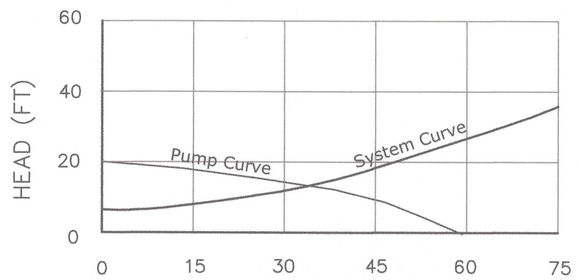
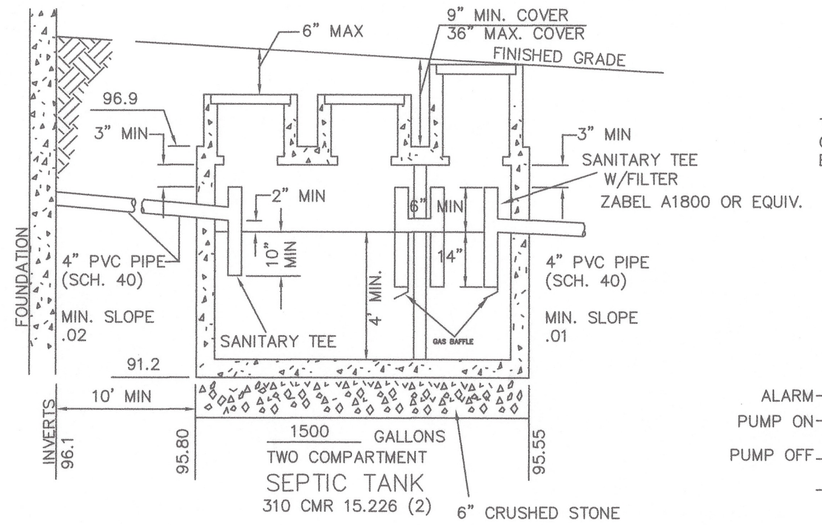
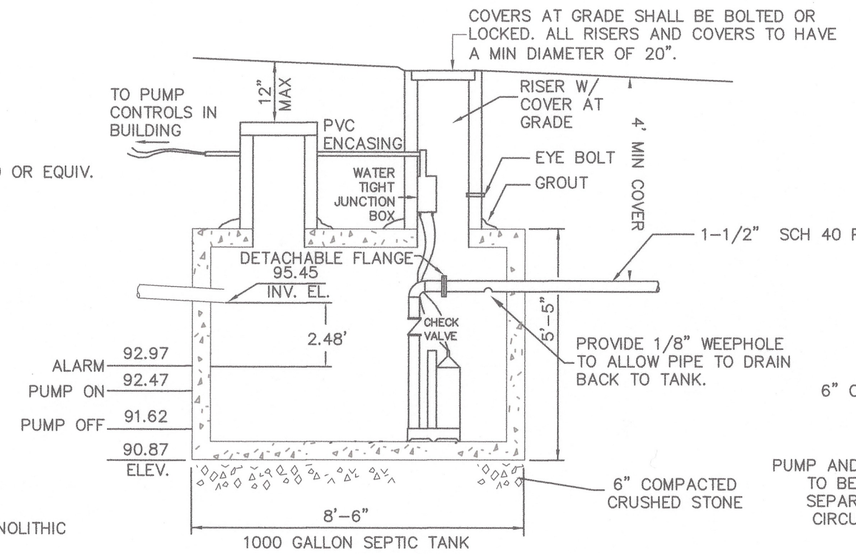


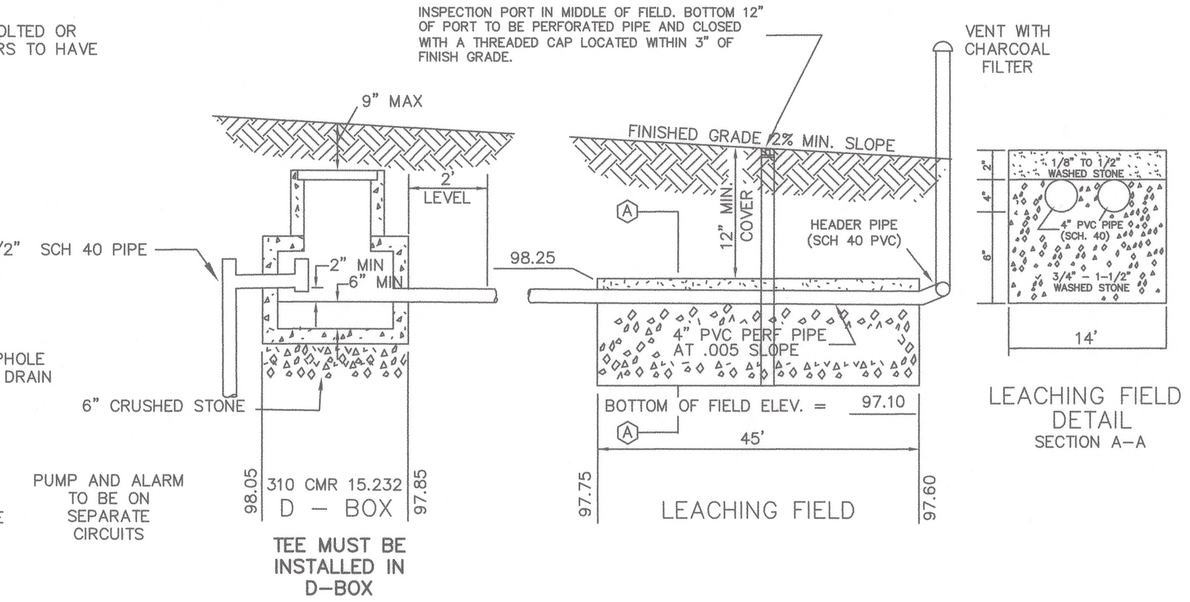
PUMP CURVE



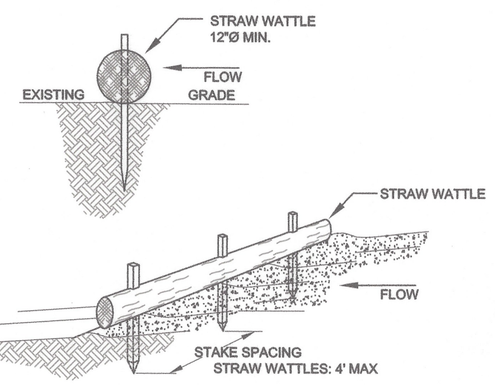
TANK AND PUMP CHAMBER TO BE MONOLITHIC



PUMP CHAMBER
(NOT TO SCALE)

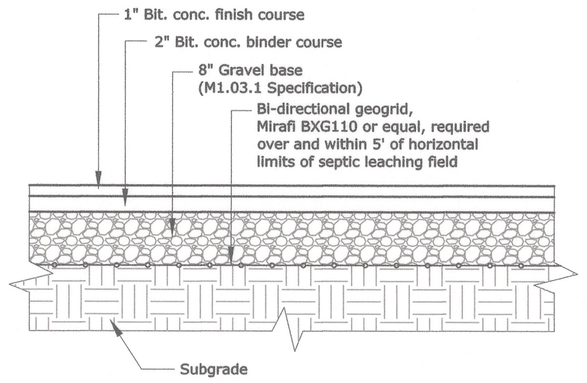


LEACHING FIELD DETAIL
SECTION A–A



NOTES:
1. INSPECT AND REPAIR STRAW WATTLE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SITE CONTRACTOR SHALL INSTALL A SILT FENCE ALONG THE DOWNHILL SIDE OF STRAW WATTLE AS FIELD CONDITIONS DICTATE.

STRAW WATTLE DETAIL
NOT TO SCALE



BITUMINOUS CONCRETE PAVING DETAIL
Cross Section
(not to scale)

CONSERVATION NOTES:

Disturbance proposed within a resource area: 1,280 sf

Disturbance proposed within 0-25' Buffer Zone: 6,700 sf

Disturbance proposed within 25'-50' Buffer Zone: 4,600 sf

Disturbance proposed within 50'-100' Buffer Zone: 2,500 sf

Disturbance proposed in a 100 year Flood Zone: none

Disturbance proposed in a Priority or Estimated Habitat Area: none

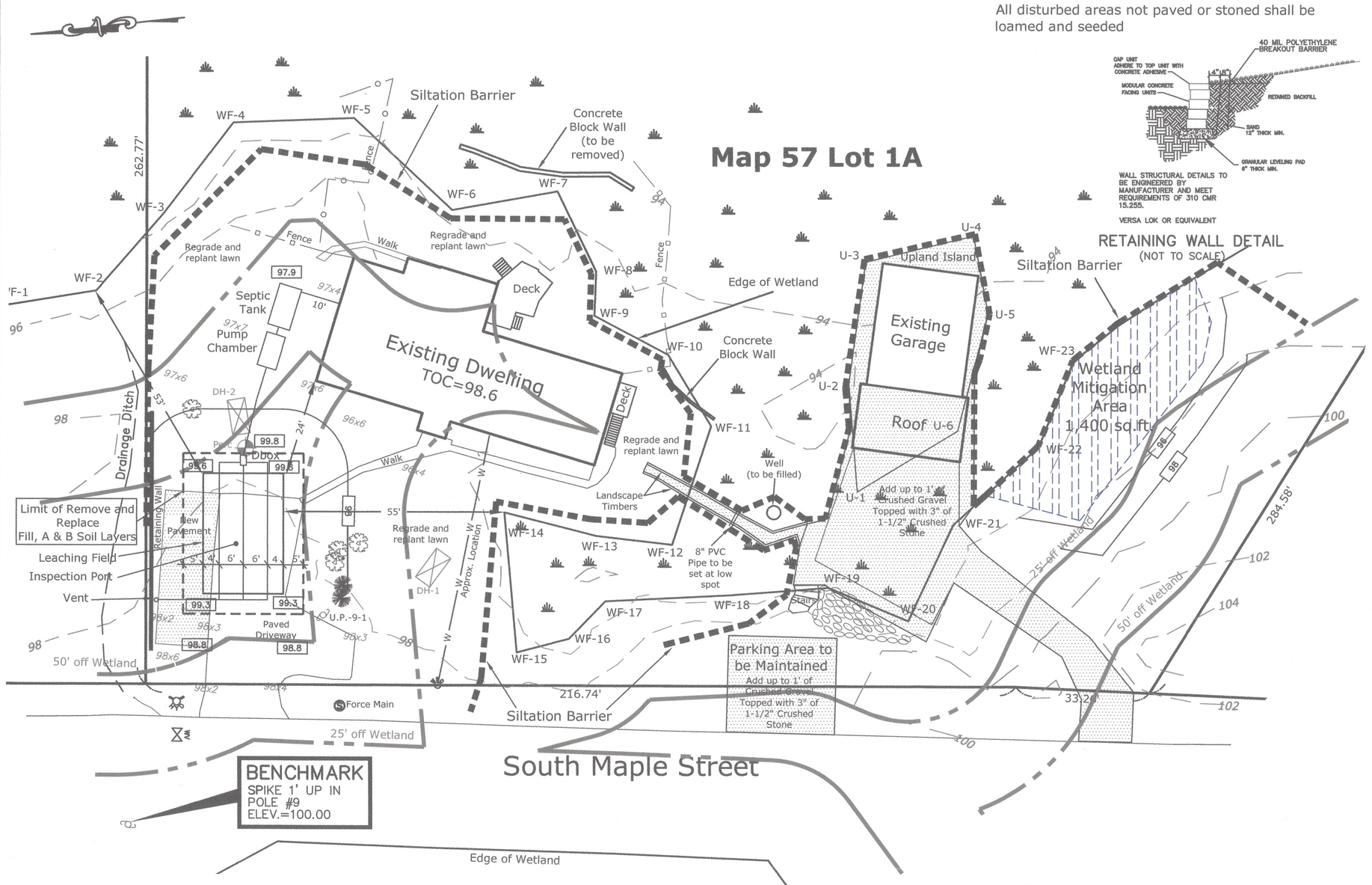
All disturbed areas not paved or stoned shall be loamed and seeded

PUMP REQUIREMENTS
MIN. VELOCITY REQUIRED IN PRESSURE LINE = 2 FT/SEC MIN.
PUMP RATE REQUIRED TO MAINTAIN VELOCITY = 19.6 GAL/MIN
PIPING LENGTH REQUIRED 23'
STATIC HEAD 6.43'
TOTAL DYNAMIC HEAD 13' AT 34 GPM
USE LIBERTY FL30 SERIES PUMP

VOLUME PUMPED= 8.00' X 4.33' X 0.85' =29.44 CF =220 GAL.
220 GAL /440 GAL /DAY = 0.5 DAYS (CYCLE TIME)
RESERVE CAPACITY= 8.00' x 4.33' x 2.48'= 85.9 CF = 642 GAL
642 GAL/DAY / 440 GAL = 1.4 DAYS

COMMONWEALTH OF MASSACHUSETTS
NORMAN G. HILL
CIVIL
No. 31887
REGISTERED PROFESSIONAL ENGINEER

DATE: 8-28-24
NORMAN G. HILL P.E. # 31887



RETAINING WALL DETAIL
(NOT TO SCALE)

Notes:

Add 2 rows on top of land scape timbers to allow grade to be elevated.

Pursuant to 310 CMR 404, the following local upgrade is being requested:

15.404(b) Groundwater separation from bottom of leaching area (4' required) (3' proposed)

PLAN & PROFILE

LEGEND

SW	STONE WALL	CB	CATCH BASIN
TL	TREE LINE	BM	BENCH MARK
SMH	SEWER MANHOLE	UP	UTILITY POLE
DMH	DRAIN MANHOLE	HYD	FIRE HYDRANT
W	WELL	PRC	PERC TEST
EC	EROSION CONTROL	DH	DEEP HOLE
90	PROPOSED CONTOUR	92.5	PROPOSED SPOT ELEV.
90	EXISTING CONTOUR	99.0	EXISTING SPOT ELEV.

ZONING

GENERAL NOTES

1. ALL ELEVATIONS REFER TO ASSUMED DATUM. SEE PLAN FOR BENCHMARK LOCATION

2. ALL CONSTRUCTION SHALL CONFORM TO 310 CMR 15.00, TITLE V AND THE REGULATION OF THE TOWN'S BOARD OF HEALTH.

3. THIS PLAN DOES NOT WARRANT OR IMPLY ANY SUBSURFACE SOIL CONDITIONS OTHER THAN THOSE OBSERVED AT THE IMMEDIATE TEST PIT LOCATIONS. IF UNSUITABLE MATERIAL IS ENCOUNTERED, ALL CONSTRUCTION SHALL CEASE, AND THE DESIGN ENGINEER SHALL BE CONTACTED IMMEDIATELY.

4. ALL TANKS, D–BOXES, AND CHAMBERS SHALL BE SET LEVEL AND TRUE TO GRADE ON A LEVEL MECHANICALLY COMPACTED STABLE BASE AND ONTO WHICH SIX INCHES OF CRUSHED STONE HAS BEEN PLACED TO MINIMIZE UNEVEN SETTLING.

5. IF THE D–BOX IS DOSED OR THE INLET SLOPE EXCEEDS 8%, AN INLET TEE SHALL BE REQUIRED.

6. AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED TO MINIMIZE EROSION. THE AREA OVER THE SYSTEM SHALL BE GRADED TO A MINIMUM OF 2% SLOPE TO PROVIDE POSITION SURFACE DRAINAGE.

7. THIS PLAN SHALL NOT BE USED FOR THE REPRODUCTION OF PROPERTY LINES, NOR SHALL IT BE USED AS A MORTGAGE PLOT PLAN OR TITLE SURVEY. CONFORMANCE TO LOCAL BYLAWS SHALL BE DETERMINED BY THE OWNER PRIOR TO CONSTRUCTION.

8. THE OWNER IS RESPONSIBLE FOR THE DETERMINATION OF THE LOCATIONS OF ALL BURIED UTILITIES.

9. FOR PROPER PERFORMANCE, THE SEPTIC TANK SHOULD BE INSPECTED AT LEAST ONCE A YEAR AND PUMPED WHEN THE TOTAL DEPTH OF SOLIDS EXCEEDS 1/4 THE LIQUID DEPTH OF THE TANK.

10. ANY ALTERATIONS MUST BE REPORTED TO THE DESIGN ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

11. THE SYSTEM MUST BE INSPECTED DURING CONSTRUCTION BY THE BOARD OF HEALTH OR ITS AGENT AND THE DESIGN ENGINEER AND BE CERTIFIED BY THE DESIGN ENGINEER.

12. NO STRUCTURE MAY BE CONSTRUCTED OVER THE RESERVE AREA.

13. CONSERVATION COMMISSION IS REQUIRED.

14. THE SYSTEM SHALL BE VENTED IF THE TRENCH LENGTH EXCEEDS 50', THE SYSTEM IS PUMPED OR DOSED, OR IS COVERED BY PAVEMENT.

15. SEE 310 CMR 15.255 FOR FILL SPECIFICATIONS. SEE 310 CMR 15.247 FOR AGGREGATE SPECIFICATION.

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

17. HYDRAULIC CEMENT IS REQUIRED TO SEAL ALL CONNECTIONS AT THE SEPTIC TANK AND DISTRIBUTION BOX.

18. WATER SOFTENERS ARE NOT TO BE CONNECTED TO THE SEPTIC TANK.

19. NO IRRIGATION SYSTEMS ARE ALLOWED OVER THE SEPTIC TANK OR D–BOX

SOIL TEST DATA

TEST PERFORMED BY: WILLIAM HALSING #2823

TEST WITNESSED BY: STEVEN DONATELLI

DATE PERFORMED: 2/27/24

DH-1

Ground Elevation: 96.5

0-36"	fill	
36-48"	A	10YR3/2, sandy loam, granular, friable
48-60"	B	10YR6/2, sandy loam, blocky, friable
60-110"	C	10YR7/1, loamy sand, massive, very friable

Weeping and Redoximorphic Features at: 94.0 (30")

DH-2

Ground Elevation: 97.7

0-32"	fill	
32-36"	A	10YR3/2, sandy loam, granular, friable
36-44"	B	10YR6/2, sandy loam, blocky, friable
44-96"	C	10YR7/1, loamy sand, massive, very friable

Weeping and Redoximorphic Features at: 92.37 (64")

Percolation Rate: 5 minutes per inch

DESIGN DATA

TYPE OF BUILDING: Duplex Dwelling
NO. OF BEDROOMS: 4

LTAR 0.74
DESIGN FLOW: 4 X 110 GAL = 440
SEPTIC TANK VOLUME: 1500 GAL
FLOW/RATE = SQUARE FOOT REQUIRED: 440/0.74
MIN.LEACHING AREA REQUIRED: 595

NO GARBAGE GRINDER ALLOWED
DESIGN PERC RATE: 5 mpi
TOTAL LEACHING AREA = (L x W)
30' x 20' = 600
TOTAL LEACHING RATE= 444 GAL/DAY
TOTAL LEACHING AREA= 600 SF

DESIGN ELEVATIONS

TOP OF FOUNDATION	98.6	INV @ SEPTIC TANK OUTLET	95.55
CELLAR SLAB		INV @ PUMP CHAMBER INLET	95.45
INV @ FOUNDATION	96.1	INV @ D–BOX INLET	98.05
INV @ SEPTIC TANK INLET	95.80	INV @ D–BOX OUTLET	97.85
INV @ BEGINNING OF FIELD	97.75		
INV @ END OF FIELD	97.60		
TOP OF FIELD	98.25		
BOTTOM OF FIELD	97.10		

SITE PLAN/REPAIR OF SUBSURFACE SEWAGE DISPOSAL SYSTEM

CLIENT:	LOCATION:
Thiago Silva 3 Gordon Drive Milford, MA 01757	38 South Maple Street Bellingham, MA

DATE:	8/7/24	SCALE:	1"=20'	DESIGNED BY:	WDH
DRAWING NO.:	1 of 1	JOB NO.:	B2909	CHECKED BY:	NGH

#	DATE	REVISION DESCRIPTION	DRAWN	CHK

LAND PLANNING, INC.
CIVIL ENGINEERS • LAND SURVEYORS
ENVIRONMENTAL CONSULTANTS
167 HARTFORD AVENUE
BELLINGHAM, MA 02019
508–966–4130 FAX: 508–966–5054

JOB NO: B2909