November 14, 2019

Boxford Conservation Commission
Attn: Ross Povenmire, Director
7A Spofford Road
Boxford, MA 01921

WILLIAMS & SPARAGES
ENGINEERS ▪ PLANNERS ▪ SURVEYORS

Subject: Determination of Negligible Impact
67C Topsfield Road

Dear Commission Members,

Our office was hired to assist a potential buyer of the above reference property with the permitting required to allow a small rubber tracked excavator to pass through the 100 foot wetland buffer zone for the purpose of doing exploratory test pits outside of jurisdictional areas of the Massachusetts Wetlands Protection Act and Boxford Wetlands Protection Bylaw.

In order to access the proposed testing areas the 100 foot wetland buffer zone needs to be crossed. The buffer zone area that would be crossed is currently a maintained field that appears to be mowed on a regular basis, (see attached photographs). We have also attached a Subsurface Disposal System Design plan that was prepared by James M. Kavanaugh, P.E., dated August 29, 2016, revised to April 25, 2018. The plan has been rendered to show the location of the jurisdictional wetland resource areas and buffer zone in the area that is proposed to be crossed. The proposed temporary access route would be along the edge of the maintained field and approximately 65 linear feet of buffer zone would need to be crossed. The contractor is proposing to lay down sheets of plywood to disperse the weight of the machine and help minimize any impact from the buffer zone crossing. No trees or shrubs are proposed to be altered as a result of this activity. It is important to note that the wetland that sheds the buffer zone onto the subject property is a Bordering Vegetated Wetland that borders on an intermittent stream channel located on the other side of the existing gravel driveway from the subject property.

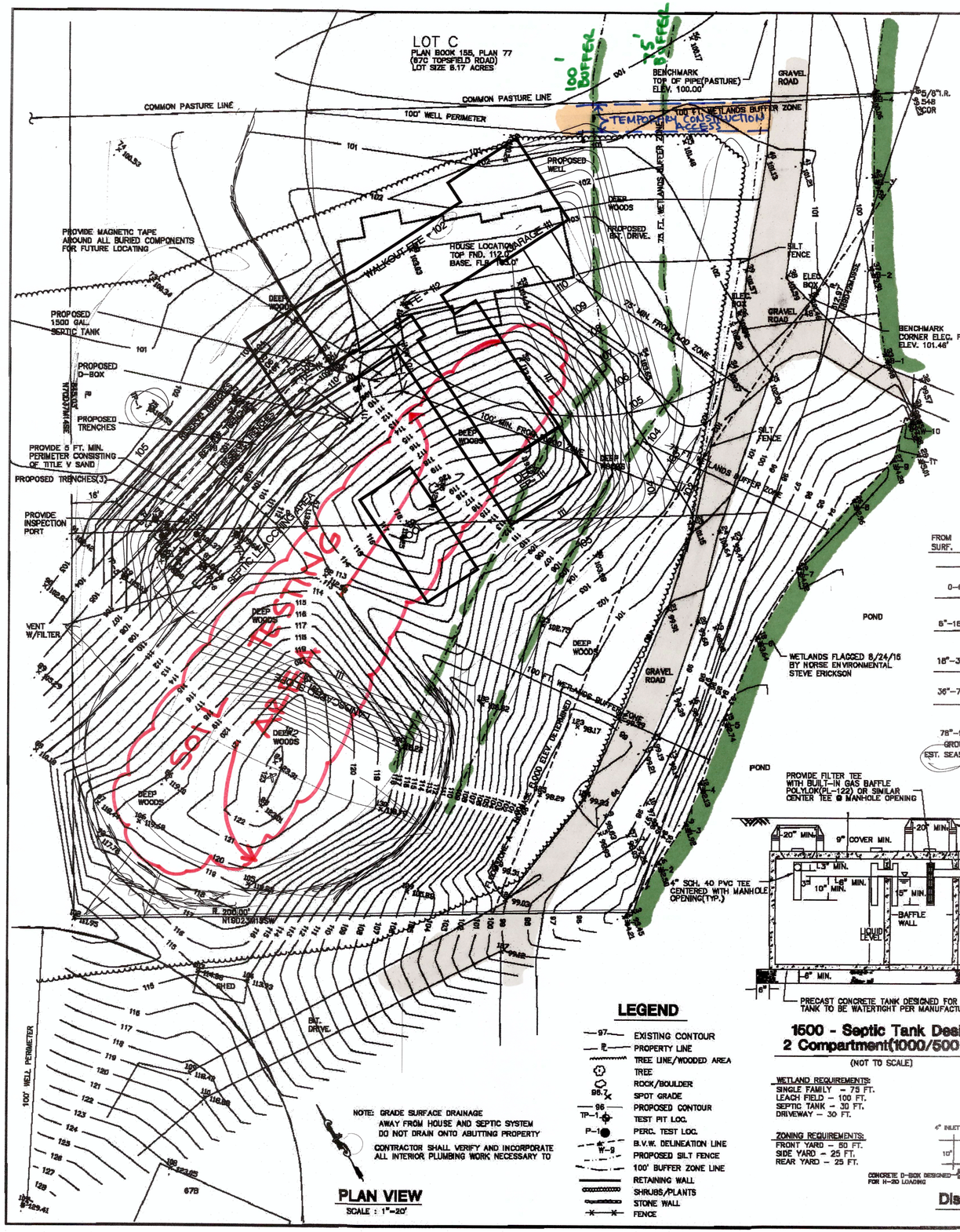
Please accept this letter as a request for a Determination of Negligible Impact to allow access across the 100 foot buffer zone as described above. We look forward to presenting this information at your next Conservation Commission meeting. If you have any questions regarding this information please do not hesitate to contact our office.

Sincerely,

WILLIAMS & SPARAGES, LLC

Greg Hochmuth, RS, PWS
Wetland Scientist

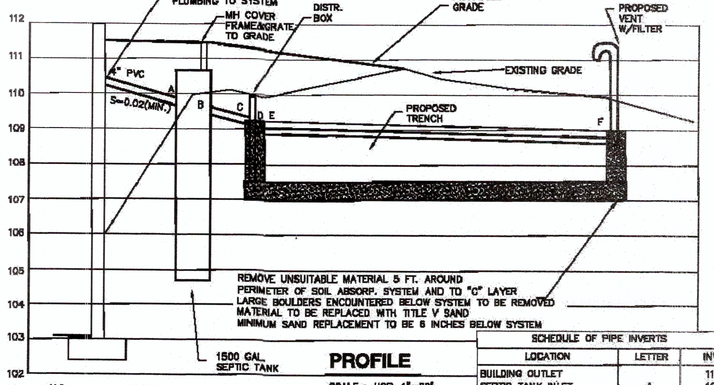
cc: Jeffrey Laurin



PLAN VIEW
SCALE : 1"=20'

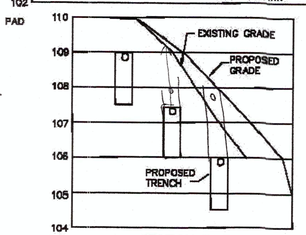
LEGEND

- 97 — EXISTING CONTOUR
- PL — PROPERTY LINE
- TREE LINE/WOODED AREA
- TREE
- ROCK/BOULDER
- 98.2 — SPOT GRADE
- 96 — PROPOSED CONTOUR
- TP-1 — TEST PIT LOC.
- P-1 — PERC. TEST LOC.
- W-9 — B.V.W. DELINEATION LINE
- PROPOSED SILT FENCE
- 100' BUFFER ZONE LINE
- RETAINING WALL
- SHRUBS/PLANTS
- STONE WALL
- FENCE



PROFILE
SCALE : HOR. 1"=20'
VERT. 1"=2'

SCHEDULE OF PIPE INVERTS		
LOCATION	LETTER	INVERT
BUILDING OUTLET		110.30'
SEPTIC TANK INLET	A	109.80'
SEPTIC TANK OUTLET	B	109.55'
DISTR. BOX INLET	C	109.22'
DISTR. BOX OUTLET	D	109.05'
BEG. TRENCH A		105.90'
END TRENCH A		105.50'
BOTTOM TRENCH A		104.50'
BEG. TRENCH B		107.40'
END TRENCH B		107.00'
BOTTOM TRENCH B		106.00'
BEG. TRENCH C	E	108.90'
END TRENCH C	F	108.50'
BOTTOM TRENCH C		107.50'



SECTION B-B
SCALE : HOR. 1"=20'
VERT. 1"=2'

TP-1

FROM SURF.	SOIL TYPE	GRND. ELEV.
		101.55'
0–6"	Ap – FSL 10YR3/3	101.05'
6"–18"	Bw – FLS 10YR6/6	100.05'
18"–36"	C1 – FS 2.5Y7/6	98.55'
36"–78"	C2 – CS 5Y7/4	95.55'
78"–96"	C3 – CGSL 5Y5/4	93.55'

GROUNDWATER OBSERVED @ 54"
EST. SEAS. HIGH WATER. @ 18"(100.05')

TP-2

FROM SURF.	SOIL TYPE	GRND. ELEV.
		103.36'
0–8"	Ap – FSL 10YR3/3	102.86'
8"–18"	Bw – FLS 10YR6/8	101.86'
18"–96"	C1– CGSL 5Y5/4	95.36'

NO GROUNDWATER OBSERVED
EST. SEAS. HIGH WATER. @ 36"(100.36')

TP-3

FROM SURF.	SOIL TYPE	GRND. ELEV.
		104.13'
0–5"	Ap – FSL 10YR3/3	103.71'
5"–19"	Bw – FLS 10YR6/8	102.55'
19"–114"	C1– CGSL 5Y5/4	94.63'

NO GROUNDWATER OBSERVED
NO ESTIMATED SEAS. HIGH WATER

TP-4

FROM SURF.	SOIL TYPE	GRND. ELEV.
		108.60'
0–4"	Ap – FSL 10YR3/3	109.27'
4"–17"	Bw – FLS 10YR6/8	108.18'
17"–72"	C1– CGSL 5Y5/4	103.60'

NO GROUNDWATER OBSERVED
NO ESTIMATED SEAS. HIGH WATER

TP-5

FROM SURF.	SOIL TYPE	GRND. ELEV.
		105.03'
0–4"	Ap – FSL 10YR3/3	104.70'
4"–20"	Bw – FLS 10YR6/8	103.36'
20"–100"	C1– CGSL 5Y5/4	96.70'

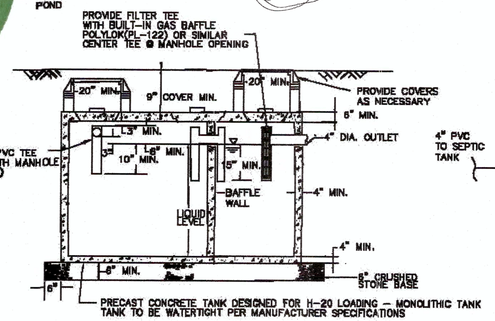
NO GROUNDWATER OBSERVED
NO ESTIMATED SEAS. HIGH WATER

TP-6

FROM SURF.	SOIL TYPE	GRND. ELEV.
		109.14'
0–4"	Ap – FSL 10YR3/3	108.80'
4"–18"	Bw – FLS 10YR6/8	107.64'
18"–72"	C1– CGSL 5Y5/4	103.14'

NO GROUNDWATER OBSERVED
NO ESTIMATED SEAS. HIGH WATER

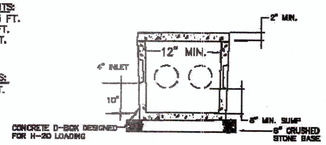
SOIL ANALYSIS
WITNESSED BY: KENDELL LONGO
BOARD OF HEALTH
TOWN OF BOXFORD
TEST PITS – 5/10/16
PERC TESTS – 5/23/16



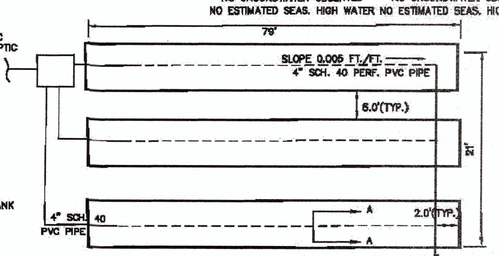
1500 - Septic Tank Design
2 Compartment(1000/500 GAL)
(NOT TO SCALE)

WETLAND REQUIREMENTS:
SINGLE FAMILY – 75 FT.
LEACH FIELD – 100 FT.
SEPTIC TANK – 50 FT.
DRIVEWAY – 30 FT.

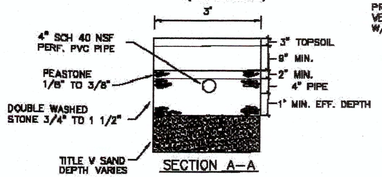
ZONING REQUIREMENTS:
FRONT YARD – 50 FT.
SIDE YARD – 25 FT.
REAR YARD – 25 FT.



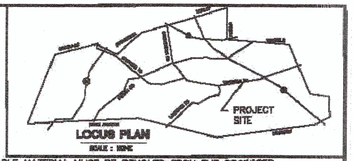
Distribution Box(6-Hole)



SOIL ABSORPTION SYSTEM PLAN
(NOT TO SCALE)

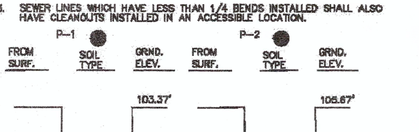


SECTION A–A



Notes

1. ALL UNSUITABLE MATERIAL MUST BE REMOVED FROM THE PROPOSED CONSTRUCTION AREA BELOW THE SOIL ABSORPTION SYSTEM AND A MINIMUM OF FIVE FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE SYSTEM. BACKFILL MATERIAL SHALL CONSIST OF CLEAN SAND OR GRAVEL FREE OF FINES AND HAVING A PERCOLATION RATE OF 2 MIN. PER INCH OR LESS AFTER BEING PLACED AND COMPACTED.
2. ALL STONE MUST BE DOUBLE WASHED AND FREE FROM FINES AND MUST HAVE LESS THAN 0.5% FINER MATERIAL PASSING THE NO. 200 SIEVE.
3. HEAVY MACHINERY SHALL NOT BE PERMITTED TO PASS OVER ANY PART OF THE PROPOSED SUBSURFACE DISPOSAL SYSTEM.
4. SYSTEM PIPING SHALL CONSIST OF POLYVINYL CHLORIDE PIPE(PVC) SCHEDULE 40 NSF, UNLESS OTHERWISE NOTED.
5. GARBAGE GRINDER/DISPOSAL SYSTEM IS NOT TO BE CONNECTED TO THE SUBSURFACE DISPOSAL SYSTEM.
6. SITE SURVEY WAS SOLELY PERFORMED TO OBTAIN SITE TOPOGRAPHY FOR THE INSTALLATION OF A SUBSURFACE DISPOSAL SYSTEM. THE DESIGNER IS NOT RESPONSIBLE FOR THE ACCURACY OF THE REPRESENTATION OF ANY PROPERTY LINES OR BUILDING LOCATIONS SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL CONTROLS.
7. ALL DISTURBED AREAS SHALL BE LOAMED, SEEDED AND MAINTAINED TO PREVENT EROSION. ANY DISTURBED PAVING MUST BE REPLACED IN-KIND.
8. 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 THE INSTALLATION OF THE SYSTEM WITH THE LOCAL BOARD OF HEALTH.
9. ALL SURFACE AND SUBSURFACE DRAINAGE SHALL BE DIRECTED AWAY FROM THE SUBSURFACE DISPOSAL SYSTEM AND FOUNDATIONS.
10. ALL SYSTEM TANKS AND PIPING CONNECTIONS SHALL BE MADE WATERTIGHT THROUGH MANUFACTURERS SPECIFICATIONS AND WARRANTY.
11. PROPER MAINTENANCE AND PERFORMANCE OF THE SUBSURFACE DISPOSAL SYSTEM SHOULD CONSIST OF INSPECTING THE SEPTIC TANK AT LEAST ONCE A YEAR AND WHEN THE TOTAL DEPTH OF SCUM AND SOLIDS EXCEEDS 1/3 THE LIQUID DEPTH OF THE TANK, THE TANK SHOULD BE PUMPED.
12. SEPTIC TANK MANUFACTURER TO SUPPLY BOUYANCY VERIFICATION AND/OR BOUYANCY PAD FOR PROPOSED CHAMBERS.
13. SEWER LINES WHICH HAVE LESS THAN 1/4 BENDS INSTALLED SHALL ALSO HAVE CLEANOUTS INSTALLED IN AN ACCESSIBLE LOCATION.



Design

Design Flow : 4 Bedrooms
Design Flow : 4 Bedrooms @ 185 gpd = 660 gpd
LTAR = 0.56 gpd/sq.ft.

Design of Soil Absorption System : Trenches
- Effective Width = 36 inches
- Effective Depth = 12 inches
- Sidewall Capacity = 2 sq.ft./ft. x 0.56 gpd/sq.ft. = 1.12 gpd/ft.
- Bottom Capacity = 3 sq.ft./ft. x 0.56 gpd/sq.ft. = 1.68 gpd/ft.
- Overall Capacity = 1.12 gpd/ft. + 1.68 gpd/ft. = 2.80 gpd/ft.

660 gpd / 2.80 gpd/ft. = 235.7 ft. of Field Needed
Use 3 Trenches @ 79 ft. each

Septic Tank Design
- 200% for Design factor : 2 X660 gpd = 1320 gpd
- Use (Min. req'd.) 1500 Gal. Septic Tank

NOTE:
THIS PLAN WAS PREPARED FOR THE SOLE PURPOSE OF THE ABOVE WORK AND FOR THE NOTED PERSON/FIRM. THE INFORMATION CONTAINED WITHIN THIS PLAN MY NOT BE USED FOR OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF THE DESIGN ENGINEER.

SOIL EVALUATOR STATEMENT :
(JAMES M. KAVANAUGH) CERTIFY THAT ON JULY 25,1995 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 15.018(2).

James M. Kavanaugh, P.E.
Environmental Consultant
14 Shady Hill Drive
N. Reading Mass. 01864
Tel.(978)664-2925

DESIGN OF SUBSURFACE DISPOSAL SYSTEM
PREPARED FOR

Steven Ottaviano
67C Topsfield Road
Boxford MA, 01921

Map No. 33
Parcel No. 2–28

3	4/25/18	COMMON PASTURE LINE DEMARCATION
2	9/22/16	CONSERVATION COMMENTS
1	9/20/16	BOH COMMENTS

Proj. No. 5.3016	Desn. By: JMK
Date : August 29, 2016	Drn. By: DMC
Scale : As Noted	Sheet 1 of 1