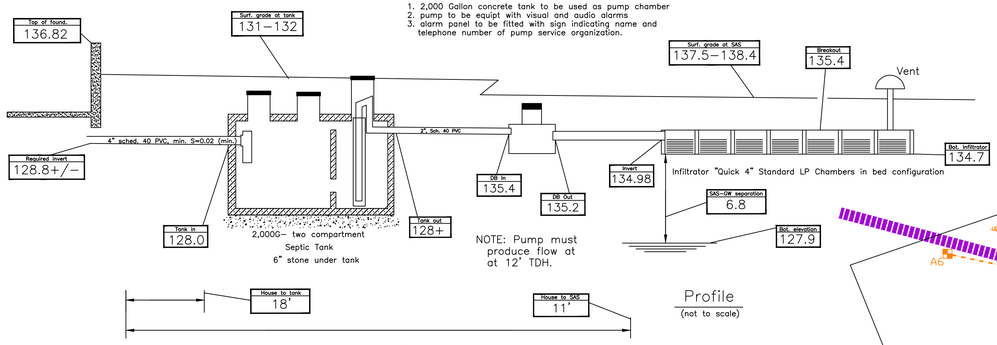
Pump Chamber Notes:

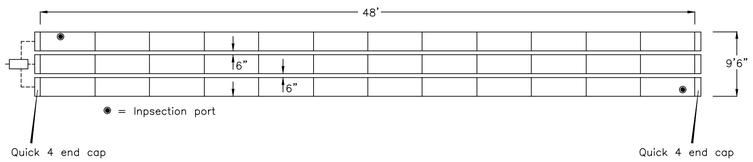
1. 2,000 Gallon concrete tank to be used as pump chamber
2. pump to be equipt with visual and audio alarms
3. alarm panel to be fitted with sign indicating name and telephone number of pump service organization.



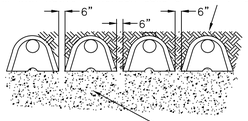
NOTE: Pump must produce flow at at 12' TDH.

Profile
(not to scale)

NOTE: All elevations referenced to 138.17' BENCH at magnetic nail in street (NAVD)



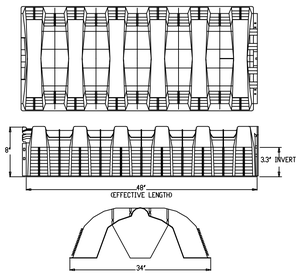
Backfill with native C horizon soils or "Title V" Spec. sand



"Title V" Spec. sand (see note #9), from bottom of overdig to base of Infiltrator chamber

Infiltrator "Quick-4" Standard LP Chamber

SAS Detail
(not to scale)



Soil Logs

Elevation (Feet)	Observation Hole #1				
	Perk Rate = <2 min/in (@ 135')				
137.9	Depth (inches)	Soil Horizon	Soil Texture	Soil Color	Soil Mottling
136.9	0–12	A	Loamy Sand	10 YR 3/2	None
135.7	12–26	B	Loamy Sand	10 YR 4/6	None
127.9	26–120	C	V. Grav. Sand	2.5 Y 5/3	None

Elevation (Feet)	Observation Hole #2				
	Perk Rate =				
137.6	Depth (inches)	Soil Horizon	Soil Texture	Soil Color	Soil Mottling
136.6	0–12	A	Loamy Sand	10 YR 3/2	None
135.4	12–26	B	Loamy Sand	10 YR 4/6	None
127.6	26–120	C	V. Grav. Sand	2.5 Y 5/3	None

Calculations:

1. 4 bedrooms, no disposal
2. Est. Day Flow (EDF) = # B.R. x 110 G/Day
   EDF = 440 Gallons per day
3. Perk rate = <2 min/inch, Class I soil (see soil logs)
   Effluent Loading (ELR) = 0.74 G/s.f.
4. Septic Tank – 2 X EDF with 1,500 G minimum
   440 X 2 = 880 Gallons, use 1,500 Gallon tank
5. Soil Absorption System (SAS)
   SAS size required = EDF/ELR
   (440 G)/(0.74 G/s.f.) = 595 s.f.
   Infiltrator Quick4 Plus Standard LP Chamber
   in bed configuration = 4.73 s.f/l.f.
   595 s.f/4.73 s.f./l.f. = 125.7 l.f.
   @ 4 l.f./unit = 31.4 units
   Use 6 rows of 6 units each (36 units total)

Proposed:

1. 2,000 gallon, two compartment tank (waterproofed, monolythic, extended base)
2. Orenco Biotube pump vault and simplex effluent pump package
3. Distribution box
4. 36 Infiltator units in bed configuration (6 rows of 6) as illustrated on SAS detail

SAS Tie–in Data

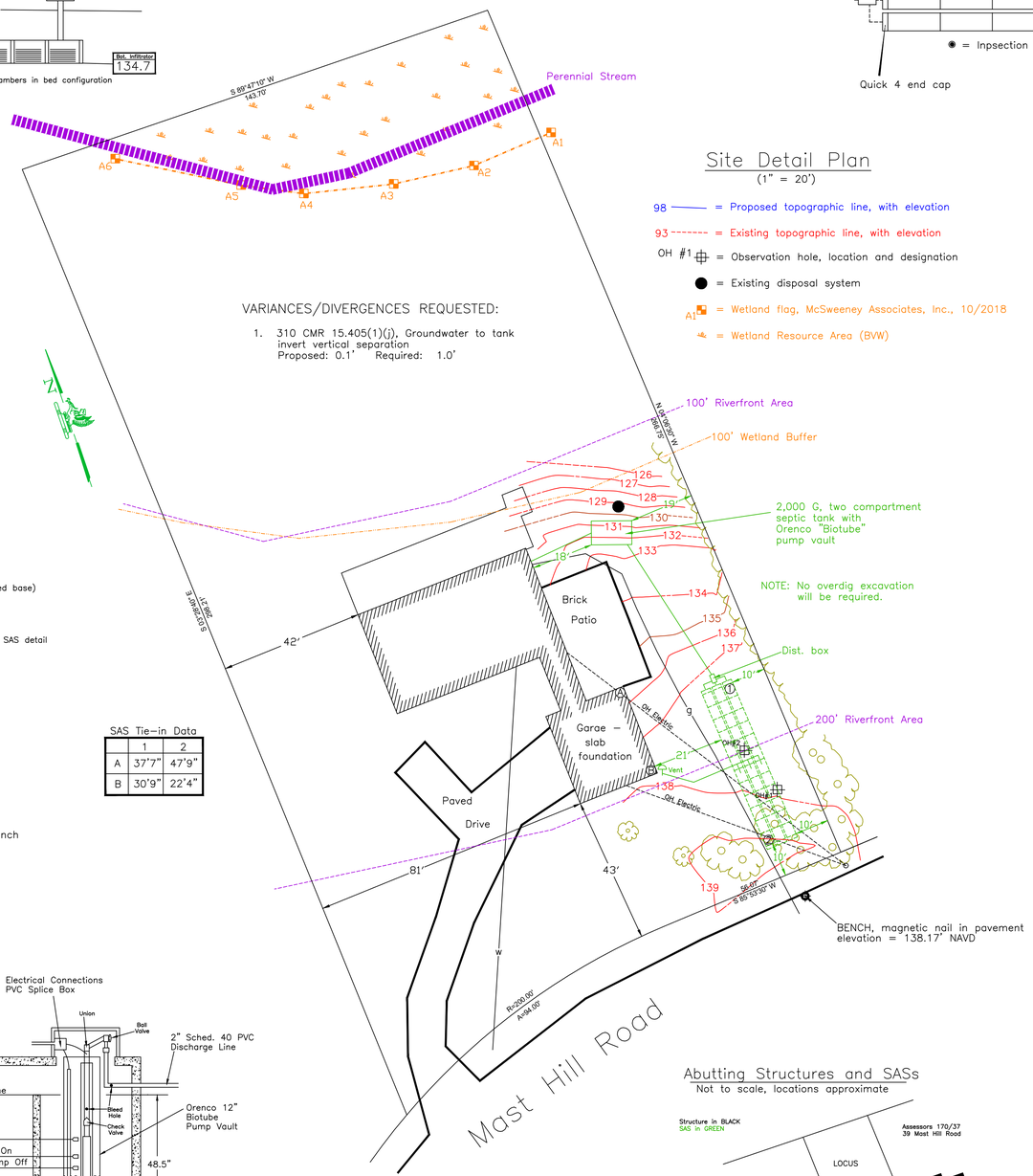
	1	2
A	37'7"	47'9"
B	30'9"	22'4"

Pump Chamber Calculations:

1. 2,000 gallon tank with 48.5 working area = 41.2 G/inch
2. Dose volume = 100 G
   Pump–on to pump–off elevation drop = 3"'
   at 41.2 G/inch, 3" = 124 G
4. Alarm–on to tank–in invert elevation increase
   equals 11.5". At 41.2 G/inch
   11.5" = 474 G (minimum of 440 G required)

VARIANCES/DIVERGENCES REQUESTED:

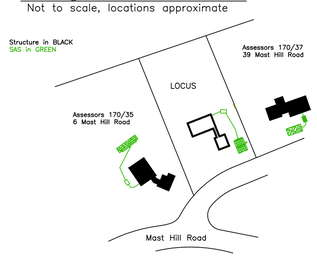
1. 310 CMR 15.405(1)(j), Groundwater to tank
   invert vertical separation
   Proposed: 0.1' Required: 1.0'



Site Detail Plan
(1" = 20')

98 ——— = Proposed topographic line, with elevation
93 - - - - - = Existing topographic line, with elevation
OH #1 = Observation hole, location and designation
● = Existing disposal system
A1 = Wetland flag, McSweeney Associates, Inc., 10/2018
= Wetland Resource Area (BVW)

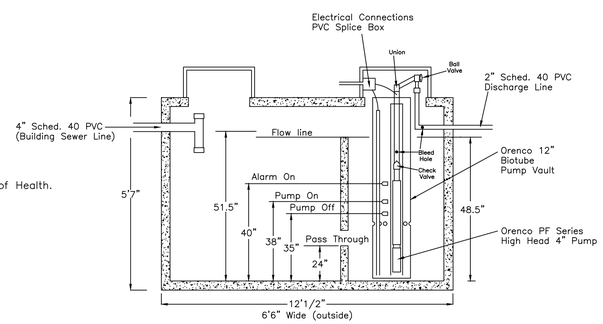
Abutting Structures and SASs
Not to scale, locations approximate



NOTE: Compiled from Board of Health and Assessors Department records

Notes:

1. On 9/19/2018 soil tests were made, as shown here, by Terence McSweeney, a Massachusetts Department of Environmental Protection (DEP) approved Soils Evaluator, with B. Nee observing for the Board of Health. The logs of these tests are as follows, with location as #1 and #2 on this plan.
2. All stone to be washed free of iron, fines, and dust. All "structures" to be precast concrete. All pipes to be P.V.C. Schedule 40, laid true to line and grade. All "structures" under pavement to be H–20 loading with cast iron covers and frames, set to grade, on all manholes.
3. The existing SAS is to be abandoned and disposed of to the satisfaction of the health authority.
4. It is the responsibility of the home owner to advise the site engineer of the location of all house plumbing prior to construction of the system.
5. No part of the proposed system shall be buried greater than 3' below the surface of the ground.
6. All work to conform to these plans, Title 5 of the Environmental Code (310 CMR 15.00 et. seq.) and supplementary regulations of the Hingham Board of Health.
7. House plumbing to be set to the grades specified on this plan, as necessary, with a pipe slope minimum of 0.01.
8. All unsuitable material below breakout elevation of 135.4' is to be removed and replaced with material suitable to the health authority, for 5'around SAS. Fill specifications are as follows ("overdig"):
   1. No material is larger than 2".
   2. Not more than 45% is retained on #4 sieve.
   3. For the material which passes the #4 sieve, the following limits apply:
      #50 sieve 10 – 100% passing
      #100 sieve 0 – 20% passing
      #200 sieve 0 – 5% passing
   4. Results of sieve analysis submitted to Board of Health for approval prior to instalation.
9. Property line information as depicted on this plan is to be used for Title V purposes only.



2,000 Gallon two chamber tank

Pembroke Concrete Products, Inc.
Pembroke, MA (or approved equal)

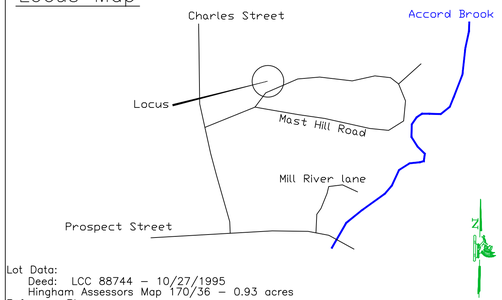
I certify that in the fall of 1997 I was approved by the Mass. Department of Environmental Protection as a Soils Evaluator and that the soils analysis contained herein was preformed by me consistent with the training, expertise, and experience described in 310 CMR 15.018(2).

Terence McSweeney — Date

I certify that there are no wells known to me, or reported to be within 500 feet of this proposed SAS, other than those shown on this plan. Public water suppy wells in the area, location and distance from locus, are shown herein.

Terence McSweeney, R.S.

Locus Map



Lot Data:
Deed: LCC 88744 – 10/27/1995
Hingham Assessors Map 170/36 – 0.93 acres
Reference Plan:
L.W. Perkins and Sons, Surveyors, 12/10/1962
Plan #2166E, Plymouth County Land Court

Revisions:

12/11/2018 – per BoH review (TM)
4/8/2019 – Change field configuration (TM)
7/23/2020 – Permit renewal (TM)

McSweeney Associates, Inc.
McS
Environmental Engineering
745 Winter Street, Hanson, MA 02341
Thomas F. McSweeney 1898–1977
Brian McSweeney 1923–2015
Terence K. McSweeney 781–826–4571
Colin T. McSweeney 781–570–9381

Proposed Septic System
41 Mast Hill Road
Hingham, Massachusetts

Job Reference:	Pohl
Scale:	As Noted
Date:	10/17/2018
Drawn By:	T McS
Checked By:	C McS