LAYOUT _____ INSP 4 _____

INSP 2 _____ INSP 5 _____

INSP 3 _____ INSP 6 _____

ISSUE DATE: 5/27/2004

APPROVAL DATE: 1/2/07

PERMIT-LPD

SEPTIC SYSTEM
03-280063

P 520384

A 517377

ON-SITE SEWAGE DISPOSAL SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH

Stewart M Smith IS PERMITTED TO INSTALL ☒ ALTER ☐

ADDRESS: 1391 Underwood Rd, Sykesville PHONE NUMBER: 410-298-9781

SUBDIVISION Ridgeway - LOT 6

ADDRESS: 1301 Underwood Road PROPERTY OWNER: Stewart M. Smith

SEPTIC TANK CAPACITY (GALLONS): 1500 **W/Effluent Filter & Top Seamed Compartment Tank**

PUMP CHAMBER CAPACITY (GALLONS): 4000- **Top Seamed** NOT Compartmented

Control Box with elapsed time meter and event counter. High water alarm on a separate circuit & located in the house.

Low Pressure Dosing Septic System – see detailed design plans by S/E Engineering, Inc., dated September 2002, with Health Department revisions. Also see the attached letters dated 9/24/2002 & 9/25/2002.

LOCATION:	See approved plans for required location & detail
NOTES:	Call for layout inspection prior to beginning construction. A test of the pump system & distribution piping is required prior to covering the system.

PLANS APPROVED: Ronald J. Pinkley OK SRK 10/1/02 DATE: 9/24/2002 12/5/02 SRK

NOTES: PERMIT VOID AFTER 2 YEARS
CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION INSPECTION FOR ALL INSTALLATIONS
WATERTIGHT SEPTIC TANKS REQUIRED
ALL PARTS OF SEPTIC SYSTEM SHALL BE 100 FEET FROM ANY WATER WELL UNLESS SPECIFICALLY AUTHORIZED
MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS UNLESS SPECIFICALLY AUTHORIZED
CONTRACTOR RESPONSIBLE FOR COMPLIANCE WITH APPLICABLE REGULATIONS, GUIDELINES AND THE TERMS OF THIS PERMIT

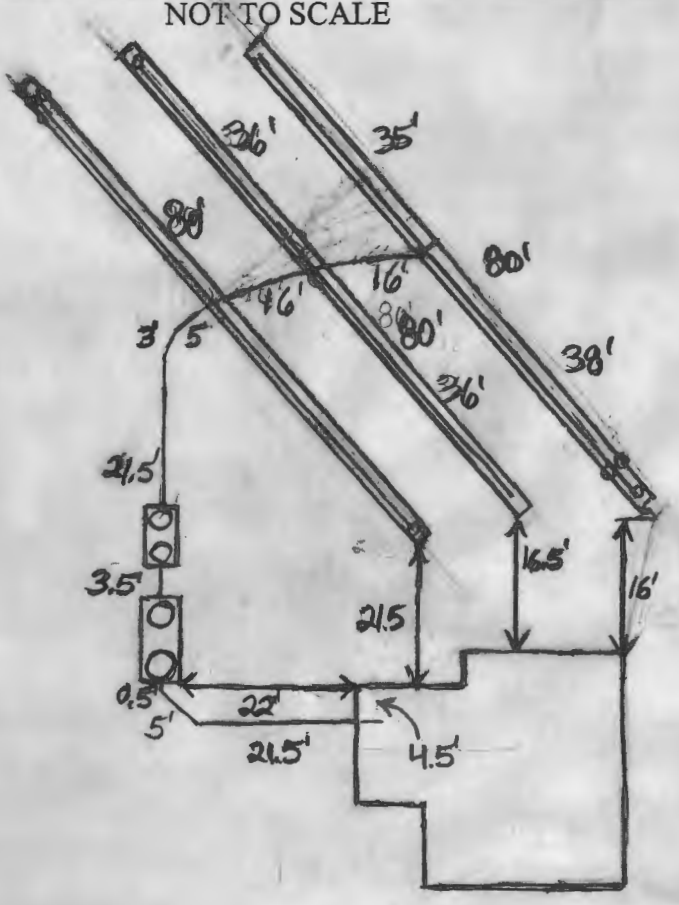
NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM
PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT
ALL 410-313-2640 FOR INSPECTION OF SEPTIC SYSTEM

8/2/05 spoke to Mr. Smith - NEED ELEVATIONS for inverts. Mr. Smith said site plan 2nd house plan submission. He said tanks to be 2' into ground, no deeper than 3', he knows. KN

BUILDING PERMIT SIGNED AND RETURNED

8/9/06 B06002344 500gal UG PROPANE TANK

NOT TO SCALE



Underwood

ROAD

WIDTH	INLET	BOTTOM
3'	1'-2'	4.5'-5'

NUMBER OF TRENCHES 3

TOTAL LENGTH 240

ABSORPTION AREA 720

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL Yes

2-Comp. Mayer Bros.

CAPACITY 1500 GAL

SEAM LOC Top

TANK LID DEPTH 2.5'-3.5'

BAFFLES Yes

BAFFLE FILTER None

MANHOLE LOC Front+Rear

6" PORT LOC None

WATERTIGHT TEST No

SEPTIC TANK 2 LEVEL Yes

Mayer Bros.

CAPACITY 1000 GAL

SEAM LOC Top

TANK LID DEPTH ~~3'~~ 1'

BAFFLES Front

BAFFLE FILTER None

MANHOLE LOC Front+Rear

6" PORT LOC None

WATERTIGHT TEST No

PUMP OPERATIONAL Yes

ALARM OPERATIONAL Yes

PRE-CONSTRUCTION

Pipe depth 2' in Top trench. Pipe depth 1'-1.5' in 2nd trench.

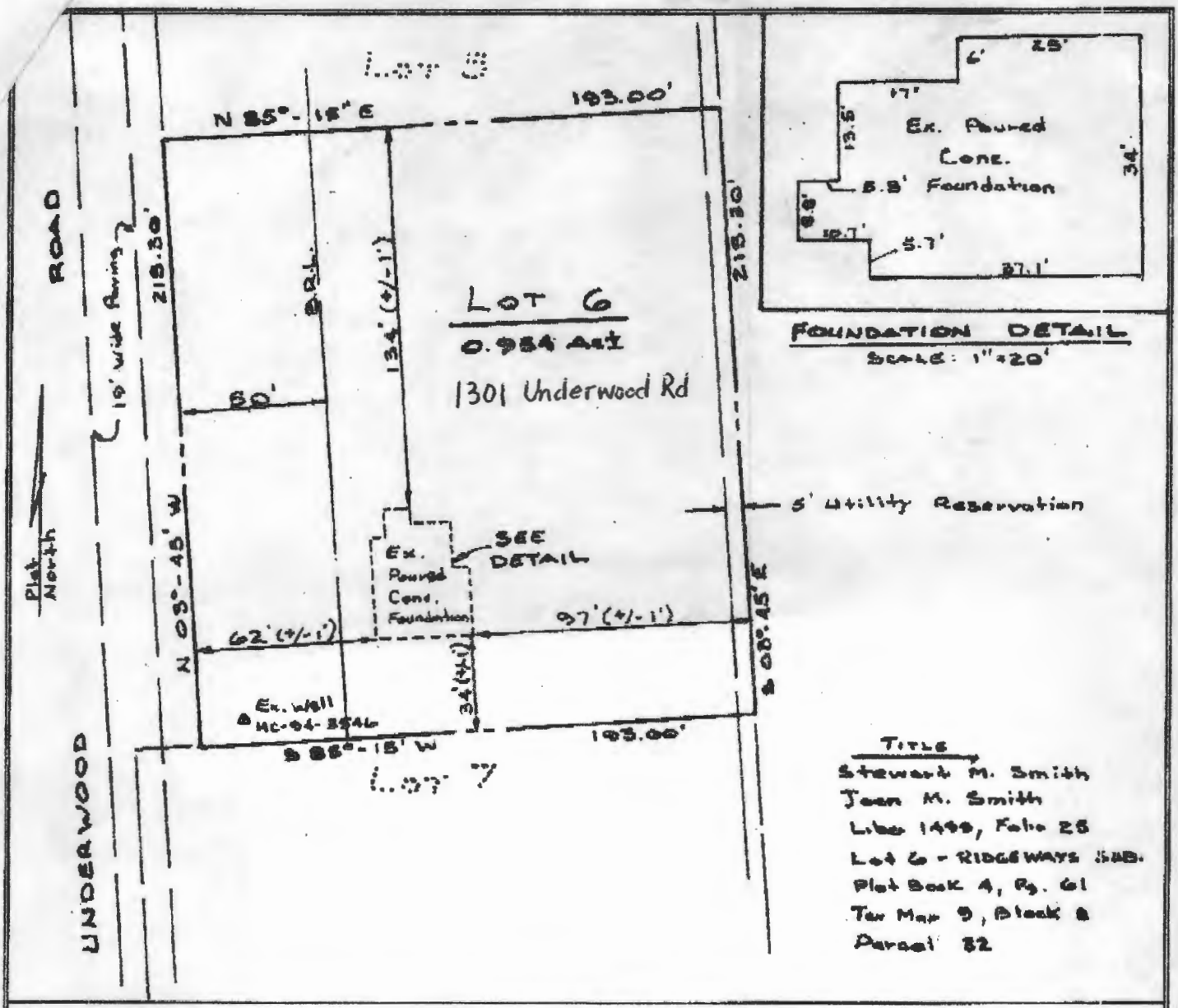
INSTALLATION Pipe depth is 1' in 3rd or bottom trench.

7/25/06 Need effluent filter and rear pump chamber manhole. (BB)

1/2/07 System OK. Alarm / Elapse meter / Time meter is installed per plan. (KW)

(I & A) AGREEMENT RECORDED IN LAND RECORDS ON 1/24/2003 (date)

FINAL INSPECTOR K. Wall DATE OF APPROVAL 1/2/07



Note: This lot does not lie within a flood hazard area, as delineated on the National Flood Insurance Program Map.

R.S.K. SURVEYS
60 Fairground Avenue
Taneytown, MD 21787
(410) 751-0062

FOUNDATION CERTIFICATION

Stewart and Joan Smith Property

Lot 6 – Underwood Road

Drawn By:	R.S.K.
Date:	11-3-05
Check By:	C.W.P.
Surveyed By:	11-2-05
Book No.:	K-11
Page No.:	66
Plat No.:	FD-2-05
Scale 1" =	50'

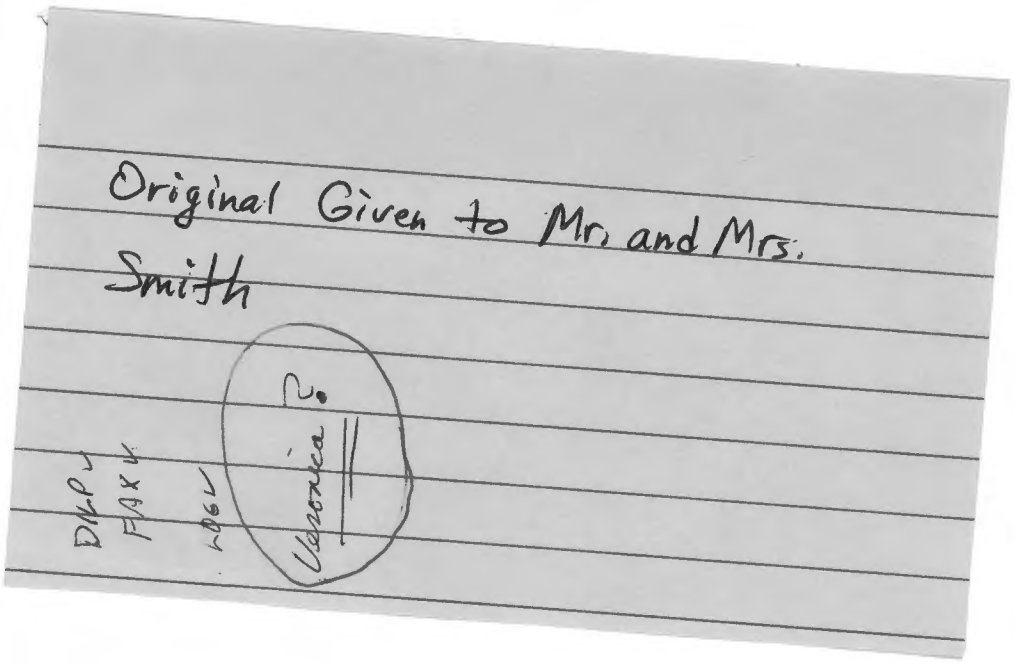
I hereby certify that I have surveyed the property shown hereon for the purpose of locating the foundation only, and the foundation is located as shown. Exact property corners have not been established or set. We assume no responsibility or liability for any rights-of-ways or easements recorded or unrecorded, not appearing on the record plat and/or mentioned in the title deed referred to hereon.

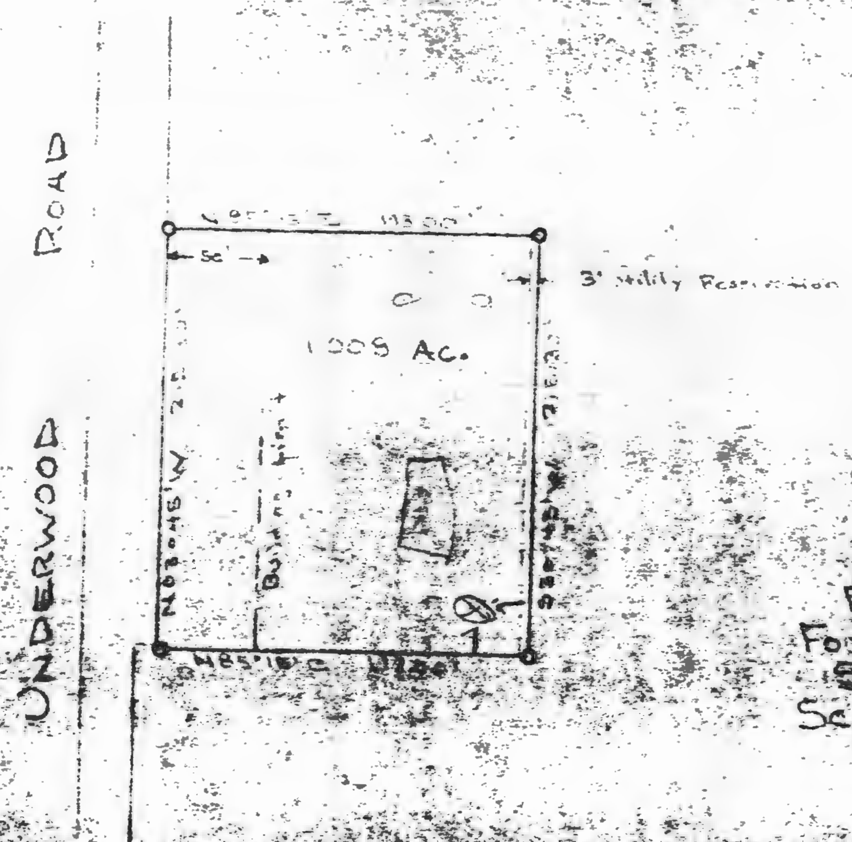
Signed this 3 day of November, 2005

Richard S. Krebs, L.S. # 10873

STATE OF MARYLAND
RICHARD STEVEN KREBS
10873
REGISTERED
PROFESSIONAL LAND SURVEYOR

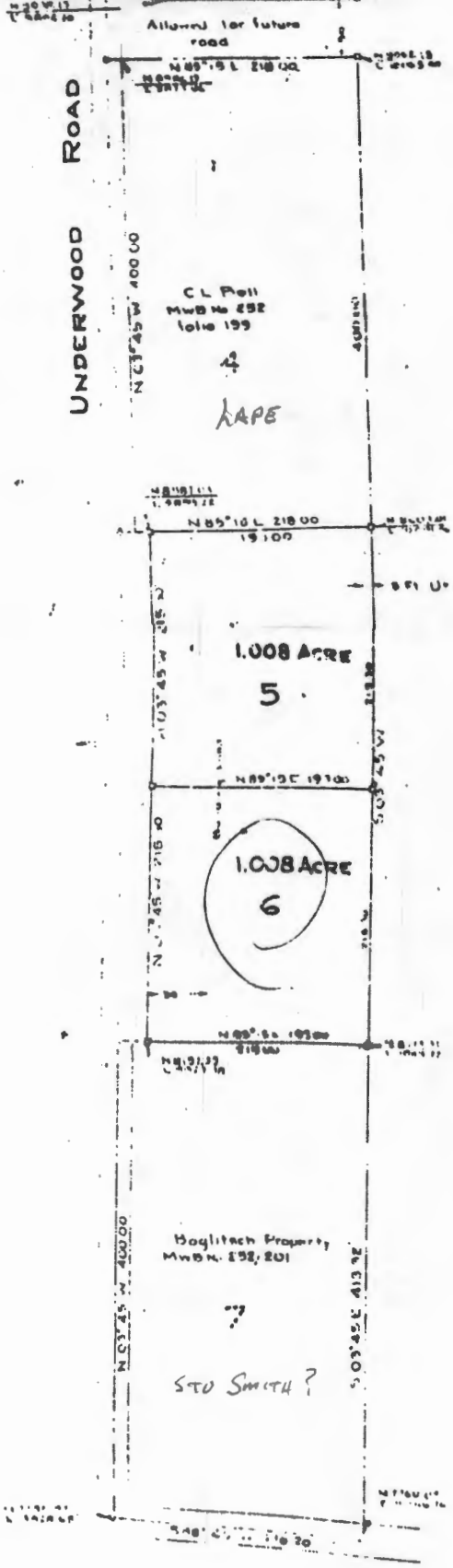
Original Given to Mr. and Mrs. Smith





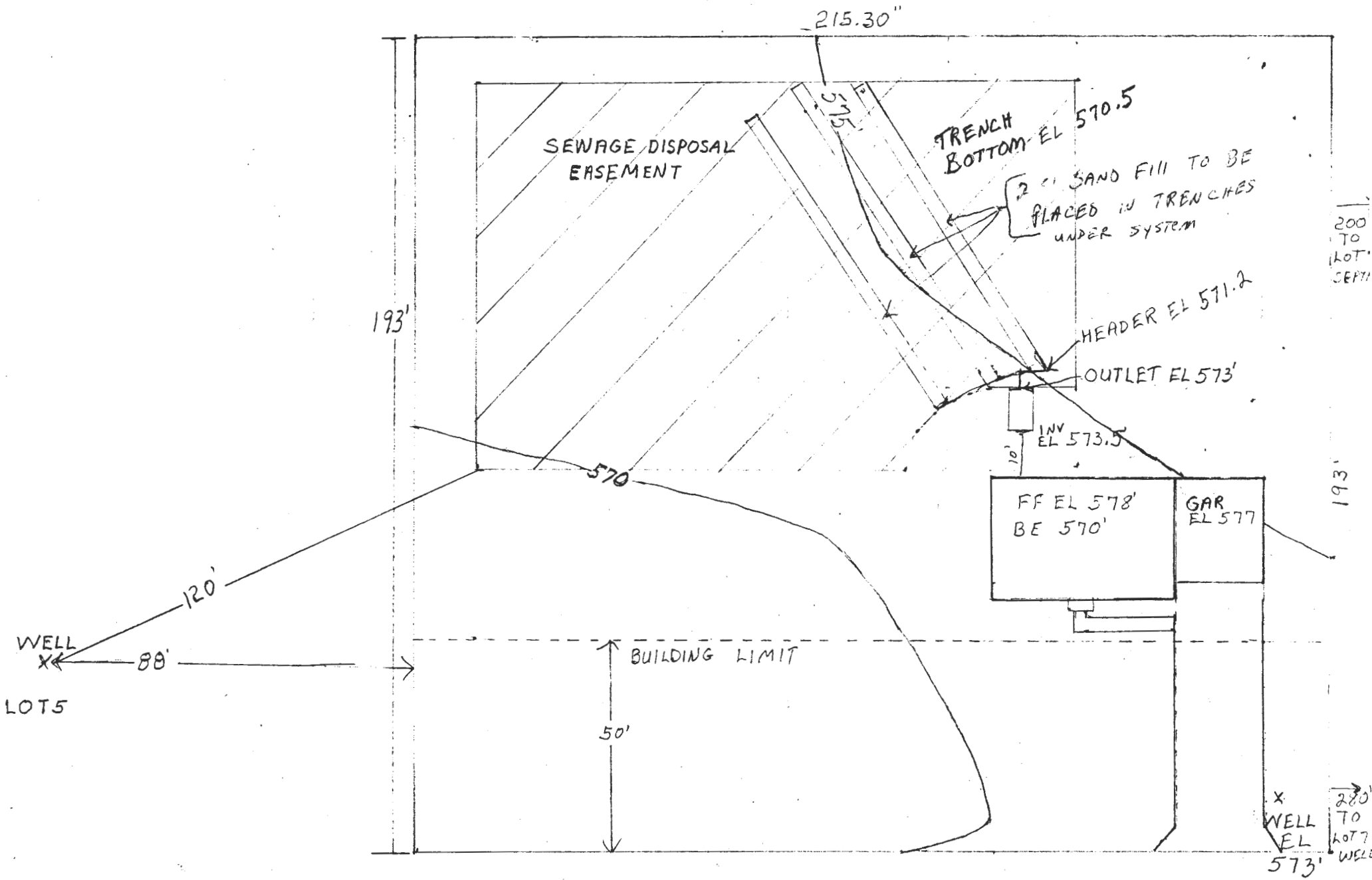
PLAT OF LOT No 6
RIDGEWAYS SUBDIVISION
FOURTH ELECTION DISTRICT OF HOWARD CO.
SYKESVILLE MARYLAND
SCALE: 1 IN = 100 FT   AUGUST 22, 1972

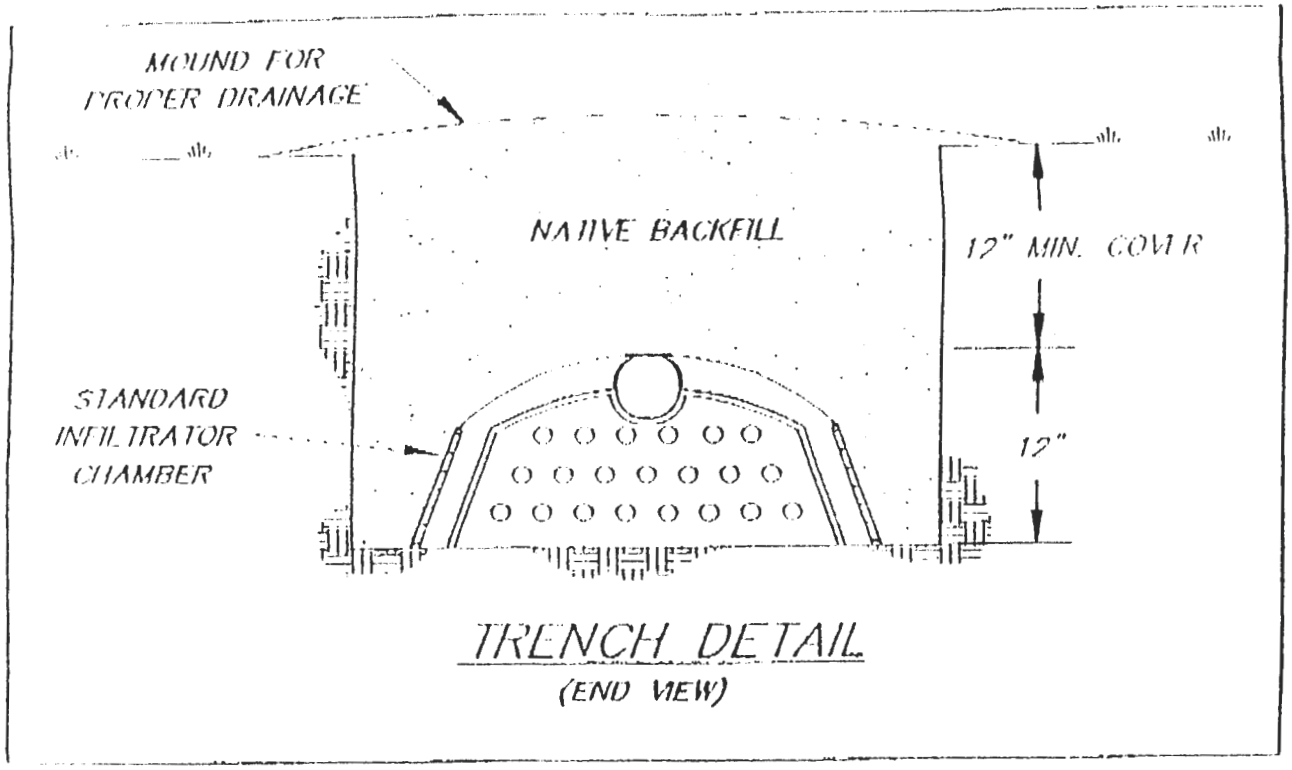
Claude M. Skinner Jr.
Reg. Professional Engineer &
Land Surveyor No. 2257



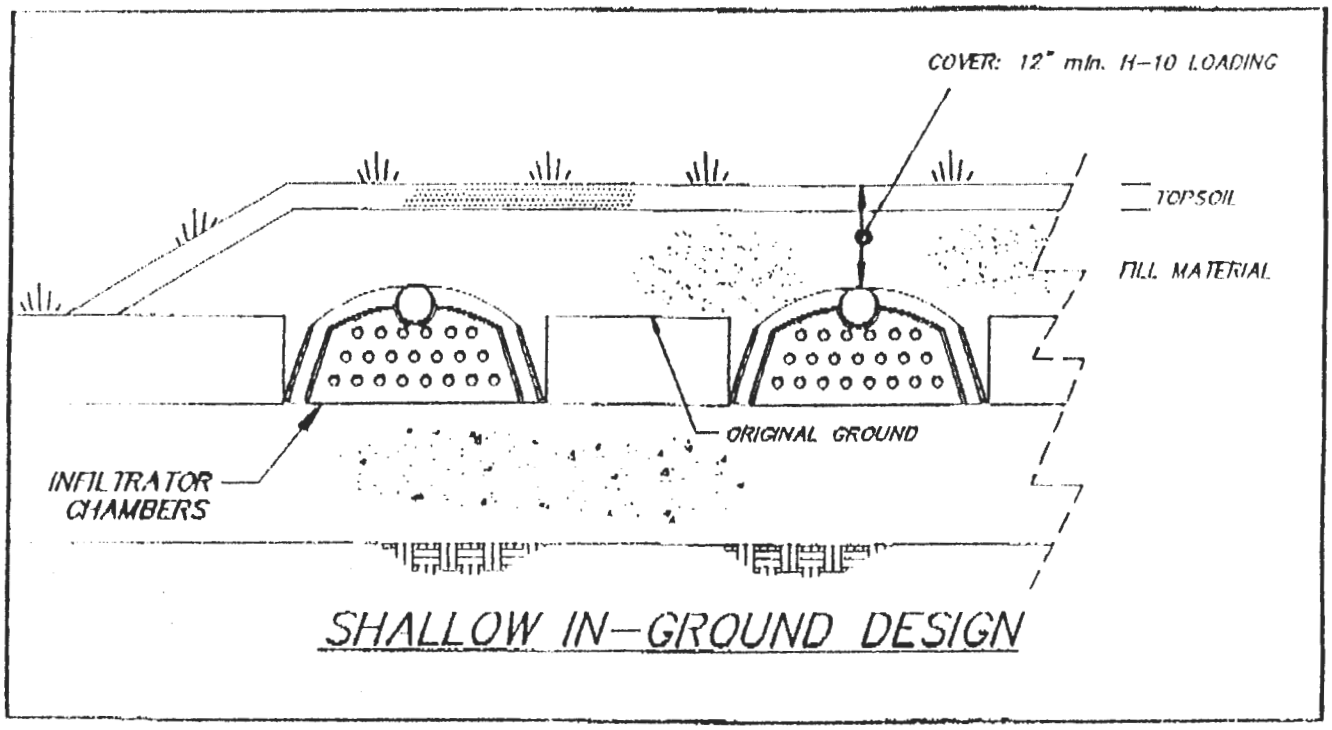
RIDG
THIRD
FOURTH

Sc


215.30"
SEWAGE DISPOSAL EASEMENT
TRENCH BOTTOM EL 570.5
2 cy SAND FILL TO BE PLACED IN TRENCHES UNDER SYSTEM
HEADER EL 571.2
OUTLET EL 573'
INV EL 573.5
10'
193'
570
FF EL 578'
BE 570'
GAR EL 577
120'
WELL
88'
BUILDING LIMIT
50'
LOT 5
WELL EL 573'
LOT 6
UNDERWOOD RD
RIDGEWAY SUBDIVISION
STEWART M SMITH
1391 UNDERWOOD RD
Ho #422103
30 SCALE



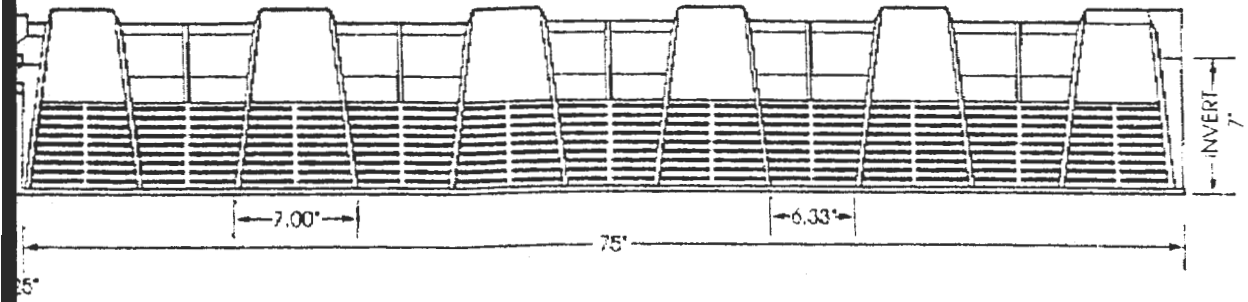
TRENCH DETAIL
(END VIEW)

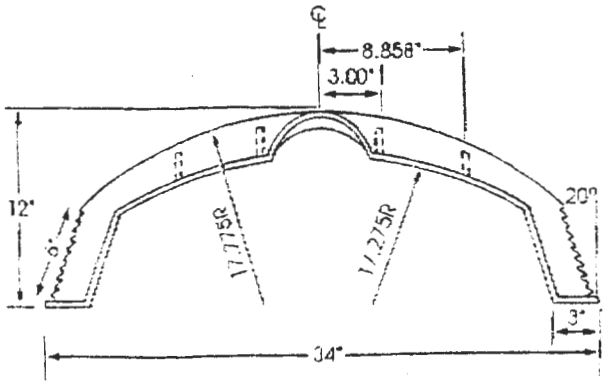


SHALLOW IN-GROUND DESIGN

THE STANDARD INFILTRATOR® CHAMBER

No Scale





Standard Infiltrator® Chamber	
Size	3' x 6.25' x 1'
Weight	27 lbs.
Volume	10.3 ft³ (77 gal.)

Before You Begin...

Remember, Infiltrator® chambers can only be installed according to state and/or local regulations. If you are not sure of the installation requirements for a particular site, be sure to contact your local regulator.

Photos in these instructions depict a Standard Infiltrator chamber installation. However, instructions also apply to High Capacity Infiltrator chamber installations.

Like conventional systems, Infiltrator chambers must be installed on sites where the soils and site conditions have been approved for a septic installation. Be sure that you or your local health official conduct a thorough site evaluation and determine the proper sizing of the system before proceeding with an installation.

Excavating and Preparing the Site.

Leveling the bottom of the trench.

1 Plan the site excavation by staking out the location of all trenches and lines. Set the elevations of the tank, piping, and trench bottom.

2 Excavate and level 3-foot wide trenches with proper center to center separation. Be sure trenches are level or have the prescribed slope.

3 Rake the bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris.

4 Check to be sure that the trench bottom is level using a 4-foot level, transit or laser.

Attaching the End Plates.

Attaching the original end plate.

Attaching the SnapLock end plate.

Attach the end plates on only the first and last chambers of each trench.

1 Screw in the 6" x 8" splash plate at the bottom of the open end plate with splash plate pointed so it will protrude into the chamber.

2 Secure the open end plate to the end of the chamber.

- For SnapLock™ end plates – attach by inserting the tabs on one side of end plate to the slots located on the flange of the chamber. Hold these in place and firmly tap the other side of end plate to snap tabs into slots, fully engaging end plate.
- For Original end plates – attach by inserting 2" screws into the 4 starter holes located on the chamber flange.

3 Install the closed end plate on the last unit with the knobs facing into the chamber and secure as above.

Guidelines

It is important to follow these guidelines when using construction machinery:

- Avoid direct contact with chambers when using a large-wheeled vehicle, especially if the soil has not been compacted. Always be sure to have a minimum of 12" of compacted cover over chambers. Chambers with this minimum covering can support a load of 16,000 pounds per axle in all soils except sands.
- Only drive across trenches. Never drive down the length of the trenches.
- To avoid further compaction of the soils, never drive heavy vehicles over the completed system.

Installing Inspection Ports.

1 Using a hole saw, create an opening in the pre-marked area located in the center top of the chamber. Be sure to use a saw that matches the type of pipe being installed.

2 Glue a 6" long PVC pipe into a coupling.

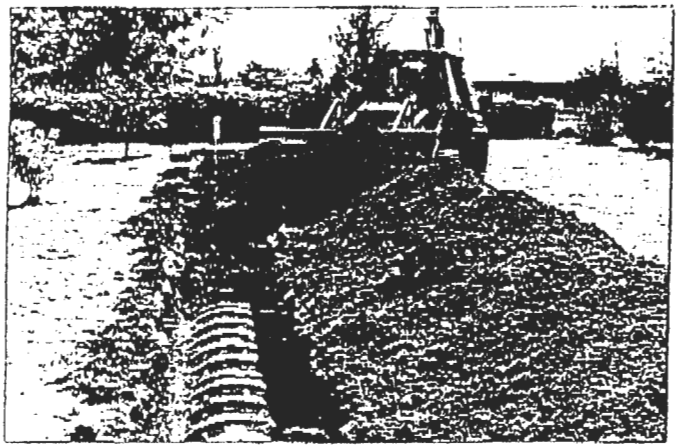
3 Insert the pipe into the opening at the top of the chamber. Notice the coupling sits on top of the chamber

4 Insert another piece of pipe into the coupling, cutting pipe at or above grade.

5 Attach a threaded clean-out assembly onto the protruding pipe.

6 A small valve-cover box may be used if inspection port is desired below grade.

Covering the System.



Backfilling the trenches.

Before backfilling, the system should be inspected by a health official, or as required.

1 Backfill the trench by pushing the cover onto the units. Keep a minimum of 12" of compacted cover over the chambers before driving over system. Do not drive over chambers while backfilling in sand since sand does not give adequate support in any septic system

When finishing the system, it is best to leave several inches of soil above the trenches to allow for settling and be sure that runoff water is diverted away from the system.

2 When system is covered, the site should be seeded or sodded to prevent erosion.

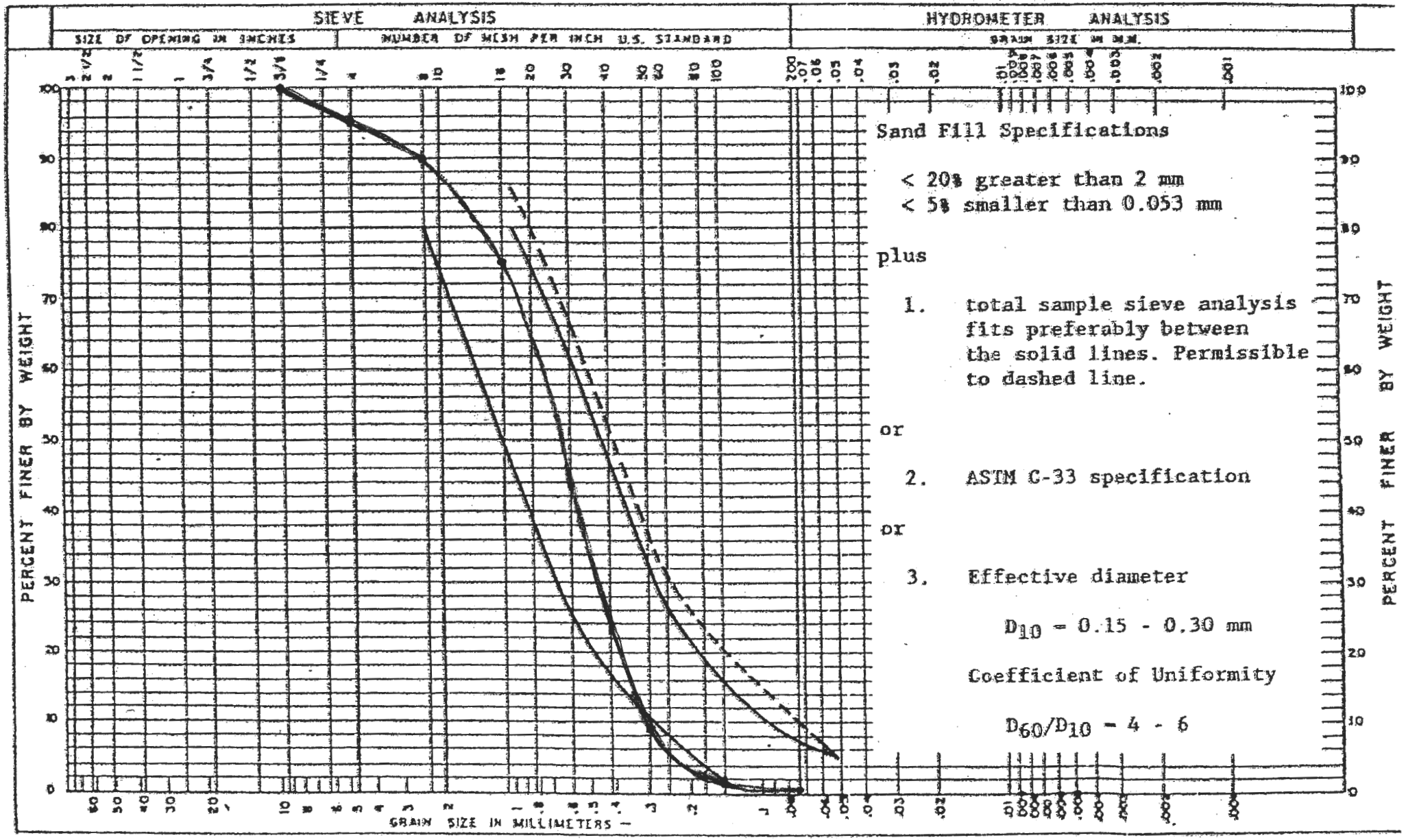
For help and more information on installing bed, mound, serial, or pressure dosed systems or installations in sandy soils, call Infiltrator Systems' engineering department at: 1-800-221-4436.

INFILTRATOR® SYSTEMS INC

Leading the way in septic and stormwater chamber systems™

4 Business Park Road, P.O. Box 768
Old Saybrook, CT 06475
800-221-4436 860-388-6639 FAX 860-388-6910

Distributed By:


SIEVE ANALYSIS
SIZE OF OPENING IN INCHES
NUMBER OF MESH PER INCH U.S. STANDARD
HYDROMETER ANALYSIS
GRAIN SIZE IN MM.
PERCENT FINER BY WEIGHT
GRAIN SIZE IN MILLIMETERS
Sand Fill Specifications
< 20% greater than 2 mm
< 5% smaller than 0.053 mm
plus
1. total sample sieve analysis fits preferably between the solid lines. Permissible to dashed line.
or
2. ASTM C-33 specification
or
3. Effective diameter
D_{10} = 0.15 - 0.30 mm
Coefficient of Uniformity
D_{60}/D_{10} = 4 - 6

SANITARY/ENVIRONMENTAL ENG., INC.
Consulting Engineers
1414 Washington Road
WESTMINSTER, MARYLAND 21157
(410) 876-7740
FAX (410) 840-9924

JOB STEWART SMITH
SHEET NO. UNDERWOOD Rd. OF
CALCULATED BY DATE
CHECKED BY DATE
SCALE RIDGEWAY LOT 6

3 BEDROOM X 150 = 450 GPD ✓ LOW PRESSURE DOSING
LOADING RATE - 0.4 GPD / Sq. Ft. OK (as per earlier discussion RJP 9/16/02
450/0.4 = 1125 Sq. Ft. ✓
@ 36" WIDE - TRENCH LENGTH = 1125/3 = 375 LIN. Ft. ✓
USING 2' DEPTH SIDEWALL -

$$\frac{W+2}{W+1+2d} = \frac{3'+2'}{3'+1'+4'} \times 100 = 5/8 \times 100 = 62.5\%$$

375 LIN. Ft x 62.5% = 234' (USE 3 x 80' = 240') OK
PUMP RATE = 30 X 1.63 = 49 GPM ✓ OK
DOSE = 5 X 3 X 72' = 1080" - 1" LATERAL @ 4.5 GAL/100' OK
10.8 X 4.5 = 49 GAL ✓
PLUS - 75' - 2" fm + MANIFOLD @ 17.4 GAL/100'
0.75 X 17.4 = 13 GAL ✓ 49+13 = 62 GAL OK
450/6 = 75 GAL. OK DOSE = 10 cu ft / 40 Sq. ft = 0.25' = 3" OK

TDH - ELEV. DIFFERENCE = 572.5 - 566.6 = 5.9'
DISTAL HEAD 2.0'
F = 2" — 6' + Valve + L + UNION + L + L + 45° + 45° + 42'
6 + 1.3 + 7 + 2 + 7 + 7 + 4 + 4 + 42' = 80'
F = 3.98'/100' = 0.8 X 3.98 = 3.2 ✓
TDH = 5.9' + 2.0' + 3.2' = 11.1' (11') OK
PUMP TO REMOVE (49 GPM @ 11' TDH) OK - GOULDS - (WE03 11 M) OK ✓
Emergency Storage - 40 Sq. Ft X 2.33' = 93.2 cu ft = (697 GAL.)

checked RJP 9/16/02

System Design is OK
but I'd like to have Monitoring pipes
in all 3 Trenches (one high, one low) and
one Monitoring well (2"-3" slotted pipe, landscaped
to water Table will be OK.
— also should owner sign an I/A agreement? discuss w Greg or Frank!

AS DISCUSSED WITH STU SMITH
RIDGEWAYS LOT 6 - TO PROPOSE SAND FILLED TRENC
RATHER THAN SAND MOUND
WITH 2' TO WATER TABLE

SHOW WELL SITE (WITH ELEV.)
AND SHOW ALL WELLS AND SEPTICS
WITH 100' OF PROPERTY BOUNDARIES

THEN PROPOSE A HOUSE LOCATION
AND TRENCH LOCATION

80' TRENCH
3' WIDE PER BEDROOM
ORIENTED TO CONTOUR AS
PROVEN BY SPOT ELEVATIONS
(IF FULL CONTOURS NOT AVAILABLE)

TRENCH BOTTOM 4½ BELOW
ORIGINAL GRADE
(INLET T. B. D.) ★2 SAND FILL

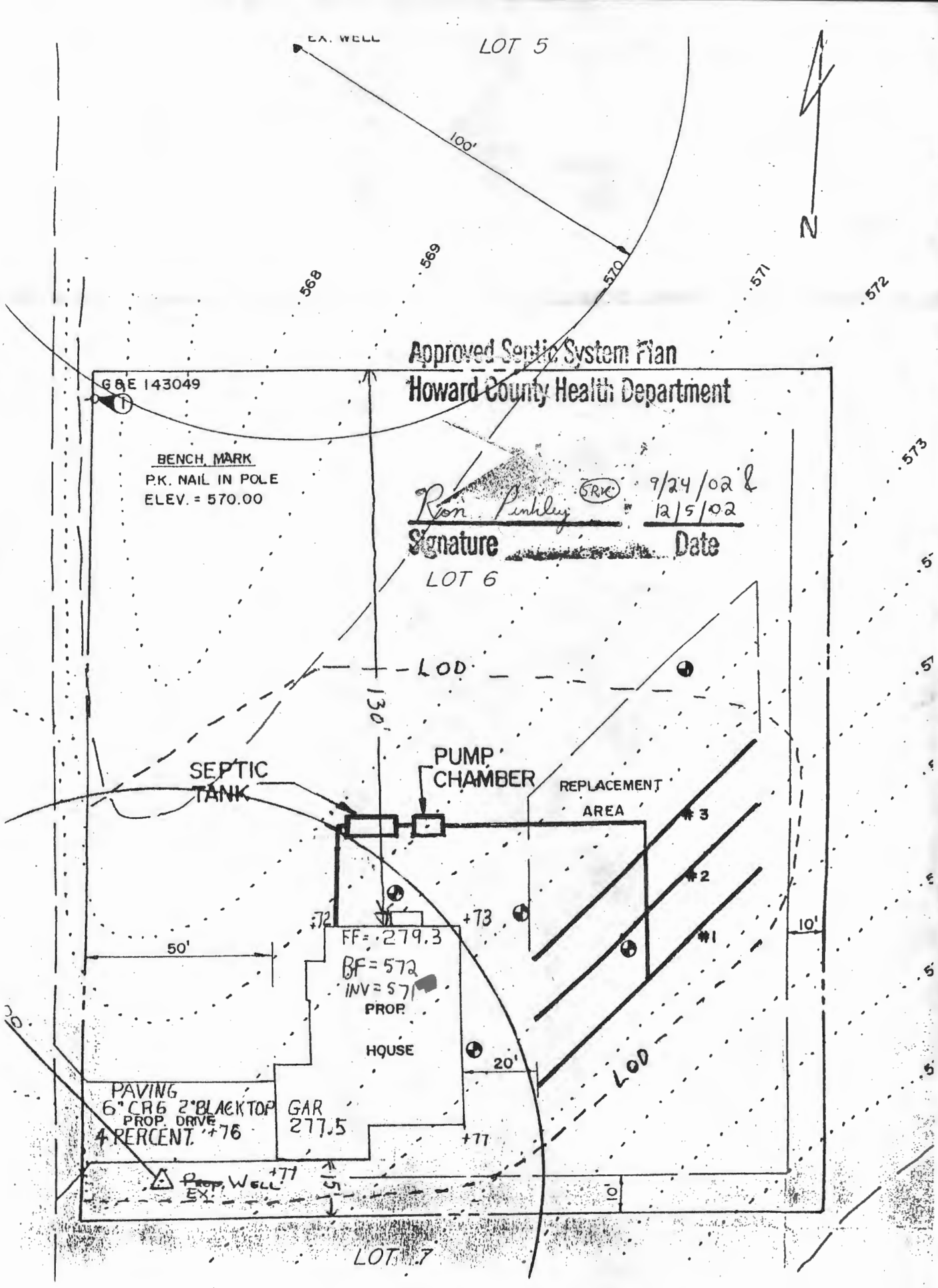
SHOW INITIAL SYSTEM
AND TWO FUTURE REPLACEMENTS
(SHADOW)

THEN ADD SUPPLIERS DETAIL ABOUT
HOW TO PLUMB IT.

THESE ARE SUGGESTIONS FOR MAKING A PROPOSAL FOR JOINT CONSIDERATION BY MDE. THIS TYPE SYSTEM IS NOT CURRENTLY APPROVED. 5/31/95 CWR

"YOUR PROPOSAL TO REMOVE THE CLAY ENTIRELY WOULD REQUIRE COMPLETE NEW WET SEASON PERC'S"

95 MAY 31 PM 3:56



PLOT PLAN LOT6 - 1301 UNDERWOOD RD SCALE 1"=30'

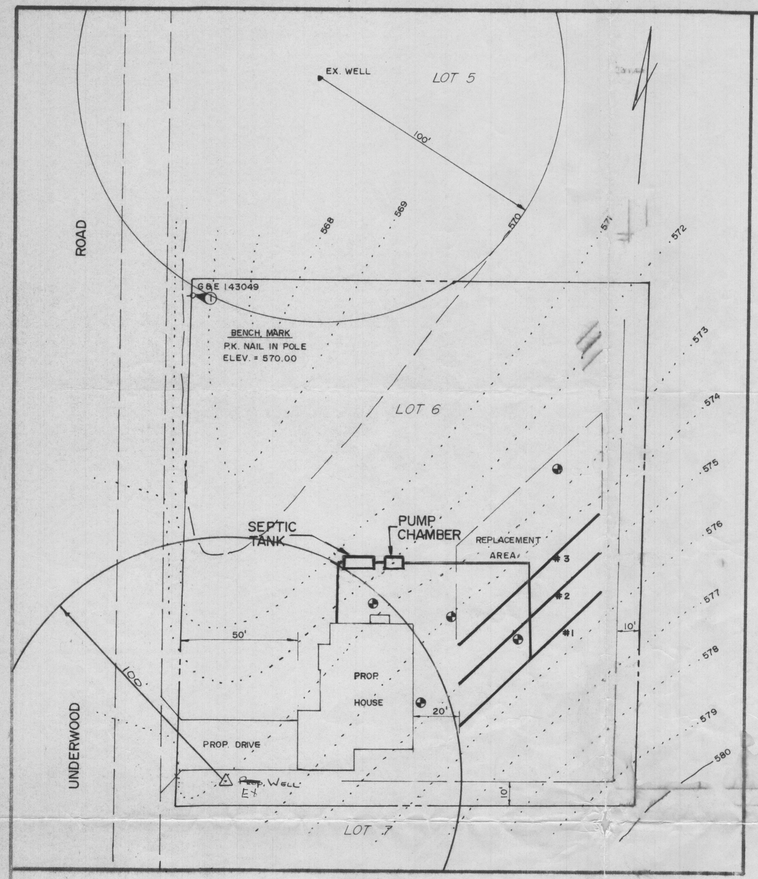
SMITH PROPERTY DATE 10/29/02

OWNER / BUILDER STEWART + JOAN SMITH
1391 UNDERWOOD RD
SYKESVILLE MD 21784

SEE OTHER SEPTIC ELEVATIONS ON APPROVED LPD PLAN DATED

+ NO BASEMENT SERVICE BY GRAVITY IS PROPOSED, HOWEVER MR. SMITH STATED THAT IS HIS INTENTION. OK TO DROP INV OUT OF HOUSE 6" or so AS LONG AS SEPTIC TANK ELEVATIONS REMAIN THE SAME (MR. SMITH AGREES) 2' COVER OVER TANKS

ALSO TOLD MR. SMITH TO MAINTAIN 10-15' TO WELL FROM DRIVEWAY. - SRK



SITE PLAN

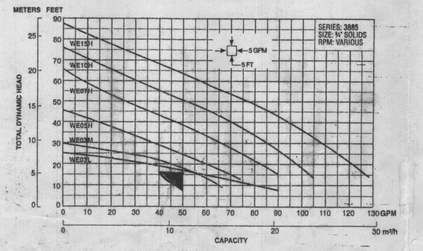
SCALE: 1" = 30'

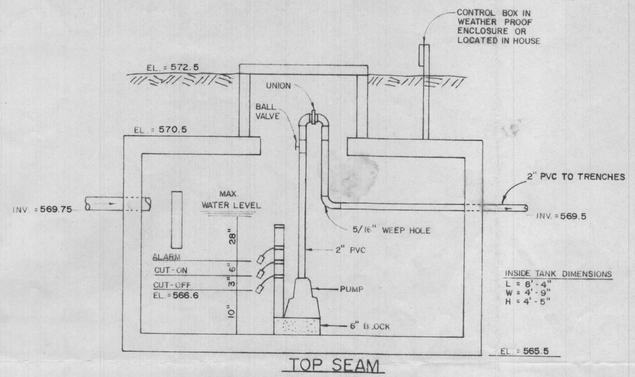
DESIGN CRITERIA

3 Bed Rooms x 150 = 450 GPD
1 – 1,500 GAL. Top Seam Compartmented Septic Tank
1 – 1,000 GAL. Top Seam Pump Chamber
3 – Sand Lined Trenches – 36" x 80'
Pump Rate – 30 Perforations @ 1.63 GPM = 49 GPM
TDH – 11'
Loading Rate – 0.4 GPD / SQ. FT

SPECIFICATIONS

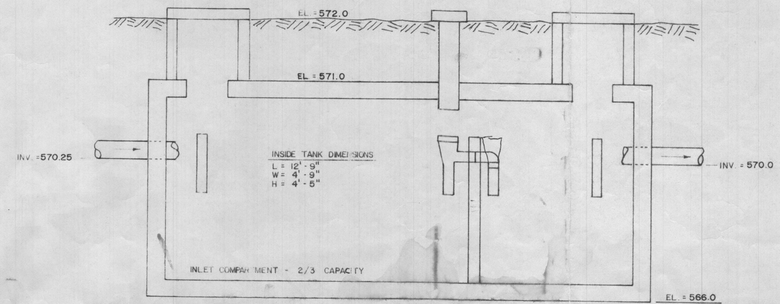
- Tank measurements and elevations are based on septic tanks and pump chambers as manufactured by Mayer Bros., Elkridge, Md. (410) 796-1434.
- All piping to be schedule 40 PVC of sizes shown.
- The force main from the pump chamber to the sand bed is to be installed with a continuous slope back to the chamber to assure complete drainage following each pump cycle.
- A submersible pump to remove 49 GPM against 11' TDH to be provided. Pump to be a Goulds Model 3885-WE-03M, or equal.
- A test of the pump system and distribution piping is required prior to covering the system.
- The High Water Alarm is to be on a separate circuit.
- Alarm to be located in the house.





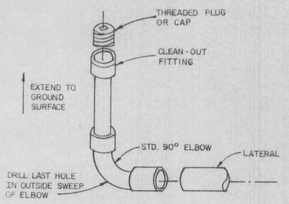
TOP SEAM
1000 GAL. PUMP CHAMBER

NOT TO SCALE



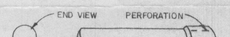
TOP SEAM
1500 GAL. SEPTIC TANK

NOT TO SCALE



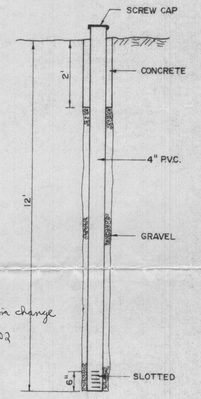
LATERAL END TURN-UP
USE ON LATERAL FARTHEST FROM PUMP

NOT TO SCALE



LATERAL END CAP
USE ON LATERALS NOT EQUIPPED WITH TURN-UP

NOT TO SCALE



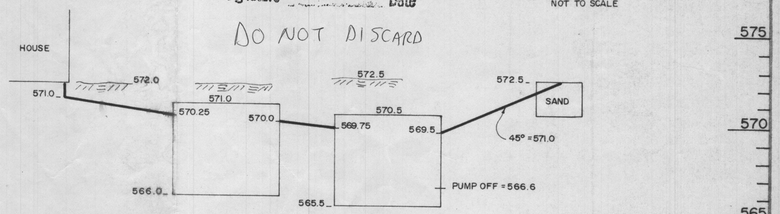
OBSERVATION PIPE DETAIL

NOT TO SCALE

Revised only for minor system location change
Approved Septic System Plan — See 9/24/02 plan for all other info.
Howard County Health Department

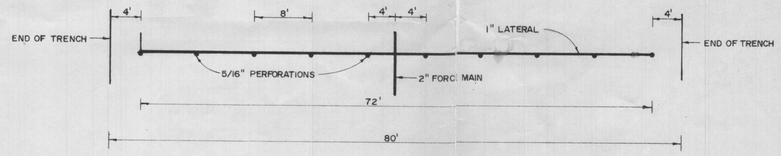
Steven R. Krieg — Signature — 12/5/02 — Date

DO NOT DISCARD



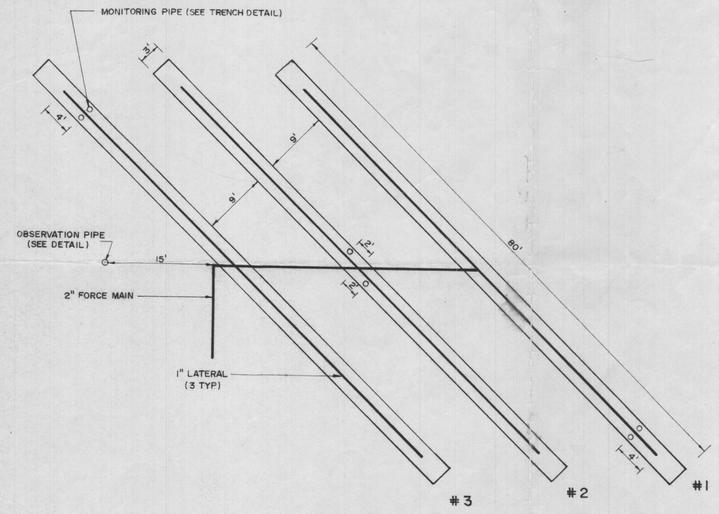
HYDRAULIC PROFILE

SCALE: V: 1 1/4" = 1'
H: N.T.S.



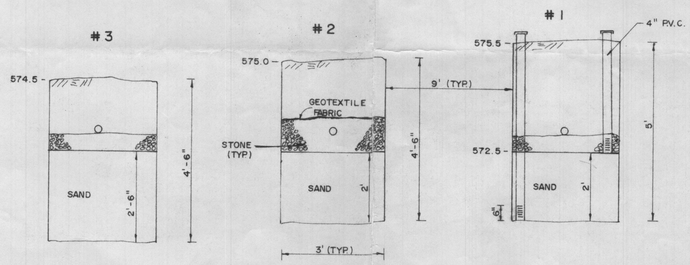
LATERAL DETAIL

SCALE: 1" = 10'



TRENCH LAYOUT

SCALE: 1" = 10'



TRENCH DETAIL

SCALE: 1/2" = 1'

NOTE: ALL TRENCHES 36" WIDE TO DEPTHS SHOWN.
TOP OF SAND ELEV. = 572.5 ALL TRENCHES.
NINE FEET (9') UNDISTURBED BETWEEN TRENCHES.
MINIMUM OF 6" STONE OVER AND BENEATH LATERALS.

STATE OF MARYLAND — JAMES D. CLISE — 10991 — REGISTERED PROFESSIONAL ENGINEER

James D. Clise

REVISED 10/24/02

S/E ENGINEERING, INC.		
WESTMINSTER, MARYLAND		
SCALE: AS SHOWN	APPROVED:	DRWN: RSK
DATE: SEPT. 2002	JDC	DES: JDC
STEWART SMITH - RIDGEWAY LOT #6 UNDERWOOD ROAD - HOWARD COUNTY		
LOW PRESSURE SYSTEM		DRAWING NO. 1 OF 1