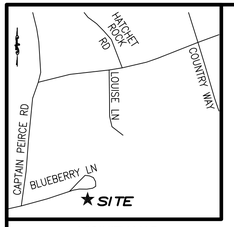


VICINITY MAP
NO SCALE

SOIL TEST DATA

SOIL TESTING AND EVALUATION BY: GREGORY J. MORSE, P.E., S.E. #2906
SOIL TESTING WITNESSED BY: PHIL SPATH, P.E.
DATE: FEBRUARY 15, 2024

TP–1	APPROX. GRADE EL. 86.5	
	A HORIZON SANDY LOAM 10YR 3/3	
EL. 85.5		12"
	B HORIZON SANDY LOAM 10YR 5/6	
EL. 83.8		32"
	C HORIZON SANDY LOAM 2.5Y 5/6	
EL. 79.0		90"

WEEPING OBSERVED: NONE
MOTTLING OBSERVED: 50"
PERC. RATE: 18 MPI @ 36–54"
ESHGW: 50" (EL. 82.3)

TP–2	APPROX. GRADE EL. 89.1	
	A HORIZON SANDY LOAM 10YR 3/3	
EL. 88.1		12"
	B HORIZON SANDY LOAM 10YR 5/6	
EL. 86.3		34"
	C HORIZON SANDY LOAM 2.5Y 5/6	
EL. 81.4		92"

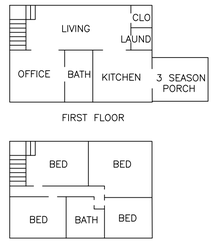
WEEPING OBSERVED: NONE
MOTTLING OBSERVED: 42"
PERC. RATE: NONE
ESHGW: 42" (EL. 85.6)

TP–3	APPROX. GRADE EL. 89.2	
	A HORIZON SANDY LOAM 10YR 3/3	
EL. 88.4		10"
	B HORIZON SANDY LOAM 10YR 5/6	
EL. 86.9		28"
	C HORIZON SANDY LOAM 2.5Y 5/6	
EL. 81.7		90"

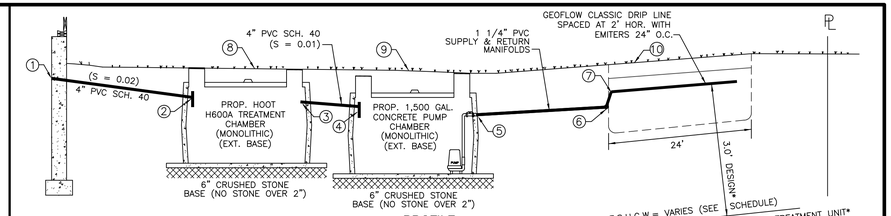
WEEPING OBSERVED: NONE
MOTTLING OBSERVED: 50"
PERC. RATE: 2 MPI @ 0–18"*
ESHGW: 50" (EL. 85.0)

*PERC TEST WITHIN TP–3:
SOIL TESTING AND EVALUATION BY: JAMES D. GARFIELD, P.E., S.E. #14162
SOIL TESTING WITNESSED BY: PHIL SPATH, P.E.
DATE: FEBRUARY 29, 2024

DIG SAFE
MA – RI – ME – NH – VT
CALL
TOLL FREE
1–888–344–7233
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM



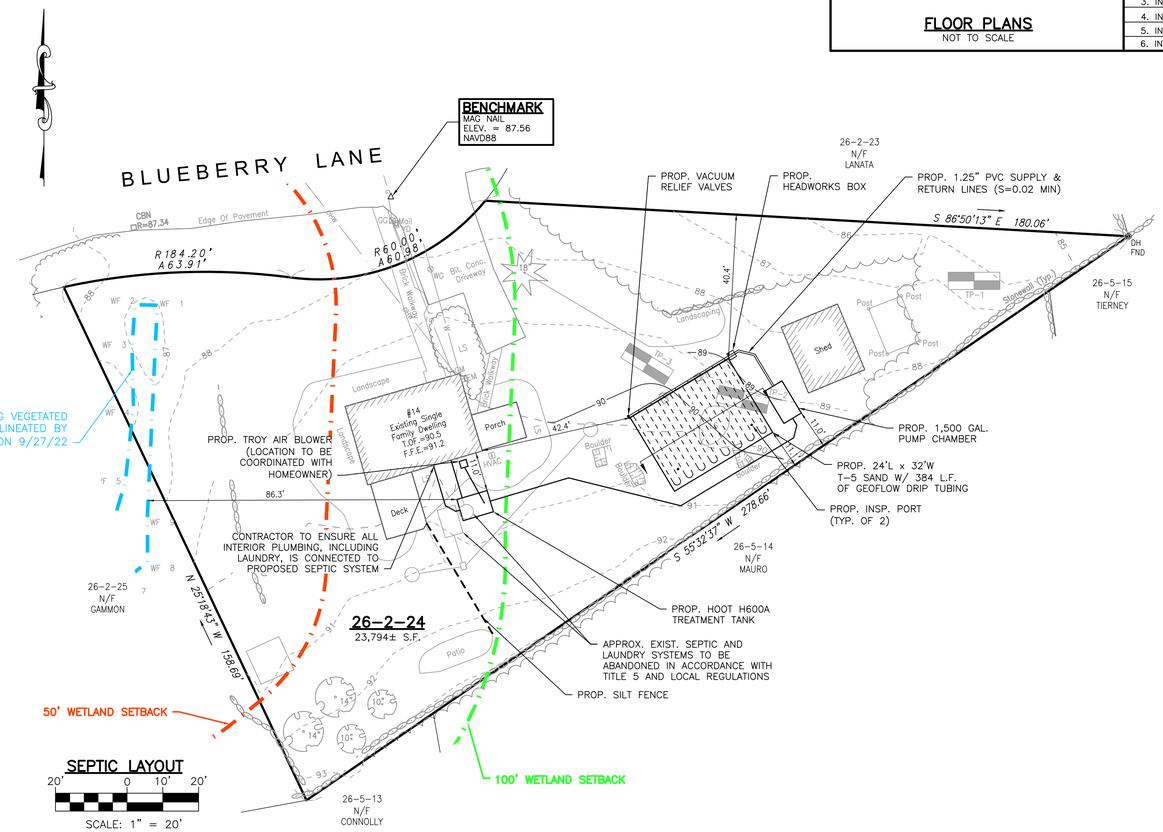
FLOOR PLANS
NOT TO SCALE

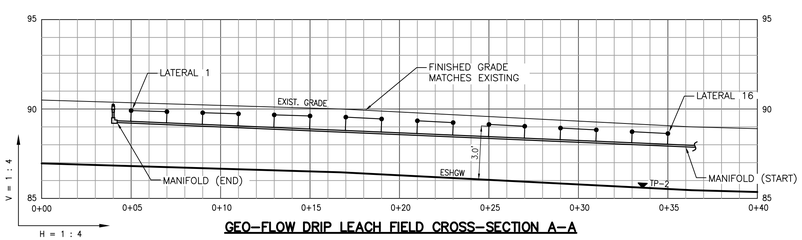


PROFILE
NOT TO SCALE

SCHEDULE OF ELEVATIONS

1. INV. OF PIPE AT FOUNDATION = 88.3± (CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION)	7. INV. OF GEO–FLOW DRIP PIPING = VARIES (SEE SCHEDULE)
2. INV. OF PIPE AT HOOT TANK INLET = 88.00	8. FINISHED GRADE OVER HOOT TANK = 89.8 (MIN) – 92.0 (MAX)
3. INV. OF PIPE AT HOOT TANK OUTLET = 87.83	9. FINISHED GRADE OVER PUMP CHAMBER = 88.5 (MIN) – 90.8 (MAX)
4. INV. OF PIPE AT PUMP CHAMBER INLET = 86.50	10. FINISHED GRADE GEO–FLOW PIPING = VARIES (SEE SCHEDULE)
5. INV. OF PIPE AT PUMP CHAMBER OUTLET = 86.75	
6. INV. OF PIPE AT 1 1/4" SUPPLY & RETURN MANIFOLD = VARIES (SEE SCHEDULE)	





GEO–FLOW DRIP LEACH FIELD CROSS–SECTION A–A

GEO–FLOW DRIP LEACH FIELD SCHEDULE OF ELEVATIONS

DESCRIPTION	INV.	FINISHED GRADE
MANIFOLD (END)	89.24	N/A
DRIP LATERAL 1	89.81	90.3–90.8
DRIP LATERAL 2	89.75	90.3–90.8
DRIP LATERAL 3	89.69	90.2–90.7
DRIP LATERAL 4	89.63	90.1–90.6
DRIP LATERAL 5	89.57	90.1–90.6
DRIP LATERAL 6	89.51	90.0–90.5
DRIP LATERAL 7	89.45	90.0–90.5
DRIP LATERAL 8	89.34	89.8–90.3
DRIP LATERAL 9	89.24	89.7–90.2
DRIP LATERAL 10	89.14	89.6–90.1
DRIP LATERAL 11	89.04	89.5–90.0
DRIP LATERAL 12	88.94	89.4–89.9
DRIP LATERAL 13	88.83	89.3–89.8
DRIP LATERAL 14	88.73	89.2–89.7
DRIP LATERAL 15	88.63	89.1–89.6
DRIP LATERAL 16	88.53	89.0–89.5
MANIFOLD (START)	87.88	N/A

I/A TECHNOLOGY CREDIT

1. TO ALLOW A REDUCTION FROM 5–FT TO 3–FT OF SEPARATION BETWEEN THE BOTTOM OF THE SAS AND THE SEASON HIGH GROUNDWATER TABLE.
2. TO ALLOW A 2–FT MINIMUM DEPTH OF NATURALLY OCCURRING PERVIOUS MATERIAL. (A & B HORIZONS)

DESIGN DATA

1. BUILDING TYPE: SINGLE FAMILY DWELLING
2. NUMBER OF BEDROOMS: 4
3. DESIGN FLOW: 4 x 110 GPD/BEDROOM = 440 GPD (GALLONS PER DAY)
4. DESIGN PERCOLATION RATE: 2 MPI (TP–3)
5. GARBAGE DISPOSAL: NO
6. SEPTIC TANK DESIGN REQUIREMENT: 200% DESIGN FLOW
   440 x 2 = 880 GAL. (PROVIDE NEW HOOT H600A TREATMENT TANK)
7. LEACH AREA REQUIREMENTS (GALLONS PER DAY / SQUARE FOOT)
   BOTTOM: 0.74 GPD/S.F. SIDE: 0.74 GPD/S.F.
8. TOTAL LEACH AREA REQUIRED:
   TITLE 5: 440 GPD / (0.74 GPD/S.F.) = 595 S.F.
   PROVIDED AREA: 32'W X 24'L GEO–FLOW DRIP IRRIGATION SAND BED
   768 S.F. T5 SAND WITH 384 L.F. DRIP TUBING

GENERAL NOTES

1. SEPTIC SYSTEM INSTALLATION CONTRACTORS SHALL BE LICENSED BY THE BOARD OF HEALTH AND MUST COMPLY WITH ALL REQUIREMENTS OF THE BOARD OF HEALTH DISPOSAL WORKS CONSTRUCTION PERMIT AND ANY CONDITIONS, IF ISSUED BY THE CONSERVATION COMMISSION.
2. ALL CONSTRUCTION MUST COMPLY WITH TITLE 5 OF THE STATE ENVIRONMENTAL CODE 310 CMR 15 & THE ANY LOCAL BOARD OF HEALTH SUPPLEMENTAL REGULATIONS.
3. THERE SHALL BE NO CHANGES MADE IN THIS PLAN WITHOUT THE WRITTEN PERMISSION OF THE BOARD OF HEALTH AND DESIGN ENGINEER.
4. ANY CHANGE IN SITE CONDITIONS, DISCREPANCIES, ERRORS OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF MORSE ENGINEERING PRIOR TO THE COMMENCEMENT OF WORK.
5. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH TITLE 5 (310 CMR 15) AND THE LOCAL BOARD OF HEALTH REQUIREMENTS TO THE FULLEST EXTENT PRACTICABLE. NO GUARANTEE TO THE SYSTEMS PERFORMANCE IS EXPRESSED OR IMPLIED.
6. SOIL TEST DATA SHOWN IS LIMITED TO THE CONDITIONS EXISTING AT THE SUBJECT TEST PIT LOCATION ONLY. IF DIFFERENT SOIL CONDITIONS ARE FOUND IN THE AREA OF THE PROPOSED SOIL ABSORPTION SYSTEM THEY SHALL BE BROUGHT TO THE ATTENTION OF MORSE ENGINEERING IMMEDIATELY.
7. THE CONTRACTOR SHALL NOTIFY DIGSAFE PRIOR TO ANY EXCAVATION AT THE SUBJECT PROPERTY. IT IS SPECIFICALLY CAUTIONED THAT THE SUBSURFACE UTILITIES SHOWN ARE APPROXIMATE ONLY AND HAVE BEEN COMPILED FROM AVAILABLE RECORDS AND OBSERVABLE SITE FEATURES. UTILITIES OTHER THAN THOSE SHOWN MAY BE PRESENT AT THIS LOCATION.
8. THIS PLAN HAS BEEN PREPARED SPECIFICALLY AS A SEPTIC SYSTEM DESIGN AND IS NOT TO BE USED TO ESTABLISH PROPERTY LINES OR BUILDING SETBACKS. PROPERTY LINES AND BUILDING LOCATIONS ARE GRAPHIC ONLY, PROPERTY LINES NOT HAVING BEEN VERIFIED. NO REPRESENTATION OR CERTIFICATION AS TO THE ACCURACY OF THOSE SHOWN IS IMPLIED.
9. CONTRACTOR TO VERIFY AND ENSURE THAT ALL INTERIOR PLUMBING IS DIRECTED INTO PROPOSED SEPTIC SYSTEM. ANY VARIATIONS FROM THE DESIGN AS SHOWN SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER.

CONSTRUCTION NOTES

1. CONTRACTOR SHALL COORDINATE INSPECTION TIMES WITH THE LOCAL BOARD OF HEALTH AND DESIGN ENGINEER 24–HOURS IN ADVANCE OF THE FOLLOWING INSPECTIONS:
   1. AFTER EXCAVATION OF ALL UNSUITABLE MATERIAL FROM SOIL ABSORPTION AREA.
   2. PRIOR TO COVERING THE CONSTRUCTED SYSTEM.
   3. AFTER SYSTEM BACKFILL AND FINAL GRADING.
2. ALL CONSTRUCTION MUST COMPLY WITH TITLE 5 OF THE STATE ENVIRONMENTAL CODE 310 CMR 15 & THE ANY LOCAL BOARD OF HEALTH SUPPLEMENTAL REGULATIONS.
3. ALL TIGHT–JOINT PLUMBING SHALL BE CONSTRUCTED OF SCH. 40 PVC PIPE WITH CLEANED AND CEMENTED FITTINGS, UNLESS OTHERWISE NOTED.
4. ALL PRECAST/PIPE CONSTRUCTION JOINTS AND FITTINGS SHALL BE MADE WATERTIGHT BY PARGING WITH HYDRAULIC CEMENT.
5. THE CONTRACTOR SHALL PROVIDE A SIEVE ANALYSIS OF THE TITLE 5 PERC SAND UTILIZED FOR FILL TO VERIFY THAT IT MEETS THE REQUIREMENTS OF 310 CMR 15.255(3). TITLE 5 SAND FILL SHALL COMPLY WITH THE FOLLOWING:

SIEVE SIZE	PARTICLE SIZE
#4	4.75 mm
#50	0.30 mm
#100	0.15 mm
#200	0.075 mm

6. THE CONTRACTOR SHALL PREVENT ANY HEAVY CONSTRUCTION MACHINERY AND/OR TRUCKS FROM DRIVING OVER THE PROPOSED SOIL ABSORPTION SYSTEM LOCATION UNTIL FINISHED GRADE IS ESTABLISHED.
7. THE CONTRACTOR SHALL INSTALL MAGNETIC TAPE OVER SYSTEM PIPING & COMPONENTS
8. THE DESIGN ENGINEER SHALL CERTIFY AND PREPARE AN "AS–BUILT" PLAN FOR SUBMITTAL TO THE BOARD OF HEALTH UPON SEPTIC SYSTEM COMPLETION.
9. ALL DISTURBED AREAS SHALL BE RESTORED WITH 4" LOAM & SEED POST CONSTRUCTION.
10. ALL SEPTIC SYSTEM COMPONENTS TO BE STAKED OUT BY PROFESSIONAL LAND SURVEYOR PRIOR TO SYSTEM INSTALLATION.
11. CONTRACTOR SHALL ABANDON EXISTING SEPTIC COMPONENTS IN ACCORDANCE WITH 310 CMR SEC. 15.354 OF TITLE 5 AND LOCAL REGULATIONS BY PUMPING DRY, CRUSHING AND ABANDONING

SITE NOTES

1. LOCUS DOES NOT LIE WITHIN A DEP DESIGNATED ZONE II RESOURCE AREA.
2. ALL KNOWN WETLANDS WITHIN 100 FEET OF THE PROPOSED SEWAGE SYSTEM ARE SHOWN.
3. PROPERTY LINE DATA WAS OBTAINED FROM RECORDED DEED (BK. 5000, PG. 139) AND RECORDED PLANS ON FILE AT THE PLYMOUTH COUNTY REGISTRY OF DEEDS.
4. THERE WERE NO ACTIVE/POTABLE WELLS OBSERVED WITHIN 100' OF THE PROPOSED SYSTEM.
5. LOCUS LIES IN FEMA ZONE "X" AS SHOWN ON FEMA COMMUNITY MAP PANEL 25023C 0109L DATED JULY 6, 2021. ZONE "X" IS NOT A SPECIAL FLOOD HAZARD AREA.

INSTALLER TO BE HOOT & GEO–FLOW CERTIFIED
OPERATION & MAINTENANCE CONTRACT REQUIRED
DEED RESTRICTION REQUIRED

COMMONWEALTH OF MASSACHUSETTS
GREGORY J. MORSE
CIVIL
No.47105
REGISTERED PROFESSIONAL ENGINEER

PREPARED BY:
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10 NEW DRIFTWAY
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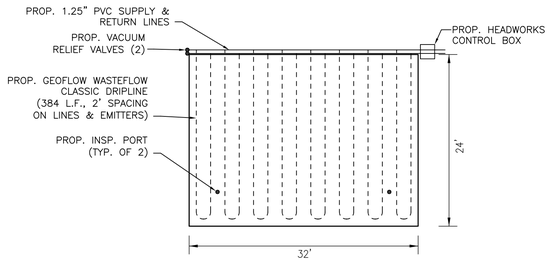
SCITUATE, MA 02066
T: 781-545-0895

PROJECT:
14 BLUEBERRY LANE
ASSESSOR'S PARCEL: 26-2-24
SCITUATE, MASSACHUSETTS

PREPARED FOR:
STEPHEN CONCANNON

PLAN TITLE:
SEPTIC SYSTEM DESIGN PLAN

DESIGN:	JDG
CHECK:	PGG
JOB NO:	24–118
DATE:	3/25/24
REV:	–
SHEET:	1 OF 2

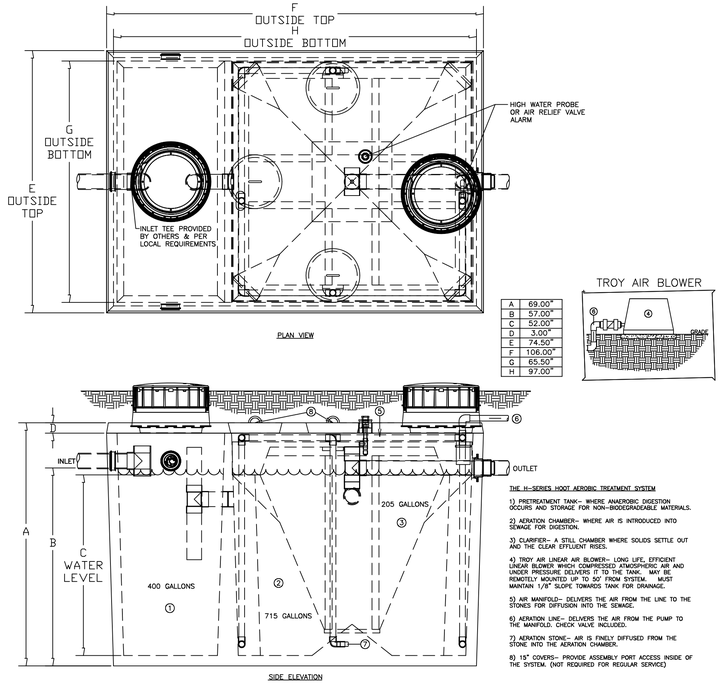


GEO-FLOW LEACH FIELD

SCALE: 1" = 10'

NOTES

1. PROPOSED SAND BED SHOULD FIRST HAVE ALL EXISTING UNUSABLE MATERIAL REMOVED TO A DEPTH OF 7"± TO THE PROPOSED DRIP PIPING INVERT ELEVATION. ALL BOULDERS ARE TO BE REMOVED AND REPLACED WITH TITLE 5 SAND AS NECESSARY. INSTALL AND TEST THE PROPOSED DRIPLINE NETWORK. AFTER PRESSURE TEST ADD 2" (MIN.) OF ADDITIONAL SAND OVER THE DRIPLINE NETWORK AND BACK FILL WITH 4-10" OF TOPSOIL. CONTRACTOR SHALL INSTALL 1 SHOVEL-FULL OF DOUBLE WASHED 3/8" PEASTONE OVER EACH DRIP EMITTER PRIOR TO PLACEMENT OF 2" SAND BACKFILL LAYER.
2. FILL MATERIAL SHALL CONSIST OF CLEAN GRANULAR SAND IN CONFORMANCE WITH THE STANDARDS SET FORTH IN 310 CMR 15.255(3). CONTRACTOR TO USE CARE DURING BACKFILL PROCESS AS NO HEAVY MACHINERY SHOULD PASS OVER THE TUBING OR OTHER SYSTEM COMPONENTS ONCE INSTALLED.
3. SUPPLY AND RETURN MANIFOLDS SHALL SLOPE BACK TO THE PUMP CHAMBER AT A MINIMUM SLOPE OF 0.02 FT./FT. TO PREVENT FREEZING.
4. ALL DISTURBED AREAS TO BE COVERED WITH 6" MINIMUM SCREENED LOAM & SEEDED WITH GRASS SEED. CONTRACTOR TO STABILIZE SOILS WITH JUTE MESH AND/OR STRAW TO PREVENT EROSION & PROMOTE GRASS GROWTH.



A	69.00"
B	57.00"
C	52.00"
D	3.00"
E	74.50"
F	106.00"
G	65.50"
H	97.00"

THE H-SERIES HOOT AEROBIC TREATMENT SYSTEM

1) PRETREATMENT TANK- WHERE ANAEROBIC DIGESTION OCCURS AND STORAGE FOR NON-BIODEGRADABLE MATERIALS.

2) AERATION CHAMBER- WHERE AIR IS INTRODUCED INTO SEWAGE FOR DIGESTION.

3) CLARIFIER- A STILL CHAMBER WHERE SOLIDS SETTLE OUT AND THE CLEAR EFFLUENT RISES.

4) TROY AIR LINEAR AIR BLOWER- LONG LIFE, EFFICIENT LINEAR BLOWER WHICH COMPRESSED ATMOSPHERIC AIR AND UNDER PRESSURE DELIVERS IT TO THE TANK. MAY BE REMOTELY MOUNTED UP TO 50' FROM SYSTEM. MUST MAINTAIN 1/8" SLOPE TOWARDS TANK FOR DRAINAGE.

5) AIR MANIFOLD- DELIVERS THE AIR FROM THE LINE TO THE STONES FOR DIFFUSION INTO THE SEWAGE.

6) AERATION LINE- DELIVERS THE AIR FROM THE PUMP TO THE MANIFOLD. CHECK VALVE INCLUDED.

7) AERATION STONE- AIR IS FINELY DIFFUSED FROM THE STONE INTO THE AERATION CHAMBER.

8) 15" COVERS- PROVIDE ASSEMBLY PORT ACCESS INSIDE OF THE SYSTEM. (NOT REQUIRED FOR REGULAR SERVICE)

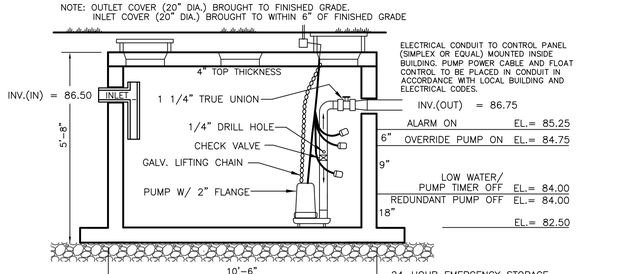
HOOT H600A SECONDARY TREATMENT TANK

NOT TO SCALE

NOTES:

1. CONTACT WIGGIN PRECAST (1-508-564-6776) FOR INSTALLER CERTIFICATION, MANUFACTURING & INSTALLATION REQUIREMENTS.
2. INLET AND OUTLET TANK/PIPE CONNECTIONS SHALL BE MADE WATERTIGHT.
3. HOOT TANK SHALL BE MONOLITHICALLY CONSTRUCTED & EQUIPPED WITH EXTENDED BASE AND WATERPROOFING.

1,500 GAL. MONOLITHIC PUMP CHAMBER (EXT. BASE) DETAIL

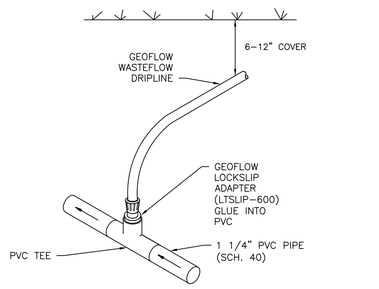


PUMP DESIGN NOTES:

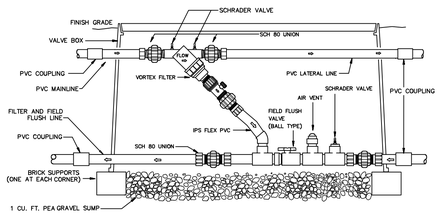
1. USE SUBMERSIBLE EFFLUENT PUMP: ORENCO PF1005 (1/2 HP) OR APPROVED EQUAL CAPABLE OF ATTAINING: TDH=56.3 FT. @ 4.2 GPM. CONTRACTOR TO PROVIDE ENGINEER WITH PUMP SELECTION SPEC SHEET PRIOR TO INSTALLATION.
2. INSTALL HIGH AND LOW WATER MERCURY FLOATS IN PUMP CHAMBER AND ROUTE TO CONTROL PANEL W/ VISIBLE FLASHING AND AUDIBLE ALARMS. PANEL LOCATION TO BE ON EXTERIOR OF BUILDING. COORDINATE LOCATION WITH HOMEOWNER. PUMP POWER SHALL BE LOCATED ON SEPARATE INDEPENDENT CIRCUIT FROM THE ALARM CIRCUIT. ALL ELECTRICAL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIAN, WHO MUST RECEIVE A PERMIT AND HAVE WORK INSPECTED AND APPROVED BY THE TOWN OF SCITUATE WIRING INSPECTOR.
3. PUMP CHAMBER IS TO BE DESIGNED FOR H-10 LOADING.
4. TANK TO BE MADE WATERPROOF.

PUMP DOSING CALCULATIONS

1. DETERMINE VOLUME OF EFFLUENT TO BE PUMPED TO WASTEFLOW DRIPLINE
   DAILY FLOW = 440 GALLONS
   NUMBER OF DOSES PER DAY = 12
   NUMBER OF GALLONS PER DOSE = 440/12 = 36.7 GAL.
   DRAIN BACK VOLUME
   1 1/4" DELIVERY LINE
   $\pi (R)^2 = \pi (.052)^2 \times 51.0' = 0.43$ CF X 7.48 G/CF = 3.2 GAL.
   PUMPING VOLUME = DOSING VOLUME + DRAIN BACK VOLUME
   39.9 GAL. = 36.7 GAL. + 3.2 GAL.
2. FLOW RATE INTO SOIL
   LENGTH OF WASTEFLOW DRIPLINE = 384 FEET
   NUMBER OF EMITTERS = 192
   EMITTERS FLOW RATE = 1.3 GPH FROM GEOFLOW
   TOTAL FLOW RATE = 192 x 1.3 = 250 GPH/60 MIN. = 4.2 GPM
3. DOSAGE TIME
   39.9 GALLONS/4.2 GPM = 9.5 MINUTES
4. TOTAL ON/OFF TIME BETWEEN DOSES
   24 HOURS/12 DOSES = 2.0 HOURS = 120 MINUTES
   TIMER SETTINGS:
   ON: 9 MINUTES 30 SECONDS
   OFF: 110 MINUTES 30 SECONDS



511 GEOFLOW SECTION — MANIFOLD CONNECTION (END FEED) BLANK GEOFLOW WASTEFLOW DRIPLINE RISER — Not To Scale — 06-08 GEOFLOW 7

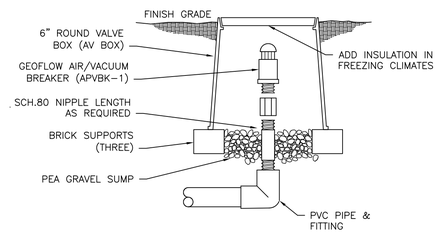


576 GEOFLOW SECTION — SIMPLE WASTEFLOW HEADWORKS BOX - MANUAL SCHEMATIC — Not To Scale

PROVIDE 2" RIGID FOAM INSULATION SURROUNDING EXTERIOR OF LANDSCAPE BOX AND WITHIN INTERIOR OF COVER.

HEADWORKS BOX NOT TO BE LOCATED IN AN AREA SUBJECT TO VEHICULAR TRAFFIC.

06-08 GEOFLOW 7



522 GEOFLOW SECTION — AIR/VACUUM BREAKER (PLUMBED TO PVC) — Not To Scale

06-08 GEOFLOW 7

COMMONWEALTH OF MASSACHUSETTS
GREGORY J. MORSE
CIVIL
No. 47105
REGISTERED PROFESSIONAL ENGINEER

PREPARED BY:

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T: 781-545-0895

PROJECT: 14 BLUEBERRY LANE ASSESSOR'S PARCEL: 26-2-24 SCITUATE, MASSACHUSETTS	DESIGN: JDG CHECK: PGG JOB NO: 24-118 DATE: 3/25/24 REV: -
PREPARED FOR: STEPHEN CONCANNON	
PLAN TITLE: SEPTIC SYSTEM DESIGN PLAN	SHEET: 2 OF 2