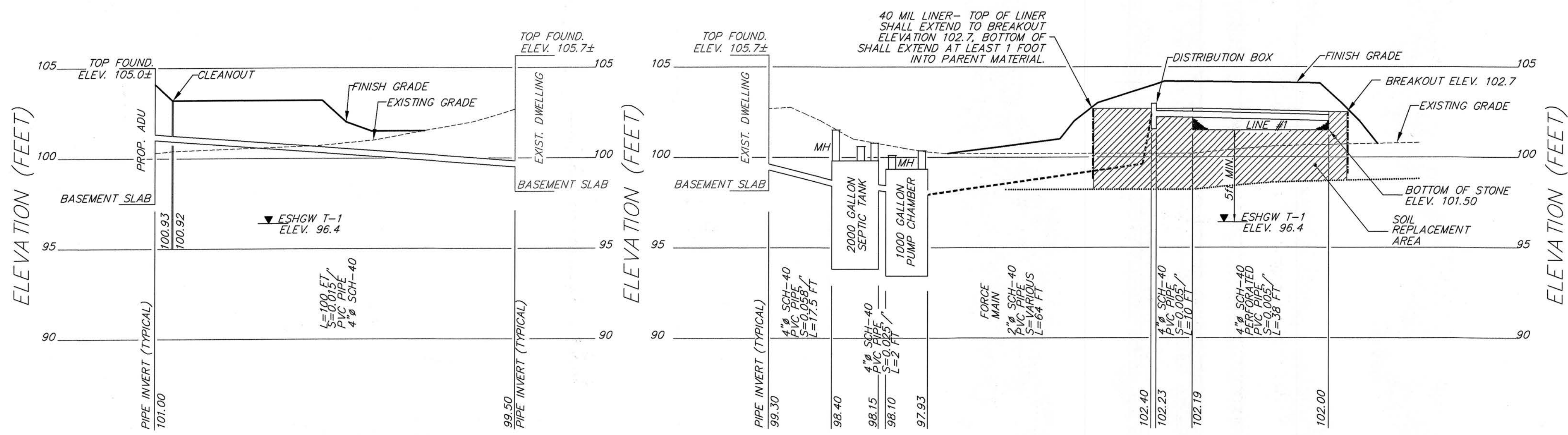


SITE PLAN:
SCALE 1"=20'



FLOW PROFILE:
SCALE 1"=20' HORIZONTAL
1"=4' VERTICAL

▲	BENCHMARKS: ASSUMED DATUM	ELEV.
#1	THRESHOLD - SLIDING GLASS DOOR	106.34
#2	BARN - SIDE DOOR THRESHOLD	101.71
#3	TOP BRICK FOUNDATION	105.65

PLAN INTENT:

THIS PLAN IS INTENDED ONLY FOR THE CONSTRUCTION OF A SEPTIC SYSTEM TO SERVE THE SITE. NO OTHER USE OF THIS PLAN IS AUTHORIZED.

SOILS INFORMATION:

SOIL EVALUATOR: JAMES SCANLAN, P.E.
(SE#2159 - APRIL 1995)
TOWN WITNESS: MARK TOLMAN
DATE: 8/29/24

I CERTIFY THAT I AM CURRENTLY APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION PURSUANT TO 310CMR15.017 TO CONDUCT SOIL EVALUATIONS AND THE ABOVE ANALYSIS HAS BEEN PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE AND EXPERIENCE DESCRIBED IN 310CMR15.017. I FURTHER CERTIFY THAT THE RESULTS OF MY SOIL EVALUATION, AS INDICATED IN THE ATTACHED SOIL EVALUATION FORM, ARE ACCURATE AND IN ACCORDANCE WITH 310CMR 15.100 THROUGH 15.107.

SIGNATURE: *James Scanlan* DATE: 2/3/25

SOIL ELEVATIONS:

TEST PIT	T-1	T-2	T-3	T-4
GRADE	100.4	100.6	100.0	100.2
E.S.H.G.W.	96.4	96.4	96.7	96.0
OBS. G.W.	94.9	95.1	95.5	95.4
BOTTOM PIT	93.4	93.8	93.5	93.7

SOIL PERCOLATION RATE:

P-1: DEPTH TO 12" = 26"
SOIL PERC RATE = <2 MIN/IN
P-2: DEPTH TO 12" = 24"
SOIL PERC RATE = <2 MIN/IN

SOIL PROFILES:

T-1:
0-14" Ap FINE SANDY LOAM 10YR3/3 GRANULAR VERY FRIABLE
14-24" Bw LOAMY SAND 10YR4/6 SINGLE GRAIN LOOSE
24-84" C1 MEDIUM SAND 10YR5/4 SINGLE GRAIN LOOSE
ESHGW @ 48" WEEP @ 66" STANDING @ 66" NO REFUSAL
T-2:
0-15" Ap FINE SANDY LOAM 10YR3/3 GRANULAR VERY FRIABLE
15-24" Bw LOAMY SAND 10YR4/6 SINGLE GRAIN LOOSE
24-82" C1 MEDIUM SAND 10YR5/4 SINGLE GRAIN LOOSE
ESHGW @ 50" WEEP @ 66" STANDING @ 66" NO REFUSAL
T-3:
0-12" Ap FINE SANDY LOAM 10YR3/3 GRANULAR VERY FRIABLE
12-22" Bw SANDY LOAM 10YR4/6 MASSIVE FRIABLE
22-78" C1 MEDIUM SAND 10YR5/4 SINGLE GRAIN LOOSE/FRIABLE
ESHGW @ 48" WEEP @ 66" STANDING @ 66" NO REFUSAL
T-4:
0-12" Ap FINE SANDY LOAM 10YR3/3 GRANULAR VERY FRIABLE
12-20" Bw LOAMY SAND 10YR4/6 SINGLE GRAIN LOOSE
20-78" C1 MEDIUM SAND 10YR5/4 SINGLE GRAIN LOOSE
ESHGW @ 48" WEEP @ 66" STANDING @ 66" NO REFUSAL

DESIGN CRITERIA:

FACILITY TYPE:	SINGLE FAMILY DWELLING	SOILS CLASS:	CLASS I
SIZE:	4 BEDROOMS (EXISTING) 6 BEDROOMS (PROPOSED)	SOIL PERC RATE:	<5 MIN/INCH
UNIT FLOW RATE:	110 GAL/BED/DAY	LONG TERM ACCEPTANCE RATE:	0.74 GAL/SF/DAY
DAILY FLOW:	660 GAL/DAY	REQUIRED LEACH AREA:	(TOWN) 892 SF (STATE) 892 SF
GARBAGE GRINDER:	NO	PROVIDED LEACH AREA:	912 SF (LEACH AREA: 24' X 38' = 912 SF)
SYSTEM DESIGN:	660 GAL/DAY		

VARIANCES/WAIVERS:

REGULATIONS:	REQUIRED:	PROVIDED:
NONE REQUESTED		

LEGEND:

EXISTING	PROPOSED
100	100
100X0	100
	FG
	CONTOURS
	SPOT SHOTS
	APPROX. PROPERTY LINES
	WATER SERVICE LINE
	GAS SERVICE LINE
	CHAIN LINK FENCE
	TEST PIT & NO.
	PERC TEST
	BUILDING
	EDGE OF PAVEMENT
	FORCE MAIN
	TREE
	TO BE ABANDONED
	TO BE REMOVED
	SILT FENCE / LIMIT OF WORK
	TBA
	TBR

**SUBSURFACE
SEWAGE
DISPOSAL
SYSTEM DESIGN**

226 KENOZA STREET
HAVERHILL, MA 01830

REGISTRY INFORMATION:

DEED:
BOOK NO.: 42289
PAGE NO.: 338

ASSESSORS INFORMATION:

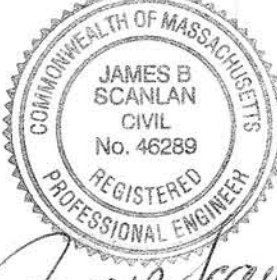
MAP: 467
BLOCK: 185
LOT: 27

PREPARED FOR:

FRANCES J. POIRIER
226 KENOZA STREET
HAVERHILL, MA 01830

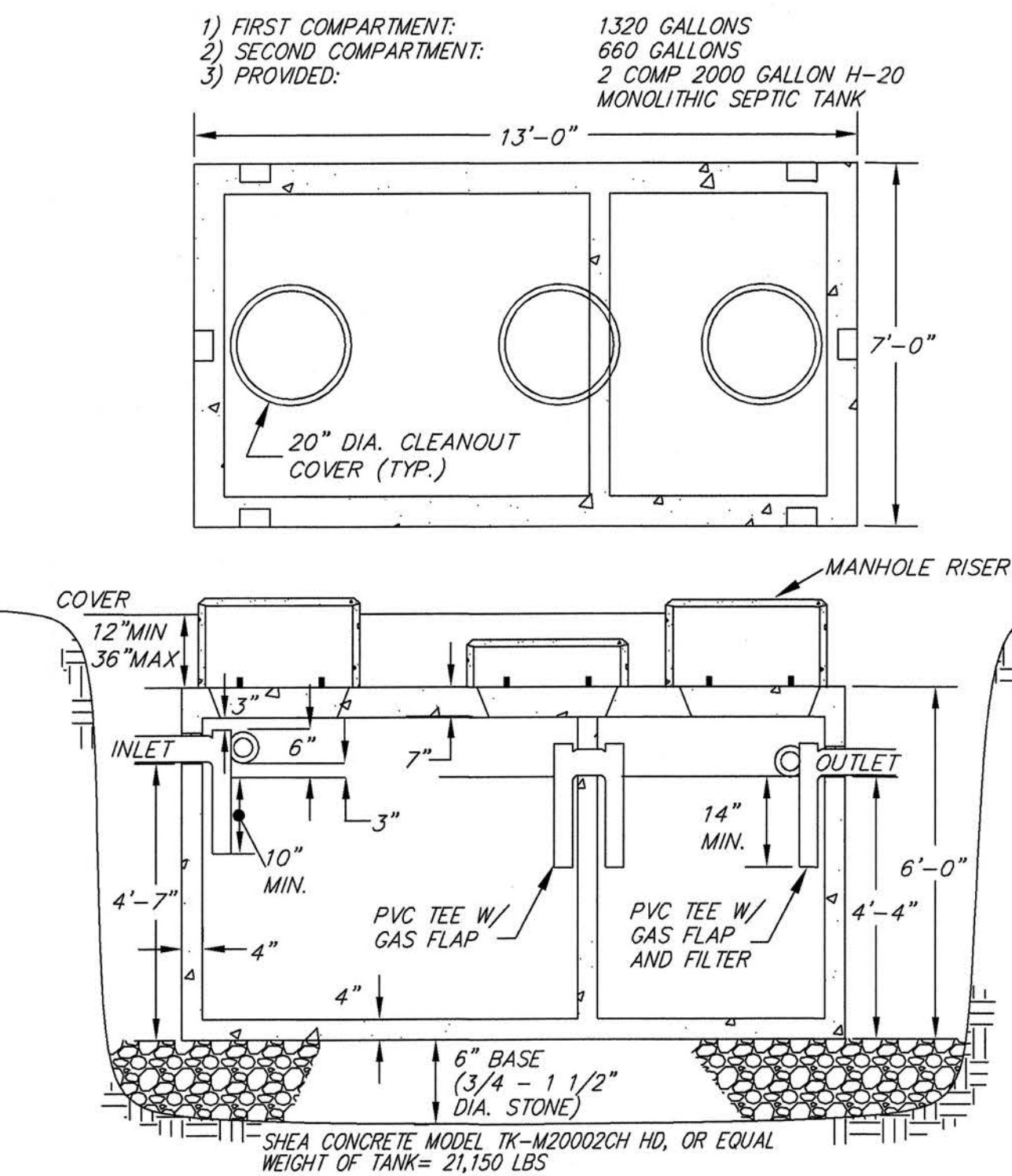


PHONE: (978) 372-3440
EMAIL: jim@scanlanengineering.com
WEB: www.scanlanengineering.com



1	JBS	1/25/25	ADD WETLANDS
#	BY	DATE	REVISIONS TO PLANS
DATE:	NOVEMBER 15, 2024		
DESIGN BY:	JBS		
DRAWN BY:	JBS		

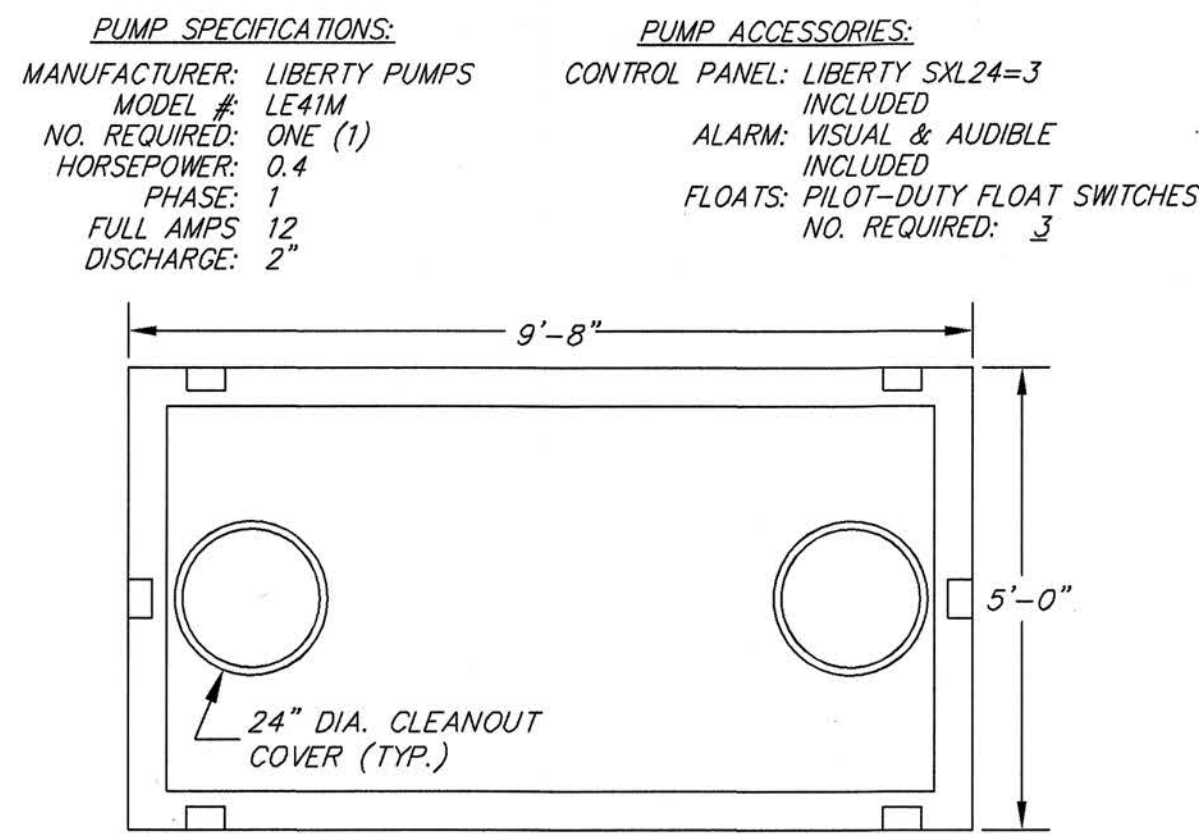
**PLAN
& FLOW PROFILE**



- 1) TANK SHALL BE WATERTIGHT THROUGH MANUFACTURER'S SPECIFICATIONS AND WARRANTY.
- 2) TANK SHALL BE SET LEVEL AND TRUE TO GRADE ON A LEVEL BASE WHICH HAS BEEN MECHANICALLY COMPACTED.
- 3) TANK SHALL BE EMBOSSED WITH A SEAL STATING THAT ASTM STANDARD C 1227-93 HAS BEEN MET.
- 4) THE OUTLET TEE SHALL BE EQUIPPED WITH A GAS BAFFLE AND AN EFFLUENT FILTER (TABLE A-1800 OR EQUAL).
- 5) THE INLET & OUTLET COVERS SHALL HAVE A RISER TO FINISH GRADE. THE CENTER COVER SHALL HAVE A RISER TO WITHIN 6" OF FINISH GRADE. PREVENT UNAUTHORIZED ACCESS.
- 6) SECURE COVERS TO PREVENT UNAUTHORIZED ACCESS.

2000 GALLON MONOLITHIC 2-COMPARTMENT H-20 SEPTIC TANK

310 CMR 15.223 - 15.228 (NOT TO SCALE)



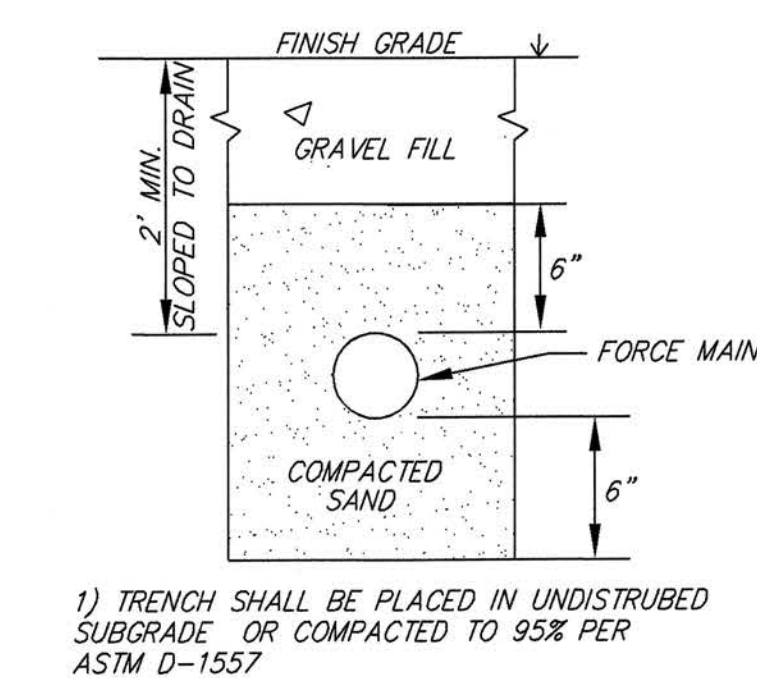
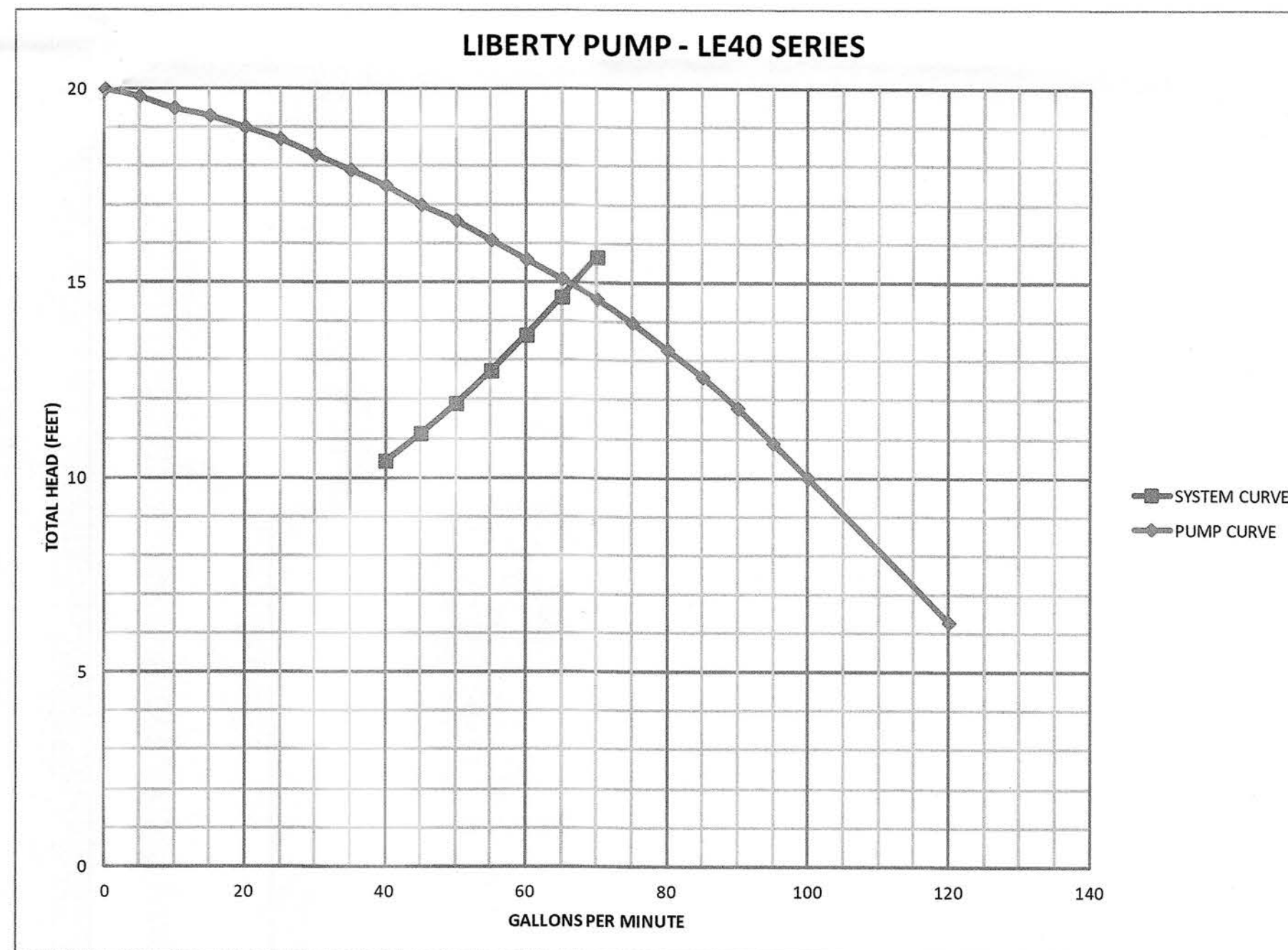
- 1) TANK SHALL BE WATERTIGHT THROUGH MANUFACTURER'S SPECIFICATIONS AND WARRANTY.
- 2) TANK SHALL BE SET LEVEL AND TRUE TO GRADE ON A LEVEL BASE WHICH HAS BEEN MECHANICALLY COMPACTED.
- 3) TANK SHALL BE EMBOSSED WITH A SEAL STATING THAT ASTM STANDARD C 1227-93 HAS BEEN MET.
- 4) PUMP SHALL BE ON A SEPARATE CIRCUIT FROM ALARM.
- 5) ALARM AND PUMP CONTROLS SHALL BE ACCESSIBLE TO LIVING UNIT.
- 6) PUMP AND FLOAT CONNECTIONS SHALL BE PLACED IN A HANDHOLD ADJACENT TO THE OUTLET MANHOLE RISER.
- 7) MANHOLE RISERS REQUIRED: WITHIN 6" OF GRADE FOR INLET AND TO-GRADE FOR OUTLET.
- 8) SECURE COVERS AT-GRADE TO PREVENT UNAUTHORIZED ACCESS.

1000 GALLON MONOLITHIC H-20 PUMP CHAMBER

310 CMR 15.231 (NOT TO SCALE)

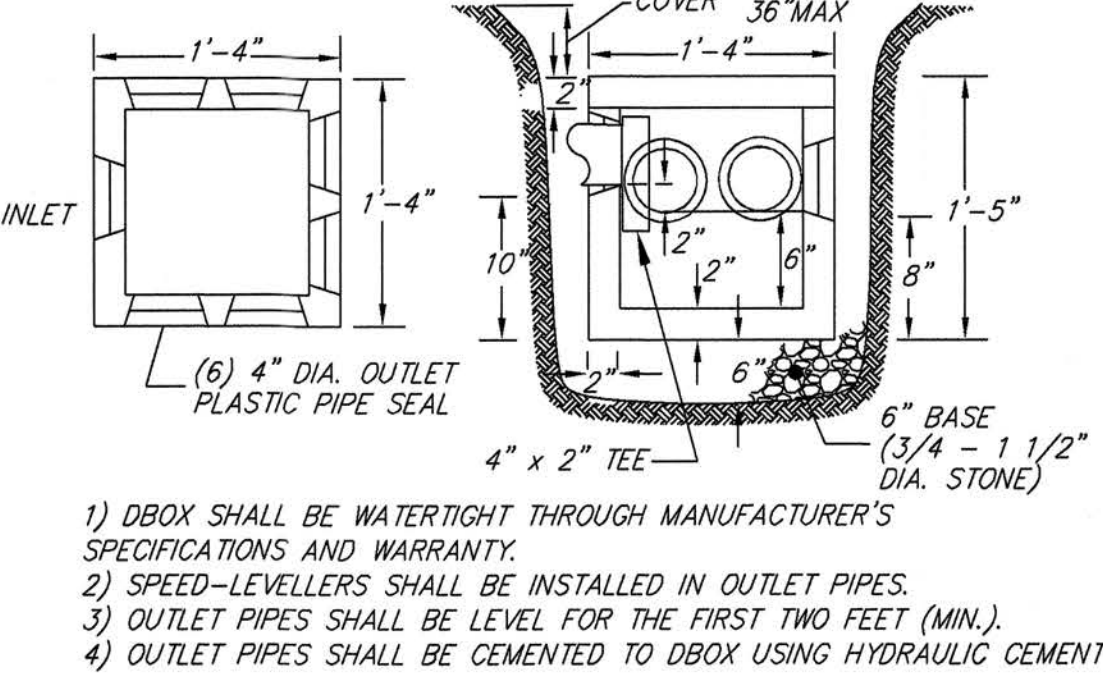
DAILY FLOW:	660	GALLONS/DAY				
SOIL PERC RATE:	< 2	MIN/IN				
SOIL TYPE:	Class 1	6 DOSES/DAY				
VOLUME/DOSE:	110.0	GALLONS				
DOSE PIPE:	10.4	GALLONS				
TOTAL:	120.4	GALLONS/DAY				
FORCE MAIN:	2	DIA.				
PUMP CHAMBER:	(INSIDE DIMENTIONS)	1000 GALLON MONO TANK				
	LENGTH	8.83 FT				
	WIDTH	4.17 FT				
	EFF. DEPTH	4.08 FT				
	INLET INVERT	98.10				
	SUMP	94.02				
	OFF	94.85				
	ON	95.27				
	ALARM	95.69				
STATIC HEAD:	94.85	PUMP OFF				
	102.40	DBOX				
	Hs= 7.55	FEET				
EQUIVALENT LENGTH:	(2" SCH-40 PVC PIPE)					
PUMP CHAMBER	1 90 DEGREE BENDS	5				
	1 GATE VALVE	1.2				
	1 CHECK VALVE	14				
	TOTAL	20.2				
		USE: 21				
PIPE RUN	2 90 DEGREE BENDS	10				
	3 45 DEGREE BENDS	7.5				
	0 CHECK VALVE	0				
	LENGTH OF PIPE	64				
	ADDITIONAL LENGTH	7				
	TOTAL	88.5				
		USE: 89				
SYSTEM CURVE:		TOTAL EQUIVALENT LENGTH 110				
	Q	V	H@100 FT	H	Hs	TDH
	GPM	FT/SEC	FT/100FT	FT		FT
	40	3.61	2.62	2.88	7.55	10.43
	45	4.06	3.26	3.58	7.55	11.13
	50	4.51	3.96	4.36	7.55	11.90
	55	4.96	4.73	5.20	7.55	12.75
	60	5.41	5.55	6.11	7.55	13.65
	65	5.86	6.44	7.08	7.55	14.63
	70	6.31	7.39	8.13	7.55	15.67
OPERATING POINT:						
	HEAD	14.9	FT			
	FLOW RATE	66.5	GPM			
	TIME ON	1.7	MINUTES			

- NOTES:**
1. 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.
 2. CONTRACTOR SHALL NOTIFY DGS/SAFE AT 1-888-DIG-SAFE (888-233-7233) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION.
 3. CONTRACTOR SHALL MAKE THEMSELVES AWARE OF ALL CONSTRUCTION REQUIREMENTS ASSOCIATED WITH THE JOB.
 4. ANY AND ALL REVISIONS TO THE APPROVED PLAN SHALL BE APPROVED BY THE DESIGN ENGINEER AND THE APPROPRIATE TOWN REPRESENTATIVE.
 5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROJECT WITH RESPECT TO SAFETY METHODS, CONSTRUCTION METHODS AND SUPERVISION OF WORKERS.
 6. 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.
 7. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF BENCHMARKS, PRIOR TO CONSTRUCTION. DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES IN THE BENCHMARK ELEVATIONS.
 8. CONTRACTOR SHALL CONFIRM THAT THE DESIGN PLAN DETAILS ARE CONSISTENT WITH THE CURRENT MANUFACTURER'S SPECIFICATIONS.
 9. 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.
 10. BACKWASH FROM A WATER SOFTENER SHALL NOT BE DISCHARGED INTO A SEPTIC SYSTEM.
 11. WASHING MACHINE, IF CURRENTLY SEPARATE, SHALL BE CONNECTED TO THE PROPOSED SEPTIC SYSTEM.
 12. ALL WORK SHALL COMPLY WITH 310CMR15.000 AND LOCAL BOARD OF HEALTH REGULATION, UNLESS VARIANCES/WAIVERS HAVE BEEN APPROVED.
 13. 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.
 14. 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.
 15. THERE ARE NO KNOWN WELLS WITHIN 100 FEET OF THE SOIL ABSORPTION SYSTEM OR WITHIN 50 FEET OF ANY SEPTIC COMPONENTS.
 16. THERE ARE NO KNOWN WETLANDS WITHIN 100 FEET OF THE SOIL ABSORPTION SYSTEM OR WITHIN 100 FEET OF ANY SEPTIC COMPONENTS.
 17. CONTRACTOR SHALL VERIFY THAT THE SEPTIC TANK CAN BE CONNECTED TO THE BUILDING SEWER AS SHOWN, WITH A MINIMUM 2% SLOPE. IF NOT, CONTRACTOR SHALL NOTIFY ENGINEER, IMMEDIATELY.
 18. SITE COMPLES WITH 310CMR15.214: NITROGEN LOADING LIMITATIONS.
 19. FILL MATERIAL FOR SYSTEMS CONSTRUCTED IN FILL SHALL CONSIST OF SELECT ON-SITE OR IMPORTED SOIL MATERIAL AND SHALL CONFORM TO 310CMR15.255(3).
 20. CONTRACTOR SHALL REMOVE A & B SOIL HORIZON(S) AND OTHER DELETERIOUS MATERIAL WITHIN 5 FT OF SOIL ABSORPTION SYSTEM AND REPLACE WITH FILL MATERIAL (CONFORMING TO 310CMR15.255(3)) UP TO BREAKOUT ELEVATION AND DOWN TO THE DEPTH OF NATURALLY OCCURRING PERVIOUS MATERIAL.
 21. COMPONENTS SHALL NOT BE BACKFILLED WITHOUT INSPECTION BY THE BOARD OF HEALTH AND FINANCIAL, AND PERMISSION OBTAINED FROM EACH.
 22. VEHICULAR TRAFFIC, PARKING OF VEHICLES, STOCKPILING OF MATERIALS AND STORAGE OF EQUIPMENT OVER IT'S FACING AREA IS PROHIBITED.
 23. THE EXISTING SEPTIC SYSTEM SHALL BE EITHER CRUSHED AND FILLED WITH CLEAN FILL, OR REMOVED, AS PER 310CMR15.00.
 24. ALL SEPTIC COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.
 25. CONTRACTOR SHALL PROVIDE 24 HOUR NOTICE TO THE DESIGN ENGINEER TO INSPECT CONSTRUCTION AT THE FOLLOWING TIMES:
 - A) TO INSPECT INSTALLED TANKS - PRIOR TO BACKFILLING
 - B) TO INSPECT THE BOTTOM OF EXCAVATION - PRIOR TO SAND PLACEMENT
 - C) TO INSPECT THE FINAL INSTALLATION - PRIOR TO BACKFILLING
 26. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL CONFIRM THE EXISTING DWELLING OUTLET INVERT ELEVATION AND CONFIRM THAT IT IS AT ELEVATION 99.30, OR LOWER, AND TO CONFIRM THAT THE INLET PIPE COMING FROM THE ADU IS ABLE TO BE CONNECTED. IF NOT, THEN CONTRACTOR SHALL NOTIFY DESIGN ENGINEER, IMMEDIATELY.
 27. THE EXISTING WATER SERVICE, SERVICING THE BARN, SHALL BE RE-LOCATED 10 FT+ FROM ALL SEPTIC COMPONENTS AND PIPES.
 28. THE WATER SERVICE TO THE ADU SHALL BE KEPT A MINIMUM OF 10 FEET FROM ALL SEPTIC COMPONENTS AND PIPES.
 29. WETLANDS ON-SITE WERE DELINEATED BY SEEKAMP ENVIRONMENTAL CONSULTANTS, PATRICK SEEKAMP, PWS, JANUARY, 2025.



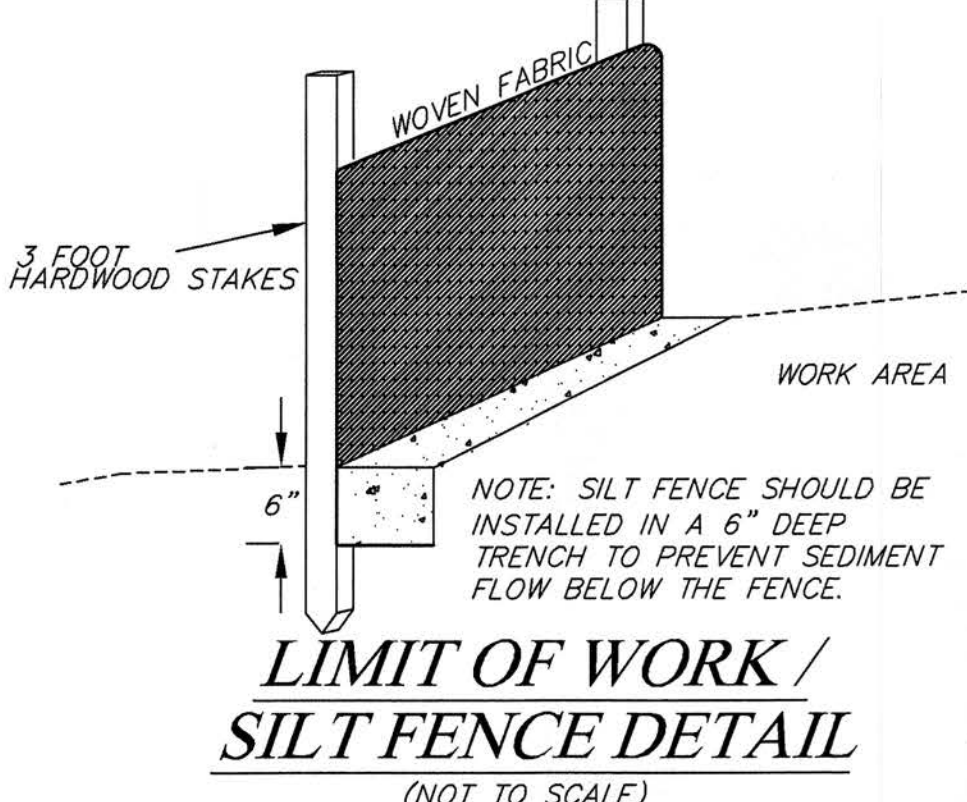
FORCE MAIN TRENCH

310 CMR 15.221(6) (NOT TO SCALE)



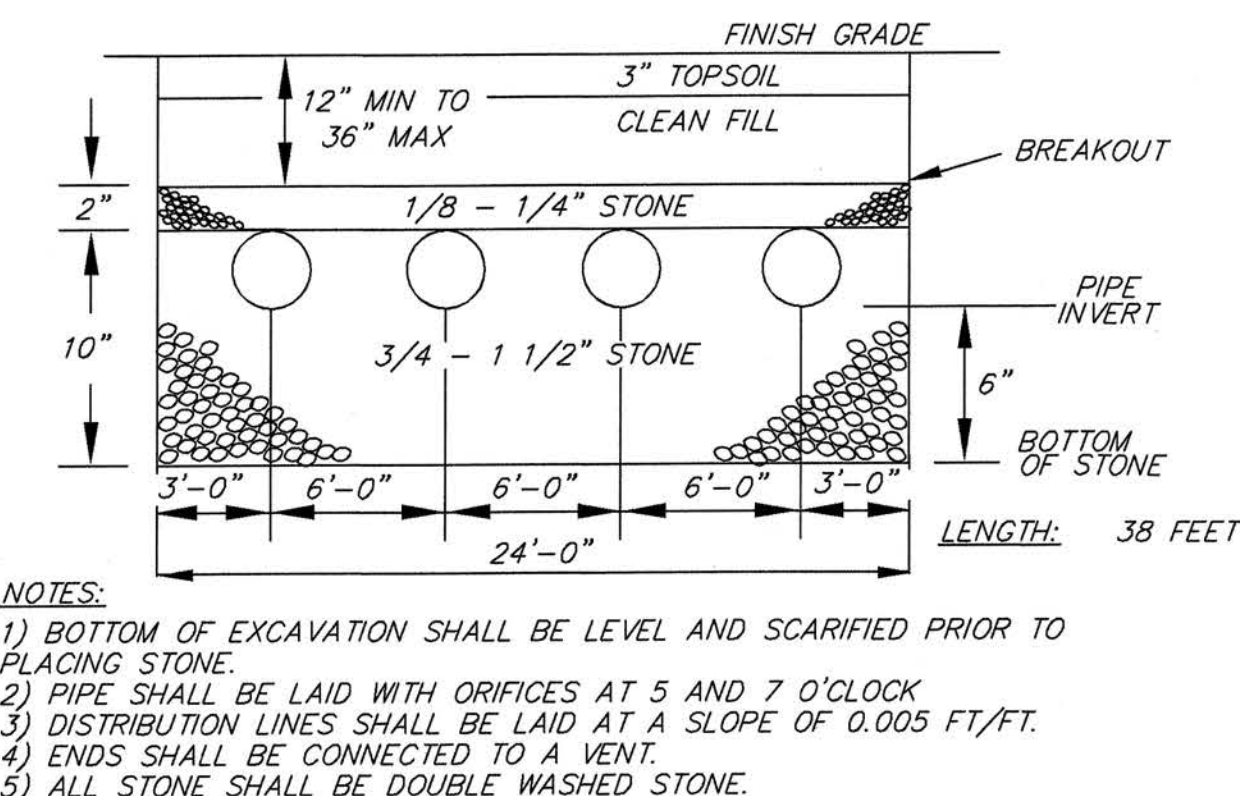
DISTRIBUTION BOX (6-OUTLET)

310 CMR 15.232 (NOT TO SCALE)



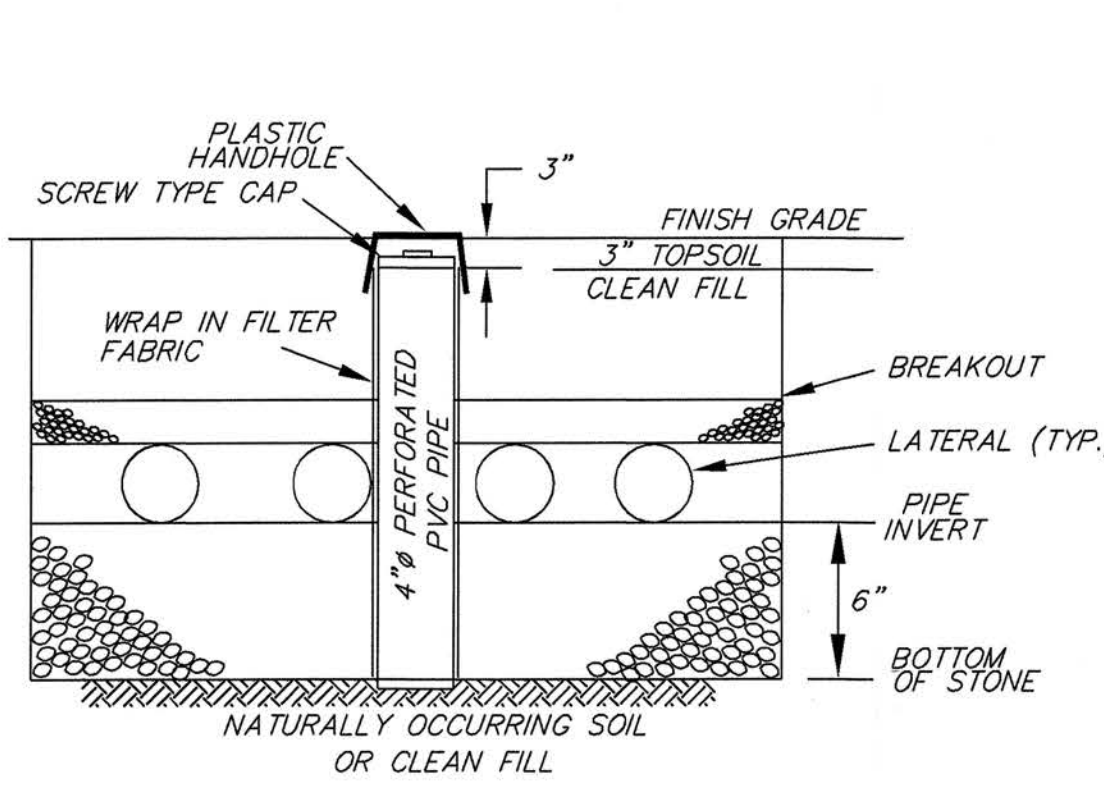
LIMIT OF WORK / SILT FENCE DETAIL

(NOT TO SCALE)



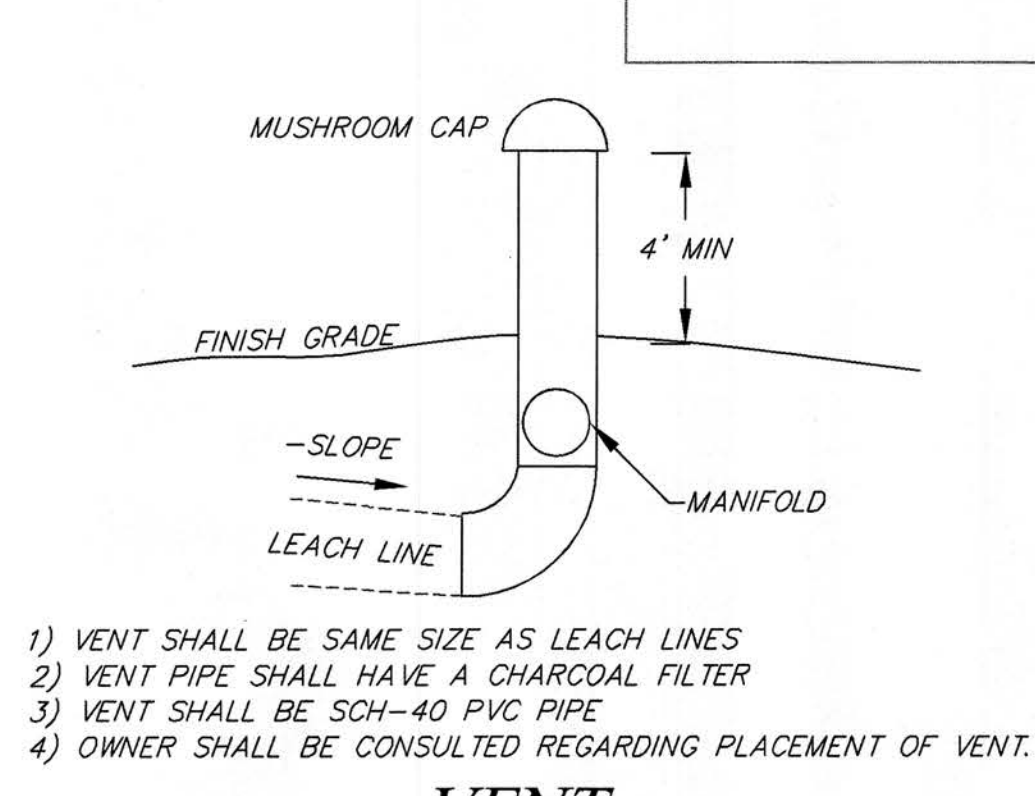
LEACH FIELD DETAIL:

310 CMR 15.252 (NOT TO SCALE)



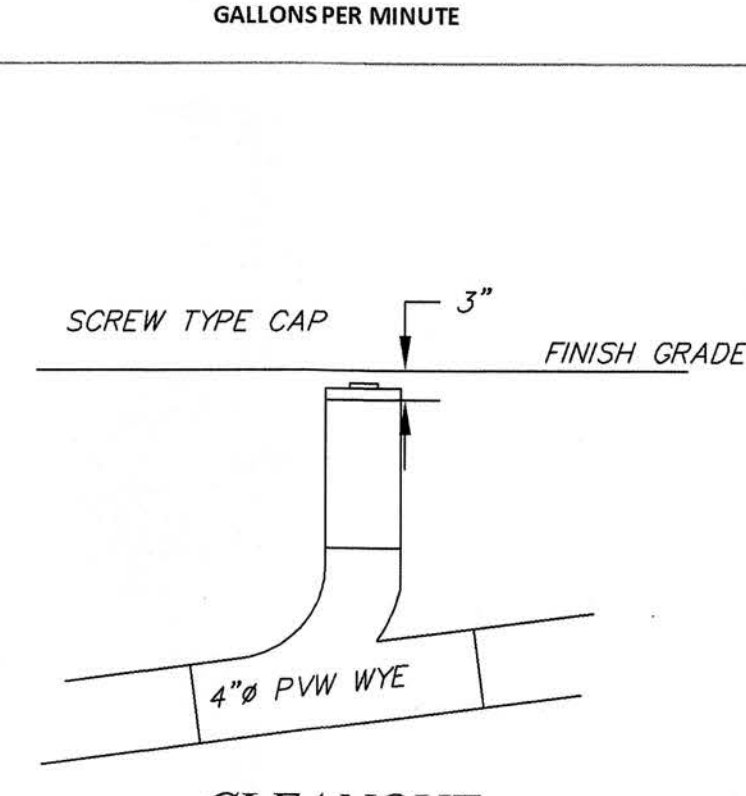
INSPECTION PORT

310 CMR 15.240(13) (NOT TO SCALE)



VENT

310 CMR 15.241 (NOT TO SCALE)



CLEANOUT

310 CMR 15.222(8)

BUOYANCY CALCULATIONS:		
2000 GALLON 2-COMPARTMENT H-20 MONO SEPTIC TANK		
FINISH GRADE	101.00	
MANHOLE GRADE	101.00	
ESHGW	96.70	
INLET INVERT	98.40	
TOP	99.82	
BOTTOM	93.82	
BALLAST WEIGHT	0	LBS
WEIGHT OF SOILS	10589	LBS
WEIGHT OF TANK	21150	LBS
WEIGHT OF DISPLACED WATER	16354	LBS
NET FORCES**	15385	LBS
FACTOR OF SAFETY:	1.94	
1000 GALLON MONO H-20 PUMP CHAMBER		
FINISH GRADE	100.50	
MANHOLE GRADE	100.50	
ESHGW	96.70	
INLET INVERT	98.10	
TOP	99.35	
BOTTOM	93.43	
BALLAST WEIGHT	0	LBS
WEIGHT OF SOILS	5322	LBS
WEIGHT OF TANK	14825	LBS
WEIGHT OF DISPLACED WATER	9866	LBS
NET FORCES**	10281	LBS
FACTOR OF SAFETY:	2.04	

SUBSURFACE SEWAGE DISPOSAL SYSTEM DESIGN

226 KENOZA STREET
HAVERHILL, MA 01830

REGISTRY INFORMATION:

DEED:
BOOK NO.: 42289
PAGE NO.: 338

ASSESSORS INFORMATION:

MAP: 467
BLOCK: 185
LOT: 27

PREPARED FOR:

FRANCES J. POIRIER
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PO BOX 906 GEORGETOWN, MA 01833

PHONE: (978) 372-3440
EMAIL: jim@scanlanengineering.com
WEB: www.scanlanengineering.com

JAMES B. SCANLAN
CIVIL
No. 45289
REGISTERED PROFESSIONAL ENGINEER
2/3/25

1	JBS	1/25/25	ADD WETLANDS
#	BY	DATE	REVISIONS TO PLANS

DATE: NOVEMBER 15, 2024
DESIGN BY: JBS
DRAWN BY: JBS

DETAILS & NOTES

SHEET 2 OF 2 SCALE: 1" = 20'
PROJECT # 1206