40 Elf Hill Rd

BOARD OF HEALTH

TOWN OF AMHERST, MASSACHUSETTS

Important Information Regarding Your Private Sewage Disposal System

DISPLAY THIS DOCUMENT IN A PROMINENT PLACE

Owner JOHN CLARK Address 40 E. L.E. Hill Rd

Installer KARLS ETC. Address River Dr. Hadley

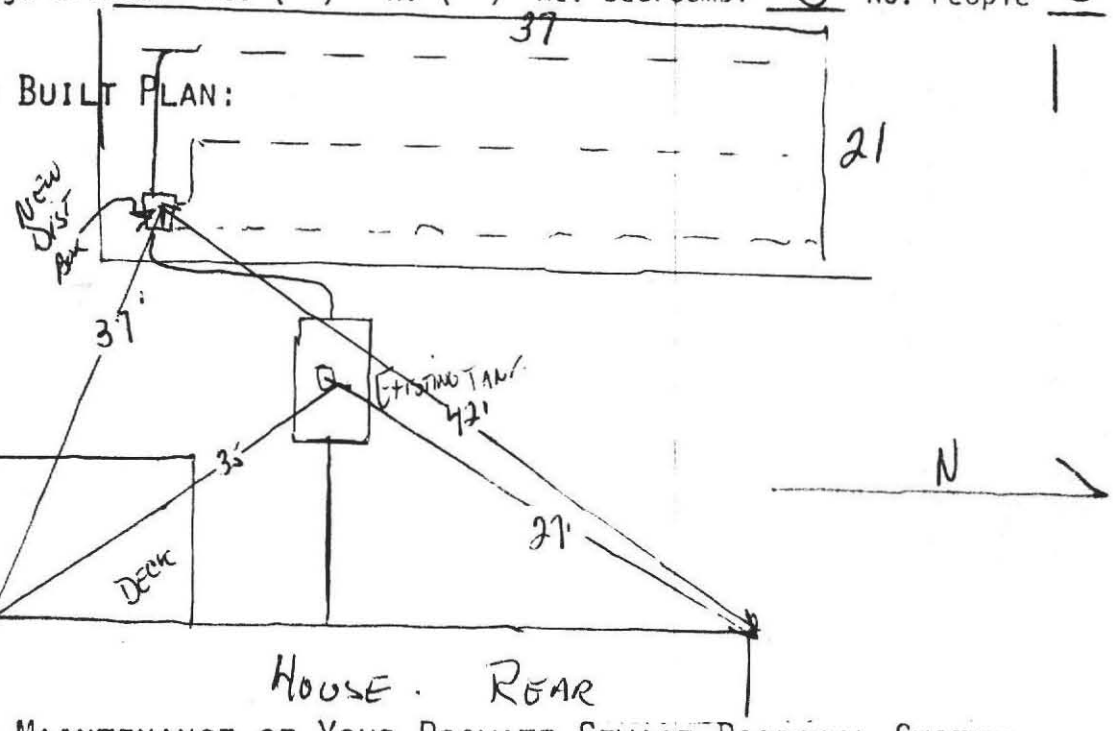
Date Installation Inspected and Approved: ~~Existing~~ 7-15-82

Description of System: Tank Capacity: EXISTING - 1

Leach Field ( ) Bed (X) Seepage Pit ( ) Square Feet: 780

Garbage Grinder Yes ( ) No ( ) No. Bedrooms: 3 No. People 6

AS - BUILT PLAN:



PROPER MAINTENANCE OF YOUR PRIVATE SEWAGE DISPOSAL SYSTEM

1. This system must be inspected periodically and the tank pumped out at an interval not to exceed 3 years.
2. For your protection sanitary pumpers are licensed by the Amherst Board of Health.
3. Regular pumping is crucial to avoid early failure and costly repairs of the system.
4. DO NOT dispose into the system such items as rags, string, sanitary napkins, coffee grounds as they can cause it to clog and fail.
5. Further information can be obtained by contacting your Health Department at 253-7077.

Commonwealth of Massachusetts

Title 5 Official Inspection Form

Subsurface Sewage Disposal System Form - Not for Voluntary Assessments

40 ELF HILL ROAD
Property Address

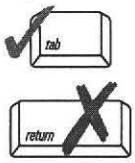
POGODA
Owner's Name

Owner information is required for every page.

AMHERST	MASS.	01002	SEPTEMBER 20, 2010
City/Town	State	Zip Code	Date of Inspection

Inspection results must be submitted on this form. Inspection forms may not be altered in any way. Please see completeness checklist at the end of the form.

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. General Information

1. Inspector:

NICK TORRETTI
Name of Inspector

CLEAN SEPTICS P O BOX 394
Company Name

252 WEST STREET
Company Address

LUDLOW	MASS.	01056
City/Town	State	Zip Code

413 583 2138	SI4496
Telephone Number	License Number

B. Certification

I certify that I have personally inspected the sewage disposal system at this address and that the information reported below is true, accurate and complete as of the time of the inspection. The inspection was performed based on my training and experience in the proper function and maintenance of on site sewage disposal systems. **I am a DEP approved system inspector pursuant to Section 15.340 of Title 5 (310 CMR 15.000).** The system:

☒ Passes ☐ Conditionally Passes ☐ Fails

☐ Needs Further Evaluation by the Local Approving Authority

Nick Torretti

Inspector's Signature	SEPTEMBER 20 , 2010
	Date

The system inspector shall submit a copy of this inspection report to the Approving Authority (Board of Health or DEP) within 30 days of completing this inspection. If the system is a shared system or has a design flow of 10,000 gpd or greater, the inspector and the system owner shall submit the report to the appropriate regional office of the DEP. The original should be sent to the system owner and copies sent to the buyer, if applicable, and the approving authority.

****This report only describes conditions at the time of inspection and under the conditions of use at that time. This inspection does not address how the system will perform in the future under the same or different conditions of use.**

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B. Certification (cont.)

Inspection Summary: Check A,B,C,D or E / ***always*** complete all of Section D

A) System Passes:

☒ I have not found any information which indicates that any of the failure criteria described in 310 CMR 15.303 or in 310 CMR 15.304 exist. Any failure criteria not evaluated are indicated below.

Comments:

RECOMMEND CCLS /BACTERIA, PUMP EVERY TWO YEARS CLEAN OUTLET FILTER EVERY YEAR

B) System Conditionally Passes:

☐ One or more system components as described in the "Conditional Pass" section need to be replaced or repaired. The system, upon completion of the replacement or repair, as approved by the Board of Health, will pass.

Check the box for "yes", "no" or "not determined" (Y, N, ND) for the following statements. If "not determined," please explain.

The septic tank is metal and over 20 years old* **or** the septic tank (whether metal or not) is structurally unsound, exhibits substantial infiltration or exfiltration or tank failure is imminent. System will pass inspection if the existing tank is replaced with a complying septic tank as approved by the Board of Health.

* A metal septic tank will pass inspection if it is structurally sound, not leaking and if a Certificate of Compliance indicating that the tank is less than 20 years old is available.

☐ Y ☐ N ☐ ND (Explain below):

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B. Certification (cont.)

B) System Conditionally Passes (cont.):

☐ Observation of sewage backup or break out or high static water level in the distribution box due to broken or obstructed pipe(s) or due to a broken, settled or uneven distribution box. System will pass inspection if (with approval of Board of Health):

☐	broken pipe(s) are replaced	☐ Y	☐ N	☐ ND (Explain below):
☐	obstruction is removed	☐ Y	☐ N	☐ ND (Explain below):
☐	distribution box is leveled or replaced	☐ Y	☐ N	☐ ND (Explain below):

☐ The system required pumping more than 4 times a year due to broken or obstructed pipe(s). The system will pass inspection if (with approval of the Board of Health):

☐	broken pipe(s) are replaced	☐ Y	☐ N	☐ ND (Explain below):
☐	obstruction is removed	☐ Y	☐ N	☐ ND (Explain below):

C) Further Evaluation is Required by the Board of Health:

☐ Conditions exist which require further evaluation by the Board of Health in order to determine if the system is failing to protect public health, safety or the environment.

1. System will pass unless Board of Health determines in accordance with 310 CMR 15.303(1)(b) that the system is not functioning in a manner which will protect public health, safety and the environment:

☐ Cesspool or privy is within 50 feet of a surface water

☐ Cesspool or privy is within 50 feet of a bordering vegetated wetland or a salt marsh

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B. Certification (cont.)

2. System will fail unless the Board of Health (and Public Water Supplier, if any) determines that the system is functioning in a manner that protects the public health, safety and environment:

☐ The system has a septic tank and soil absorption system (SAS) and the SAS is within 100 feet of a surface water supply or tributary to a surface water supply.

☐ The system has a septic tank and SAS and the SAS is within a Zone 1 of a public water supply.

☐ The system has a septic tank and SAS and the SAS is within 50 feet of a private water supply well.

☐ The system has a septic tank and SAS and the SAS is less than 100 feet but 50 feet or more from a private water supply well**.

Method used to determine distance: _____

** This system passes if the well water analysis, performed at a DEP certified laboratory, for coliform bacteria indicates absent and the presence of ammonia nitrogen and nitrate nitrogen is equal to or less than 5 ppm, provided that no other failure criteria are triggered. A copy of the analysis must be attached to this form.

3. Other:

_____

_____

_____

_____

D) System Failure Criteria Applicable to All Systems:

You must indicate "Yes" or "No" to each of the following for all inspections:

Yes	No	
☐	☒	Backup of sewage into facility or system component due to overloaded or clogged SAS or cesspool
☐	☒	Discharge or ponding of effluent to the surface of the ground or surface waters due to an overloaded or clogged SAS or cesspool
☐	☒	Static liquid level in the distribution box above outlet invert due to an overloaded or clogged SAS or cesspool
☐	☒	Liquid depth in cesspool is less than 6" below invert or available volume is less than ½ day flow

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B. Certification (cont.)

Yes	No	
☐	☒	Required pumping more than 4 times in the last year ***NOT*** due to clogged or obstructed pipe(s). Number of times pumped: _____.
☐	☒	Any portion of the SAS, cesspool or privy is below high ground water elevation.
☐	☒	Any portion of cesspool or privy is within 100 feet of a surface water supply or tributary to a surface water supply.
☐	☒	Any portion of a cesspool or privy is within a Zone 1 of a public well.
☐	☒	Any portion of a cesspool or privy is within 50 feet of a private water supply well.
☐	☒	Any portion of a cesspool or privy is less than 100 feet but greater than 50 feet from a private water supply well with no acceptable water quality analysis. **[This system passes if the well water analysis, performed at a DEP certified laboratory, for fecal coliform bacteria indicates absent and the presence of ammonia nitrogen and nitrate nitrogen is equal to or less than 5 ppm, provided that no other failure criteria are triggered. A copy of the analysis and chain of custody must be attached to this form.]**
☐	☒	The system is a cesspool serving a facility with a design flow of 2000gpd-10,000gpd.
☐	☒	**The system <u>fails</u>.** I have determined that one or more of the above failure criteria exist as described in 310 CMR 15.303, therefore the system fails. The system owner should contact the Board of Health to determine what will be necessary to correct the failure.

E) Large Systems: To be considered a large system the system must serve a facility with a design flow of 10,000 gpd to 15,000 gpd.

For large systems, you must indicate either "yes" or "no" to each of the following, in addition to the questions in Section D.

Yes	No	
☐	☐	the system is within 400 feet of a surface drinking water supply
☐	☐	the system is within 200 feet of a tributary to a surface drinking water supply
☐	☐	the system is located in a nitrogen sensitive area (Interim Wellhead Protection Area – IWPA) or a mapped Zone II of a public water supply well

If you have answered "yes" to any question in Section E the system is considered a significant threat, or answered "yes" in Section D above the large system has failed. The owner or operator of any large system considered a significant threat under Section E or failed under Section D shall upgrade the system in accordance with 310 CMR 15.304. The system owner should contact the appropriate regional office of the Department.

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C. Checklist

Check if the following have been done. You **must** indicate "yes" or "no" as to each of the following:

Yes	No	
☒	☐	Pumping information was provided by the owner, occupant, or Board of Health
☐	☒	Were any of the system components pumped out in the previous two weeks?
☒	☐	Has the system received normal flows in the previous two week period?
☐	☒	Have large volumes of water been introduced to the system recently or as part of this inspection?
☒	☐	Were as built plans of the system obtained and examined? (If they were not available note as N/A)
☒	☐	Was the facility or dwelling inspected for signs of sewage back up?
☒	☐	Was the site inspected for signs of break out?
☒	☐	Were all system components, excluding the SAS, located on site?
☒	☐	Were the septic tank manholes uncovered, opened, and the interior of the tank inspected for the condition of the baffles or tees, material of construction, dimensions, depth of liquid, depth of sludge and depth of scum?
☒	☐	Was the facility owner (and occupants if different from owner) provided with information on the proper maintenance of subsurface sewage disposal systems?
		The **size and location of the Soil Absorption System (SAS)** on the site has been determined based on:
☒	☐	Existing information. For example, a plan at the Board of Health.
☒	☐	Determined in the field (if any of the failure criteria related to Part C is at issue approximation of distance is unacceptable) [310 CMR 15.302(5)]

D. System Information

Residential Flow Conditions:

Number of bedrooms (design): 3 Number of bedrooms (actual): 3

DESIGN flow based on 310 CMR 15.203 (for example: 110 gpd x # of bedrooms): 330 GPD

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D. System Information

Description:

Number of current residents: 5

Does residence have a garbage grinder? ☐ Yes ☒ No

Is laundry on a separate sewage system? [if **yes** separate inspection required] ☐ Yes ☒ No

Laundry system inspected? ☐ Yes ☒ No

Seasonal use? ☐ Yes ☒ No

Water meter readings, if available (last 2 years usage (gpd)): TOWN WATER

Detail:

Sump pump? ☐ Yes ☒ No

Last date of occupancy: PRESENT
Date

Commercial/Industrial Flow Conditions:

Type of Establishment:

Design flow (based on 310 CMR 15.203):
Gallons per day (gpd)

Basis of design flow (seats/persons/sq.ft., etc.):

Grease trap present? ☐ Yes ☐ No

Industrial waste holding tank present? ☐ Yes ☐ No

Non-sanitary waste discharged to the Title 5 system? ☐ Yes ☐ No

Water meter readings, if available:

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D. System Information (cont.)

Last date of occupancy/use: _____ Date

Other (describe below):

General Information

Pumping Records:

Source of information: PUMPED SEPT. 13, 2010 BY CLEAN SEPTICS

Was system pumped as part of the inspection? ☒ Yes ☐ No

If yes, volume pumped: 1500 gallons

How was quantity pumped determined? MEASURED

Reason for pumping: MAINTENANCE /PREP FOR INSPECTION

Type of System:

- ☒ Septic tank, distribution box, soil absorption system
- ☐ Single cesspool
- ☐ Overflow cesspool
- ☐ Privy
- ☐ Shared system (yes or no) (if yes, attach previous inspection records, if any)
- ☐ Innovative/Alternative technology. Attach a copy of the current operation and maintenance contract (to be obtained from system owner) and a copy of latest inspection of the I/A system by system operator under contract
- ☐ Tight tank. Attach a copy of the DEP approval.
- ☐ Other (describe):

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D. System Information (cont.)

Approximate age of all components, date installed (if known) and source of information:
APPROXIMATELY SEVEN YEAR OLD SEPTIC TANK INSTALLED 2003 PER OWNER

Were sewage odors detected when arriving at the site? ☐ Yes ☒ No

Building Sewer (locate on site plan):

Depth below grade: 14" feet

Material of construction:

☐ cast iron ☒ 40 PVC ☐ other (explain): _____

Distance from private water supply well or suction line: _____ feet

Comments (on condition of joints, venting, evidence of leakage, etc.):
JOINTS AND VENTING OK, NO LEAKAGE

Septic Tank (locate on site plan):

Depth below grade: 6" feet

Material of construction:

☒ concrete ☐ metal ☐ fiberglass ☐ polyethylene ☐ other (explain)
CLEAN SEPTICS PUMPED THE SEPTIC TANKS (PUMP CHAMBER ASLO) ON SEPT. 13, 2010

If tank is metal, list age: _____ years

Is age confirmed by a Certificate of Compliance? (attach a copy of certificate) ☐ Yes ☐ No

Dimensions: L 10' 6" X W 5' X H 5'

Sludge depth: 0"

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D. System Information (cont.)

Septic Tank (cont.)

Distance from top of sludge to bottom of outlet tee or baffle _____

Scum thickness _____

Distance from top of scum to top of outlet tee or baffle _____

Distance from bottom of scum to bottom of outlet tee or baffle _____

How were dimensions determined? MEASURED

Comments (on pumping recommendations, inlet and outlet tee or baffle condition, structural integrity, liquid levels as related to outlet invert, evidence of leakage, etc.):
PUMP TANK EVERY ONE - THREE YEARS. INLET AND OUTLET BAFFLE OK. TANK IS STRUCTURALLY SOUND, LIQUID LEVELS ARE AT OUTLET INVERT, NO LEAKAGE

Grease Trap (locate on site plan):

Depth below grade: _____ feet

Material of construction:

☐ concrete ☐ metal ☐ fiberglass ☐ polyethylene ☐ other (explain):

Dimensions: _____

Scum thickness _____

Distance from top of scum to top of outlet tee or baffle _____

Distance from bottom of scum to bottom of outlet tee or baffle _____

Date of last pumping: _____ Date

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D. System Information (cont.)

Comments (on pumping recommendations, inlet and outlet tee or baffle condition, structural integrity, liquid levels as related to outlet invert, evidence of leakage, etc.):

Tight or Holding Tank (tank must be pumped at time of inspection) (locate on site plan):

Depth below grade:

Material of construction:

☐ concrete ☐ metal ☐ fiberglass ☐ polyethylene ☐ other (explain):

Dimensions:

Capacity: gallons

Design Flow: gallons per day

Alarm present: ☐ Yes ☐ No

Alarm level: Alarm in working order: ☐ Yes ☐ No

Date of last pumping: Date

Comments (condition of alarm and float switches, etc.):

* Attach copy of current pumping contract (required). Is copy attached? ☐ Yes ☐ No

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D. System Information (cont.)

Distribution Box (if present must be opened) (locate on site plan):

Depth of liquid level above outlet invert: 0", D -BOX IS APPROXIMATELY 1' DEEP

Comments (note if box is level and distribution to outlets equal, any evidence of solids carryover, any evidence of leakage into or out of box, etc.):
D - BOX APPEARS LEVEL AND DISTRIBUTION IS EQUAL, NO EVIDENCE OF CARRY OVER, NO LEAKAGE

Pump Chamber (locate on site plan):

Pumps in working order: ☒ Yes ☐ No

Alarms in working order: ☒ Yes ☐ No

Comments (note condition of pump chamber, condition of pumps and appurtenances, etc.):
PUMP CHAMBER IS STRUCTURALLY SOUND. PUMP 'S AND APPURTENANCES IN GOOD WORKING ORDER

Soil Absorption System (SAS) (locate on site plan, excavation not required):

If SAS not located, explain why:

Commonwealth of Massachusetts

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D. System Information (cont.)

Type:

☐	leaching pits	number:	
☐	leaching chambers	number:	
☐	leaching galleries	number:	
☐	leaching trenches	number, length:	
☒	leaching fields	number, dimensions:	4 LEACH LINES 30' LONG
☐	overflow cesspool	number:	
☐	innovative/alternative system		

Type/name of technology:

Comments (note condition of soil, signs of hydraulic failure, level of ponding, damp soil, condition of vegetation, etc.):
SOIL AND VEGETATION ARE OK, NO SIGNS OF HYDRAULIC FAILURE

Cesspools (cesspool must be pumped as part of inspection) (locate on site plan):

Number and configuration

Depth – top of liquid to inlet invert

Depth of solids layer

Depth of scum layer

Dimensions of cesspool

Materials of construction

Indication of groundwater inflow ☐ Yes ☐ No

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D. System Information (cont.)

Comments (note condition of soil, signs of hydraulic failure, level of ponding, condition of vegetation, etc.):

Privy (locate on site plan):

Materials of construction:

Dimensions

Depth of solids

Comments (note condition of soil, signs of hydraulic failure, level of ponding, condition of vegetation, etc.):

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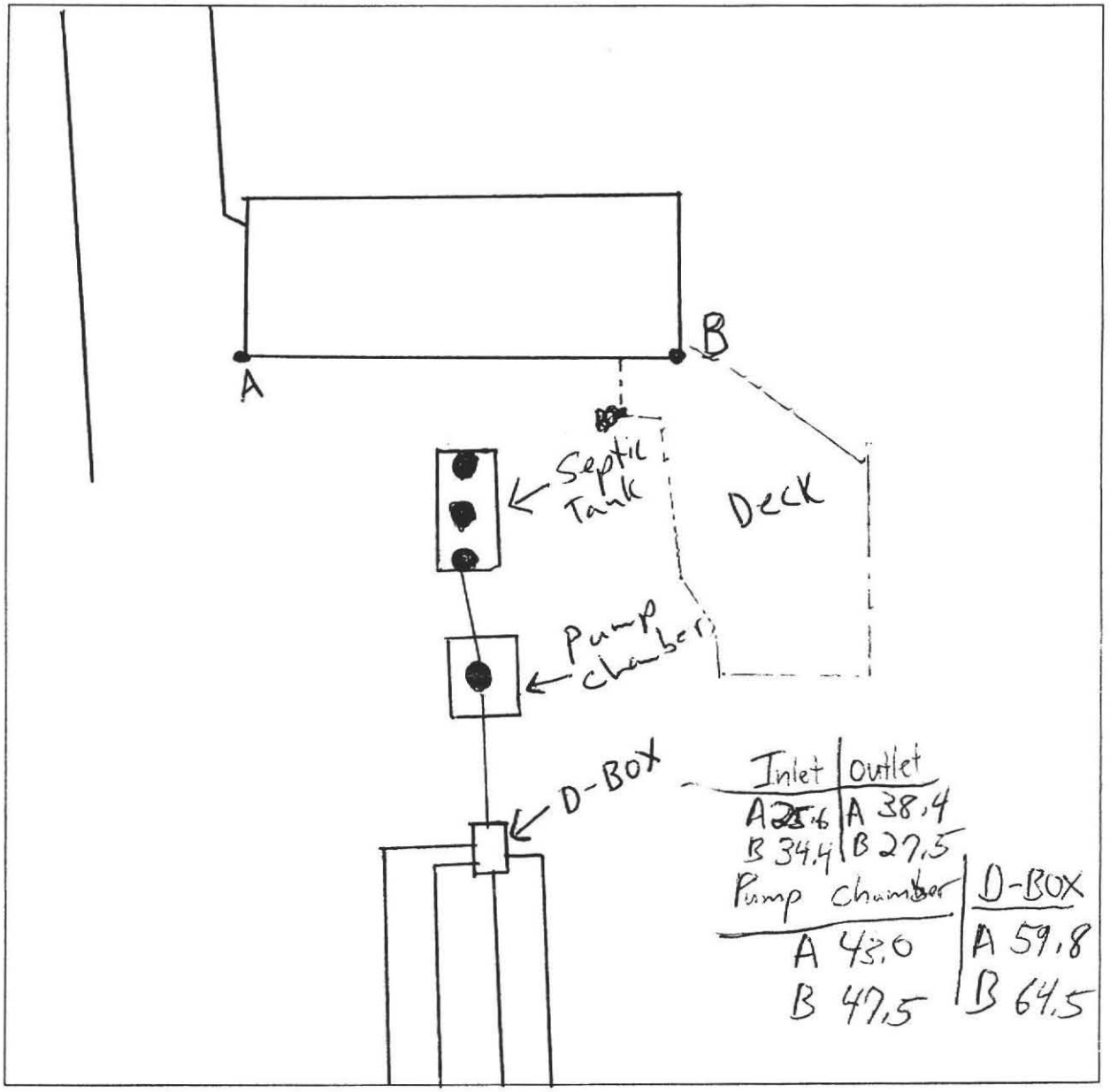
D. System Information (cont.)

Sketch Of Sewage Disposal System: Provide a view of the sewage disposal system, including ties to at least two permanent reference landmarks or benchmarks. Locate all wells within 100 feet. Locate where public water supply enters the building. Check one of the boxes below:

☒ hand-sketch in the area below
☐ drawing attached separately



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D. System Information (cont.)

Site Exam:

☒ Check Slope

☐ Surface water

☒ Check cellar

☐ Shallow wells

Estimated depth to high ground water: NONE AT 4' feet

Please indicate all methods used to determine the high ground water elevation:

☒ Obtained from system design plans on record

If checked, date of design plan reviewed: 15 - AUGUST -2003 Date

☒ Observed site (abutting property/observation hole within 150 feet of SAS)

☒ Checked with local Board of Health - explain:
HEALTH AGENT GARY, WITNESSED INSPECTION

☐ Checked with local excavators, installers - (attach documentation)

☐ Accessed USGS database - explain:

You **must** describe how you established the high ground water elevation:
DESIGN PLAN FROM BOARD OF HEALTH

Before filing this Inspection Report, please see Report Completeness Checklist on next page.

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E. Report Completeness Checklist

☒ Inspection Summary: A, B, C, D, or E checked

☒ Inspection Summary D (System Failure Criteria Applicable to All Systems) completed

☒ System Information – Estimated depth to high groundwater

☒ Sketch of Sewage Disposal System either drawn on page 15 or attached in separate file

FORM 1A - APPLICATION FOR DSCP

No. 03-15 Fee 275.00 pd

COMMONWEALTH OF MASSACHUSETTS
Board of Health, *Amherst* **, MA.**

APPLICATION FOR DISPOSAL SYSTEM CONSTRUCTION PERMIT

Application for a permit to: Construct (X) Repair ( ) Upgrade ( ) Abandon ( )

☐ **Complete System** ☑ **Individual Components**

Location 40 Elf Hill Road	**Owner's Name** John & Kate Clark
Map/Parcel #	**Address** 40 Elf Hill Road
Lot #	**Telephone #** 413/253-9724
Installer's Name	**Designer's Name** Innovative Engineering
Address	**Address** 110 Chapin Greene Dr., Ludlow
Telephone #	**Telephone #** 413/583-7930

Type of Building: *Family dwelling, single* Lot size 30500 sq. ft.
Dwelling - No. of Bedrooms 3 Garbage grinder (no)
Other - Type of Building _____ No. of persons 6 Showers (1), Cafeteria ( )
Other Fixtures

Design Flow (min. required) 330 gpd, Calculated design flow 330 gpd, Design flow provided 389 gpd
Plan: Date 15-Aug-03 Number of sheets 12 Revision Date
Title *Sewage disposal system*

Description of Soil(s) *gravelly, loose, friable loamy sand*
Soil Evaluator Form No. 11, Name of Soil Evaluator *David Kopacz, Sr.* Date of Soil Evaluation 31-Jul-03

DESCRIPTION OF REPAIRS OR ALTERATIONS

_____

_____

The undersigned agrees to install the above described Individual Sewage Disposal System in accordance with the provisions of Title 5 and further agrees to not to place the system in operation until a Certificate of Compliance has been issued by the Board of Health.

Signed John M. Clark **Date** 8-22-03

Inspections

_____

_____

_____

DEP APPROVED FORM 5/96

FORM 3 - CERTIFICATE OF COMPLIANCE

No. 03-15 Fee 275.00 pd

COMMONWEALTH OF MASSACHUSETTS

Board of Health, Amherst **, MA.**

Description of Work: ☑ **Individual Component(s)** ☐ **Complete System**

The undersigned hereby **certify** that the Sewage Disposal System; Constructed ( ), Repaired ( ), Upgraded ( ), Abandoned ( )

by: John & Kate Clark 40 Elf Hill Road Amherst, MA 01002

at: 40 Elf Hill Road

has been installed in accordance with the provisions of 310 CMR 15.00 (Title 5) and the approved design plans/as-built plans relating to application No. 03-15 dated ________________. Approved design flow 389 (gpd).

Installer: Stanley Kaluhowski Karls Co

Designer: John A. Mo... Inspector: David Zeyn... Date: 12-12-03

The issuance of this permit shall not be construed as a guarantee that the system will function as designed.

DEP APPROVED FORM 5/96

FORM 2 - DSCP

No. 03-15 Fee 275.00 pd

COMMONWEALTH OF MASSACHUSETTS

Board of Health, Amherst **, MA.**

DISPOSAL SYSTEM CONSTRUCTION PERMIT

Permission is hereby granted to; Construct ( ), Repair (✓), Upgrade ( ), Abandon ( ) an individual sewage disposal system at 40 Elf Hill Road as described in the application for Disposal System Construction Permit No. 03-15, dated Sept. 11, 2003 (Revised)

Provided: Construction shall be completed within three years of the date of this permit. All local conditions must be met.

Date Sept. 11, 03 Board of Health David Zomorski... Town of Amherst

DEP APPROVED FORM 5/96

SEWAGE DISPOSAL SYSTEM

AT

40 ELF HILL ROAD
AMHERST, MA 01002

FOR

JOHN & KATE CLARK
40 ELF HILL ROAD
AMHERST, MA 01002

BY

INNOVATIVE ENGINEERING
110 CHAPIN GREENE DRIVE
LUDLOW, MA 01056
PHONE: 413/583-7930
FAX: 413/583-8771

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Innovative Engineering

110 Chapin Greene Drive

Ludlow, MA 01056

Phone: 413/583-7930

FAX: 413/583-8771

John & Kate Clark
40 Elf Hill Road
Amherst, MA 01002

Project # : 030702	**15-Aug-03**
Scale : none	**Sheet # 2 of 12**

Project location

USGS Map

Innovative Engineering
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40 Elf Hill Road
Amherst, MA 01002

Project # : 030702	15-Aug-03
Scale : none	Sheet # 3 of 12

Septic System Design Calculations - Infiltrator Field (Bed)

Location: 40 Elf Hill Road **Town:** Amherst

Property Owner: John & Kate Clark 40 Elf Hill Road Amherst, MA 01002

Basic Data

Percolation Rate: 12.0 min. / inch Soil Texture: loamy sand

Soil Class: I Effluent Loading Rate: 0.66 gpd / sf = A

Number of bedrooms: 3 = B Is a garbage disposal to be installed ? no (Yes / No)

System Sewage Flow

B 3 x 110 gpd / bedroom = 330 gpd / 0.66 = 500 (sf req'd)

Septic Tank Size

C 330 x 2 = 660 gallons = D

If D is less than 1500 gallons, use 1500 gallon minimum size
If D is greater than 1500 gallons, use D as minimum size

Use 1500 gallon septic tank (minimum size)

Field Calculations - Use Infiltrator Standard Model

Length of Infiltrator unit: 6.25 feet, Number of Infiltrator units: 20

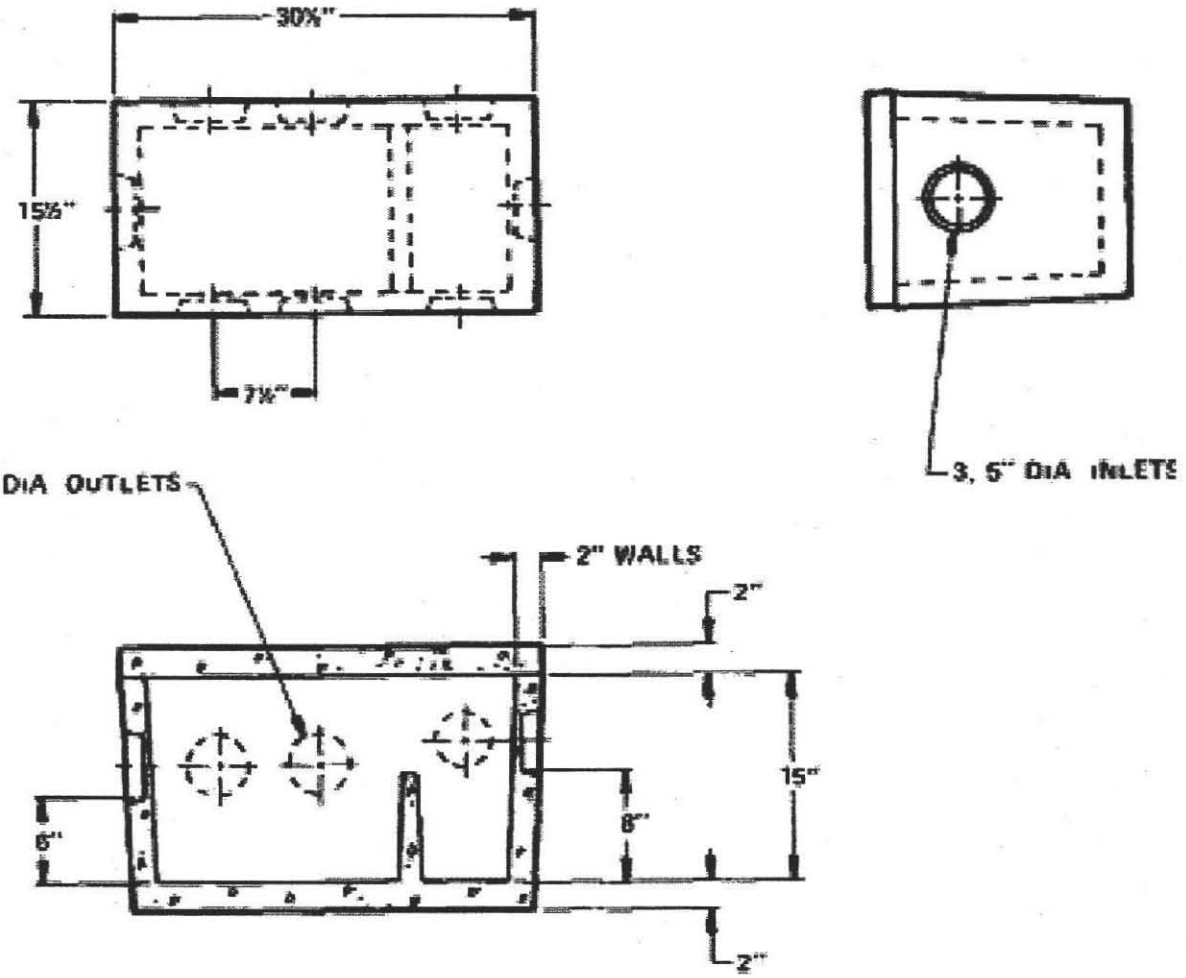
Total length of Infiltrator - Std Model: 125 lf = G (Loading = 4.72 sf / lf)

Soil Absorption System Capacity

G 125 x 4.72 (loading rate) = 590 sf (supplied) > 500 sf (required)

Calculations by: [signature] **Date:** 15-Aug-03

PRECAST DISTRIBUTION BOX. **DB – 5 W/BAFFLE**



SPECIFICATIONS

- Concrete Minimum Strength – 4,000 P.S.I. @ 28 Days
- Steel Reinforcement – ASTM A-615-75, Grade 60, 1" Min. Cover

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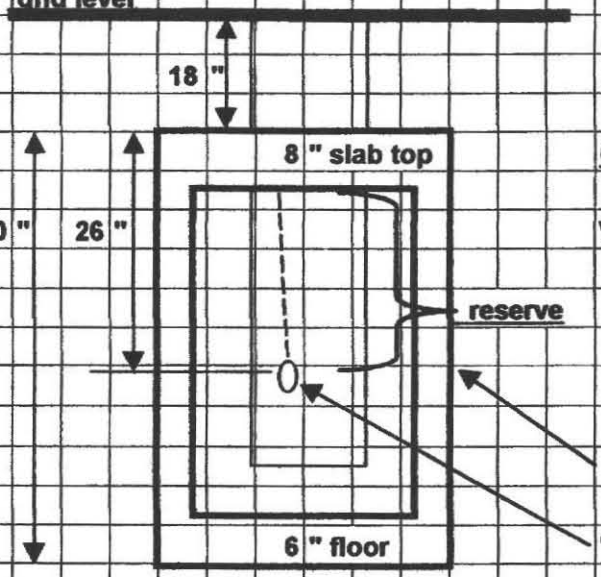
Project: 40 Elf Hill Road | **Location:** Amherst, MA 01002

Calculate pump chamber reserve capacity - use rectangular tank 5.0 ft wide (inside) x 5.0 ft deep 6.0 ft long (inside)



- use Myers STEP-1 system or equal
- use 3 bedroom design (330 gpd)

Calculate reserve:

Volume (per ft depth) = 5.0 x 6.0 = 30.0 ft³

(26 - 8) / 12 x 30.0 = 45.0 ft³

45.0 ft³ x 7.48 gal / ft³ = 336.6 gal > 330 gal req'd OK

Calculate pump chamber buoyancy (use chamber 18 " below surface and water @ 28 " depth)

Outside dimension =	6.00	x	7.00	x	5.00	=	210.0	ft³		
Inside dimension =	5.00	x	6.00	x	3.83	=	115.0	ft³	(860	gal)
	(210.0	-	115.0	) =	95.0	ft³ x 150 pcf =	14250	lb ▼		
Buoyant force =	6.00	x	7.00	x	4.17	x 62.4 pcf =	~~10920~~ 10929	lb ▲		
	14250	>	10920	OK						

10,928.7 ≈ 10,929 lb

Calculate septic tank buoyancy (use tank 12 " below surface and water @ 28 " depth)

Outside dimension =	9.50	ft (L) x	6.00	ft (W) x	5.75	ft (D) =	327.8	ft³		
Inside dimension =	8.50	ft (L) x	5.00	ft (W) x	4.75	ft (D) =	201.9	ft³	(1510	gal)
	(327.8	-	201.9	) =	125.9	ft³ x 150 pcf =	18881	lb ▼		
Buoyant force =	9.50	x	6.00	x	4.42	x 62.4 pcf =	15709	lb ▲		
	18881	>	15709	OK						

Pump and Alarm Specifications

1. STEP-1 Effluent pumping insert package by Myers (or equal)
2. SRM4 effluent pump (1-1/2") by Myers (or equal)
3. EA-1 pump control and alarm panel by Myers (or equal)

General Notes

a. Install separate dedicated electrical circuits for pump and alarm systems (sized per manufacturers recommendations)

b. Install electric lines through approved PVC conduits into waterproof junction box in pump chamber

c. All conduits shall be sealed to prevent intrusion of effluent or gases into house

d. Alarm panel shall be located inside the house with both audible and visual alarms

e. All wiring shall be in accordance with the Massachusetts Electrical Code

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John & Kate Clark 40 Elf Hill Road Amherst, MA 01002	
Project # : 030702	15-Aug-03
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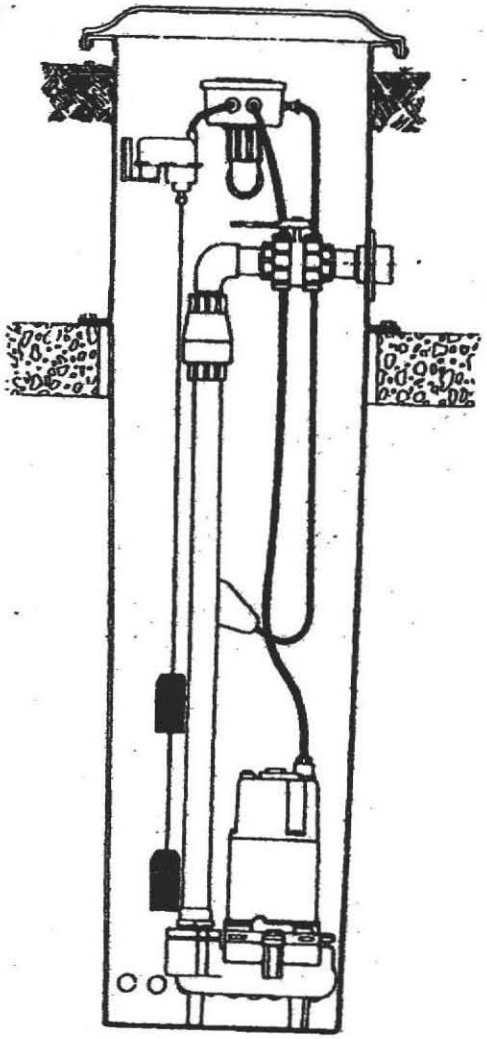
STEP-1 Effluent Pumping Insert Package Installation and Operating Manual



Myers®

13800A978

1½" Plastic Ball Shut-off Valve & Handle

1½" Plastic Check Valve

Fiberglass Junction Box with Cord Grips

ALC Level Control Switch

Alarm Switch

Plastic Fittings and Length of 1½" Plastic Pipe

Plastic Adapter for 1¼" and 1½" NPT thread to 1½" Solvent Weld Pipe

Plastic Rope

48" Deep Tank with Inlet Holes around bottom, 18" Riser with 1½" Hub for power and 1½" Hub for Pump Discharge (threaded).

Dome Fiberglass cover with locking holes

ASSEMBLY

The unit is assembled as completely as practical. All of the hardware except for the pump and alarm is included in the package.

INSTALLATION

A. Remove basin unit from carton.

B. Remove parts package from inside basin.

C. Remove shipping restraints from orange alarm switch.

D. Check to make sure basin assembly will fit into tank and rest on first shoulder (requires 18½" dia. round hole). If the hole is square, an adapter plate may be required. (See Fig. 1-4).

E. After it has been determined that the tank fits properly into the access hole and that the tank flange arrangement leaves no holes for infiltration, build up an approximately 1" thick ridge of mortar or caulking around the lip of the access hole. (See Fig. 5).

F. Set the basin into the hole making sure that the mortar seals all the way around the basin flange. Care should be taken to make sure discharge flange is pointed in proper direction. (See Fig. 6).

INSTALLATION OF PUMP

A. Remove threaded flanged end from valve assembly. Be careful not to drop square sealing ring out of flange. Screw threaded end of flange onto discharge pipe nipple. (See Fig. 7).

B. The 1½" plastic discharge pipe must be cut to length and cemented into the check

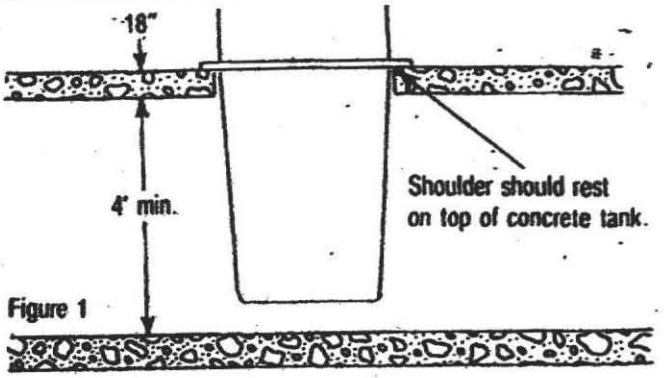


Figure 1

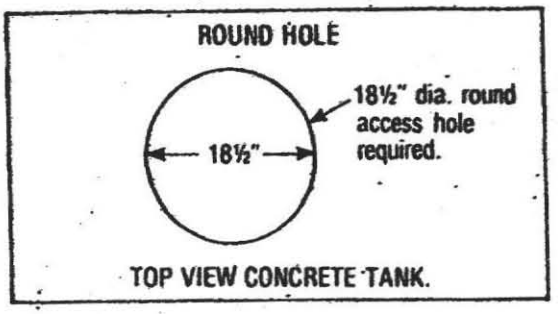


Figure 2

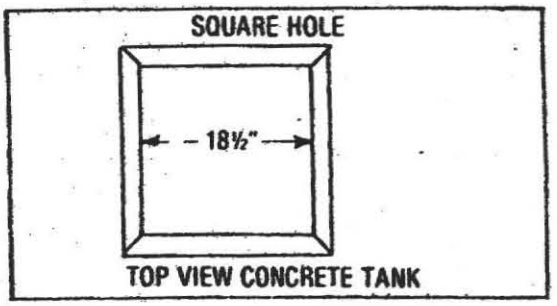


Figure 3

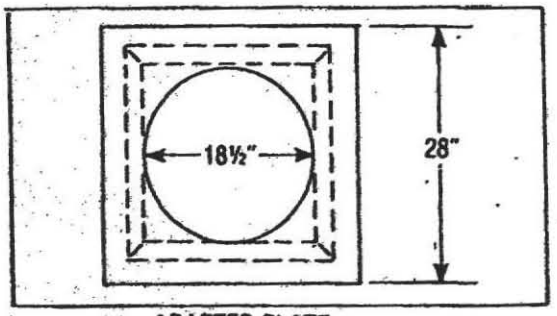


Figure 4

Adapter plate will cover a hole as large as 24". The plate should be caulked or cemented to top of tank, so a water tight seal is obtained. For additional security, holes may be drilled around the edge of the plate and lag bolted to top of tank.

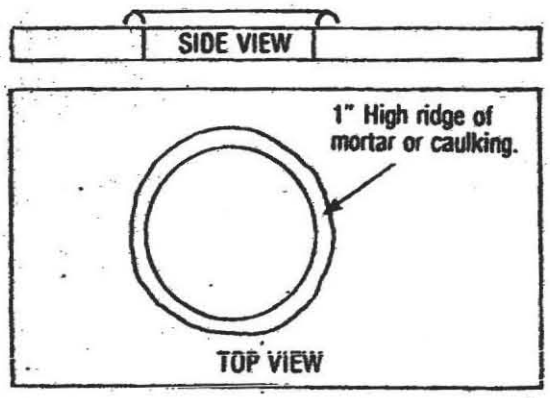


Figure 5

on the type of pump you are using. This dimension is important and should be measured accurately and have a relatively square cut on the end (see chart #1). After the pipe is cut, screw the adapter into the pump discharge case, slip the pipe into the socket and slip the valve assembly over the top of the pipe.

Measure from the bottom of the pump to the bottom of the valve. This dimension should be the same as from the bottom of the basin to the bottom of the flange on the discharge pipe.

If the pipe is a little short, it can be lengthened slighlty when the pipes are cemented together (make sure there is enough contact inside solvent weld sleeve to secure pipe). If the pipe is too long, it may have to be cut off. (See Fig. 8).

CHART 1

1½" DISCHARGE PIPE LENGTH		
PUMP MODEL	DISCHARGE ADAPTER	CUT 1½" PIPE LENGTH TO
SSM25	1½"	42"
SSM4	1½"	42"
WHRE	2"*	38½"

*This adapter does not come with package, but may be ordered separately.

C. The pipes are now ready to cement. Make sure that the pipes are positioned in correlation to pump as shown in Fig. 9.

D. Use a good grade PVC cement. All parts should be clean. Apply a liberal coat of cement on both parts to be mated. Assemble parts and make ¼ twist. Make sure parts are aligned per Fig. 9 before cement sets up.

E. After the cement has set up, fasten the nylon rope to the top of the pump and carefully lower the pump into the tube using the rope to bear the weight of the pump.

F. Fasten the valve coupling to the valve flange that has been installed on discharge nipple. (Make sure the square sealing gasket has been installed in the flange.) The flange face should line up with the discharge without bending or straining the parts. Secure the top end of the nylon rope by tying around the discharge pipe.

G. Remove top of junction box by removing 4 screws. Cut off power cord on pump approximately 1' longer than the top of the basin (pull pump cord so it extends 1' outside of basin and cut off). Strip outside jacket so about 8" of single

through the empty cord grip in the junction box so that the outer cord jacket shows inside the juntion box and tighten the cord grip around the cable jacket.

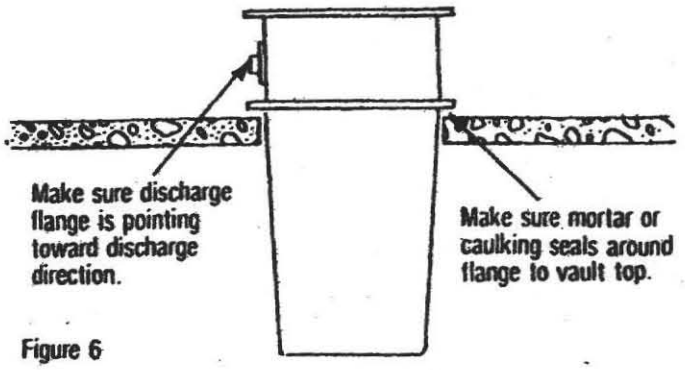
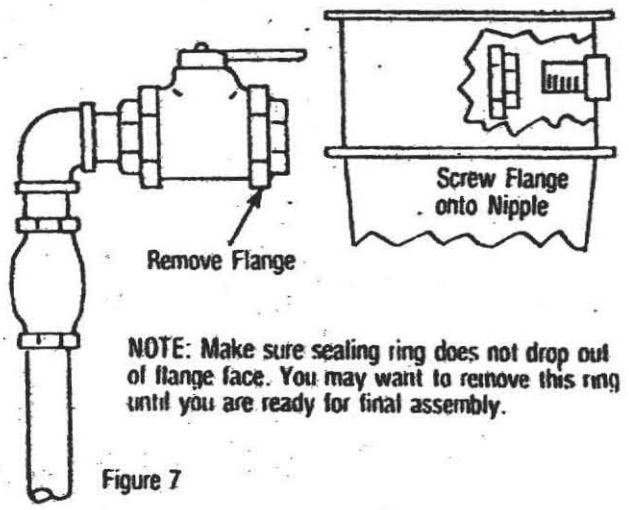


Figure 6



NOTE: Make sure sealing ring does not drop out of flange face. You may want to remove this ring until you are ready for final assembly.

Figure 7

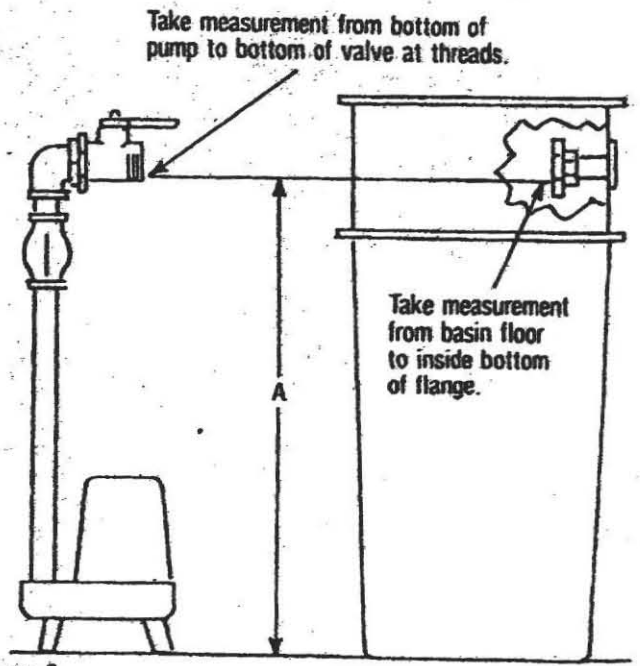


Figure 8

A. The weights on the level control switch are preset at the factory. If a different ON-OFF height is required, please see switch operating instructions.

B. Screw the weight assembly onto the bottom of the switch plunger. (See Fig. 10).

WIRING

A. Run wire from entrance panel or other adequate source to junction box. Direct bury or individual stranded wire in conduit may be used (see chart #2 for wire size). Two wires and ground are required for the pump and an additional 2 wires (14 ga.) are required for alarm (see Myers optional alarms and pump disconnect controls).

B. Enter the 1½" conduit flange and pull the wires up into the junction box so the leads stick out about 6". The alarm wires should be marked or color coded so they can be identified. (See Fig. 11).

C. The incoming lines must be sealed to keep condensation moisture or ground water from entering the junction box. Sealing compound is supplied and will make a very effective seal if the instructions are followed.

1. The individual wires should be separated from the outside jacket so an effective seal can be made around each insulated wire. The outer jacket (if used) should be stripped so that it falls about ½" below the bottom of the junction box. (See Fig. 12).

2. Wadded newspaper or similar material should be pushed around the wires and well down into the incoming elbow (approx. 1½" from bottom of junction box.) (See Fig. 12).

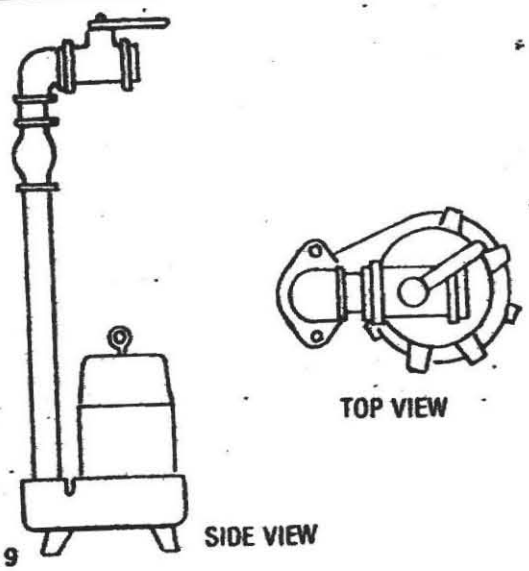


Figure 9

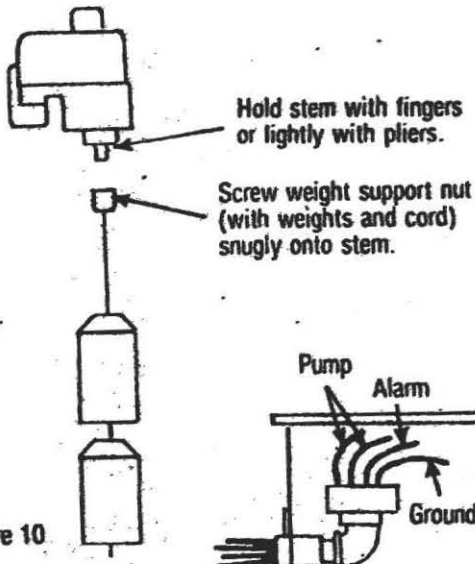


Figure 10

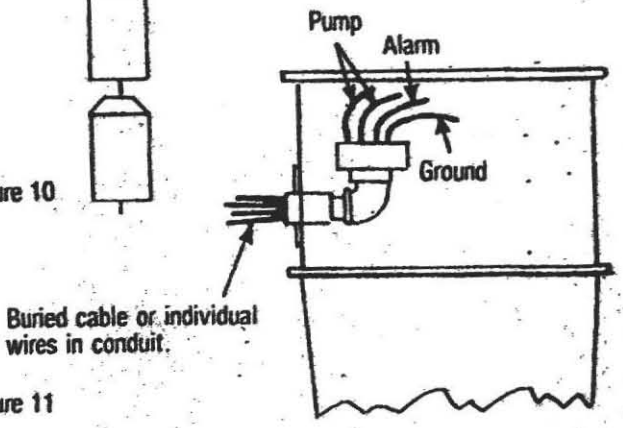


Figure 11

CHART 2
WIRE SELECTION TABLE FOR EFFLUENT PUMPS

PUMP MODEL	VOLTAGE	HP	MAX. AMPS.	WIRE SIZE REQUIRED PER TOTAL LENGTH OF LINE IN FEET*				
				100	200	300	400	500
SSM25M1C	115	¼	8	14	12	10	10	8
SSM4A1C	115	4/10	12	14	12	10	8	6
SSM4A2C	230	4/10	6	14	14	14	14	12
WHRE-11C	115	½	14.4	12	10	8	6	6
WHRE5-21C	230	½	7.2	14	14	14	12	12
WHRE10-21C	230	1	9.0	14	14	12	12	10
WHRE20-21C	230	2	14.5	12	12	12	10	10

*Wire selection based on allowable voltage drop within system rated at normal voltage. If low voltage is expected, it may be necessary to go to the next larger wire size.

around wires.

4. Mix potting compound supplied per instructions and pour into cavity. Make sure potting flows around wires. The cement should be allowed to set up before the wires are moved.

CONNECTING PUMP, SWITCH AND ALARM

A. Connect black wire from pump to black wire on ALC (black) switch.

B. Connect white wire of pump to white wire of incoming power.

C. Connect the 2 wires from the alarm switch (orange ball) to the 2 incoming alarm wires.

D. Connect incoming ground wire to green wire of pump.

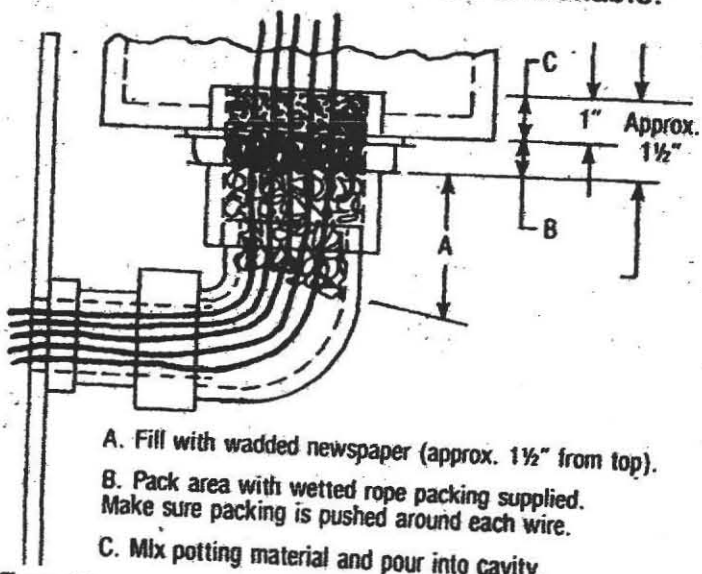
E. Make sure wire connections are correct and secure. Push wires into box and put on cover. Make sure the cord grips around the incoming cables are snug.

The fiberglass basin cover may be locked by inserting padlocks through the holes on each side of the cover. If locking is not required, the cover may be held on by bolts supplied.

CONNECTING ALARM

Two types of alarms are available:
1. Inside alarm fastens to inside wall and plugs into 110 V. outlet. Audible alarm warns of high water. Unit also has alarm silence and test switch.

2. Outside alarm fastens to side of house or post. And has red flashing light. This alarm has 2 circuit breakers, one for pump and one for the alarm. Terminal blocks are supplied for connecting the pump and alarm wires and the enclosure is lockable.



A. Fill with wadded newspaper (approx. 1½" from top).

B. Pack area with wetted rope packing supplied. Make sure packing is pushed around each wire.

C. Mix potting material and pour into cavity.

Figure 12

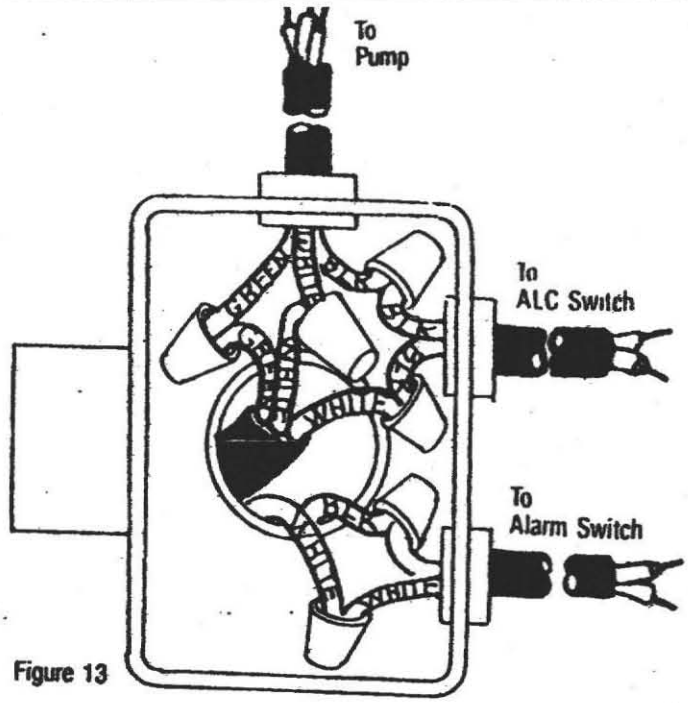
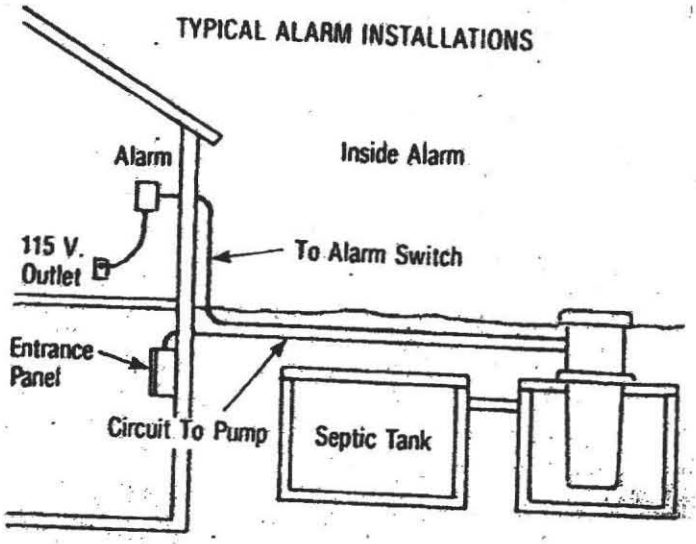
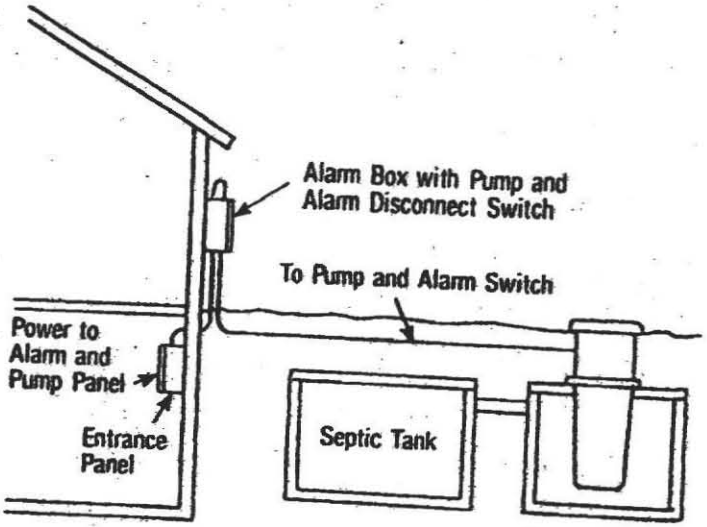


Figure 13

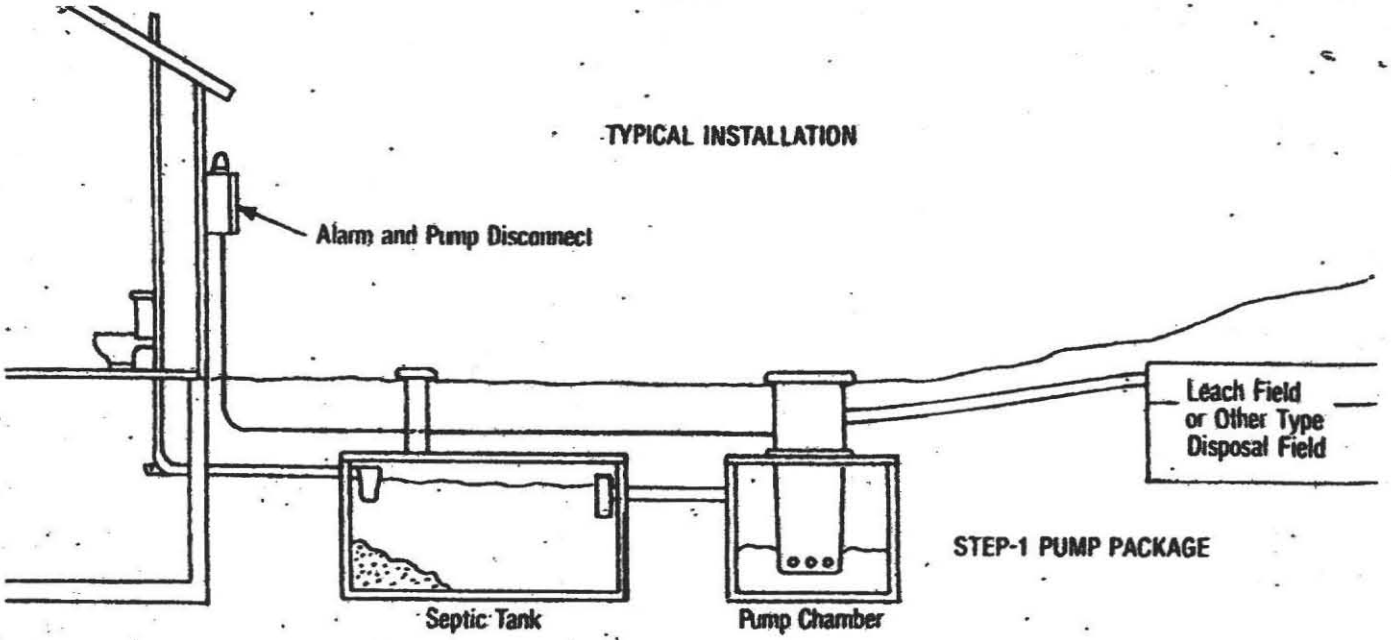
TYPICAL ALARM INSTALLATIONS



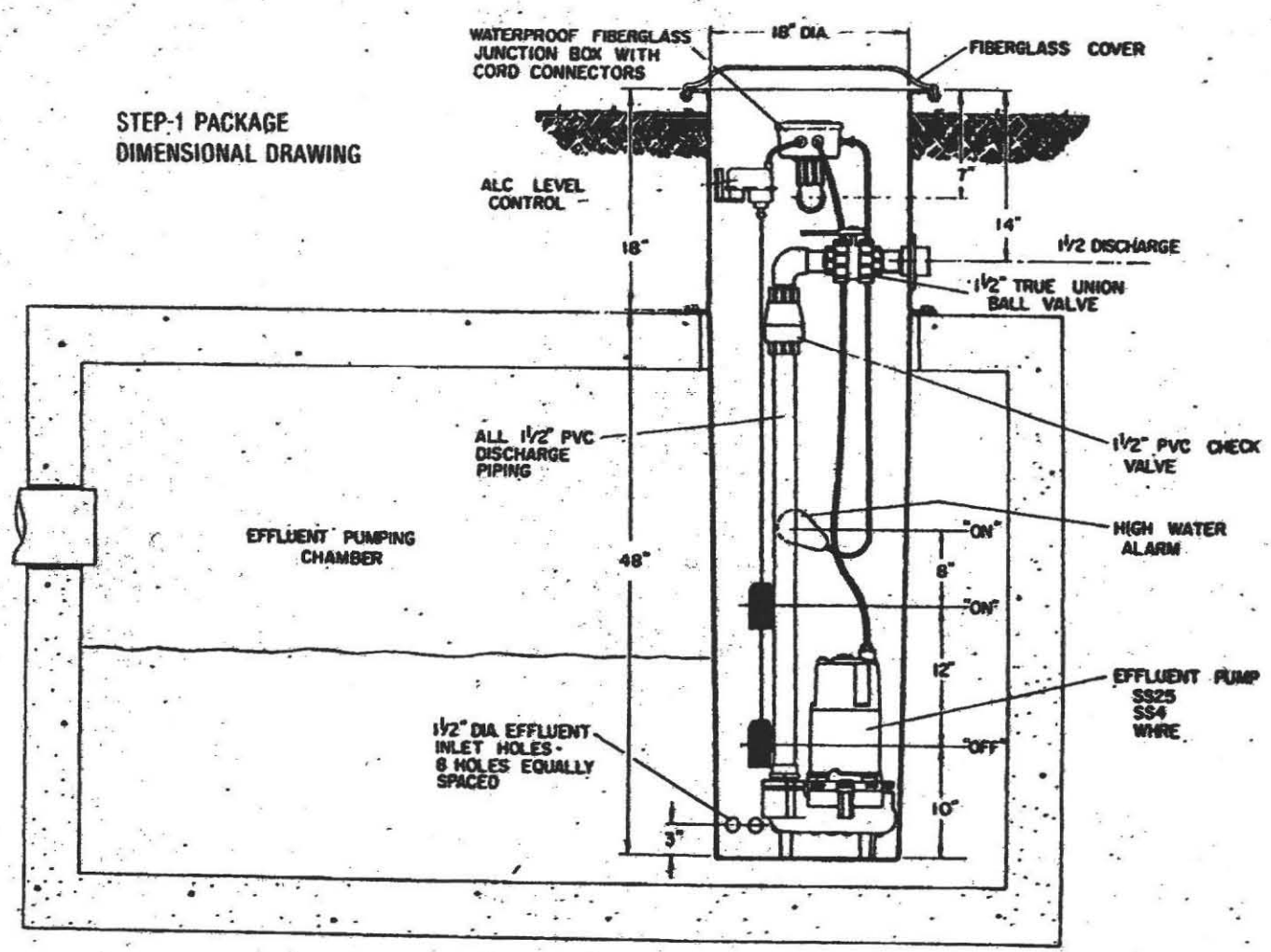


For more detailed information, see alarm installation information.

TYPICAL INSTALLATION



STEP-1 PACKAGE DIMENSIONAL DRAWING

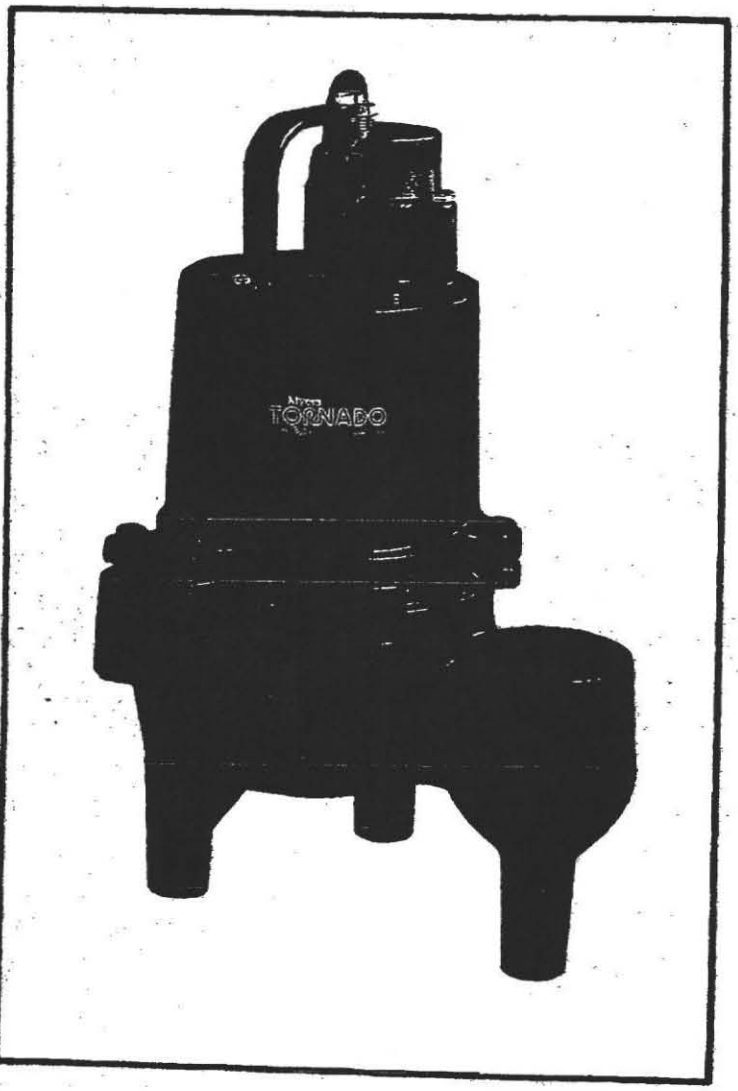


F.E. MYERS CO. DIVISION OF McNEIL CORPORATION
400 ORANGE STREET
ASHLAND, OHIO 44805-2285
419/289-1144 TELEX 98-7443

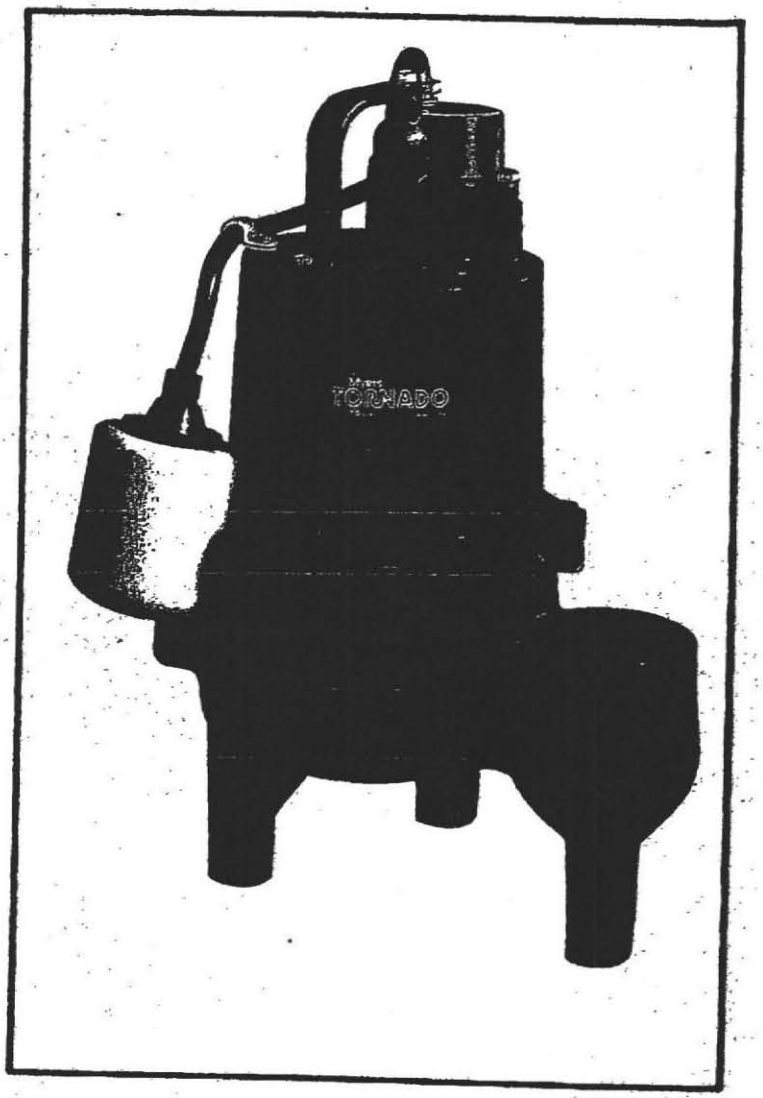
Printed in U.S.A.

Myers Tornado Series

SRM4 SUBMERSIBLE SEWAGE PUMP



SRM4M (manual)



SRM4A (automatic)

Features

Pump Impeller is recessed "Tornado" type – operates completely out of volute passage giving full opening for flow of liquids and solids up to 2 inch dia.

Motor Housing is heavy cast iron, epoxy coated. Stator is pressed in for perfect alignment, best heat transfer.

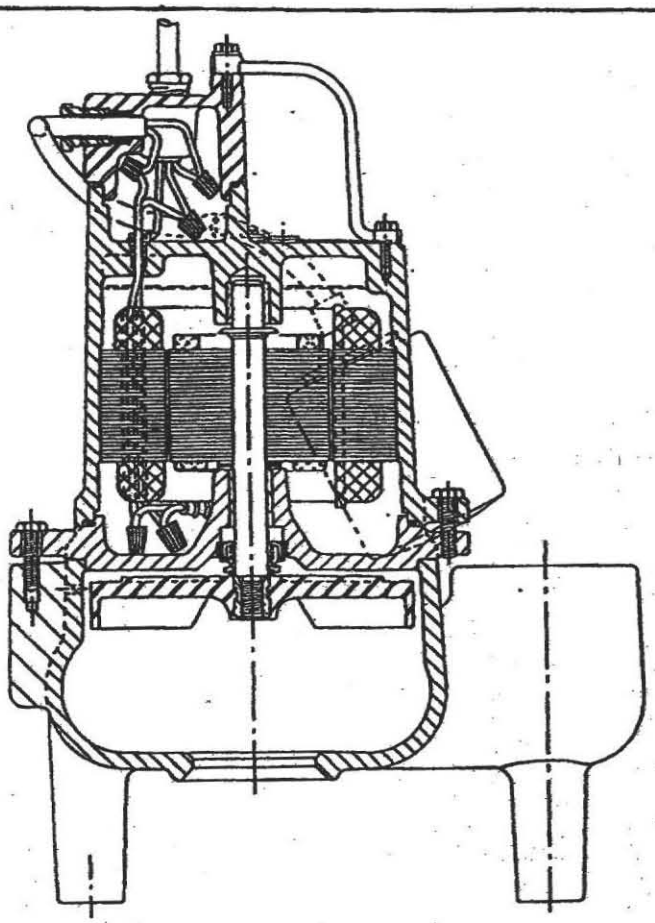
Powerful 4/10 HP Motor is oil filled for good insulation and lubrication of bearings and seal. Overload protection built-in. No starting switch or relay mechanism.

Thrust Washers and Sleeve Bearings are oil lubricated for smooth operation, long pump life.

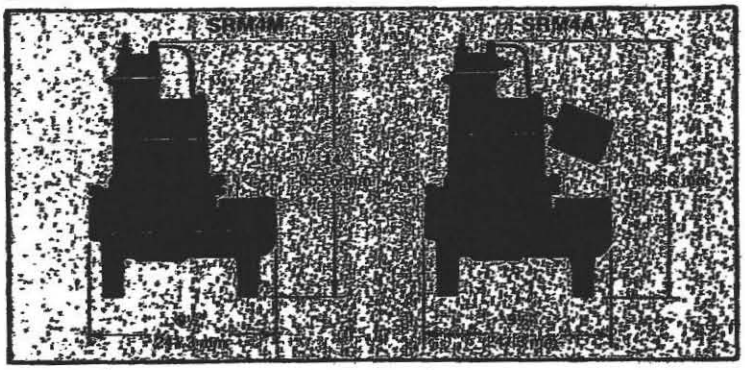
Rotary Shaft Seal has carbon and ceramic faces for positive seal. Body is stationary, prevents string or trash from winding on seal.

Switch Housing (SRM4A) is completely sealed from pump liquid, easily removed for replacement if needed.

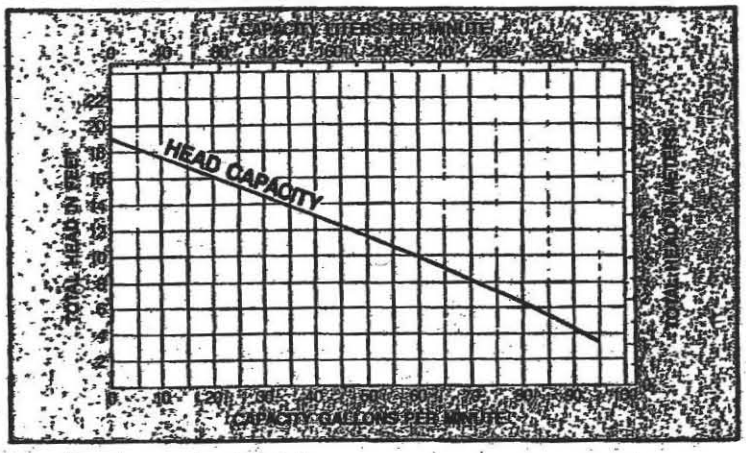
Mercury Switch 20 AMP rating, 3" cylinder, 90° angle operation, polypropylene material. Recommended Tether length is 4" from cord clip to switch case (Pump Down 9"). 'Pump Down' can be increased by increasing the Tether length.



Dimensions

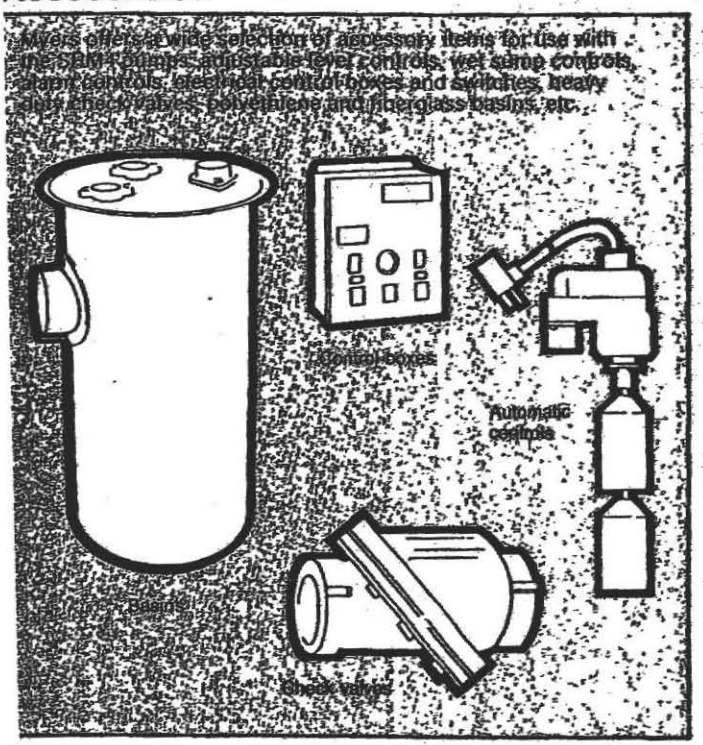


Performance Curve



Accessories

Myers offers a wide selection of accessory items for use with the SRM4 pumps, adjustable level controls, wet sump controls, alarm controls, explosion proof control boxes and switches, heavy duty check valves, polyethylene and fiberglass basins, etc.



Performance Table

Total Head	Feet	2	4	6	8	10	12	14	16	18	20	22
	Meters	.61	1.22	1.83	2.44	3.05	3.66	4.27	4.88	5.49	6.10	6.71
Gallons Per Hour		6,000	5,500	4,900	4,300	3,600	2,800	2,100	1,200	420		
Liters Per Hour		22,710	20,818	18,547	16,276	13,626	10,598	7,949	4,542	1,590		

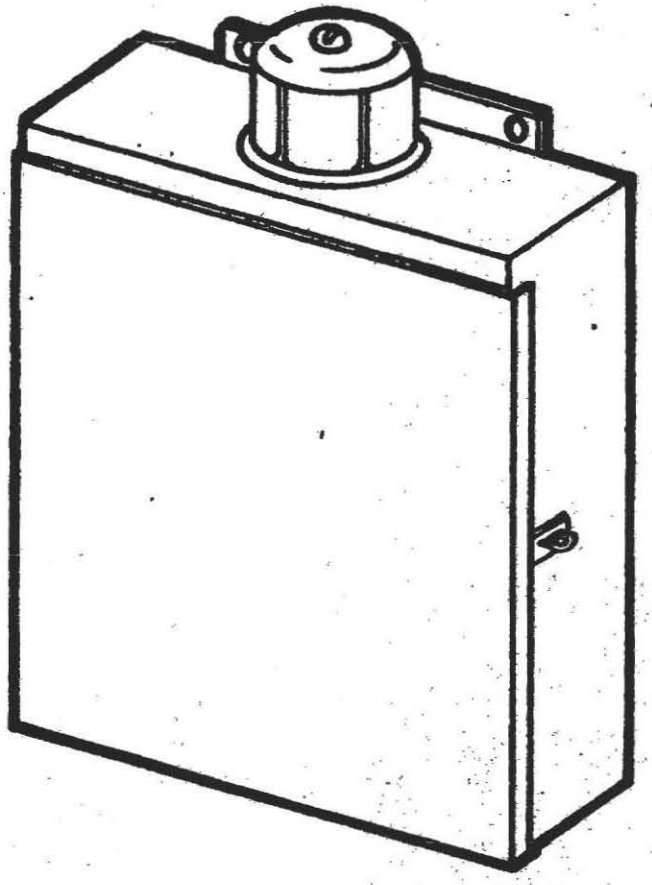
Performance Capabilities

Capacities to	95 GPM	360 LPM
Heads to	19 feet	5.79 meters
Pump Down Range*	7 to 14 inches	177.8 to 355.6 mm
Solid Handling Capability	2 inch dia. solids	50.8 mm dia. solids
Liquids Handled	Fresh, drainage effluent waste water	
Intermittent Liquid Temp.	150°F	66°C
Motor	4/10 HP	
Electrical	115/230 V., 12.0 A/6.0 A, 1 ϕ, 60 Hertz	
Discharge	2 inch	50.8 mm

*Automatic Model, (manual pump variable with switch).

F.E. MYERS CO.
DIVISION OF McNEIL CORPORATION
400 ORANGE STREET
ASHLAND, OHIO 44805-2285
419/289-1144 TELEX 98-7443

EA-1
115v. Alarm Panel Installation and Service Manual



Myers®

13800A987

Printed in U.S.A.

This alarm panel may be used as a high water alarm and pump disconnect switch. It may be mounted inside or outside. A 20 amp 115 V. circuit breaker is provided for the pump and an additional circuit breaker is provided for the alarm. This alarm may be used as alarm only if desired.

FEATURES ENCLOSURE — The enclosure is a type NEMA 3R that may be mounted outside. Mounting feet are supplied on the exterior of the box. A hinged door with lockable hasp is supplied. The finish on the enclosure is gray enamel paint over galvanized steel. The dimensions of the enclosure are 9" x 8" x 6" and knockouts are supplied in the bottom of the enclosure.

LIGHT— The alarm light is a 40 watt high intensity flashing light enclosed by a heavy red polycarbonate globe. The light bulb is a standard Edison base appliance bulb that may be easily removed from inside the enclosure.

CIRCUIT BREAKER — A 20 amp single pole circuit breaker is supplied for the pump and a separate 20 amp breaker is supplied for the alarm. The two breakers come with a jumper at the top of the breakers, so both pump and alarm may be operated from the same circuit. By removing the jumper, two separate circuits may be run to the panel so that if, for some reason, the circuit operating the pump is disrupted, the alarm circuit would contine to operate.

The circuit breakers provide a convenient method of disconnecting the power to the pump and alarm for maintenance or service.

TERMINAL BLOCKS — Box Clamp Terminal Blocks are provided for connecting the alarm switch and pump leads. These terminals are clearly marked.

INSTALLATION

1. Select a convenient location and mount the alarm enclosure on a stable vertical support by means of the four mounting holes in the brackets on the back of the enclosure.
2. Run one or two circuits (see circuit option) from an adequate power supply (see pump specifications for power and wire size required). Enter the bottom of the enclosure through one of the knockouts supplied.
3. Fasten wires (hot) to top of the circuit breakers. Fasten neutral wire to neutral terminal block. Fasten ground wire to ground lug.

IMPORTANT: Make sure hot wire (normally black) is connected to circuit breaker and neutral wire (normally white) is connected to neutral terminal block.

OPTION I SINGLE CIRCUIT OPERATION

Run one 115 V. line with ground to panel. The power supplied should be at least a 20 amp. circuit. (It would be wise to run a 25 or 30 amp. circuit, if possible, so that if there was a short circuit in the pump, the 20 amp. breaker in the panel would most likely trip before the power supply breaker and the alarm would still operate.)

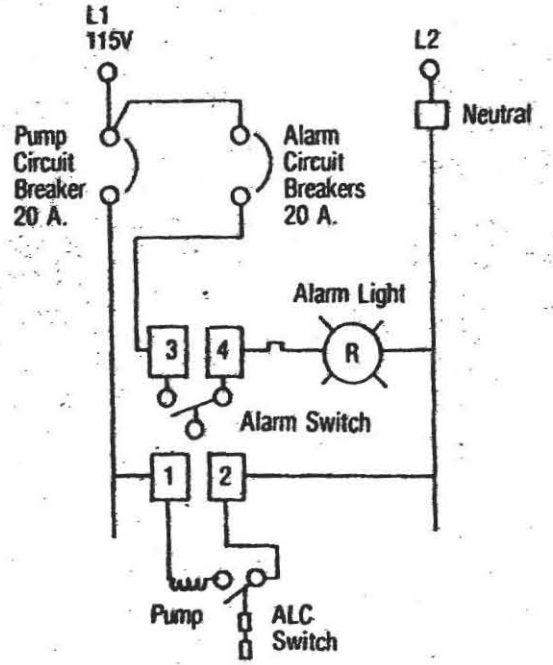
OPTION II TWO CIRCUIT OPERATION

Run two 115 V. lines with ground to panel. One of the lines should be a 20 amp. circuit for the pump. The other line should be a 15 amp. circuit for the alarm. Remove the jumper at the top of the circuit breaker and connect the hot side of the 20 amp. circuit to the top of the left hand breaker (to installers — left when facing the front of the enclosure). Connect the neutral wire to the neutral terminal and the ground wire to the ground lug.

Connect the hot side of the 15 amp. circuit to the top of the circuit breaker on the right (to installers — right when facing the enclosure). Connect the neutral wire to the neutral terminal and the ground wire to the ground lug.

4. Run the wires from the pump and connect to terminals marked 1 and 2, connect ground to ground lug.
5. Run wires from high water alarm switch and connect to terminals 3 and 4.
6. You may test the alarm circuit by manually activating the level switch or jumping terminals 3 and 4.
7. The enclosure may be locked by inserting a padlock (not supplied) through the enclosure hasp.

NOTE: These instructions are meant as an installation guide only. The installer should be familiar with the N.E.C. code or any other local codes that apply and the installation should be done per governing regulations.



OPTION: To run pump and alarm on separate circuits, remove jumper from top of circuit breakers and connect alarm circuit to top of alarm circuit breaker.

F.E. MYERS CO.
DIVISION OF McNEIL CORPORATION
400 ORANGE STREET
ASHLAND, OHIO 44805-2285
419/289 1144 TELEX 98-7443

Pipe & Baffle Specifications

1. Pipe installed between the building and the septic tank shall be sch40 PVC and shall be installed at a minimum slope of 0.02 ft per ft.
2. Pipe installed between the septic tank and pump chamber shall be sch40 PVC and shall be installed at a minimum slope of 0.02 ft. per ft.
3. Pipe exiting the distribution box shall be SDR35 and shall be installed level for the first two (2) feet minimum. Thereafter, the pipe shall be installed at a slope of 0.005 ft. per ft. and shall be perforated only in the leaching area
4. Pipe between pump chamber and distribution box shall be 2" PVC - sch40 with no check valves installed to permit free draining back into pump chamber when pump is off
5. Septic tank baffles shall be constructed from sch40 PVC pipe & fittings and shall extend a minimum of 6" above the flow line of the septic tank. Baffles shall be located beneath the tank clean-outs and within 12" of each end of the tank. There shall be a minimum 3" air space between the top of the baffle and the underside of the top of the tank. The inlet baffle shall extend a minimum of 10" below the tank flow line and the outlet baffle shall extend below the tank flow line in accordance with the following table:

Liquid depth in tank	Depth of baffle below flow line
4 ft.	14 in.
5 ft.	19 in.
6 ft.	24 in.
7 ft.	29 in.
8 ft.	34 in.

6. Install effluent filter on outlet tee

Innovative Engineering
110 Chapin Greene Drive
Ludlow, MA 01056
Phone: 413/583-7930
FAX: 413/583-8771

John & Kate Clark
40 Elf Hill Road
Amherst, MA 01002

Project # : 030702	15-Aug-03
Scale : none	Sheet # 8 of 12

Soil Evaluation Report

Form 11 - Soil Evaluation Form with attachments as follows :

1) Soil suitability assessment
2) On-site Review sheets
3) Determination for Seasonal High Water Table

Form 12 - Percolation Test

Innovative Engineering
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Phone: 413/583-7930
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Amherst, MA 01002

Project # : 030702	15-Aug-03
Scale : none	Sheet # 9 of 12

FORM 11 – SOIL EVALUATOR FORM

No. 1 Date: 7-31-03

Commonwealth of Massachusetts
, Massachusetts

Soil Suitability Assessment for On-site Sewage Disposal

Performed By: David Kolacz Date: 7-31-03
Witnessed By: David Zarozinski

Location Address or Map # & Lot # 40 Elf Hill Rd Amherst MA. 01002	Owner's Name: John Clark
New Construction ☐ Repair ☒	Address: Same
	Telephone #:

Office Review

Published Soil Survey Available: No ☐ Yes ☒

Year Published 1989 Publication Scale 1:15,840 Soil Map Unit HgB, HgC

Drainage Class _____ Soil Limitations _____

Surficial Geology Report Available: No: ☐ Yes: ☐

Year Published _____ Publication Scale _____

Geologic Material (Map Unit) _____

Landform _____

Flood Insurance Rate Map:

Above 500 year flood boundary No ☐ Yes ☒

Within 500 year flood boundary No ☒ Yes ☐

Within 100 year flood boundary No ☒ Yes ☐

Wetland Area: none

National Wetland Inventory Map (map unit) _____

Wetlands Conservancy Program Map (map unit) _____

Current Water Resource Conditions (USGS): Month

Range: Above Normal ☐ Normal ☐ Below Normal ☐

Other References Reviewed: _____

FORM 11 – SOIL EVALUATORS FORM

Location, Address, or Lot No. 40 Elf Hill Rd, Amherst

On-site Review

Deep Hole Number 1 Date: 7-31-03 Time: 11:00 Weather clear

Location (identify on site plan)

Land Use Residential Slope (%) HgB → 3-8 HgC → 8-15 Surface Stones

Vegetation

Landform

Position on landscape (sketch on the back)

Distance from:

Open Water Body	>100	feet	Drainage Way	>100	feet
Possible Wet Area	>100	feet	Property Line	>20	feet 54' to fence/property line
Drinking Water Well	NA	feet	Other		feet

Public H2O

DEEP OBSERVATION HOLE LOG

Depth from Surface (inches)	Soil Horizon	Soil Texture (USGS)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel
0 - 8	A	SL	10YR 3/1		friable
8 - 24	Bw	LS	10YR 3/2	2.5Y 4/6	granular, friable
24 - 120	C	LS	2.5Y 6/4	10YR 5/2	gravelly, loose v. friable, cobble indurated

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Till Depth To Bedrock: >120"

Depth to Groundwater: Standing Water in Hole: 8" 6" Weeping from Pit Face: 6.9"

Estimated Seasonal High Ground Water: 28"

FORM 12 – PERCOLATION TEST

Location Address or Lot No. 40 Elf Hill Rd. Amherst

COMMONWEALTH OF MASSACHUSETTS

Amherst, Massachusetts

Percolation Test		
Date: 7-31-03		Time: 11:00
Observation Hole #	1	
Depth of Perc	36"	
Start Pre-soak	11:10	
End Pre-soak	11:33	
Time at 12"	11:33	
Time at 9"	11:54	
Time at 6"	12:28	
Time (9"-6")	34	
Rate Min./inch	12 min	

- Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

Site Passed ☒ Site Failed ☐

Performed By: David Kolacz

Witnessed By: David Zarozinski

Comments:

FORM 11 – SOIL EVALUATORS FORM

Location Address or Lot No. 40 Elf Hill Rd. Amherst

Determination for Seasonal High Ground Water Table

Method Used:

- ☒ Depth observed standing in observation hole 8' 5" inches
- ☒ Depth weeping from side of observation hole 6' 9" inches
- ☒ Depth to soil mottles 28" inches
- ☐ Ground water adjustment _____ feet

Index Well Number Reading Date Index Well level

Adjustment factor Adjustment ground water level

Depth of Naturally Occurring Pervious Material

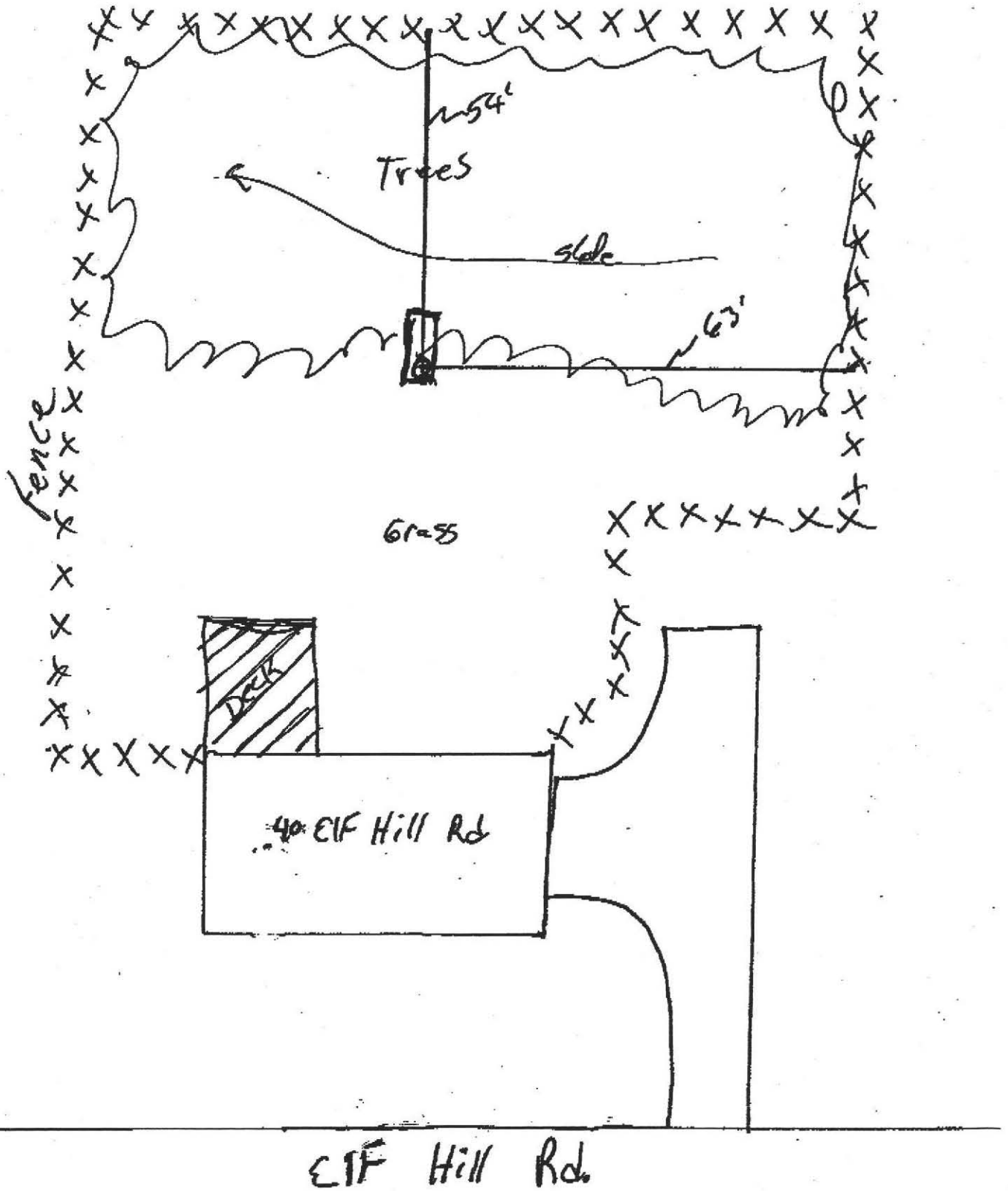
Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? yes

If not, what is the depth of naturally occurring pervious material? _____

Certification

I certify that on 1997 (date) I have passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performed by me consistant with the required training, expertise and experience described in 310 CMR 15.017.

Signature David F Kingsley Date 7-31-03


54'
Trees
slide
63'
fence
Grass
Deck
40 Elf Hill Rd
Elf Hill Rd.

Infiltrator (Std. model), pipe and baffle specifications

a. Specification sheet for Infiltrator - Standard model

b. DEP approved loading rate

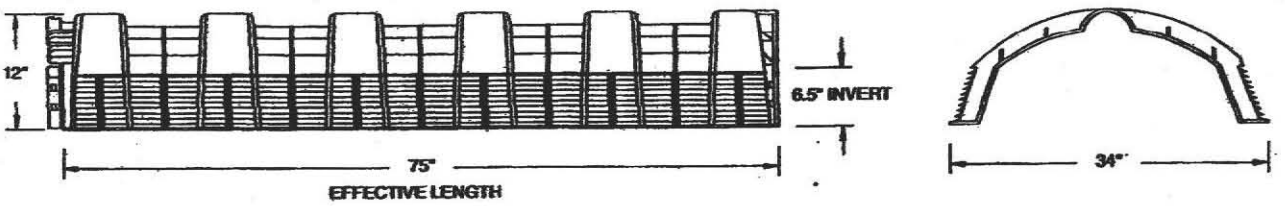
Innovative Engineering
110 Chapin Greene Drive
Ludlow, MA 01056
Phone: 413/583-7930
FAX: 413/583-8771

John & Kate Clark 40 Elf Hill Road Amherst, MA 01002	
Project # : 030702	15-Aug-03
Scale : none	Sheet # 10 of 12

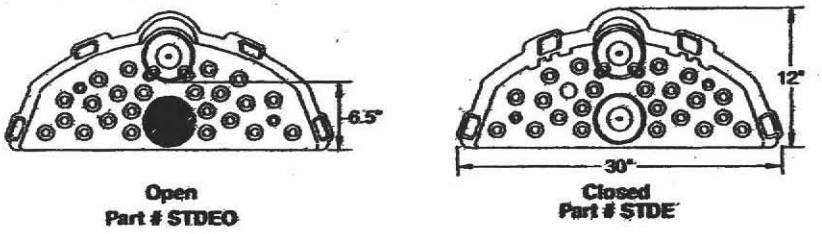
INFILTRATOR SYSTEMS INC

Standard H-10 or Standard SC Chambers

SIDE AND END VIEWS



POSILOCK END PLATES
(not to scale)



Open
Part # STDEO

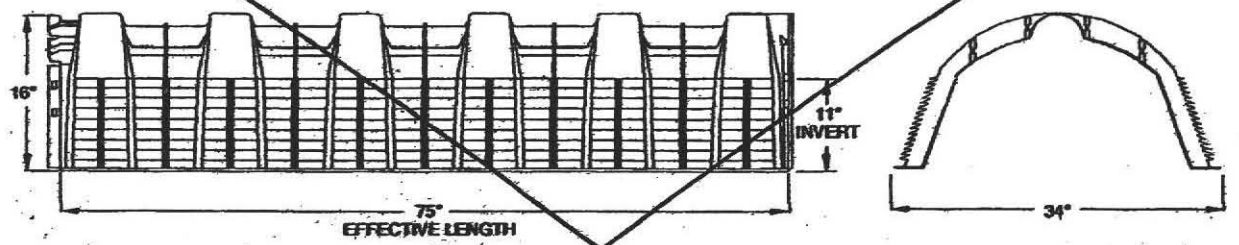
Closed
Part # STDE

Nominal chamber specifications

Size (W x L x H)	34" x 75" x 12"
Effective Leaching Area:	
Bed	4.72 sf/ft
Trench	6.53 sf/ft
Invert Elevation	6.5"

High Capacity H-10 or High Capacity H-20 Chambers

SIDE AND END VIEWS



POSILOCK END PLATES
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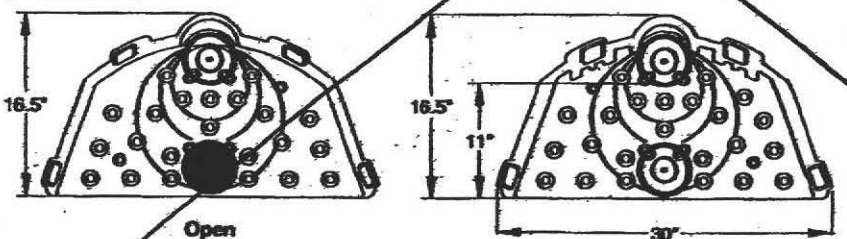


Open
Part # HCEO

Closed
Part # HCE

Nominal chamber specifications

Size (W x L x H)	34" x 75" x 16"
Effective Leaching Area:	
Bed	4.72 sf/ft
Trench	7.79 sf/ft
Invert Elevation	11"

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MITT ROMNEY
Governor

KERRY HEALEY
Lieutenant Governor

ELLEN ROY HERZFELDER
Secretary

EDWARD P. KUNCE
Acting Commissioner

MODIFIED CERTIFICATION FOR GENERAL USE
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Infiltrator Systems, Inc.
P.O. Box 768
6 Business Park Road
Old Saybrook, CT 06475

Trade name of technology and model: High Capacity Chamber, Standard Chamber, Infiltrator 3050 (Storm Tech SC-740) and Equalizer 24 and 36 (hereinafter the "System").

Transmittal Number: W023699
Date of Issuance: February 21, 2003
Date of Expiration: February 21, 2008

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Certification to: Infiltrator Systems, Inc., P.O. Box 768, 6 Business Park Road, Old Saybrook, CT 06475 (hereinafter "the Company"), for General Use of the System described herein. Sale and use of the System are conditioned on and subject to compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Certification constitutes a violation of 310 CMR 15.000.

Glenn Haas, Director
Division of Watershed Management
Department of Environmental Protection

2/21/03
Date

Department designated Zone II or IWPA when the facility is to be brought into full compliance in accordance with 310 CMR 15.404.

8. In accordance with 310 CMR 15.240 (6) absorption trenches should be used whenever possible. When the System is installed for new construction without aggregate in a bed or field configuration, as defined in 310 CMR 15.252, the System shall be designed using the effective leaching area for the bottom width presented in the following table. Chambers shall be spaced a minimum of six inches apart (edge-to-edge) when used in a bed configuration. No system shall be designed and constructed with a leaching area of less than 400 square feet. The effective leaching area shall only be equal to the bottom width for any System installed in a Department designated Nitrogen Sensitive Area or for any System that is installed for new construction where a private drinking water supply well is proposed to serve the facility, as defined in 310 CMR 15.214 (2) and for which a variance to the minimum setback distance of 100 feet has been granted.

Model	Effective Leaching[1] Area SF/LF
Equalizer 24	2.08
Equalizer 36	3.05
Standard Chamber	4.72
Infiltrator 3050 or StormTech SC-740	4.25[2]
High Capacity Chamber	4.72

1. Effective Leaching area is equal to 1.67 times bottom width only.
2. Effective leaching area for Infiltrator 3050 or StormTech SC-740 is equal to 1.0 times the bottom width

9. The System, when installed in a bed or field configuration without aggregate on remedial sites, shall utilize the effective leaching areas presented in item 8 above or additional reductions in soil absorption system area approved by the approving authority in accordance with 310 CMR 15.284. In no instance shall the reduction in the soil absorption system area required in 310 CMR 15.242 exceed the maximum reduction allowed for alternative systems approved in accordance with 310 CMR 15.284.

10. The System, when installed as specified in 310 CMR 15.253: Pits, Galleries, or Chambers, shall have an aggregate base and/or be surrounded by aggregate and shall be sized as specified in 310 CMR 15.253 (1) (a) and (b). Effective depth can be increased up to two feet with the corresponding addition of up to 14 inches of base aggregate. Bottom width can be increased by two to eight SF/LF with the corresponding addition of one to four feet of aggregate per side.

11. The requirement that Chambers installed in trench configuration as specified in 310 CMR 15.253(6) be provided with inlets at intervals not to exceed 20 feet is not applicable to the System.

III. General Conditions

1. The provisions of 310 CMR 15.000 are applicable to the use of the System, except those that specifically have been varied by the terms of this Certification.
2. The facility served by the System, and the System itself, shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
3. In accordance with applicable law, the Department and the local approving authority may require the owner of the System to cease use of the System and/or to take any other action as it deems necessary to protect public health, safety, welfare or the environment.
4. The Department has not determined that the performance of the System will provide a level of protection to the environment that is at least equivalent to that of a sewer. Accordingly, no new System shall be constructed, and no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless allowed pursuant to 310 CMR 15.004.
5. Design, installation and use of the System shall be in strict conformance with the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to this Certification.

IV. Conditions Applicable to the System Owner

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the on-site sewage disposal system and shall be lawfully disposed of.
2. For new construction, the owner initially shall size a soil absorption system in accordance with 310 CMR 15.242 to demonstrate that a conventional Title 5 soil adsorption system using aggregate, including a reserve area, can be installed on the site. The owner may than size the soil absorption system for the System. The total area required for the aggregate system, which may include the area designated for the System, and a reserve area shall be preserved and the owner shall ensure that no permanent structures or other structures are constructed on that area and that the area is not disturbed in any manner that will render it unusable for future installation of a conventional Title 5 soil absorption system.

3. The owner of the System shall at all times properly operate and maintain the on-site sewage disposal system.

4. The owner shall furnish the Department any information that the Department requests regarding the operation and performance of the System, within 21 days of the date of receipt of that request.

5. No owner shall authorize or allow the installation of the System other than by a person trained by the Company to install the System.

V. Conditions Applicable to the Company

1. By January 31st of each year, the Company shall submit to the Department a report, signed by a corporate officer, general partner, or Company owner that contains information on the System for the previous calendar year. The report shall state known failures, malfunctions, and corrective actions taken for the System as well as the date and address of each event.

2. The Company shall notify the Department's Director of Watershed Permitting at least 30 days in advance of any proposed transfer of ownership of the technology for which this Certification is issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this Certification applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.

3. The Company shall furnish the Department any information that the Department requests regarding the System, within 21 days of the date of receipt of that request.

4. Prior to any sale of the System, the Company shall provide the purchaser with a copy of this Certification. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of the System, prior to any sale of the System, with a copy of this Certification.

5. If the Company wishes to continue this Certification after its expiration date, the Company shall apply for and obtain a renewal of this Certification. The Company shall submit a renewal application at least 180 days before the expiration date of this Certification, unless written permission for a later date has been granted by the Department.

6. The Company shall prepare an installation manual specifically detailing procedures for installation of its System. The Company shall institute and maintain a training program in the proper installation of its System in accordance with the manual and provide a training course at least annually for prospective

installers. The Company shall certify that installers have passed the Company's training qualifications, maintain a list of certified installers, submit a copy to the Department, and update the list annually. Updated lists shall be forwarded to the Department.

7. The Company shall not sell the System to installers unless they are trained to install these Systems by the Company.

VI. Conditions Applicable to Installers of the System

1. Each Installer shall install the System in accordance with Company training on the installation of the System and the conditions of this Certification.

2. No Installer shall install the System unless the Installer has been trained by the Company on installation of the System.

VII. Reporting

1. All submittals of notices and documents to the Department required by this Certification shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VIII. Rights of the Department

1. The Department may suspend, modify or revoke this Certification for cause, including, but not limited to, non-compliance with the terms of this Certification, non-payment of an annual compliance assurance fee, for obtaining the Certification by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Certification, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Certification, the System, the owner, or operator of the System and the Company.

IX. Expiration Date

1. Notwithstanding the expiration date of this Certification, any System installed prior to the expiration date of this Certification, and approved, installed and maintained in compliance with this Certification (as it may be modified) and 310

INFILTRATOR SYSTEMS INC

STANDARD LIMITED WARRANTY – SEPTIC PRODUCTS
SINGLE FAMILY RESIDENCES

MASSACHUSETTS

(a) Infiltrator warrants that each chamber, end plate, wedge, and other accessory manufactured by Infiltrator (collectively, the "Units"), when installed and operated in a leachfield of an onsite septic system of a single family residence in accordance with Infiltrator's instructions, for a period of five (5) years from the date of installation (i) shall be free from defective materials and workmanship; and (ii) shall perform in such a manner to absorb effluent within the design flow rate for the septic system containing the Units, so that there will be no sewage backup into the dwelling or structure which uses the septic system, or visible pooling of effluent around the system. The presence of such sewage backup or such visible pooling shall constitute a "Failure" of the system. This Limited Warranty covers new, permitted leachfield installations only, and does not cover extensions or additions to existing leachfields. This Limited Warranty extends only to the original purchasing contractor. For this Limited Warranty to apply, the Units must be installed in accordance with all necessary permits and in accordance with all site conditions required by state and local codes for the installation of gravel and pipe systems, and must be sized according to Infiltrator specifications and state, county and local requirements.

In order to exercise these Limited Warranty rights, the warranty holder must notify Infiltrator in writing at its corporate headquarters in Old Saybrook, Connecticut (address below) within fifteen (15) days of any alleged defect or Failure. The notice shall be accompanied by (i) a copy of the appropriate permit for the septic system; and (ii) proof to Infiltrator's satisfaction that the septic tank has been pumped at least once every three (3) years since installation. Upon notification of a possible breach of warranty, Infiltrator may undertake an investigation of the circumstances of the possible breach. In its discretion, Infiltrator may perform tests to determine the cause of any breach and may hire a soil scientist or professional engineer or use Infiltrator personnel to evaluate soil conditions and otherwise assist in the investigation.

In the event that Infiltrator determines that there has been a breach of this Limited Warranty due to a Failure, Infiltrator will, at its option, either: provide Units as it deems necessary to extend the size of the leachfield and a fee of $30.00 per Unit toward the cost of installation; or provide an equivalent, state-approved solution to cure the breach. Infiltrator will not be responsible for pumps or any other necessary mechanical devices needed to extend or repair the leachfield following a Failure, nor shall Infiltrator be liable for the addition of pump systems or underground water diversion systems, or repair or replacement of any landscape or irrigation systems, following a Failure.

In the event of any other breach of this Limited Warranty, Infiltrator will, at its option, either: provide replacement Units for Units determined by Infiltrator to be defective and a fee of $30.00 per Unit toward the cost of installation; or provide an equivalent state-approved solution to cure the breach.

Infiltrator's liability under this Standard Limited Warranty specifically excludes any other cost of removal and/or installation of the Units.

(b) THIS LIMITED WARRANTY AND THE REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES TO THE ORIGINAL PURCHASING CONTRACTOR WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(c) This Limited Warranty shall be void if any part of the chamber system (chamber, end plate, wedge or other accessory) is manufactured by anyone other than Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the warranty holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to Acts of God; ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground cover set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the warranty holder fails to comply with all of the terms set forth in this Limited Warranty, including the information required by subparagraph (a).

Furthermore, in no event shall Infiltrator be responsible for any loss or damage to the warranty holder, the Units, or any third party resulting from installation (except as expressly set forth in subparagraph (a) or shipment, or from product liability claims of the warranty holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes, all other applicable laws, and Infiltrator's written instructions.

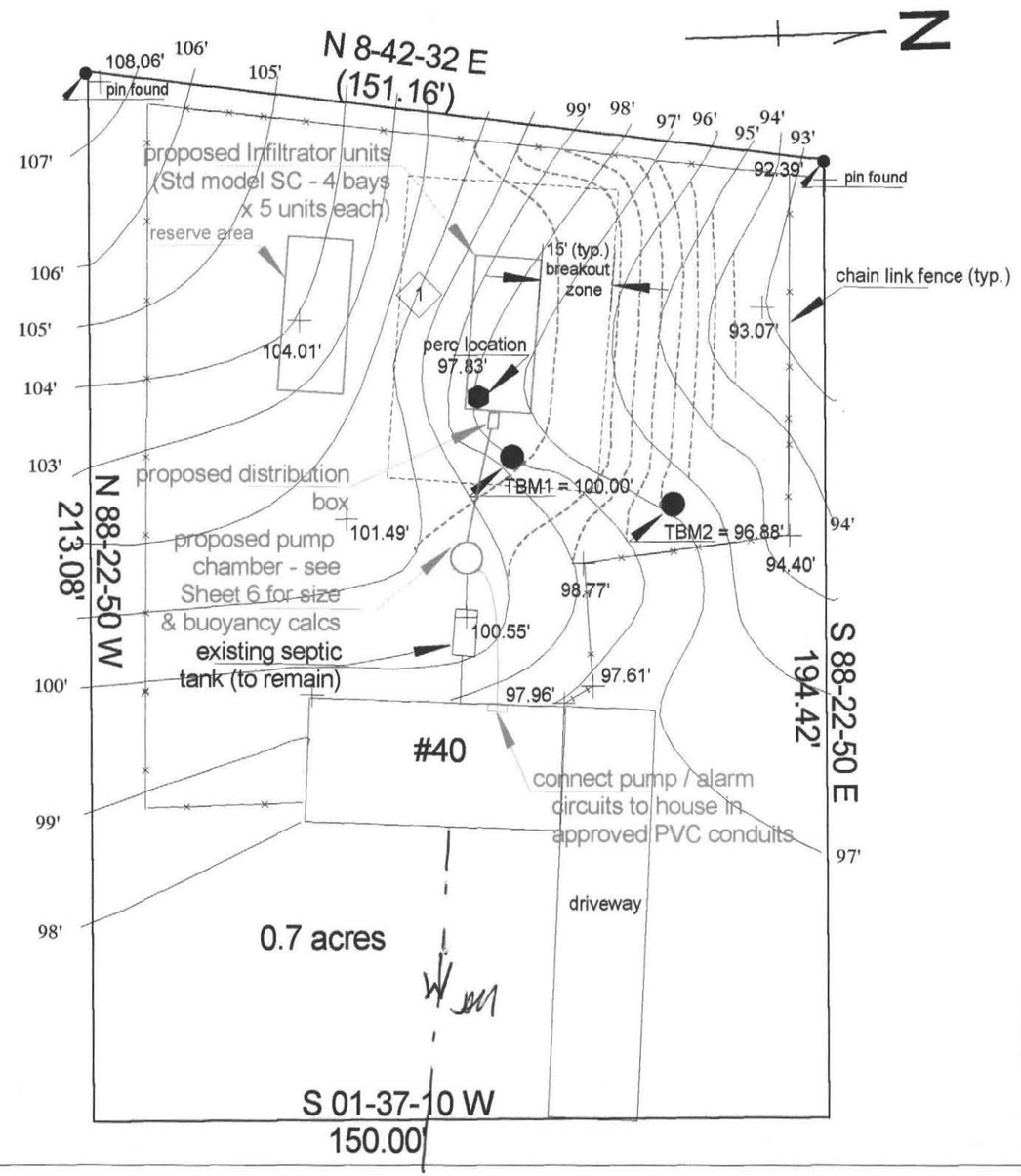
(d) No representative of Infiltrator has the authority to change this Limited Warranty in any manner whatsoever, or to extend this Limited Warranty. No warranty applies to any party other than the original purchasing contractor.

* * * * * * * *

The above represents the Standard Limited Warranty offered by Infiltrator. Any purchaser of Units should contact Infiltrator's corporate headquarters at 6 Business Park Road, P.O. Box 768, Old Saybrook, Connecticut 06475, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty and the limitations on the warranty prior to the purchase of Units.

March 2003

PO Box 768, Old Saybrook, CT 06475
(800) 221-4436 Fax (860) 577-7001



NOTES

General

All work to be done in accordance with 310 CMR 15.000
TBM1=100.00' (spike in 18" Maple), TBM2 = 96.88' (spike in tree)
Proposed components shown in blue
Existing contours shown solid (black), proposed contours shown dashed (green)

Septic tank

Install effluent filter on outlet tee

Pump chamber

Pump chamber shall be a 5 ft wide x 6 ft long (inside dimensions) precast chamber (60" deep), or equivalent to provide 330 gallon reserve above "on" float, fitted with a Myers STEP-1 pump insert (or equal)
Install "on", "off", and "alarm" floats per manufacturer's recommendations (see Section 7)
Chamber shall be set level and true on 6" bed of 3/4" to 1-1/2" stone
Maintain constant reverse pitch on 2" force main from d-box toward pump chamber to allow free draining of line when pump is off
Do not install check valves on 2" discharge

Electrical

Install separate dedicated circuits for pump and alarm system (sized per manufacturer's recommendations
All work to be completed by a Mass. licensed electrician
Install electric lines through approved PVC electrical conduit, sealed to prevent gases from entering the house

Leach bed

Remove all "A" and "B" horizon soils in leach bed area prior to placing approved Title 5 fill (See attached soil sheets - Section 9 for limits of "A" & "B" horizons)
Finish grade over leach bed = 101.29'

Maintenance

Septic tank shall be pumped in accordance with 310 CMR 15.351 recommended on an annual basis or, at a minimum,once every three years

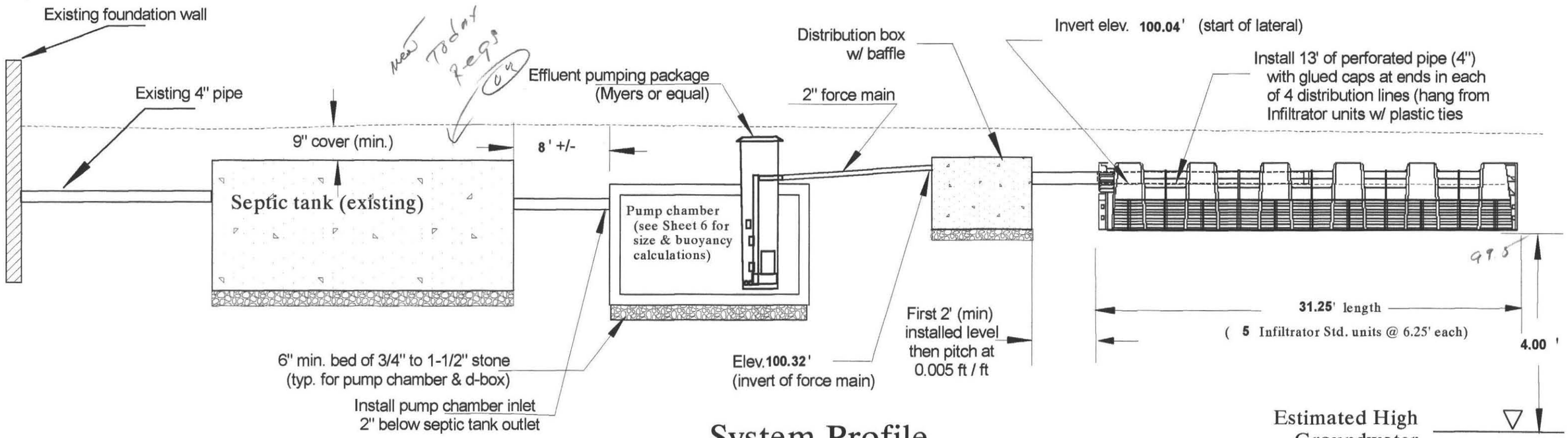
Miscellaneous

No variances are required and no wells exist within 150 ft of the proposed system

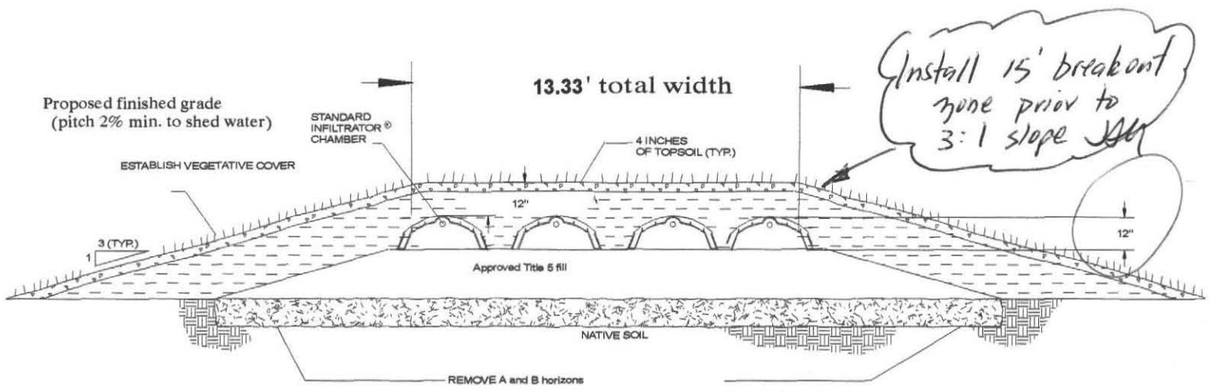
Innovative Engineering
110 Chapin Greene Drive
Ludlow, MA 01056
Phone: 413/583-7930
FAX: 413/583-8771

COMMONWEALTH OF MASSACHUSETTS
JOHN A. KOPINSKY
CIVIL
No. 41445
REGISTERED PROFESSIONAL ENGINEER

Project # 030702	*Proposed Sub-surface Sewage Disposal System for :*		
Date : 15-Aug-03	John & Kate Clark 40 Elf Hill Road Amherst, MA 01002		
Scale : 1" = 30'			
Designed by : JAK			
Checked by : JAK	*Revision no.*	*Dated:*	*Sheet #* 11 of 12



System Profile



Leach Bed Cross-section

NOTES

1. TBM1 = 100.00' (nail 1' up +/- in 18" Maple)
2. Remove all "A" and "B" soil horizons prior to placing approved Title 5 fill (see fill specifications)
3. Pump chamber and d-box to be installed level and true to grade on min. 6" base of compacted 3/4" to 1-1/2" stone
4. All work to be completed in accordance with 310 CMR 15.000
5. Install 2" force main with constant reverse pitch from d-box to pump chamber to allow force main to drain back into pump chamber (do not install check valve on force main)
6. Ensure that outlet tee in existing septic tank is sound - install effluent filter

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Ludlow, MA 01056
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COMMONWEALTH OF MASSACHUSETTS
JOHN A. KOPINSKY
CIVIL
No. 41445
REGISTERED
PROFESSIONAL ENGINEER

Project #	030702
Date :	23-Jul-03
Scale :	none
Designed by :	JAK
Checked by :	JAK

Proposed Sub-surface Sewage Disposal System for :

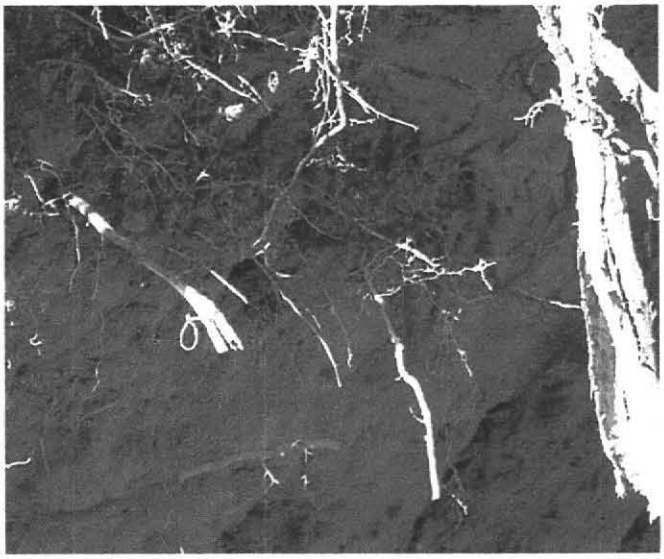
John & Kate Clark
40 Elf Hill Road
Amherst, MA 01002

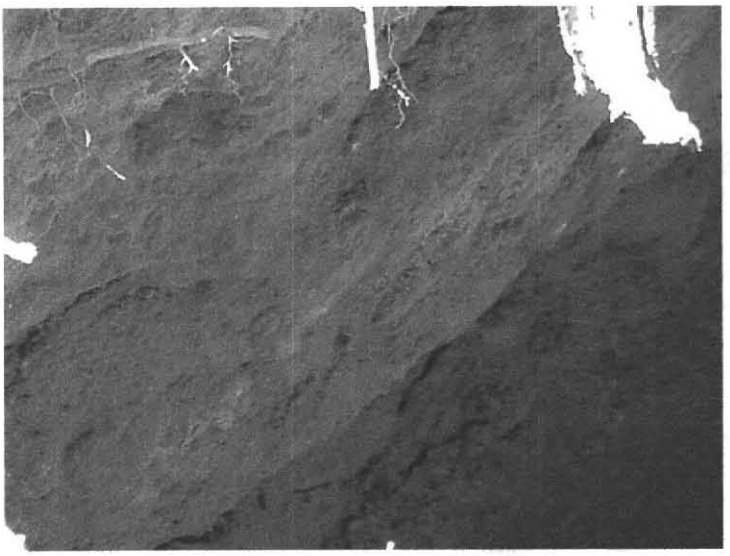
Revision no.

Sheet # 12 of 12

40 Elf Hill Road 7/31/03
Owner: John Clark
Engineer: David Kopeck

Need receipt to input fees





40 Elf Hill Road 7/31/03
Owner: John Clark
Engineer:David Kopeck






40 Elf ?Hill Road 7/31/03
Owner: John Clark
Engineer: David Kopeck

(Pd 275.00)

175.00 1st 2 hours
100 ea each hour after

Plans 100.00

FORM 11: Soil Evaluation Form NO: _____

Commonwealth of Massachusetts
Town of Amherst

Soil Suitability Assessment : On-Site Sewage Disposal

Performed By: David Kopeck Date: 7/31/03
Witnessed By: David Zarozinski

Location Address of:
Lot #

Owner's Name: John M. Chaik
Address of: 40 Elf Hill Rd
Telephone: 253-9724

New Construction ☐ Repair ☐

Office Review

Published Soil Survey Available? No ☐ Yes ☐
Year Published _____ Publication Scale _____ Soil Map Unit _____
Drainage Class _____ Soil Limitations _____

Surficial Geologic Report Available? No ☐ Yes ☐
Year Published _____ Publication Scale _____
Geologic Material (map unit) _____
Landform _____

Flood Insurance Rate Map:
Above 500 year flood boundary? No ☐ Yes ☐
Within 500 year flood boundary? No ☐ Yes ☐
Within 100 year flood boundary? No ☐ Yes ☐

Wetland Area:
National Wetland Inventory Map (map unit) _____
Wetlands Conservancy Program Map (map unit) _____

Current Water Resource Conditions (USGS): month _____
Range: Above Normal ☐ Normal ☐ Below Normal ☐

Other Reference Reviewed:

Determination: Seasonal High Water Table

Methods Used:

☐ Depth observed standing in observation hole _____ inches
☐ Depth weeping from side of observation hole _____ inches
☐ Depth to soil mottles _____ inches
☐ Ground water adjustment _____ feet

Index Well No. _____ Reading Date _____ Index Well Level _____
Adjustment factor _____ Adjusted ground water level _____

Depth of Naturally Occurring Previous Material

Does at least four feed of naturally occurring previous materials exist in all areas observed throughout the area proposed for this soil absorption system? _____

If not, what is the depth of naturally occurring previous material?
_____

Certification

I certify that on _____ (date) I. have passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performed by me consistent with the required training, expertise, and experience described in 310 CMR 15.017.

Signature _____
Date _____

On-Site Review

Deep Hole Number (1) Date: 7/31/03 Time _____
Weather Sunny 80
Location (identify on site plan) Back of Home
Land Use Residential Slope (%) 3-8-8-15
Surface Stone None
Vegetation: grass/Pine/oak

Landform:

Position on Landscape (sketch on back) _____
Distances from:

Open Water Body	100 feet	Drainageway	110 feet
Possible Wet Ares	120 feet	Property Line	54' feet
Drinking Water Well	110 feet	Other	To Back

DEEP OBSERVATION HOLE LOG

depth from surface (inches)	soil horizon	soil texture (USDA)	soil color (Munsel)	soil mottling	other (structure, stones, boulders) Consistency, % gravel
8	SL	B	10YR 5/1		Friable
24	LS	B	10YR 3/4	28"	Granular Loose
			2.5YR 5/4	2.5YR 4/8	
	LS	C		Low-10YR 5/2	Tr rock Loose very friable
10'					

Parent Material (geologic) _____
Depth to Bedrock _____
Depth to Groundwater :
Standing Water in the Hole 8' 5"
Weeping from Pit Face 6' 9"
Estimated Seasonal High Water _____

On-Site Review

Deep Hole Number _____ Date: _____ Time _____
Weather _____
Location (identify on site plan) _____
Land Use _____ Slope (%) _____
Surface Stone _____
Vegetation:

Landform:

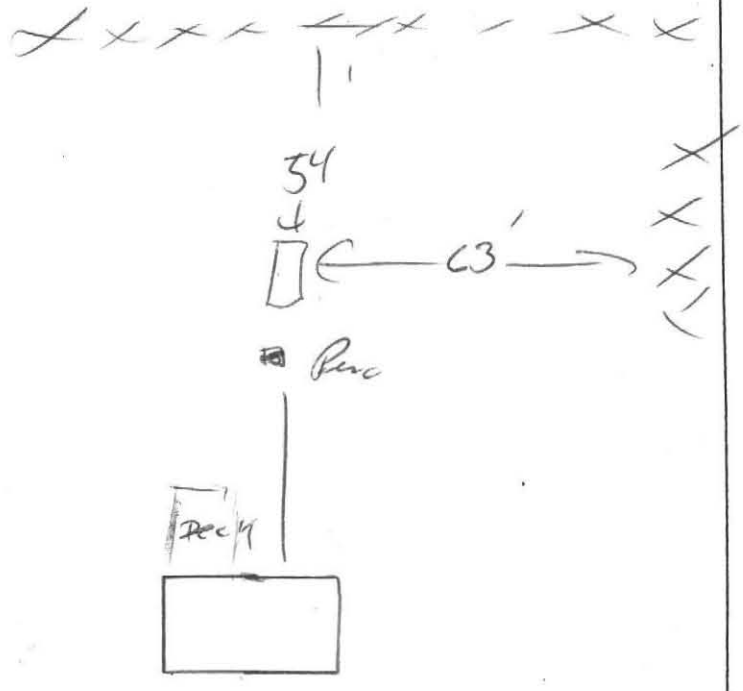
Position on Landscape (sketch on back) _____
Distances from:

Open Water Body	_____ feet	Drainageway	_____ feet
Possible Wet Ares	_____ feet	Property Line	_____ feet
Drinking Water Well	_____ feet	Other	_____

DEEP OBSERVATION HOLE LOG

depth from surface (inches)	soil horizon	soil texture (USDA)	soil color (Munsel)	soil mottling	other (structure, stones, boulders) Consistency, % gravel

Parent Material (geologic) _____
Depth to Bedrock _____
Depth to Groundwater :
Standing Water in the Hole _____
Weeping from Pit Face _____
Estimated Seasonal High Water _____



FORM 12: Percolation Test
Location Address or Lot # 40 EIF HILL Rd

Commonwealth of Massachusetts
Town of Amherst

PERCOLATION TEST *		
DATE:		TIME:
Observation Hole #	(1)	
Depth of Perc	36"	
Start Pre-soak	11:16	
End Pre-soak	11:33	
Time at 12"	11:33	
Time at 9"	11:54	
Time at 6"	12:28	
Time (9"-6")	34	
Rate Min./Inch	12	

**Minimum of one percolation test must be performed in both the primary area and reserve area.*

Site Passed ☐ Site failed ☐

Performed by David McPeck

Witnessed by David Zarzinski

Comments: