

DATE OF TEST: JUNE 8, 2021		WITNESS: KARL DROWN			
TEST PIT #1 : ELEV.: 100.63		SOIL EVALUATOR: STEVE GILBERT, R.P.L.S.			
DEPTH FROM SURFACE FEET	SOIL HORIZON	SOIL TEXTURE (USDA)	SOIL COLOR (MUNSELL)	SOIL MOTTLING	OTHER (STRUCTURE, STONES, BOULDERS, CONSISTENCY, % GRAVEL)
1	0 - 16	A	SANDY LOAM	10YR 3/3	
2	16 - 30	B	SANDY LOAM	10YR 5/6	
3					
4				48"	
5					
6	30 - 96	C	SANDY LOAM	2.5Y 5/3	
7					
8					
PERCOLATION RATE: 24 M.P.I. @ 64"					
GROUNDWATER: MOTTLING @ 48" (EL.: 96.63), WEEPING @ 76", STANDING @ 92"					

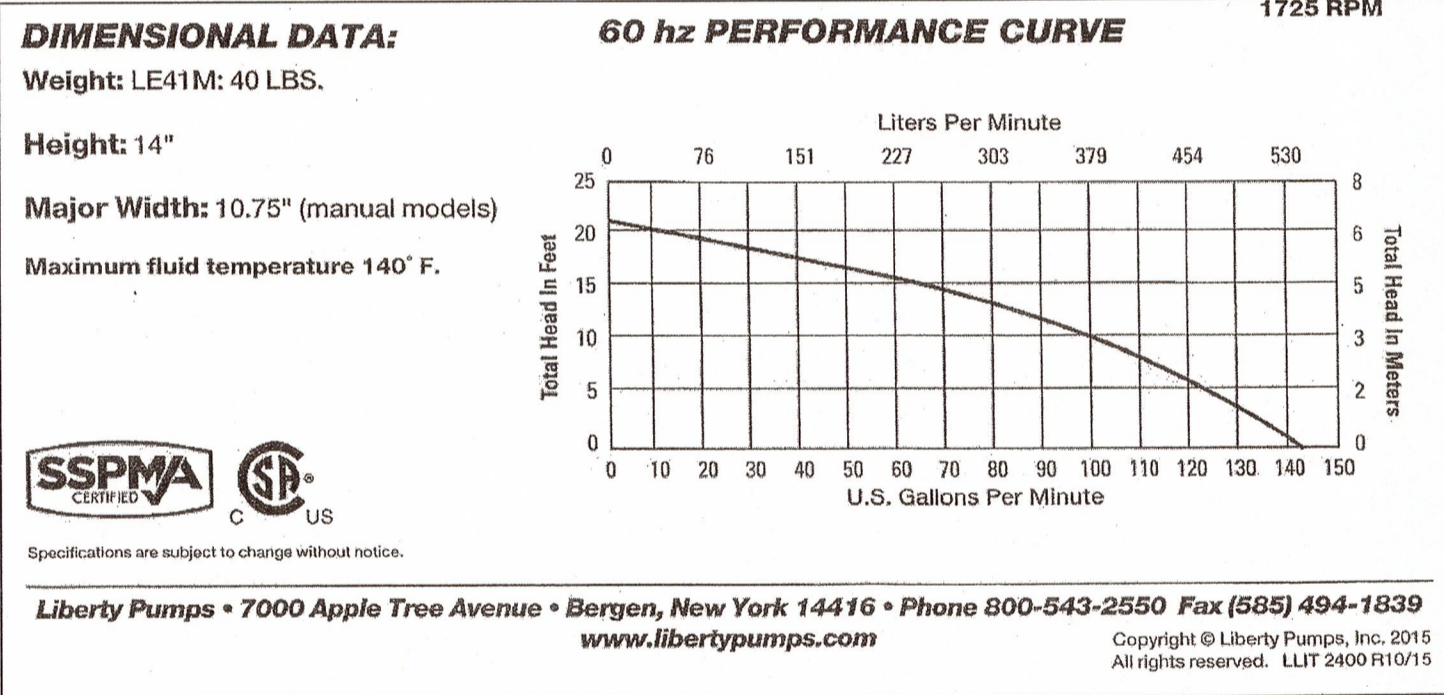
**TEST PIT INFORMATION**

DESIGN CALCULATIONS:	
CAPACITY REQUIRED - RESIDENTIAL USE:	
DESIGN FLOW: 3 BEDROOMS @ 110 Gal/Day/Bedroom = 330 Gal/Day 330 Gal/Day X 125% = 412.5 Gal/Day Required	
CAPACITY PROVIDED:	
SEPTIC TANK: DESIGN FLOW = 330 Gal/Day X 200% REQUIRED SIZE = 660 Gal/Day SIZE PROVIDED = 1,500 Gal/Day	
LEACHING FACILITY: DESIGN PERCOLATION RATE: 24 MPI SOIL TEXTURAL CLASS: CLASS II LONG TERM ACCEPTANCE RATE (LTAR): 0.40 GPD/SF	
BOTTOM AREA:	60' x 18' = 1,080 SF
SIDEWALL AREA:	= 0
TOTAL AREA = 1,080 SF	
x LTAR 0.40 Gal/Day/SF	
TOTAL CAPACITY = 432 Gal/Day	
SYSTEM IS NOT DESIGNED FOR A GARBAGE GRINDER OR WATER SOFTENER BACKWASH.	

- BOARD OF HEALTH NOTES**
- THE EXISTING 3" LAUNDRY SEWER IS TO BE RE-ROUTED TO TIE INTO THE PROPOSED SEPTIC TANK. INSTALL CLEAN-OUT(S) AT THE DIRECTION OF THE BOARD OF HEALTH AGENT.
  - THE EXISTING 3" LAUNDRY SEWER MAY BE RE-ROUTED IN THE CELLAR, IF POSSIBLE.
  - INSTALL A CHIMNEY INLET FOR THE 4" BUILDING SEWER.
  - TANK CONSTRUCTION SHALL MEET THE REQUIREMENTS SPECIFIED IN TITLE 5, SECTION 15.226.
  - CONCRETE IS TO BE 4000 PSI @28 DAYS.
  - BOTH TANKS SHALL BE MONOLITHIC TANKS.
  - INSTALL A ZABEL OR EQUIVALENT EFFLUENT FILTER IN THE SEPTIC TANK OUTLET TEE.
  - ALL RISERS ARE TO BE MADE WATERTIGHT.
  - ALL PIPE IS TO BE SCH. 40 P.V.C. OR EQUIVALENT.
  - ALL JOINTS ARE TO BE MADE WATERTIGHT.
  - ALL STONE IS TO BE DOUBLE WASHED.
  - ALL COMPONENTS SHALL HAVE A MINIMUM OF 9" AND A MAXIMUM OF 36" OF COVER.
  - THE PUMP IS TO BE WIRED, THROUGH A 1-1/4" CONDUIT, TO ITS OWN 20 AMP CIRCUIT BREAKER.
  - WIRE THE CONTROL FLOAT TO A HIGH WATER ALARM INSIDE THE HOUSE. THE ALARM IS TO BE AUDIO AND VISUAL.
  - THE ALARM IS TO BE ON A SEPARATE CIRCUIT FROM THE PUMP.
  - THE VENT IS TO BE PLACED IN AN AREA WHERE IS WILL NOT BE SUSCEPTIBLE TO DAMAGE.
  - THE CONTRACTOR IS TO VERIFY ALL ELEVATIONS AND UTILITY LOCATIONS PRIOR TO CONSTRUCTION. ANY DIFFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
  - THE RESERVE AREA IS TO BE IN THE SAME LOCATION AS THE ACTIVE SYSTEM.
  - THERE ARE NO CONFLICTS WITH TITLE 5, SECTION 15.220(4)(k) - LOCATION OF PUBLIC AND PRIVATE WATER SUPPLIES.
  - 5' IS TO BE EXCAVATED ALL AROUND THE SYSTEM, DOWN 30"± TO THE C LAYER, AND REPLACED WITH CLEAN SAND & GRAVEL AS PER TITLE 5, SECTION 15.255.
  - INSTALL A 40 MIL THICK IMPERVIOUS POLY BARRIER ON THE FACE OF THE OVER-DIG, ALL AROUND THE SYSTEM, TO PREVENT BREAKOUT TOP ELEV.: 102.2±, BASE ELEV.: 98.13±
- THE FOLLOWING LOCAL UPGRADES ARE REQUESTED UNDER TITLE 5, SECTION 15.405(1):
- (h) TO ALLOW THE BASE OF THE S.A.S. TO BE 3.0' ABOVE THE WATER TABLE, INSTEAD OF THE REQUIRED 4.0'.
  - (i) TO ALLOW A REDUCTION OF THE REQUIRED 12" SEPARATION BETWEEN THE TEES AND HIGH GROUNDWATER, PROVIDED THAT ALL BOOTS OR PIPE JOINTS ARE SEALED WITH HYDRAULIC CEMENT, OR INSTALLED WITH WATERTIGHT SLEEVES, AND THE TANKS ARE PROVEN WATERTIGHT.
- A VARIANCE IS REQUESTED TO THE REHOBOTH BOARD OF HEALTH REGULATIONS TO ALLOW THE BASE OF THE S.A.S. TO BE 3.0' ABOVE THE WATER TABLE, INSTEAD OF THE REQUIRED 4.0'.

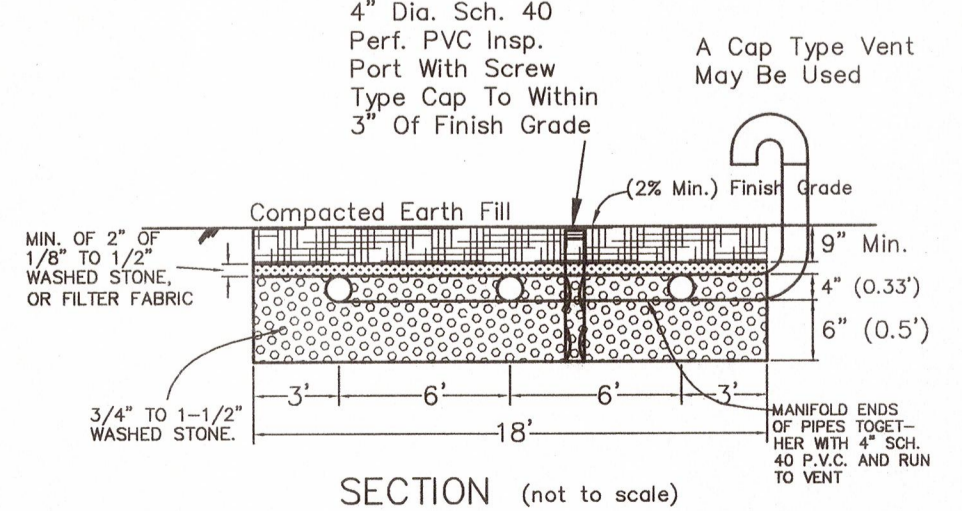
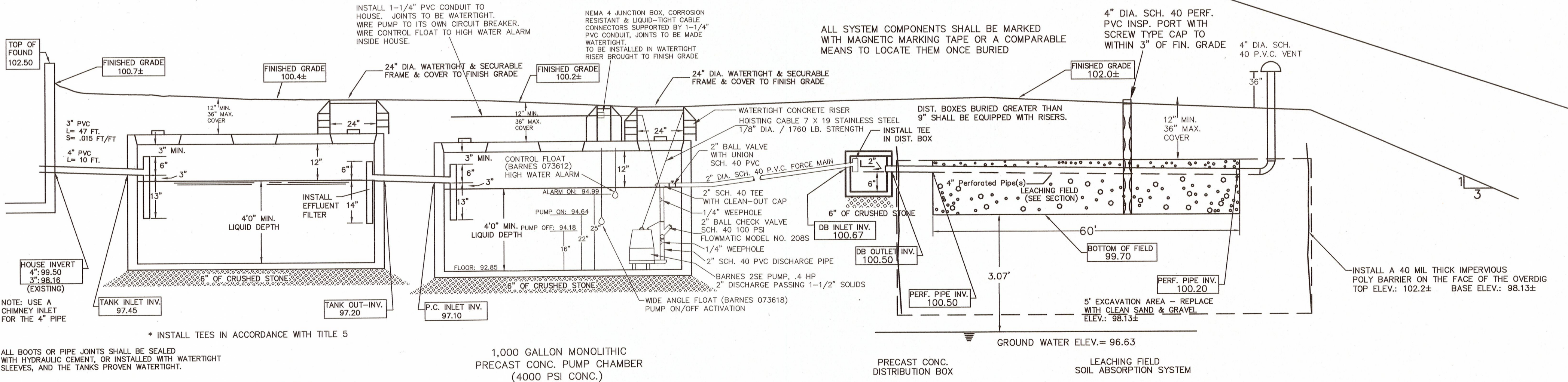
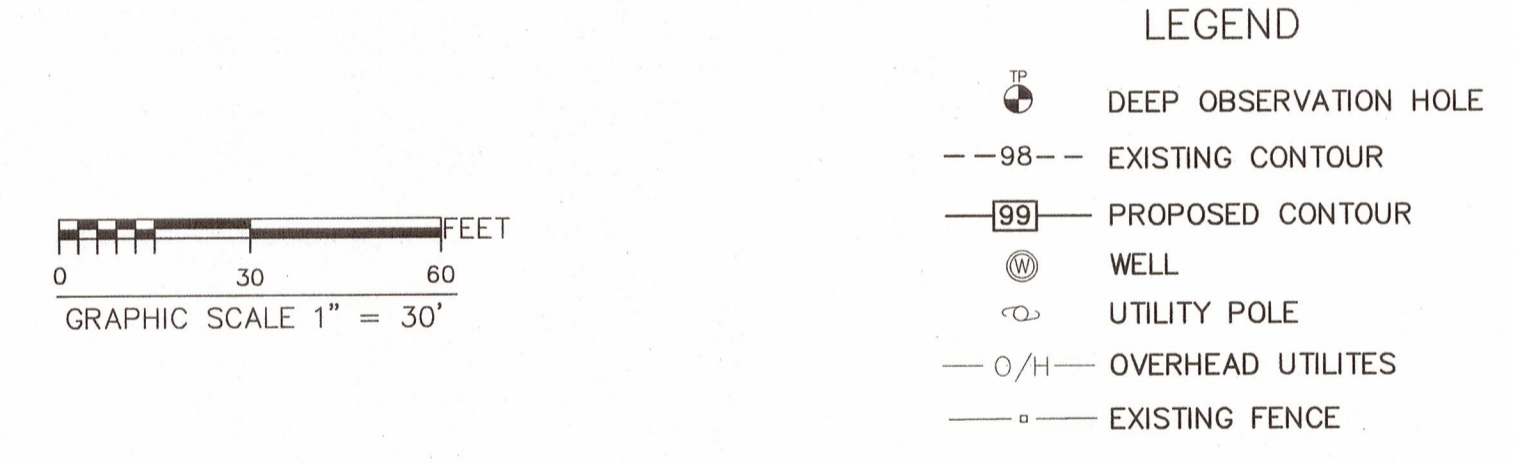
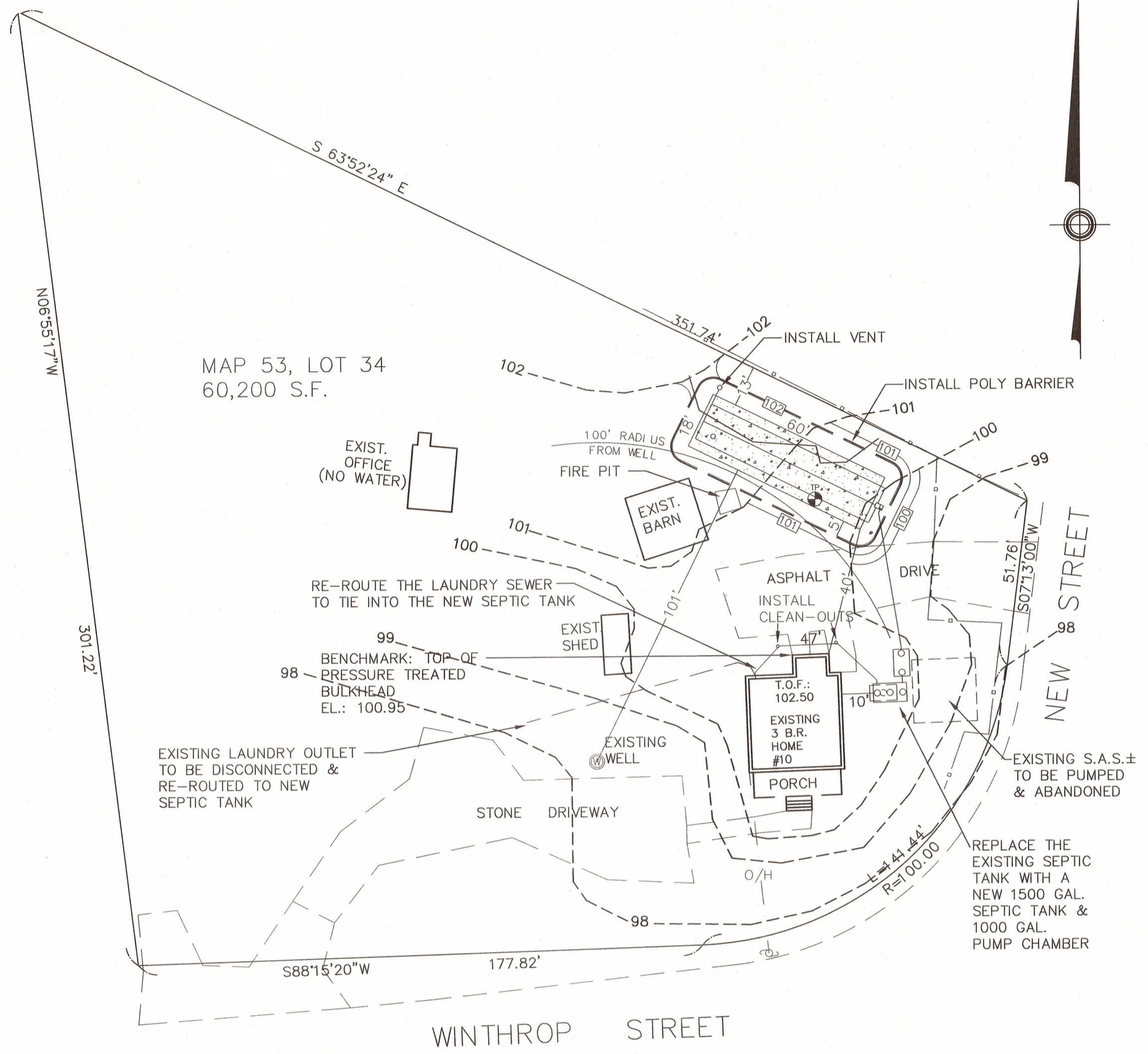
**PUMP CALCULATIONS**  
CLASS II SOIL REQUIRES 1 DOSE/DAY  
RECOMMEND 3 DOSES/DAY  
137.5 GALLONS TO BE PUMPED  
PUMP CHAMBER INSIDE DIMENSIONS:  
7.875' X 5.04' X 7.48 GAL/CF = 296 GAL/FT  
137.5/296 = 0.46' TO BE PUMPED  
ALARM FLOAT TO BE SET A MINIMUM OF 1.86' BELOW THE OUTLET ELEVATION

**HEAD LOSS**  
STATIC HEAD: 100.5 - 92.5 = 8.0'  
DYNAMIC HEAD: 2" SERV., 1" = 18", v = 3.0 FPS  
EQUIV. LENGTHS: 1 TEE: 6.6'  
1 CHECK VALVE: 12.0'  
2 ELBOWS: 5.7'  
24.3' SAY 25'  
EQUIV. LENGTH: 18' + 25' = 43'  
A = .02 SF r = .04  
h<sub>L</sub> = (3.0)<sup>1.85</sup> (43') / [(1.318)(130)]<sup>1.85</sup> (.04) = 1.07'  
TOTAL HEAD: 8' + 1.07' = 9.07' SAY 10'  
BARNES 2SE W/4.12" IMPELLER PUMPS 53 GPM @ 10'



**BUOYANCY CALCULATIONS**  
SEPTIC TANK SITS 3.68' IN WATER.  
10.83' X 5.67' X 3.68' X 62.4 LBS/CF / 2000 LBS/TON = 7.05 TONS OF UPLIFT  
SEPTIC TANK WEIGHS 5.5 TONS.  
SEPTIC TANK HAS 1.86' OF COVER.  
10.83' X 5.67' X 1.86' X 100 LBS/CF / 2000 LBS/TON = 5.71 TONS OF COVER  
5.5 TONS + 5.71 TONS = 11.21 TONS > 7.05 TONS.

PUMP CHAMBER SITS 4.03' IN WATER.  
8.38' X 5.54' X 4.03' X 62.4 LBS/CF / 2000 LBS/TON = 5.84 TONS OF UPLIFT  
PUMP CHAMBER WEIGHS 5.0 TONS.  
PUMP CHAMBER HAS 2.01' OF COVER.  
8.38' X 5.54' X 2.01' X 100 LBS/CF / 2000 LBS/TON = 4.66 TONS OF COVER  
5.0 TONS + 4.66 TONS = 9.66 TONS > 5.84 TONS.



TANKS & DIST. BOX FROM J & R PRE-CAST, INC.  
16 COUNTY STREET BERKLEY, MA 02779  
(508) 822-3311

SYSTEM PROFILE (not to scale)

10 WINTHROP STREET  
**A SEPTIC SYSTEM REPAIR IN REHOBOTH, MA FOR SAMANTHA BEST**  
DATE: JULY 1, 2021  
SENNA FITZGERALD GILBERT ASSOCIATES  
SFG ASSOCIATES, INC.  
CIVIL ENGINEERS & LAND SURVEYORS  
28 MAIN STREET LAKEVILLE, MA 02347  
(508) 946-5258 TEL./FAX: (508) 947-1090

