South Pleasant Street -
Completed

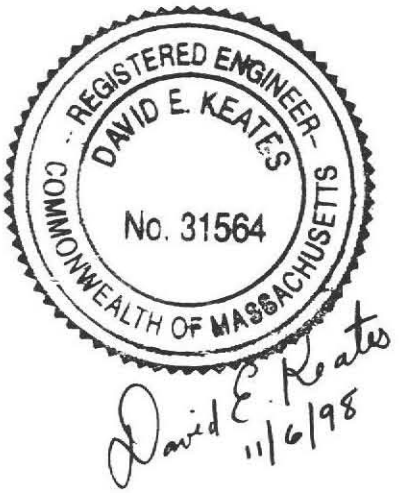
Sewage Disposal System

for

Gordon Thorne
Barn with Office
593 S. Pleasant Street
Amherst, MA

Assessor's Map 17C
Parcel 178

Note: Board of Health approval of this plan required before a licensed contractor can be retained to install system. Contractor not to start work until approved Disposal Works Permit has been obtained.



David E. Keates, P.E.
Consulting Civil Engineer
102 Russell Street
Sunderland, MA 01375
Tel: 413-665-7670

Septic System Installation
Certificate of Compliance

The undersigned designer on _____, 19___ inspected a Title 5 septic system

installed by _____ for GORDON THORNE

at 593 S. PLEASANT ST. in the town of AMHERST, MA
and certifies that, based upon field observations and supporting information provided by the installer, the disposal works as constructed generally satisfies the requirements of Title 5 and the design plan

entitled: SEWAGE DISPOSAL SYSTEM FOR GORDON THORNE 11/6/98
(Plan Title) (Plan Date)
with the followings comments;

_____

_____

_____

_____ _____
Designer's signature Date

I am currently a licensed installer in the town and have installed the above referenced septic system strictly in accordance with the above referenced plan and have addressed any comments prepared by the design engineer and/or B.O.H representative made during their inspections. A dimensioned as-built plan has been provided to the owner showing two dimensions from permanent points to each of the following: septic tank invert-in and invert-out, all angle points in all piping, D-box, beginning and end of each leaching trench, the four corners of each leach field, center cover of each leach chamber. As-built elevations have been recorded on plans submitted to the owner.

_____ _____
Installer's signature Date

Disposal Works Construction Permit #_____

Approved for construction on _____
Date

Installer to send signed original copy of this form to the owner and a copy to the B.O.H. and designer. The original signature of both the designer and the installer are to be on this form prior to sending to the above parties. Final payment will be made to the installer after the owner receives this form.

LAND SOLUTIONS

PO BOX 121 TWO AMHERST ROAD SUNDERLAND, MA 01375
Voice & Fax 413/ 665-4777

PLEASE NOTE THE FOLLOWING:

- ☐ ALL PROPERTY LINES SHALL BE VERIFIED BY A SURVEYOR PRIOR TO CONSTRUCTION TO MAINTAIN PROPER SETBACKS.
- ☐ PROPERTY OWNER IS RESPONSIBLE FOR COMPLIANCE TO LOCAL ZONING REGS., CON. COMM., & MASS WETLAND PROTECTION ACT.
- ☐ THIS SEPTIC DESIGN IS NOT INTENDED TO BE A SITE PLAN.
- ☐ DO NOT SCALE DRAWING.
- ☐ CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION CONTAINED ON THESE PLANS AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO INITIATING THE WORK.
- ☐ INSTALLER SHALL NOTIFY ~~LAND SOLUTIONS~~ ENGINEER 72 HOURS IN ADVANCE FOR AN ENGINEER'S INSTALLATION INSPECTION.
- ☐ ANY ON SITE DEBRIS SHALL BE DISPOSED OF ACCORDING TO OWNER'S INSTRUCTIONS.
- ☐ EXCAVATING CONTRACTOR MUST CALL DIG SAFE FOR CLEARANCE BEFORE STARTING WORK: 1-800-322-4844
- ☐ ~~IF PLANS SPECIFY REUSE OF EXISTING SEPTIC TANK, IT MAY BE SAVED IF IT IS OFFICIALLY CERTIFIED TO BE STRUCTURALLY SOUND. BAFFLES MUST BE REPLACED WITH P.V.C. TEE BAFFLES AND AN EFFLUENT FILTER IS TO BE INSTALLED ON THE OUTLET.~~
- ☐ ~~IF EXISTING SEPTIC TANK HAS NOT BEEN CERTIFIED AS STRUCTURALLY SOUND, THE INSTALLER SHALL CONTACT LAND SOLUTIONS 72 HOURS PRIOR TO PUMPING EXISTING SEPTIC SYSTEM TANK PRIOR TO REPAIR WORK. TANK SHALL BE INSPECTED FOR CAPACITY & STRUCTURE & REPLACED IF NECCESSARY.~~
- ☐ ~~ANY DEBRIS ENCOUNTERED FROM EXISTING SEPTIC SYSTEM MUST BE DISPOSED OF IN A MANNER ACCEPTABLE TO THE BOH.~~

-DEVELOPMENT DESIGN	LAND SOLUTIONS	-PERMIT PROCESSES
-SITE PLANNING		-SEPTIC SYSTEMS
-ENVIRONMENTAL CONSULTING	"ALL YOUR LAND NEEDS"	-RESIDENTIAL DESIGN

LSRD6697

Sewage Disposal System
Gordon Thorne
593 S. Pleasant Street
Amherst, MA
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Sewage Disposal System
Gordon Thorne
593 S. Pleasant Street
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PROJECT
9/2/20

USGS MAP: Mt. Holyoke
SCALE: 1: 25K
DATE: 1979

Land Solutions
2 Amherst Road
Sunderland, MA 01375
tel: 414-665-4777

LAND SOLUTIONS PO BOX 121 SUNDERLAND 413/ 665-4777

DATE: 20 OCTOBER 1998
NAME: MALTBY/THORNE
JOB NO.: 98-130

LOCATION: 593 S. PLEASANT STREET, AMHERTS, MA

COMMONWEALTH OF MASSACHUSETTS,
MASSACHUSETTS

SITE SUITABILITY ASSESSMENT FOR ON-SITE SEWAGE DISPOSAL

PERFORMED BY: KATHLEEN E. SPRING CERTIFICATION: APRIL 1998
WITNESSED BY: DAVID ZAROZINSKI, HEALTH AGENT & APPROVED SOIL EVALUATOR

SITE ADDRESS	OWNER'S ADDRESS:
593 S. PLEASANT STREET AMHERST, MA 01002	GORDON THORNE 593 S. PLEASANT STREET AMHERST, MA 01002 (413)253-8903
ASSESSOR'S MAP: 17C PARCEL: 178	

NEW CONSTRUCTION X(BARN) REPAIR

GARBAGE GRINDER X NO YES
NO. OF BEDROOMS: N/A OFFICE (2-3 PEOPLE)- 400 SQ.FT. @ 75 GPD/1000 SQ. FT.= 30 GPD W/200 GPD MINIMUM
OTHER: 1. DESIGN FOR 250 GPD (30 GPD OFFICE + 220 GPD FUTURE)
2. RELOCATE EXISTING RAINWATER LEADER OUTFILL PIPE.
3. H-20 SEPTIC TANK & BOLLARDS @ SAS.

OFFICE REVIEW:

PUBLISHED SOIL SURVEY:
YEAR PUBLISHED: 1981
DRAINAGE CLASS:
CO. BOOK: HAMPSHIRE
MAP NO.: 15
PUBLICATION SCALE: 1: 15 840
SOIL LIMITATIONS:
SOIL MAP UNIT: AMOSTOWN

SURFICIAL GEOLOGICAL REPORT:
YEAR PUBLISHED:
GEOLOGICAL MATERIAL:
PUBLICATION SCALE:
LANDFORM:

USGS MAP: MT. HOLYOKE SCALE: 1: 25 000 DATE: 1971

FLOOD INSURANCE RATE MAP PANEL NO. 250156 0010B DATE: 1981

ABOVE 500 YEAR FLOOD PLAIN		NO	X	YES
WITHIN 500 YEAR FLOOD PLAIN	X	NO		YES
WITHIN 100 YEAR FLOOD	X	NO		YES

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WETLAND AREA:
NATIONAL WETLAND INVENTORY MAP: SCALE: 1: 80 000
WETLANDS CONSERVANCY PROGRAM:

CURRENT WATER RESOURCE CONDITIONS MONTH

RANGE	ABOVE NORMAL	NORMAL	BELOW NORMAL

OTHER REFERENCES REVIEWED:
LSRD6697

DATE: 20 OCTOBER 1998
NAME: MALTBY/THORNE
JOB NO.: 98-130

LOCATION: 593 S. PLEASANT STREET, AMHERST, MA
ASSESSOR'S #: MAP 17C PARCEL 178

ON-SITE REVIEW

DEEP HOLE NO.: 1 DATE: 20 OCTOBER 1998 TIME: 9:00 WEATHER: 50 DEG SUNNY
LOCATION: SEE SITE PLAN (60' S OF SW BUILDING CORNER)
LAND USE: PASTURE EDGE SLOPE: 3% SURFACE STONES: NONE
VEGETATION: GRASSES
LANDFORM: OUTWASH TERRACE
POSITION ON LANDFORM: NEAR TOP OF DOMED TERRACE
DISTANCE FROM:
OPEN WATER BODY: >200' DRAINAGEWAY: >100'
POSSIBLE WET AREA: >100' PROPERTY LINE: >200'
DRINKING WATER WELL: >200' OTHER: TOWN WATER

DEEP OBSERVATION HOLE LOG

DEPTH (INCHES)	HORIZON	TEXTURE	COLOR	MOTTLING	OTHER
0-9	Ap	FINE SANDY LOAM	10YR 3/2	NONE	-MASSIVE -FRIABLE -MANY ROOTS
9-12	Bw	FINE SANDY LOAM	10YR 6/6	NONE	-MASSIVE -FRIABLE -SOME ROOTS
12-26	BC	FINE SANDY LOAM	10YR 4/4	-@24" = 5% 10YR 4/6 10% 2.5Y 6/2	-MASSIVE -FRIABLE -SOMEWHAT STRATIFIED
26-61	C1	LOAMY SAND	10YR 5/6	-10% 2.5Y 6/2 10% 10R 4/6	-LOOSE -SINGLE GRAIN -WET -10% SUBANGULAR GRAVEL TO 1"
61-96	2C2	VERY FINE SANDY LOAM	2.5Y 4/4	-40% 2.5Y6/2 -30% 10YR 4/4	-STRATIFIED -PLATEY -PLASTIC -VARVED
96-120	3C3	LOAMY SAND	10YR 5/6	-40% 2.5Y 6/2	-WET -10% SUBANGULAR GRAVEL -LOOSE -SINGLE GRAIN

Sewage Disposal System
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PARENT MATERIAL: OUTWASH OVER LACUSTRINE OVER OUTWASH DEPTH TO BEDROCK: >120"
DEPTH TO GROUNDWATER:STANDING WATER: 119" WEEPING FROM FACE: 46"
ESTIMATED SEASONAL HIGH GROUNDWATER: 24"(MOTTLES)
LSRD6697

LAND SOLUTIONS PO BOX 121 SUNDERLAND 01375 413/ 665-4777

DATE: 20 OCTOBER 1998
NAME: MALTBY/THORNE
JOB NO.: 98-130

LOCATION: 593 S. PLEASANT STREET, AMHERST, MA
ASSESSOR'S #: MAP 17C PARCEL 178

ON-SITE REVIEW

DEEP HOLE NO.:3 DATE: 20 OCTOBER 1998 TIME: 10:00 WEATHER: 50 DEG SUNNY
LOCATION: SEE SITE PLAN (60' SSW OF BARN CORNER)
LAND USE: PASTURE EDGE SLOPE: 3% SURFACE STONES: NONE
VEGETATION: GRASSES
LANDFORM: OUTWASH TERRACE
POSITION ON LANDFORM: NEAR TOP OF DOMED TERRACE
DISTANCE FROM:

OPEN WATER BODY: >200'	DRAINAGEWAY: >100'
POSSIBLE WET AREA: >100'	PROPERTY LINE: >200'
DRINKING WATER WELL: >200'	OTHER: TOWN WATER

DEEP OBSERVATION HOLE LOG

DEPTH (INCHES)	HORIZON	TEXTURE	COLOR	MOTTLING	OTHER
0-11	Ap	FINE SANDY LOAM	10YR 3/2	NONE	-MASSIVE -FRIABLE -MANY ROOTS
11-24	Bw	FINE SANDY LOAM	10YR 3/6	NONE	-MASSIVE -FRIABLE -SOME ROOTS
24-40	BC	FINE SANDY LOAM	10YR 4/4	-<5% 7.5YR 4/6	-MASSIVE -FRIABLE -OCCASSIONAL SUBANGULAR COBBLES TO 3"
40-72	C1	LOAMY SAND	10YR 5/6	->5% 7.5Y 6/2 -MASSIVE -DIFFUSE	-LOOSE -STRATIFIED -MOIST
72-108	2C2	VERY FINE SANDY LOAM	2.5Y 4/4	-40% 2.5Y6/ -30% 10YR 3/2	-VARVED -PLATEY -PLASTIC

Sewage Disposal System
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Amherst, MA
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PARENT MATERIAL: OUTWASH OVER LACUSTRINE
DEPTH TO GROUNDWATER:STANDING WATER: 103"
ESTIMATED SEASONAL HIGH GROUNDWATER: 40"(MOTTLES)
DEPTH TO BEDROCK: >108"
WEEPING FROM FACE: 60"

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LAND SOLUTIONS PO BOX 121 SUNDERLAND 01375 413/ 665-4777

DATE: 20 OCTOBER 1998
NAME:MALTBY/THORNE
JOB NO. 98-130

LOCATION: 593 S. PLEASANT STREET, AMHERST, MA
ASSESSOR'S #: MAP 17C PARCEL 178

TABLE DETERMINATION FOR SEASONAL HIGH WATER

METHOD USED:

	DEPTH OBSERVED STANDING IN OBSERVATION HOLE	_____INCHES
	DEPTH WEEPING FROM SIDE OF OBSERVATION HOLE	_____INCHES
X	DEPTH TO SOIL MOTTLES	24 INCHES
	GROUND WATER ADJUSTMENT	_____FEET

INDEX WELL NO. READING DATE INDEX WELL LEVEL
ADJUSTMENT FACTOR ADJUSTED GROUND WATER LEVEL

PERCOLATION TEST		
DATE: 20 OCTOBER 1998	TIME: 9:02	TIME: 10:37
OBSERVATION HOLE NO.:	1	3
DEPTH OF PERC:	47	57
START PRE-SOAK	9:02	10:37
END PRE-SOAK	9:17	10:48
TIME @ 12"	9:17	24 GAL<15 MINUTES
TIME @ 9"	9:23	
TIME @ 6"	9:33	
TIME (9"-6")	10 MINUTES	
RATE MIN/INCH	3 1/3 MINUTES/INCH	1 MINUTE ACTUAL

DESIGN RATE: 5 MINUTES PER INCH 5 MINUTES PER INCH

SITE SUITABILITY ASSESSMENT: X SITE PASSED SITE FAILED
ADDITIONAL TESTING NEEDED: NOTE: 1. SUBGRADE AND T-5 SAND IN PLACE INSPECTION REQUIRED BY TOWN.
2. $160.00 AND 4 SETS OF PLANS TO TOWN FOR PERC, DESIGN AND INSPECTION.

PERFORMED BY: KATHLEEN E. SPRING CERTIFICATION NO. MAY 1998
WITNESSED BY: DAVID ZAROZINSKI, AMHERST HEALTH AGENT AND APPROVED SOIL EVALUATOR

I CERTIFY ON MAY 1998 HAVE PASSED THE EXAMINATION APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE ABOVE ANALYSIS HAS BEEN PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE, AND EXPERIENCE DESCRIBED IN 310 CMR 15.018(2).
LSRD6697

Kathleen E. Spring

Sewage Disposal System
Gordon Thorne
593 S. Pleasant Street
Amherst, MA
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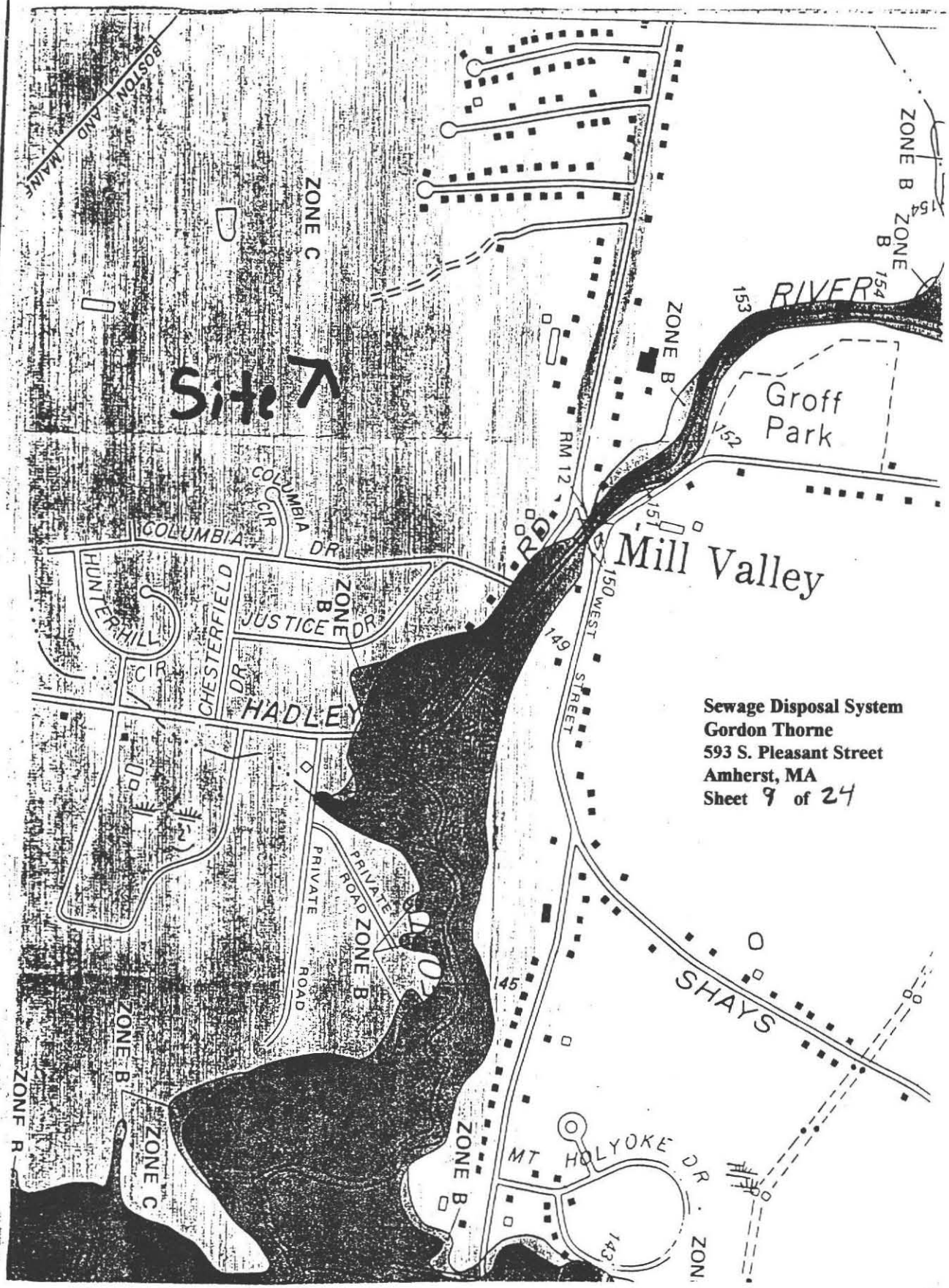

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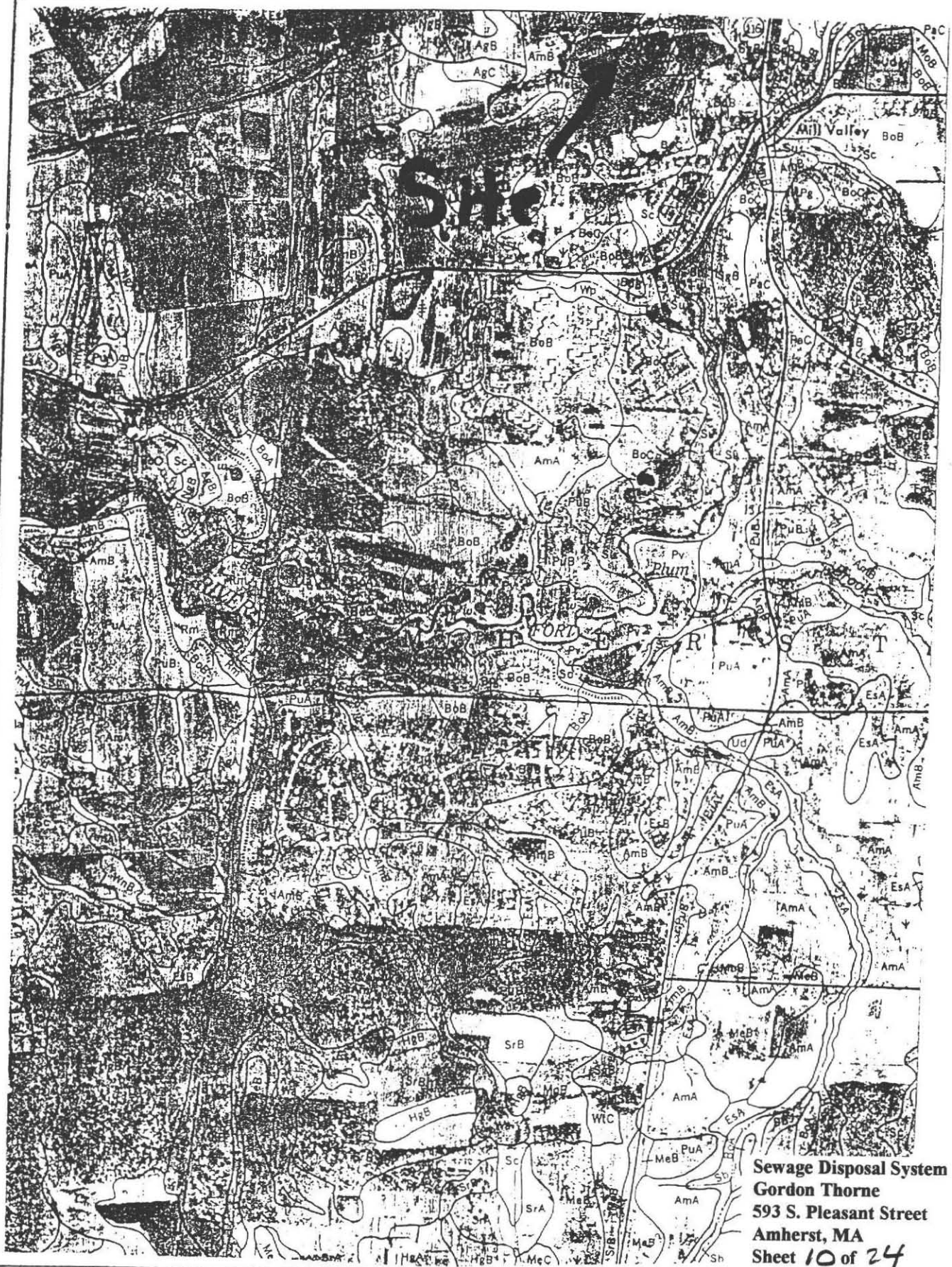
OJECT
-130

FIRM MAP: Amherst
SCALE:
DATE: 1981
COMMUNITY PANEL #: 250156 0010 B

Sheet of

Land Solutions
2 Amherst Road
Sunderland, MA 01375
tel: 414-665-4777



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PROJECT

98-130

Sheet of

SOILS MAP: Hampshire #15
SCALE: 1: 15 840
DATE: 1981
SOIL NAME: AMOSTOWN

Land Solutions
2 Amherst Road
Sunderland, MA 01375
tel: 414-665-4777

DESIGN

OFFICE (2-3 PEOPLE) - 400 SF @ 75 GPD/1000 SF

FLOW $= \frac{75\,(400)}{1000} = 30$ GPD

TITLE 5 MINIMUM DESIGN FLOW FOR OFFICE IS 200 GPD

DESIGN FOR 30 GPD + 220 GPD (FUTURE)

= 250 GPD x 1.25 B.O.H = 312.5 GPD

PERC RATE 3 1/3 $ 1.0

USE 5.0 MIN/IN RATE OF 0.74 GPD/SF FOR LOAMY SAND

USE LEACH FIELD 8' WIDE

$L = \frac{312.5}{.74\,(8.0)} = 52.8'$ SAY 53' LONG

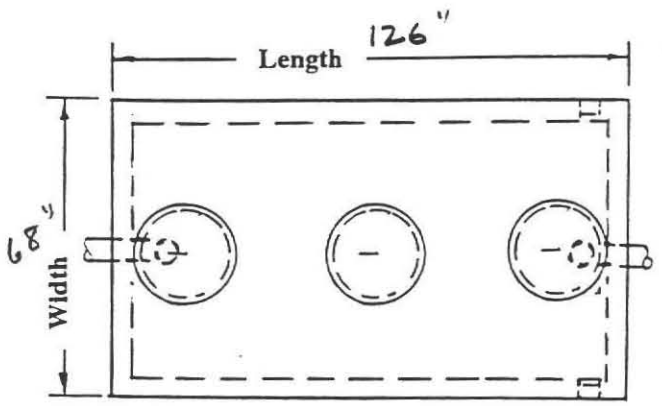
REGISTERED ENGINEER
DAVID E. KEATES
No. 31564
COMMONWEALTH OF MASSACHUSETTS

David E. Keates 11/6/98

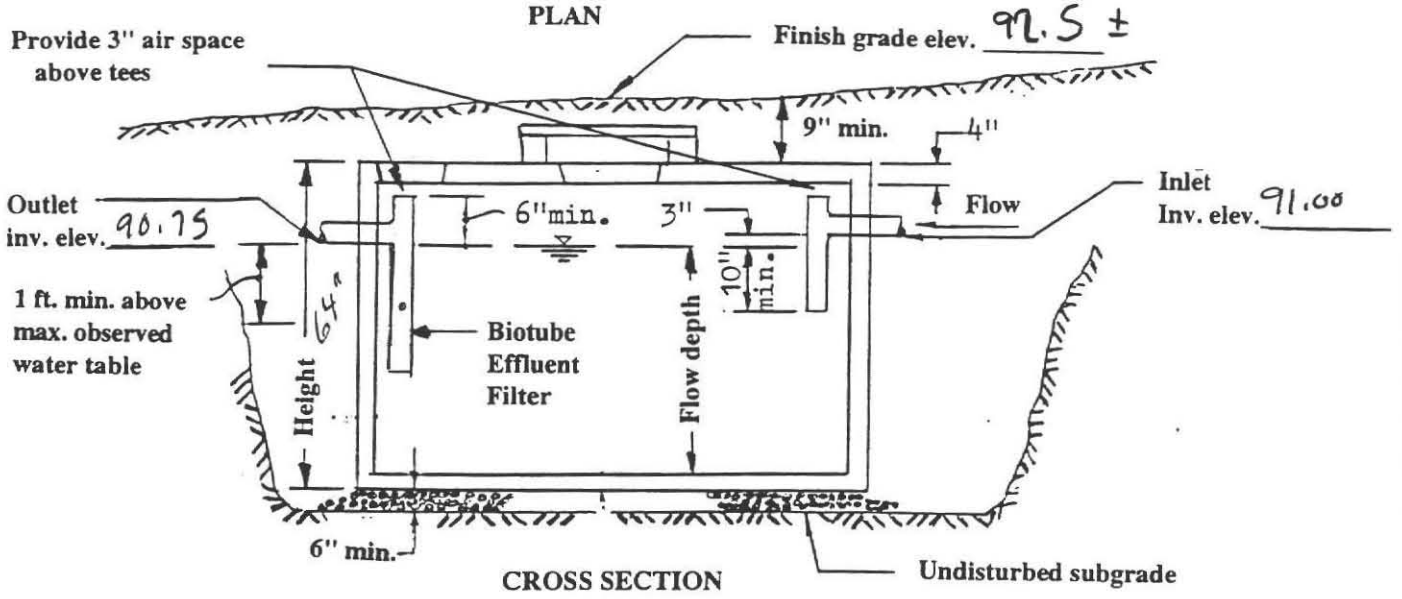
PROJECT			
Sewage Disposal System Gordon Thorne 593 S. Pleasant Street Amherst, MA	Sheet 11 of 24	David E. Keates, P.E. Consulting Civil Engineer 102 Russell Street Sunderland, MA 01375 Tel: 413-665-7670	

TYPICAL SEPTIC TANK
1500 GAL

Liquid depth in septic tank D	Depth of outlet tee below flow line D_1
4'	14"
5'	19"
6'	24"
7'	29"
8'	34"



PLAN



CROSS SECTION

NOTES:

1. Septic tanks should be inspected at least annually and when the total depth of scum and solids exceed 1/3 the depth of the tank, the tank should be pumped.
2. Backfill around the tank shall be placed in even layers on all sides of the tank and in such a manner as to prevent damage to the tank.
3. Tanks shall be installed on a 6 in. min. layer of crushed stone leveled to grade and thoroughly compacted to the satisfaction of the Engineer.
4. Contractor shall provide a written certification that tank conforms to State and Town Board of Health specifications and regulations.
5. Tank and cover shall be capable of withstanding H20 loading. ____ yes ✓ no
   If no, tank shall be capable of withstanding H10 loading.
6. Inlet and outlet tees shall extend to cleanout openings and shall be constructed of cast iron, schedule 40 PVC pipe or cast in place concrete.
7. Rectangular tanks shall have a min. inside length to width ratio of no less than 1.5 to 1.0.
8. At least 3 - 20" dia. manholes with readily removable impermeable covers of durable material shall be provided.
9. Access ports shall be placed at the center and over each inlet and outlet tee.
10. Center access port shall be accessible within 6 in. of final grade.

REGISTERED ENGINEER - DAVID E. KEATES - No. 31564 - COMMONWEALTH OF MASSACHUSETTS
David E. Keates 11/6/98

PROJECT
Sewage Disposal System
Gordon Thorne
593 S. Pleasant Street
Amherst, MA

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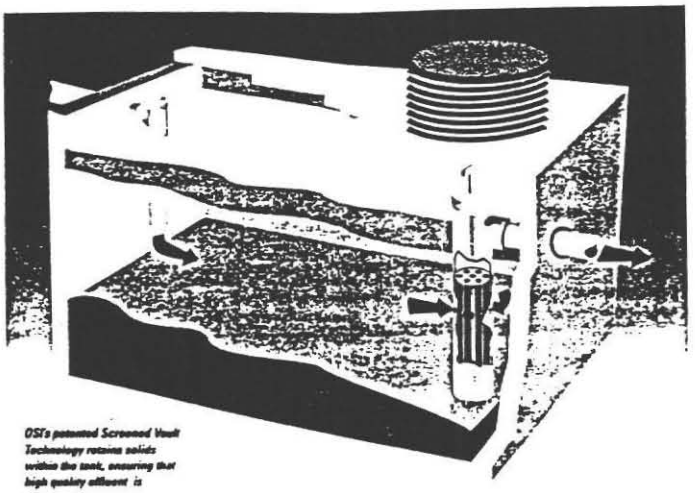
David E. Keates, P.E.
Consulting Civil Engineer
102 Russell Street
Sunderland, MA 01375
Tel: 413-665-7670

First-Line Defense for Your Septic System



OSI's patented Screened Vault Technology retains solids within the tank, ensuring that high quality effluent is discharged.

You've put your money (or your reputation) into a quality septic system. Protect your investment with OSI's advanced filtration technology.

The OSI Biotube™ Effluent Filter dramatically improves the quality of effluent discharged from a septic tank by preventing large solids from leaving the tank.

How It Works

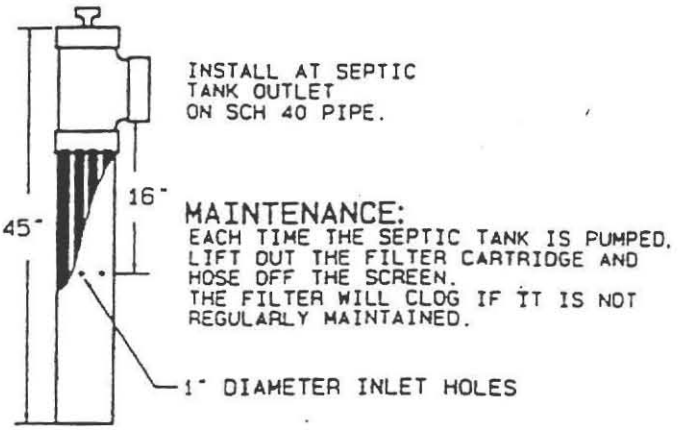
Effluent from the relatively clear zone of the septic tank, between the scum and the sludge layers, enters the Biotube™ Effluent Filter through its inlet holes.

Effluent then enters the space between the housing and Biotubes, utilizing the entire screen surface for filtering.

Particles larger than 1/8" are detained in the interior space, where continued decomposition of organic material occurs.

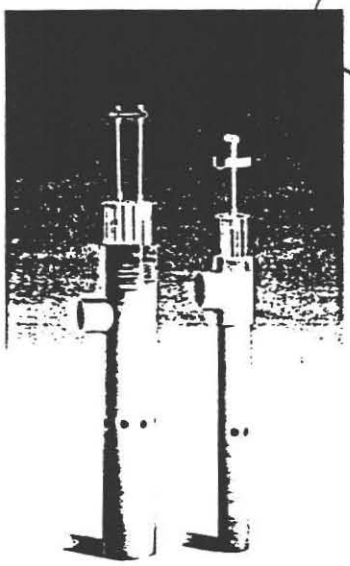
Once the effluent has been filtered through the Biotubes, it flows through the modulating orifices at the outlet of the filter.

If inflow becomes temporarily excessive, the fluid level in the tank will rise as the modulating orifices slow the flow through the tank, allowing maximum settling of solids.



Sizes and Applications

USE



OSI Biotube™ Effluent Filters are available in several diameters, suitable for a variety of applications.

8" and 4" models shown

4" Diameter
Best for most residential applications.

6" and 8" Diameter
Ideal for larger residential applications, such as large homes or duplexes, or for small commercial flows.

12" and 15" Diameter
For larger commercial flows. Multiple filters may be used to accommodate larger flows.

Excellent for:

- Gravity Septic Tank Filters
- Effluent Pumping Systems
- Dosing Siphon Systems
- Grease Trap Filters
- Industrial Process Filtering
- Groundwater Remediation
- Variable-grade sewers

Custom designs available to satisfy specialized needs.

Biotube™ Effluent Filter

WASTEWATER TECHNOLOGIES, INC.
A leader in on-site wastewater systems.
Phone & Fax (802) 869-3219
P.O. Box 80
Saxtons River, VT 05154

REGISTERED ENGINEER – DAVID E. KEATES No. 31564 COMMONWEALTH OF MASSACHUSETTS

David E. Keates 11/6/98

PROJECT
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Consulting Civil Engineer
102 Russell Street
Sunderland, MA 01375
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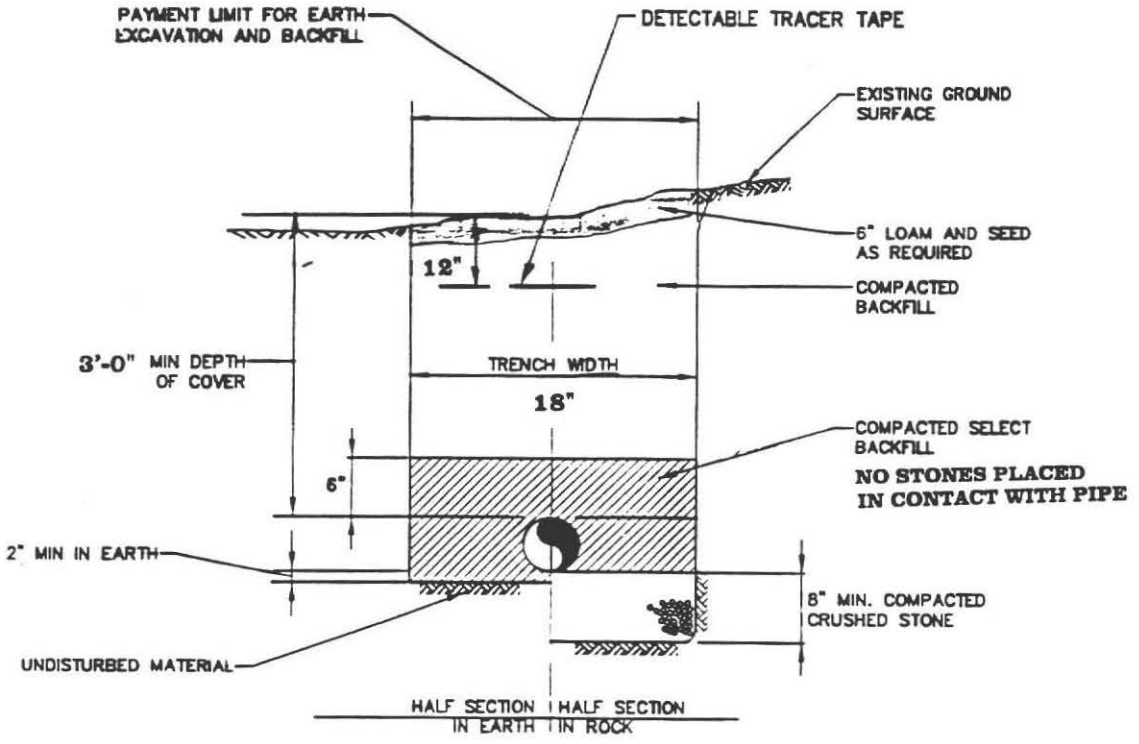

TYPICAL FORCE MAIN TRENCH DETAIL
N.T.S.

REGISTERED ENGINEER
DAVID E. KEATES
No. 31564
COMMONWEALTH OF MASSACHUSETTS

David E. Keates 11/6/98

PROJECT

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102 Russell Street
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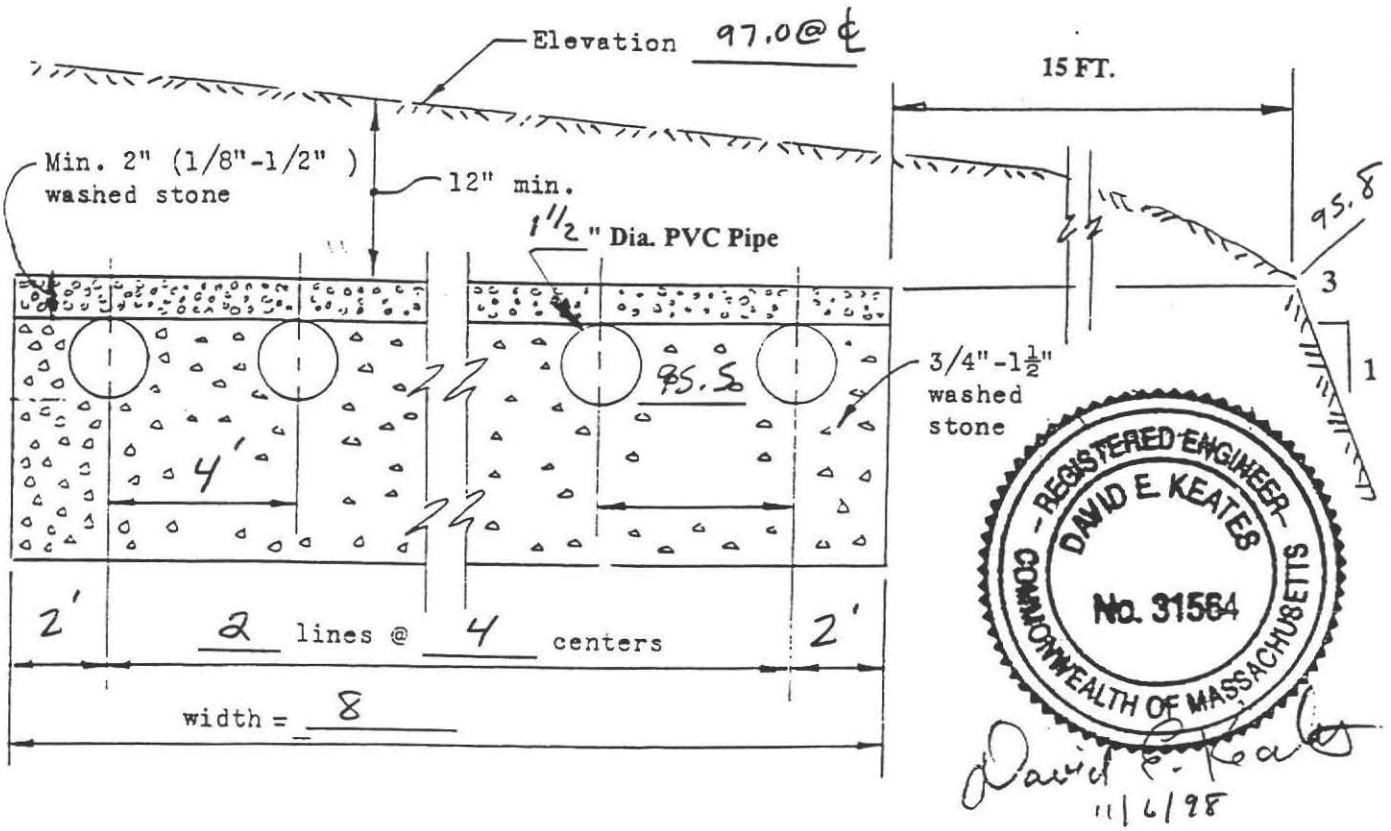
Tel: 413-665-7670

TYPICAL LEACHING FIELD SECTION

Pressure Distribution System



NOTES:

1. The grade above and adjacent to leaching field system shall slope at least 2% to prevent accumulation of water.
2. The bottom of the leaching field shall be installed level at elevation 95.0.
3. Pipes shall be capped 24 inches from the end.
4. All stone must have less than 0.2% material finer than a number 200 sieve as determined by AASHTO T-11 and T-27 (latest edition).
5. All system components shall be installed in accordance with TITLE V of the state sanitary code and any applicable local rules and regulations.
6. Any change to this plan must be approved by the Board of Health and the Engineer.
7. The sewage disposal system shall not be backfilled prior to inspection and approval by the Board of Health and/or the Design Engineer.
8. Any conditions encountered during construction differing from those shown on the plans shall be reported to the design engineer before construction continues.
9. No permanent structure shall be constructed over the 100% expansion area.
10. Heavy equipment shall not be permitted to pass over the leaching area.
11. Contractor will give engineer and Board of Health representative a minimum of 3 days notice for any inspections.
12. Engineer does not represent nor warrant the operation or proper functioning of this system for any period of time.
13. Elevations refer to ✓ assummed datum ____ USGS datum

PROJECT

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Amherst, MA

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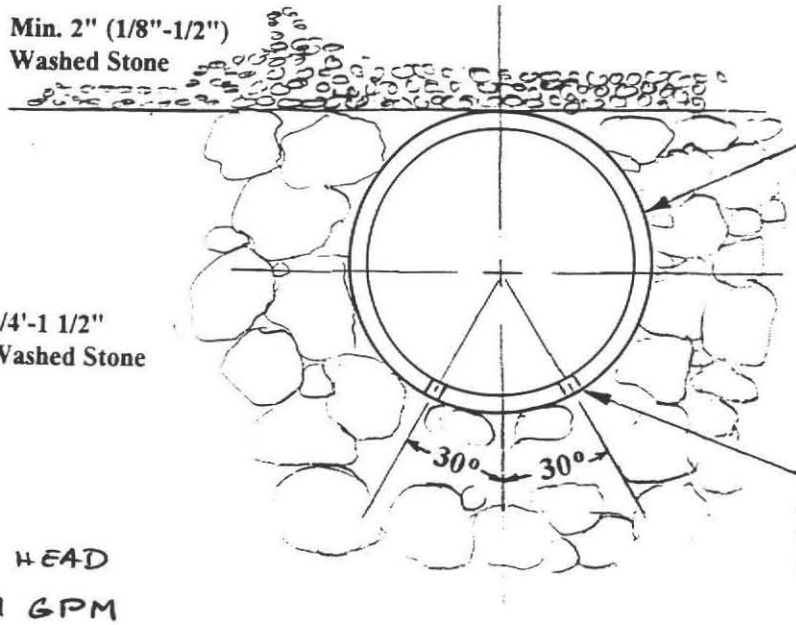
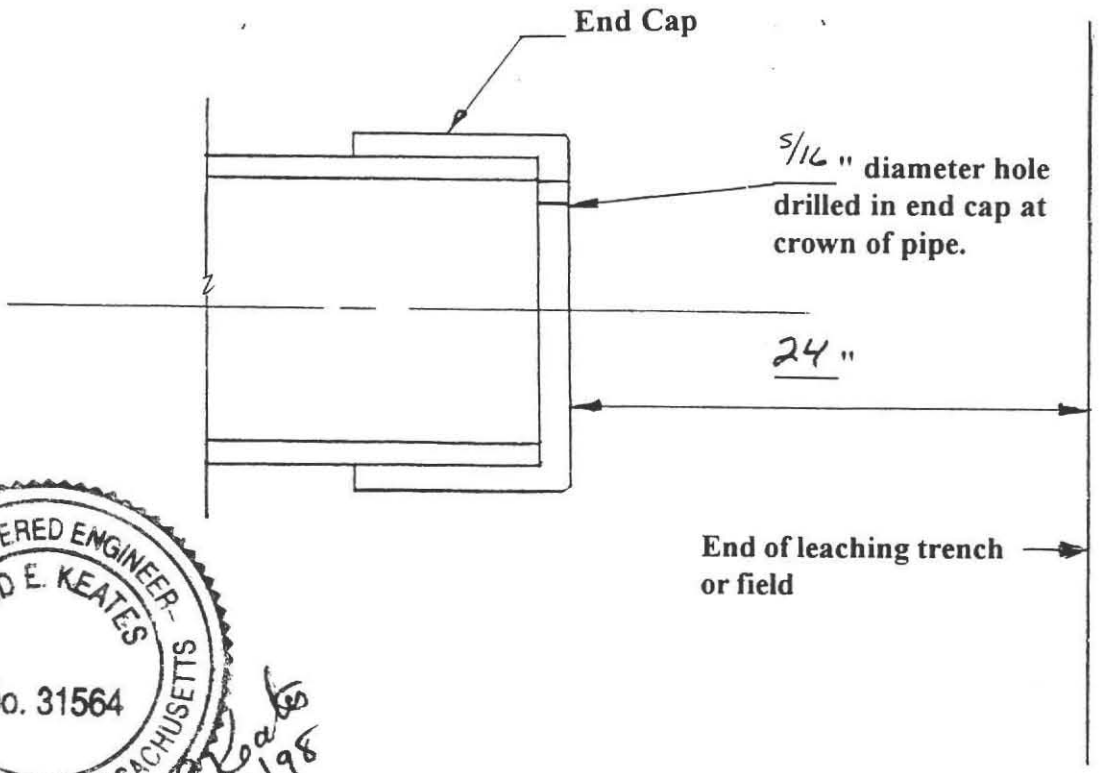


Q 5/16 @ 3' HEAD
1.99 GPM

25 HOLES @ 2 GPM = 50 GPM



David E. Keates 11/6/98

PRESSURE DISTRIBUTION PIPE DETAILS

PROJECT

Sewage Disposal System
Gordon Thorne
593 S. Pleasant Street
Amherst, MA

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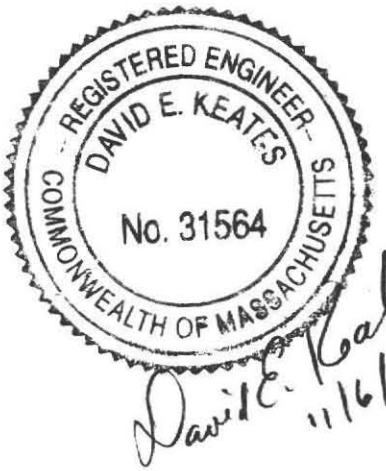
David E. Keates, P.E.
Consulting Civil Engineer
102 Russell Street
Sunderland, MA 01375
Tel: 413-665-7670

Notes:

1. All lateral distribution pipes shall be laid level at the same specified invert elevation with the perforations of a size and spacing as shown on the plans. All perforations shall be carefully drilled to the specified perforation diameter and carefully deburred prior to assembly. All force mains, manifolds and other piping upstream of the distribution laterals are to be completely cleaned and flushed prior to connection to the laterals. Distribution piping is to be tested with clean water using the effluent pump station by initially installing the piping with the perforations pointed up and then rotated and reconnected following completion of the test. Perforations that are blocked or not uniformly distributing flow are to be corrected.

2. All disposal system construction shall occur during periods when the soil is dry and not subject to compaction or smearing. Should periods of rainfall occur during excavation of leaching system or placement of sand fill, the area shall be bermed to prevent drainage or runoff into open excavations. All excavations shall be graded so as not to collect water. In the event that rainfall or runoff results in compaction or movement of fines into excavations, the engineer reserves the right to direct the contractor to remove the impacted material and replace it with sand fill meeting the requirements of Title 5 at no additional cost. Equipment activity prior to, during and after construction shall be kept to a minimum over the leaching area with vehicles limited to track mounted equipment.



David E. Keates 11/6/98

PROJECT	Sheet 17 of 24	
Sewage Disposal System Gordon Thorne 593 S. Pleasant Street Amherst, MA		David E. Keates, P.E. Consulting Civil Engineer 102 Russell Street Sunderland, MA 01375 Tel: 413-665-7670

PROJECT

Sewage Disposal System
Gordon Thorne
593 S. Pleasant Street
Amherst, MA

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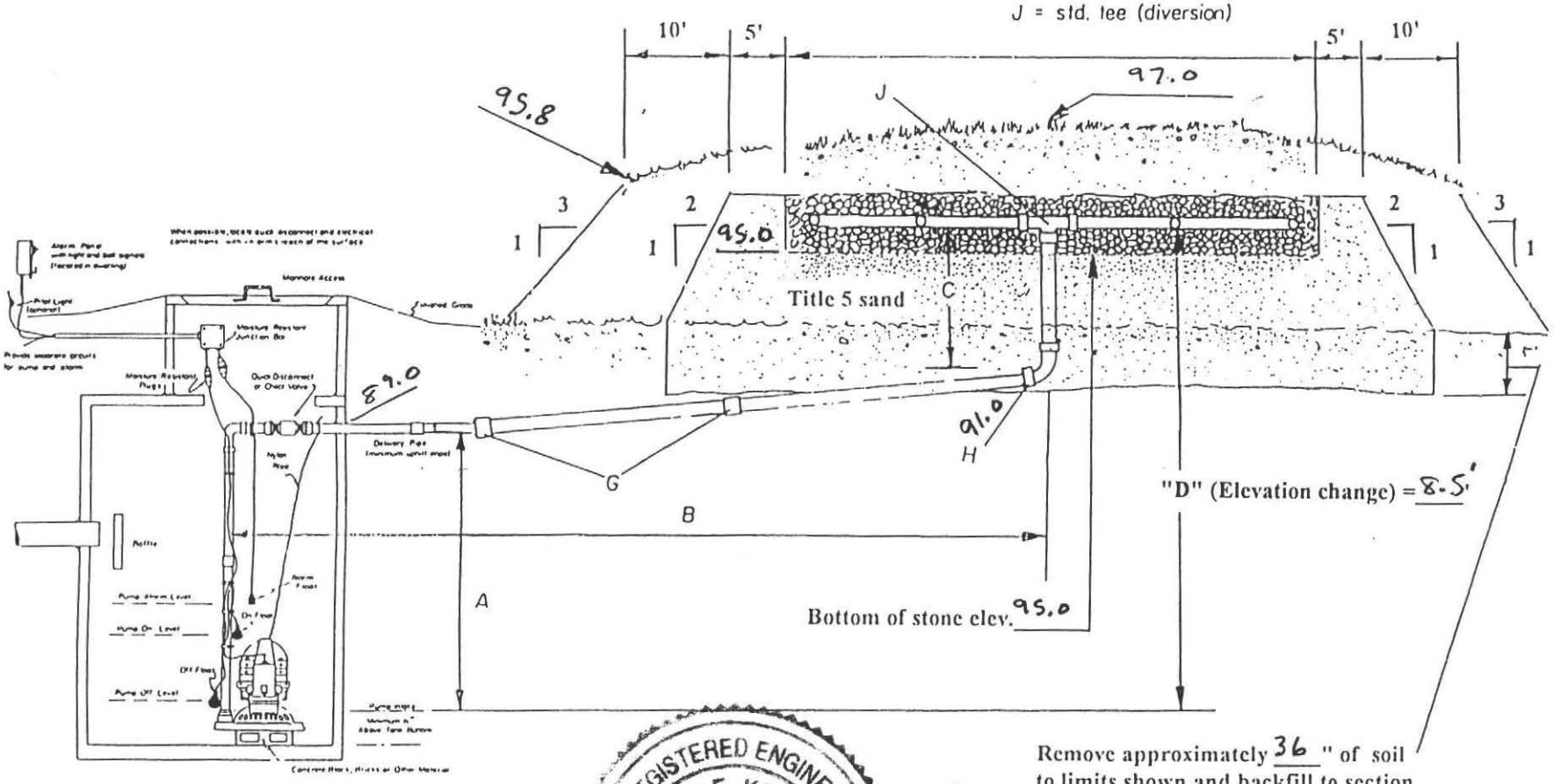
Elevated Sand Mound

Leaching Field

Note : All pipes and fitting are diameter

A = 2.0'
B = 104'
C = 4.5'
D = 8.5'

E = 90° elbow
F = quick disconnect
G = straight coupling
H = 90° elbow
J = std. tee (diversion)



Note: Proposed pump capacity = 32 GPM
H ~ 14'

Remove approximately 36 " of soil to limits shown and backfill to section shown to top of peastone with Title 5 sand. Same fill section applies around entire leaching system.

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PROJECT Sewage Disposal System
Gordon Thorne
593 S. Pleasant Street
Amherst, MA

REGISTERED ENGINEER
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11/6/98

EXCAVATE BETWEEN 30"-40" OF SOIL TO C1 LOAMY SAND WITHIN LIMITS SHOWN. BACKFILL WITH TITLE 5 SAND TO SECTION SHOWN

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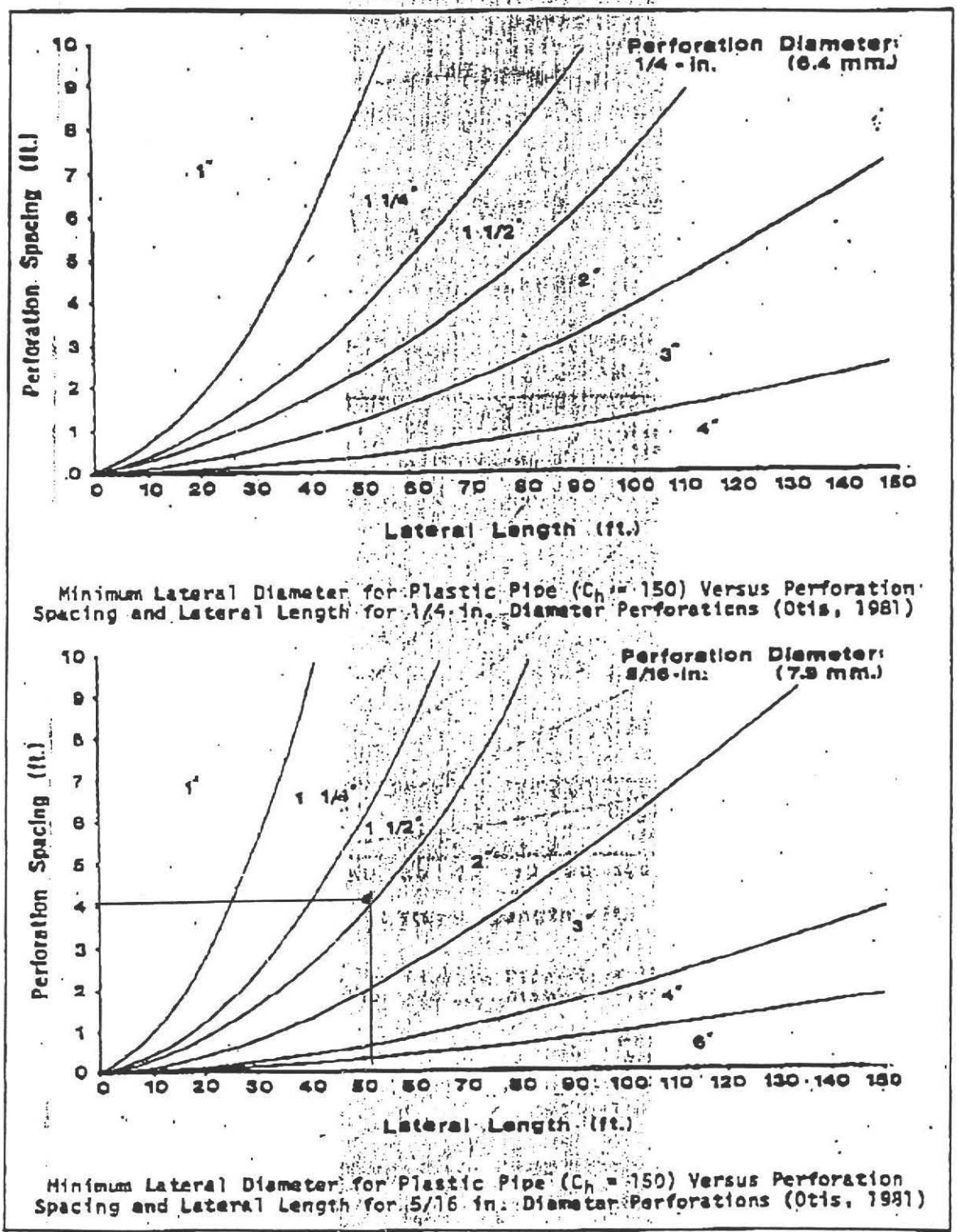

Minimum Lateral Diameter for Plastic Pipe (C_h = 150) Versus Perforation Spacing and Lateral Length for 1/4-in. Diameter Perforations (Otis, 1981)

Minimum Lateral Diameter for Plastic Pipe (C_h = 150) Versus Perforation Spacing and Lateral Length for 5/16 in. Diameter Perforations (Otis, 1981)

Figures 2 & 3: Minimum Lateral Diameter vs Perforation Spacing & Lateral Length

Sewage Disposal System
Gordon Thorne
593 S. Pleasant Street
Amherst, MA
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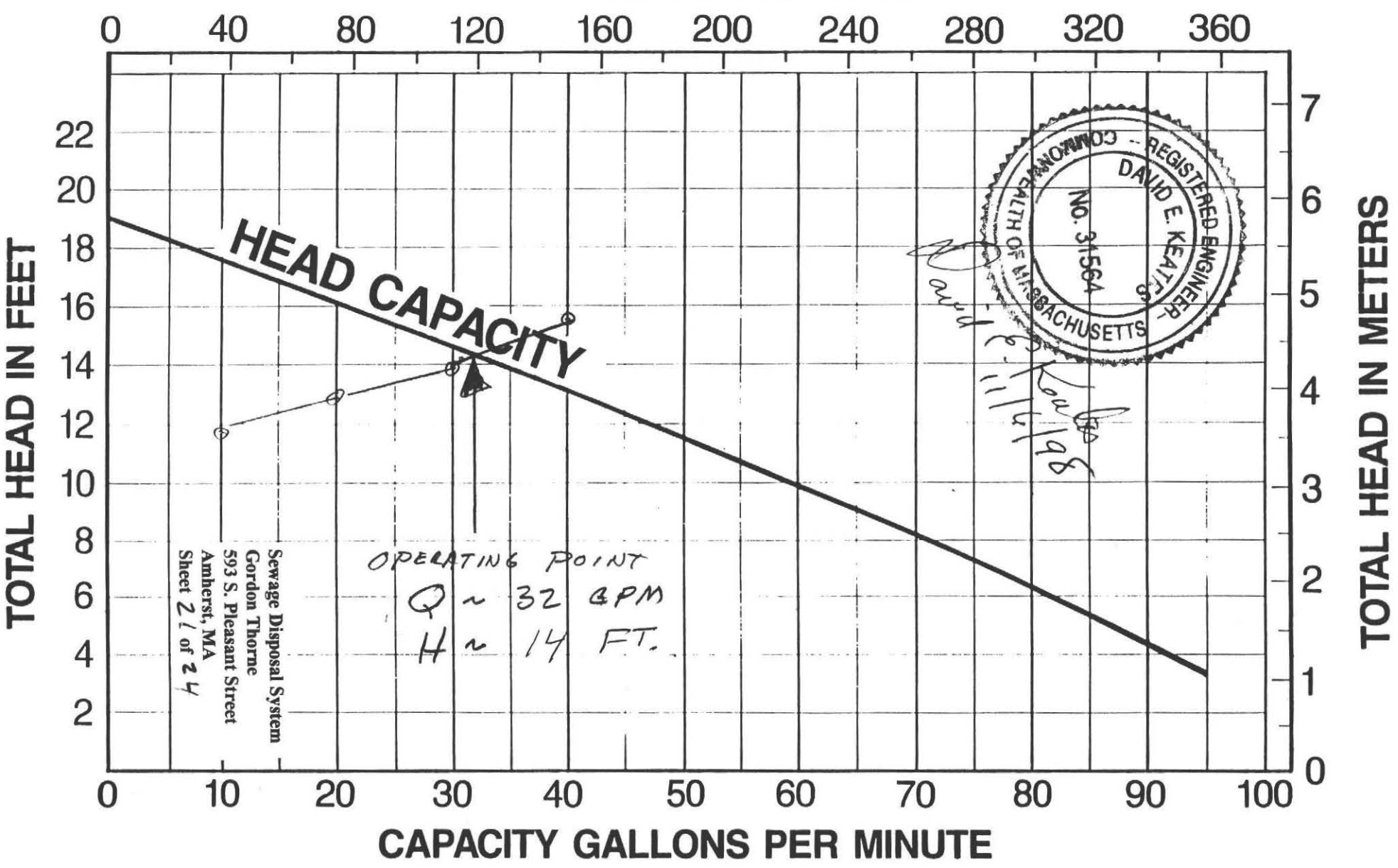
MYERS SRM4 SUBMERSIBLE SEWAGE PUMP



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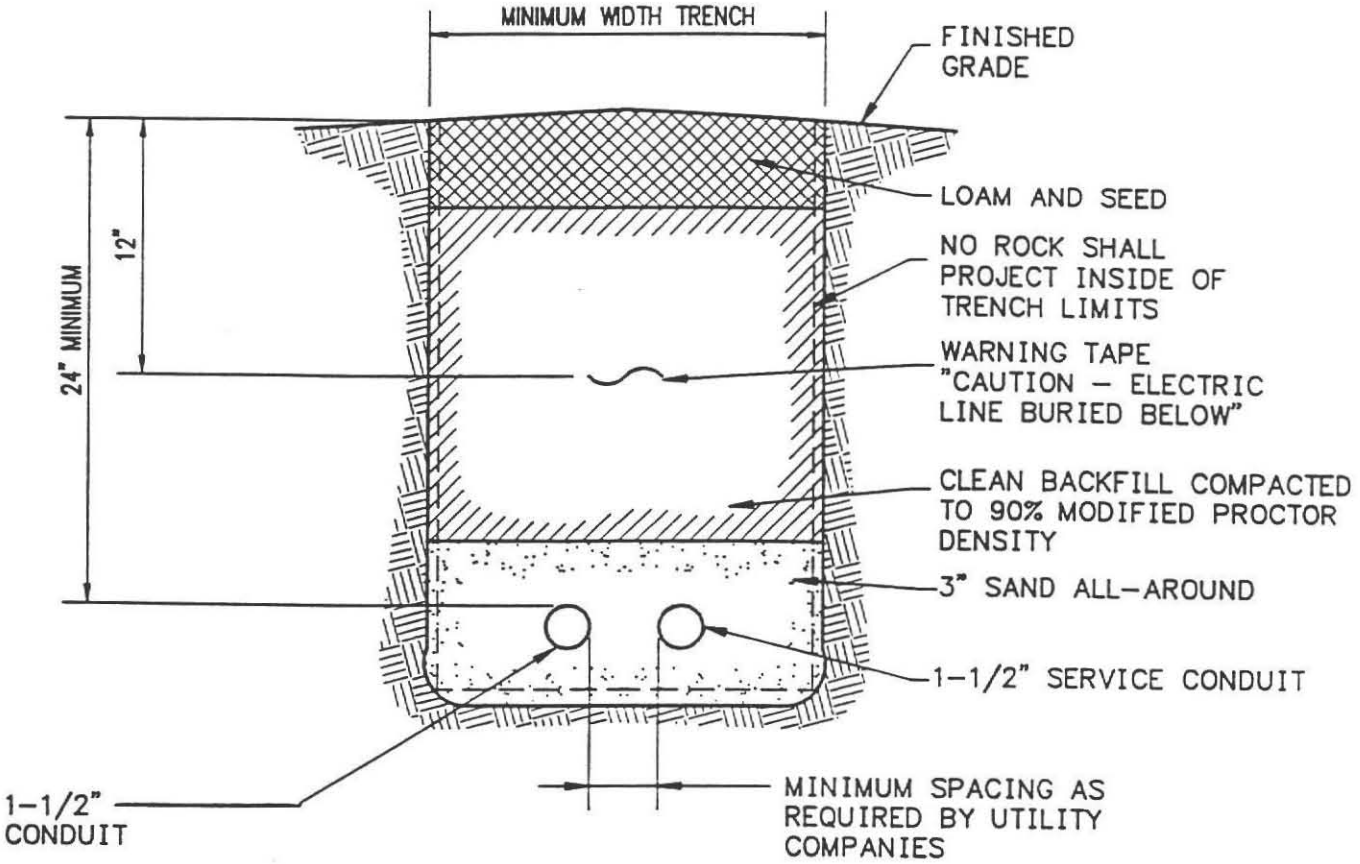

TYPICAL TRENCH SECTION

NOT TO SCALE

ELECTRICAL

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Sewage Disposal System
Gordon Thorne
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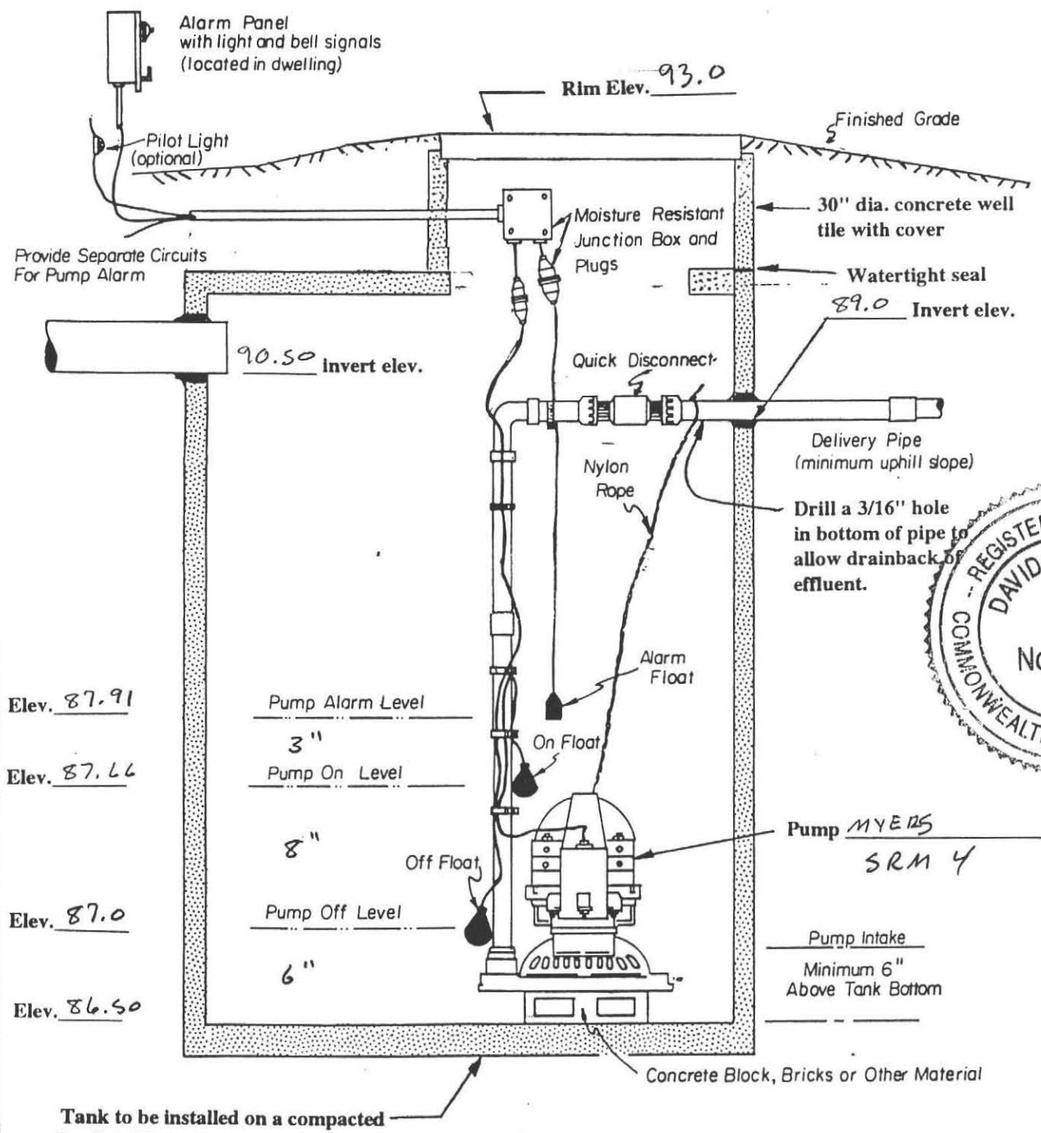
PUMP CHAMBER NOTES

1. Pump chamber to be wired to main electrical panel.
2. Pump controls shall be mercury type switch only.
3. Force main to be 2 " PVC Pipe Schedule 40.
4. All equipment & fasteners in the pump chamber shall be resistent to hydrogen sulfide corrosion.
5. Inspect and maintain components as recommended by manufacturer and required by 310 CMR 15.254 (1) d.
6. This assumes dimensions of the pump chamber as shown on this sheet. Dimensions other than those shown will require the "pump down" to be recalculated. Contact the design engineer if a tank with different dimensions is used.
7. Pump the sludge from the bottom of the pump chamber whenever the septic tank is pumped.
8. When using manhole extensions, locate the quick disconnect as high as possible in the extension for ease of removal.
9. When possible, locate quick disconnect and electrical connections within arm's reach of the surface.
10. Maintain minimal uphill slope on delivery line to distribution box.
11. Provide a "pump pilot light" to indicate when pump is operating.
12. Provide a 20" rectangular opening with a watertight cover in top of tank.



Pump System Design

Use a ROTONDO PC 4x4 OR EQUAL
Length= 4.0 , Width= 4.0 , Depth= 5.0 (Inside Dimensions)
Use 2 " dia. sch. 40 pvc pipe. Length = 104 feet
Vol. of pipe = 3.14 (1)(1) (101 ft.) (7.48 gal/cu. ft.) / 144 = 16.5 gallons
Leaching area to be dosed 4 times per day (310 CMR 15.254(1) d.
Dose required = total design flow divided by 4 , equals 250 gal. per day/ 4 =
62.5 gal. per dose.
Increase dose by 16.5 gallons to allow for volume of 2 " diameter pressure line to distribution box.
Pump down = 62.5 +16.5 gal. = 0.66 ft. = 8 inches
7.48 gal./cu.ft. (4) (4)
From inv. elev. 90.50 to high water alarm at elev. 87.91 , there will be 2.59 ft. of storage or
(4 ft.)(4 ft.) (2.59 ft.) 7.48 gal./cu.ft. = 309 gallons. This will provide for
309 gal. / 250 gal./day = 1.24 days of storage should power go out.
Static Head = discharge elev. at ~~D-box~~ LAT. (95.5) minus pump off level (87.0) = 8.5 feet.
Friction Head Loss for 2 " pvc piping
Discharge pipe equivalent length

fitting	feet
2 - 90°	18
1 - Tee	11
1 - DISCONNECT	2
	Total = 32 feet

Force main length = 104 feet
Total pipe length = 104 feet + 32 feet = 136 feet

GPM	H /100'	H for 136 ft.	Static Head	Total Head	ADD 3' FOR LAT.
10	.2	.272	8.5	8.8	11.8
20	.9	1.224		9.7	12.7
30	1.8	2.448		10.9	13.9
40	3.1	4.216		12.7	15.7
50	4.7	6.392		14.9	17.9

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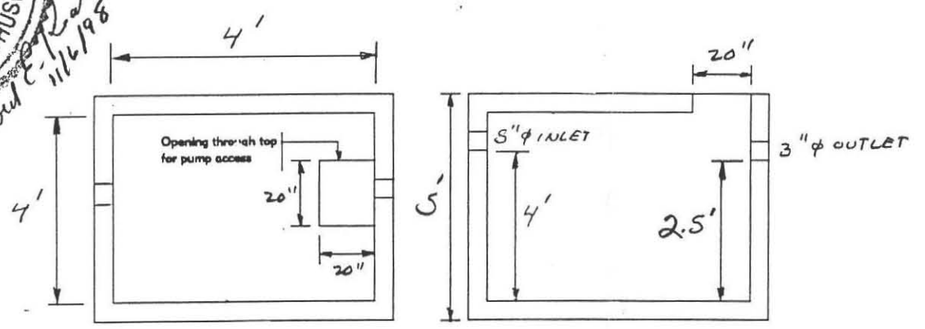
11/6/98



PLAN SECTION

PUMP CHAMBER FABRICATION DETAILS

NO SCALE

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Project: Sewage Disposal System
Gordon Thorne
593 S. Pleasant Street
Amherst, MA

Initial Date 11/6/98	Revised	Project No.
Drawn By: DEKeates	Scale	Sheet No. 23 of 24

NEW BARN W/OFFICE

OFFICE 20'x20'

TBM TOP OF WOOD EL. = 97.20

TBM TOP OF WOOD EL. = 97.51

LOCATION OF EXISTING RAIN GUTTER TO BE MOVED

6'-4"x4" PRESSURE TREATED POST 3' ABOVE GRADE

TOP OF EXIST. INV. TO PROPOSED SEPTIC TANK EL. = 93.9

INV. 91.00

1500 GAL SEPTIC TANK

RESERVE

RESERVE

P3 91.6 DH3

P1 91.1 53' 91.0 DH1

53'

46'

46'

8'

8'

RELOCATED DRAIN OUTLET

RELOCATE FENCE

RELOCATE EXISTING GUTTER DRAIN OUTLET

2"ϕ FORCEMAIN. w/36" COVER

ROTONDO PC.4x4 OR EQUAL

INV. 90.50

INV. 90.75

89.0

92.6

91.0

90.0

87.5

95.7

95.4

95.4

95.7

94.8

95.0

94.6

95.1

94.9

94.1

93.3

91.2

91.2

91.1

90.2

91.2

93

92

91

90

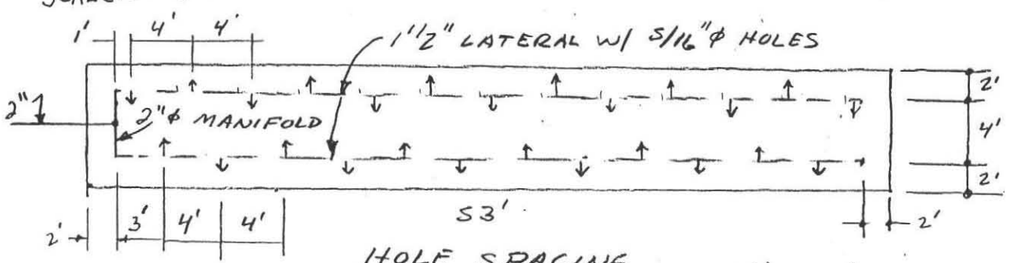
TOWN WATER

THERE ARE NO PROPERTY LINES WITHIN 100' OF FENCE SHOWN

NO WETLANDS WITHIN 100' OF LEACH FIELD.

Note: Contractor to verify benchmark elevations in relation to general topography prior to starting construction. Any discrepancies noted shall be brought to the attention of Land Solutions for resolution prior to starting construction.

SCALE: 1"=20'



HOLE SPACING & DIRECTION.

1"=10'

DRAWN BY: KES
INITIAL DATE: 02 NOV 1998
SHEET NUMBER:
REVISED:
PROJECT #98-130
SCALE: 1"=20'

TOPOGRAPHIC SITE PLAN AND SEPTIC DESIGN
PREPARED FOR
GORDON THORNE
593 S. PLEASANT ST
AMHERST, MA
ASSESSOR'S MAP 17C
LOT 178

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Sewage Disposal System
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