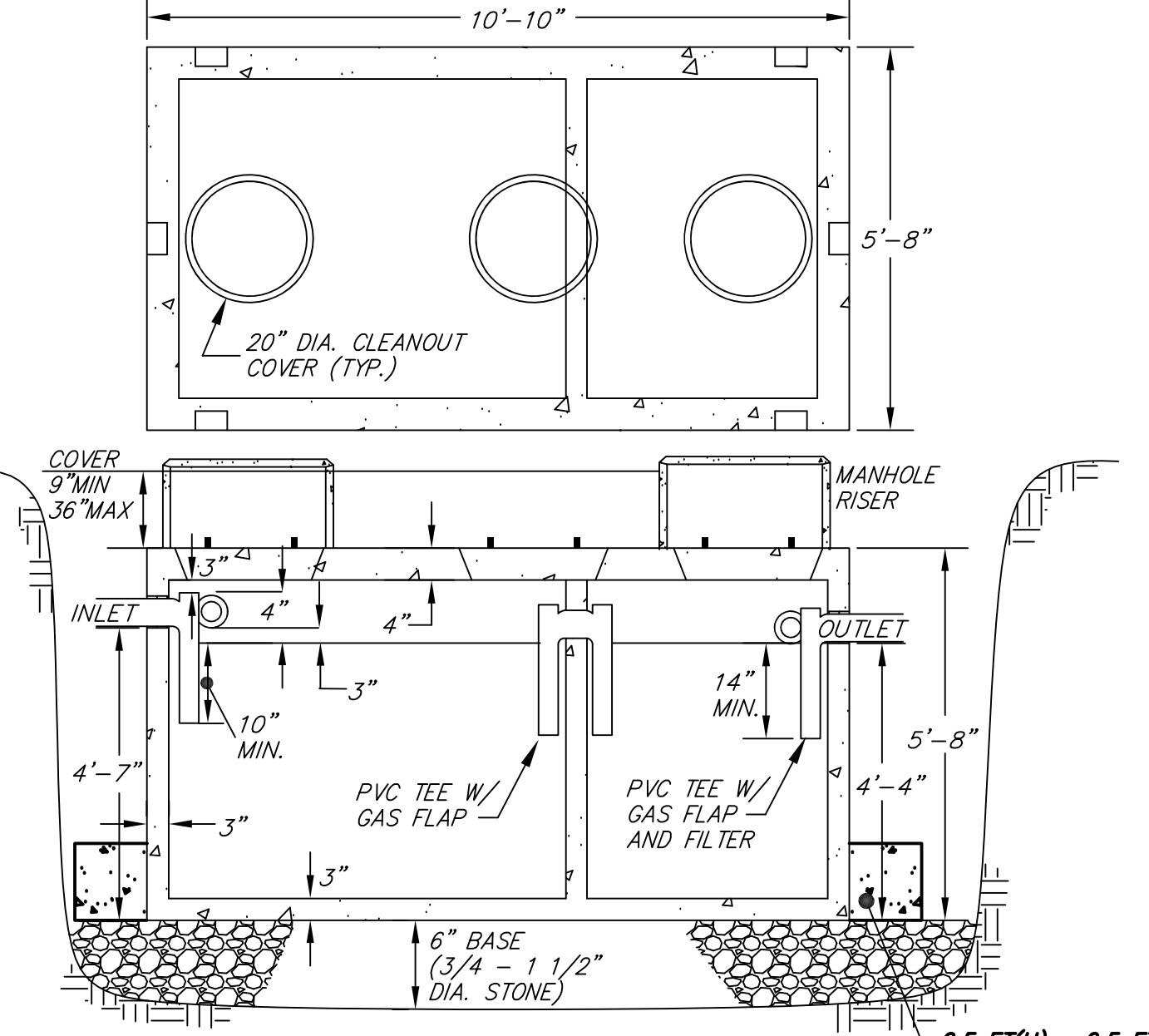


- 1) FIRST COMPARTMENT: 660 GALLONS
- 2) SECOND COMPARTMENT: 330 GALLONS
- 3) PROVIDED: 2 COMP 1000/500 GALLON MONOLITHIC SEPTIC TANK

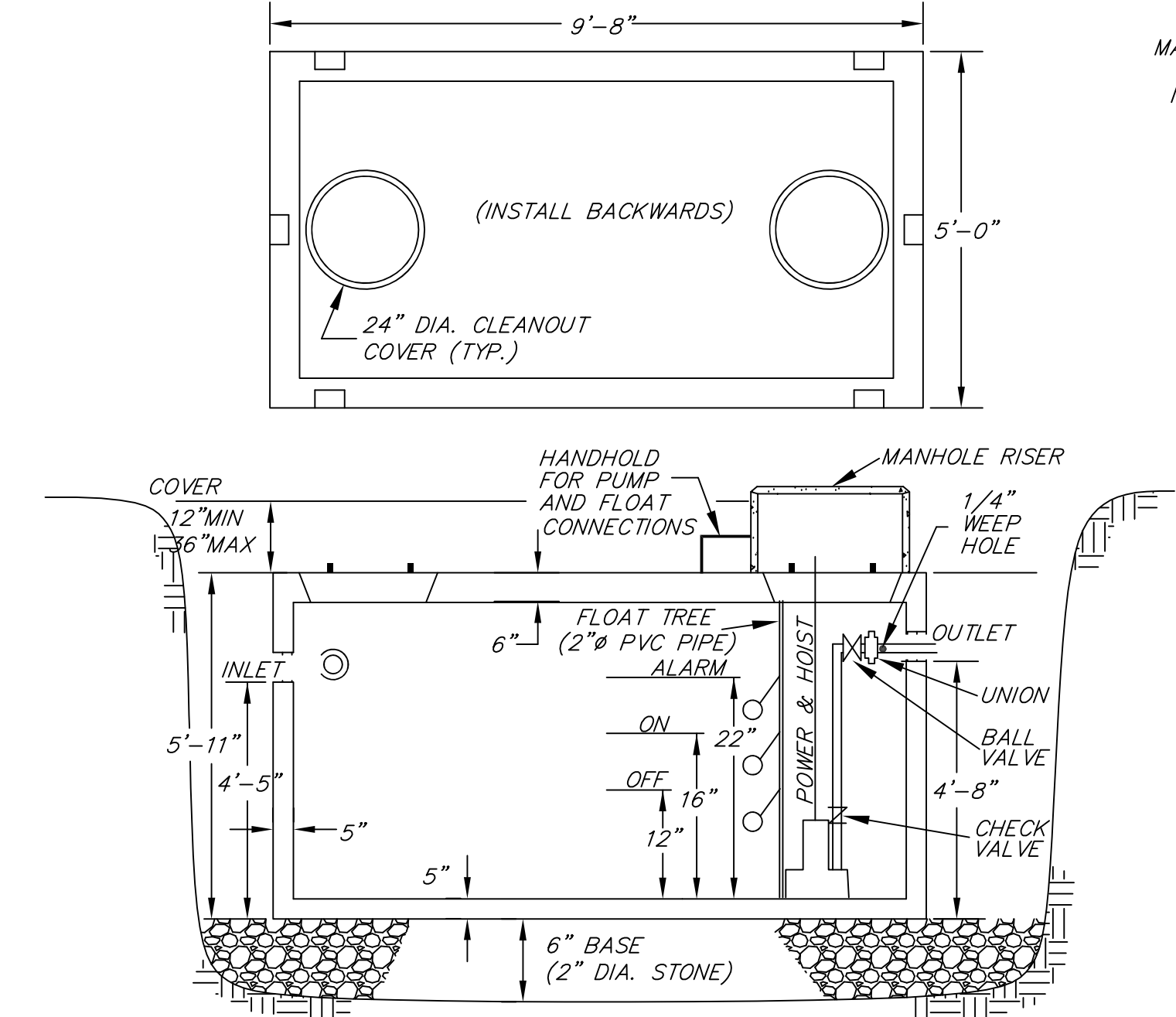


SHEA CONCRETE MODEL TK-M15002C STANDARD, OR EQUAL WEIGHT OF TANK = 11641 LBS + BALLAST

- NOTES:**
- TANK SHALL BE WATERTIGHT THROUGH MANUFACTURER'S SPECIFICATIONS AND WARRANTY.
 - TANK SHALL BE SET LEVEL AND TRUE TO GRADE ON A LEVEL BASE WHICH HAS BEEN MECHANICALLY COMPACTED.
 - TANK SHALL BE EMBOSSED WITH A SEAL STATING ASTM STANDARD C 1227-93 HAS BEEN MET.
 - THE OUTLET TEE SHALL BE EQUIPPED WITH A GAS BAFFLE AND AN EFFLUENT FILTER (LABEL A-1800 OR EQUAL).
 - THE INLET & OUTLET COVERS SHALL HAVE A RISER TO FINISH GRADE.
 - SECURE COVERS TO PREVENT UNAUTHORIZED ACCESS.
 - TANK IS A SPECIAL ORDER. CONTACT TANK MANUFACTURER FOR EXTENDED BASE.

1500 GALLON MONOLITHIC SEPTIC TANK WITH EXTENDED BASE
310 CMR 15.223 - 15.228 (NOT TO SCALE)

1000 GALLON MONOLITHIC H-20 PUMP CHAMBER (INSTALL BACKWARDS)
310 CMR 15.231 (NOT TO SCALE)



- NOTES:**
- TANK SHALL BE WATERTIGHT THROUGH MANUFACTURER'S SPECIFICATIONS AND WARRANTY.
 - TANK SHALL BE SET LEVEL AND TRUE TO GRADE ON A LEVEL BASE WHICH HAS BEEN MECHANICALLY COMPACTED.
 - TANK SHALL BE EMBOSSED WITH A SEAL STATING ASTM STANDARD C 1227-93 HAS BEEN MET.
 - PUMP SHALL BE ON A SEPARATE CIRCUIT FROM ALARM.
 - ALARM AND PUMP CONTROLS SHALL BE ACCESSIBLE TO LIVING UNIT.
 - PUMP AND FLOAT CONNECTIONS SHALL BE PLACED IN A HANDHOLD ADJACENT TO THE OUTLET MANHOLE RISER.
 - MANHOLE RISERS REQUIRED: TO-GRADE FOR OUTLET.
 - SECURE COVERS AT-GRADE TO PREVENT UNAUTHORIZED ACCESS.

- PUMP SPECIFICATIONS:**
MANUFACTURER: LIBERTY PUMPS
MODEL #: LE41M
NO. REQUIRED: ONE (1)
HORSEPOWER: 0.4
PHASE: 1
FULL AMPS: 12
DISCHARGE: 2"
- PUMP ACCESSORIES:**
CONTROL PANEL: LIBERTY SXL24=3 INCLUDED
ALARM: VISUAL & AUDIBLE INCLUDED
FLOATS: PILOT-DUTY FLOAT SWITCHES NO. REQUIRED: 3

PUMP CHAMBER SPECIFICATIONS:

STORAGE	
DOSAGE	82.5 gallons
RESERVE	330.0 gallons
VOL. IN PIPE RUN	0.0 gallons
TOTAL	412.5 gallons

DIMENSIONS

LENGTH*	8.83 feet
WIDTH*	4.18 feet
DEPTH*	4.00 feet

*INSIDE DIMENSIONS

ELEVATIONS

INLET INVERT	99.50 feet
ALARM	97.3 feet
ON	96.8 feet
OFF	96.5 feet
SUMP	95.5 feet

DISCHARGE ELEV. PUMP OFF ELEV. TOTAL STATIC HEAD

DISCHARGE ELEV.	104.50 feet
PUMP OFF ELEV.	96.5 feet
TOTAL STATIC HEAD	8.0 feet

FRICITION LOSSES IN PUMP CHAMBER:

QTY	DIA. (IN)	LOSS/FITTING (FT)	FITTING	TOTAL
1	2.129	5.0	90° BEND	5.0 FT
0	2.129	2.5	45° BEND	0.0 FT
1	2.129	14.0	CHECK VALVE	14.0 FT
1	2.129	1.2	GATE VALVE	1.2 FT
TOTAL LOSS				20.2 FT

FRICITION LOSSES IN PIPE RUN:

QTY	DIA. (IN)	LOSS/FITTING (FT)	FITTING	TOTAL
2	2.129	5.0	90° BEND	10.0 FT
0	2.129	2.5	45° BEND	0.0 FT
0	2.129	2.0	22.5° BEND	0.0 FT
0	2.129	12.0	TEE (Side In/Out)	0.0 FT
			LENGTH OF RUN	58.0 FT
			MISC. PIPE	5.8 FT
TOTAL LOSS				73.8 FT

TOTAL EQUIV. LENGTH: 95 FT

PRESSURE DISTRIBUTION SYSTEM PARAMETERS:

GENERAL	Unit	Value	Comment
Dosing Frequency	doses / day	4	
Min. Volume per Dose	gallons	83	
No. of Laterals		5	

FORCE MAIN

Length of Force Main	feet	58
Total Equivalent Length	feet	95
Nominal Inside Diameter	inches	2

MANIFOLD

No. of Segments	2
Length of Manifold	12
Segment Equivalent Length	feet 17
Nominal Inside Diameter	inches 2
	2 (1=include 2=exclude)

EACH LATERAL

Length of Lateral	feet 50
Nominal Inside Diameter	inches 1.25
Min. Residual Pressure	feet 3.5
Orifice Diameter	inches 0.19
	0.19=3/16; 0.31=5/16; 0.44=7/16; 0.56=9/16

No. of Orifices

No. of Orifices	12
Orifice Spacing	inches 60
	Includes 2 Orifices in pipe invert maximum = 60 inches

BUOYANCY CALCULATIONS:

DESCRIPTION	WEIGHT (LBS)	DISPLACED WATER (LBS)
1500 GALLON TWO-COMPARTMENT H-10 S/T		
TANK WEIGHT	11641	
BALLAST WEIGHT	1295	
SOIL WEIGHT	18820	
TOTAL DOWNWARD FORCE	31756	
TOTAL UPWARD FORCE	18862	(DISPLACED WATER)
FACTOR OF SAFETY	1.68	
1000 GALLON H-20 PUMP CHAMBER		
TANK WEIGHT	14825	
BALLAST WEIGHT	0	
SOIL WEIGHT	5371	
TOTAL DOWNWARD FORCE	20196	
TOTAL UPWARD FORCE	15085	(DISPLACED WATER)
FACTOR OF SAFETY	1.34	

- NOTES:**
- THIS PLAN IS INTENDED ONLY FOR THE CONSTRUCTION OF A SEPTIC SYSTEM TO SERVE THE SITE. NO OTHER USE OF THIS PLAN IS AUTHORIZED. PROPERTY LINES SHOWN HERE-ON ARE APPROXIMATE AND INTENDED ONLY TO SHOW THAT MINIMUM SETBACKS HAVE BEEN MET. NO BOUNDARY SURVEY WAS PERFORMED IN PREPARATION OF THIS PLAN.
 - CONTRACTOR SHALL NOTIFY DIGSAFE AT 1-888-DIG-SAFE (888-233-7233) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION.
 - CONTRACTOR SHALL MAKE THEMSELVES AWARE OF ALL CONSTRUCTION REQUIREMENTS ASSOCIATED WITH THE JOB.
 - ANY AND ALL REVISIONS TO THE APPROVED PLAN SHALL BE APPROVED BY THE DESIGN ENGINEER AND THE APPROPRIATE TOWN REPRESENTATIVE.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROJECT WITH RESPECT TO SAFETY METHODS, CONSTRUCTION METHODS AND SUPERVISION OF WORKERS.
 - CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR THE PROJECT AND SHALL BE A LICENSED SEPTIC INSTALLER IN THE TOWN IN WHICH THE SEPTIC SYSTEM IS BEING INSTALLED.
 - CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF BENCHMARKS PRIOR TO CONSTRUCTION. DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES IN THE BENCHMARK ELEVATIONS.
 - CONTRACTOR SHALL CONFIRM THAT THE DESIGN PLAN DETAILS ARE CONSISTENT WITH THE CURRENT MANUFACTURER'S SPECIFICATIONS.
 - APPROVAL OF THE SEPTIC DESIGN, ISSUANCE OF A DISPOSAL SYSTEM CONSTRUCTION PERMIT AND ISSUANCE OF THE CERTIFICATE OF COMPLIANCE SHALL NOT BE CONSTRUED AS A GUARANTEE THAT THE SEPTIC SYSTEM WILL FUNCTION SATISFACTORILY.
 - BACKWASH FROM A WATER SOFTENER SHALL NOT BE DISCHARGED INTO A SEPTIC SYSTEM.
 - WASHING MACHINE, IF CURRENTLY SEPARATE, SHALL BE CONNECTED TO THE PROPOSED SEPTIC SYSTEM.
 - ALL WORK SHALL COMPLY WITH 310CMR15.000 AND LOCAL BOARD OF HEALTH REGULATION, UNLESS VARIANCES/WAIVERS HAVE BEEN APPROVED.
 - ALL WORK OUTSIDE OF THE BUILDING THAT IS LESS THAN 10 FEET FROM THE OUTSIDE FACE OF THE OF THE BUILDING, SHALL CONFORM TO 248CMR2.00, THE STATE PLUMBING CODE.
 - ALL SEPTIC SYSTEM COMPONENTS ARE GREATER THAN 400 FEET FROM SURFACE WATER SUPPLIES AND GREATER THAN 200 FEET FROM ANY TRIBUTARY TO A SURFACE WATER SUPPLY.
 - THERE ARE NO KNOWN WELLS WITHIN 100 FEET OF THE SOIL ABSORPTION SYSTEM OR WITHIN 50 FEET OF ANY SEPTIC COMPONENTS.
 - THERE ARE NO KNOWN WETLANDS WITHIN 100 FEET OF THE SOIL ABSORPTION SYSTEM OR WITHIN 100 FEET OF ANY SEPTIC COMPONENTS.
 - THERE ARE FRESHWATER WETLANDS WITHIN 100 FEET OF A PORTION OF THE SEPTIC SYSTEM. THIS PLAN SHALL ACCOMPANY A NOTICE OF INTENT FILED WITH THE LOCAL CONSERVATION COMMISSION AND THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION.
 - WETLAND ON-SITE WERE DELINEATED BY JULIE VONDRAK, JANUARY, 2022.
 - SIT COMPLIES WITH 310CMR15.214: NITROGEN LOADING LIMITATIONS.
 - FILL MATERIAL FOR SYSTEMS CONSTRUCTED IN FILL SHALL CONSIST OF SELECT ON-SITE OR IMPORTED SOIL MATERIAL AND SHALL CONFORM TO 310CMR15.255(3).
 - CONTRACTOR SHALL REMOVE A & B SOIL HORIZONS AND OTHER DELETERIOUS MATERIAL WITHIN 5 FT OF SOIL ABSORPTION SYSTEM AND REPLACE WITH FILL MATERIAL (CONFORMING TO 310CMR15.225(5)) UP TO BREAKOUT ELEVATION AND DOWN TO THE DEPTH OF NATURALLY OCCURRING PERVIOUS MATERIAL.
 - COMPONENTS SHALL NOT BE BACKFILLED WITHOUT INSPECTION BY THE BOARD OF HEALTH AND ENGINEER, AND PERMISSION OBTAINED FROM EACH.
 - VEHICULAR AIR TRAFFIC, PARKING OF VEHICLES, STOCKPILING OF MATERIALS AND STORAGE OF EQUIPMENT OVER LEACHING AREA IS PROHIBITED.
 - THE EXISTING SEPTIC SYSTEM SHALL BE EITHER CRUSHED AND FILLED WITH CLEAN FILL, OR REMOVED, AS PER 310CMR15.00.
 - ALL SEPTIC COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE AND CLEAN FILLED, OR REMOVED, IN ORDER TO LOCATE THEM ONCE BURIED.
 - THE LEACH FIELD LATERALS SHALL BE FLUSHED ANNUALLY TO MAINTAIN A PROPERLY WORKING SYSTEM.
 - CONTRACTOR SHALL PROVIDE 24 HOUR NOTICE TO THE DESIGN ENGINEER TO INSPECT CONSTRUCTION AT THE FOLLOWING TIMES:
 - TO INSPECT INSTALLED TANKS - PRIOR TO BACKFILLING
 - TO INSPECT THE BOTTOM OF EXCAVATION - PRIOR TO SAND PLACEMENT
 - TO INSPECT THE FINAL INSTALLATION - PRIOR TO BACKFILLING
 - CONTRACTOR SHALL CONFIRM THAT THE PROPOSED BUILDING SEWER PIPE INVERT ELEVATION CAN BE MET WITH A MINIMUM SLOPE OF 1.5% IF NOT, THEN DESIGN ENGINEER SHALL BE NOTIFIED, IMMEDIATELY.

SUBSURFACE SEWAGE DISPOSAL SYSTEM UPGRADE

702 MAIN STREET
BOXFORD, MA

REGISTRY INFORMATION:

DEED:
BOOK NO.: 40272
PAGE NO.: 155

ASSESSORS INFORMATION:

MAP: 5
BLOCK: 2
LOT: 20

PREPARED FOR:

LEGACY-NORTH PROPERTIES INC
4 ASHBURY LANE
ANDOVER MA 01810

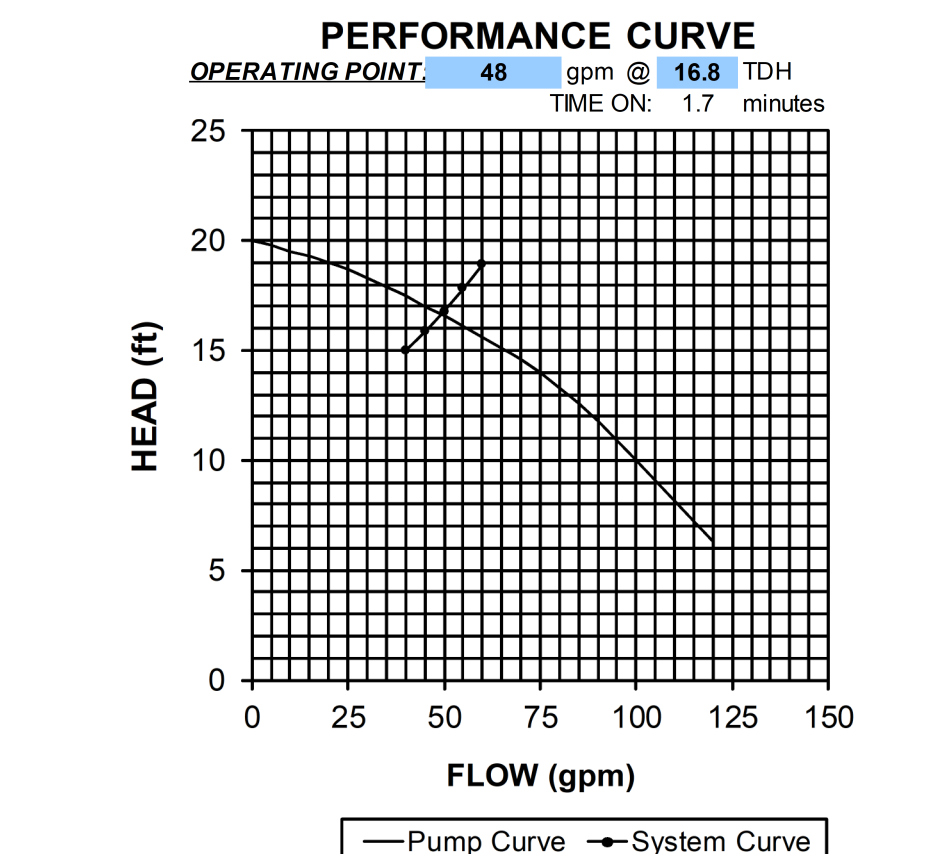


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COMPOSITE SYSTEM CURVE

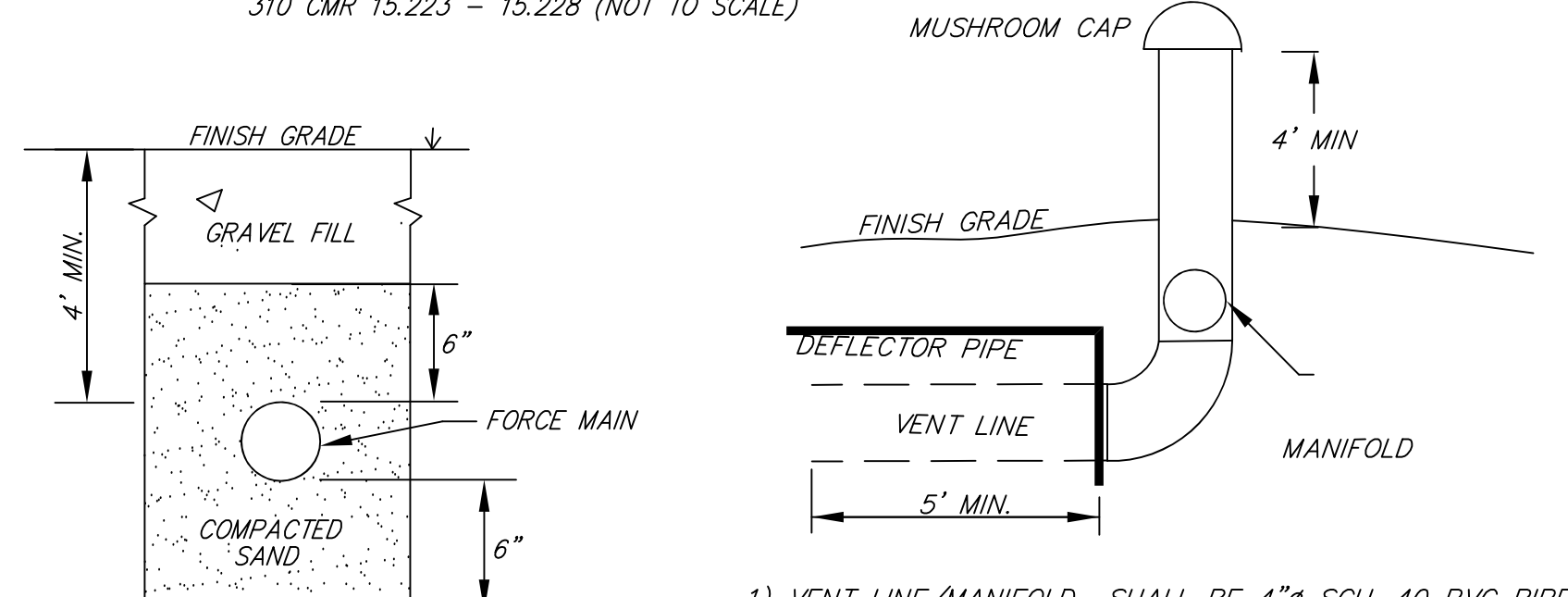
Flow (gpm)	Static Head (feet)	Residual Press. at Distal End	TDH (feet)
40	8.0	3.5	15.0
45	8.0	3.5	15.9
50	8.0	3.5	16.8
55	8.0	3.5	17.8
60	8.0	3.5	18.9

Plot Flow and TDH on Pump Curve to determine operating point of pump.



SYSTEM PARAMETERS:

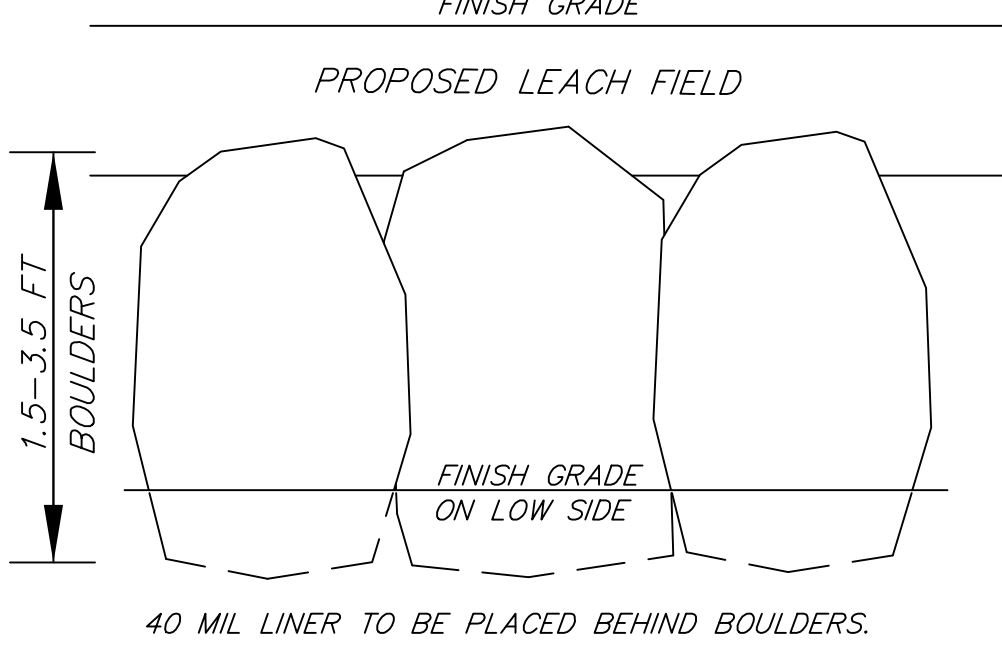
ORIFICE DISCHARGE	gal/min	0.80
RESIDUAL PRESSURE (SQUIRT HEIGHT)	feet	3.5
Based on Flow:		48 GPM



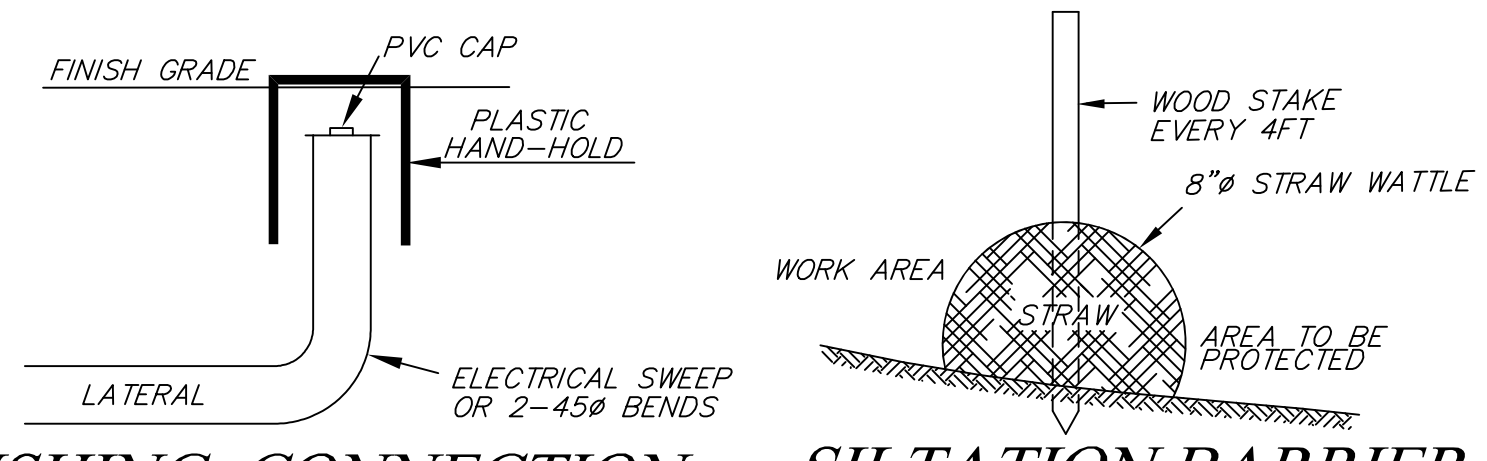
- 1) TRENCH SHALL BE PLACED IN UNDISTURBED SUBGRADE OR COMPACTED TO 95% PER ASTM D-1557**
- 2) VENT LINE/MANIFOLD SHALL BE 4" SCH-40 PVC PIPE**
- 3) OWNER SHALL BE CONSULTED REGARDING PLACEMENT OF VENT.**

FORCE MAIN TRENCH
310 CMR 15.221(6) (NOT TO SCALE)

VENT
310 CMR 15.241 (NOT TO SCALE)

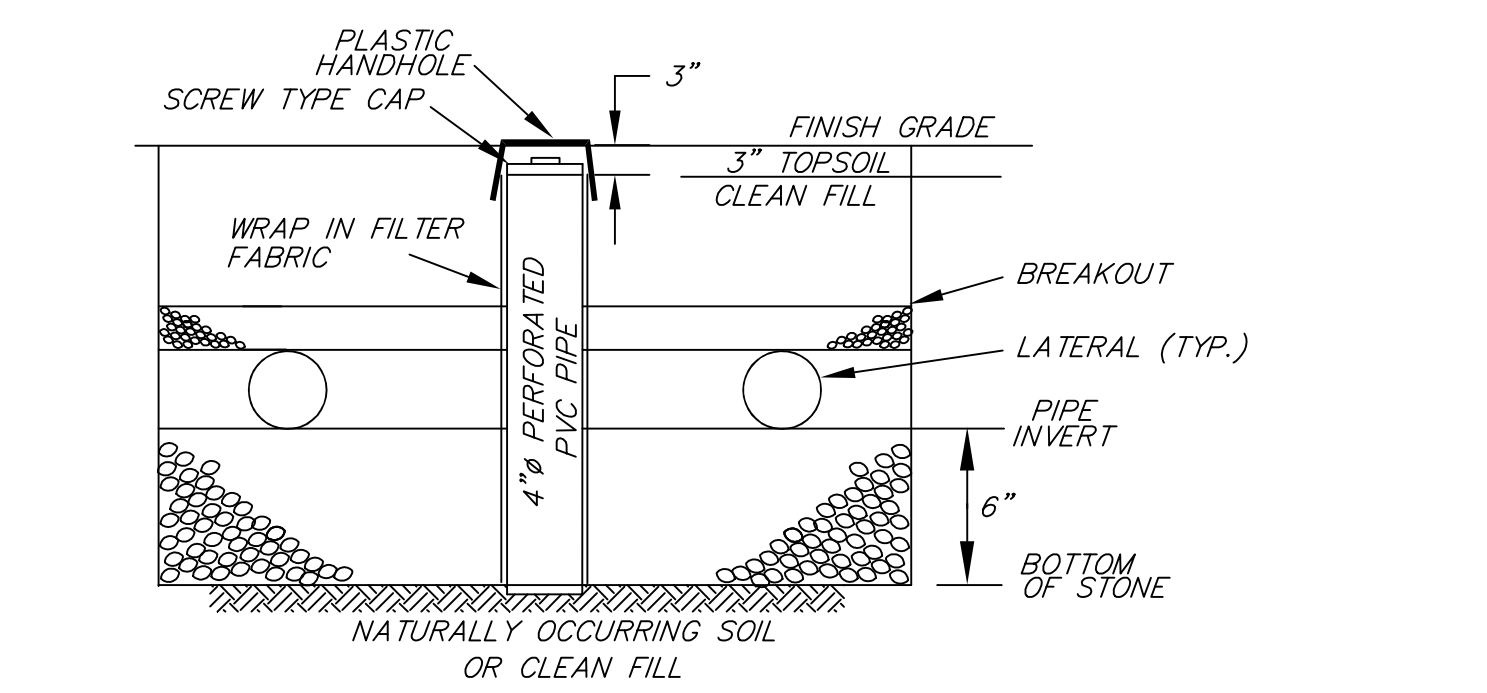


BOULDER WALL:
(NOT TO SCALE)

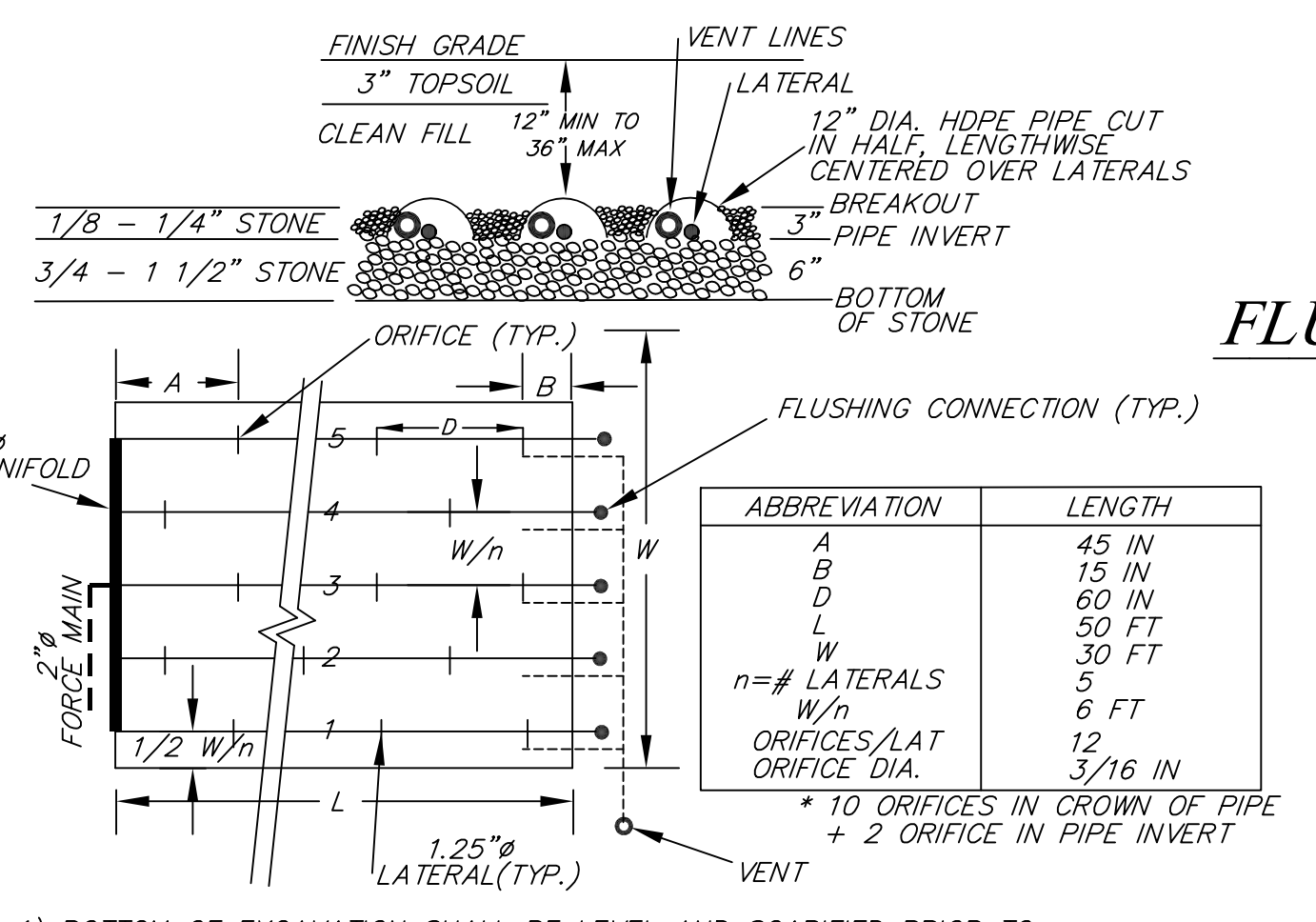


FLUSHING CONNECTION
(NOT TO SCALE)

SILTATION BARRIER
(NOT TO SCALE)



INSPECTION PORT
310 CMR 15.240(13) (NOT TO SCALE)



- 1) BOTTOM OF EXCAVATION SHALL BE LEVEL AND SCARIFIED PRIOR TO PLACING STONE**
- 2) THIRD & EIGHTH ORIFICE IN EACH LINE SHALL BE DRILLED THROUGH PIPE CREATING TWO ORIFICES FACING DOWNWARD, TO DRAIN PIPE.**

PRESSURE DOSED LEACH FIELD DETAIL:
310 CMR 15.252 (NOT TO SCALE)

1) JBS 7/18/22 CONSERVATION FILING

2) BY DATE REVISIONS TO PLANS

DATE: JANUARY 26, 2022
DESIGN BY: JBS
DRAWN BY: JBS

DETAILS & NOTES