUST DEVICES AS REQUIRED FOR ACTUAL SITE CONDITIONS AND FEATURES REQUIRED.

14. COORDINATE EMERGENCY SHOWER/EYEWASH REQUIREMENTS WITH MECHANICAL AND FUELING REQUIREMENTS. COORDINATE LOCATION WITH CIVIL PLANS.

NOTES TO DESIGNER:

1. CONDUITS UNDER ROADWAYS OR PARKING AND DRIVE AREAS SHALL BE CONCRETE ENCASED.

2. CONDUITS ROUTED WITHIN 5 FEET OF ROADWAY OR PARKING AND DRIVE AREAS, OR ARE SUBJECT TO VEHICLE TRAFFIC, SHALL BE CONCRETE ENCASED.

3. CONDUITS ROUTED BEYOND 5 FEET FROM EDGE OF PAVEMENT AND NOT SUBJECT TO VEHICLE TRAFFIC MAY BE DIRECT BURIED, EXCEPT AS REQUIRED OTHERWISE BY BASE OR PROJECT SPECIFIC REQUIREMENTS.

4. COORDINATE REQUIREMENTS FOR SITE CONDUITS TO SERVE PRIMARY POWER, AND TELECOMMUNICATIONS INFRASTRUCTURE, WITH UTILITY PROVIDER. PROVIDE CONCRETE ENCASEMENT AS REQUIRED.

GRAPHIC SCALES
PRELIMINARY
NOT FOR CONSTRUCTION
SEE CIVIL DRAWINGS FOR FINISHED GRADE
UNDERGROUND DETECTABLE MARKING TAPE
BACKFILL WITH SUITABLE COMPACTED MATERIAL
USE SPACERS BETWEEN DUCTS
COMPACTED SAND BACKFILL

TYPICAL SPACING FOR MULTIPLE DUCT CONFIGURATIONS

TYPICAL DIRECT BURY DUCTBANK

TYPICAL CONCRETE ENCASED DUCTBANK

GENERAL NOTES:
1. REBAR REINFORCING IS REQUIRED WHERE WITHIN 5', AND UNDER BUILDINGS, STRUCTURES AND ROADWAYS, AND WITHIN 10' OF CONNECTIONS TO EXISTING MANHOLES OR HANDHOLES.
2. PROVIDE COLORED CONCRETE, RED, OR AS REQUIRED BY BASE STANDARDS.

ES-501
COORDINATE LOCATION OF DUCTBANK, AND COMM MANHOLE OR HANDHOLE THAT COMM DUCTS ARE TO BE TERMINATED IN, WITH BASE REQUIREMENTS.

TYPICAL RJ 45 CONNECTORS

CAT 6 - 110 TERMINAL BLOCKS

3/4" PLYWOOD BACKBOARD WITH TWO COATS OF GREY FLAME RETARDANT PAINT.

TOP MOUNTED VENTILATION FAN

FIBER OPTIC COMBINATION UNIT WITH CONNECTOR PANEL AND BLANK CONNECTOR PLATES. PER BASE STANDARDS AND PROJECT REQUIREMENTS, SPLICING TRAYS NOT SHOWN.

MULTI PAIR PROTECTED ENTRANCE TERMINAL (PET)

JUMPERS FROM PET CONNECTOR BLOCK TO 110 BLOCK

MULTI PAIR COPPER OSP CABLE, PER BASE STANDARDS AND PROJECT REQUIREMENTS.

20A, 120V DEDICATED DUPLEX RECEPTACLE.

SURFACE MOUNTED MULTI PAIR PROTECTED ENTRANCE TERMINAL (PET)

JUMPERS FROM PET CONNECTOR BLOCK TO 110 BLOCK

CAT 5 - 110 TERMINAL BLOCKS

CAT 5 PATCH PANEL, AS REQUIRED

CABLE MANAGEMENT BAR

MINIMUM #4 AWG BARE CU IN 1"C EXTEND TO GROUNDING ELECTRODE.

FIBER OPTIC CABLE, OSP, PER BASE STANDARDS AND PROJECT REQUIREMENTS. JUMPER CABLE REQUIRED, COILED IN FIBER COMBINATION UNIT.

WEATHERIZED NEMA 4X BOX, 11" X 15" X 10.5", HINGED DOOR POST MOUNTING PLATE, WITH CAT 6 R J 45 OUTLET TO ACCOMMODATE STANDARD WALL TELEPHONE JACK WITH FACTORY INSTALLED MODULAR WALL TELEPHONE JACK.

WEATHERIZED EXTERIOR WALL TELEPHONE: MOUNTED 60" AFF, UNO 119MM SQ BOX W/TOP MOUNT PLATE AND CAT 6 R J 45 OUTLET TO ACCOMMODATE STANDARD WALL TELEPHONE JACK.

WEATHERIZED EXTERIOR TELEPHONE: MOUNTED 48" AFF, 119MM SQ BOX W/ 45 DEGREE MUD RING.

NOTE TO DESIGNER:

INCOMING DUCTBANK FOR COMM IS TO BE COORDINATED WITH BASE AND PROJECT SPECIFIC REQUIREMENTS. IN GENERAL, THE SERVICE IS TYPICALLY TO BE A MINIMUM OF TWO (2) 4" CONDUITS, WITH ONE HAVING A 3-WAY OR 4-WAY INDERDUCT, PER BASE REQUIREMENTS.

COORDINATE LOCATION OF DUCTBANK, AND COMM MANHOLE OR HANDHOLE THAT COMM DUCTS ARE TO BE TERMINATED IN, WITH BASE REQUIREMENTS.

THE FOLLOWING IS A PARTIAL LIST OF APPLICABLE DESIGN GUIDES, STANDARDS, CRITERIA OR CODES THAT MAY APPLY TO ONE OR MORE AREAS OF THE SERVICE STATION DESIGN STANDARDS DOCUMENT. DESIGNER IS TO REVIEW THE MOST RECENT VERSION OF STANDARDS, AND APPLY AS APPLICABLE.

DESIGNER IS TO REVIEW AND APPLY ALL APPLICABLE CODES AND STANDARDS.

CODE BLOCK REQUIREMENTS, TECHNICAL CONTENT, OR TECHNICAL CONTENT BLOCK REQUIREMENTS MAY BE PART OF THIS STANDARD:

THE FOLLOWING IS A PARTIAL LIST OF APPLICABLE DESIGN GUIDES, STANDARDS, CRITERIA OR CODES THAT MAY APPLY TO ONE OR MORE AREAS OF THE SERVICE STATION DESIGN STANDARDS DOCUMENT.

DESIGNER IS TO REVIEW THE MOST RECENT VERSION OF STANDARDS, AND APPLY AS APPLICABLE.

DESIGNER IS TO REVIEW AND APPLY ALL APPLICABLE CODES AND STANDARDS.

UFC 3-510-01 ELECTRICAL ENGINEERING
UFC 3-520-01 INTERIOR ELECTRICAL SYSTEMS
UFC 3-575-01 LIGHTNING AND STATIC ELECTRICITY PROTECTION SYSTEMS
UFC 3-580-01 TELECOMM BUILDING CABLING SYSTEMS PLANNING AND DESIGN
ML-HDBK-419 GROUNDING BONDING AND SHIELDING FOR ELECTRONIC EQUIPMENT AND FACILITIES
DA TECHNICAL CRITERIA FOR THE INSTALLATION OF INFORMATION INFRASTRUCTURE ARCHITECTURE
EIA/TIA 568 COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING STANDARD.
EIA/TIA 596 COMMERCIAL BUILDING STANDARD FOR TELECOMMUNICATIONS PATHWAYS AND SPACES.

1. COORDINATE CABLE TYPE AND REQUIREMENTS WITH BASE, TO INCLUDE BUT NOT LIMITED TO, TYPES OF CABLE REQUIRED, NUMBER OF STRANDS OF FIBER OR PAIRS OF COPPER, TERMINATION METHOD, AND THE PARTY REQUIRED TO MAKE ALL FINAL TERMINATIONS.

2. PROVIDE MANHOLES, OR HANDHOLES, AT DISTANCES THAT DO NOT EXCEED APPLICABLE STANDARDS.

3. PROVIDE BUTTERFLY DIAGRAMS FOR MANHOLES AND HANDHOLES PER APPLICABLE STANDARDS.

DESIGNER NOTES:

1. COORDINATE CABLE TYPE AND REQUIREMENTS WITH BASE, TO INCLUDE BUT NOT LIMITED TO, TYPES OF CABLE REQUIRED, NUMBER OF STRANDS OF FIBER OR PAIRS OF COPPER, TERMINATION METHOD, AND THE PARTY REQUIRED TO MAKE ALL FINAL TERMINATIONS.

2. PROVIDE MANHOLES, OR HANDHOLES, AT DISTANCES THAT DO NOT EXCEED APPLICABLE STANDARDS.

3. PROVIDE BUTTERFLY DIAGRAMS FOR MANHOLES AND HANDHOLES PER APPLICABLE STANDARDS.

WEATHERIZED EXTERIOR WALL TELEPHONE: MOUNTED 60" AFF, UNO 119MM SQ BOX W/TOP MOUNT PLATE AND CAT 6 R J 45 OUTLET TO ACCOMMODATE STANDARD WALL TELEPHONE JACK.