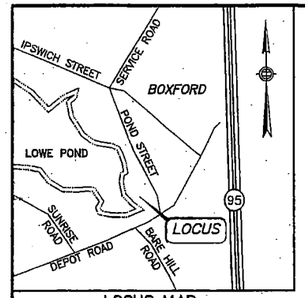
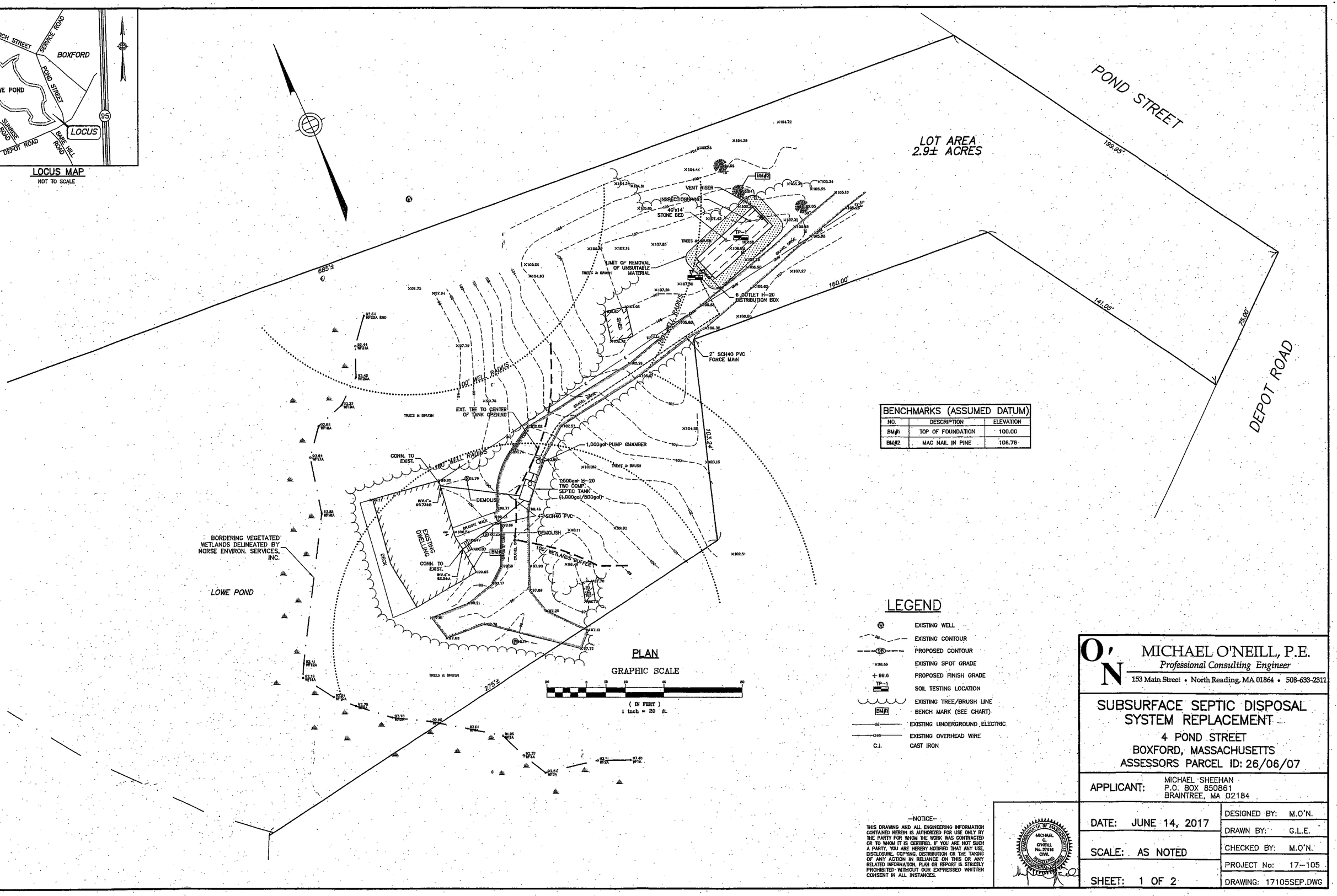


LOCUS MAP
NOT TO SCALE



PLAN

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

BENCHMARKS (ASSUMED DATUM)		
NO.	DESCRIPTION	ELEVATION
BM#1	TOP OF FOUNDATION	100.00
BM#2	MAG NAIL IN PINE	106.78

LEGEND

- EXISTING WELL
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT GRADE
- PROPOSED FINISH GRADE
- TP-1 SOIL TESTING LOCATION
- EXISTING TREE/BRUSH LINE
- BM#1 BENCH MARK (SEE CHART)
- UE EXISTING UNDERGROUND ELECTRIC
- OHW EXISTING OVERHEAD WIRE
- C.I. CAST IRON

COMMONWEALTH OF MASSACHUSETTS
MICHAEL G. O'NEILL
No. 27916
CIVIL
REGISTERED PROFESSIONAL ENGINEER

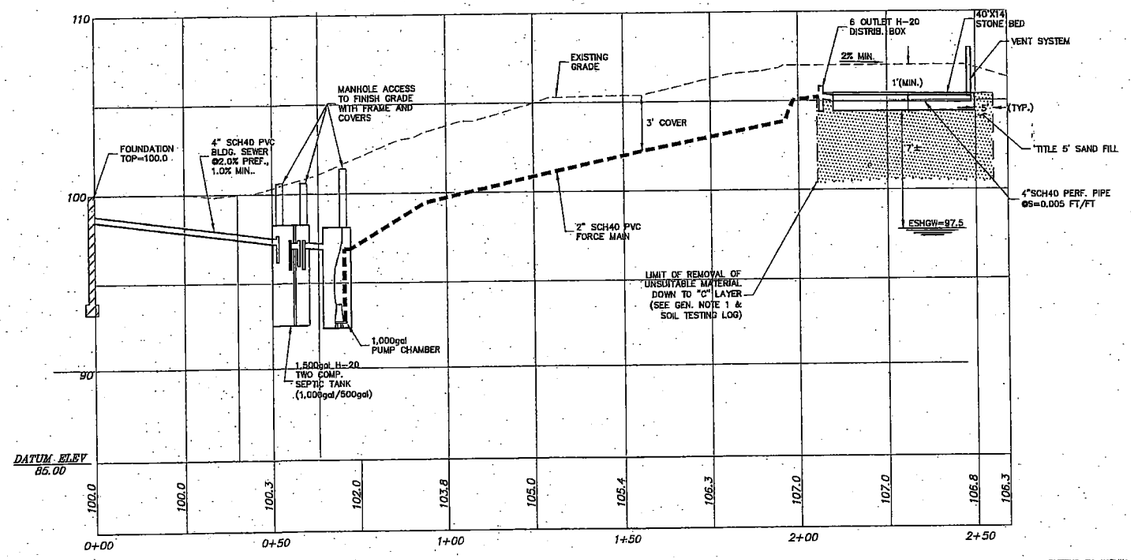
O'N MICHAEL O'NEILL, P.E.
Professional Consulting Engineer
153 Main Street • North Reading, MA 01864 • 508-633-2311

SUBSURFACE SEPTIC DISPOSAL SYSTEM REPLACEMENT

4 POND STREET
BOXFORD, MASSACHUSETTS
ASSESSORS PARCEL ID: 26/06/07

APPLICANT: MICHAEL SHEEHAN
P.O. BOX 850861
BRAINTREE, MA 02184

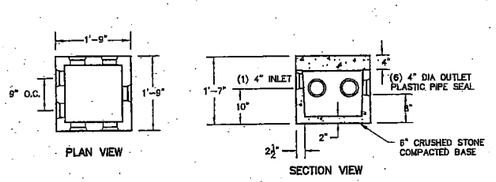
DATE: JUNE 14, 2017	DESIGNED BY: M.O'N.
	DRAWN BY: G.L.E.
SCALE: AS NOTED	CHECKED BY: M.O'N.
	PROJECT No: 17-105
SHEET: 1 OF 2	DRAWING: 17105SEP.DWG



SYSTEM PROFILE

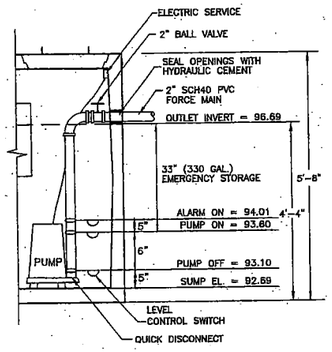
HORT. SCALE: 1"=20'
VERT. SCALE: 1"=4'

SCHEDULE OF INVERTS	PROPOSED
INVERT @ FOUNDATION	EL.=98.5
SEPTIC TANK INVERT (IN)	EL.=97.7
SEPTIC TANK INVERT (OUT)	EL.=97.45
PUMP CHAMBER INVERT (IN)	EL.=97.40
PUMP CHAMBER INVERT (OUT)	EL.=97.15
DISTRIBUTION BOX INVERT (IN)	EL.=105.40
DISTRIBUTION BOX INVERT (OUT)	EL.=105.23
LATERALS INVERT (START)	EL.=105.18
LATERALS INVERT (END)	EL.=105.0
BOTTOM OF STONE	EL.=104.5
BREAKOUT ELEV.	EL.=105.68
ESTIMATED SEASONAL HIGH G.W.	EL.=97.5



6 OUTLET H-20 DISTRIBUTION BOX

NOT TO SCALE



1,000 GALLON PUMP CHAMBER

NOT TO SCALE

PUMP NOTES:

1. 8 DOSES/DAY
   DOSE = 330 GDP / 8 — 41.25 gal.
   BACKFLOW = 172 LF.x 0.163 g/lf= 28.0 gal.
   69.3 gal.

   H = (69.3) / 10.4 gal. PER INCH = 6.6"

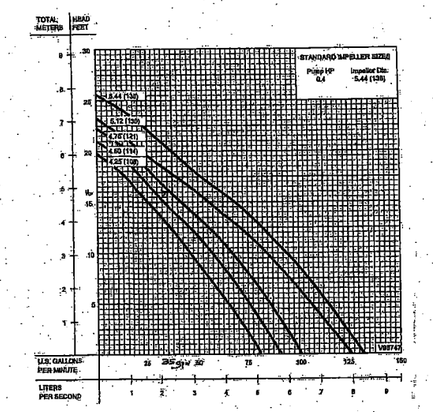
   PUMP ON TO PUMP OFF = 6 INCHES

2. USE 500 gal. COMPARTMENT OF SHEA 1500/500 COMBO TANK, OR APPROVED EQUAL.

3. USE BARNES SUBMERSIBLE PUMP MODEL SE 411, 0.4-hp, 115v SINGLE PHASE. (4.75 INCH IMPELLER). INSTALL BALL VALVE TO THROTTLE BACK PUMP TO DELIVER MIN. 35 gpm @ T.D.H. = 16'±

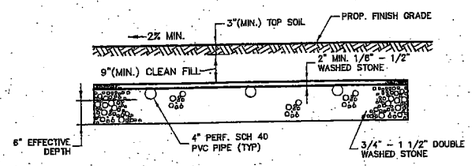
4. INSTALL HIGH WATER FLOAT LEVEL SENSOR IN PUMP CHAMBER WITH VISIBLE FLASHING ALARM TO BE MOUNTED INSIDE DWELLING, ALARM TO BE SEPARATE CIRCUIT TO ONE POWERING PUMP. LOC. TO COORDINATED WITH OWNER.

5. PRECAST CONCRETE PUMP CHAMBER SHALL HAVE A 64.2 GAL. CAPACITY BETWEEN ON AND OFF LEVELS AND A MINIMUM RESERVE CAPACITY OF ONE DAY'S FLOW.

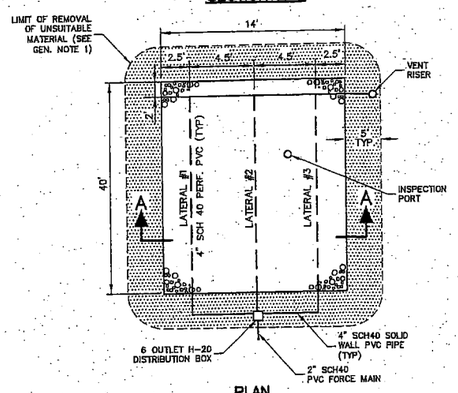


GENERAL NOTES

1. ALL ORGANIC MATERIAL MUST BE REMOVED FROM THE AREA DIRECTLY UNDER AND BEYOND THE PROPOSED SOIL ABSORPTION SYSTEM. THIS AREA MUST BE BACKFILLED TO ELEVATIONS INDICATED ON THESE PLANS WITH SELECT ON-SITE OR IMPORTED SOIL MATERIAL, CONSISTING OF CLEAN GRANULAR SAND OR OTHER GRANULAR MATERIAL, FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES. MIXTURES AND LAYERS SHALL NOT BE USED. THE FILL MATERIAL SHALL MEET THE SPECIFICATIONS OF TITLE 5, SECTION 15.255 (3).
2. HEAVY MACHINERY SHALL NOT BE PERMITTED TO PASS OVER THE SOIL ABSORPTION SYSTEM.
3. TIGHT JOINT PIPING IS TO CONSIST OF POLYVINYL CHLORIDE PIPE (P.V.C.) SCHEDULE 40, UNLESS OTHERWISE NOTED.
4. SEPTIC TANK INLET AND OUTLET TEES SHALL BE AS SPECIFIED IN TITLE 5, SECTION 15.227.
5. ALL DISTURBED AREAS ARE TO BE LOAMED, SEEDED AND MAINTAINED TO PREVENT EROSION.
6. THE GENERAL CONTRACTOR IS TO BE RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL CONTROL OF ALL COMPONENTS.
7. THE DESIGNER HAS NOT BEEN RETAINED BY THE CLIENT TO CONSTRUCT OR SUPERVISE THE CONSTRUCTION OF THE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ARRANGEMENTS FOR INSPECTION OF INSTALLATION OF THE SYSTEM WITH THE LOCAL BOARD OF HEALTH BEFORE BACKFILLING OVER ANY SYSTEM COMPONENTS.
8. THE DESIGNER MUST INSPECT AND SURVEY THE INSTALLED SYSTEM PRIOR TO THE CONTRACTOR BACKFILLING OVER ANY SYSTEM COMPONENTS. THE AS-BUILT PLAN MUST BE CERTIFIED BY THE DESIGNER WITH A STAMP AND SIGNATURE.
9. PLAN HAS BEEN PREPARED SPECIFICALLY AS A SEPTIC SYSTEM DESIGN PLAN AND IS NOT TO BE USED TO ESTABLISH PROPERTY LINES OR BUILDING SETBACKS. PROPERTY LINES AND BUILDING LOCATIONS ARE GRAPHIC ONLY, PROPERTY LINES NOT HAVING BEEN VERIFIED. NO REPRESENTATION OR CERTIFICATION AS TO THE ACCURACY OF THOSE SHOWN IS IMPLIED OR INTENDED.
10. SEE BENCHMARK TABLE ON THIS DRAWING FOR ELEVATION DATUM.
11. EXISTING UTILITY LOCATIONS HAVE NOT BEEN VERIFIED. PRIOR TO THE START OF EXCAVATION ACTIVITIES THE CONTRACTOR IS TO CALL DIG-SAFE AT 1-888-344-7233.
12. NO CHANGES ARE TO BE MADE TO THE PLAN DURING CONSTRUCTION UNLESS APPROVED BY THE DESIGN ENGINEER AND BOARD OF HEALTH.
13. THE SYSTEM HAS NOT BEEN DESIGNED TO ACCOMMODATE A GARBAGE DISPOSAL.
14. NO WETLAND OR WATERCOURSE EXISTS WITHIN WITHIN 100FT. OF THE PROPOSED SOIL ABSORPTION SYSTEM.
15. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED, PER TITLE 5, SECTION 15.221(12).



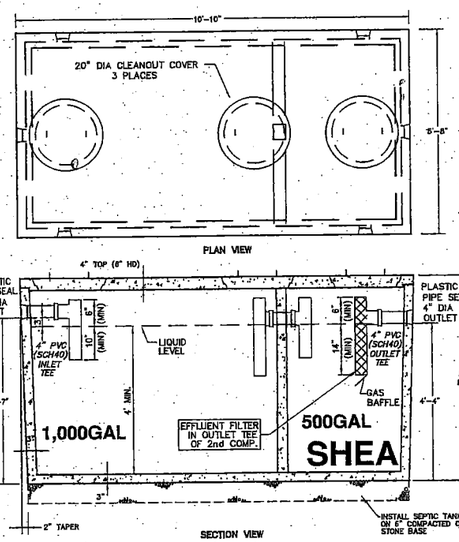
SECTION A-A



PLAN

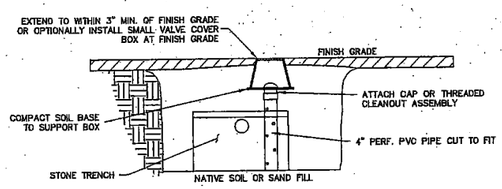
DETAIL OF SOIL ABSORPTION SYSTEM

NOT TO SCALE



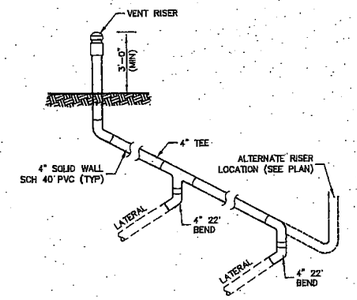
1500 GALLON 2 COMP. SEPTIC TANK

NOT TO SCALE



INSPECTION PORT

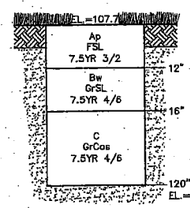
NOT TO SCALE



VENT SYSTEM

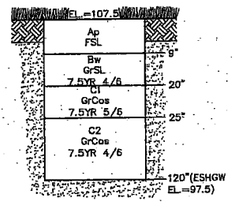
NOT TO SCALE

TP-1



REFUSAL	–
ESTIMATED HIGH GROUND WATER	@ 120"(97.7)
WATER SEEPING	–
STANDING WATER	–
PERC RATE	–

TP-2



REFUSAL	–
ESTIMATED HIGH GROUND WATER	@ 120"(97.5)
WATER SEEPING	–
STANDING WATER	–
PERC RATE	–

SOIL TESTING

PERFORMED BY: MICHAEL O'NEILL, SOILS EVALUATOR – SE13616
WITNESSED BY: KENDELL LOUNGO, TOWN OF BOXFORD B.O.H. DIRECTOR
DATE: MAY 22, 2017

I CERTIFY THAT I PASSED THE EXAMINATION APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE SOIL EVALUATION WAS PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE, AND EXPERIENCE DESCRIBED IN 310 CMR 15.018 (2).

CERTIFIED SOIL EVALUATOR

DATE: 6/14/17

DESIGN

EXISTING 3 BEDROOM DWELLING

3 BEDROOMS @ 110 gpd PER BEDROOM = 330 gpd
P = 2 MIN. PER. INCH CLASS I SOIL – LTAR=0.74 gpd/sf

REQUIRED AREA: (330 gpd) / (0.74 gpd/sf) = 445 sf

USE 40' x 14' STONE BED
AREA PROVIDED: 40' x 14' = 560 sf

FLOW PROVIDED: 560 sf x 0.74 = 414 gpd

200% x 330 gpd = 660 gal.
USE (MIN. TITLE V) 1500 gal. SEPTIC TANK
DESIGN FOR GARBAGE GRINDER – USE 1500 gal.
TWO COMPARTMENT TANK (1000g/500g)

MICHAEL O'NEILL, P.E.
Professional Consulting Engineer
153 Main Street • North Reading, MA 01864 • 508-633-2311

SUBSURFACE SEPTIC DISPOSAL SYSTEM REPLACEMENT

4 POND STREET
BOXFORD, MASSACHUSETTS
ASSESSORS PARCEL ID: 25/06/07

APPLICANT: MICHAEL SHEEHAN
P.O. BOX 850861
BRAINTREE, MA 02184

DATE: JUNE 14, 2017	DESIGNED BY: M.O'N.
	DRAWN BY: G.L.E.
SCALE: AS NOTED	CHECKED BY: M.O'N.
	PROJECT No: 17-105
SHEET: 2 OF 2	DRAWING: 17105SEP.DWG