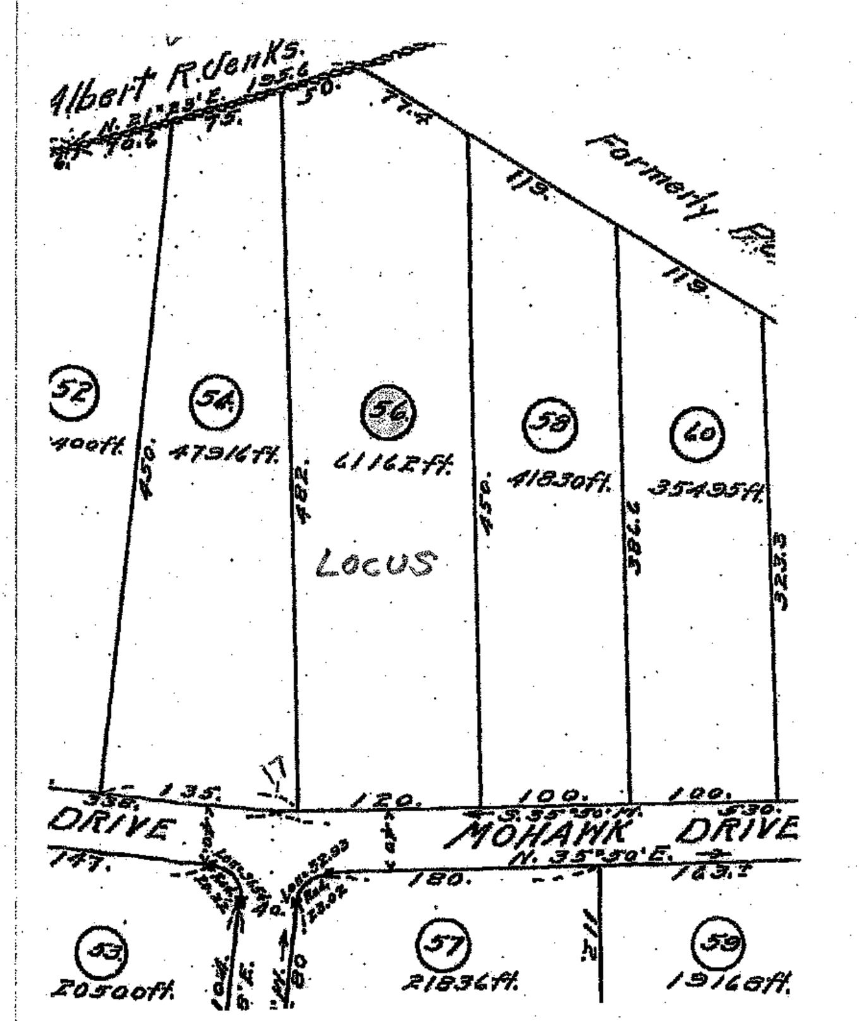


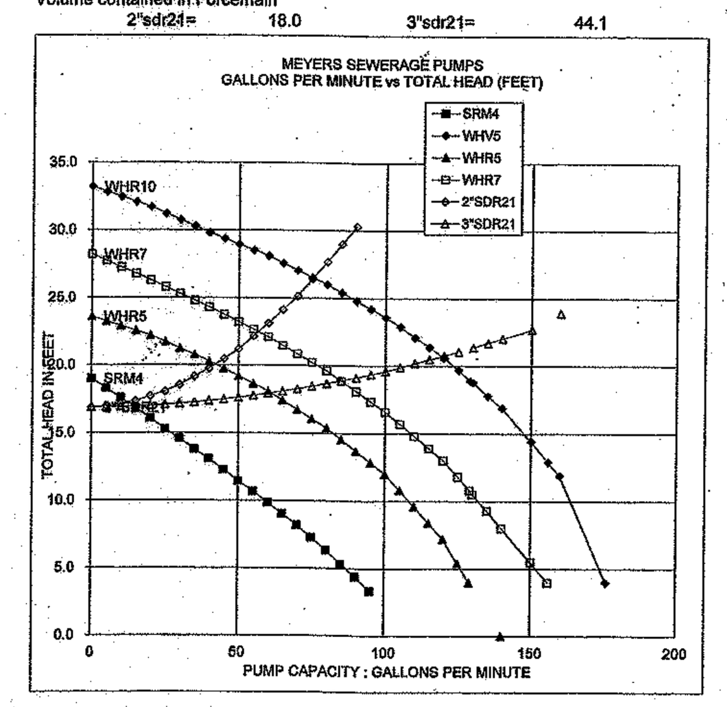
SURVEY PLAN

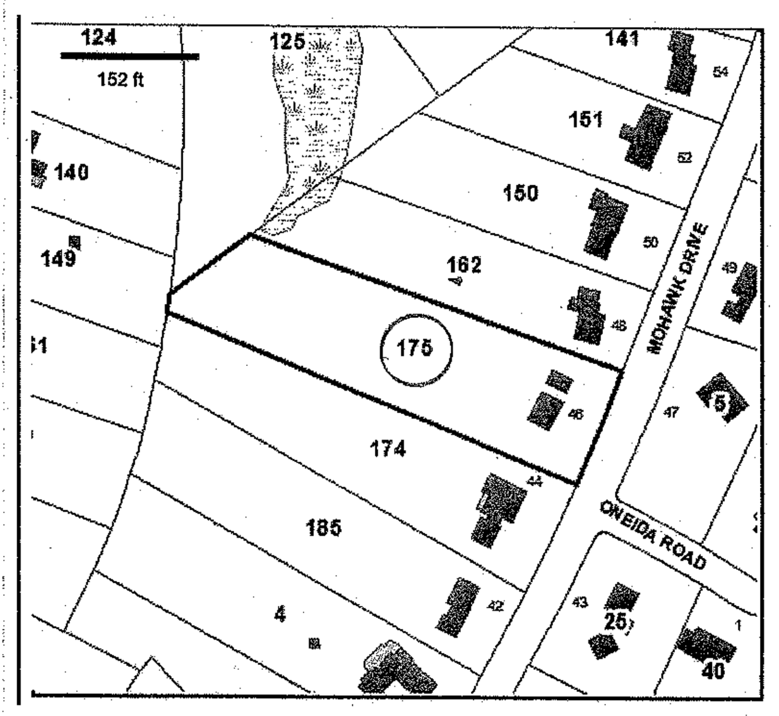
SUBSURFACE SEWAGE DISPOSAL SYSTEM
PUMP SELECTION PROGRAM
THIS PROGRAM USES MEYERS SEWERAGE PUMPS

Name: NSRES, Inc.
Job No: 29295

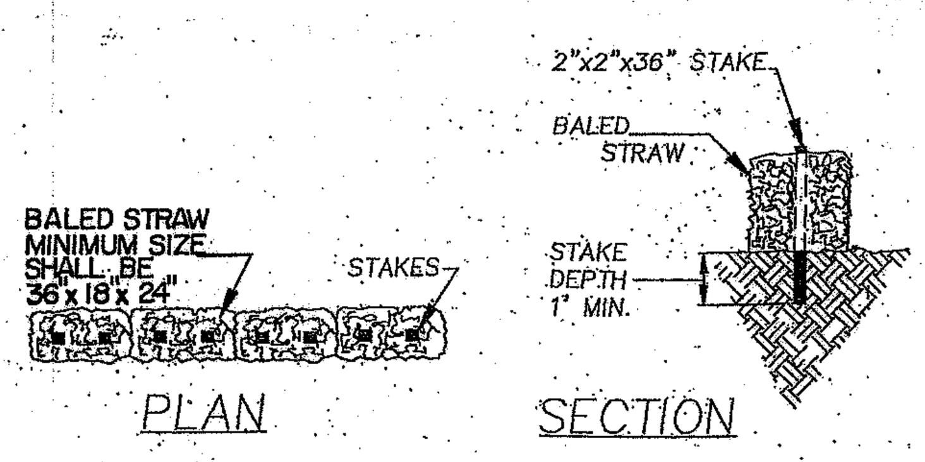
PLEASE ENTER THE FOLLOWING DATA:

Distribution Box in Inv.= 103.70
PUMP OFF ELEV. = 88.83
FORCEMAIN LENGTH= 120.00



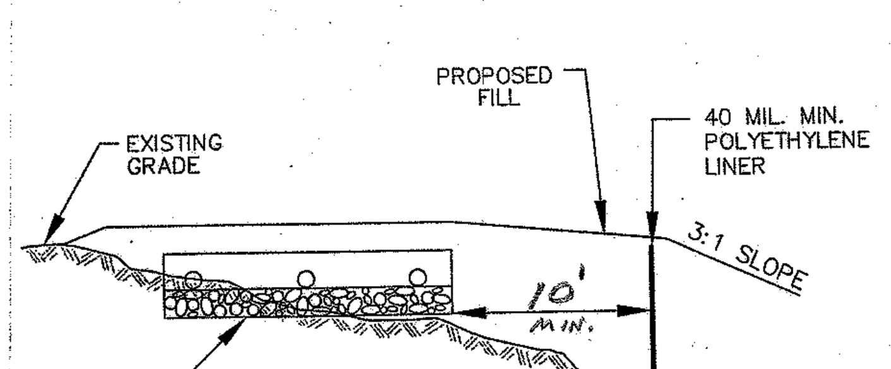


ASSESSOR'S MAP



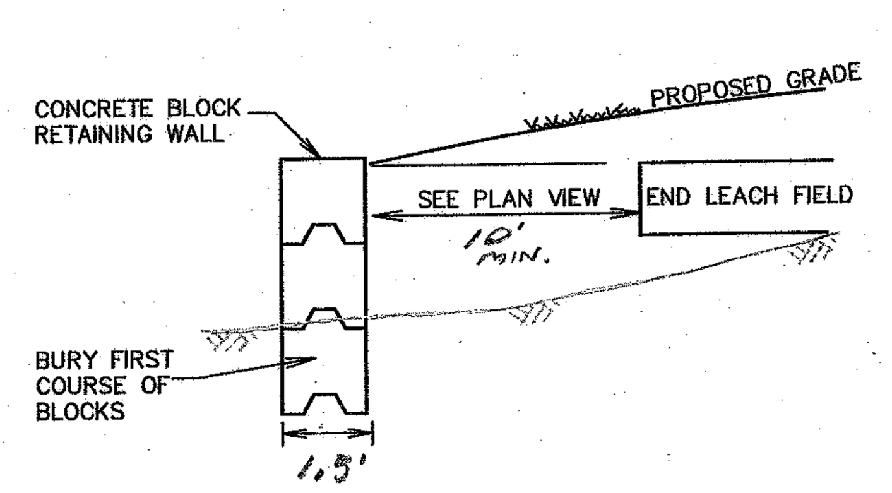
STRAW BARRIER

EROSION CONTROL BARRIER



POLYETHYLENE BARRIER

NOT TO SCALE



CONCRETE BLOCK WALL

NOT TO SCALE

BUOYANCY CALCULATIONS

SEPTIC TANK: Manufacturer & Size SHEA 1500
PUMP CHAMBER: Top of Tank Elevation = 93.9; Bottom of Tank Elevation = 88.83
Seasonal High Groundwater Elevation = (30") 90.5
Upward Force of Groundwater (F)
F = (12.169) lbs. upward force
Downward Weight of Tank (Empty)
Downward Weight of Soil Cover
Summary
(wt. of tank + wt of soil) = 18,408 lbs.
(upward force of groundwater) = 12,169 lbs.
OK
–0– additional lbs of ballast needed

BUOYANCY CALCULATIONS

SEPTIC TANK: Manufacturer & Size SHEA 1000
PUMP CHAMBER: Top of Tank Elevation = 93.8; Bottom of Tank Elevation = 88.83
Seasonal High Groundwater Elevation = (32") 91.4
Upward Force of Groundwater (F)
F = 8453 lbs. upward force
Downward Weight of Tank (Empty)
Downward Weight of Soil Cover
Summary
(wt. of tank + wt of soil) = 12,464 lbs.
(upward force of groundwater) = 8453 lbs.
OK
–0– additional lbs of ballast needed

FIRM
FLOOD INSURANCE RATE MAP
MIDDLESEX COUNTY, MASSACHUSETTS
(ALL JURISDICTIONS)
PANEL 351 OF 656
MAP NUMBER 25017C0351E
EFFECTIVE DATE JUNE 4, 2010
Federal Emergency Management Agency

Commonwealth of Massachusetts
City/Town of ACTON
Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued)

Deep Observation Hole Number: 1 — 10/23/13 — 95.5 GROUND ELEV.

Depth (in)	Soil Horizon/Layer	Soil Matrix: Color-Moist (Munsell)	Redox Depth	Redox Color	Redox Percent	Soil Texture (USDA)	Gravel	Cobbles & Stones	Soil Structure	Soil Consistence (Moist)	Other
0-40	^C					FILL					
40-52	Ap					FSL	few				
52-64	Bw						few				
64-70	C		64		>5		5	5			
70	CR	ledge									

Additional Notes: NO GW OBSERVED. ESTIMATED HIGH GW. AT 64" ELEV.= 90.17

Deep Observation Hole Number: 2 — 10/23/13 — GROUND=95.8

Depth (in)	Soil Horizon/Layer	Soil Matrix	Redox Depth	Redox Color	Redox Percent	Soil Texture	Gravel	Cobbles & Stones	Soil Structure	Soil Consistence	Other
0-48	^C										
48-58	Ab					FSL	few				
58-68	Bw		68				few				
68	CR	ledge									

Additional Notes: NO GW OBSERVED. ESTIMATED HIGH GW. AT 68" ELEV.= 90.14

Deep Observation Hole Number: 3 — 10/23/13 — GROUND = 94.8

Depth (in)	Soil Horizon/Layer	Soil Matrix	Redox Depth	Redox Color	Redox Percent	Soil Texture	Gravel	Cobbles & Stones	Soil Structure	Soil Consistence	Other
0-12	Ap					FSL					
12-30	Bw						few				
30-36	CR	ledge	30		>20						

Additional Notes: NO GW. OBSERVED. ESTIMATED HIGH GW AT 30" ELEV.= 92.3

Deep Observation Hole Number: 4, 6, 7, 8

Hole	Depth (in)	Soil Horizon/Layer	Soil Matrix
#4	18	CR	ledge
#6	36	CR	ledge
#7	24	CR	ledge
#8	24	CR	ledge

Deep Observation Hole Number: 5 — 11/1/13 — GROUND ELEV=100.5

Depth (in)	Soil Horizon/Layer	Soil Matrix	Redox Depth	Redox Color	Redox Percent	Soil Texture	Gravel	Cobbles & Stones	Soil Structure	Soil Consistence	Other
0-4	Oi					Fibric	few				
4-10	A					FSL	few				
10-24	Bw						few				
24-60	C		32		>5		5	5			
60	CR	ledge									

Additional Notes: NO GW. OBSERVED. ESTIMATED HIGH GW. AT 32" ELEV.= 97.83

Deep Observation Hole Number: 9 — 11/1/13 — GROUND ELEV.= 99.0

Depth (in)	Soil Horizon/Layer	Soil Matrix	Redox Depth	Redox Color	Redox Percent	Soil Texture	Gravel	Cobbles & Stones	Soil Structure	Soil Consistence	Other
0-4	Oi					Fibric	few				
4-12	A					FSL	few				
12-22	Bw						few				
22-62	C		30		>5		5	5			
62	CR	ledge									

Additional Notes: NO GW. OBSERVED. ESTIMATED HIGH GW. AT 30" ELEV.= 96.5

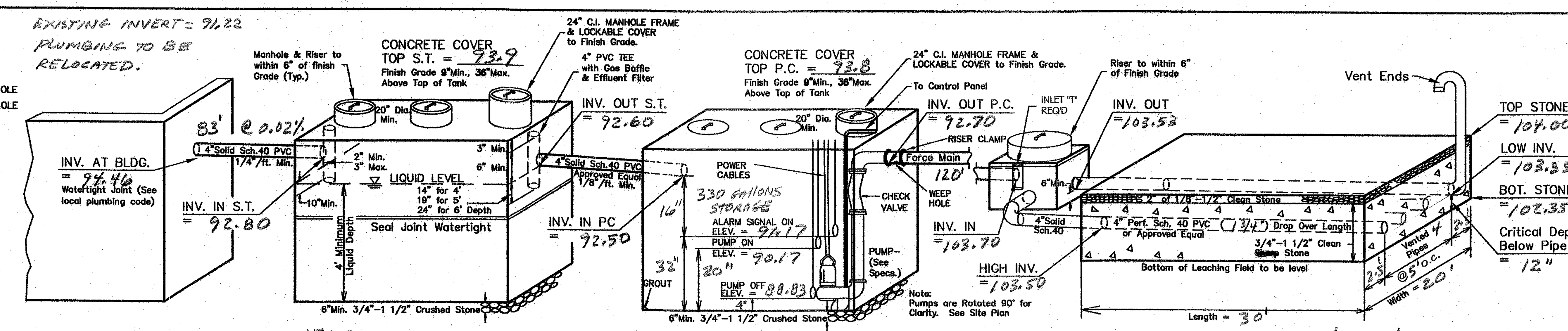
F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017.

Stephen Sears — 11/7/13
Evan Carloni — 10/23/13

LEGEND

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



FOUNDATION

1500 GALLON SEPTIC TANK

1000 GALLON PUMP CHAMBER
(DOSE / TIME(S) PER DAY)

DISTRIBUTION BOX

LEACHING FIELD 20' x 30' = 600 S.F.

THE EXISTING CESSPOOL / ~~SEPTIC TANK~~ TO BE PUMPED OUT AND BACKFILLED WITH SAND FILL OR REMOVED. IF DURING CONSTRUCTION ANY PORTION OF THE EXISTING LEACH AREA IS ENCOUNTERED, THAT PORTION SHOULD BE REMOVED AND REPLACED WITH CLEAN SAND FILL. ALL TREES WITHIN TEN FEET OF THE PROPOSED SEWAGE SYSTEM ARE TO BE REMOVED.

ALL WASTEWATER, INCLUDING WASHER MACHINE WATER, TO BE TIED INTO OUT GOING SEWER PIPE TO SEPTIC TANK. THE PROPERTY OWNER SHALL INSPECT OR HAVE INSPECTED THE INTERNAL EXISTING PLUMBING TO ENSURE THAT ALL OUT FLOWS ARE CONNECTED TO THE SEPTIC TANK.

DESIGN ENGINEER DOES NOT RECOMMEND SEWAGE DISPOSAL SYSTEM INSTALLATION DURING HIGH GROUNDWATER OR SATURATED SOIL CONDITIONS.

PRIOR TO CONSTRUCTION, LAYOUT OF SEWAGE DISPOSAL SYSTEM LOCATION (BY THE DESIGN ENGINEER) IS RECOMMENDED.

DESIGN ENGINEER REQUIRES EXCAVATION INSPECTION PRIOR TO PLACEMENT OF FILL.

FINAL INSPECTION ("AS-BUILT") REQUIRED PRIOR TO BACKFILL OF NEW SEWAGE DISPOSAL SYSTEM INSTALLATION.

FINAL FILL AND GRADING INSPECTION REQUIRED BY THE DESIGN ENGINEER.

SOIL SETTLEMENT MAY OCCUR FOLLOWING THE SYSTEM INSTALLATION. THE CONTRACTOR SHOULD BE AWARE OF POTENTIAL SETTLEMENT AND BE RESPONSIBLE FOR ADDITIONAL FILL AND GRADING.

CONTRACTOR SHALL GRADE TO ENSURE PROPER DRAINAGE AND TO AVOID CREATING PONDING AREAS.

TOP OF CONCRETE OR STONE FOUNDATION ELEVATION IF USED BY INSTALLER FOR CONSTRUCTION, SHOULD BE VERIFIED WITH BENCHMARK NAIL SHOWN ON PLAN.

INSPECTION OF POLY BARRIER LOCATION AND DEPTH REQUIRED BY ENGINEER DURING INSTALLATION.

NOTE: There are no water courses or flood plains within 100 ft. of the proposed sewage disposal system.

This Lot is in the Acton Aquifer Zone 4.

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. THE MANHOLE OVER THE OUTLET TEE FILTER SHALL BE EQUIPPED WITH A RISER AND LOCKABLE COVER TO FINISH GRADE. ALL OTHER MANHOLES SHALL BE EQUIPPED WITH A RISER TO WITHIN 6" OF FINISH GRADE.

PUMP CHAMBER & 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. ONE TANK MANHOLE SHALL EXTEND TO 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 .5 H.P. (MINIMUM) MOTOR AND BE CAPABLE OF PUMPING 45 GALLONS PER MINUTE (GPM) AGAINST A TOTAL DYNAMIC HEAD (TDH) OF 20 FEET.

PUMP SIZE AND SPECIFICATIONS ARE BASED UPON THE PROPOSED PUMP CHAMBERS' ELEVATIONS AND LOCATION SHOWN HEREON. ANY ALTERATIONS SHALL BE APPROVED BY THE DESIGN ENGINEER.

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.

"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. "D" BOXES BURIED GREATER THAN 9" BELOW GRADE SHALL BE EQUIPPED WITH A RISER TO WITHIN 6" OF FINISH GRADE.

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.

ALL COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.

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 N/A OF THE PROPOSED WELL. (TOWN WATER PROVIDED).

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.

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.

APPROVED JAN 15 2014 ACTON BOARD OF HEALTH

SCHEDULE OF ELEVATIONS	PROPOSED	AS-BUILT
TOP CONCRETE FOUNDATION	98.05	
INVERT AT FOUNDATION	94.46	
INVERT TANK INLET	92.80	
INVERT TANK OUTLET	92.60	
TOP SEPTIC TANK	93.9	
INVERT PUMP CHAMBER INLET	92.50	
INVERT PUMP CHAMBER OUTLET	92.70	
TOP PUMP CHAMBER	93.8	
INV. "D" BOX INLET W/TEE	103.70	
INV. "D" BOX OUTLET	103.53	
TOP OF STONE	104.00	
INVERT HIGH END	103.50	
INVERT LOW END	103.35	
BOTTOM OF STONE	102.35	
GROUNDWATER OFFSET REQUIRED	4'	
GROUNDWATER OFFSET UTILIZED	4'	

DESIGN CRITERIA

GARBAGE GRINDERS – NOT PERMITTED

PERC. TESTS: PERFORMED BY STEPHEN SEARS
WITNESSED BY EVAN CARLONI

PERC. #	RATE (M/I)	ELEVATION	DEPTH	DATE
P1	6 MIN	100.2	42"	11.6.13
P1 PERFORMED IN "C" HORIZON				
P2	5 MIN	100.9	22"	11.6.13
P2 PERFORMED IN "B" HORIZON				

SOILS CLASS: II

FLOWS: 3 BEDROOMS AT 110 GPD = 330 GPD
(330 GPD MIN.)

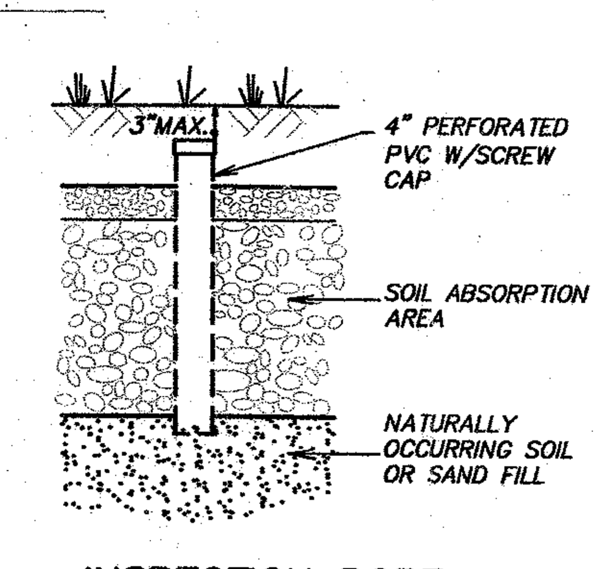
SEPTIC TANK REQUIRED: (1500 GAL. MIN.)
330 GPD X 2.0 = 660 GAL. TANK

LEACHING AREA PROVIDED:
A. BASIS 6 MIN./IN. PERCOLATION RATE
B. APPLICATION RATE ALLOWED .60 S.F.
C. BOTTOM AREA PROVIDED 600 S.F.
D. TOTAL G.P.D. PROVIDED 360

SYSTEM IN FILL ☑ REQUIRED ☐ NOT REQUIRED

IF ANY PORTION OF THE PROPOSED LEACHING AREA IS LOCATED ABOVE EXISTING GRADE OR WITHIN TOPSOIL, 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%



INSPECTION PORT

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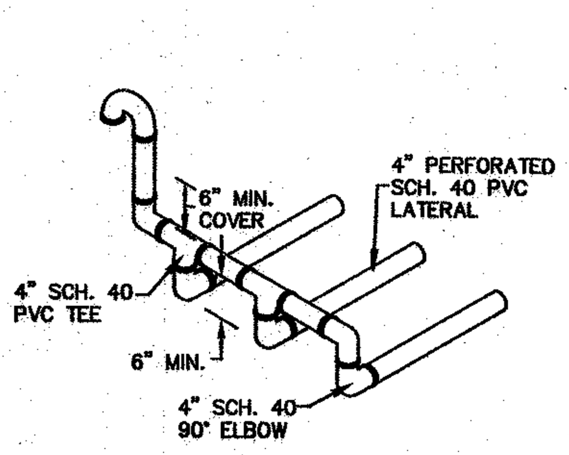
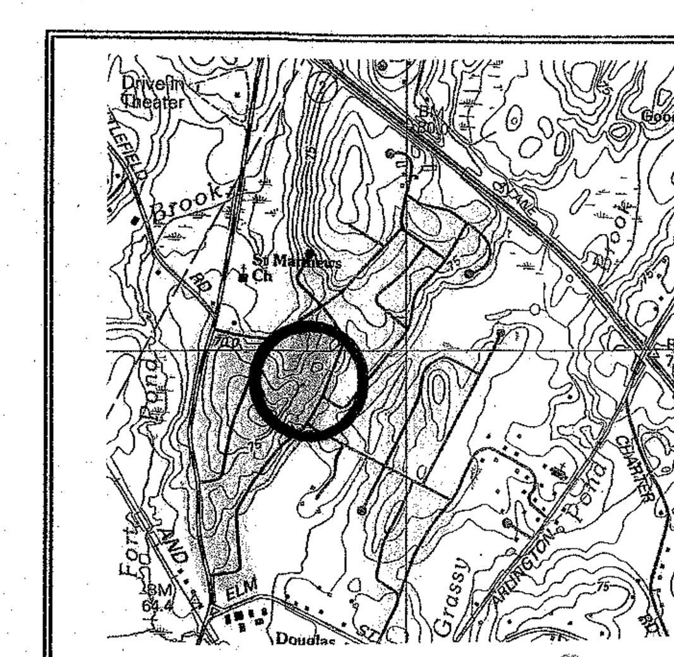


VENTED END DETAIL

NOT TO SCALE



USGS LOCUS MAP

COMMONWEALTH OF MASSACHUSETTS — DANIEL B. WOLFE No. 36523 CIVIL — REGISTERED PROFESSIONAL ENGINEER
Daniel B. Wolfe 1-13-14
Daniel B. Wolfe 11-25-13

REVISIONS
1/14 REVISE TANK & PUMP LOCATION
& RAISE SAS TO '4' GW. OFFSET
TO ELIMINATE LOCAL UPGRADE
APPROVALS.

SEWAGE DISPOSAL SYSTEM

FOR: LOT 56 STREET 46 MOHAWK DRIVE
ASSESSOR'S MAP D2 PARCEL 175
TOWN: ACTON, MA.

DESIGNED FOR

NORTH SHORE REAL ESTATE SOLUTIONS, LLC.

SCALE: 1" = 20' NOV. 2013

DAVID E. ROSS ASSOCIATES, INC.
CIVIL ENGINEERS, LAND SURVEYORS, ENVIRONMENTAL CONSULTANTS
111 FITCHBURG ROAD – P.O. BOX 368, AYER, MASS., 01432-0368
978-772-6232 • 368-1065 • 448-3916 • FAX 978-772-6258

JOB NO. 29295 SHEET 1 OF 2 PLAN NO. L-12221