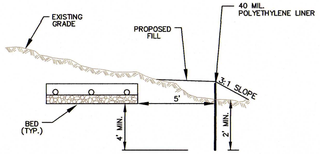
LEGEND

- 300 — EXISTING CONTOUR
- 300 — PROPOSED CONTOUR
- PERCOLATION TEST HOLE
- OBSERVATION TEST HOLE
- S — SEWER LINE
- W — WATER LINE
- EDGE OF WETLANDS

DESIGN CRITERIA PROPOSED IN ACCORDANCE WITH THE PROVISIONS OF 310 CMR 15.405(1): CONTENTS OF LOCAL UPGRADE APPROVAL:

310 CMR 15.405(1)(i) HAS BEEN UTILIZED TO ALLOW AN ESTIMATED PERCOLATION RATE IN LIEU OF A STANDARD TITLE 5 PERCOLATION TEST.



POLY. BARRIER
NOT TO SCALE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

OBSERVATION TEST HOLE DATA
PERFORMED BY: SETH L. LAJOIE, LAJOIE ASSOCIATES
WITNESSED BY: TOM RYDER, AGENT
09/08/2021

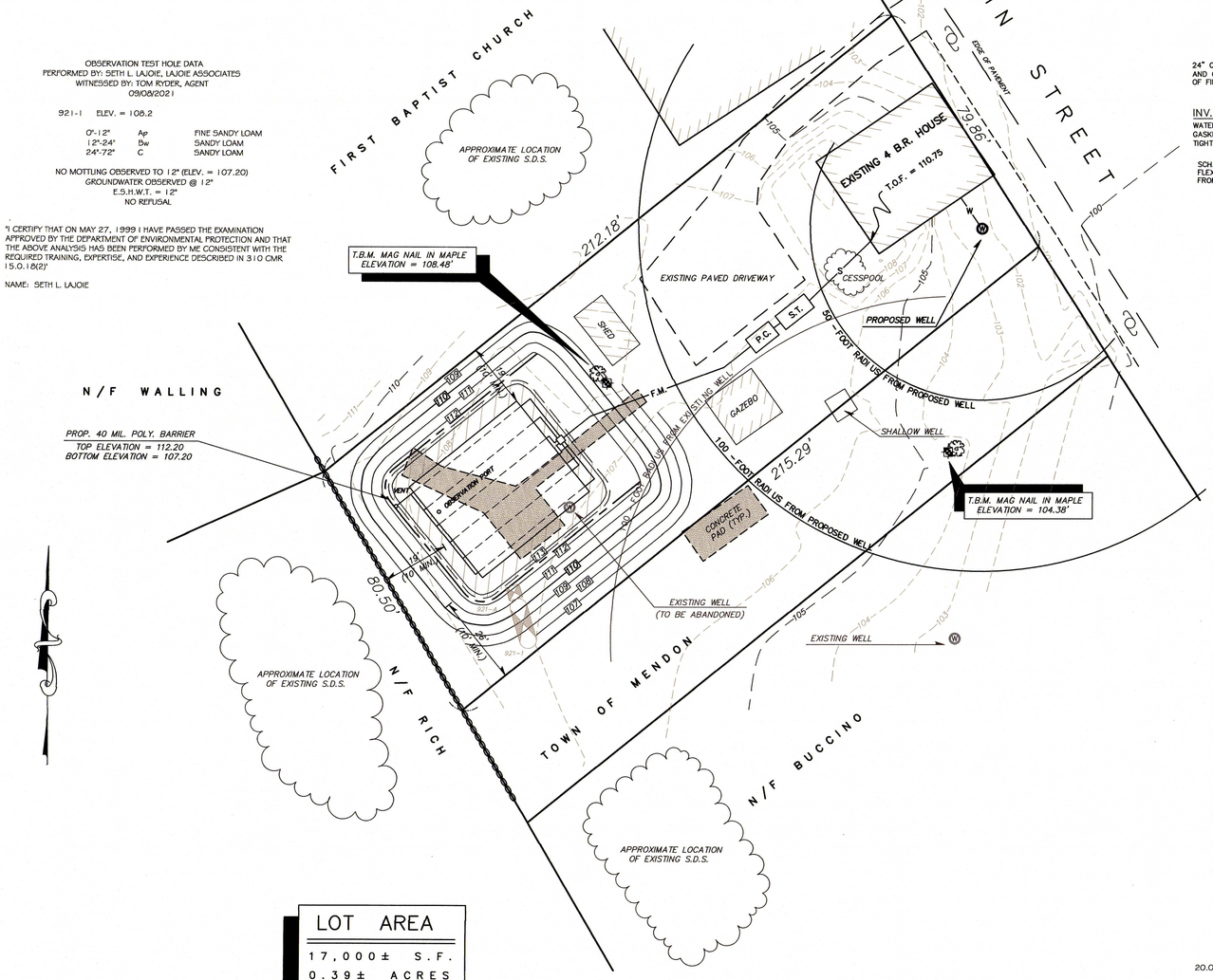
921-1 ELEV. = 108.2

0'-12"	Ap	FINE SANDY LOAM
12"-24"	Bw	SANDY LOAM
24"-72"	C	SANDY LOAM

NO MOTTLING OBSERVED TO 12" (ELEV. = 107.20)
GROUNDWATER OBSERVED @ 12"
E.S.H.W.T. = 12"
NO REFUSAL

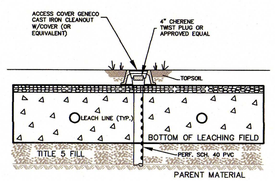
"I CERTIFY THAT ON MAY 27, 1999 I HAVE PASSED THE EXAMINATION APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE ABOVE ANALYSIS HAS BEEN PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE, AND EXPERIENCE DESCRIBED IN 310 CMR 15.0.16(2)"

NAME: SETH L. LAJOIE

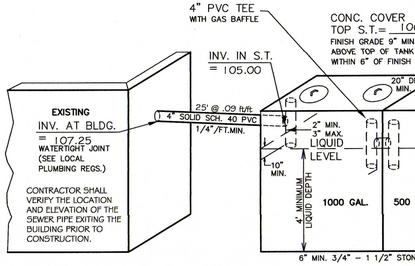


LOT AREA
17,000± S.F.
0.39± ACRES

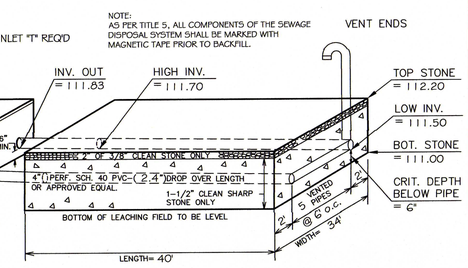
CROSS-SECTION OF LEACHING FIELD (TYP.)
(NOT TO SCALE)



OBSERVATION PORT
NOT TO SCALE



FOUNDATION



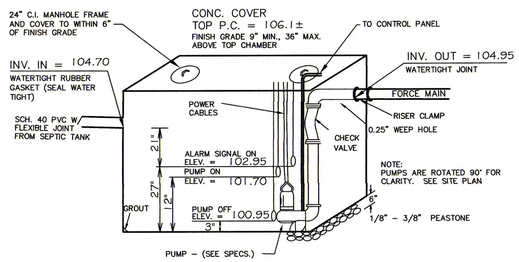
DISTRIBUTION BOX

LEACHING FIELD 40' X 34' = 1360 S.F.

1500 GALLON SEPTIC TANK

2-COMPARTMENT TANK IS REQUIRED.

NOTE:
ALL INTERNAL PLUMBING SHALL BE TIED INTO THE PROPOSED BUILDING SEWER.



1,000 PUMP CHAMBER (DOSE 4 TIMES PER DAY)

WATERTIGHT — CONSTRUCTION MATERIALS AND DIMENSIONS TO CONFORM TO TITLE 5 AND AASHTO HS 10 LOADING REQUIREMENTS PLACED ON A STABLE MECHANICALLY COMPACTED LEVEL BASE.

PUMP NOTES

GENERAL
ALL WORKMANSHIP, MATERIALS AND CONSTRUCTION SHALL CONFORM TO FEDERAL, STATE AND LOCAL CODES, WHETHER SPECIFIED HEREIN OR NOT. ALL PIPING, CONTROLS AND PUMP ARE SUBJECT TO APPROVAL BY THE DESIGN ENGINEER.

CHAMBER
THE CHAMBER SHALL BE A PRECAST, REINFORCED CONCRETE SEPTIC TANK MADE WATERTIGHT. TANK MANHOLE SHALL EXTEND TO WITHIN 6" OF FINISHED GRADE, AND BE WATERTIGHT. COVER TO BE METAL AND WEIGH 60 LB.. (MINIMUM) AND HAVE AN INSIDE DIMENSION 1-1/2 TIMES MAXIMUM PUMP DIMENSION AND BE A 24" INSIDE DIAMETER MINIMUM. CHAMBER TO BE VENTED VIA BUILDING PLUMBING SYSTEM TO ROOF. IF THE CHAMBER IS TO BE UNDER PAVED SURFACES OR SUBJECT TO VEHICULAR LOADING, THE CHAMBER, ALL MANHOLES AND EXTENSIONS SHALL BE RATED TO WITHSTAND AASHTO HS-20 DIRECT LOADING (HEAVY DUTY).

PUMPS
PUMP SHALL BE A NON-CLOG SUBMERSIBLE SEWAGE PUMP CAPABLE OF PASSING A 1-1/4" DIAMETER SOLID AND STRINGY MATERIAL. PUMPS SHALL HAVE A 0.4 H.P. (MINIMUM) MOTOR AND BE CAPABLE OF PUMPING 33 GALLONS PER MINUTE (GPM) AGAINST A TOTAL DYNAMIC HEAD (TDH) OF 14 FEET.
MYERS SRM4 OR EQUIVALENT.

CONTROLS
PUMP AND ALARM SHALL BE ACTIVATED BY MERCURY FLOAT SWITCHES AS SHOWN. FLOAT SWITCHES SHALL BE OF THE MERCURY TUBE TYPE SEALED IN POLYURETHANE. 3 FLOATS ARE REQUIRED. FLOATS AND PUMP POWER CABLES ARE TO BE SUSPENDED FROM AND TIED TO A 1/2" DIAMETER, STEEL REBAR WITH HOSE CLAMPS. THE REBAR SHALL BE SECURELY AND PERMANENTLY ANCHORED TO THE SIDES AND/OR WALL OF THE CHAMBER. THERE SHALL BE NO WIRE SPLICES WITHIN THE PUMP CHAMBER, UNLESS SEALED IN A WATER AND GAS-TIGHT (NEMA-4X) JUNCTION BOX.

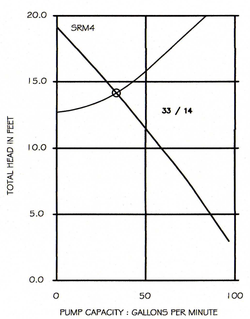
THE DIMENSIONAL SETTINGS OF THE FLOATS (SEE PUMP CHAMBER DETAIL ON THIS SHEET) ARE THE ELEVATIONS AT WHICH THE FLOATS ARE TO ACTIVATE/INACTIVATE THE PUMP AND/OR ALARM. THE FLOAT LEVEL CONTROLS SHALL BE SET TO OPERATE AT THE ELEVATIONS INDICATED, THESE ELEVATIONS SHALL BE ADJUSTED BY THE INSTALLER TO ENSURE FUNCTION ACCORDING TO THESE SPECIFIC ELEVATIONS.

THE CONTROL PANEL SHALL BE HOUSED IN A NEMA-1 CONTROL BOX SUITABLE FOR USE WITH ALL OF THE COMPONENTS MANUFACTURER'S STANDARDS FOR THE EQUIPMENT USED AND SHALL HAVE AN AUDIO AND VISUAL ALARM WITH MANUAL SILENCER. THE CONTROL PANEL SHALL BE INSTALLED IN A SUITABLE LOCATION INSIDE OF THE BUILDING. ALARM TO BE ON A SEPARATE CIRCUIT FROM THE PUMP. ALL ELECTRICAL WORK SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL BUILDING CODE.

PIPING
PIPING FROM PUMPS TO 3' OUTSIDE TANK SHALL BE 2" SCHEDULE 40 (SDR-21) SOLVENT WELDED PVC OR ABS. CHECK VALVE SHALL BE 2" BALL-TYPE WITH 2 HOSE CLAMP CONNECTIONS AT EACH SIDE OF THE JOINT. RISER CLAMPS WITH PVC INSERTS ARE REQUIRED AT PUMP CHAMBER. ALL PIPING SHALL BE SHIELDED FROM ANY ABRASION (INCLUDING FORCE MAIN).

FORCE MAIN
FORCE MAIN TO HAVE 4' MINIMUM COVER, EXCEPT WITHIN 5' OF THE CHAMBER AND D-BOX WHICH SHALL BE INSULATED WITH 2" RIGID PRE MOLDED POLYSTYRENE INSULATION. PIPE SHALL BE 80 PSI, 2" DIAMETER PVC, ABS OR HDPE. JOINTS SHALL BE INSERT FITTINGS WITH DOUBLE HOSE CLAMPS EACH SIDE OF JOINT. TRANSITION BETWEEN PUMP STATION PIPING AND FORCE MAIN SHALL BE MADE WITH A FITTING MADE FOR THAT PURPOSE AND BE CONTAINED WITHIN THE PUMP CHAMBER. PIPES TO BE SET IN SAND AND BE "SNAKED" TO ALLOW FOR CONTRACTION AND LAID TO PROVIDE A DOWNWARD GRADIENT FROM THE D-BOX TO THE CHAMBER. THE D-BOX INLET SHALL HAVE A SECURED TEE WITH BOTTOM EDGE CUT OFF 1" ABOVE OUTLET INVERTS. FORCE MAIN AND ALL JUNCTIONS SHALL BE WATER AND PRESSURE TIGHT WITH NO LEAKAGE ALLOWED.

A PORTION OR ALL OF THE FORCE MAIN MAY BE PROPOSED TO BE INSTALLED ABOVE THE FROST LINE. IN ACCORDANCE WITH 310 CMR 15.221(6)-TITLE 5, IT SHALL BE INSULATED ADEQUATELY OR BE MADE SELF DRAINING.



ADDITIONAL NOTES:

SEWAGE DISPOSAL SYSTEM DESIGNED AND DRAFTED BY SETH L. LAJOIE.

ANY PORTION OF THE EXISTING SEWAGE DISPOSAL SYSTEM ENCOUNTERED DURING CONSTRUCTION SHALL BE PUMPED OUT, REMOVED, AND THE EXCAVATION SHALL BE BACKFILLED WITH CLEAN SAND.

THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF THE SEWER PIPE EXITING THE BUILDING PRIOR TO CONSTRUCTION.

WATER SOFTENERS ARE NOT TO BE CONNECTED TO SEPTIC SYSTEM.

NO WETLANDS ARE FOUND TO BE WITHIN 200 FEET OF THE DISTURBED AREA.

ALL SEPTIC SYSTEMS WITHIN 150 FEET OF THE PROPOSED SEPTIC ARE SHOWN.

AREA IS NOT TRIBUTARY TO A DRINKING WATER SUPPLY.

NO PUBLIC DRINKING WATER SUPPLY WELLS EXIST ON SITE.

PROJECT DOES NOT FALL WITHIN A FLOOD HAZARD AREA

RECEIVED
OCT - 6 2021
By BOH

SEPTIC TANK

SEPTIC TANK SHALL BE A PRECAST, REINFORCED CONCRETE TANK MADE WATERTIGHT. CONSTRUCTION MATERIALS AND DIMENSIONS SHALL CONFORM TO TITLE 5 AND AASHTO HS 10 REQUIREMENTS AND PLACED ON A STABLE MECHANICALLY COMPACTED LEVEL BASE.

TANK/ SYSTEM TO BE VENTED THROUGH THE BUILDING PLUMBING SYSTEM AS REQUIRED BY BUILDING CODE.

TANK SHOULD BE INSPECTED, MAINTAINED AND BE PUMPED OUT WHEN SLUDGE DEPTH IN THE BOTTOM EXCEEDS ONE FOURTH OF THE TOTAL LIQUID DEPTH.

AT LEAST THREE 20" MANHOLES SHALL BE PROVIDED. AT LEAST ONE OF THE MANHOLES SHALL HAVE AN ACCESS PORT ACCESSIBLE TO WITHIN 6" OF FINISH GRADE.

"D" BOX

"D" BOX TO BE MADE WATERTIGHT. CONSTRUCTION MATERIALS AND DIMENSIONS SHALL CONFORM TO TITLE 5 AND AASHTO HS 10 REQUIREMENTS AND PLACED ON A STABLE MECHANICALLY COMPACTED LEVEL BASE.

"D" BOX OUTLETS SHALL BE INSTALLED LEVEL ("BUILT UP" INVERTS, NOT PERMITTED.

FIRST 2' (MIN.) OF OUTLETS SHALL BE INSTALLED LEVEL TO EQUALIZE FLOW.

THE MINIMUM INSIDE DIMENSIONS OF THE "D" BOX TO BE 12" AND THE MINIMUM WALL THICKNESS TO BE 2".

WHEN INLET PIPE SLOPE EXCEEDS 8%-PVC INLET TEE REQUIRED. CUT LOW END 1" ABOVE OUTLET INVERT.

"D" BOX COVER TO BE SEALED WITH BITUMEN.

LEACH AREA

ALL LOAM, LARGE BOULDERS OR FOREIGN MATERIAL ENCOUNTERED DURING EXCAVATION ARE TO BE REMOVED FROM THE LEACHING AREA.

ALL SOIL INTERFACES SHALL BE SCARIFIED PRIOR TO THE PLACEMENT OF STONE.

ALL STONE IN PLACE SHALL BE DURABLE, FREE FROM IRON, FINES AND DUST AND DOUBLE WASHED.

WHEN GRAVEL FILL IS REQUIRED, ALL LOAM AND ORGANIC MATERIAL SHALL BE REMOVED FROM AREA TO BE FILLED. FILL SHALL BE COMPACTED TO MINIMIZE SETTLEMENT AND SHALL BE CLEAN GRANULAR MATERIAL, FREE FROM FINES AND ORGANIC MATERIALS, AND SHALL BE IN ACCORDANCE WITH 310 CMR 15.255(3).

ALL DISTURBED AREAS ARE TO BE LOAMED, SEEDED AND MAINTAINED TO PREVENT EROSION.

AREAS ABOVE THE SOIL ABSORPTION SYSTEM SHALL REMAIN PERVIOUS UNLESS UNAVOIDABLE. IN SUCH CASES THE SYSTEM SHALL BE VENTED.

GENERAL NOTES

SYSTEM IS DESIGNED TO ACCOMMODATE SANITARY SEWAGE ASSOCIATED WITH NORMAL DOMESTIC USE AND CONSISTING OF WATER CARRIED PUTRESIBLE WASTE ONLY.

ALL COMPONENTS OF THE SEWAGE DISPOSAL SYSTEM SHALL BE COVERED BY A MAXIMUM OF 36" OF CLEAN BACKFILL MATERIAL, FREE OF STONES AND BOULDERS GREATER THAN 6" IN SIZE.

OWNER SHALL VERIFY EFFECTIVE ZONING REGULATIONS PRIOR TO CONSTRUCTION.

PLAN SHOWS ONLY THOSE FEATURES THAT WERE VISUALLY APPARENT ON DATE OF TOPOGRAPHY, AND THE ABSENCE OF SUBSURFACE STRUCTURES, UTILITIES, ETC. IS NOT INTENDED OR IMPLIED.

ALL PIPING SHALL BE LAID TRUE TO LINE, GRADE AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

THERE ARE NO EXISTING WELLS WITHIN 100' OF THE PROPOSED SEWAGE DISPOSAL SYSTEM. (50' OF THE SEPTIC TANK.) THERE ARE NO EXISTING SEWAGE DISPOSAL SYSTEMS WITHIN 100' OF THE PROPOSED WELL.

ALL KNOWN WELLS WITHIN 200' OF THE PROPOSED PRIMARY AND EXPANSION LEACH AREAS ARE SHOWN.

THE DESIGN ENGINEER SHALL BE NOTIFIED PROMPTLY OF ANY PLAN DEFICIENCIES FOUND DUE TO UNFORESEEN SUBSURFACE CONDITIONS OR OTHER REASONS THAT MIGHT AFFECT THE FUNCTION OF THIS DESIGNED SYSTEM.

DEVIATIONS IN DESIGN OR CONSTRUCTION FROM THIS PLAN OR ANY OF THE CONDITIONS RELATING TO THE USE OR MAINTENANCE OF THE PROPOSED SYSTEM SHALL BE DEEMED TO VOID ANY CERTIFICATION OR REPRESENTATION MADE RELATIVE TO THIS SUBSURFACE SEWAGE DISPOSAL SYSTEM.

CONTRACTOR SHALL NOTIFY "DIG SAFE" PRIOR TO ANY EXCAVATION. 1-888-DIG-SAFE (344-7233)

PRIOR TO ANY CONSTRUCTION A BENCHMARK SHALL BE SET WITHIN 50-75' OF THE PROPOSED SEWAGE DISPOSAL SYSTEM.

SCHEDULE OF ELEVATIONS	PROPOSED	AS-BUILT
TOP OF FOUNDATION	110.75	
INVERT AT FOUNDATION EXISTING	107.25	---
INVERT TANK INLET	105.00	---
INVERT TANK OUTLET	104.75	---
TOP SEPTIC TANK	106.1±	---
INV. "D" BOX INLET	111.83	---
INV. "D" BOX OUTLET	112.00	---
TOP OF STONE	112.20	
INVERT HIGH END	111.70	---
INVERT LOW END	111.50	---
BOTTOM OF STONE	111.00	
GROUNDWATER OFFSET REQUIRED	4'	
GROUNDWATER OFFSET UTILIZED	4'	

DESIGN CRITERIA

GARBAGE GRINDERS - NOT PERMITTED

PERC. TESTS: PERFORMED BY SETH L. LAJOIE
WITNESSED BY TOM RYDER

PERC. #	RATE (M/I)	ELEVATION	DEPTH	DATE
921-A	30 MPI	108.2	60"	09/08/21
ESTIMATED PERCOLATION RATE PROVIDED BY GEOTESTING EXPRESS.				

FLOWS: 4 BEDROOMS AT 110 GPD = 440 GPD (330 GPD MIN.)

SEPTIC TANK REQUIRED: (1500 GAL. MIN.)
440 GPD X 2.0 = 880 GAL. TANK

LEACHING AREA PROVIDED:

A. BASIS 30 MIN./IN. PERCOLATION RATE
B. APPLICATION RATE ALLOWED 0.33 S.F.
C. BOTTOM AREA PROVIDED = 1360 S.F.
D. TOTAL G.P.D. PROVIDED 448

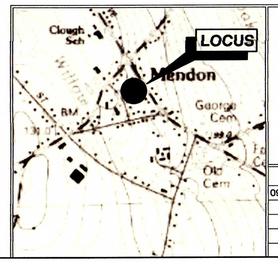
SYSTEM IN FILL ☒ REQUIRED ☐ NOT REQUIRED

IF ANY PORTION OF THE PROPOSED LEACHING AREA IS LOCATED ABOVE EXISTING GRADE OR WITHIN TOPSOIL, SUBSOIL, PEAT OR OTHER UNSUITABLE OR IMPERVIOUS SOIL LAYER, THEN THE PLACEMENT OF FILL IS REQUIRED. PRIOR TO THE PLACEMENT OF FILL, ALL UNSUITABLE OR IMPERMEABLE SOILS SHALL BE EXCAVATED TO A MINIMUM OF FIVE FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE SOIL ABSORPTION SYSTEM TO THE DEPTH OF NATURALLY OCCURRING PERVIOUS MATERIAL. FILL MATERIAL SHALL BE SELECT, ON-SITE OR IMPORTED SOIL, CONSISTING OF CLEAN GRANULAR SAND, FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES. MIXTURES AND LAYERS OF DIFFERENT SOIL CLASSES SHALL NOT BE USED. THE FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN 2 INCHES. A SIEVE ANALYSIS USING A #4 SIEVE, SHALL BE PERFORMED ON A REPRESENTATIVE SAMPLE OF THE FILL. UP TO 45% BY WEIGHT OF THE FILL SAMPLE MAY BE RETAINED IN THE #4 SIEVE. SIEVE ANALYSES SHALL ALSO BE PERFORMED ON THE FRACTION OF FILL SAMPLE PASSING THE #4 SIEVE. SUCH ANALYSES MUST DEMONSTRATE THAT THE MATERIAL MEETS EACH OF THE FOLLOWING SPECIFICATIONS:

SIEVE SIZE	EFFECTIVE PARTICLE SIZE		% THAT MUST PASS SIEVE
# 4	4.75	MM	100%
# 50	0.30	MM	10%-100%
#100	0.15	MM	0%-20%
#200	0.075	MM	0%-5%

WETLAND PROTECTION ACT (C131 S40)

PRIOR TO INITIATING ANY ALTERATIONS (REMOVAL OF VEGETATION, EXCAVATIONS, GRADING, ETC.) WITHIN 100' OF WETLANDS (PONDS, BROOKS, SWAMPS, ETC.) OR WITHIN 200' OF AN AREA SUBJECT TO THE RIVER'S ACT (PERENNIALLY FLOWING RIVER, BROOK OR STREAM), A REQUEST FOR DETERMINATION OF APPLICABILITY OR A NOTICE OF INTENT UNDER THE WETLANDS PROTECTION ACT (310 CMR 10.00) SHOULD BE FILED WITH THE TOWN'S CONSERVATION COMMISSION. LOCAL BYLAWS MAY ALSO APPLY.



COMMONWEALTH OF MASSACHUSETTS
SETH L. LAJOIE No. 1244
REGISTERED PROFESSIONAL SANITARIAN
09/24/2021

REVISIONS
09/24/21 - ORIGINAL ENDORSEMENT

SEWAGE DISPOSAL SYSTEM
FOR: LOT --- STREET 9 MAIN STREET
ASSESSOR'S MAP 8 PARCEL 174-9
TOWN: MENDON, MASSACHUSETTS
DESIGNED FOR
JOAO NETO
SCALE: 1" = 20' SEPTEMBER, 2020

SETH L. LAJOIE & ASSOCIATES
REGISTERED SANITARIANS, TOPOGRAPHIC SURVEYS
PERCOLATION TESTING, ENVIRONMENTAL CONSULTANTS
27 BECKET STREET SALEM, MA 01970
CELL: (774) 230-7029

JOB NO. 1001 SHEET 1 OF 1 PLAN NO. L-765