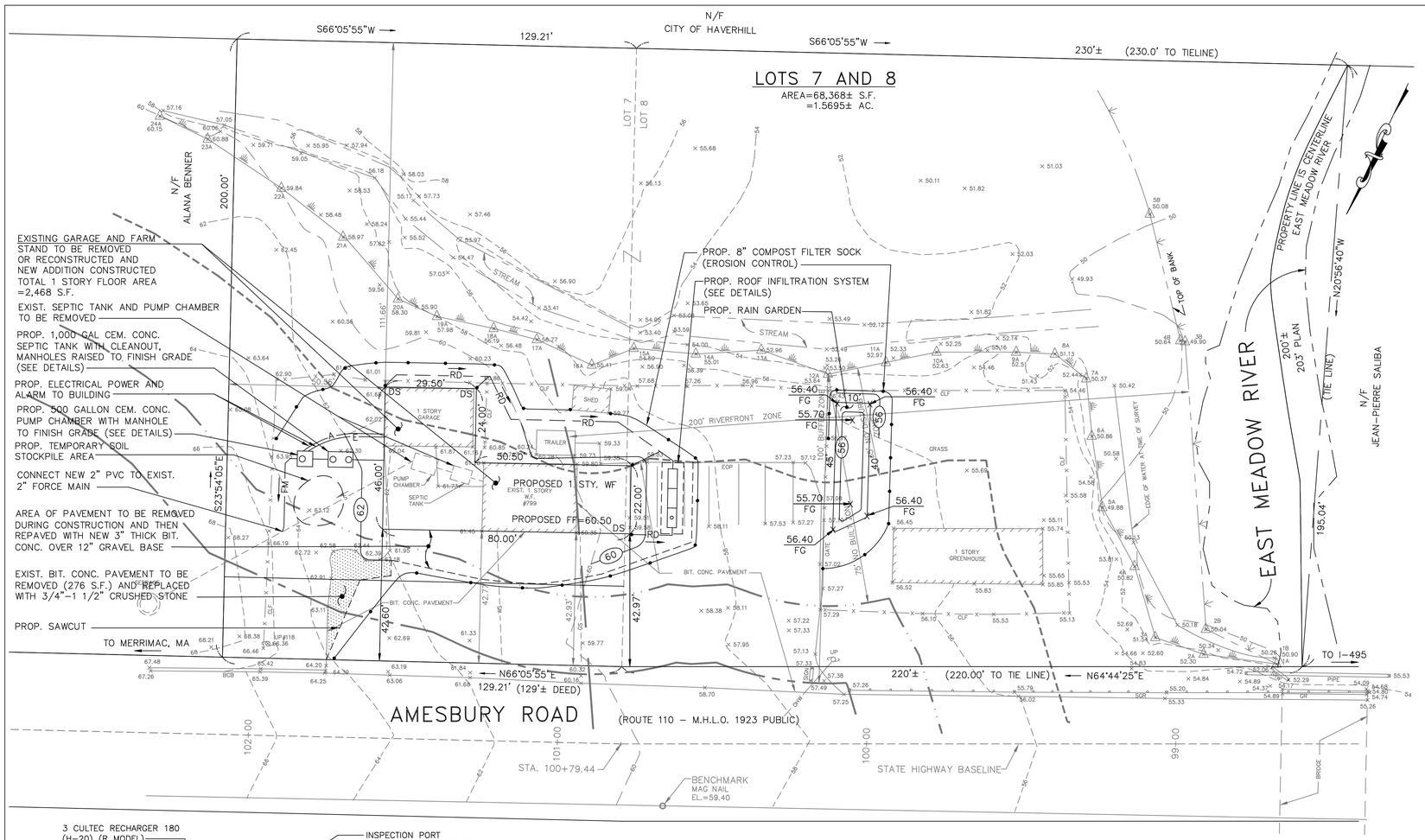


RAIN GARDEN CALCULATIONS AND REQUIREMENTS

A–1" RUNOFF X 7900 S.F. X 0.19 SANDY SOILS (DEP FACTOR) =120.08 C.F. REQUIRED

B–AREA OF RAIN GARDEN PROPOSED=425 S.F.

C–REQUIRED AVERAGE DEPTH OF RAIN GARDEN (MINIMUM) 120.08 C.F./425 S.F.=0.28=3 1/2" MIN.

D–SOIL IN RAIN GARDEN TO BE 50% SAND, 30% TOPSOIL, 20% SHREDDED BARK MULCH TO A DEPTH OF 8" BELOW THE FINISH GRADES SHOWN ON THE PLAN

E–PLANTS TO BE PLANTED SHALL BE FROM THE LIST "NATIVE PLANTS FOR RAIN GARDENS IN MASSACHUSETTS" AVAILABLE FROM MASS.GOV WEB SITE AS WAS PUBLISHED JULY 2022, PLANTED TO A DENSITY COVERING 50% OF THE AREA WITH SHRUBS AND TREES, REMAINDER IN GRASS AND PERENNIALS.

DESIGN NOTES

1–ROOF RUNOFF CALCULATIONS
STORAGE REQUIRED = 1/2"/12" x 2468 S.F. = 102.83 C.F.
STORAGE PROVIDED = 3 CULTEC CHAMBERS @ 25.2 CF EA = 75.6 C.F.
VOLUME STONE = ((22.99 x 7 x 2.21) – 75.6) x 0.4 = 112.02 C.F.
TOTAL STORAGE 75.6 C.F. + 112.02 C.F. = 187.62 C.F.
187.62 C.F. > 102.83 C.F.

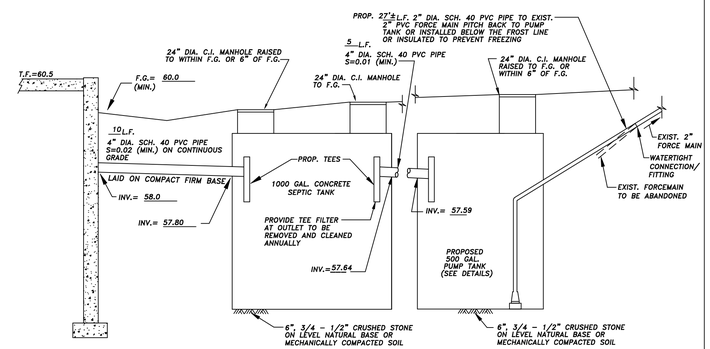
2–PRIOR TO ANY CONSTRUCTION PLACE EROSION CONTROL ON SITE AND MAINTAIN UNTIL SITE IS REPAVED AND GRASS STAND ESTABLISHED.

3–ALL NON PAVED DISTURBED AREAS TO BE 4" LOAM AND SEED OR SOD.

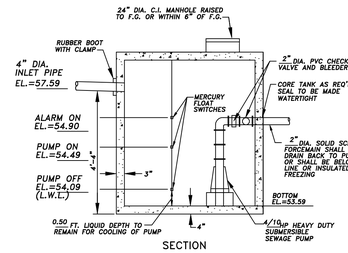
4–ALL WORK SHALL CONFORM TO CITY OF HAVERHILL STANDARDS.

5–SEPTIC SYSTEM CAPACITY DESIGNED FOR 300 GPD PER DESIGN APPLICATION AND PLANS ON FILE WITH HAVERHILL BOARD OF HEALTH. ACTUAL SEPTIC USE FLOW=60 GPD BASED ON 4 EMPLOYEES PART AND FULL TIME.

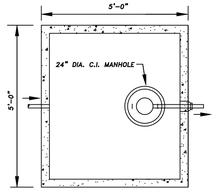
6–EXISTING WATER SERVICE AND GAS SERVICE SHALL BE DISCONNECTED PRIOR TO SITE DEMOLITION THEN RECONNECTED TO THE NEW BUILDING AS PART OF BUILDING CONSTRUCTION WORK.



PROFILE



SECTION



PLAN VIEW

500 GALLON PUMP CHAMBER DETAIL

N.T.S.

PUMP NOTES (PUMP TANK CONSTRUCTION AND INSTALLATION SHALL CONFORM TO 310 CMR 15.231)

1.) PUMP SHALL BE 4/10 H.P. SEWAGE PUMP CAPABLE OF PASSING 2" DIA. SOLIDS AS MFG. BY LIBERTY PUMPS, BERGEN, N.Y., 85 GPM @ 12.5 TDH OR APPROVED EQUAL (LS 40 SERIES)

2.) PUMP SHALL BE INSTALLED ACCORDING TO MFG. SPECS & RECOMMENDATIONS.

3.) HIGH WATER ALARM & MANUAL OPERATING SWITCH SHALL BE INSTALLED IN ACCESSIBLE LOCATION INSIDE THE BUILDING AND IN COMPLIANCE WITH LOCAL BLDG. CODE

4.) ALARM SHALL BE POWERED BY A CIRCUIT SEPARATE FROM THE PUMP POWER.

5.) ALL INLETS & OUTLETS SHALL BE SEALED WITH HYDRAULIC CEMENT OR RUBBER BOOTS

6.) PUMP CHAMBERS SHALL BE SEALED AND SHALL BE WATERTIGHT.

7.) EMERGENCY STORAGE ABOVE "ALARM ON" = 2.69 X 151.4 GAL./FT. = 407.27 GAL./DAY. SUFFICIENT FOR MORE THAN 24 HR. STORAGE

8.) PUMP IS SET TO DOSE SAS 1 TIME PER DAY.

PUMP CHAMBER NOTES

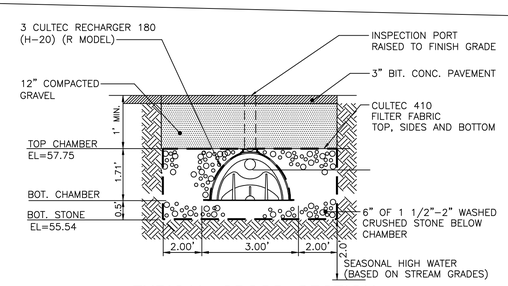
1.) CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.

2.) DESIGN CONFORMS WITH 310 CMR 15.000, DEP TITLE 5 REGS, FOR PUMP CHAMBERS.

3.) ALL REINFORCEMENT PER ASTM C1227.

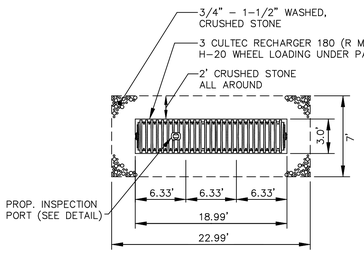
4.) JOINT SEALED WITH BUTYL RESIN.

5.) IF COVER EXCEEDS 4 FEET, HEAVY DUTY TANK REQUIRED.



TYPICAL CROSS SECTION ROOF INFILTRATION SYSTEM

N.T.S.



ROOF INFILTRATION SYSTEM

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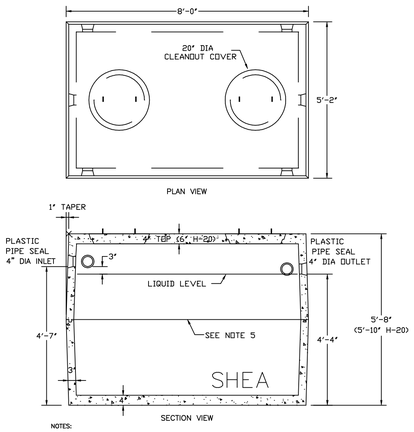

1,000 GALLON SEPTIC TANK DETAIL

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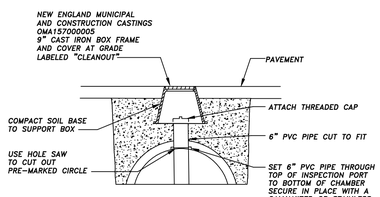
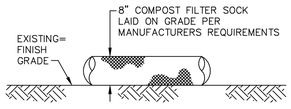


INSPECTION PORT TYPICAL INSTALLATION DETAIL

N.T.S.



COMPOST FILTER SOCK

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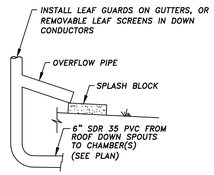

ROOF LEADER DETAIL

N.T.S.

SITE CONSTRUCTION PLAN

799 AMESBURY ROAD
IN
HAVERHILL, MA
PREPARED FOR
PETER LESICZKA, TRUSTEE OF THE LESICZKA IRREVOCABLE TRUST
49 CORLISS HILL ROAD
HAVERHILL, MASSACHUSETTS 01830

DATE: MARCH 11, 2026

SCALE: 1"=20'

0' 10' 20' 40' 60'

MERRIMACK ENGINEERING SERVICES
66 PARK STREET
ANDOVER, MASSACHUSETTS 01810
PHONE: (978) 475-3555 FAX: (978) 475-1448
EMAIL: MERRENG@AOL.COM

15848/SD/15848SD02.DWG 3/11/26