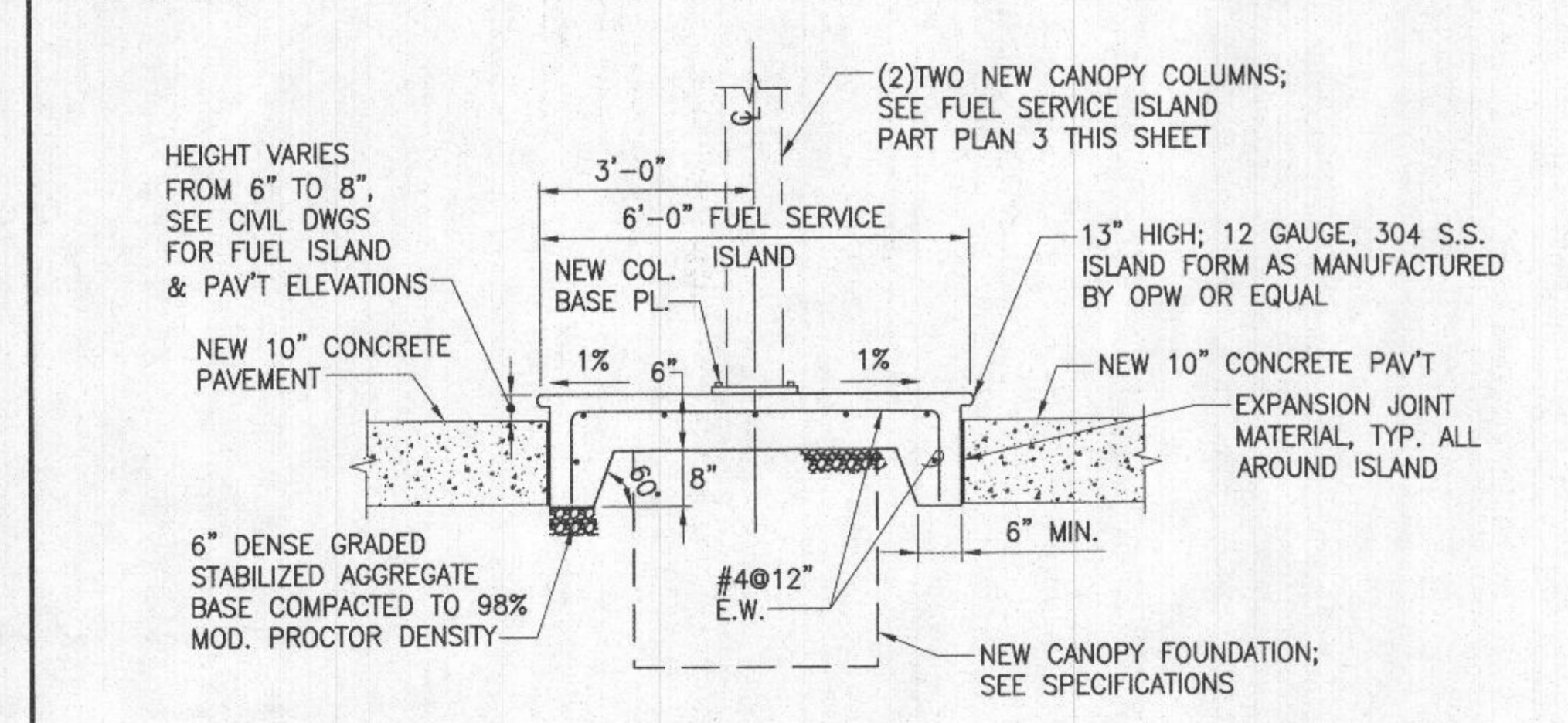
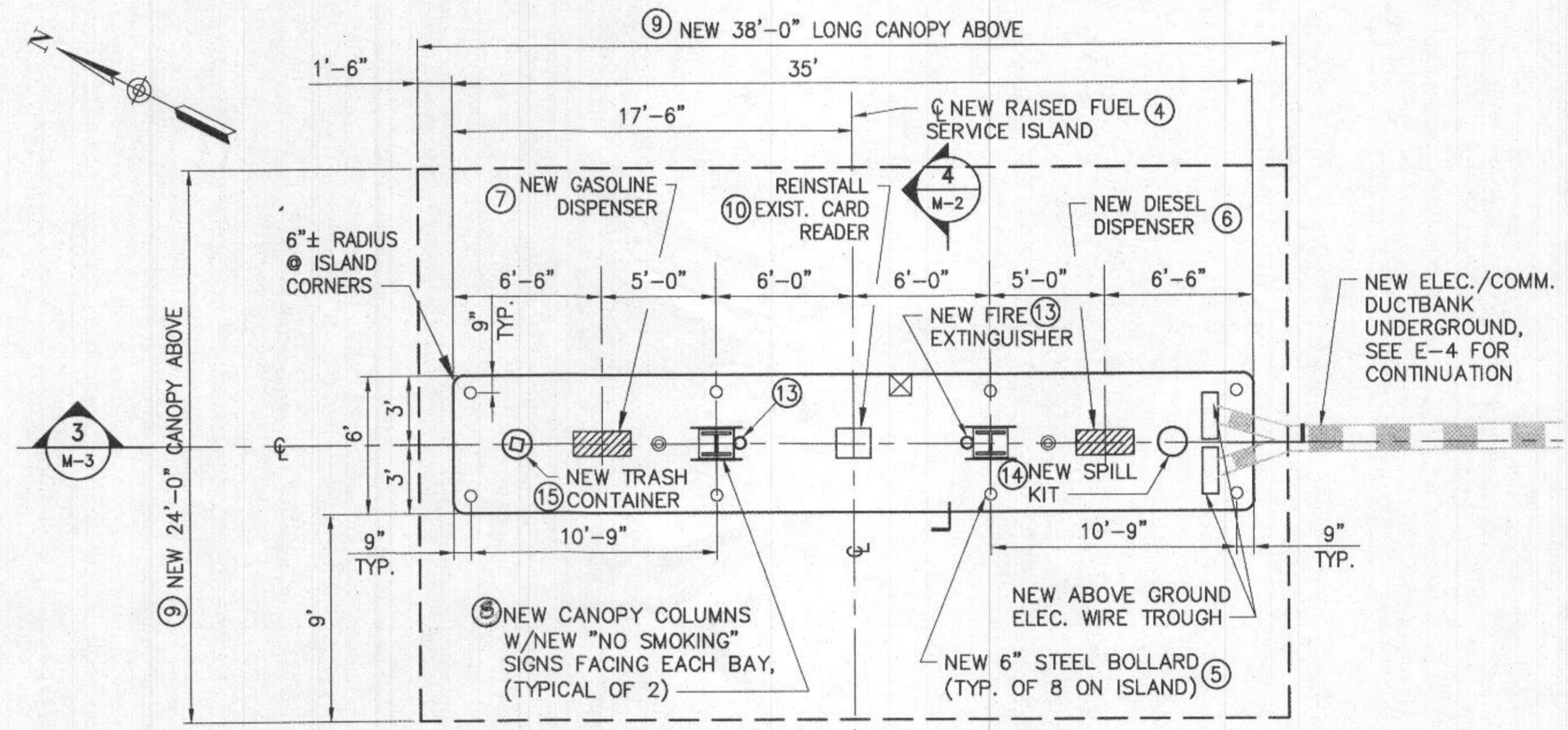


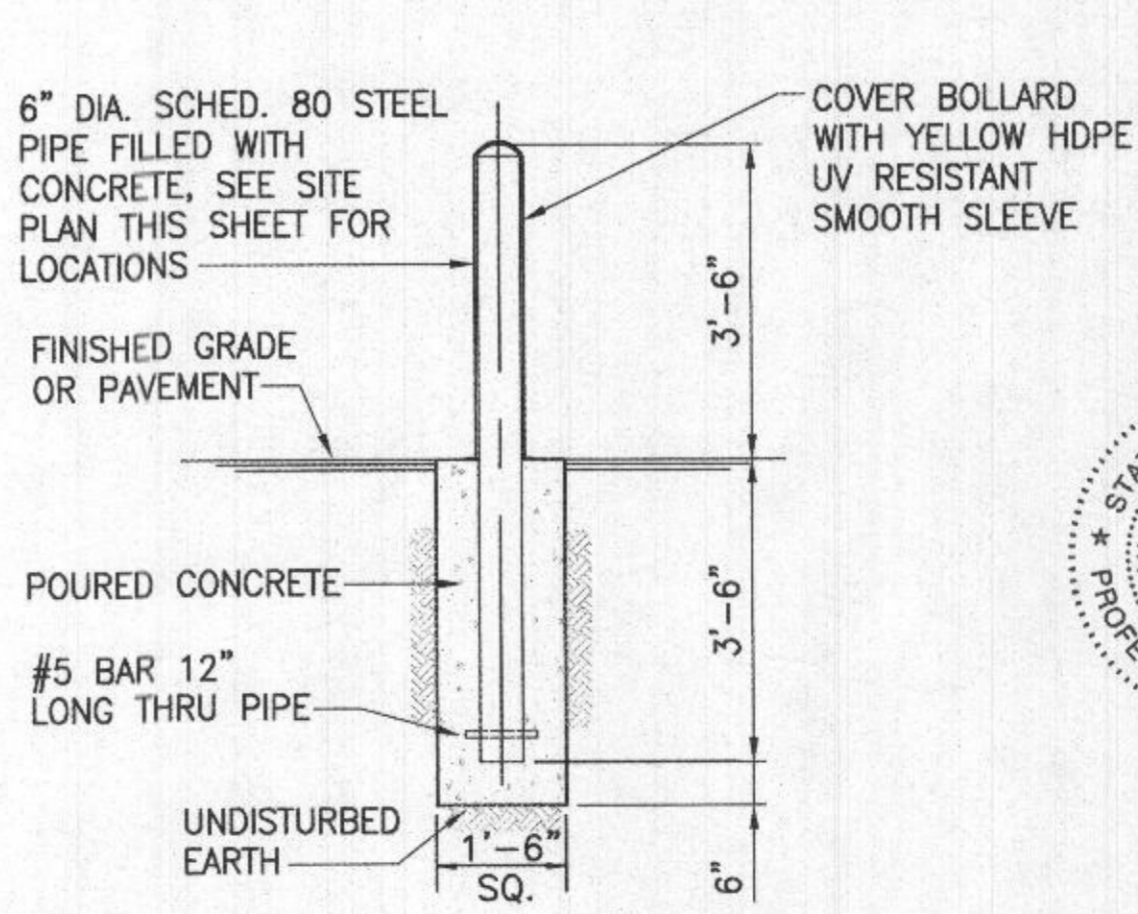
**2 FUEL SYSTEM DRAWING NOTES**

- 1 NEW 10,000 GALLON DOUBLE WALL FIBERGLASS DIESEL FUEL STORAGE TANK, (U.S.T.) 8'DIA. x 30'-6" LONG, SEE ELEVATION 4 ON DWG. M-3.
- 2 NEW 10,000 GALLON DOUBLE WALL FIBERGLASS UNLEADED GASOLINE TANK, 8' DIA. x 30'-6" LONG, SEE ELEVATION 4 ON DWG. M-3.
- 3 NEW 4" DIA. PVC OBSERVATION WELL/MONITORING PIPE AT EDGES OF TANK HOLE EXCAVATION, (TYP. OF 3) SEE DETAIL 2 ON DWG. M-4 AND NEW WORK SITE PLAN 1 THIS SHEET FOR LOCATIONS.
- 4 NEW 35' x 6' RAISED CONCRETE FUEL SERVICE ISLAND, SEE FUEL SERVICE ISLAND PART PLAN 3 AND SECTION 4 THIS SHEET.
- 5 NEW 6" DIA. STEEL PIPE BOLLARDS (TYP. OF 15) 8 @ FUEL ISLAND, 2 @ TANK VENT TRANSITION SUMP, 3 @ A.S.T. AND 2 @ OWS VENT RISERS. SEE TYPICAL BOLLARD DETAIL 5 THIS SHEET.
- 6 NEW REMOTE SINGLE PRODUCT HIGH FLOW DIESEL DISPENSER WITH 1" DUAL HOSES AND COUNTERWEIGHT HIGH HOSE RETRACTORS, SEE DETAIL 1 AND ELEVATION 3 ON DWG. M-3.
- 7 NEW REMOTE SINGLE PRODUCT UNLEADED GASOLINE DISPENSER WITH 3/4" DUAL HOSES AND COUNTERWEIGHT HIGH HOSE RETRACTORS, SEE DETAIL 1 AND ELEVATION 3 ON DWG. M-3.
- 8 NEW CANOPY COLUMNS TO BE PRIMED AND PAINTED AS NOTED IN THE SPECIFICATIONS.
- 9 NEW 38'x24' FUEL ISLAND CANOPY.
- 10 REINSTALL EXIST. FUEL MASTER CARD READER REMOVED TO FACILITATE NEW FUEL ISLAND CONSTRUCTION; COORDINATE WITH HOCO FLEET SERVICES.
- 11 NEW 2-INCH FLEXIBLE DUAL WALL DIESEL AND UNLEADED GASOLINE FUEL SUPPLY WITH 2" PRIMARY AND 4" SECONDARY CONTAINMENT PIPES UNDERGROUND FROM EACH U.S.T. TO DISPENSERS AT NEW FUEL SERVICE ISLAND. SEE PROFILE ON DWG. M-7.
- 12 NEW 2" DOUBLE WALL FIBERGLASS VENT PIPE AND FITTINGS UNDERGROUND FROM U.S.T. TO VENT TRANSITION SUMP LOCATED ADJACENT TO BLDG. WALL. SEE TANK VENTS PROFILE ON DWG. M-7 AND TANK VENT TRANSITION SUMP DETAIL 2 ON DWG. M-6.
- 13 NEW 10LB TYPE ABC MULTI-PURPOSE FIRE EXTINGUISHER W/CABINET MOUNTED TO CANOPY COLUMN (TYP. OF 2) ONE ON EACH COLUMN.
- 14 NEW 30 GALLON PLASTIC DRUM SPILL KIT EQUAL TO ABSORBENTSONLINE.COM MODEL ASK30P.
- 15 NEW 45 GALLON WIRE MESH TRASH CONTAINER INCLUDING STEEL DOME LID WITH SELF-CLOSING SWING DOOR PAINTED BLACK, EQUAL TO ULINE MODEL H-2125 & H-1857.
- 16 NEW 1,000 GALLON DOUBLE WALL STEEL BURIED OIL/WATER SEPARATOR RATED FOR 100 GPM MAXIMUM PEAK FLOW WITH TANK LEAK DETECTION AND HIGH LEVEL ALARM TO NEW ALARM PANEL LOCATED IN BLDG OFFICE (SEE ELECTRICAL PLANS FOR LOCATION).
- 17 NEW 2,000 GALLON DOUBLE WALL RECTANGULAR STEEL THERMALLY INSULATED ABOVE GROUND HEATING OIL FUEL STORAGE TANK (6'-10"W X 11'-4"L X 5'-1"H) WITH STEEL ACCESS STAIR AND PLATFORM FURNISHED BY TANK MANUFACTURER. PROVIDE COLOR CODED PRODUCT SIGN MOUNTED TO THE SIDE OF THE TANK THAT READS "HEATING OIL 2,000 GALLONS" WITH APPROPRIATE API FUEL SYMBOL AND COLOR.
- 18 REPLACE EXISTING COLOR CODED PRODUCT SIGN MOUNTED ON FACE OF BUILDING WALL WITH NEW SIMILAR SIZE AND MATERIAL SIGN THAT READS "UNLEADED GASOLINE 10,000 GALLONS" AND "DIESEL 10,000 GALLONS" WITH APPROPRIATE SYMBOL AND COLOR.



**REFERENCE NOTES:**

1. SEE GENERAL UTILITY NOTES ON DWG. M-3.
2. SEE CIVIL SITE PLAN ON DWG. C-2 FOR LIMITS OF NEW CONCRETE AND ASPHALT PAVEMENT AND FUEL SERVICE ISLAND PART PLAN THIS SHEET.
3. SEE ELECTRICAL NEW WORK PART PLAN ON DWG. E-4 FOR NEW ELECTRICAL SERVICE TO/FROM NEW UNDERGROUND TANKS, ABOVEGROUND TANK, FUEL ISLAND, AND OWS.



**3 FUEL SERVICE ISLAND PART PLAN**



**4 FUEL SERVICE ISLAND SECTION**  
M-2  
NOT TO SCALE

**5 TYPICAL BOLLARD DETAIL**  
M-2  
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director: *Shawn Walsh* 08-14-2019  
Date: 08-14-2019

Chief, Design & Construction: *Shawn Walsh*  
Date: 08-14-2019

Chief, Operations & Maintenance: *David A. John*  
Date: 08-12-2019

**AECOM**

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16156, EXPIRATION DATE: 8/28/2022 (M)

DES:	RER				
DRN:	CLD				
CHK:	DTM				
DATE:	08/2019	BY:	NO.	REVISION	DATE

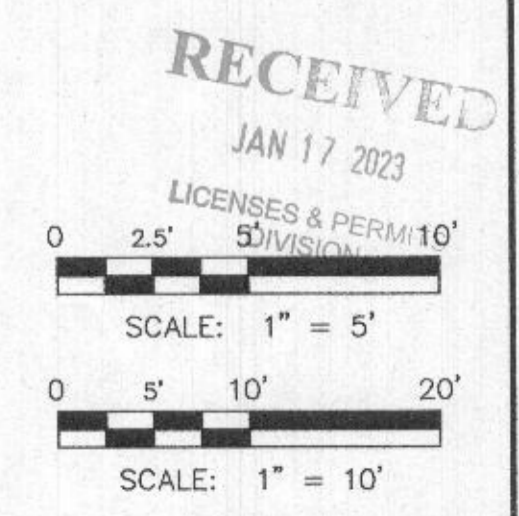
**FUEL SYSTEM PLANS, NOTES, SECTION & DETAIL**

SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

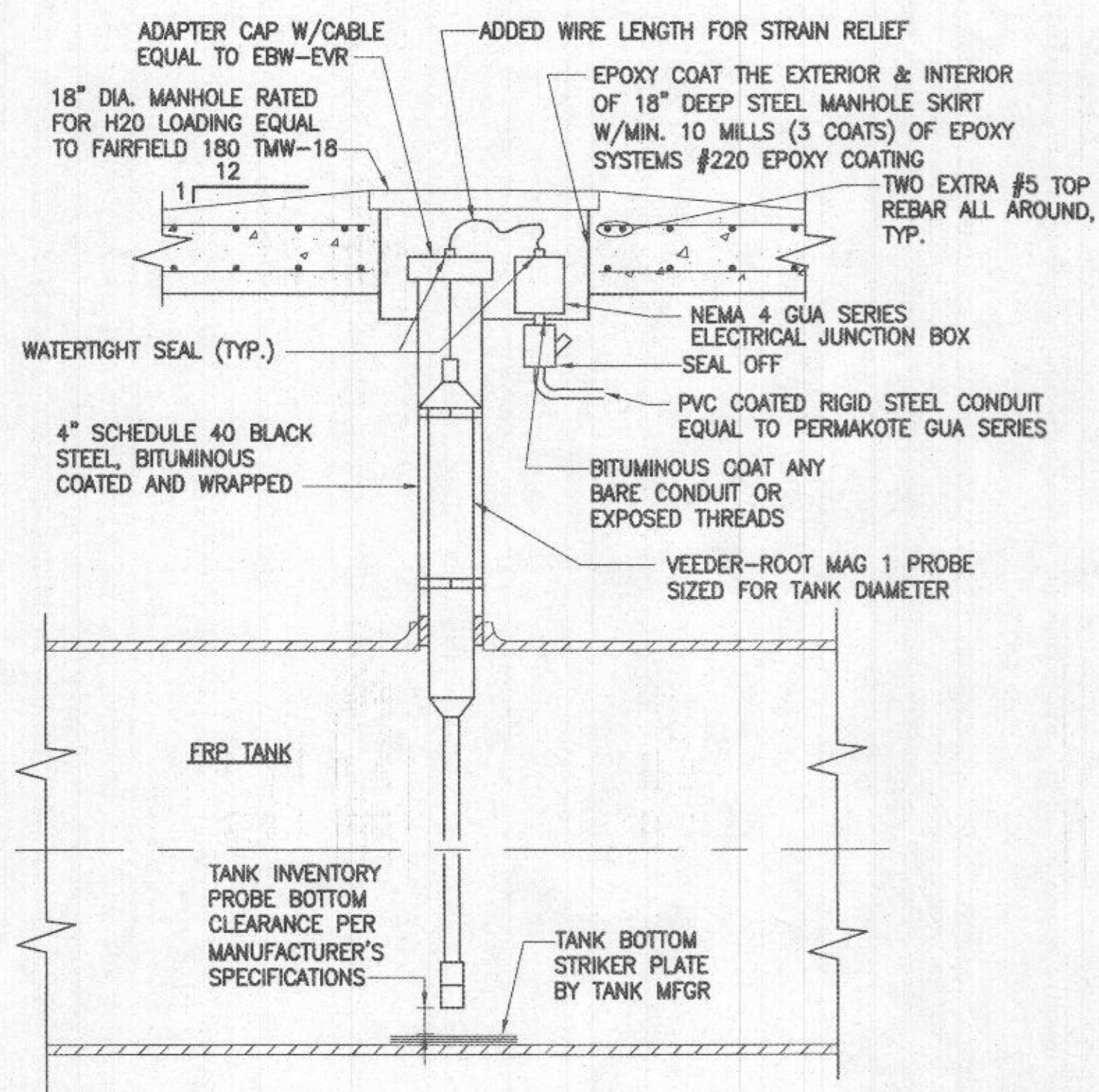
**DAYTON HIGHWAY MAINTENANCE FACILITY UPGRADED FUEL STORAGE & DISPENSING SYSTEM**

CAPITAL PROJECT NO. C-0322  
5TH ELECTION DISTRICT - HOWARD COUNTY, MARYLAND

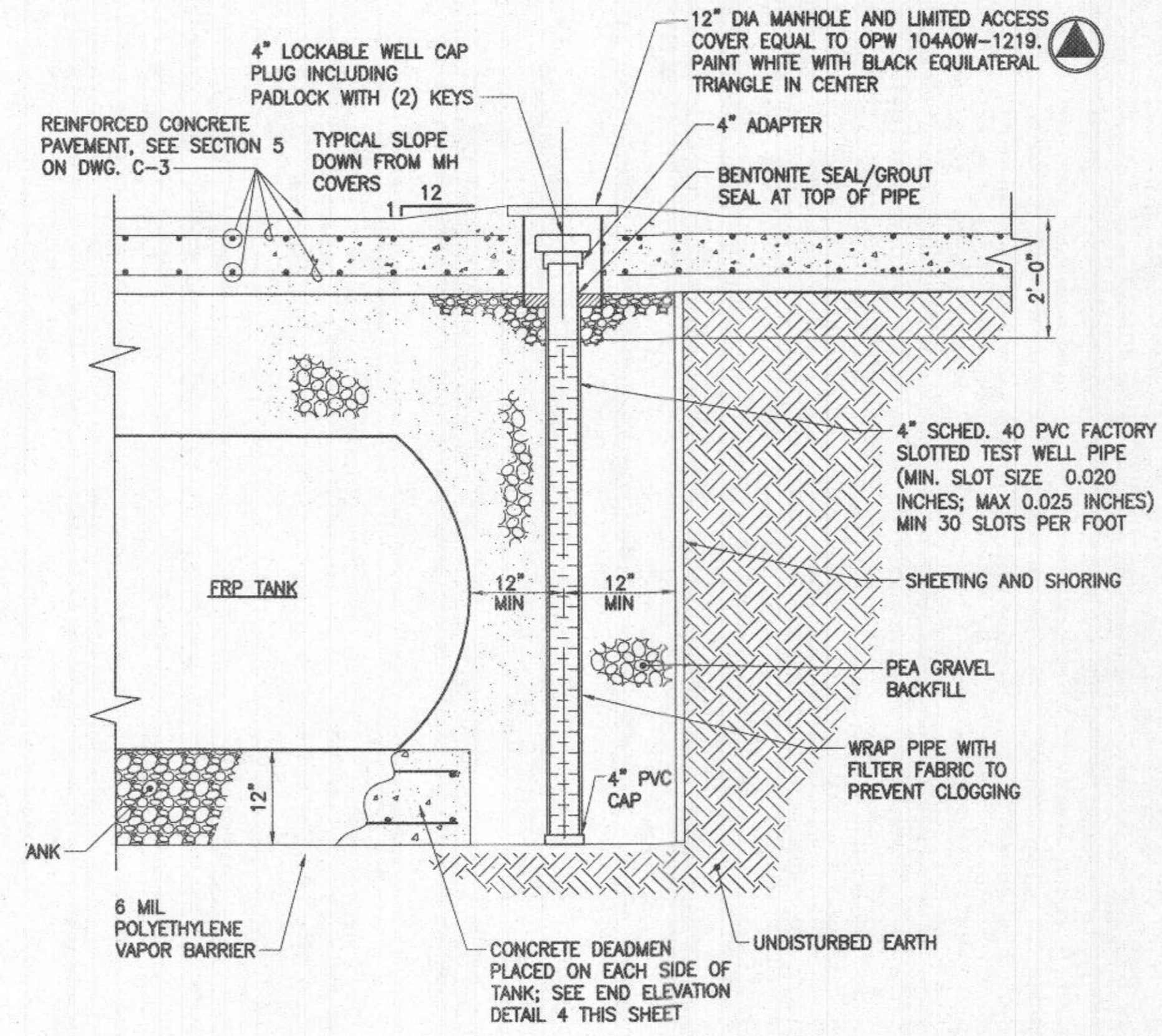
SCALE AS SHOWN  
DWG. NO. M-2



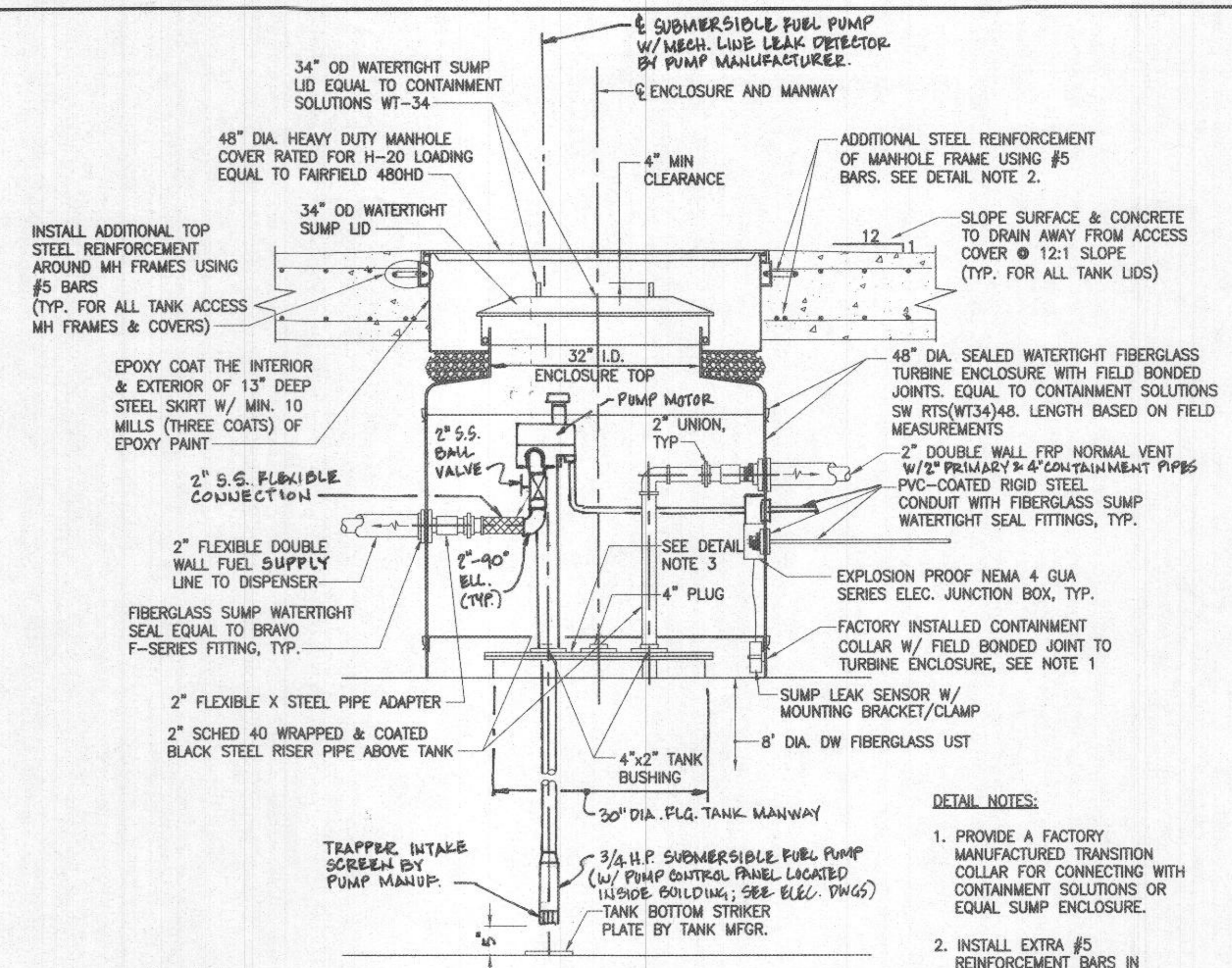




1 VEEDER-ROOT TANK INVENTORY PROBE (TYP. OF 2) NOT TO SCALE

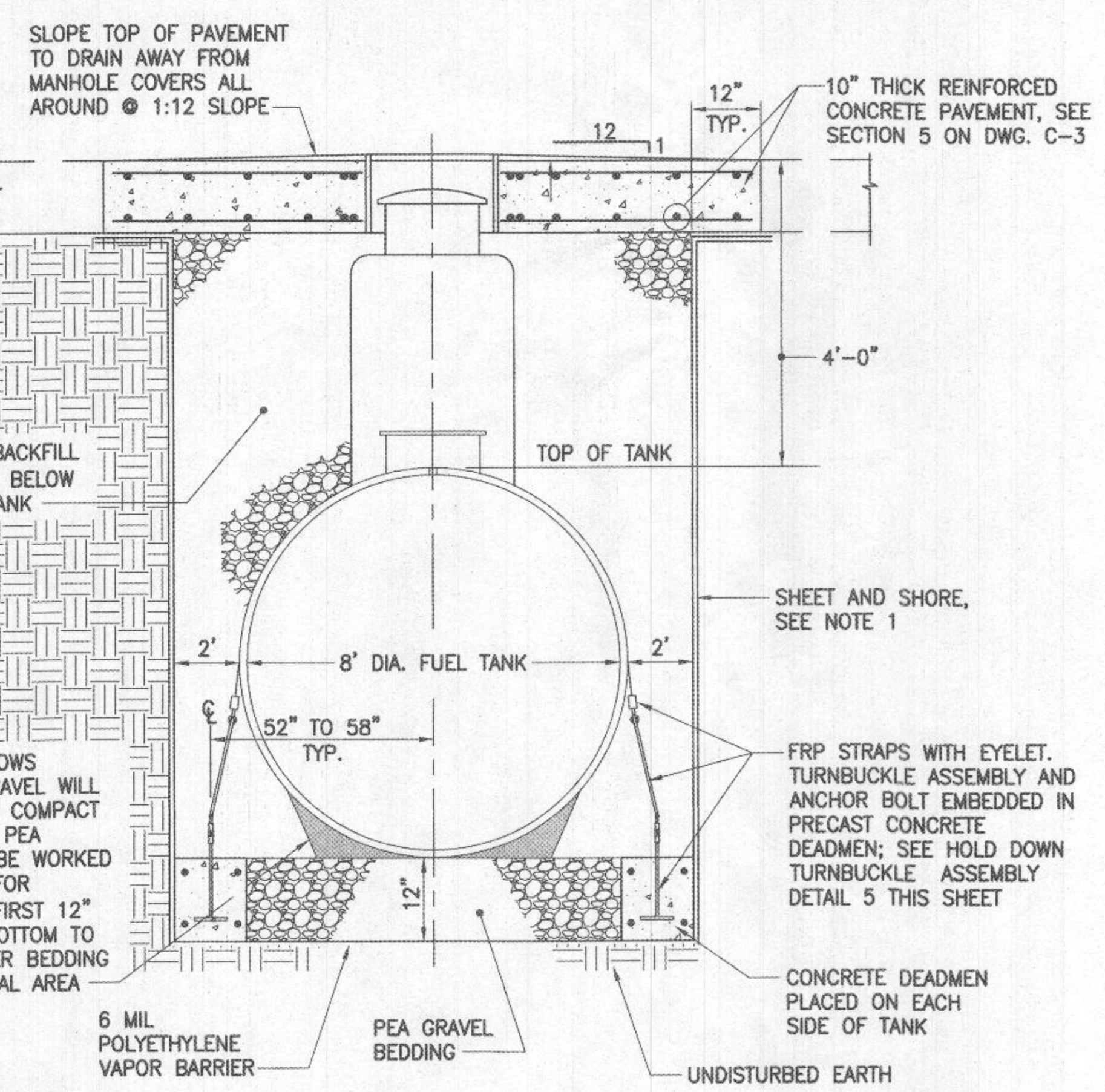


2 TANK HOLE OBSERVATION WELL (TYP. OF 3) NOT TO SCALE



- DETAIL NOTES:
1. PROVIDE A FACTORY MANUFACTURED TRANSITION COLLAR FOR CONNECTING WITH CONTAINMENT SOLUTIONS OR EQUAL SUMP ENCLOSURE.
  2. INSTALL EXTRA #5 REINFORCEMENT BARS IN CONC. PAVT AROUND TANK MH FRAMES & COVERS, TYP.
  3. PROVIDE 30" DIA. MANWAY WITH (3) 4" NPT FITTINGS.
  4. SLOPE 2" DW WALL FUEL SUPPLY LINE, AND 2" DW VENT PIPE TO DRAIN TOWARDS TANK ENCLOSURE

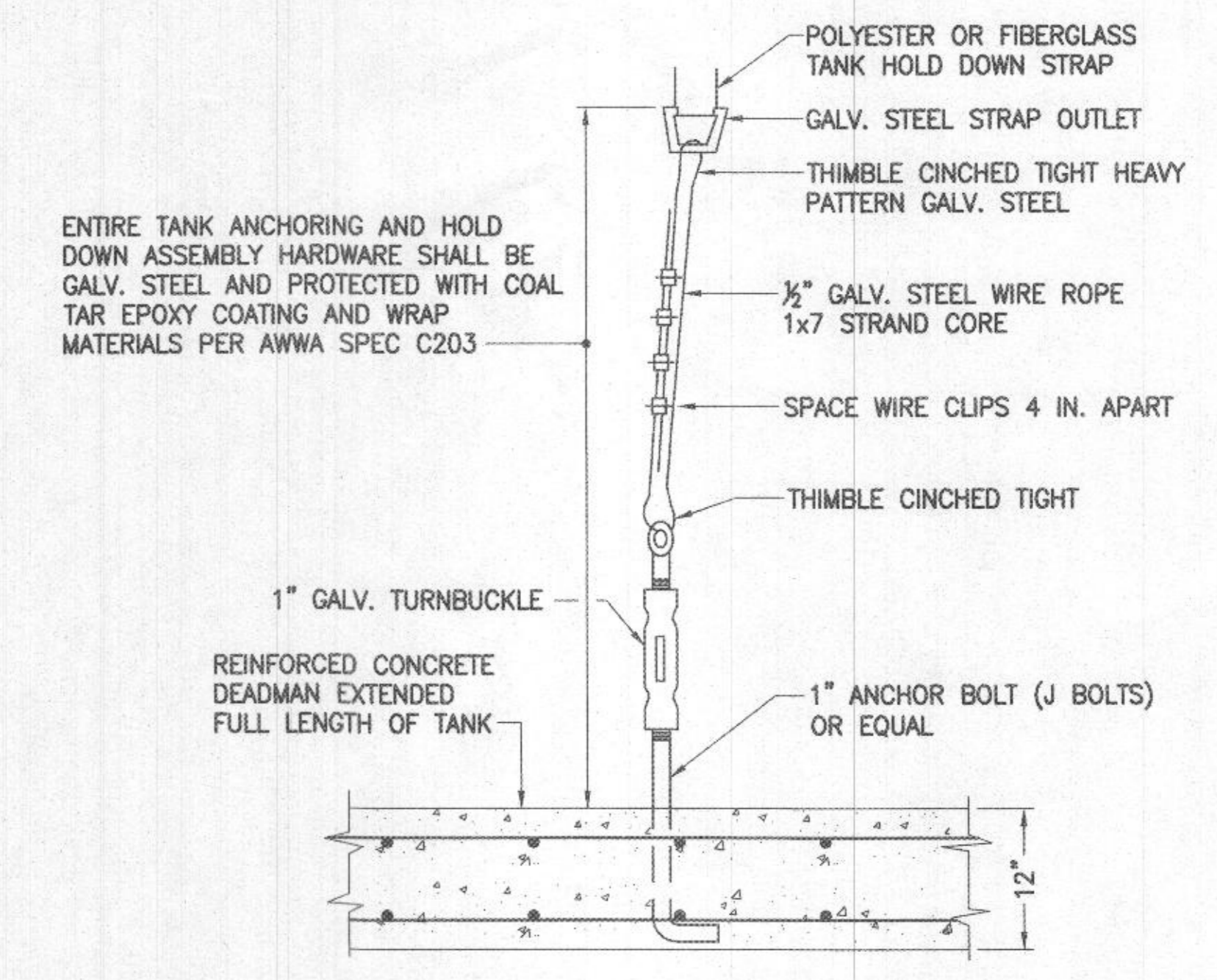
3 TANK TURBINE ENCLOSURE WITH SUBMERSIBLE FUEL PUMP AND NORMAL VENT (TYP. OF 2) N.T.S.



4 TANK ANCHORING DETAIL NOT TO SCALE

DETAIL NOTES:

1. SHEETING AND SHORING SHALL BE DESIGNED BY CONTRACTOR TO MEET ALL OSHA REQUIREMENTS AND SHALL BE SIGNED AND SEALED BY A MARYLAND LICENSED ENGINEER; SUBMIT WITH TANK SHOP DRAWINGS.
2. CONCRETE DEADMEN SHOWN SHALL BE TANK MANUFACTURER'S STANDARD REINFORCED CONCRETE DEADMEN AND SHALL BE DESIGNED & SUBMITTED AS SHOP DRAWING FOR ACCEPTANCE BY HOCO PRIOR TO INSTALLATION PER MFR. RECOMMENDATIONS.
3. ATTACH ANCHOR POINTS TO THE ENDS OF ANCHOR STRAPS WITH TURNBUCKLES.

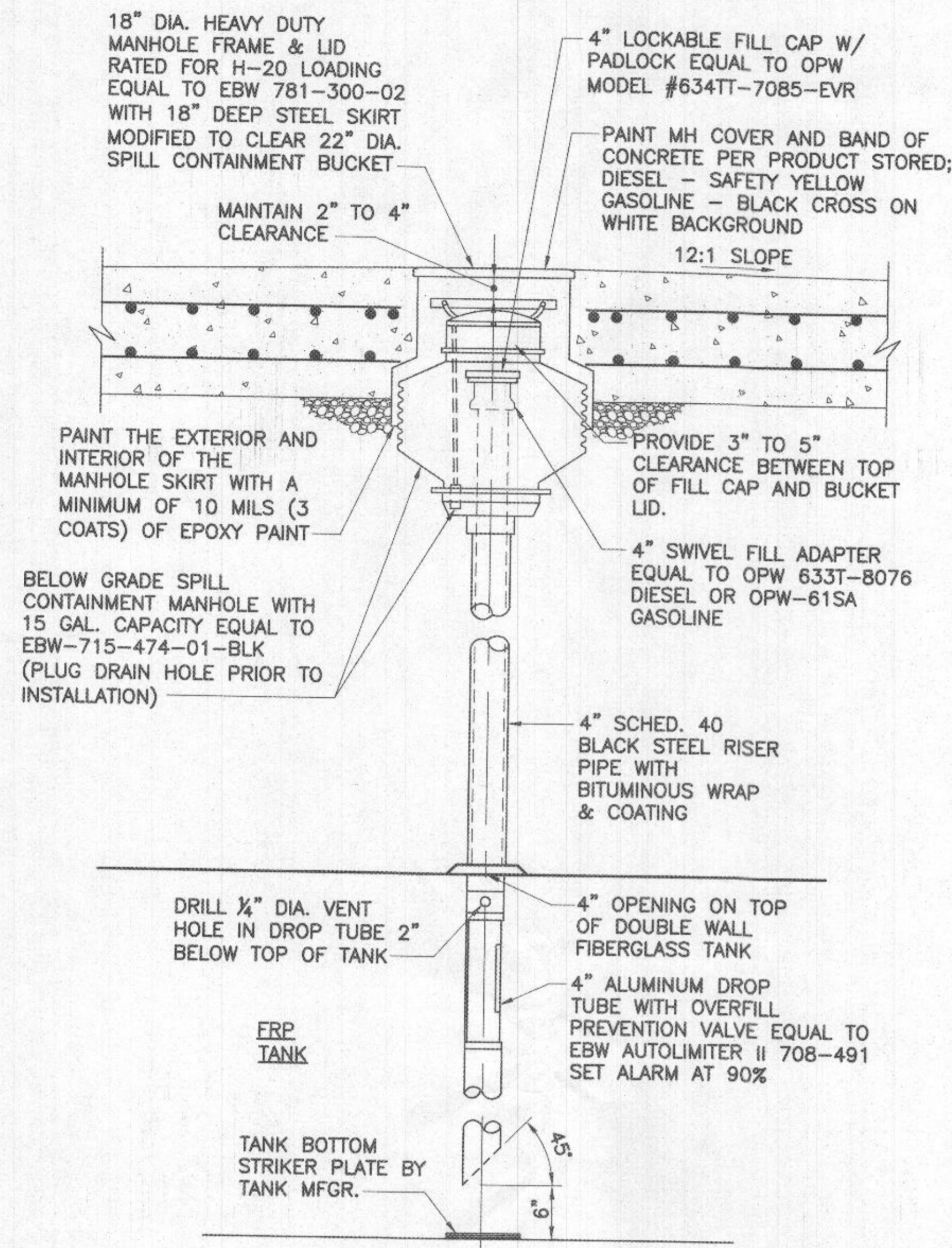


5 TYPICAL TANK HOLD DOWN TURNBUCKLE ASSEMBLY DETAIL NOT TO SCALE

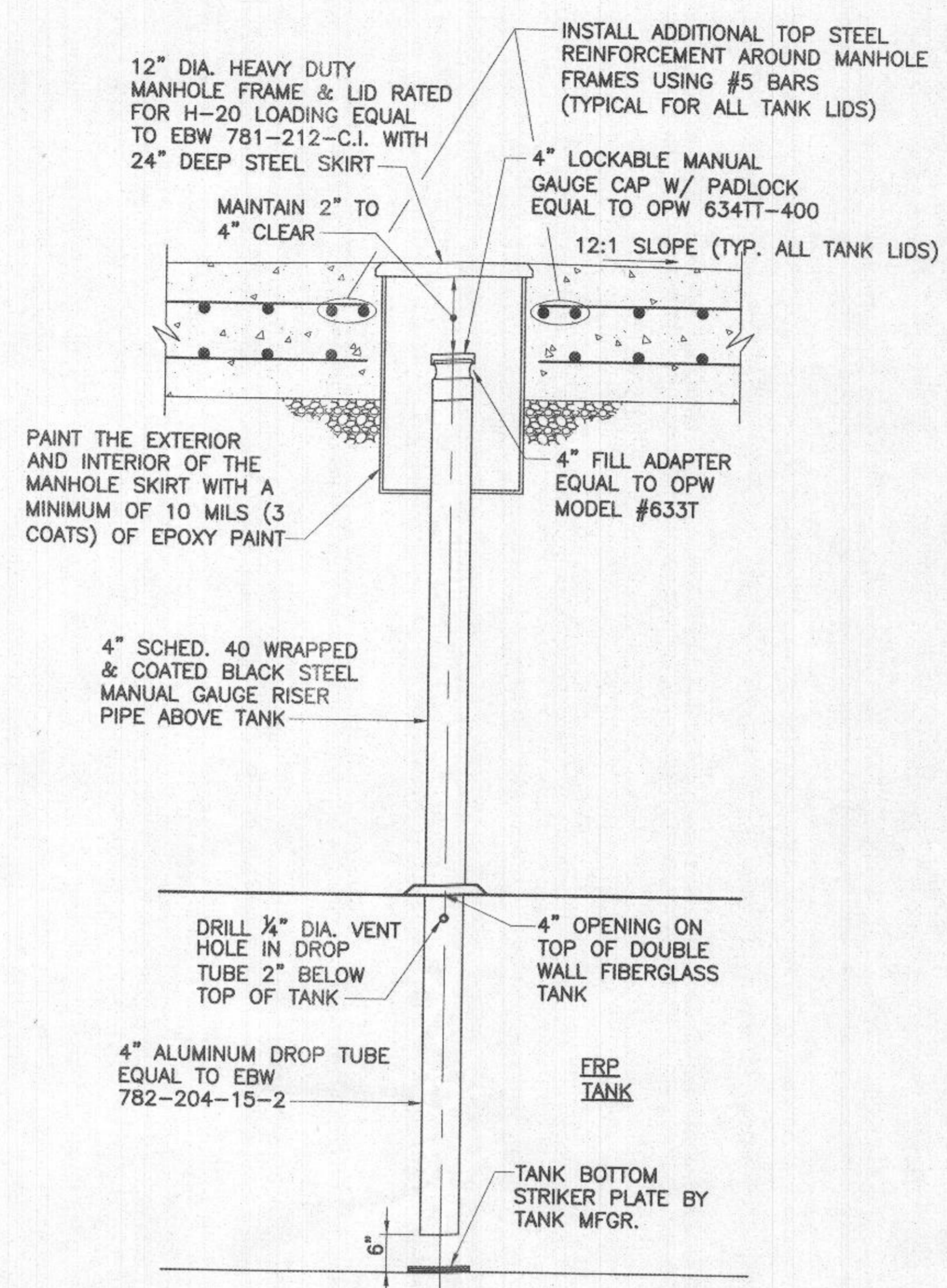
PROFESSIONAL CERTIFICATION  
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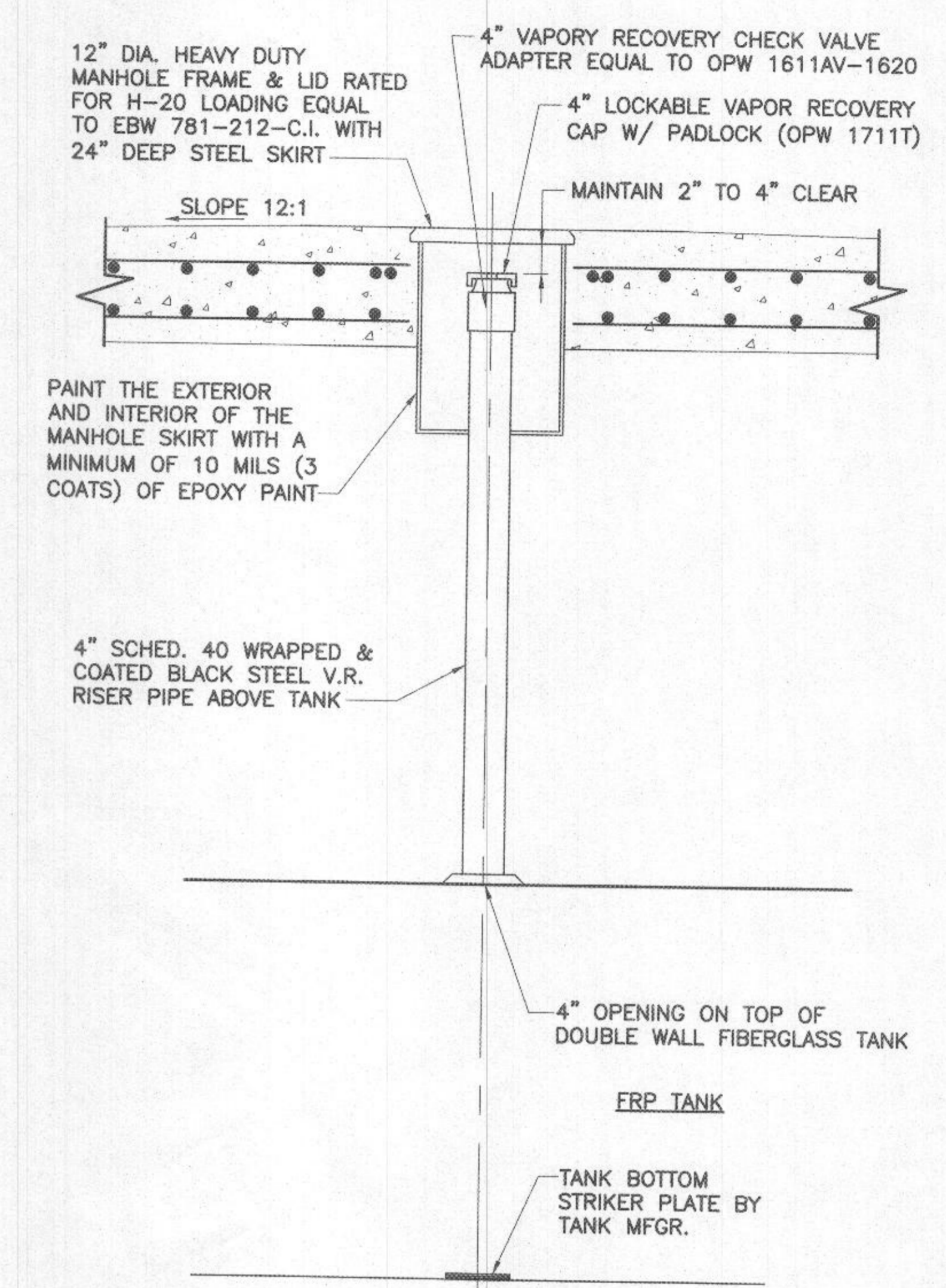
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 LICENSES & PERMITS DIVISION



1 TYPICAL TANK FILL RISER DETAIL  
M-5 NOT TO SCALE



2 TYPICAL TANK MANUAL GAUGE RISER DETAIL  
M-5 NOT TO SCALE



3 STAGE I GASOLINE TANK VAPOR RECOVERY DETAIL  
M-5 NOT TO SCALE

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LICENSE NO. 16156  
EXPIRATION DATE: 8/28/2024



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
Director of Public Works: [Signature] DATE: 8/23/19  
Bureau of Facilities: [Signature] DATE: 08/12/2019



DES:	REB				
DRN:	CLD				
CHK:	DTM				
DATE:	08/2019				
BY:	NO.				
REVISION:					
DATE:					

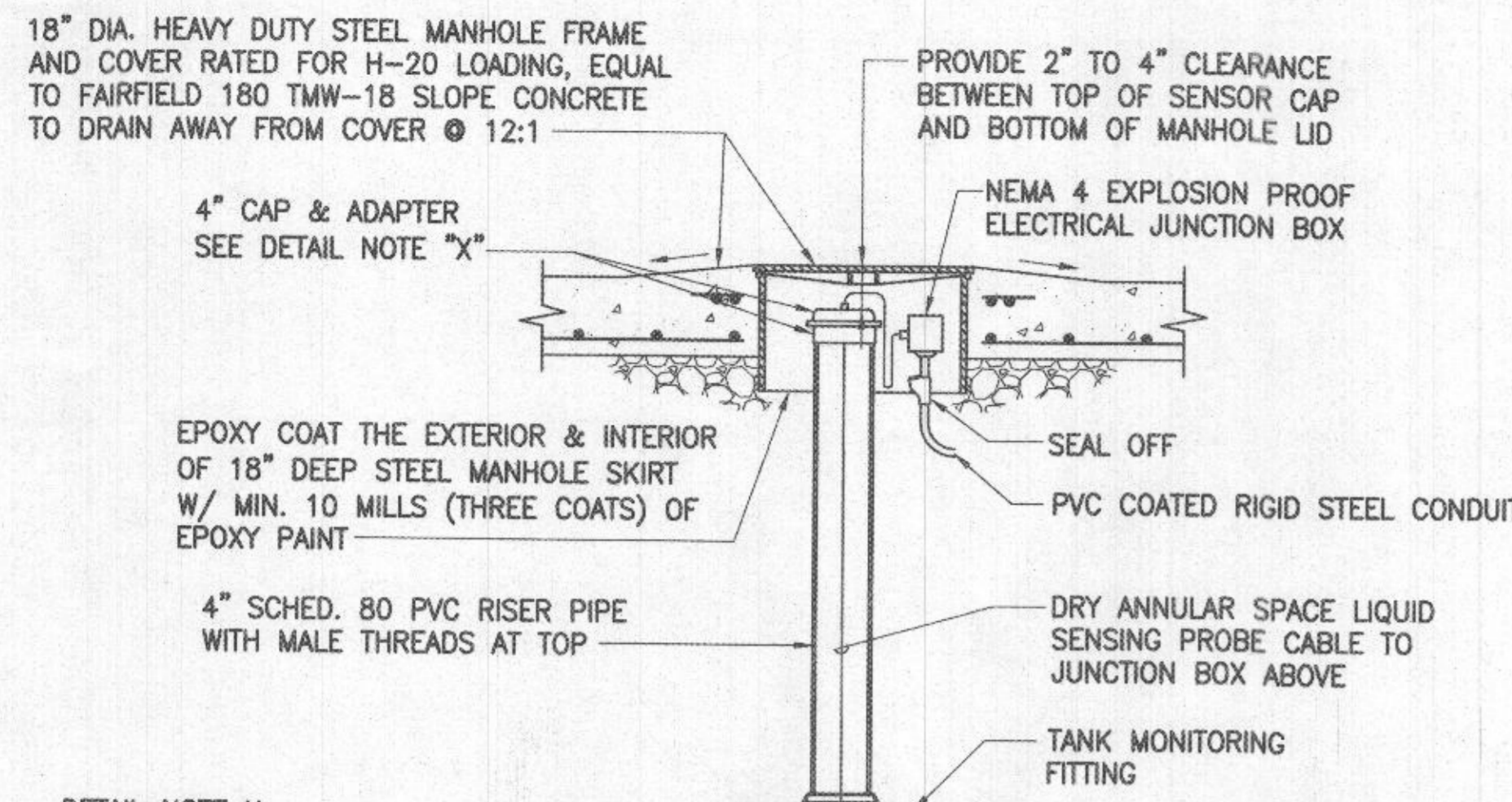
FUEL SYSTEM DETAILS II

DAYTON HIGHWAY MAINTENANCE FACILITY  
UPGRADED FUEL STORAGE & DISPENSING SYSTEM

CAPITAL PROJECT NO. C-0322  
5TH ELECTION DISTRICT - HOWARD COUNTY, MARYLAND

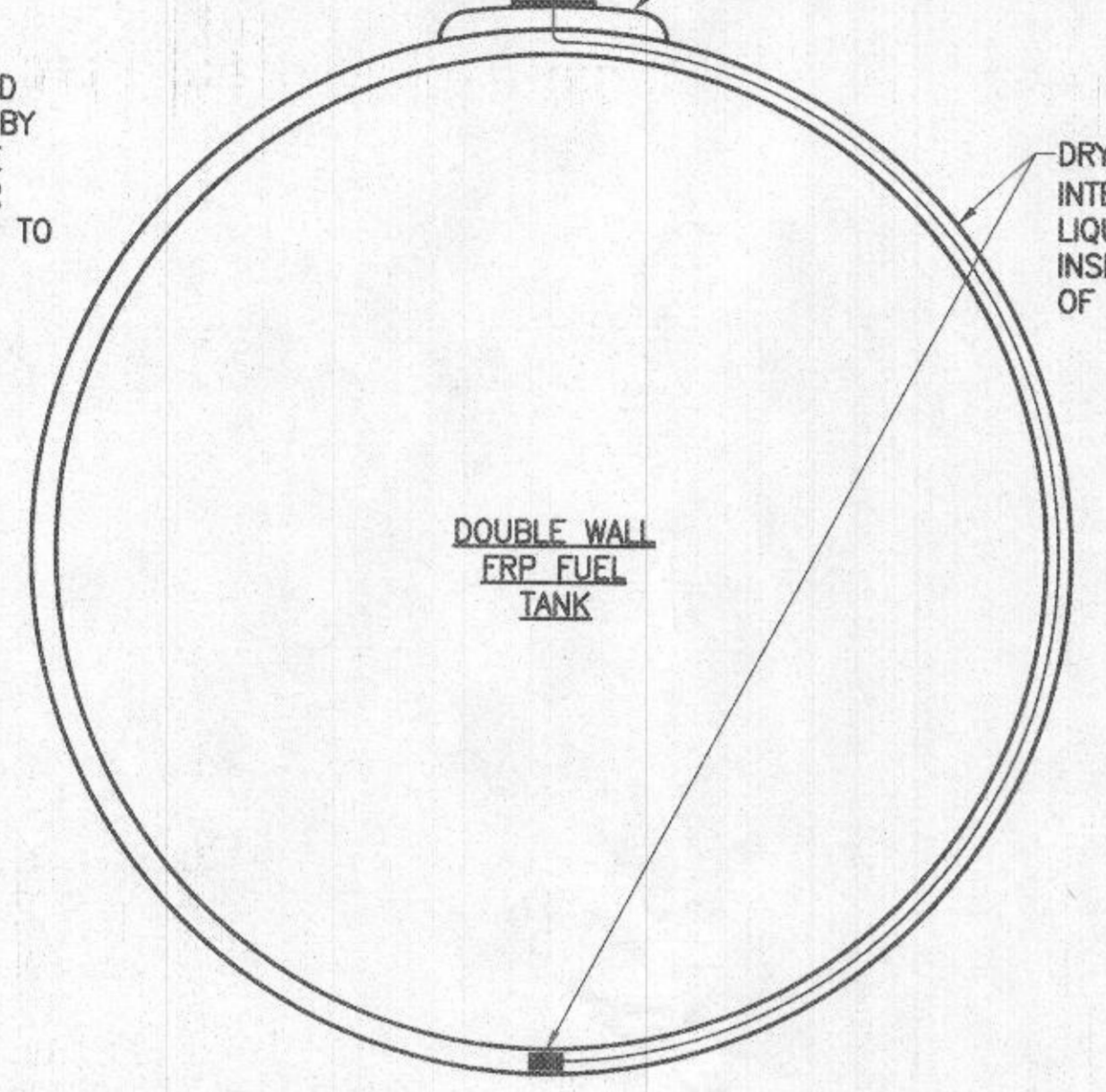
SCALE AS SHOWN  
DWG NO. M-5

RECEIVED  
JAN 17 2023  
LICENSES & PERMITS DIVISION



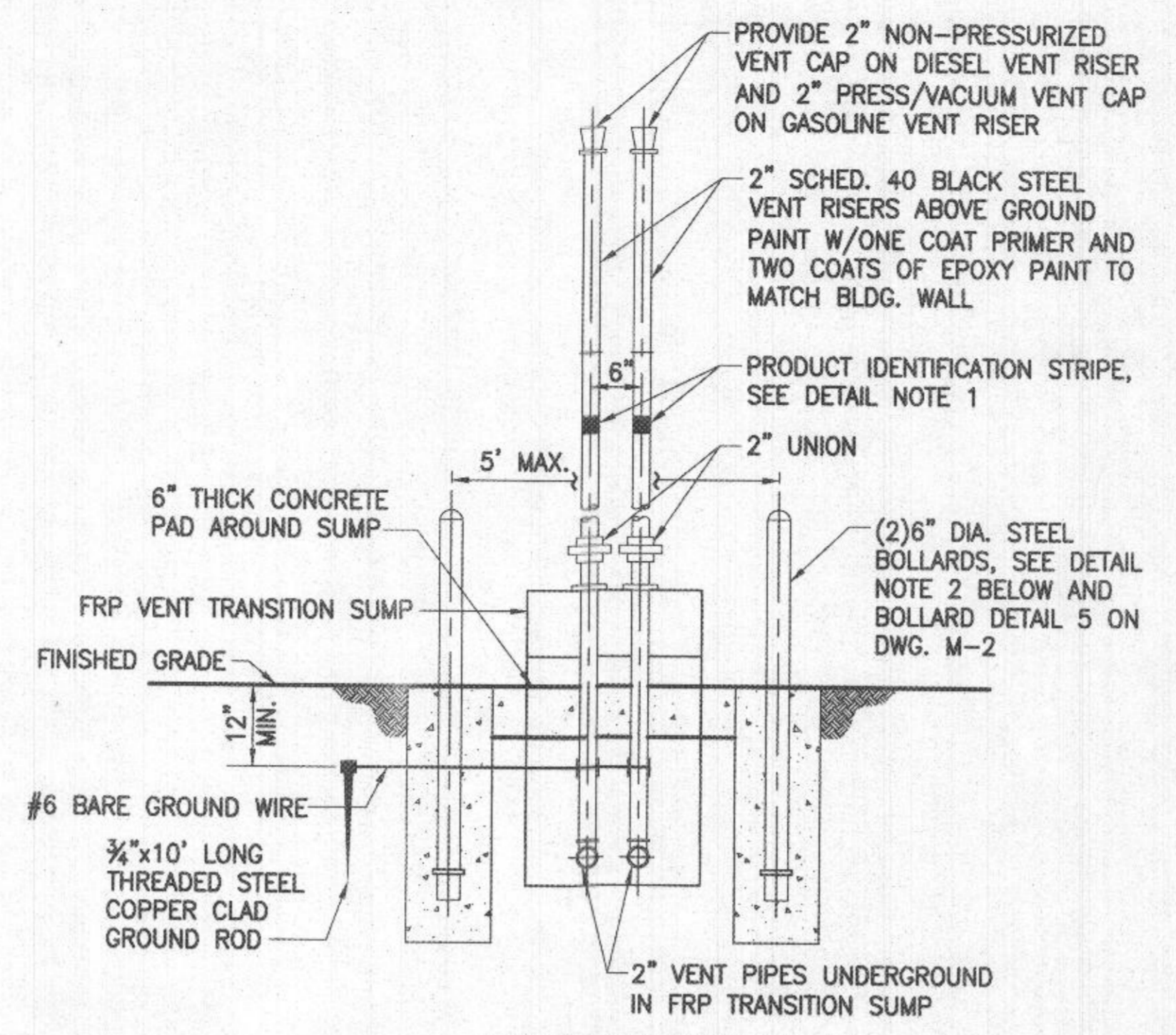
DETAIL NOTE X:

4" PVC RISER PIPE CAP AND ADAPTER FITTING PROVIDED BY TANK MANUFACTURER TO BE INSTALLED AT TOP OF RISER PIPE. GLUE RISER PIPE CAP TO ADAPTER FITTING



1 TANK MONITORING SYSTEM (LEAK DETECTION) DETAIL WITH LIQUID SENSOR (TYP. OF 2)

M-6 NOT TO SCALE

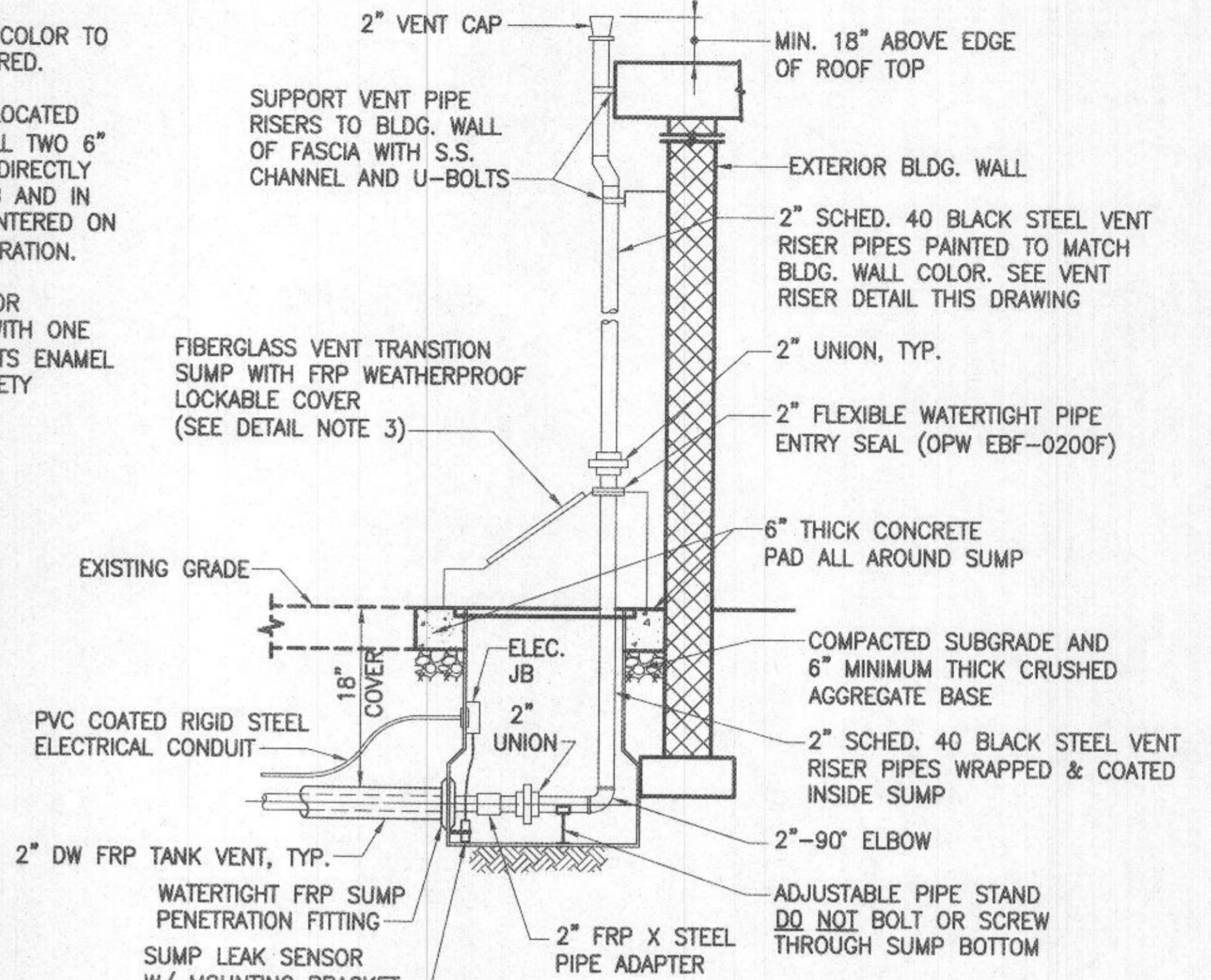


2 FRONT ELEVATION

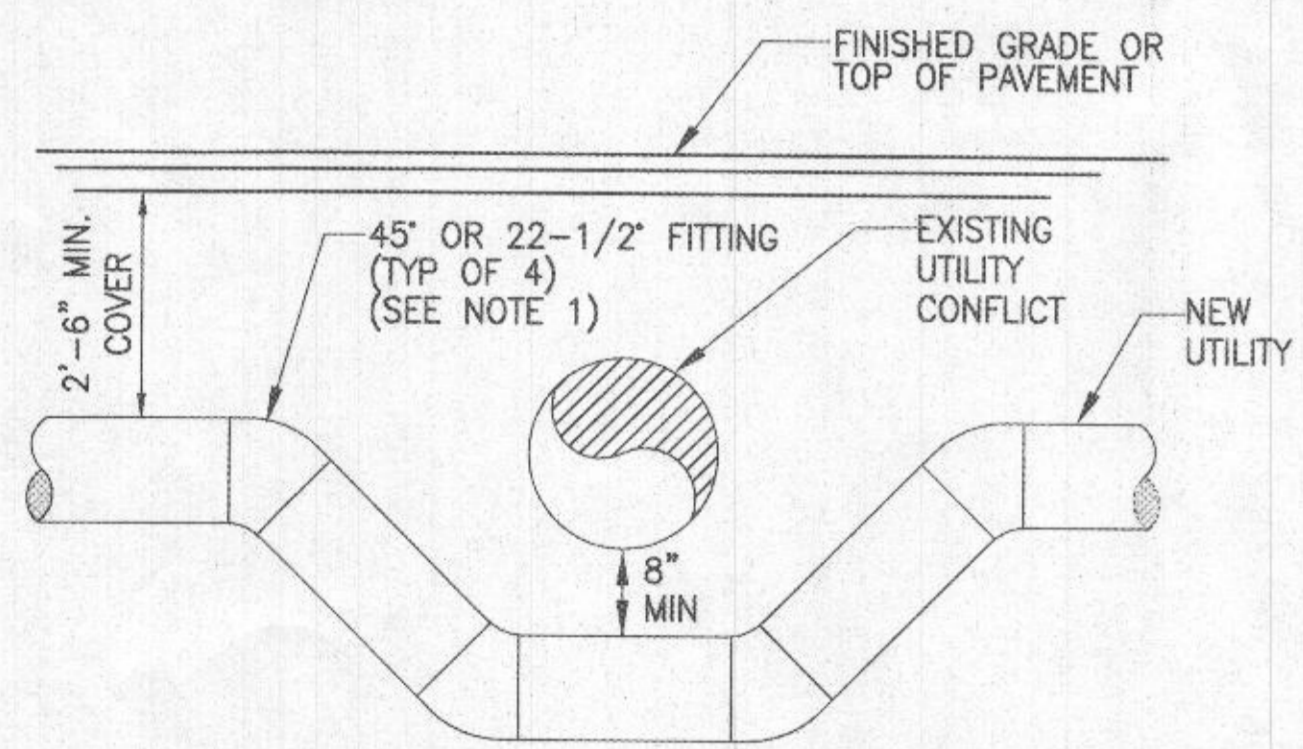
2 TANK VENT TRANSITION SUMP AND RISER DETAIL

M-6 NOT TO SCALE

- DETAIL NOTES:
1. PAINT 6" WIDE BAND WITH COLOR TO MATCH TANK PRODUCT STORED.
  2. WHERE VENT RISERS ARE LOCATED ADJACENT TO CURB, INSTALL TWO 6" DIA. STEEL BOLLARDS SET DIRECTLY BEHIND BACK OF EX. CURB AND IN FRONT OF RISER PIPES CENTERED ON EACH SIDE W/5' MAX SEPARATION.
  3. COAT ALL EXPOSED EXTERIOR SURFACES OF FRP SUMP WITH ONE PRIMER COAT AND (2) COATS ENAMEL ACRYLIC LATEX GLOSS, SAFETY YELLOW PAINT.



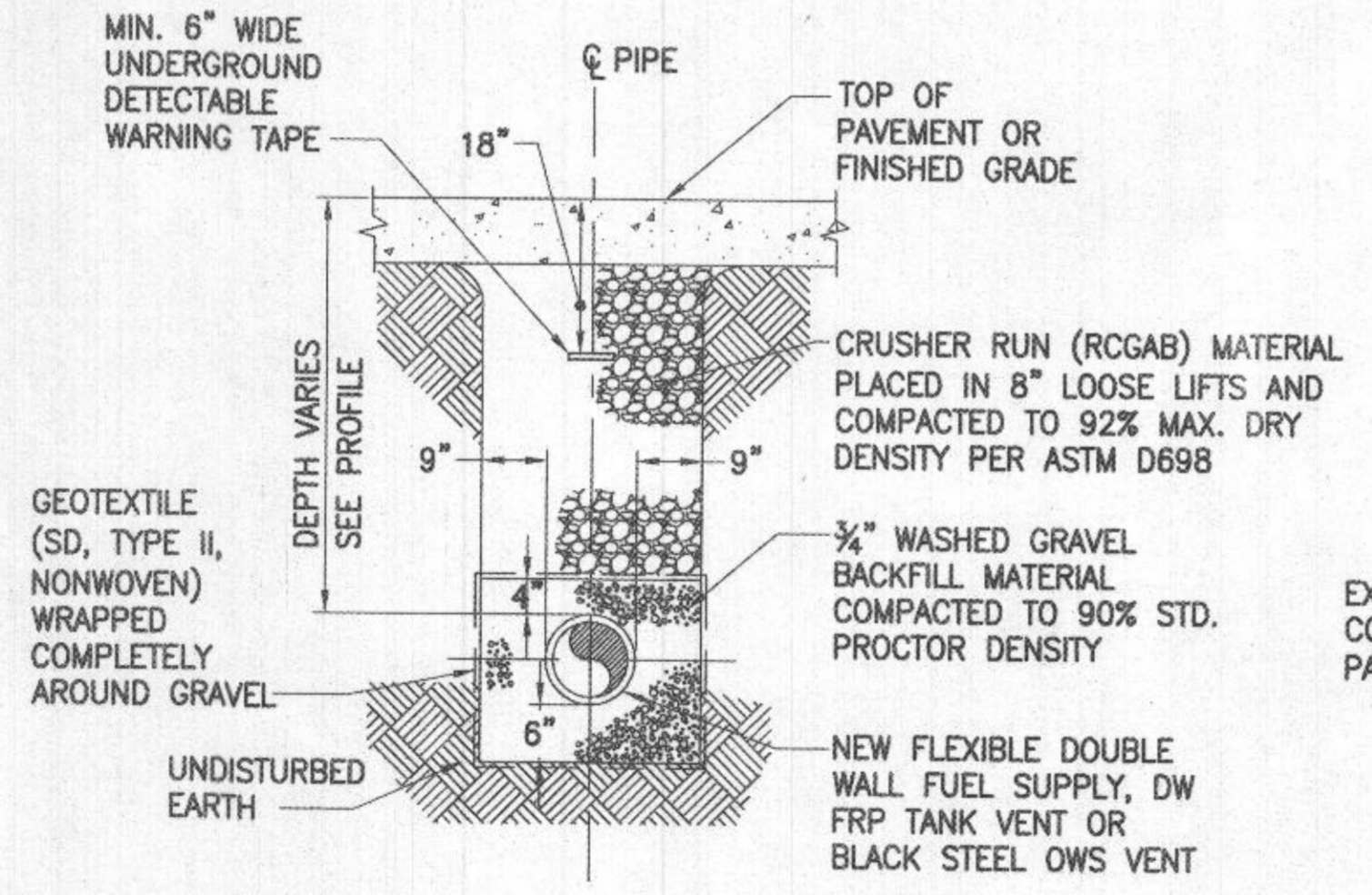
3 SIDE ELEVATION



NOTES:  
1. CONTRACTOR SHALL USE RESTRAINED PIPE JOINTS AND FITTINGS FOR VERTICAL OFFSET ON NEW DOUBLE WALL FUEL SUPPLY LINES UNLESS FLEXIBLE DUAL WALL PIPING IS PROVIDED.

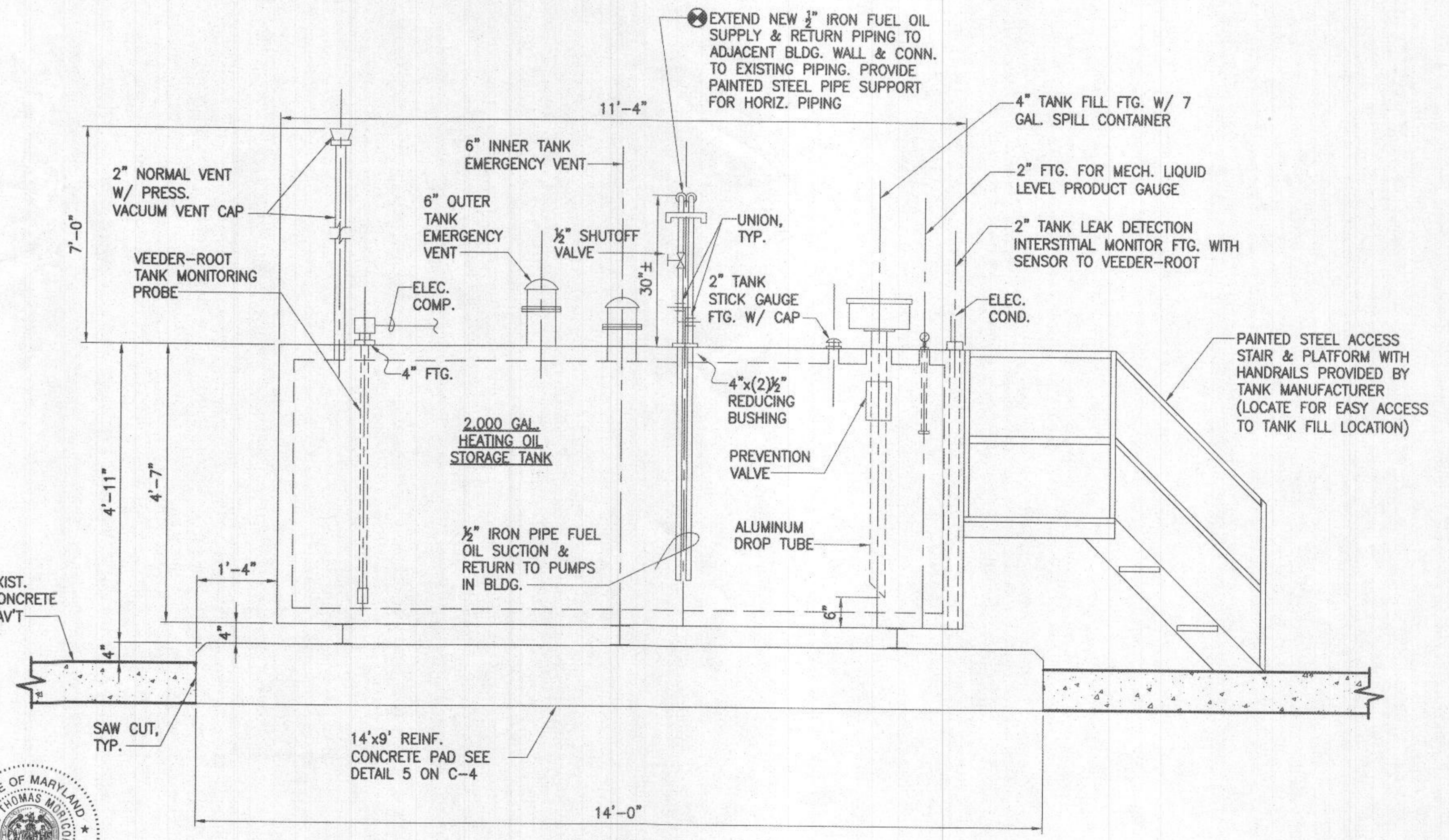
3 UTILITY CONFLICT DETAIL

M-6 NOT TO SCALE



4 TYPICAL PIPE TRENCH DETAIL

M-6 NOT TO SCALE



5 HEATING OIL AST DETAIL

5 HEATING OIL AST DETAIL

M-6 SCALE: 3/4" = 1'-0"

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RECEIVED  
JAN 17 2023  
LICENSES & PERMITS DIVISION

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
Director of Public Works: *David A. John* DATE: 8/23/19  
Chief, Design & Construction: *David A. John* DATE: 08/12/2019  
Chief, Operations & Maintenance: *David A. John* DATE: 08/12/2019

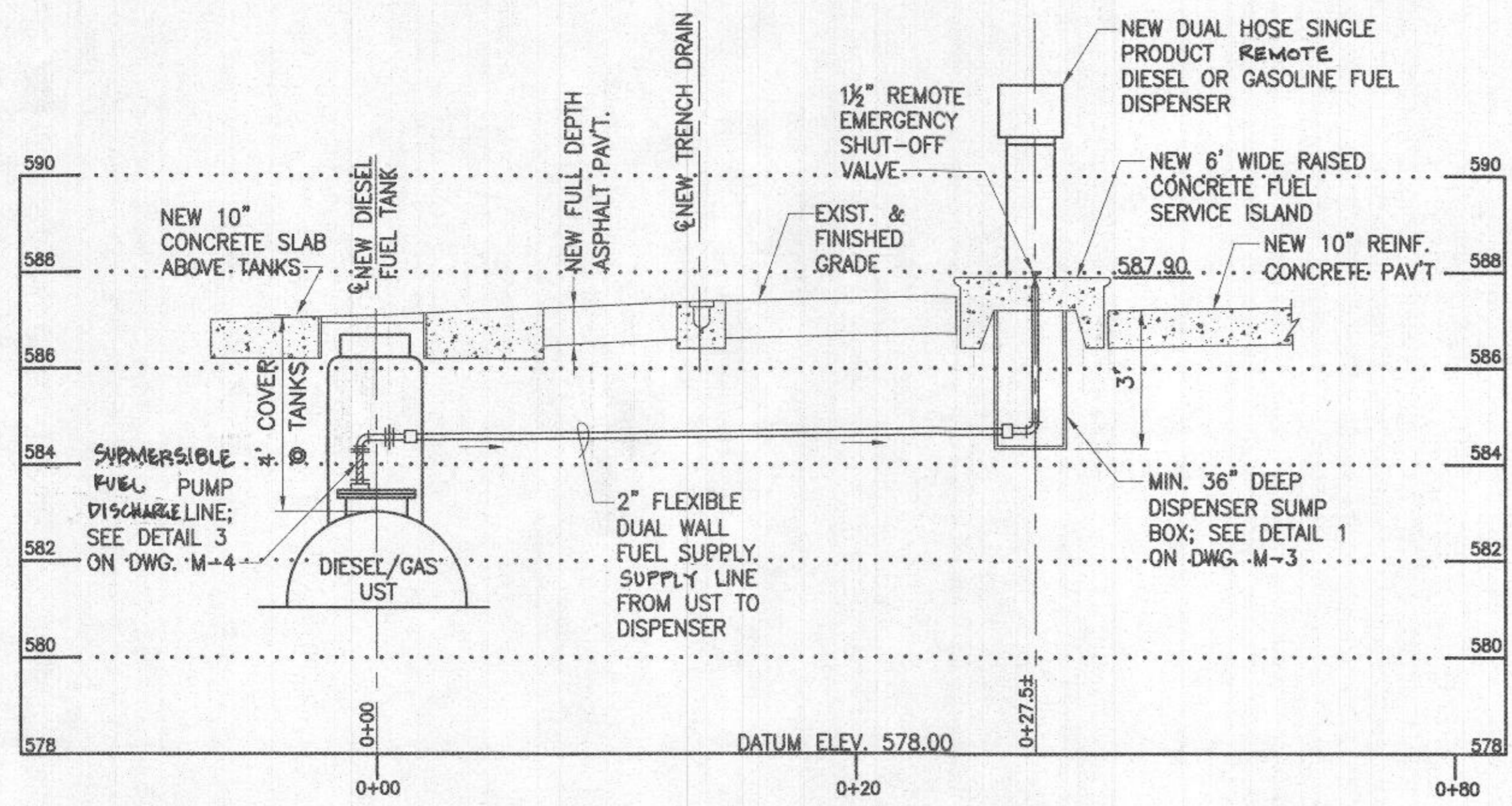


DES:	REB				
DRN:	CLD				
CHK:	DTM				
DATE:	08/2019	BY:	NO.	REVISION	DATE

FUEL SYSTEM DETAILS III

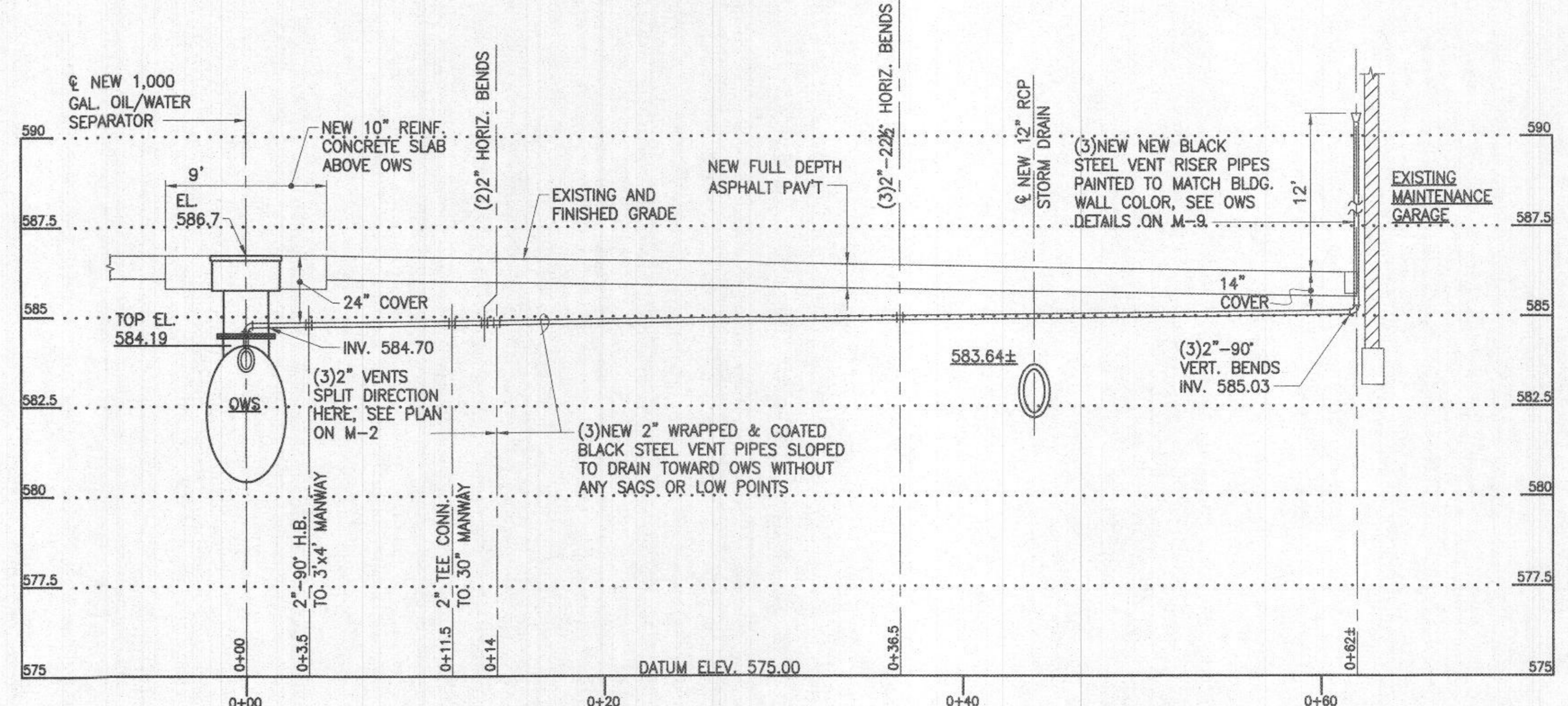
DAYTON HIGHWAY MAINTENANCE FACILITY  
UPGRADED FUEL STORAGE & DISPENSING SYSTEM

SCALE AS SHOWN  
DWG. NO. M-6



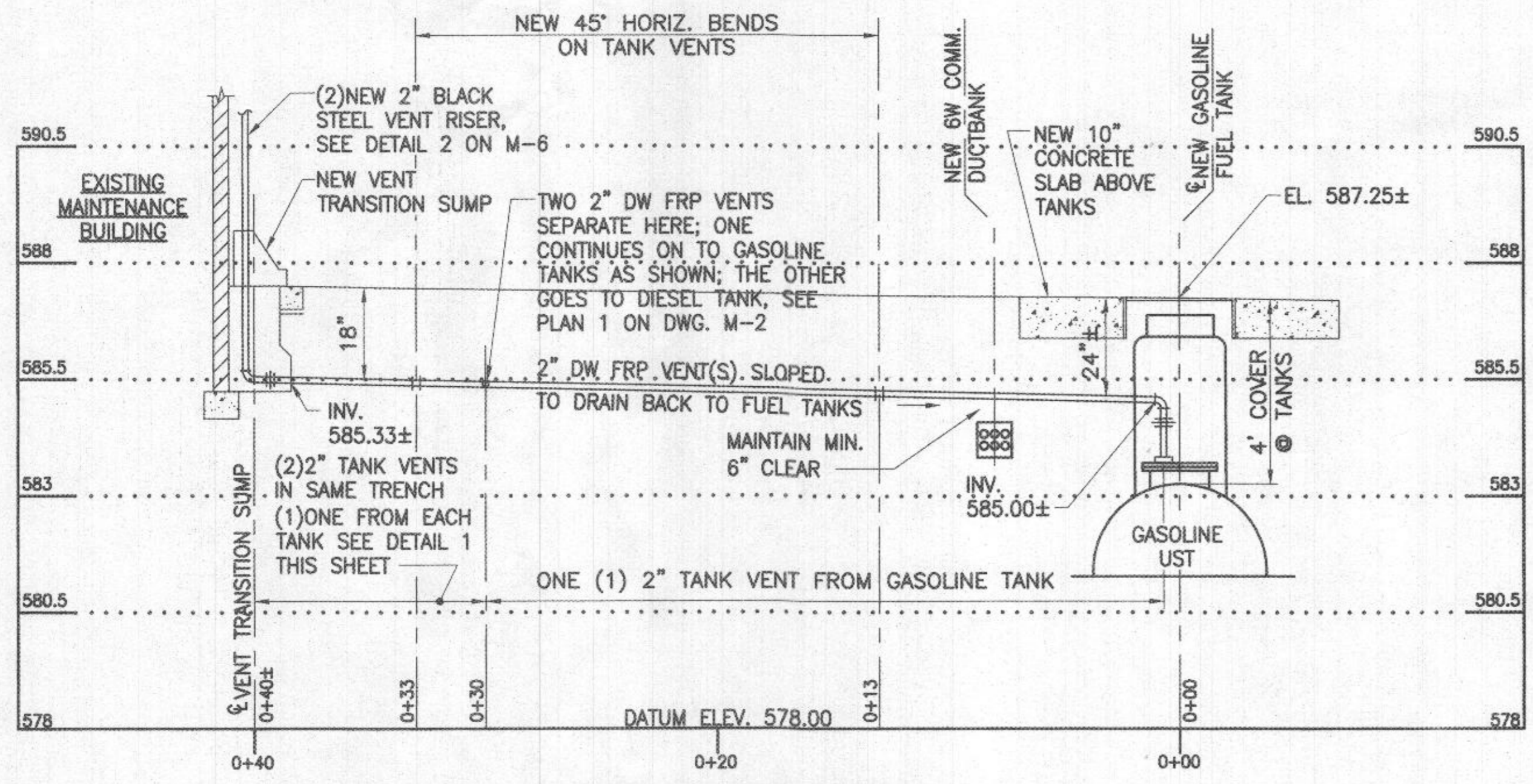
**NEW 2" DW FLEX. FUEL SUPPLY LINE PROFILE  
FROM NEW DIESEL UST TO FUEL ISLAND DISPENSER**  
(DIESEL SUPPLY SHOWN - U.L. GASOLINE IS SIMILAR)

SCALE:  
HORIZONTAL: 1"=5'  
VERTICAL: 1"=2.5'



**NEW OIL/WATER SEPARATOR VENTS PROFILE**

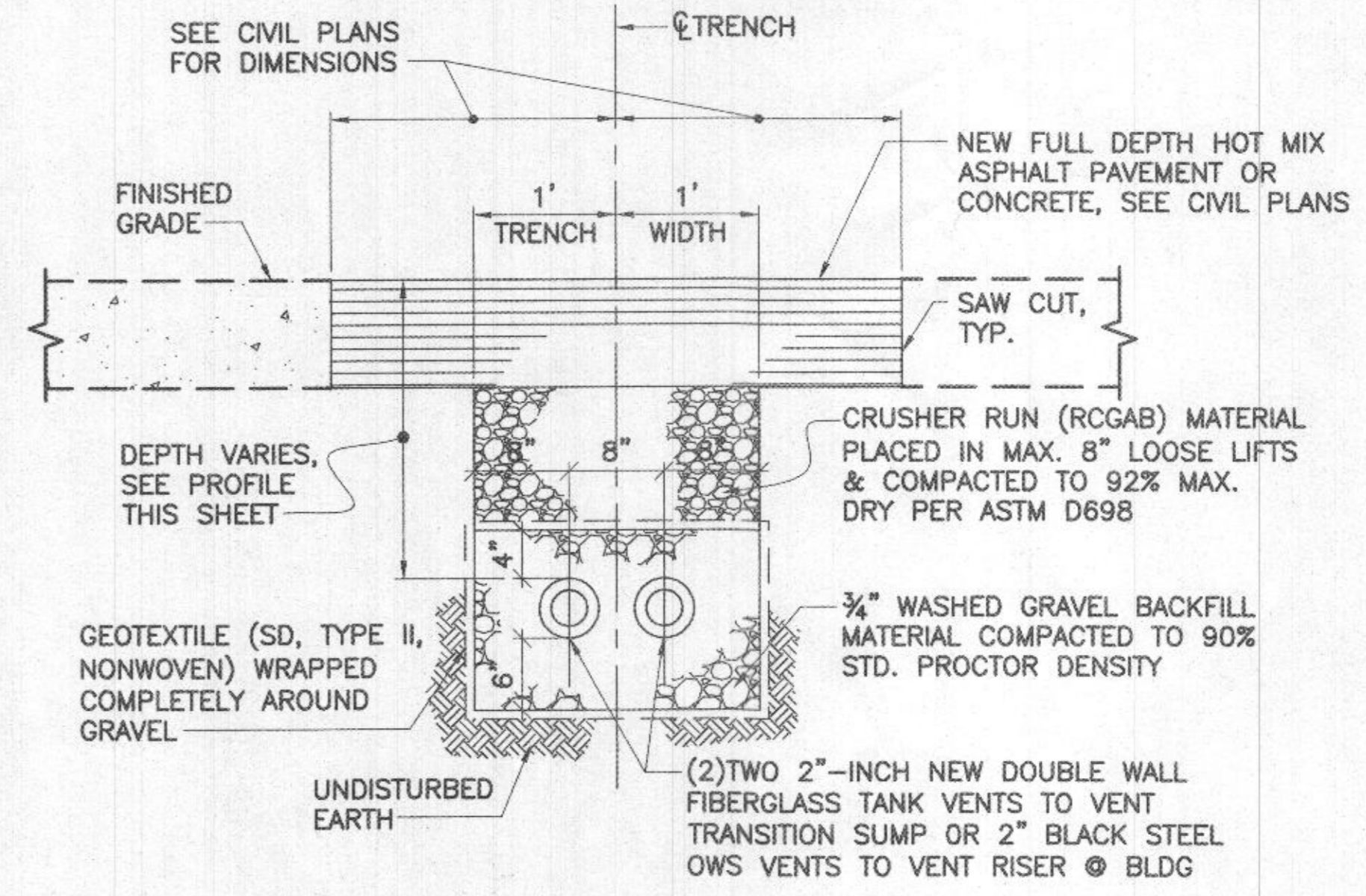
SCALE:  
HORIZONTAL: 1"=5'  
VERTICAL: 1"=2.5'



**NEW 2" DW FRP TANK VENTS PROFILE  
(FROM NEW DIESEL & GASOLINE TANKS TO VENT TRANSITION SUMP AT BLDG. WALL)**

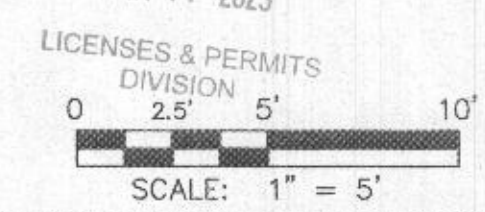
SCALE:  
HORIZONTAL: 1"=5'  
VERTICAL: 1"=2.5'

PROFESSIONAL CERTIFICATION  
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AND THAT I AM A DULY LICENSED  
PROFESSIONAL ENGINEER UNDER THE  
LAWS OF THE STATE OF MARYLAND,  
LICENSE NO. 16156  
EXPIRATION DATE: 8/28/2024



**1 TANK VENTS TRENCH DETAIL  
M-7 NOT TO SCALE**

RECEIVED  
JAN 17 2023



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
Ben Kiefer 8/23/19  
DIRECTOR OF PUBLIC WORKS DATE  
Bureau of Facilities  
DAVID A. JOHN 8/22/2019  
CHIEF OPERATIONS & MAINTENANCE, DATE  
BUREAU OF FACILITIES



DES:	RER				
DRN:	CLD				
CHK:	DTM				
DATE:	08/20/19	BY:	NO.	REVISION	DATE

**FUEL SYSTEM PROFILES &  
DETAILS**

**DAYTON HIGHWAY MAINTENANCE FACILITY  
UPGRADED FUEL STORAGE &  
DISPENSING SYSTEM**

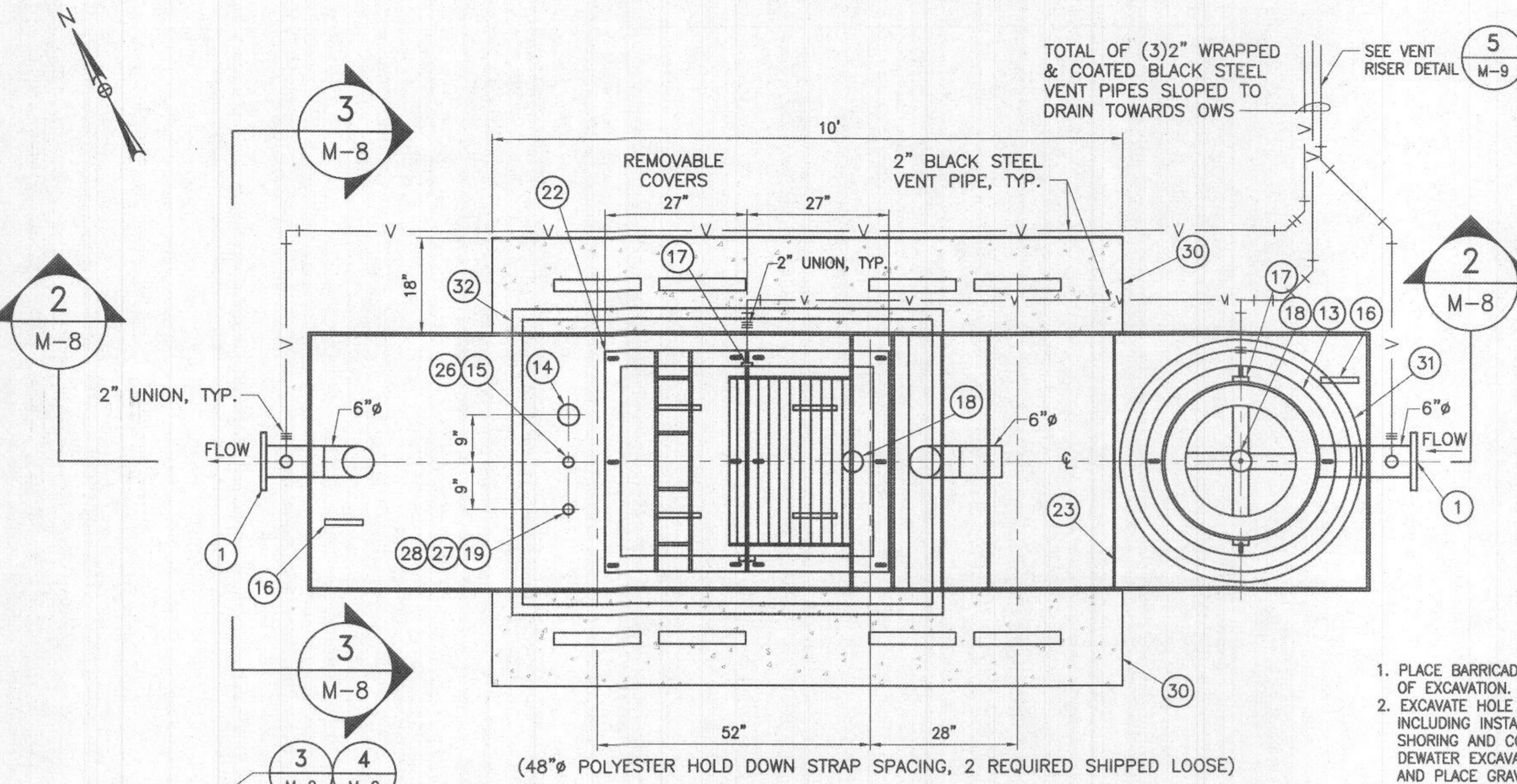
SCALE  
AS  
SHOWN  
DWG NO.  
M-7

**PROVIDED EQUIPMENT**

- 1 150# R.F.S.O. FLANGE W/ 2" FNPT FOR VENT
- 2 STEEL TRANSFER PIPING
- 3 VELOCITY HEAD DIFFUSION BAFFLE
- 4 WEAR PLATE
- 5 SEDIMENT CHAMBER
- 6 UNDERFLOW BAFFLE (REMOVABLE)
- 7 SLUDGE BAFFLE
- 8 STRIKER PLATES
- 9 REMOVABLE PARALLEL CORRUGATED PLATE COALESCER. CORELLA PVC PLATES (32"x32"x24") (3" PLATE SPACING)
- 10 OIL/WATER SEPARATOR CHAMBER
- 11 6" THICK PETROSCREEN COALESCER MATERIAL INSTALLED W/ PULL ROD SHIPPED LOOSE (32"x32"x6")
- 12 STEEL OUTLET DOWNCOMER
- 13 30"Ø MANWAY WITH NEO-CORK GASKETS. BOLT-ON EXTENSION SHIPPED LOOSE. LARGE WING NUTS FOR EASY MAINTENANCE
- 14 4"Ø FNPT FOR OIL PUMPOUT W/ INTERNAL PVC PIPE INSTALLED & RISER PIPE SHIPPED LOOSE
- 15 2"Ø FNPT FOR LEVEL SENSOR W/ RISER PIPE SHIPPED LOOSE
- 16 LIFTING LUG
- 17 2"Ø FNPT FOR VENT TYP. ALL MANWAYS
- 18 4"Ø FNPT FOR GAUGE WITH PLUG TYP. ALL MANWAYS
- 19 2"Ø FNPT FOR LEAK DETECTION W/ RISER PIPE SHIPPED LOOSE
- 20 7 GA. BULKHEAD
- 21 SLUDGE CHAMBER
- 22 EZ ACCESS MANWAY WITH CLOSED CELL SPONGE GASKETS. BOLT-ON EXTENSION SHIPPED LOOSE. LARGE WING NUTS FOR EASY MAINTENANCE
- 23 7GA. SLUDGE BAFFLE
- 24 304 STAINLESS STEEL STRAINER BASKET (SEE DETAIL 1 ON DWG. M-10)
- 25 CC-NEMA 4X A2-LD CONTROL PANEL (1PH-60HZ-120V)
- 26 HTSF-INTERFACE LEVEL SENSOR W/ 240' OF CABLE
- 27 HTLP- 1.5 - 1 1/2" LIQUID LEAK SENSOR W/ 240' OF CABLE
- 28 HTSC-2B NEMA 4 CAP FOR LEAK SENSOR
- 29 HOLD DOWN STRAPS W/ GALVANIZED TB, WIRE ROPE & CLAMPS
- 30 CONCRETE DEADMAN (CDA-15) (2) REQUIRED SHIPPED LOOSE
- 31 GLM-42 42"Ø H-20 GRADE LEVEL MANWAY W/ 12" SKIRT
- 32 RGLM- 78" X 54" RECTANGULAR H-20 GRADE MANWAY W/ 12" SKIRT

**GENERAL OWS NOTES**

NO. REQ'D: (1)  
 CAPACITY: 1000 GALLON  
 TYPE: UL-HTC-G, HIGHGUARD, DOUBLE WALL  
 MATERIAL: A-36 MILD CARBON STEEL  
 FLOW RATE: 100 GPM  
 GAUGE: INNER OUTER  
 SHELL- 7 GA. 10 GA.  
 HEADS- 7 GA. 10 GA.  
 (BASED ON A 60" MAX BURIAL DEPTH)  
 SURFACE PREP:  
 SSPC NO.6 BLAST ALL EXTERIOR SURFACES  
 SSPC NO.10 BLAST ALL INTERIOR SURFACES  
 COATING: MATERIAL THICKNESS  
 EXTERIOR- HIGHGUARD (75 MILS)  
 INTERIOR- POLYURETHANE (12-15MILS)  
 CONSTRUCTION: LAP FIT & WELD ALL INTERIOR & EXTERIOR SEAMS  
 OPERATING PRESSURE: ATMOSPHERIC  
 APPROVED LABELS: U.L. 2215  
 OIL STORAGE CAPACITIES  
 HIGH OIL LEVEL @ 20% = 153 GALLONS  
 HIGH-HIGH OIL LEVEL @ 43% = 329 GALLONS  
 EMERGENCY SPILL @ 80% = 612 GALLONS



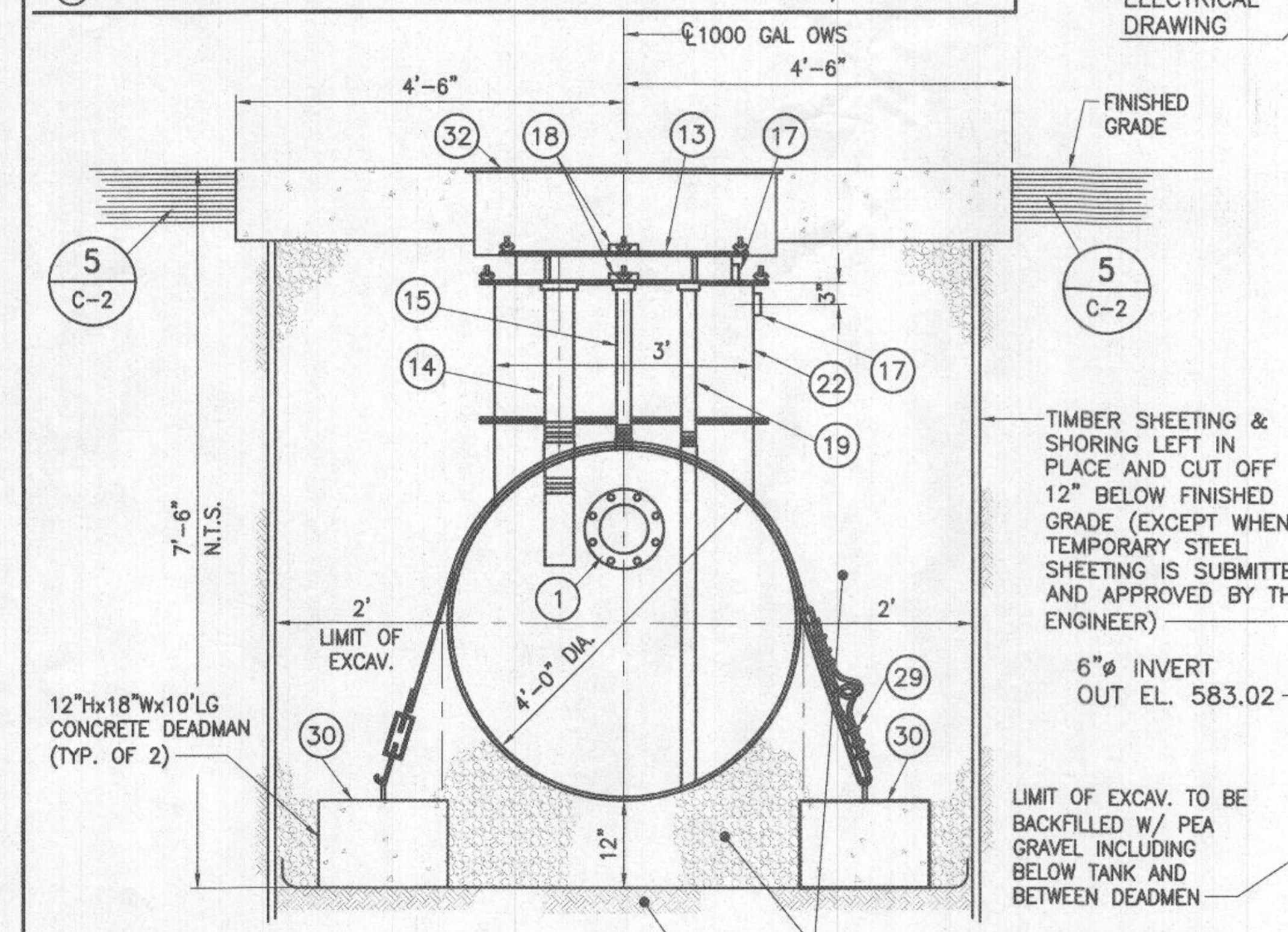
**1 PLAN VIEW**  
 M-8 (TOP SLAB REMOVED)

**SUGGESTED OIL/WATER SEPARATOR SEQUENCE OF OPERATION**

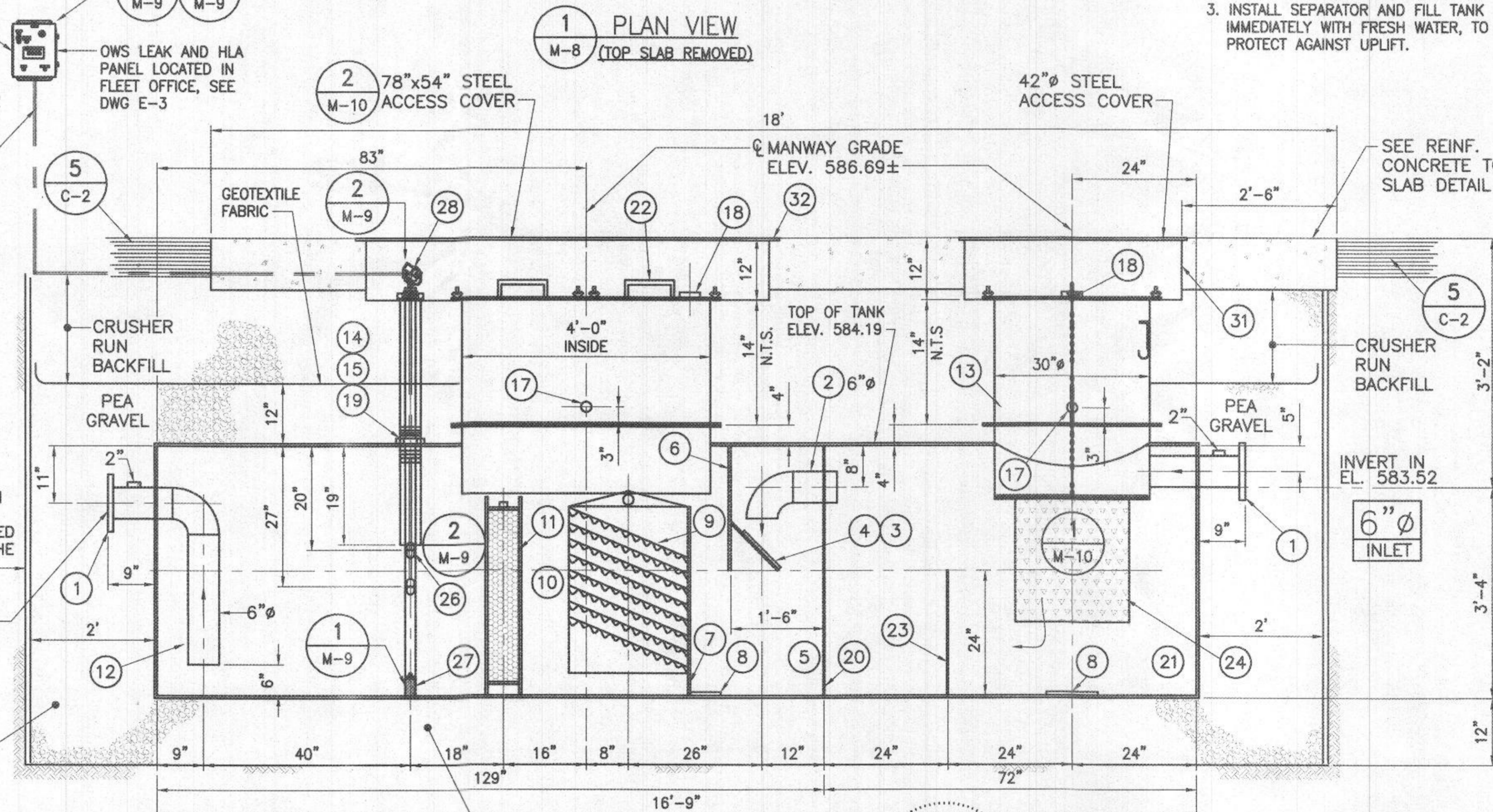
1. PLACE BARRICADES AROUND PERIMETER OF EXCAVATION.
2. EXCAVATE HOLE FOR NEW SEPARATOR INCLUDING INSTALLATION OF SHEETING, SHORING AND CONCRETE DEADMEN. DEWATER EXCAVATION AS REQUIRED AND PLACE GRAVEL BEDDING MATERIAL.
3. INSTALL SEPARATOR AND FILL TANK IMMEDIATELY WITH FRESH WATER, TO PROTECT AGAINST UPLIFT.
4. INSTALL PIPING, CONDUIT AND ALARM PANEL AS SHOWN.
5. TEST ALL PIPING AND OIL/WATER SEPARATOR WASTE OIL LEVEL SENSOR AND LEAK SENSOR ACCORDING TO SPECIFICATIONS.
6. INSTALL GEOTEXTILE FABRIC AND COMPACTED CRUSHED STONE BACKFILL.
7. CONSTRUCT NEW CONCRETE TOP SLAB WITH ACCESS COVERS.
8. REMOVE BARRICADES.

**GENERAL CONSTRUCTION NOTES**

1. ALL EXCAVATION, TRENCHING, SHEETING AND BRACING SHALL BE INSTALLED AS REQUIRED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS INCLUDING O.S.H.A.
2. PROVIDE TYPE II BARRICADES WITH WARNING LIGHTS AROUND TRENCH/HOLE EXCAVATIONS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
3. BURIED BLACK STEEL OIL PUMP OUT, LEVEL SENSOR AND VENT PIPING INCLUDING FITTINGS SHALL BE COATED WITH COAL TAR EPOXY (KOPPERS 300-M) IN ACCORDANCE WITH AWWA SPEC. C203. SPIRALLY WOUND, COLD APPLIED VINYL OR POLYETHYLENE TAPE SHALL BE APPLIED OVER THE COATED PIPE AND FITTINGS 10 TO 20 MILS THICK. APPLY SECOND COAT OF COAL TAR EPOXY AND DOUBLE WRAP ON ALL FITTINGS AND THREADS.
4. SEPARATELY VENT TANK MANWAY AND INLET AND OUTLET PIPES; TOTAL OF (3) 2" VENTS REQUIRED.
5. THE SPECIFIED OWS AND ITS SUPPORTING SYSTEMS ARE SPECIFIED BY HIGHLAND TANK. AN "APPROVED EQUAL" MUST BE SUPPLIED AND APPROVED PRIOR TO SHOP DRAWING SUBMITTAL.

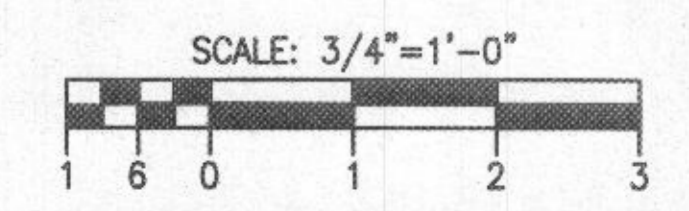


**3 END ELEVATION**  
 M-8 SCALE: 3/4"=1'-0"



**2 SIDE ELEVATION**  
 M-8 SCALE: 3/4"=1'-0"

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18156, EXPIRATION DATE: 8/28/2024



RECEIVED  
 JAN 17 2023  
 LICENSES & PERMITS DIVISION

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 Director of Public Works: *John V. ...*  
 Chief, Design & Construction: *Sharon ...*  
 Chief, Operations & Maintenance: *David A. John*  
 DATE: 08/23/19, 08-14-2019, 08-12-2019



DES: RER	DRN: CLD	CHK: CIG	DATE: 08/2019
BY NO.	REVISION	DATE	SCALE MAP NO. BLOCK NO.

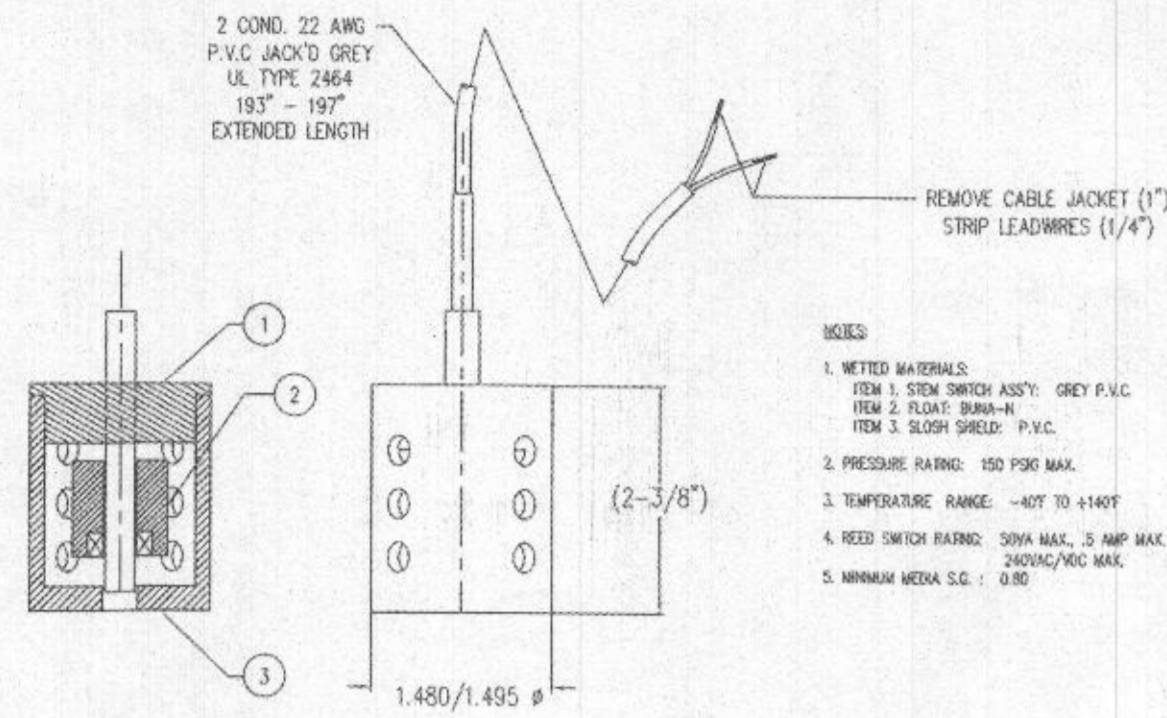
**OIL/WATER SEPARATOR DETAILS I**

**DAYTON HIGHWAY MAINTENANCE FACILITY UPGRADED FUEL STORAGE & DISPENSING SYSTEM**

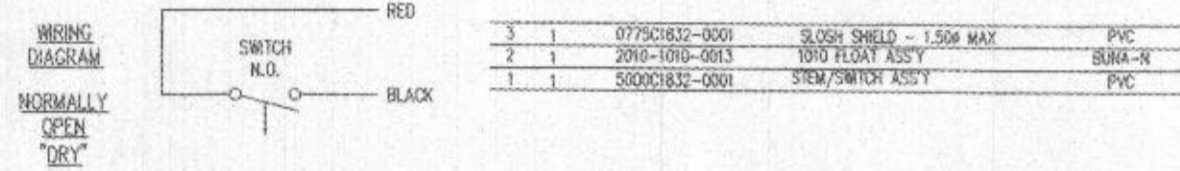
CAPITAL PROJECT NO. C-0322  
 5TH ELECTION DISTRICT - HOWARD COUNTY, MARYLAND

SCALE: 3/4"=1'  
 DWG NO.: M-8

**Series HTLP 1.5**  
**1 1/2" LIQUID LEAK SENSOR**



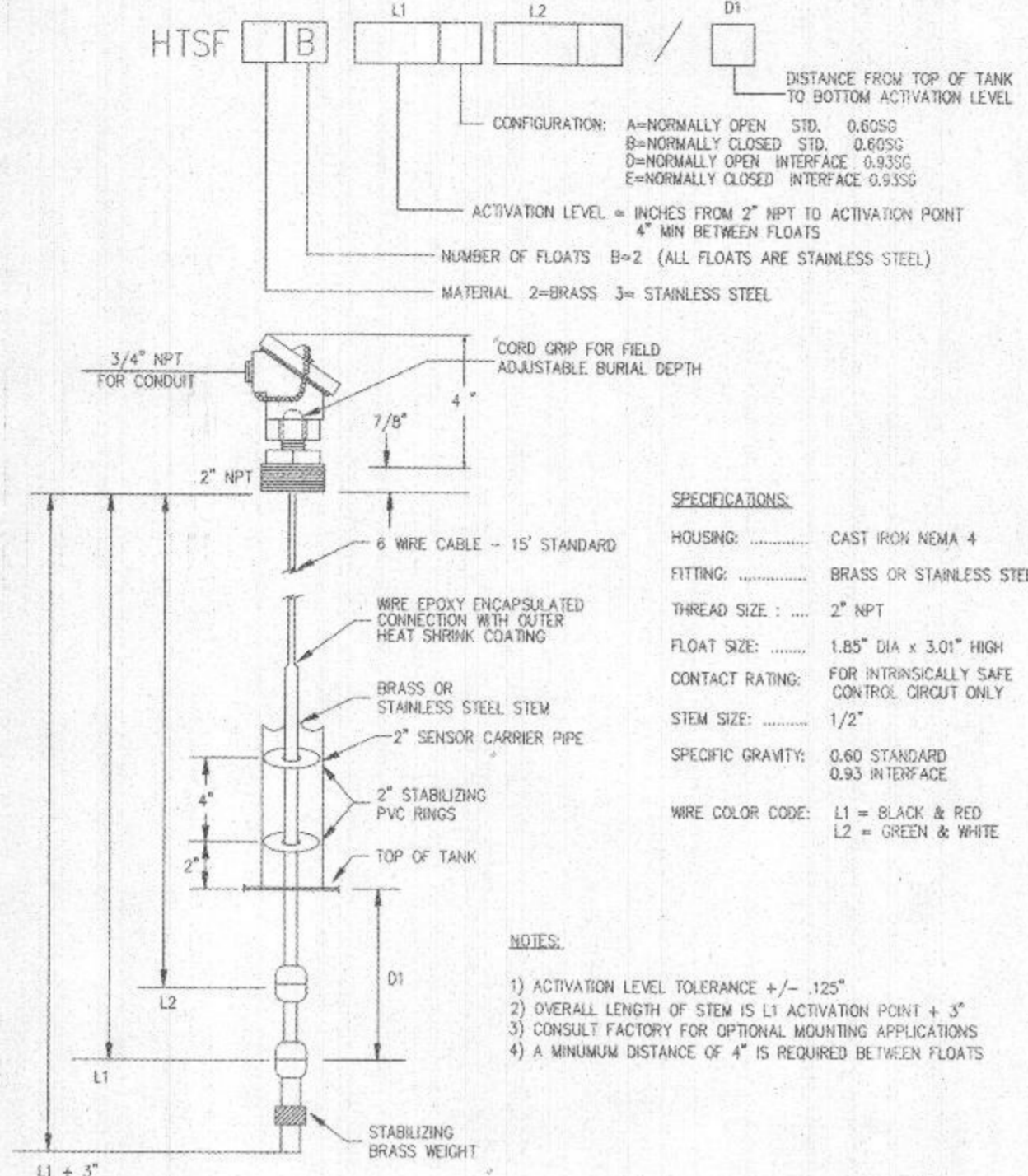
- NOTES:**
1. WETTED MATERIALS: ITEM 1: STEM WHICH ASSY: GREY P.V.C. ITEM 2: FLOAT: BRASS P.V.C. ITEM 3: BODY: BRASS P.V.C.
  2. PRESSURE RATING: 150 PSIG MAX.
  3. TEMPERATURE RANGE: -40°F TO +140°F
  4. REED SWITCH RATING: 50V MAX., 2 AMP MAX., 200mA/AC MAX.
  5. MINIMUM MEDIA S.G.: 0.80



COPYRIGHT HIGHLAND TANK HT-EB-4005 07/06

**1 LEAK DETECTION SENSOR**  
M-9 NOT TO SCALE

**Series HTSF Suspended Two Float Sensor**

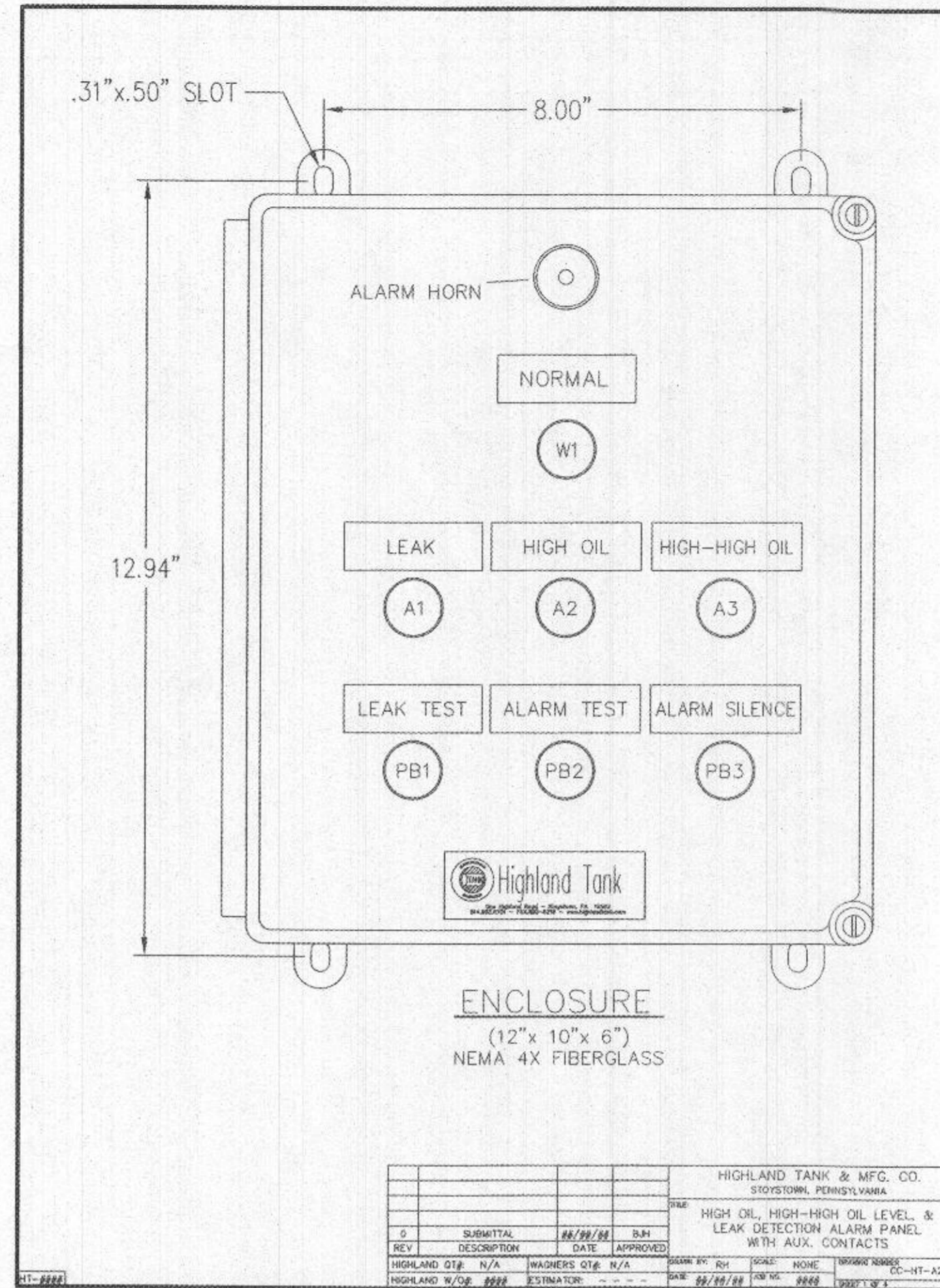


- CONFIGURATION:**  
A=NORMALLY OPEN STD. 0.6050  
B=NORMALLY CLOSED STD. 0.6050  
D=NORMALLY OPEN INTERFACE 0.9350  
E=NORMALLY CLOSED INTERFACE 0.9350
- ACTIVATION LEVEL:** = INCHES FROM 2" NPT TO ACTIVATION POINT  
4" MIN RETRIEVE FLOATS
- NUMBER OF FLOATS:** B=2 (ALL FLOATS ARE STAINLESS STEEL)
- MATERIAL:** 2=BRASS 3= STAINLESS STEEL
- CORD GRIP FOR FIELD ADJUSTABLE BURIAL DEPTH**
- WIRE EPOXY ENCAPSULATED CONNECTION WITH OUTER HEAT SHRINK COATING**
- BRASS OR STAINLESS STEEL STEM**
- 2" SENSOR CARRIER PIPE**
- 2" STABILIZING PVC RINGS**
- TOP OF TANK**
- STABILIZING BRASS WEIGHT**

- NOTES:**
- 1) ACTIVATION LEVEL TOLERANCE +/- .125"
  - 2) OVERALL LENGTH OF STEM IS L1 ACTIVATION POINT + 3"
  - 3) CONSULT FACTORY FOR OPTIONAL MOUNTING APPLICATIONS
  - 4) A MINIMUM DISTANCE OF 4" IS REQUIRED BETWEEN FLOATS

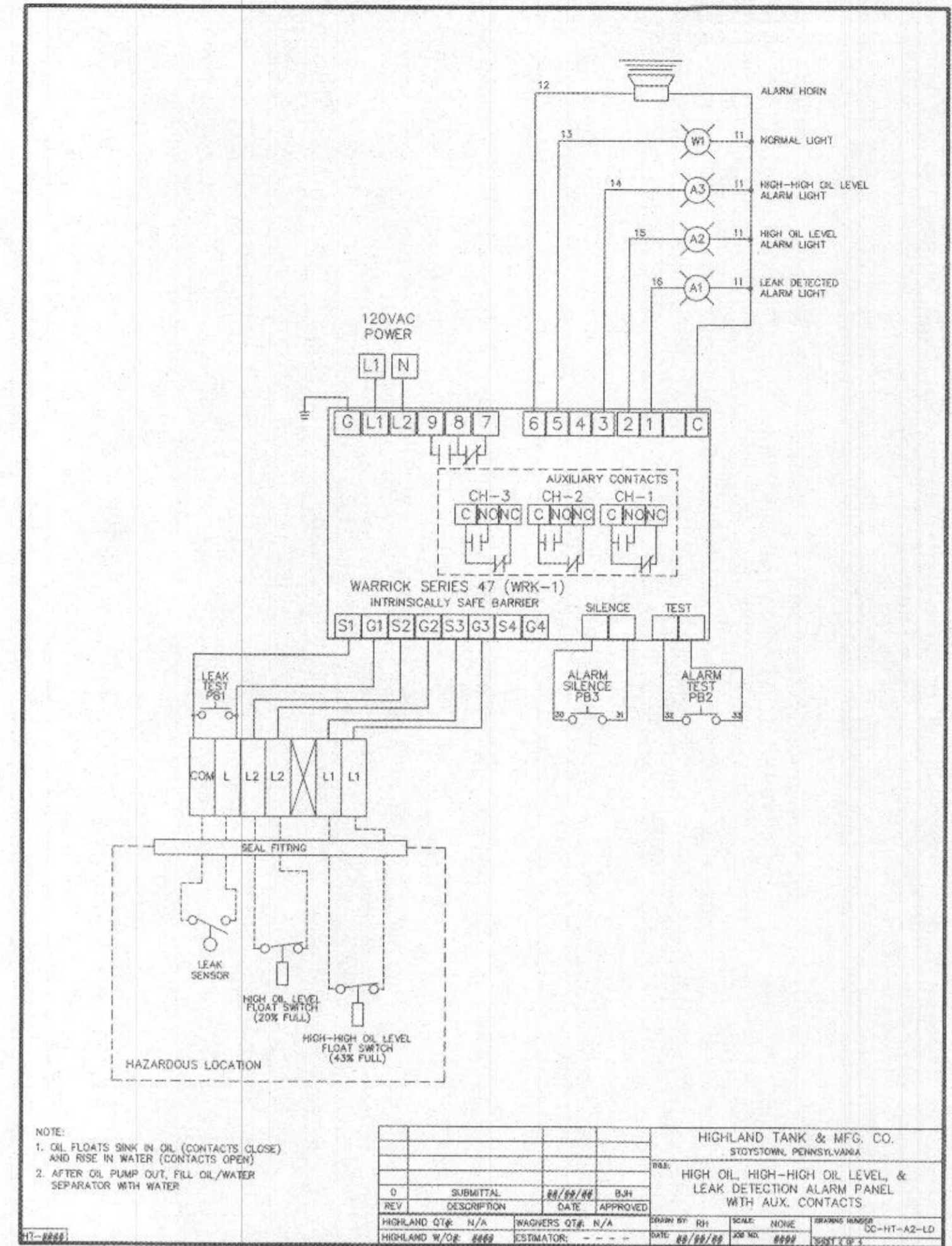
COPYRIGHT HIGHLAND TANK HT-EB-4014 07/06

**2 OIL/WATER LEVEL INTERFACE SENSOR**  
M-9 NOT TO SCALE



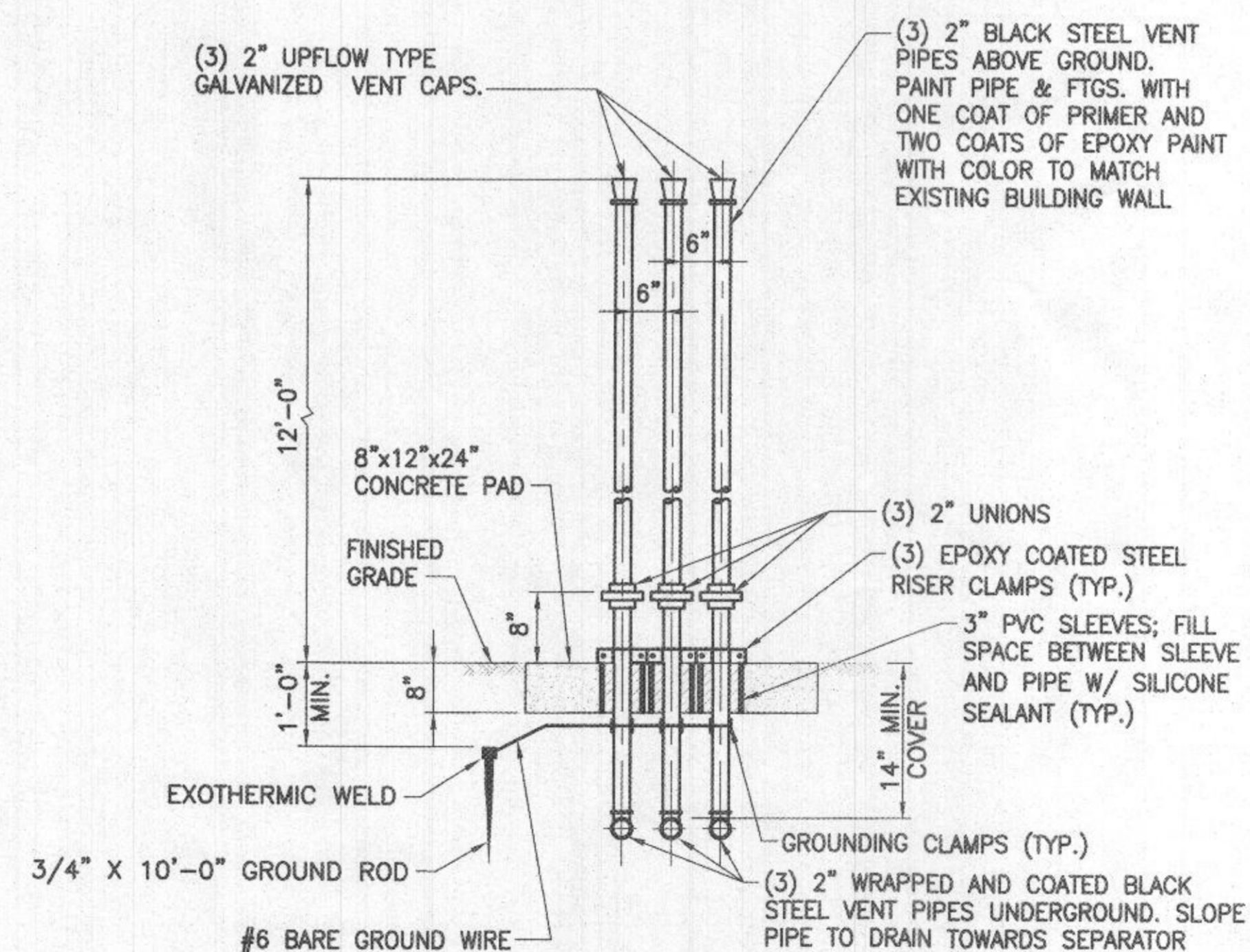
REV	DESCRIPTION	DATE	APPROVED	BY	DATE	APPROVED	BY
0	SUBMITTAL	08/28/19	DRN				
1	HIGHLAND STD. N/A	WARRICKS STD. N/A	DATE	APPROVED	DATE	APPROVED	BY

**3 ALARM PANEL DETAIL**  
M-9 NOT TO SCALE



REV	DESCRIPTION	DATE	APPROVED	BY	DATE	APPROVED	BY
0	SUBMITTAL	08/28/19	DRN				
1	HIGHLAND STD. N/A	WARRICKS STD. N/A	DATE	APPROVED	DATE	APPROVED	BY

**4 ALARM PANEL ELECTRICAL**  
M-9 NOT TO SCALE



**5 OIL/WATER SEPARATOR VENT RISER DETAIL**  
M-9 NOT TO SCALE

- GENERAL CONSTRUCTION NOTES**
1. THE SPECIFIED OWS AND ITS SUPPORTING SYSTEMS ARE SPECIFIED BY HIGHLAND TANK. AN "APPROVED EQUAL" MUST BE SUPPLIED AND APPROVED PRIOR TO SHOP DRAWING SUBMITTAL.

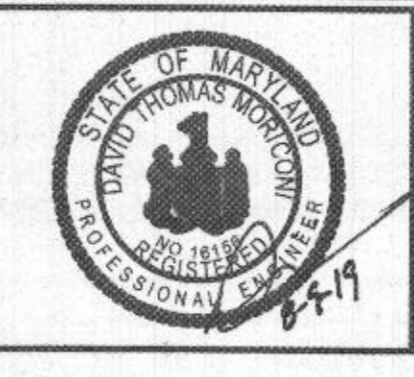
**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16156, EXPIRATION DATE: 8/28/2020



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *John P. DeStam* DATE: 08-14-2019

Chief, Bureau of Facilities: *David A. John* DATE: 08/12/2019



DES: RER	
DRN: CLD	
CHK: CIG	
DATE: 08/2019	
BY NO.	REVISION
	DATE

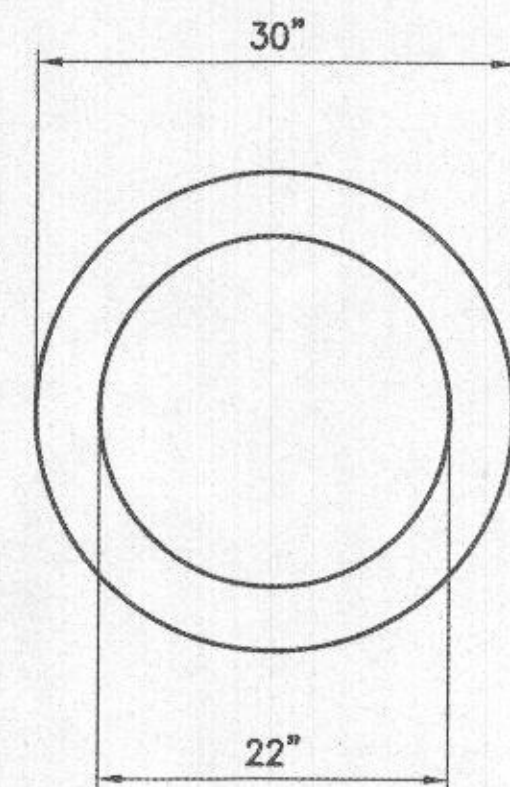
**OIL/WATER SEPARATOR DETAILS II**

**DAYTON HIGHWAY MAINTENANCE FACILITY  
UPGRADED FUEL STORAGE & DISPENSING SYSTEM**

CAPITAL PROJECT NO. C-0322  
5TH ELECTION DISTRICT - HOWARD COUNTY, MARYLAND

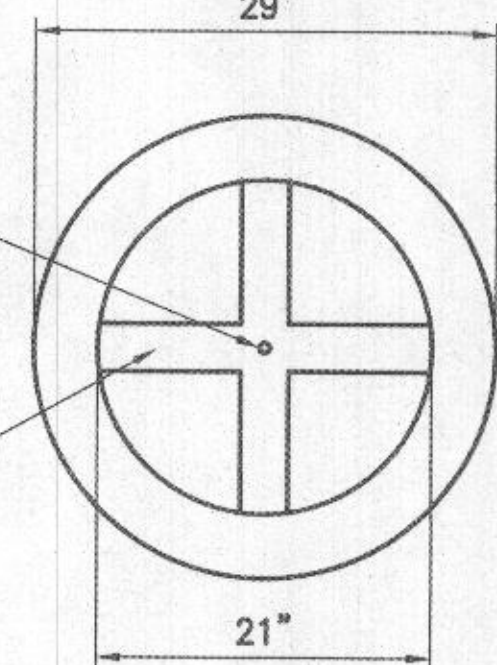
RECEIVED  
JAN 17 2023  
LICENSES & PERMITS DIVISION

SCALE: AS SHOWN  
DWG NO.: M-9

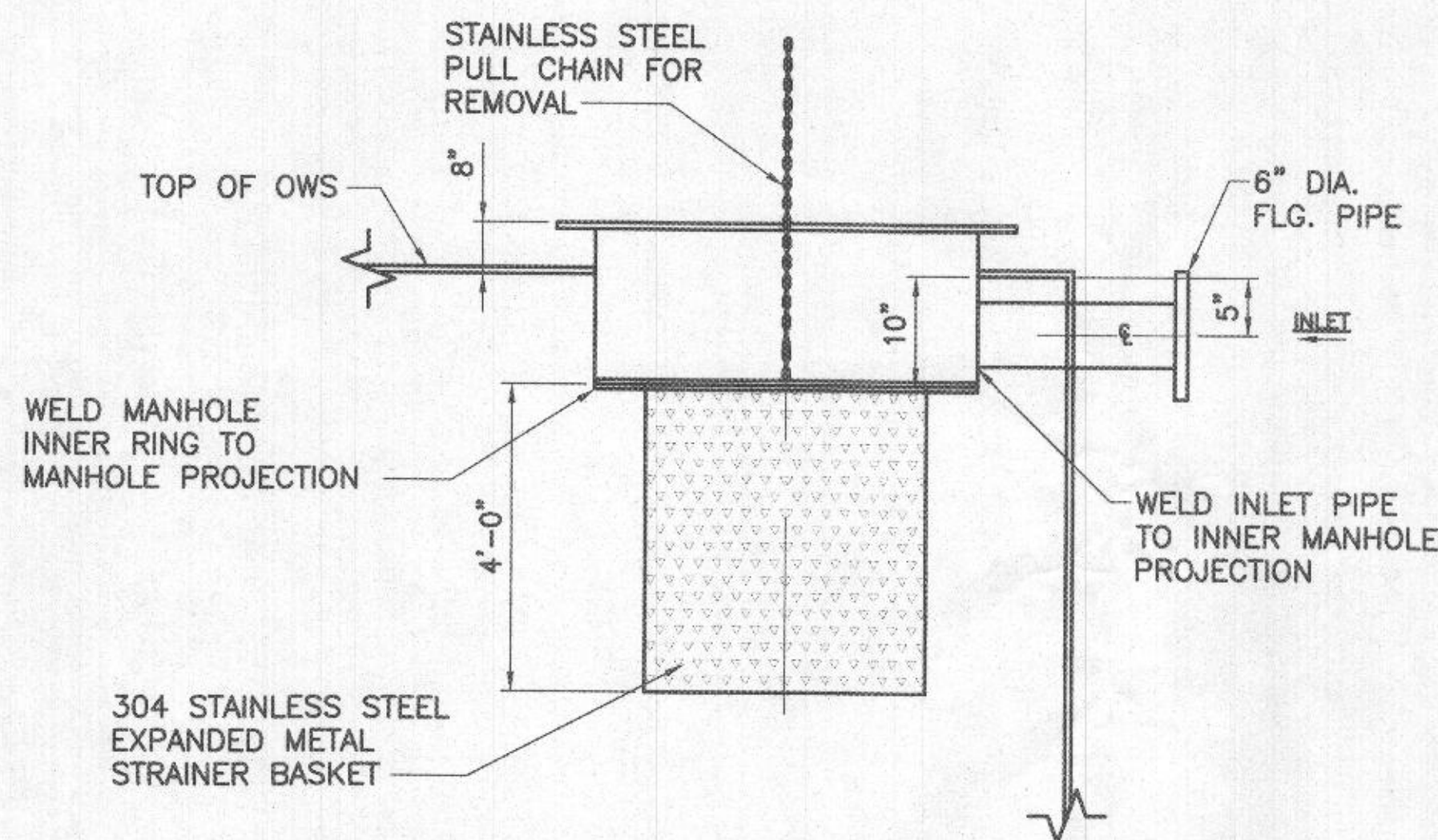


MANHOLE INNER RING - PLAN

PULL CHAIN ANCHORED IN CENTER  
3/8" X 3" SUPPORTS WELDED TO STRAINER RING WITH PULL CHAIN FOR REMOVAL

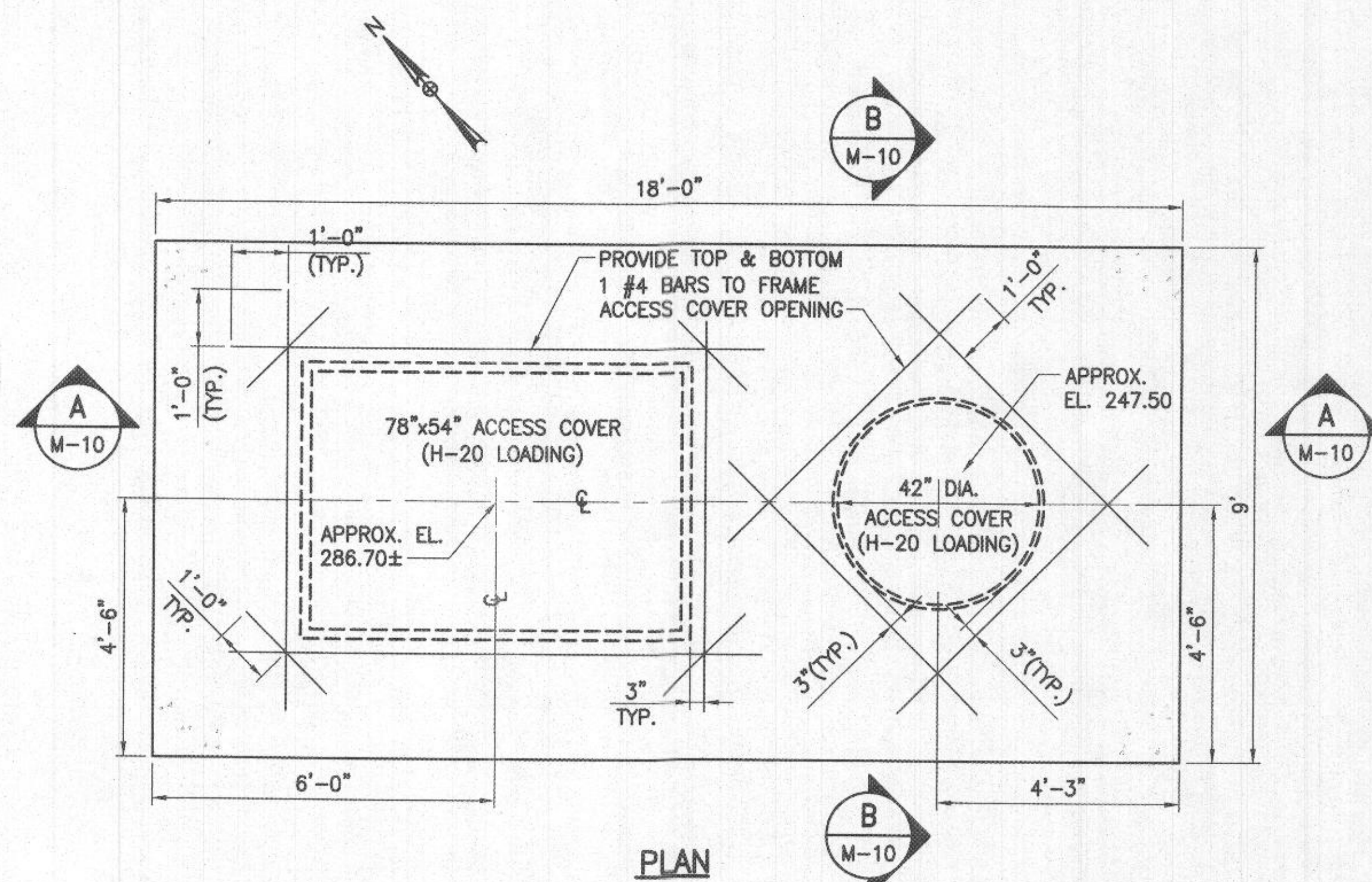


MANHOLE STRAINER RING - PLAN

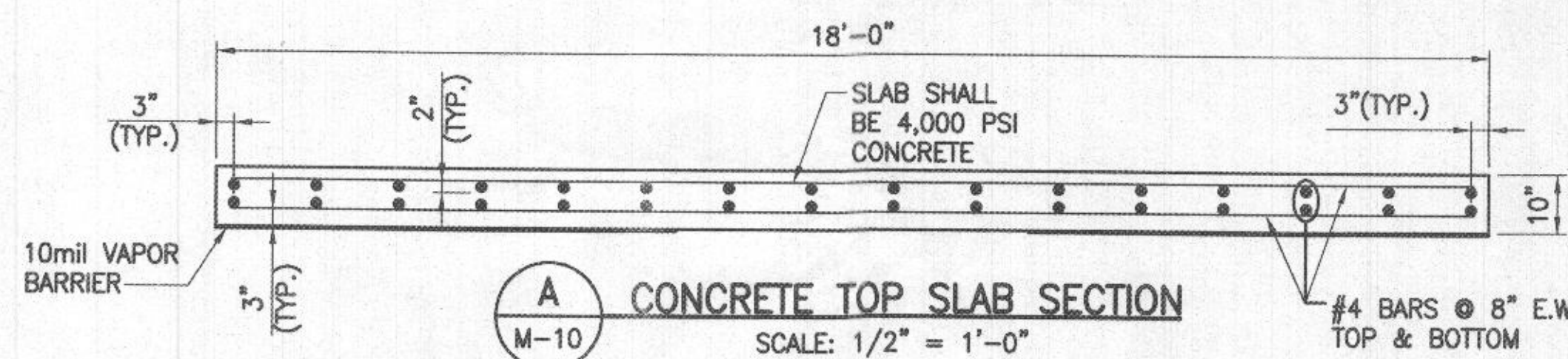


ELEVATION

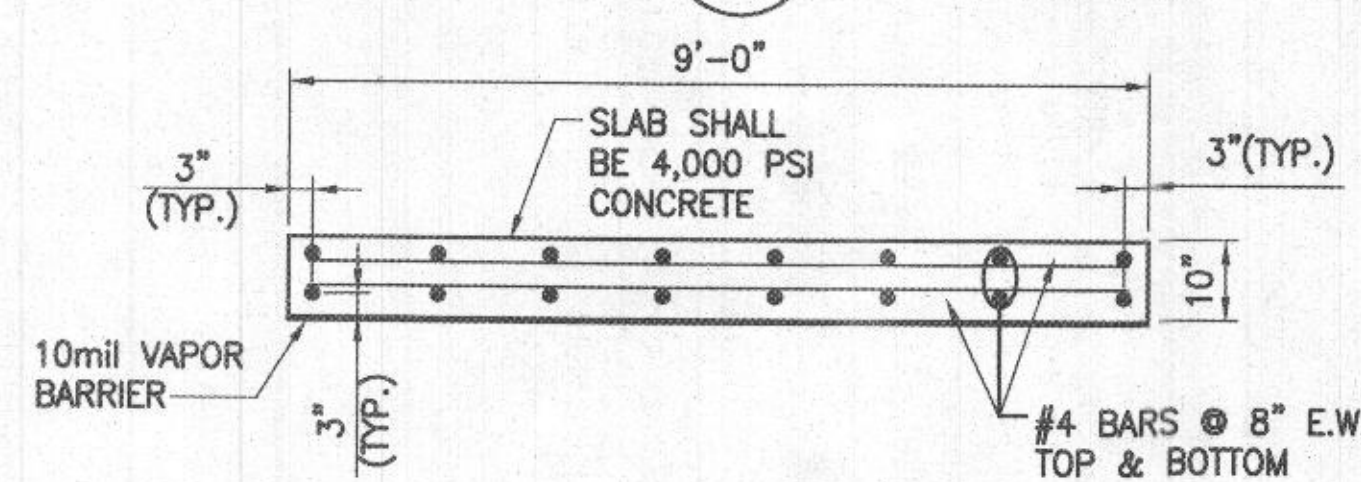
1 STRAINER BASKET DETAIL  
M-10 (MANUFACTURED BY HIGHLAND TANK)  
SCALE: N.T.S.



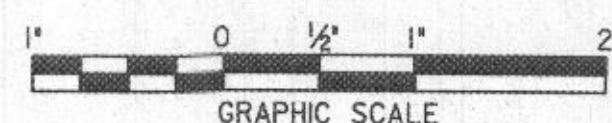
3 OWS CONCRETE TOP SLAB DETAIL  
SCALE: 1/2" = 1'-0"



A CONCRETE TOP SLAB SECTION  
SCALE: 1/2" = 1'-0"



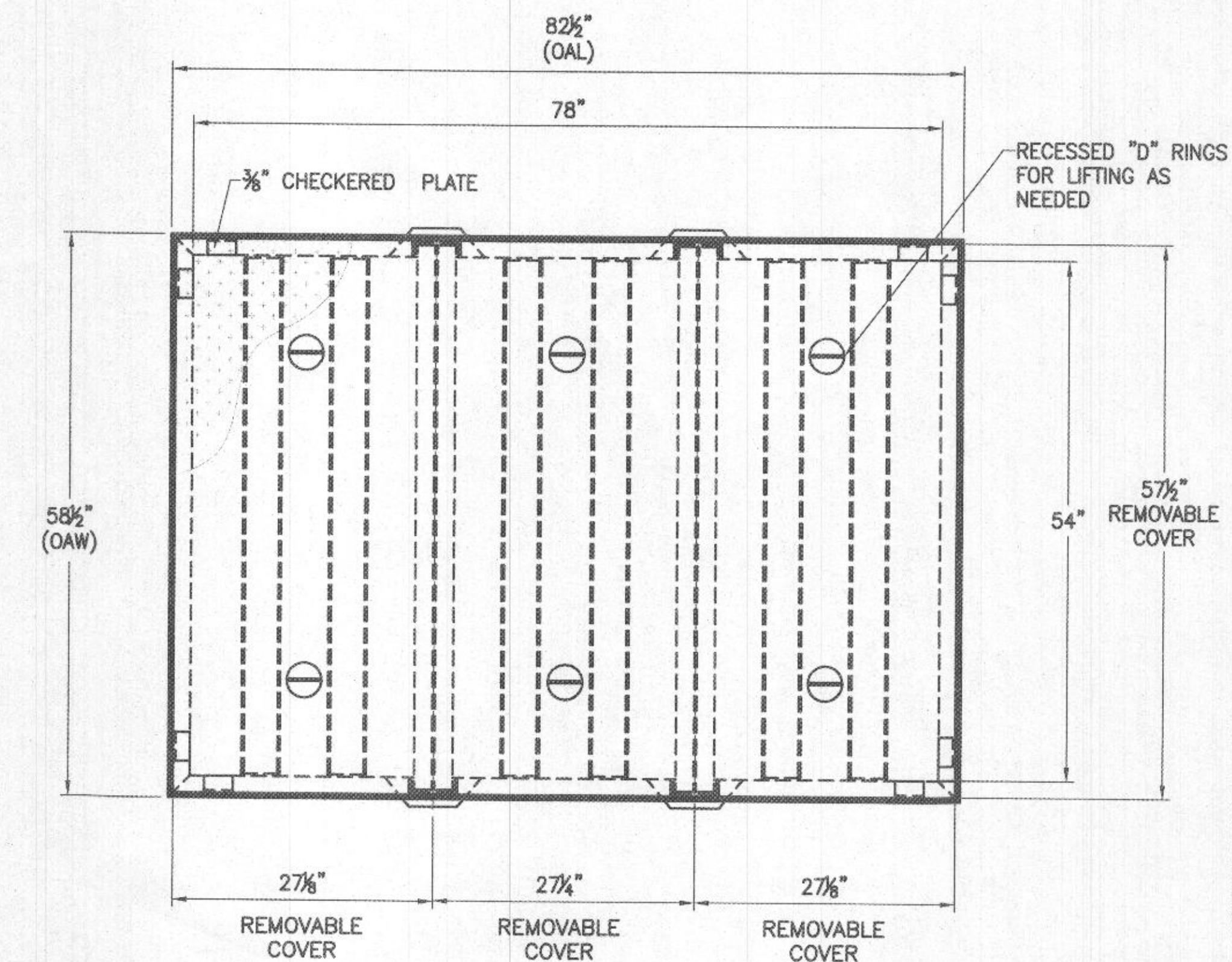
B CONCRETE TOP SLAB SECTION  
SCALE: 1/2" = 1'-0"



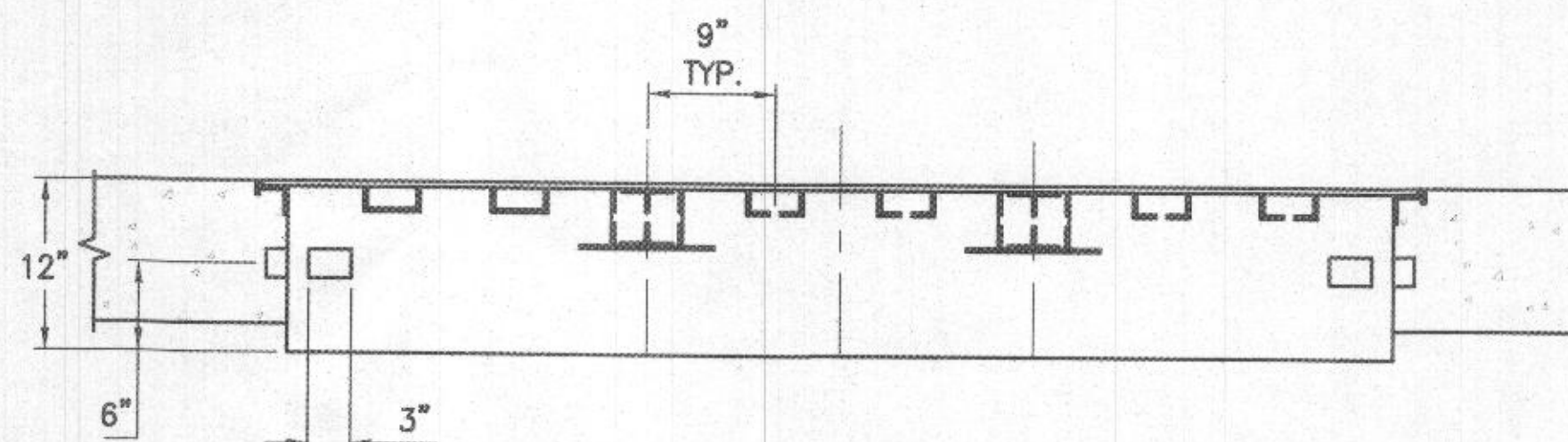
STRUCTURAL NOTES:

- CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH 28 DAYS STRENGTH OF 4000 PSI.
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615 GRADE 60.
- ALL STEEL REINFORCEMENT SHALL BE #4 BARS.
- ACCESS COVERS SHALL BE DESIGNED TO CARRY H-20 LOADING AND ARE MANUFACTURED BY HIGHLAND TANK.
- COMPACT SUBGRADE TO 95% PROCTOR PLACE VAPOR BARRIER AND POUR CONCRETE FOR TOP SLAB.

PROFESSIONAL CERTIFICATION  
"I HEREBY CERTIFY THAT DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18156, EXPIRATION DATE: 8/28/2024"



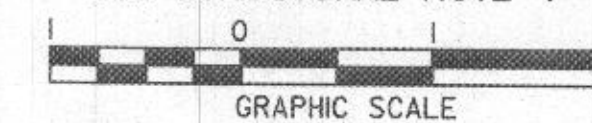
PLAN



SECTION

2 78"x54" STEEL ACCESS COVER DETAIL (H-20 LOADING)  
SCALE: 1" = 1'-0"

(FOR INFORMATION ONLY)  
SEE STRUCTURAL NOTE 4



GENERAL CONSTRUCTION NOTES

- THE SPECIFIED OWS AND ITS SUPPORTING SYSTEMS ARE SPECIFIED BY HIGHLAND TANK. AN "APPROVED EQUAL" MUST BE SUPPLIED AND APPROVED PRIOR TO SHOP DRAWING SUBMITTAL.

RECEIVED  
JAN 17 2023  
LICENSES & PERMITS  
DIVISION

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
Director of Public Works: *David A. John* 8/23/19  
Chief, Bureau of Facilities: *David A. John* 08/22/2019  
Chief, Design & Construction, Bureau of Facilities: *Shawn Walsh* 08/14/2019  
Chief, Operations & Maintenance, Bureau of Facilities: *David A. John* 08/22/2019



DES:	REB				
DRN:	CLD				
CHK:	CIG				
DATE:	08/2019	BY:	NO.	REVISION	DATE

OIL/WATER SEPARATOR  
DETAILS III

DAYTON HIGHWAY MAINTENANCE FACILITY  
UPGRADED FUEL STORAGE &  
DISPENSING SYSTEM

SCALE  
AS SHOWN  
DWG NO.  
M-10

**ELECTRICAL ABBREVIATIONS:**

A	AMPERE
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
DIA	DIAMETER
DWG	DRAWING
ELEC	ELECTRIC
EMT	ELECTRIC METALLIC TUBING
EX	EXISTING
FMCR	FUEL MASTER CARD READER
GAL	GALLON
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HP	HORSEPOWER
KW	KILO-WATT
LV	LOW VOLTAGE
MIN	MINIMUM
MTD	MOUNTED
NTS	NOT TO SCALE
PH	PHASE
PVC	POLY VINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL CONDUIT
SCH	SCHEDULE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UST	UNDERGROUND STORAGE TANK
V	VOLT
W	WATT
WP	WEATHER-PROOF
XFMR	TRANSFORMER

**ELECTRICAL LEGEND**

SYMBOL	DESCRIPTION	MTG. HGT.
—	CONDUIT IN OR ABOVE CEILING OR WALL. SEE PLANS FOR WIRE AND CONDUIT SIZES.	
— P-2,4	HOMERUN TO PANELBOARD, ARROWS INDICATE THE NUMBER OF CIRCUITS, SLASHES INDICATE NUMBER OF CONDUCTORS, LETTER(S) INDICATE PANEL NUMBER(S) INDICATES CIRCUIT. TICK MARK FOR GROUND NOT SHOWN.	
Ⓧ [PB]	JUNCTION BOX OR PULL BOX SIZED PER NEC.	
— C —	UNDERGROUND COMMUNICATIONS WIRE AND CONDUIT, SIZE AND TYPE AS NOTED ON DRAWING.	
— E —	UNDERGROUND ELECTRIC WIRE AND CONDUIT, SIZE AND TYPE AS NOTED ON DRAWINGS.	
— — — —	UNDERGROUND CONCRETE ENCASED DUCTBANK, SIZE AND TYPE AS NOTED ON PLAN AND DETAIL DRAWINGS.	
— — — —	EXISTING UNDERGROUND CONDUIT AND WIRING	
**E**	REMOVE EXISTING UNDERGROUND CONDUIT AND WIRING	
Ⓧ	SAFETY DISCONNECT SWITCH; FUSED, SIZE AND TYPE PER NEC. MOUNT ON OR ADJACENT TO EQUIPMENT. INSTALL PER EQUIPMENT MANUFACTURERS INSTALLATION REQUIREMENTS AND LATEST NEC.	60"
Ⓧ	SAFETY DISCONNECT SWITCH; NON-FUSED, SIZE AND TYPE PER NEC. MOUNT ON OR ADJACENT TO EQUIPMENT. INSTALL PER EQUIPMENT MANUFACTURERS INSTALLATION REQUIREMENTS AND LATEST NEC.	60"
— W —	EXISTING WATER SERVICE LINE PIPE (SHOWN FOR REFERENCE ONLY)	
— SS —	EXISTING SANITARY SEWER PIPE (SHOWN FOR REFERENCE ONLY)	
— SD —	EXISTING STORM DRAIN PIPE (SHOWN FOR REFERENCE ONLY)	
—	ELECTRIC PANELBOARD	
① 1 ①	DRAWING NOTES AND PLAN NOTES	
Ⓧ	MOTOR	
M	ELECTRIC UTILITY COMPANY METER AND ELECTRICAL SOCKET	
[VR]	EXISTING VEEDER ROOT EQUIPMENT	
[B-1]	MECHANICAL BOILER	
[WH]	MECHANICAL WATER HEATER	
[C]	LIGHTING CONTACTOR	
[H]	HANDHOLE	
— S —	SIGNAL WIRING CONDUIT	
— P —	POWER WIRING CONDUIT	
— C —	COMMUNICATIONS WIRING CONDUIT	
— PC —	CONTROL WIRING CONDUIT	
— AL —	ACKNOWLEDGEMENT WIRING CONDUIT	
— G —	GROUND LOOP WIRE	
⊕	GROUND ROD	
⊙	GROUND WELL STATION	
Ⓧ	SECURITY CCTV CAMERA	
[PC]	PHOTO-CELL	
Ⓧ	SQUARE RECESSED, LED, LIGHT FIXTURE	
Ⓧ	12"x12" SURFACE MOUNTED, METAL HALIDE LIGHT FIXTURE	
[B]	OVERFILL ALARM WITH LIGHT AND HORN	
[B]	ACKNOWLEDGEMENT SWITCH WITH LIGHT AND HORN	60"

**GENERAL ELECTRICAL NOTES:**

- THESE DRAWINGS ARE SCHEMATIC IN NATURE AND REPRESENT THE COMPLETED PROJECT. MINOR MODIFICATIONS OF WORK SHALL BE PROVIDED BY THE CONTRACTOR TO COMPLY WITH PROJECT REQUIREMENTS.
- INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND CONDITIONS FOR WARRANTY AND GUARANTY. PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE AND SATISFACTORY INSTALLATION READY FOR CONTINUOUS USE.
- COMPLY WITH LOCAL AND APPLICABLE CODES. IN THE EVENT OF A CONFLICT THE MOST STRINGENT SHALL GOVERN. SHOULD A CONFLICT ARISE BETWEEN CONSTRUCTION DOCUMENTS AND APPLICABLE CODES, WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE ENFORCING CODE AUTHORITIES.
- WIRE SIZES ARE FOR 75 DEG. C. THHN/THWN COPPER. MINIMUM WIRE SIZE FOR POWER CIRCUITS SHALL BE #12 AWG. ALUMINUM SHALL NOT BE USED. CONDUCTORS SHALL BE SOLID UP THROUGH #10 AWG. PANELBOARD FEEDERS SHALL BE THHN/THWN WITHIN CONDUITS. EQUIPMENT CONNECTIONS SHALL BE MAXIMUM OF 6'-0" OF FLEXIBLE METALLIC RACEWAY INDOORS OR FLEXIBLE LIQUIDTIGHT RACEWAY OUTDOORS OR IN DAMP LOCATIONS.
- GROUNDING: PROVIDE GROUNDING IN ACCORDANCE WITH NEC 250. CONDUCTORS SHALL BE COPPER. FEEDERS, BRANCH CIRCUITS, CABLE ASSEMBLIES, AND OTHER WIRING SYSTEMS SHALL HAVE A GREEN INSULATED GROUND WIRE. GROUND ELECTRODE CONDUCTORS SHALL BE SOLID THROUGH #6 AWG. EXOTHERMIC CONNECTIONS SHALL BE USED FOR DRIVEN RODS OR UNDERGROUND CONNECTIONS.
- EQUIPMENT OR MATERIALS SHALL BE NEW AND FOR ANY GIVEN SYSTEM, SHALL BE A PRODUCT OF THE SAME MANUFACTURER. ITEMS SUCH AS LAMPS, CONDUIT FITTINGS, WIRE, WIRING DEVICES, FUSES, CIRCUIT BREAKERS, ETC. SHALL BE THE SAME THROUGHOUT THE PROJECT.
- PROVIDE U.L. LISTED FIRE STOP METHODS FOR PENETRATIONS OF FIRE-RATED BUILDING COMPONENTS OR BARRIERS AS PER CODE. WATERPROOF OUTDOOR PENETRATIONS.
- THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN EXCAVATING NEAR EXISTING-TO-REMAIN UNDERGROUND UTILITIES (CABLES, WATER PIPES, DRAINAGE PIPES, ETC.) SO AS NOT TO DAMAGE THEM. HAND EXCAVATION SHALL BE CONSIDERED IN SUCH CASES. IF ANY EXISTING UTILITY IS DAMAGED AS A RESULT OF WORK DONE BY THE CONTRACTOR, THE EXISTING UTILITY SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- ALL WIRING SHALL BE INSTALLED IN MINIMUM 3/4" RIGID GALVANIZED STEEL CONDUIT.
- ALL RISER DIAGRAMS SHOWN ARE SCHEMATIC IN NATURE AND ARE INTENDED TO SHOW A GENERAL ARRANGEMENT AND INTENDED FUNCTION. FIELD COORDINATE ACTUAL CONDUIT ROUTINGS, ALL EQUIPMENT REQUIRED AND LABOR TO COMPLY WITH PROJECT REQUIREMENTS.
- INFORMATION SHOWN ON THESE DRAWINGS PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
- DEMOLITION SHALL INCLUDE REMOVAL AND OFF-SITE DISPOSAL OF MATERIALS. DO NOT ABANDON IN PLACE ANY ELECTRICAL WIRING AND COMPONENTS UNLESS OTHERWISE NOTED ON DRAWINGS.
- THE EXISTING FACILITY WILL REMAIN IN OPERATION DURING NEW CONSTRUCTION. INTERRUPTION OF UTILITIES MAY NOT OCCUR DURING BUSINESS HOURS. ALL INTERRUPTIONS SHALL BE COORDINATED WITH THE SITE MANAGER. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE ONE WEEK IN ADVANCE FOR SCHEDULED ELECTRICAL OUTAGES.
- ALL EQUIPMENT SHALL CONFORM AND BE LABELED PER NFPA 70E (ARC FLASH).
- CONTRACTOR SHALL OBTAIN ELECTRICAL WORK PERMIT FROM DEPARTMENT OF INSPECTION, LICENSING AND PERMITS.
- ALL EXPOSED AND UNDERGROUND WIRING, RACEWAYS AND EQUIPMENT SHALL BE IN ACCORDANCE WITH NEC ARTICLE 514.
- SEE MECHANICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL CONTROL/MONITOR/POWER CONDUIT REQUIREMENTS AND ADDITIONAL INFORMATION. CONTRACTOR SHALL COORDINATE WITH FUEL ISLAND CONTRACTOR AND SHOP DRAWINGS FOR FINAL DESIGN LAYOUT.
- ANY CONDUITS PASSING THRU THE 20 FOOT CLASS 1, DIVISION 2 RADIUS AROUND EACH DISPENSER PER NEC ARTICLE NO. 514 SHALL BE PROVIDED WITH CONDUIT SEAL-OFF AT BOTH ENDS OF THE CONDUIT.
- PROVIDE GROUNDING PROTECTION PER THE NEC AND NFPA.
- ALL ELECTRICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED PER THE NFPA 30A, CODE FOR MOTOR FUEL DISPENSING FACILITIES AND REPAIR GARAGE.

**SPECIAL NOTE:**  
 CONTRACTOR TO COORDINATE WITH FUEL/DISPENSERS/FLEETWATCH EQUIPMENT VENDOR FOR POWER SENSOR AND COMM WIRING REQUIREMENTS. SUBMIT SHOP DRAWINGS FOR CONDUIT AND WIRING LAYOUT DIAGRAMS FOR ENGINEER'S APPROVAL PRIOR TO ROUGH-IN'S.

**LEGEND NOTES:**

- DEVICES AND EQUIPMENT SHOWN DARK ON THE DRAWING ARE "NEW".
- DEVICES AND EQUIPMENT SHOWN LIGHT ON THE DRAWINGS ARE "EXISTING" TO REMAIN.
- DEVICES AND EQUIPMENT SHOWN DARK AND DASHED ON THE DRAWINGS "ARE TO BE REMOVED".

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 21631  
 EXPIRATION DATE: 8/22/2021



RECEIVED  
 JAN 17 2023  
 LICENSING & PERMITS  
 DIVISION

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND [Signatures and Dates]				DES: SLW				<b>ELECTRICAL GENERAL NOTES, LEGEND AND ABBREVIATIONS</b>	DAYTON HIGHWAY MAINTENANCE FACILITY UPGRADED FUEL STORAGE & DISPENSING SYSTEM CAPITAL PROJECT NO. C-0322 5TH ELECTION DISTRICT - HOWARD COUNTY, MARYLAND	SCALE
				DRN: LEF						
				CHK: AA						DWG NO.
				DATE: 08/2019	BY NO.	REVISION	DATE	SCALE MAP NO.	BLOCK NO.	E-1