

9/17/01  
 9/20/01 All day  
 9/21/01 All day  
 9/24/01 SM - finished bed today ASAP

ISSUE DATE: 9/10/01  
 APPROVAL DATE: 10/1/01

**PERMIT  
 INDEXED**

P 516021F  
 A 511334-E

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

**04-363076**

Fogle's Septic Clean, Inc. IS PERMITTED TO INSTALL  ALTER

ADDRESS: 580 Obrecht Road, Sykesville PHONE NUMBER: 410-795-5670

SUBDIVISION: Sollers Property LOT NUMBER: \_\_\_\_\_

ADDRESS: 830 Beetz Road PROPERTY OWNER: Richard Starr

SEPTIC TANK CAPACITY (GALLONS): 1500 gal T.S. 2 chambered

PUMP CHAMBER CAPACITY (GALLONS): 1500 gal T.S.

NUMBER OF BEDROOMS: 4

SQUARE FEET PER BEDROOM: NA

Sand Mound System  
 LINEAR FEET OF TRENCH REQUIRED: NA

TRENCHES: <u>Sand Mound System only</u>	<del>Trench to be _____ feet wide. Inlet _____ feet below original grade. Bottom maximum depth _____ feet below original grade. Effective area begins at _____ feet below original grade. _____ feet of stone below distribution pipe.</del>
LOCATION:	
PURPOSE:	SEE APPROVED SAND MOUND DESIGN PLANS.

PLANS APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

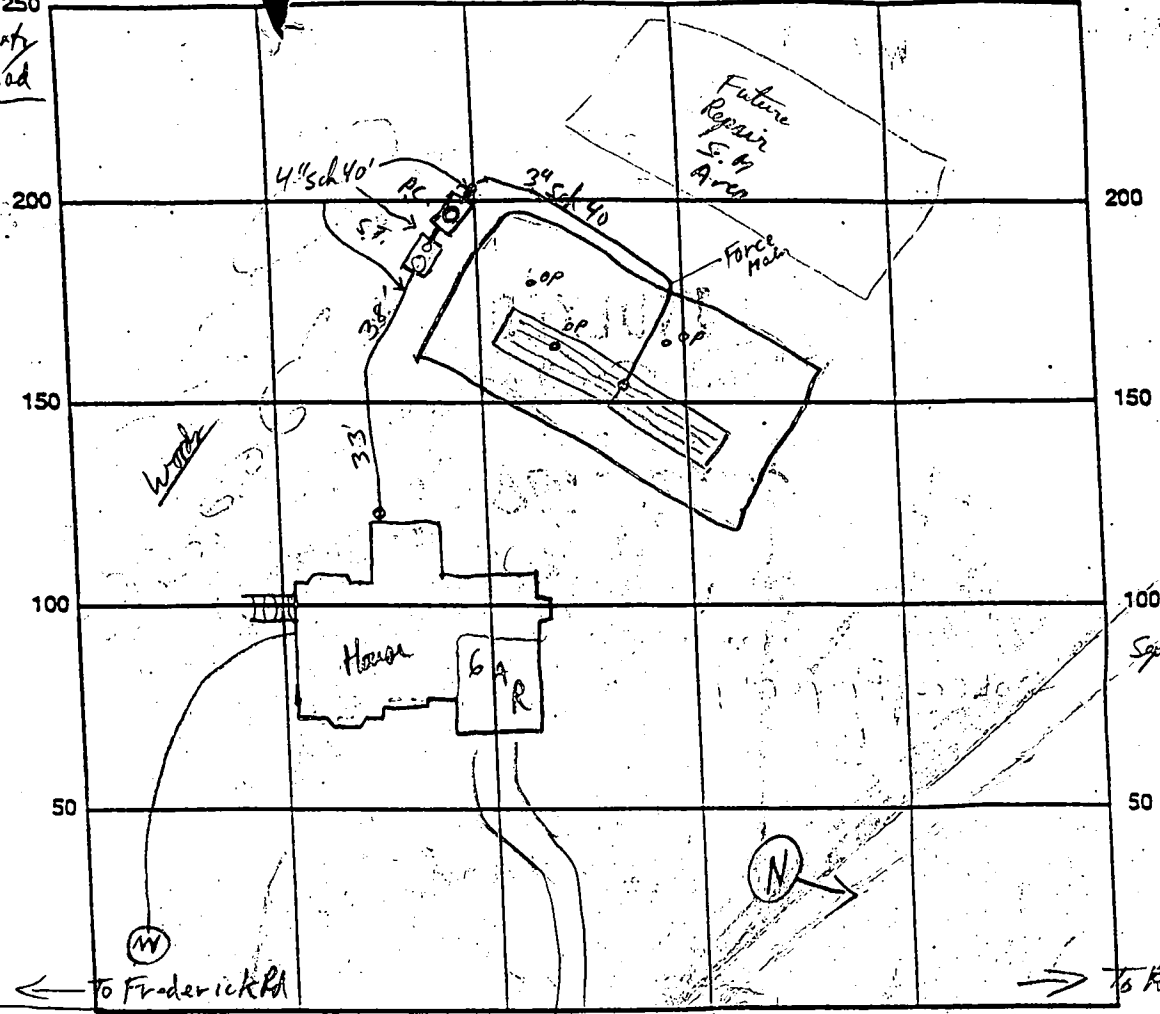
- NOTE: PERMIT VOID AFTER 2 YEARS
- NOTE: CONTRACTOR RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION INSPECTION FOR ALL INSTALLATIONS
- NOTE: WATERTIGHT SEPTIC TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE 100 FEET FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS

**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 BUILDING PERMIT SIGNED 13-2640 FOR INSPECTION OF SEPTIC SYSTEM**

**AND RETURNED**  
 3-9-05 B00152589-IG P004

A 511334-E

(A511334) 250  
 Soller's Property  
 830 Beetz Road



Beetz Rd INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE

SEPTIC TANK LEVEL 1500 T.S. - 2 compartment  
 1250 T.S. - Not compartmented  
 CLEANOUTS ST = Manhole on front, 6" on rear  
 P.T. = Manhole on center

REMARKS: Net Method of Force to the Construction layers the Staked Corners & Bed of S.T. are OK. Proble  
with access to S.T. & P.C. is to be covered with soil or other material to prevent traffic over downslope area downslope of  
Primary S.H. site will have to be covered with soil or other material to prevent traffic over downslope area downslope of  
Soil delivered is OK for Sand Bed. P/P 9/17/01 Force Main laid, S.T. soil chisel placed OK, ready to place sand. P/P 9/17/01  
House Connection OK, S.T. 2 chambered = 3" T diffles, P.C. OK, OK to cover S.T., P.C., then Conn & Force Main.  
OK to continue laminar sand. P/P S.O. 9/18/01 9/19/01 SAND CONTINUING, OK (MR)  
Sand Forms for Bed OK P/P 9/21/01 Gravel Bed 2/3 filled, has laterals properly drilled for perforation  
spacing & hole size. OK to lay laterals & cover with 6 oz textile fabric & clay cap when ready. Then wait for  
for more sand to finish downdrop portion of S.H. Call Monday for inspection. P/P 9/21/01 observation pipe  
Clay Material for Cap looks OK. Bed geotextile fabric & clay cap in Place OK to cover Sand around with less or seed it.  
Call for Pump Test. P/P 9/24/01, 10/1/01 - ALARM OPERATIONAL, PUMP ON (SRW)

DATE SYSTEM APPROVED 10/1/01 INSPECTOR Steven R. King BUILDING PERMIT SIGNED AND RECORDED

TOTAL P. 02

**HOWARD COUNTY HEALTH DEPARTMENT  
BUREAU OF ENVIRONMENTAL HEALTH  
WATER AND SEWERAGE PROGRAM  
TEL: (410)313-2640 FAX: (410)313-2648**

**Information Form for the Installation of the Well Pump, Pitless Adapter, and Supply Piping**

**NOTE: The installer is responsible for requesting an inspection prior to 9 am on the day of the desired inspection. No work is to be covered until approved by the Health Department. All installations must comply with the National Standard Plumbing Code (NSPC, as amended locally) and COMAR 26.04.04 (MD Well Construction Regulations). Submission of a complete form is required prior to Use and Occupancy approval.**

Company Name: Arcadia Plumbing & Utilities, Inc. Telephone #: 1-410-374-0800  
Address: P.O. Box 694  
Mount Airy, MD.

(Must circle one) Licensed Plumber  Licensed Well Driller  Licensed Well Pump Installer   
License # and name of individual responsible for the field installation:  
Name (Print): Michael P. Stark License # MPL04659

\*A licensed individual must perform the actual installation. Apprentices must be under the direct supervision of a licensed journeyman or master plumber, pump installer or well driller. Licenses may be subjected to field verification.

Name of Property Owner: RICK STARK Telephone #: 410-790-1130  
Subdivision: \_\_\_\_\_ Lot #: \_\_\_\_\_ Wall Tag #: HO-94-2994  
Site Address: 830 BEEZ RD.

<b>Submersible Pump Data</b>	<b>Pitless Adapter</b>	<b>Well Cap and Electric Conduit</b>
Make: <u>Good</u>	Make: _____	Two piece watertight cap: <input checked="" type="checkbox"/>
Model #: <u>12HP</u>	Model #: _____	Screened, vented well cap: <input checked="" type="checkbox"/>
Pump Capacity: _____ GPM	Depth: <u>42</u> (36" min)	Cap secured to casing: <input checked="" type="checkbox"/>
Well Yield: <u>7</u> GPM	NSF approved: <input checked="" type="checkbox"/>	Conduit min 1 1/2" B.G.: <input checked="" type="checkbox"/>
Depth of well encountered at time of pump installation: _____ (feet)		Conduit secured to well cap: <input checked="" type="checkbox"/>

If pump capacity exceeds well yield, a low water cut off switch is required by NSPC 1990 Section 17.8.4  
Torque wrenches or Cable guards are required - Must circle one  
Safety rope, if used, attached to inside of well casing with eye bolt

<b>Piping to house</b>	<b>House Connection</b>
Type: <u>1" Black P.V.C</u>	PVC sleeved to undisturbed soil at wall penetration: <u>yes</u>
PSI: <u>200</u> (160 psi min)	Approximate length of sleeve: <u>12'</u>
Depth of supply line: _____ (36" min)	Sleeve caulked and sealed properly: <u>yes</u>

The water supply line is required to be at least ten feet from the septic tank, pump chamber, sewage piping, distribution box, drainfields, and sewage reserve area. If this cannot be accomplished, contact this office for approval prior to installation.

Signature of company representative responsible for installation: [Signature] Date: 7-23-01 Callie Al  
3:32 PM

**For Health Department Use Only - Not to be completed by Installer**

Date Insp. Requested: 7/24/01 Date Insp. Approved: 7/24/01 (DKC)  
Inspection Data: Pitless adapter and water supply line at least 36" below grade   
Two piece cap installed and attached to casing securely   
Elec. conduit extends at least 18" below grade/attached to cap properly   
Safety rope installed inside of well casing   
Correct well tag attached properly and casing 8" above finished grade   
Water supply line sleeved adequately at house connection   
Adequate grout observed below pitless adapter   
Reported  
OK 7-24-01  
SRK

Rick Stark  
 830 Beez Rd.  
 Mount Airy, MD. 21771  
 Angela ID No# 000-0005-0005  
 -0005

C1 0838

SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

COUNTY 3/15/01 OK 98 NUMBER A 511334

DATE RECEIVED MM 03 DO 12 YR 01

DATE WELL COMPLETED MM 03 DO 12 YR 01

DEPTH OF WELL 22 278 26 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" HO-94-2994

OWNER last name first name Richard STAFF BEETZ ROAD TOWN Mt. Airy SUBDIVISION SOLLERS PROPERTY SECTION LOT

WELL LOG Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

Table with columns: DESCRIPTION, FEET (FROM, TO), check if water bearing. Rows include DIAT, SOFT blue shale, GRAVEL + SHALE, SOFT blue + blue shale, HARD blue shale, HARD blue shale, blue shale, HARD blue shale, HARD blue shale, MEDIUM HARD blue shale.

GROUTING RECORD yes no (Y) (N)

WELL HAS BEEN GROUTED (Circle Appropriate Box) TYPE OF GROUTING MATERIAL (Circle one) CEMENT (CM) BENTONITE CLAY (BC) NO. OF BAGS 23 NO. OF POUNDS 2112 GALLONS OF WATER 138 DEPTH OF GROUT SEAL (to nearest foot) from 0 to 59 ft.

CASING RECORD casing types insert appropriate code below (ST) (CO) (PL) (OT) STEEL CONCRETE PLASTIC OTHER

MAIN CASING TYPE Nominal diameter top (main) casing (nearest inch)! Total depth of main casing (nearest foot) ST 6 61

OTHER CASING (if used) diameter depth (feet) inch from to

SCREEN RECORD screen type or open hole (ST) (BR) (HO) (PL) (OT) STEEL BRASS BRONZE PLASTIC HOLE OTHER

NUMBER OF UNSUCCESSFUL WELLS: 1

WELL HYDROFRACTURED yes no (Y) (N)

- CIRCLE APPROPRIATE LETTER A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED E ELECTRIC LOG OBTAINED P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT...

DRILLERS LIC. NO. 1 M WD 356 Dan Thelen II DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO. 1 FWD 334 Dan Thelen III P.K.H.

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

C2 DEPTH (nearest ft.) 1 170 2 0 3 59

SCREEN RECORD (A) (C) (H) (S) (R) (E) (E) (N) SLOT SIZE 1 2 3 DIAMETER OF SCREEN (NEAREST INCH) 56 60

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER) T (E.R.O.S.) W O

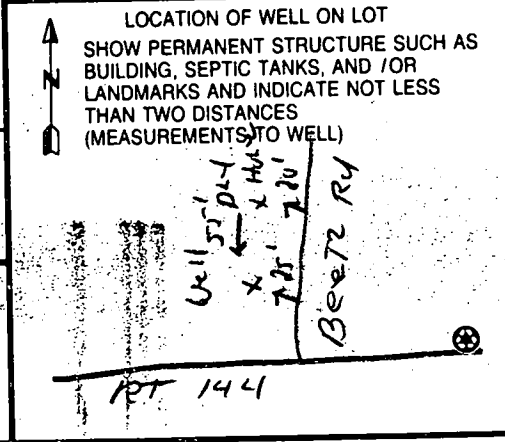
TELESCOPE CASING LOG INDICATOR OTHER DATA

C3 PUMPING TEST

HOURS PUMPED (nearest hour) 3 PUMPING RATE (gal. per min.) 4.0 METHOD USED TO MEASURE PUMPING RATE 1 gal bucket WATER LEVEL (distance from land surface) BEFORE PUMPING 36 ft. WHEN PUMPING 212 ft. TYPE OF PUMP USED (for test) A air P piston T turbine C centrifugal R rotary O other (describe below) J jet S submersible

PUMP INSTALLED DRILLER INSTALLED PUMP YES (NO)

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS. TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29 CAPACITY: GALLONS PER MINUTE (to nearest gallon) 31 35 PUMP HORSE POWER 37 41 PUMP COLUMN LENGTH (nearest ft.) 43 47 CASING HEIGHT (nearest ft.) LAND SURFACE (nearest foot) 2



FIELD DATA SHEET  
HOWARD COUNTY WELL YIELD TEST

Well Permit No. HO - 94-2994  
 Location of property (road) Beetle Road  
 Subdivision SOLLERS PROPERTY Lot \_\_\_\_\_ Block \_\_\_\_\_ Plat \_\_\_\_\_ Sec. \_\_\_\_\_  
 Well Driller West Rotary Owner Starr

Depth of well 278'  
 Distance of measuring point (M.P.) above ground 2'  
 Static water level (S.W.L.) below M.P. 36'

I. High rate pumping -- reservoir drawdown

Time pump started 8:15 Pumping rate 12 G.P.M.  
 Total time 1 1/2 hr to reach pumping water level 223 ft. below M.P.

II. Recovery pump test data - observations to be recorded every 15 minutes

TIME (in 15 minute intervals)	WATER LEVEL below M.P.	PUMPING RATE time to fill #1 gallon bucket	FLOW METER READING (if used)	CALCULATED FLOW (gallons per minute)
815	36'	5 Sec		12
830	84'	6 "		10
845	123'	6 "		10
900	153'	6 "		10
915	194'	7 "		8.5
930	223'	15 "		4
945	223'	15 "		4
1000	222'	15 "		4
1015	221'	15 "		4
1030	220'	15 "		4
1045	219'	15 "		4
1100	218'	15 "		4
1115	217'	15 "		4
1130	216'	15 "		4
1145	215'	15 "		4
1200	214'	15 "		4
1215	213'	15 "		4
1230	212'	15 "		4

B 1 3418

SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND PERMIT TO DRILL WELL

STATE PERMIT NUMBER

HO-94-2994

fill in this form completely

W514928 please print or type

Date Received (APA) 02/09/01

OWNER INFORMATION

STARK, RICHARD, 10667 Green Bough CT, Columbia Md 21041

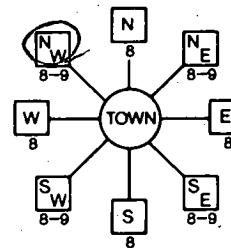
LOCATION OF WELL

HOWARD COUNTY, SOLLERS PROPERTY, mt. Airy, 3 MILES FROM TOWN

DRILLER INFORMATION

DANA KYRKE JR II, WESTMINSTER ROTARY WELL DRILLING INC, P.O. Box 861 Westminister, Md. 21157, 2-7-01

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)



Beetz Rd, NEAR WHAT ROAD

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) WEST

DISTANCE FROM ROAD 30 FT, TAX MAP: 2 BLK: 20 PARCEL 12

WELL INFORMATION, APPROX. PUMPING RATE 6 GAL. PER MIN., AVERAGE DAILY QUANTITY NEEDED 410 GAL. PER DAY

NOT TO BE FILLED IN BY DRILLER - HEALTH DEPARTMENT APPROVAL

Howard COUNTY NAME, A 511334 COUNTY NO., DATE ISSUED 02/22/01, CO SIGNATURE, EXP. DATE 02/21/02

- USE FOR WATER (CIRCLE APPROPRIATE BOX): DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION, FARMING, INDUSTRIAL, PUBLIC WATER SUPPLY WELL, TEST, GEO-THERMAL

APPROXIMATE DEPTH OF WELL 200 FEET, APPROXIMATE DIAMETER OF WELL 6 INCH

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X, SOURCES OF DRILLING WATER: CITY

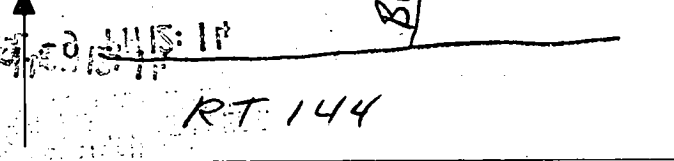
METHOD OF DRILLING (circle one): BORED, JETTED, AIR-ROTARY, AIR-PERCUSION, CABLE, REVERSE-ROTARY

WRITE THE BOX NUMBER FROM THE MAP HERE: E 7689, N 5503

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX): THIS WELL WILL NOT REPLACE AN EXISTING WELL, THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED, THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS, THIS WELL WILL DEEPEM AN EXISTING WELL

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION

Not to be filled in by driller (MDE OR COUNTY USE ONLY), APPROX. PERMIT NUMBER, PERMIT No. HO-94-2994



SPECIAL CONDITIONS, NOTE - APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED

Gravel Bed  
and Distribution  
Network

Force Main

3/8 p1 350' feet - no water at first approved site

(DKO)

SAND  
MOUND

\* Sayed this to driller 3/8 p1

CORDELIA E. SOLLERS  
L. 104 F. 340

SAND MOUND SYSTEM

EACJ J. FRAKE, ET UX.  
L. 613  
F. 435

(REMAINDER)  
CORDELIA E.  
SOLLERS  
SECOND PARCEL  
L. 104 F. 396  
BACK REF.  
L. 67 F. 300

JOHN A. NEWMAN,  
ET UX.  
L. 1672  
F. 576

PRIVATE SEWAGE  
EASEMENTS FOR  
SANDMOUND  
SYSTEMS

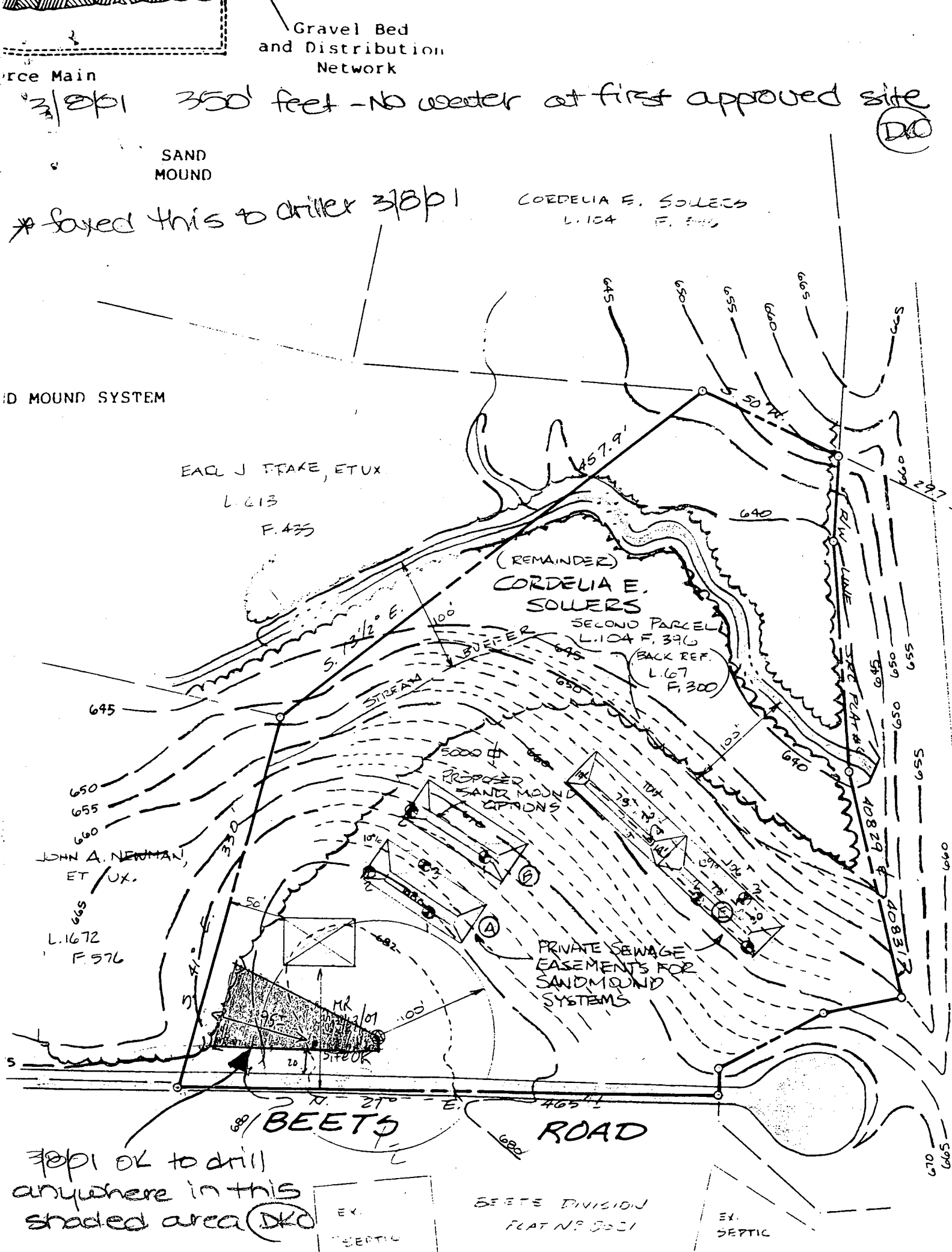
BEETS ROAD

3/8 p1 OK to drill  
anywhere in this  
shaded area (DKO)

SEWER DIVISION  
PLAT NO. 5001

EX. SEPTIC

EX. SEPTIC



#25  
CR 562  
CR 37760

Richard Starr  
10667 Green Bough Court  
Columbia, Maryland 21044  
410-740-1130 (hm)  
410-573-4518 (wk)

April 6, 2001

Ms. Avis Corbin  
Chief, Licenses and Permits  
Howard County Government

Dear Ms. Corbin:

Please amend building permit number B00129033, 830 Beetz Road to reflect the following revisions:

- The house location has been moved 16 feet to the left (south) because the south property line on the House Site Layout Plan was in the wrong location. The original plan showed the house 77 feet from the south property line. Now it is 93 feet from the south property line.
- As a result of the house being relocated, the driveway, where it connects to the house, has also been moved 16 feet to the left (south).
- Also as a result of the south property line being in the wrong location on the House Layout Plan, the septic mound locations on the House Layout Plan have been moved to the correct locations as approved on the Percolation Certificate Plate, issued by Howard County Health Department on November 30, 1999.

My building permit has not yet been issued. So please find enclosed 4 copies, each, of the revised plot plan and house layout plan and one revised septic plan.

If you have any further questions, please contact me, at 410-573-4518 (wk) or 410-740-1130 (hm). Thank you for your assistance in handling this matter.



Richard Starr

RASAP

cedp2  
Health Dept

Blg PERMIT # B00129033

**STARR PROPERTY**

830 Beetz Road, Mt. Airy, Maryland 21771  
P/O Parcel #12, Tax Map #7, Grid #2  
Richard and Lynn Starr  
410-740-1130

**SEPTIC SYSTEM MAP**

Scale 1" = 10'

April 2001

**LEGEND**

Garage Elevation - 682.2'

First Floor Elevation - 684.3'

Basement Elevation - 675.6'

----- Property Line

..... Existing Grade

———— Proposed Grade

----- Building Setbacks

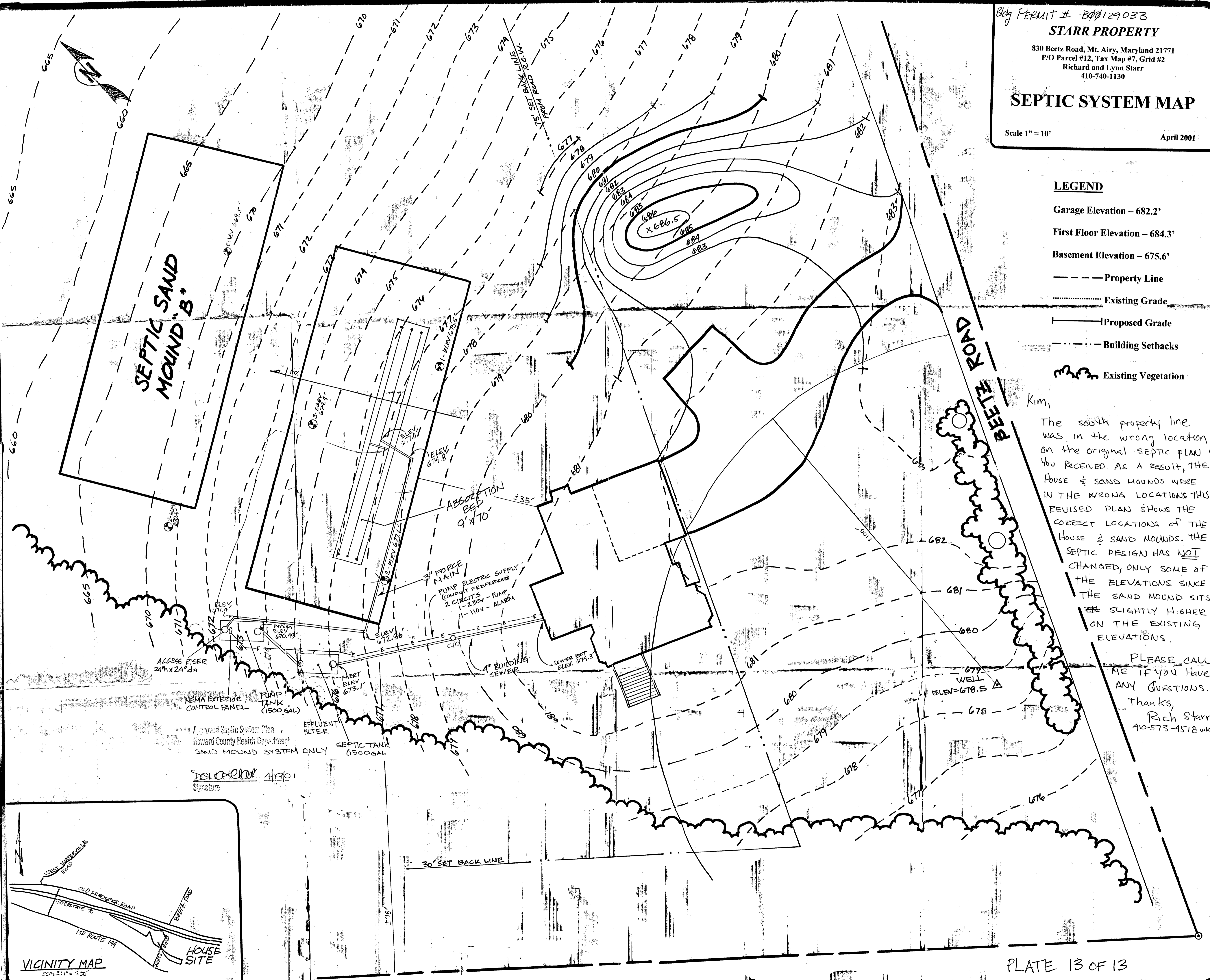
Existing Vegetation

Kim,

The south property line was in the wrong location on the original septic plan you received. As a result, the house & sand mounds were in the wrong locations. This revised plan shows the correct locations of the house & sand mounds. The septic design has NOT changed, only some of the elevations since the sand mound sits slightly higher on the existing elevations.

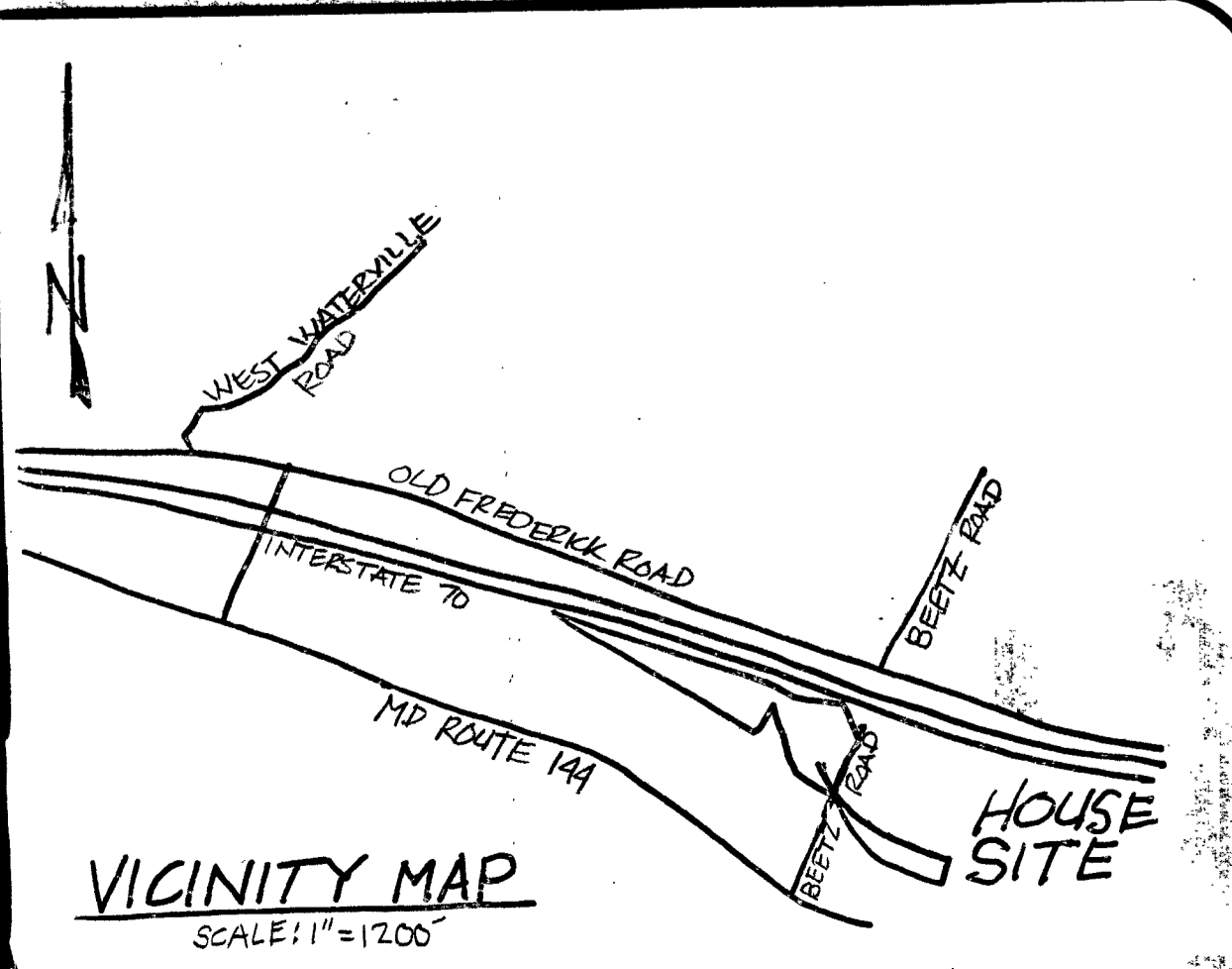
PLEASE CALL ME IF YOU HAVE ANY QUESTIONS.

Thanks,  
Rich Starr  
410-573-4518 wk



SEPTIC SAND MOUND "B"

Approved Septic System Plan  
Howard County Health Department  
SAND MOUND SYSTEM ONLY  
Signature: [Signature] 4/17/01



Health Dept

**WASTEWATER SYSTEM (SAND MOUND DISPOSAL)  
STARR PROPERTY  
BEETZ ROAD  
HOWARD COUNTY MARYLAND**

**CONTENTS**

<b><u>PLATE</u></b>	<b><u>DESCRIPTION</u></b>
	<b>Dimensions Sheet</b>
<b>1-13</b>	<b>PROJECT DESCRIPTION</b>
<b>2-13</b>	<b>SAND MOUND DESIGN</b>
<b>3-13</b>	<b>PUMP SELECTION</b>
<b>4-13</b>	<b>PUMP CURVE</b>
<b>5-13</b>	<b>PUMP DATA</b>
<b>6-13</b>	<b>PUMP TANK DRAWING</b>
<b>7-13</b>	<b>SEPTIC TANK DRAWING</b>
<b>8-13</b>	<b>EFFLUENT FILTER</b>
<b>9-13</b>	<b>EFFLUENT FILTER MAINTENANCE</b>
<b>10-13</b>	<b>SAND MOUND- PLAN VIEW, PROFILE VIEW, DISTB. PIPING, COMPONENT ELEVATIONS</b>
<b>11-13</b>	<b>MOUND CONSTRUCTION PROCEEDURES</b>
<b>12-13</b>	<b>LOT SITE PLAN, PERCOLATION CERTIFICATION scale 1:100</b>
<b>13-13</b>	<b>SITE PLAN, WASTEWATER DISPOSAL SYSTEM scale 1:10</b>

March 2, 2001

## STARR PROPERTY

### SYSTEM COMPONENTS INFORMATION

Septic Tank - two compartment, 1500 gallon, top seam

Pump Tank - single compartment, 1500 gallon, top seam

Sand Mound - Design flow: 750 gpd, Hydraulic loading rate: sand - 1.2 gpd/ft<sup>2</sup>  
Soil - 0.75gpd/ft<sup>2</sup>

Sand Fill Criteria: *effective size* between 0.25 and 0.5 mm,  
*uniformity coefficient* no greater than 3.5

- ✓ topography: 8-10% slope in disposal area, used 10%
- ✓ absorption bed: 70' L X 9' W
- ✓ upslope sand fill depth: 24" (2.0')
- ✓ Downslope sandfill depth: 35" (2.9')
- ✓ Sideslope setback: 172.2" (14.4')
- ✓ Upslope setback: 106.3" (8.9')
- ✓ Downslope setback: 245.4" (20.4')
- ✓ Cap+topsoil at bed center = 18" (1.5')
- ✓ at bed edge = 12" (1.0')

Absorption bed: non limestone, washed gravel, 6" under pipe, 4" over pipe

- ✓ Total mound width = 459.6" (38.3') ✓ Total Mound Length = 1184" (98.7')
- Basal Area required = 937.5 ft<sup>2</sup> Basal Area provided = 2050 ft<sup>2</sup>
- ✓ Linear Loading factor = 10.7 (750gpd÷70' bed)

Distribution System - Schedule 40 PVC - center feed system configuration

- Pump riser piping: 2" PVC to tank exit point
- Force Main / Manifold: 3" PVC
- ✓ Laterals, Six (6): 1-1/4" PVC, ea. 33' long
- ✓ Space, between Laterals: 3' (on center)
- Space between Laterals and upslope/downslope bed edges: 1.5'
- Space between Laterals and bed ends: 1.75'
- ✓ Lateral Perforations: 5/16 dia., spacing 42", 10 per Lateral

Discharge rate @2.0' head = 1.63 gpm [ea. perforation], 16.3gpm per Lateral  
Total Discharge Rate: 97.8 gpm

- ✓ Dose: 126.4 gallons/event [six events per day]

Note: 3" piping observation ports have been provided for by the design and are dependant, as required by the approving authority.

## **SAND MOUND DESIGN**

**Design for:** Starr Property  
Beetz Road, Howard County, Md.  
Tax Map 02, P/O Parcel #12

**HCHD FILE: #A-511334**

**Design by:** INNOVA, LTD.  
New Windsor, Md.

**Basis :** 5 Bedroom Residential Dwelling      Percolation Test: 7.5-19.5 mpi  
average: 12.24 minute/inch

### **DESCRIPTION:**

Partially wooded/meadow site situated adjacent to, and in elevation, above US Interstate route 70 near Mt Airy, MD. The site terrain, near the house and disposal (Glenelg Loams) areas, slopes 3-10% to the westward approximately 200-230 feet from Beetz Road. The soils transition at about that distance to Mt Airy Channery loam soils with a steeper slope (8-15%). The lot also slopes north toward the interstate, at approximately 8-15%. Soils are Loam, silty clay loams showing increasing rock fragment content with depth, and recorded as 40% at a depth of thirty inches. Glenelg Loams typically show bedrock depths of 4-10 feet, and Mt Airy channery loams 1.5 - 3.5 feet, dependant on erosion.

Percolation testing was conducted by the Howard County Health Department in May, 1992 and May, 1999 and the approved septic disposal areas "A" and "B" (in the Glenelg soil series) were confirmed August 1999 as shown on the attached site plan.

### **SEPTIC SYSTEM COMPONENTS:**

the proposed dwelling will require a minimum *Septic Tank* size of 1,500 gal. A top-seam, two-compartment concrete tank is recommended.

A *Pump Chamber* of 1,500 gal capacity will provide dose storage and act as a flow modulator. It will contain the pump and system control floats. The effluent will be discharged to the *Sand Mound* via a three inch diameter Force Main and dispersed from a center-feed 3" Manifold into six (6) - 1 1/4" PVC Laterals. The Mound piping lengths and layout are shown on the plan.

**DESIGN FLOW:** 5 Bedrooms X 150 gal/day = 750 Gallons per Day

**DOSING, CALCULATION:** 3 inch force main/ manifold with 1 1/4 inch laterals

Volume Dose (110' force main + 6' manifold + 5X volume of the laterals) = 126.4 gal.

or

Minimum Dose (1/6 of flow)                      750 gallon/ day design flow ÷ 6) = 125 gal.

Select the larger figure as system dose: 126.4 gallons

**DOSING SCHEDULE:** Six (6) Doses @ 126 gallons/dose

System flow rate for 60, 5/16" perforations @ 2.0' Distal head/1.63 gpm = 97.8 gal/min.

Thus: **Pump Run Time:** 126 gal ÷ 97.8 = 1.28 min. Ea. Dose, so Six times each day = 7.68 minutes daily pump run time per twenty four hour period.

Plate 1 OF 13

## SAND MOUND DESIGN

Design for: **Starr Property**  
**Beetz Road, Howard County, Md.**  
**Tax Map 2, P/O Parcel # 12**

HCHD FILE: #A-511334

**SAND MOUND CALCULATIONS:** Test Area "A"  
(Designed in accordance with MDE Design and Construction Manual for Sand Mound Systems, June 1991)

**ABSORPTION BED:** 750 Gal/1.2 gpd per ft<sup>2</sup>(sand loading rate) = 625 ft<sup>2</sup> (9.0 ft x 69.4 ft)

**BED WIDTH (A) = 625/B = 9.0 feet**      **BED LENGTH (B) = 69.4 feet**

**UPSLOPE FILL (D) = 24 inches** (specified by Howard County Health Department)

**DOWNSLOPE FILL (E) = 34.8 inches**

**CAP + TOPSOIL FILL (at Bed Center) (H) = 18 inches**

**CAP + TOPSOIL FILL (at Bed Edge) (G) = 12 inches**

**TOTAL BED DEPTH (F) = 10 inches**      **MOUND HEIGHT = 52 inches** (above native surface)

**SIDE SLOPE SETBACK (K) = 172.2 inches** (14.35 feet)

**UPSLOPE SETBACK, 10% slope (J) = 106.26 inches** (8.85 feet)

**DOWNSLOPE SETBACK 10% slope (I) = 245.38 inches** (20.4 feet)

**TOTAL WIDTH (W) = 459.6 inches**      **TOTAL LENGTH (L) = 1184.5 inches**  
or      **(W) = 38.3 feet** x      **(L) = 98.7 feet**

**Basal Area required:**       $\frac{750 \text{ gpd Design Flow}}{75 \text{ gpd/ft}^2 \text{ [soil Loading Rate (Manual, table 3.3, loams - silt loams)]}} = 1000 \text{ ft}^2$

**Basal Area provided:** [(A+I) X B] = 2050 ft<sup>2</sup>

### **INSTALLATION:**

Follow the recommended installation schedule as found in Section 5, "Construction Procedures" in the *DESIGN AND CONSTRUCTION MANUAL FOR SAND MOUND SYSTEMS* (June 1991), also plate 11 of this submittal.

## SAND MOUND DESIGN

Design for: **Starr Property**  
**Beetz Road, Howard County, Md.**

HCHD FILE: #A511334

### **PRESSURE DISTRIBUTION NETWORK /PUMPING SYSTEM**

(Designed in accordance with MDE Design and Construction Manual for Sand Mound Systems, June 1991)

#### **PUMP SIZING:**

Pump, Head Calculations

Static Head, pump off float to highest lateral = 8.90 feet

Friction Head, 116' force main/manifold + fittings(Loss) = 3.17 feet

Distal Head, 2.0 feet selected = 2.0 feet

Total Dynamic Head (TDH) = **14.07 FEET**

PUMP RATE (system flow rate) calculated on 60 perforations @ 2.0' distal head - 1.63 gpm = **97.8gpm**

From the attached pump curves: at 14.07 feet of head and a pumping requirement of 97.8 gpm

USE: GOULD Submersible Effluent Pump: Model 3885

No. WE1012H

(1 HP.; 230 volt; Single Phase- See Pump Curve)

**DOSING LATERALS** ( Based on absorption Bed length 70' long, 9' wide)

(1½" schdl 40 PVC, MDE manual fig 4-1 L= 23-36 feet length):

From Center Feed Manifold- Six (6) Laterals x 34.5 feet = 207 ft. Total

Each lateral drilled with 10 Perforations (5/16" dia. Perforation)

Perforation Spacing- 42 inches (3.5 feet)

First perforation (from manifold) - 21 inches (1.75 feet)

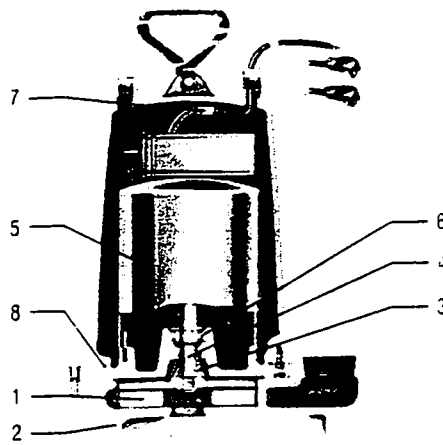
Last perforation- Drill in crown of lateral endcap, or elbow if turn-up.

**Layout Note:** Absorption bed width is divisible by 3, providing a three foot lateral separation and a one and one half foot bed edge separation from the outer laterals, on sides of the distribution pipe array.

See attached drawing

**PARTS**

Item No.	Description
1	Impeller
2	Casing
3	Mechanical seal
4	Shaft
5	Motor
6	Bearings - upper and lower
7	Power cable
8	O-ring



**Goulds**  
**Submersible Effluent Pump**

**MODEL**

**3885**



**MODELS**

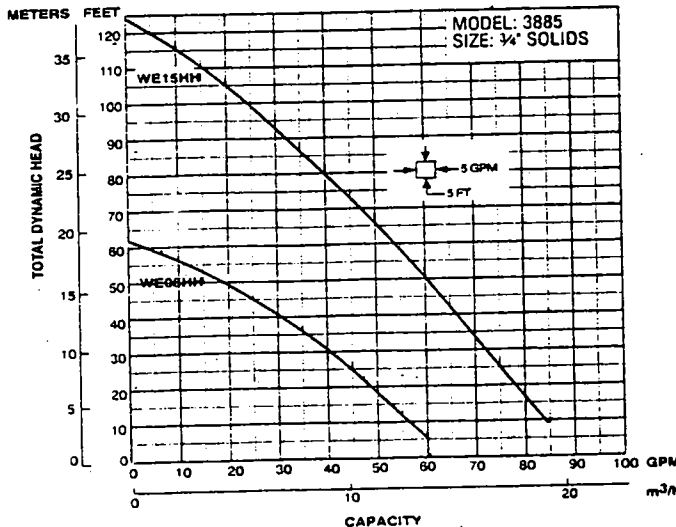
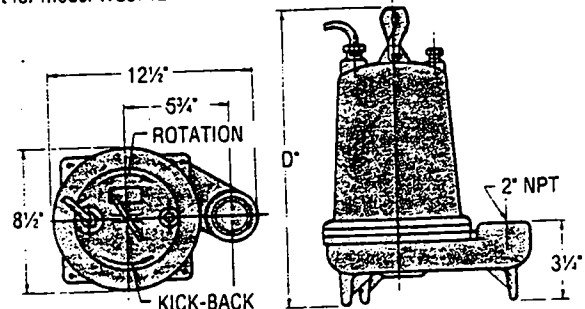
Order No.	HP	Volts	Phase	Max. Amp.	RPM	Solids Wt. (lbs.)
WE0311L	115	230		9.4	1750	56
WE0312L	1/2	115		4.7		
WE0311M	230	1		9.4		
WE0312M	115	1		4.7		
WE0511H	230			13.0		
WE0512H	200			6.5		
WE0538H	230	3		3.9		
WE0532H	230	3		3.4		
WE0534H	460			1.7		
WE0511HH	115	1		13.0		60
WE0512HH	230	1		6.5		
WE0538HH	200			3.8		
WE0532HH	230	3		3.3		
WE0534HH	460			1.65		
WE0712H	230	1		10.0		1/4
WE0738H	200			6.2		
WE0732H	208-230	3		5.4	3500	
WE0734H	460			2.7		70
WE1012H	230	1		12.5		
WE1038H	200			8.1		
WE1032H	208-230	3		7.0		
WE1034H	460			3.5		
WE1512H	230	1		15.0		
WE1538H	200			10.6		
WE1532H	208-230	3		9.2		
WE1534H	460			4.6		80
WE1512HH	230	1		15.0		
WE1538HH	200			10.6		
WE1532HH	208-230	3		9.2		
WE1534HH	460			4.6		

**PERFORMANCE RATINGS** (gallons per minute)

Order No.	WE0311H		WE0312H		WE0511H		WE0512H		WE0538H		WE0532H		WE0534H	
	WE0311L	WE0311M	WE0312L	WE0312M	WE0538H	WE0532H	WE0534H	WE0511H	WE0512H	WE0538H	WE0532H	WE0534H	WE0511HH	WE0512HH
HP	1/2	1/2	1/2	1/2	1	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
RPM	1750	1750	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500
Total Head Feet of Water	5	10	15	20	25	30	35	40	45	50	55	60	65	70
	80	65	69	90	104	128	53	82	77	75	72	70	67	64
	60	57	83	98	122	48	77	75	72	70	67	64	60	58
	36	45	60	83	98	122	48	77	75	72	70	67	64	60
	25	25	50	76	92	116	45	75	72	70	67	64	60	58
	30		38	67	85	109	40	72	70	67	64	60	58	54
	35		26	58	78	102	35	70	67	64	60	58	54	51
	40		15	47	70	94	30	67	64	60	58	54	51	47
	45			36	62	86	25	64	60	58	54	51	47	43
	50			25	52	77	18	60	58	54	51	47	43	40
	55			17	42	67	12	58	54	51	47	43	40	33
	60			8	32	56	3	54	51	47	43	40	33	24
	65				21	46		51	47	43	40	33	24	15
	70				11	35		47	43	40	33	24	15	5
	75					25		43	40	33	24	15	5	
	80					15		40	33	24	15	5		
	85							33	24	15	5			
	90							24	15	5				
	95							15	5					
	100							5						
	110													
	120													

**DIMENSIONS**

(All dimensions are in inches. Do not use for construction purposes.)  
 D\* 1/2, 3/4, 1 and 1 HP = 18"  
 except for model WE0712H and WE1012H = 18"; 1 1/2 HP = 18"



**EFFLUENT EJECTOR SYSTEM**

Effluent ejector system offers ease of ordering and installation. A single ordering number specifies a complete system designed for most residential and commercial sump and effluent pump applications.



**Package Includes:**  
 Submersible Effluent Pump WE0311L, 12L or WE0311M, 12M, WE0511H, 12HH Mercury Level Control Switch A2-5 (115V), A2-6 (230V) Basin A7-1801S, Basin Cover A8-1822 Check Valve A9-2P  
 Order No.: SWE0311L, SWE0312L, SWE0311M, SWE0312M, SWE0511H, SWE0512HH.



WATER TECHNOLOGIES GROUP  
 SENECA FALLS, NEW YORK 13148

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.


PRINTED IN U.S.A.



# GOULDS Submersible Effluent Pump

MODEL

## 3885

CANADIAN STANDARD ASSOCIATION 

### APPLICATIONS

Specifically designed for the following uses:

- Homes
- Farms
- Trailer courts
- Motels
- Schools
- Hospitals
- Industry
- Effluent systems

### SPECIFICATIONS

#### Pump:

- Solids handling capabilities: 3/4" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 128 GPM.
- Total heads: up to 123 feet TDH.
- Mechanical seal: silicon carbide-rotary seat/silicon carbide-stationary seat, 300 series stainless steel metal parts, BUNA-N elastomers.
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- Fasteners: 300 series stainless steel.
- Capable of running dry without damage to components.

#### Motor:

- Single phase: 1/2 HP, 115 or 230 V 60 Hz, 1750 RPM; 1/2 HP, 115 V, 60 Hz, 3500 RPM; 1/2 HP - 1 1/2 HP, 230 V, 60 Hz, 3500 RPM. Built-in overload with automatic reset. Class B insulation.

- Three phase: 1/2 HP - 1 1/2 HP 200/230/460 V, 60 Hz, 3500 RPM. Class B insulation, overload protection must be provided in starter unit.
- Shaft: threaded, 400 series stainless steel.
- Bearings: ball bearings upper and lower.
- Power cord: 20 foot standard length (optional lengths available).
- Single phase: 1/2 and 1/2 HP - 16/3 SJTO with three prong plug, 3/4-1 1/2 HP - 14/3 STO with bare leads. Three phase: 1/2-1 1/2 HP - 14/4 STO with bare leads. On CSA listed models - 20 foot length SJTW and STW are standard.

### FEATURES

**Impeller:** Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

**Casing:** Cast iron volute type for maximum efficiency. 2" NPT discharge adaptable for slide rail systems.

**Mechanical Seal:** Silicon carbide vs. silicon carbide sealing faces. Stainless steel metal parts, BUNA-N elastomers.

**Shaft:** Corrosion-resistant stainless steel. Threaded design. Locknut on three phase models to guard against component damage on accidental reverse rotation.

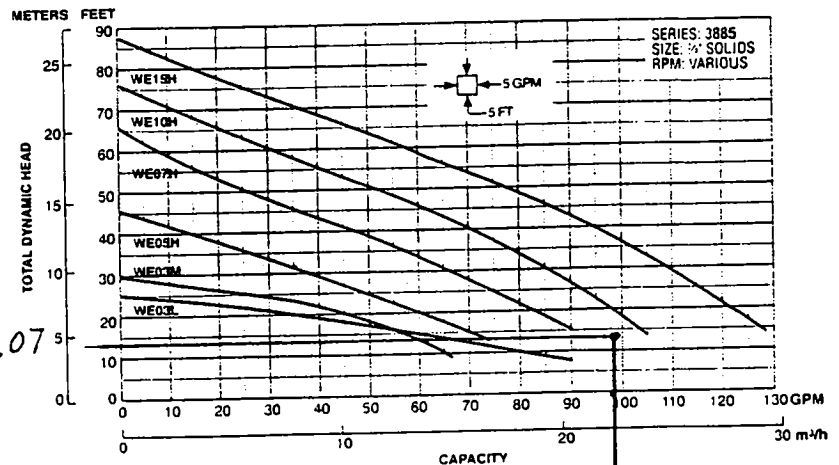
**Motor:** Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.

**Designed for Continuous Operation:** Pump ratings are within the motor manufacturer's recommended working limits. can be operated continuously without damage.

**Bearings:** Upper and lower heavy duty ball bearing construction.

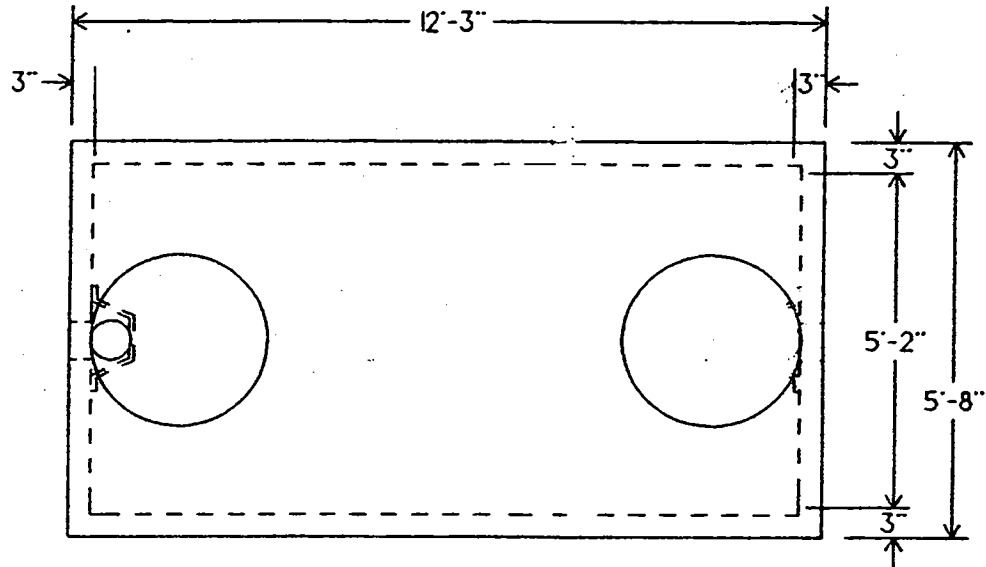
**Power Cable:** Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking.

**O-ring:** Assures positive sealing against contaminants and oil leakage.

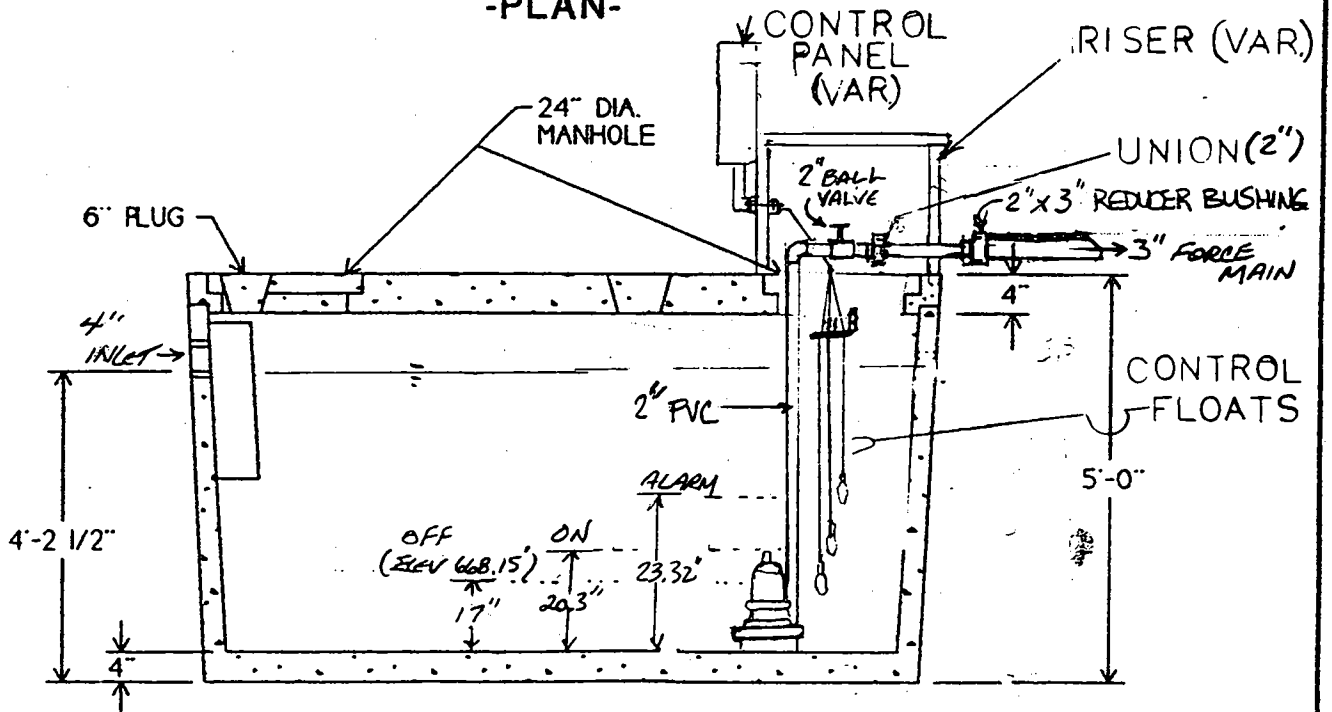




**MONARCH**  
**MONARCH PRODUCTS COMPANY, INC.**  
YORK HAVEN, PA



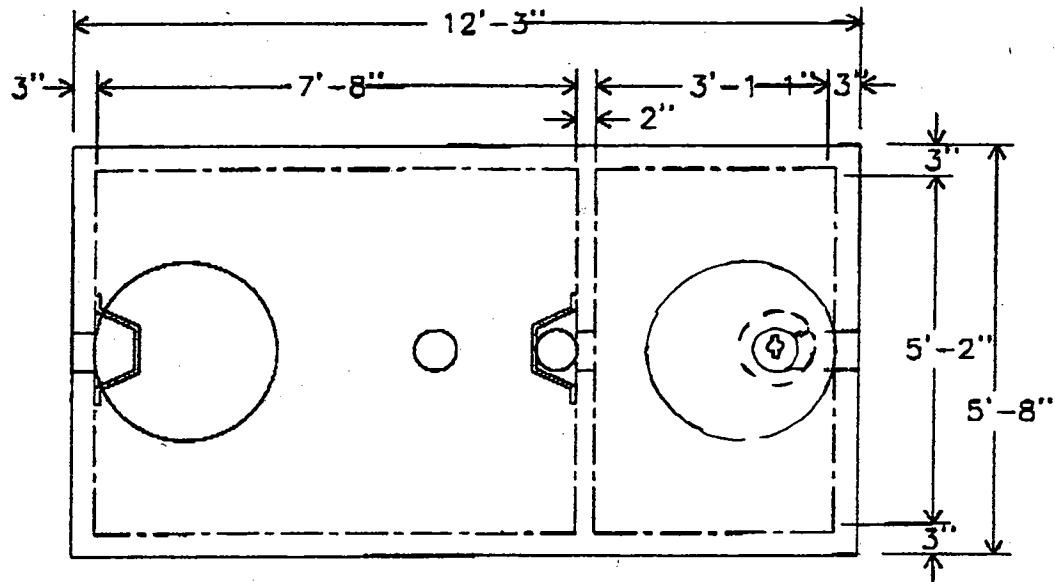
-PLAN-



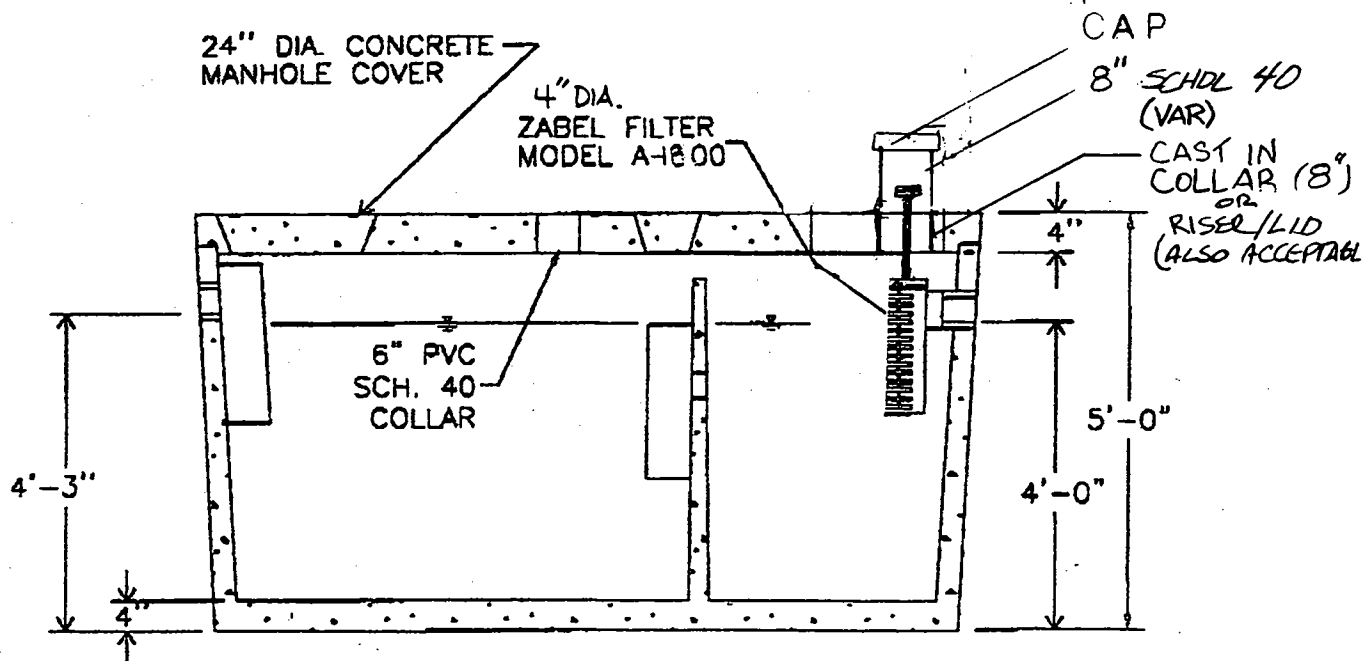
-SECTION-

**PRECAST 2 COMPARTMENT PUMP TANK**  
**1500 GALLON CAPACITY 1" : 36.94 GAL**

  
**MONARCH PRODUCTS COMPANY, INC**  
 YORK HAVEN, PA.



-PLAN-



-SECTION-

**PRECAST 2 COMPARTMENT SEPTIC TANK**  
**1500 GALLON CAPACITY W/ A-1800 ZABEL FILTER**
PLATE 7 OF 10

## Zabel Filter Model A1800



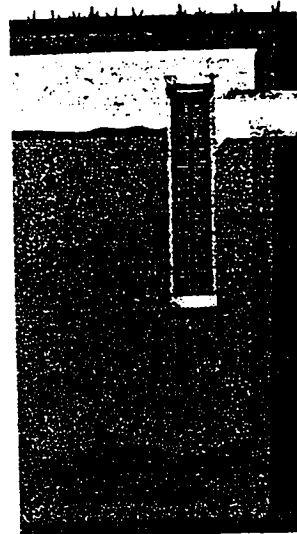
The New Zabel A1800 Residential Septic Filter™ is a true 1/16" filter that will fit in a 4" Sanitary Tee providing a real Residential Septic Filter™ at a very low cost.

**Effective:** A Zabel A1800 Residential Septic Filter™ installed in a 4" Sanitary Tee provides the protection and effectiveness of 1/16" filter slots, the same size as found in the Big A100 Commercial Septic Filter™. No other filter or screen has been proven more effective.

**No Increase in Servicing Frequencies:** Solids filtered out of the effluent stream attach to the vertical cylinder wall and drop to the bottom of the tank when the tank is in a resting state. The A1800 Filter may be serviced at the time the tank is normally inspected and pumped and does not increase the frequency of service.

**Easy to Install:** The A1800 fits a 4" Sanitary Tee.

**Easy to Service:** When the tank is normally inspected, pull the cartridge out by grasping the handle and pulling upward. Tap the cartridge on the inside of the inspection port or hose off into the tank if needed and reinstall.



For more information contact:

Manufactured by Zabel Wastewater Filter Systems • 10409 Watterson Trail • Jeffersontown, KY 40209

Table 1  
How the Filter Works

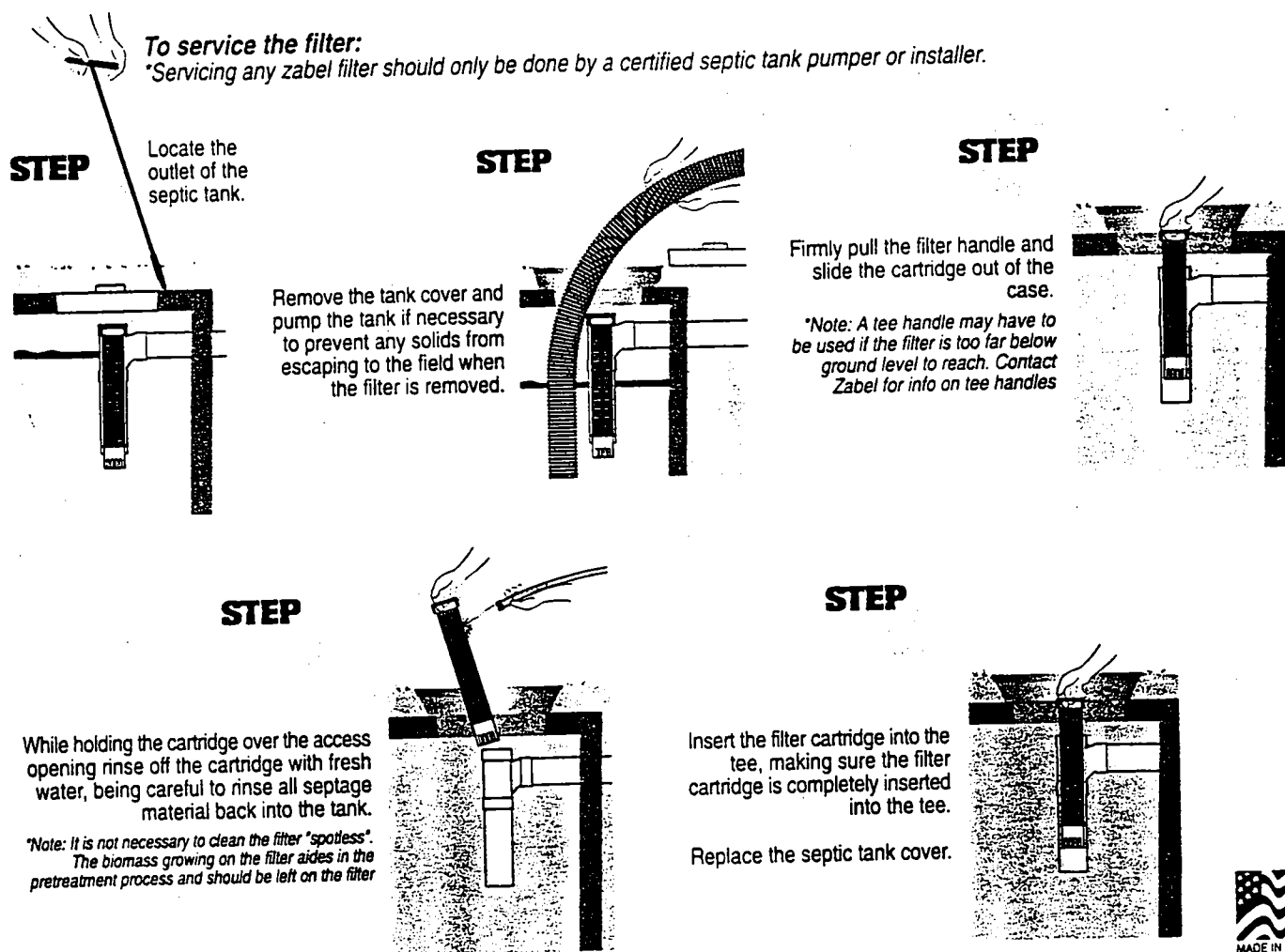
- The filter first stills the water exiting the Tank by forcing the effluent over a horizontal Weir. This prevents solids carried by wastewaters or gases from exiting the tank as in tanks with a conventional tee. Contained within the filter are over 61 lineal feet of weir dams.
- Second, the opening between each weir dam is only 1/16 of an inch. Solids any larger than 1/16 of an inch are trapped within the filter and tend to fall back to the bottom of the tank.
- Finally, microorganisms grow on the edges of the weir. The microorganisms not only reduce the size of the opening for solid particles exiting the tank, but they also tend to digest the solids passing over the weir, further treating the effluent.



# A1800's

## Filter Maintenance

The interval for servicing septic tanks is set by state and local code. Throughout the United States there is a wide difference of opinion on what this interval should be, but most regulatory agencies suggest two to five years. The Zabel™ filter, which does not increase the frequency of servicing for the tank, should be cleaned when the septic tank is normally inspected and pumped. However, our filter is virtually self-cleaning. The continued action of the anaerobic organisms on the Zabel filter causes lodged particles to disintegrate and fall to the bottom of the tank. If your filter contains a SmartFilter™ alarm, you will be notified by an alarm when the filter needs servicing.



The product(s) shown are covered by one or more of the following patents:

U.S. 5,762,793, 5,580,453, 5,591,331, 5,759,393, 5,683,577, 5,582,716, 5,779,896, 5,593,584, 5,795,472, 5,736,035, 4,710,295, 5,382,357, 5,482,621  
 U.S. Des. 386,241, 349067, 4605501, 5098568, Des. 309007, Australia: 134440; Canada: 2,135,937; Israel: 111574; New Zealand: 264824.

Other Patents Pending

Call for a free ZABEL ZONE An Onsite Wastewater Magazine 1-800-221-5742 • Website <http://www.zabel.com>

A1800-I-M.52499

**SECTION FIVE  
CONSTRUCTION PROCEDURES**

**5.1. GENERAL**

Proper construction is extremely important if the sand mound is to function as designed. Installation of a sand mound system is prohibited when soils are frozen. Construction of the mound should not occur if the soil is too wet. Compaction and puddling of the soil in the location of the mound and downslope should be avoided. Soil is too wet for construction of the mound if a sample, taken anywhere within the upper eight inches, when rolled between the hands forms a wire. If the sample crumbles, the soil is dry enough for construction to proceed.

**5.2. EQUIPMENT**

The following special equipment is recommended:

1. A small track-type tractor with blade for placing and spreading the sand fill.
2. A cordless drill for drilling holes in the pipe on-site.
3. A moldboard or chisel plow for plowing the soil within the perimeter of the mound. A rototiller may be used on structureless soils with USDA sand textures.
4. A rod and level for determining bed elevations, slope on pipes, outlet elevation of septic tank, slope of site, etc.

**5.3. MATERIALS**

The following specifications are required:

1. Sand fill material must be approved by the local Approving Authority prior to hauling to the site. Submit a sample to the local Authority for analyses at least three weeks in advance of construction or select a sand fill from the list of potential sand suppliers. If a sample is submitted for analyses a fee will be charged. Sand fill shall have an effective size between 0.25 mm and 0.5 mm with a uniformity coefficient of 3.5 or less. A copy of the receipt from the sand supplier showing the company name, address, phone number, date and product name will be required.
2. Aggregate shall be clean aggregate free of fines and between 3/4 to 2 inches in diameter.
3. Geotextile fabric shall be of a type approved by the Approving Authority.
4. Cap material shall be soil relatively free of coarse fragments and preferably a clay loam or silt loam texture.

material into place using a small track-type tractor with a blade. Work from the end and upslope side. Always keep a minimum of six inches of material beneath the tracks of the tractor to minimize compaction of the natural soil. The fill material should be worked in this manner until the height of the fill reaches the elevation of the top of the absorption bed.

- 5.5.3 With the blade of the tractor, form the absorption bed. Hand level the bottom of the bed and check it for proper elevation. The bed should be level for proper functioning of the mound. Call for inspection.
- 5.5.4 Shape the sides of the sand fill to design slope (i.e., 3:1 or flatter).

**5.6. BED AND DISTRIBUTION NETWORK**

- 5.6.1 Carefully place the coarse aggregate in the bed. Do not create ruts in the bottom of the bed. Level the aggregate to a minimum depth of six inches.
- 5.6.2 The distribution network is assembled in place setting the manifold to ensure draining the laterals between doses. The laterals should be laid level with the holes directed downward. Call for inspection. Test the pumping chamber and distribution network with clean water.
- 5.6.3 Place additional aggregate to a depth of at least two inches over the crown of the pipe.
- 5.6.4 Place the approved geotextile fabric over the aggregate bed. The fabric may extend beyond the bed over the sand fill.

**5.7. COVER MATERIAL**

- 5.7.1 Place a finer textured soil material such as sandy clay loam, clay loam, or silt loam on top of the fabric over the bed. The minimum depth of this cap shall be six inches at the outer edges of the bed and 12 inches along the center.
- 5.7.2 Place a minimum of six inches of good quality topsoil over the entire mound surface including the sideslopes. Call for final inspection.

**5.8. VEGETATION**

- 5.8.1 Fertilize, lime, seed and mulch the entire surface of the mound. Grass mixtures adapted to the area should be used.
- 5.8.2 Consult the county extension agent or Soil Conservation Service for recommendations.

**5.4. TANK INSTALLATION AND SITE PREPARATION**

- 5.4.1 Locate and rope-off the entire sewage disposal area to prevent damage to the area during other construction activity on the site. Vehicular traffic over the disposal area should be prohibited to avoid soil compaction.
- 5.4.2 Install septic tank(s) and pumping chamber(s) and pump as shown on the drawings. Call for inspection.
- 5.4.3 Stake out the initial and recovery mound perimeters in their proper orientation as shown in the drawings. Reference stakes offset from the mound corner stakes are recommended. Locate the upslope edge of the absorption bed within the mound and determine the ground elevation at the highest location. Reference this elevation to a benchmark for future use. This is necessary to determine the bottom elevation of the absorption bed.
- 5.4.4 Excess vegetation should be cut and removed. Trees should be cut at ground level and stumps left in place.
- 5.4.5 Determine the location where the force main from the pumping chamber will connect to the distribution network manifold within the mound.
- 5.4.6 Install the force main from the pumping chamber to the proper location within the mound. Pipe should be laid with uniform slope back to the chamber so that it drains after dosing. Cut and stub off pipe one foot below existing grade within the proposed perimeter of the initial mound. Backfill trench and compact to prevent seepage along the trench.
- 5.4.7 Plow the soil within the perimeter of the mound to a depth of about eight inches, if the soil is not too wet. Moldboard or chisel plows may be used. Plowing should be done along the contour, throwing soil upslope. Use a two bottom or larger Moldboard plow. In wooded areas with stumps, roughening the surface to a depth of four to six inches with backhoe teeth may be satisfactory. However, all work should be done from the upslope or sides of the mound if at all possible. Rototilling may be used on soils with USDA textures of sand. After plowing, all foot and vehicular traffic shall be kept off the plowed area.

**5.5. FILL PLACEMENT**

- 5.5.1 Relocate and extend the force main several feet above the ground surface.
- 5.5.2 Place the approved sand fill material on the upslope edge(s) of the plowed area. Keep delivery trucks off the plowed area. Minimize traffic on the downslope side. Fill should be placed and spread immediately after plowing. Move the fill

Project #: <i>STARR</i>
Sheet Title: WASTEWATER SYSTEM TREATMENT PLAN - CONST. - S/MNL
Sheet # <b>WWT-1</b>

Date:   
 File:



**INNOVA, LTD**  
**INNOVATIVE WASTEWATER TREATMENT SYSTEMS**

P.O. BOX 363, NEW WINDSOR, MD 21776  
 (410) 875-9370 Office      (410) 635-2883 Fax  
 David T. Duree, Principal      H. Dale Gray, Principal



---

## HOWARD COUNTY HEALTH DEPARTMENT

---

Diane L. Matuszak, M.D., M.P.H., County Health Officer

August 6, 1999

Mr. Chuck Sharp  
3779 Sharp Road  
Glenwood, Maryland 21738

RE: **Sand Mound Percolation Test Results**  
Application # A511334  
Proposed Use: Existing Parcel  
Property ID: Cordelia Sollers Property  
Beetz Road  
Tax Map: 2 P/O Parcel #12

Dear Mr. Sharp:

Sand mound percolation testing was conducted on the above referenced property in March, 1999. A copy of the test results is enclosed.

Further review is contingent upon submission by a registered engineer of a percolation certification plat showing actual locations and elevations of all excavated test holes and a suitable house and well site. The plat should also include the location of all existing wells and septic systems on the property as well as the location of any other relevant features such as streams, swales, or existing structures. A note must be included certifying that all wells and septic systems within 100 feet of property boundaries have been shown. This plat should also include sand mound design plans.

If you have any questions regarding this matter, please feel free to contact me at the address below or by calling (410) 313-2640. Thank you in advance for your time and cooperation.

Sincerely,

Donna K. Soe, R.S.  
Water and Sewerage Program

DKS

Enclosure

cc: file

TEST DATA

NAME \_\_\_\_\_ FILE NO A511334

LOCATION Sollers Property COUNTY Howard

Beetz Road DATE 3/99

Tax map 2 p/ Parcel 12 GRID \_\_\_\_\_ E

RECORDED BY DLS \_\_\_\_\_ N

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)	
A	1	18"-22"	11:46		7"	> 2 <sup>25</sup> / <sub>32</sub>	
			12:01		4 <sup>7</sup> / <sub>32</sub> "		
			12:18		7"		> 2 <sup>8</sup> / <sub>32</sub>
			12:33		4 <sup>24</sup> / <sub>32</sub> "		> 1 <sup>13</sup> / <sub>32</sub>
			12:48		3 <sup>11</sup> / <sub>32</sub> "		> 1 <sup>17</sup> / <sub>32</sub>
			1:08		1 <sup>24</sup> / <sub>32</sub> "		$\bar{x} = 7.54 \text{ mpi}$
			1:10	repair	9"		
			1:20		8 <sup>24</sup> / <sub>32</sub> "		> 2 <sup>24</sup> / <sub>32</sub>
			1:35		6 <sup>4</sup> / <sub>32</sub> "		> 2 <sup>8</sup> / <sub>32</sub>
			1:45		5 <sup>8</sup> / <sub>32</sub> "		> 1 <sup>7</sup> / <sub>32</sub>
	1:52		4 <sup>23</sup> / <sub>32</sub> "	> 2 <sup>0</sup> / <sub>32</sub>			
	2:01		4 <sup>3</sup> / <sub>32</sub> "				
	2	18"-22"	3:00		9"	> 2 <sup>5</sup> / <sub>32</sub>	
			3:15		8 <sup>7</sup> / <sub>32</sub> "	> 3 <sup>1</sup> / <sub>32</sub>	
			3:30		7 <sup>2</sup> / <sub>32</sub> "	> 1 <sup>0</sup> / <sub>32</sub>	
			3:45		6 <sup>24</sup> / <sub>32</sub> "	> 2 <sup>1</sup> / <sub>32</sub>	
			4:00		5 <sup>24</sup> / <sub>32</sub> "	$\bar{x} = 19.5 \text{ mpi}$	
	3	1:18		10"	> 2 <sup>8</sup> / <sub>32</sub>		
		1:30		8 <sup>24</sup> / <sub>32</sub> "	> 1 <sup>24</sup> / <sub>32</sub>		
		1:43		6"	> 1		
		1:51		5"	> 1 <sup>4</sup> / <sub>32</sub>		
1:59			3 <sup>26</sup> / <sub>32</sub> "	$\bar{x} = 9.68 \text{ mpi}$			

TEST DATA

NAME \_\_\_\_\_ FILE NO. A511334

LOCATION Sollers Property COUNTY Howard

Beetz Road DATE 3/99

Tm 2 P/O Parcel 12 GRID \_\_\_\_\_ E

RECORDED BY D. See \_\_\_\_\_ N

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)		
B	1	18" - 22"	1:02		10°/32	> 2 <sup>28</sup> /32		
			1:14		7 <sup>4</sup> /32	> 1 <sup>19</sup> /32		
1:22				5 <sup>22</sup> /32				
1:40				empty				
			Repair	2:11		8"	> 1 <sup>28</sup> /32	
				2:20		6 <sup>4</sup> /32	> 1 <sup>26</sup> /32	
				2:35		4 <sup>10</sup> /32	> 1 <sup>16</sup> /32	
				2:50		2 <sup>24</sup> /32	> 2 <sup>16</sup> /32	
			Repair	2:52		7"		
				3:07		4 <sup>16</sup> /32	<span style="border: 1px solid black; padding: 2px;">x̄ = 7.5 mpi</span>	
to - - - - - - -	2	18" - 22"	1:07		10°/32	> 2 <sup>4</sup> /32		
			1:15		7 <sup>28</sup> /32	> 1 <sup>20</sup> /32		
			1:27		6 <sup>8</sup> /32	> 1 <sup>24</sup> /32		
			1:41		4 <sup>16</sup> /32			
			1:49		empty			
				Repair	2:50		7"	
					3:05		0"	<span style="border: 1px solid black; padding: 2px;">x̄ = 6.12 mpi</span>

TEST DATA

NAME _____	FILE NO <u>A 511334</u>
LOCATION <u>Sollers Property</u>	COUNTY <u>Howard</u>
<u>Beetz Road</u>	DATE <u>3/99</u>
<u>TM 2 P/O Parcel 12</u>	GRID _____ E
RECORDED BY <u>D. Soe</u>	_____ N

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)	
E	1	18"-22"	10:54		7"	> 10/32	
			11:09		6 24/32"	> 8/32	
			11:24		6 14/32"	> 10/32	
			11:39		6 4/32"	> 4/32	
			11:54		5 24/32"	> 6/32	
			12:09		5 22/32"	> 4/32	
	2	18"-22"	11:03	11:03		7"	> 4/32
				11:18		6 32/32"	> 2/32
				11:33		6 28/32"	> 4/32
				11:48		6 24/32"	> 4/32
				12:03		6 24/32"	> 2/32
				12:18		6 22/32"	> 0/32
3	18"-22"	11:08	11:08		7"	> 8/32	
			11:23		6 24/32"	> 6/32	
			11:38		6 18/32"	> 6/32	
			11:53		6 12/32"	> 7/32	
			12:08		6 9/32"	> 7/32	
			12:23		5 28/32"	> 6/32	
		12:38		5 24/32"			

$\bar{x} = 71 \text{ mpi}$

$\bar{x} = 280 \text{ mpi}$

$\bar{x} = 72 \text{ mpi}$

**MARYLAND DEPT. OF THE ENVIRONMENT  
 ONSITE SEWAGE DISPOSAL SYSTEM  
 SITE EVALUATION REPORT  
 SOIL PROFILE DESCRIPTION**

FILE NO.

MD. GRID:

TAX MAP/B/P:

SUBDIVISION:

DATE:

BY:

Sollers Property Beetz Road

LOT	SECTION							
DEPTH	TEXTURE	MATRIX COLOR	MOTTLES DESCRIPTION	STRUCTURE	CONSISTENCE	%ROCK BY VOL.	REMARKS (Caving, moisture, etc.)	
HOLE								
2	0"-8"	10yr <sup>4</sup> / <sub>4</sub>					topsoil	
	8"-30"	10yr <sup>4</sup> / <sub>6</sub>				40%	si cl lm	
		7.5yr <sup>4</sup> / <sub>6</sub>				70%	Shale	
							Roots to 36"	
Slope%-	EL.(ft)-	Chroma 2-	Least Permeable Layers-					
Landscape Position-		Water BLS-	Limiting Zones-					
Additional Remarks-								

**MARYLAND DEPT. OF THE ENVIRONMENT  
 ONSITE SEWAGE DISPOSAL SYSTEM  
 SITE EVALUATION REPORT  
 SOIL PROFILE DESCRIPTION**

FILE NO.  
 MD. GRID:  
 TAX MAP/B/P:  
 SUBDIVISION:  
 DATE:  
 BY:

LOT	SECTION	MATRIX COLOR	MOTTLES DESCRIPTION	STRUCTURE	CONSISTENCE	%ROCK BY VOL.	REMARKS (Caving,moisture,etc.)
DEPTH	TEXTURE						
HOLE							
A/1.	0-6"	10 yr A/3	/	Granular			si cl lm
	6"-30"	10 yr A/6	/	Sub A block		30%	
	2.5'-			Bed rock		70%	shale
Slope%-	EL.(ft)-	Chroma 2-	Least Permeable Layers-				
Landscape Position-		Water BLS-	Limiting Zones-				
Additional Remarks-							

D-3

**MARYLAND DEPT. OF THE ENVIRONMENT  
 ONSITE SEWAGE DISPOSAL SYSTEM  
 SITE EVALUATION REPORT  
 SOIL PROFILE DESCRIPTION**

FILE NO.  
 MD. GRID:  
 TAX MAP/B/P:  
 SUBDIVISION:  
 DATE:  
 BY:

LOT		SECTION			STRUCTURE	CONSISTENCE	%ROCK BY VOL.	REMARKS (Caving,moisture,etc.)
DEPTH	TEXTURE	MATRIX COLOR	MOTTLES DESCRIPTION					
HOLE								
Slope%-	EL.(ft)-	Chroma 2-		Least Permeable Layers-				
Landscape Position-		Water BLS-		Limiting Zones-				
Additional Remarks-								

D-3

**TABLE 3.1**

**EQUATIONS FOR CALCULATING SAND MOUND DIMENSIONS**

150  
x 5  
-----  
750  
  
125  
x 5  
-----  
625

(A)

Absorption bed ft.<sup>2</sup> (A x B) =  $\frac{\text{Design flow}}{1.2 \text{ gpd/ft.}^2} = \frac{625}{1.2} \text{ ft.}^2$       750  
1.2

10 Bed length (B) = 42 ft. (21 ft. to 101 ft. dependent on site)

9 Bed width (A) =  $\frac{\text{Bed } 625 \text{ ft.}^2}{B \text{ } 41.67 \text{ ft.}} = \underline{15}$  ft. (15 ft. or less)

Upslope sand fill depth (D) = 48 in. -  $\frac{24}{Z}$  in. = 24 in. (12 in. min.)

108  
x .10  
-----  
10.8 + 2

Downslope sand fill depth (E) =  $[12A \times \% \text{ slope}] + D \text{ in.} = \frac{180 \times .10 + 24}{34.8} \text{ in.}$       (A)  
34.8      (B)

Cap + topsoil at bed center (H) = 18 in.

Cap + topsoil at bed edge (G) = 12 in.

Total Bed Depth (F) = 10 in.

Sideslope setback (K) =  $[(D + E) + 28 \text{ in.}] \times 3 = \underline{183}$  in.      15.25 ft (A)  
2(34.8 + 28) 61 x 3      14.35 ft (B)

Upslope setback (J) =  $(22 \text{ in.} + \frac{24}{D}) \times 3 \times \text{upslope corr. factor } .77 = \underline{106.26}$  in.      8.85 ft

Downslope setback (I) =  $(22 \text{ in.} + E) \times 3 \times \text{downslope corr. factor} = \underline{276.48}$  in.      23.04 ft  
34.8      42      (15) 8.85' 23.04

Total Width of Mound (W) =  $12A + J + I = \underline{40.89}$  in.      (38.3') B      180

Total Length of Mound (L) =  $12B + K + K = \underline{73}$  in.      98.7

MATERIALS ESTIMATE

Sand Mound Disposal System

STARR PROPERTY, Beetz Road - Howard County

<u>ITEM</u>	<u>QUANTITY</u>
<b>HOUSE TO SEPTIC</b>	
Septic Tank - 1500 gallon/two compt./ top seam	1
Effluent Filter- 800 gal/day cap. and access port (8" pvc)	1
4" PVC Schdl 40 pipe	100'
4" PVC wye, soc , 45° ell, 4" clean out adapter FPT & cap MPT	1 assmby
4" couplings	4
<b>Pump Tank</b>	
4" PVC (from septic) Schdl 40 pipe	15'
4" PVC - 45° ell	2
Pump Tank, 1500 gallon/single compt./top seam	1
Access Riser (24" h X 24" dia.) With lid	1 (assmby)
Control Panel (3 float pump control), exterior NEMA (+ floats)	1 (assembly)
Effluent Pump (submersible - 1 HP, 230 v, 12.5 Amp, 1Ø	1
<b>Pump Tank to Mound</b>	
Pump/pipe adapter (2" MPT X Soc)	1
2" PVC - 90° Ell, schdl 40	1
2" PVC Schdl 80 union	1
2" PVC Schdl 40 ball valve (for flow control)	1
2" X 3" PVC Schdl 40 reducer coupling	1
3" PVC Schdl 40 (pressure)	90'
3" PVC 90° ell	4
3" PVC Coupling	3
<b>Sand Mound Distribution System</b>	
3" PVC Schdl 40 manifold pipe	6'
3" PVC Tee	3
Reducer Cross 3"X 3"X2"X2" SOC X SOC X SOC X SOC	1
Reducer Bushings 2" X 1-1/4", SPIG X SOC	2
Reducer Bushings 3" X 1-1/4", SPIG X SOC	4
Lateral, 1-1/4" PVC Schdl 40 (pressure) pipe	200'
1-1/4" PVC End Caps	4
1-1/4" 90° Ell	1
1-1/4" PVC Male Adapter, MPT X SOC	1
1-1/4" PVC Cap, FPT	1
Spun Geotextile	1200ft <sup>2</sup> roll
<b>Sand Mound (10% slope) two foot min. Fill -</b>	
Filter Sand	upslope 29 tons
	Bed area 144 tons
	Downslope 106 tons
	<u>279 tons</u>
	Total Sand
Gravel (bed)	28 tons
Top Soil	90
Electrician	
Construction	

(TRANSFERRED TO HOWARD COUNTY - L 1002 F.486)

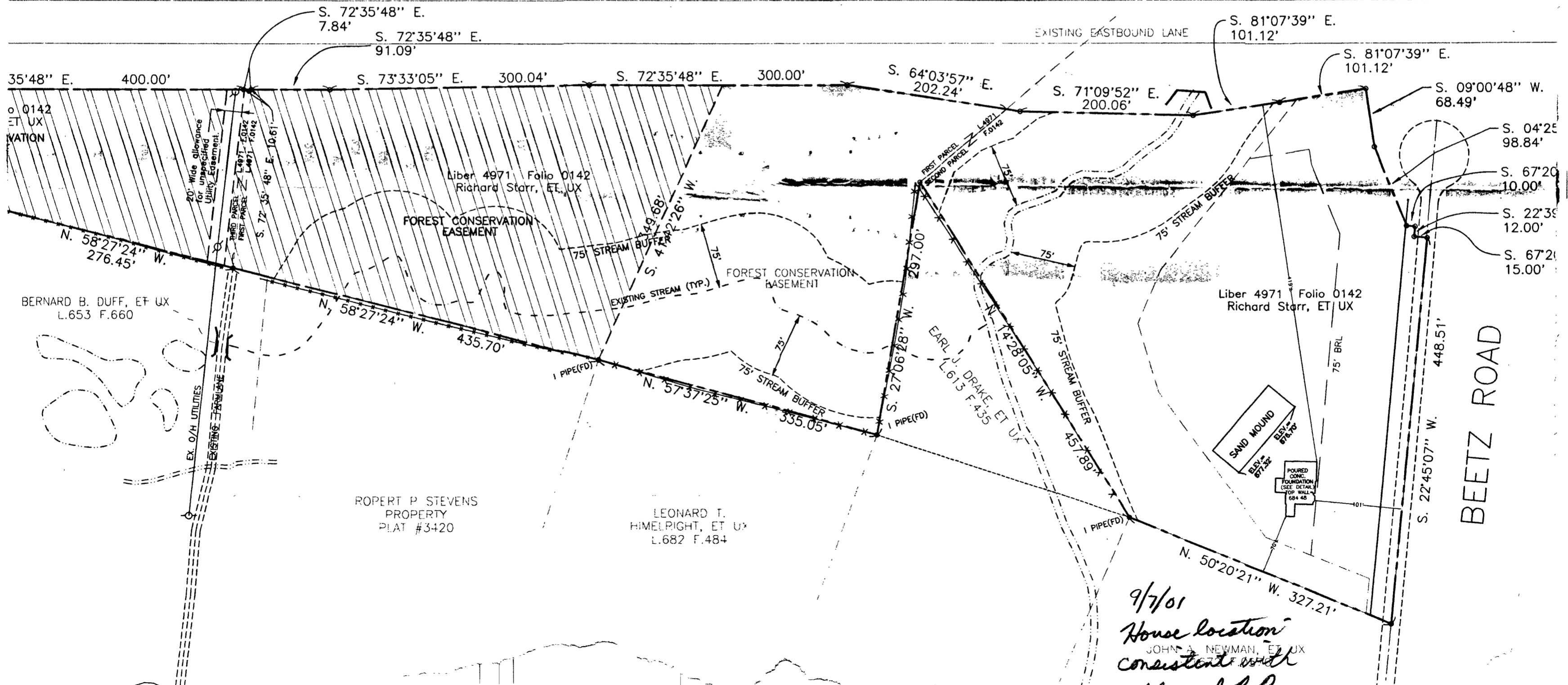
EXISTING PAVING & GRAVEL SHOULDER

# FREDERICK ROAD

EXISTING WESTBOUND LANE

# ROUTE - 70

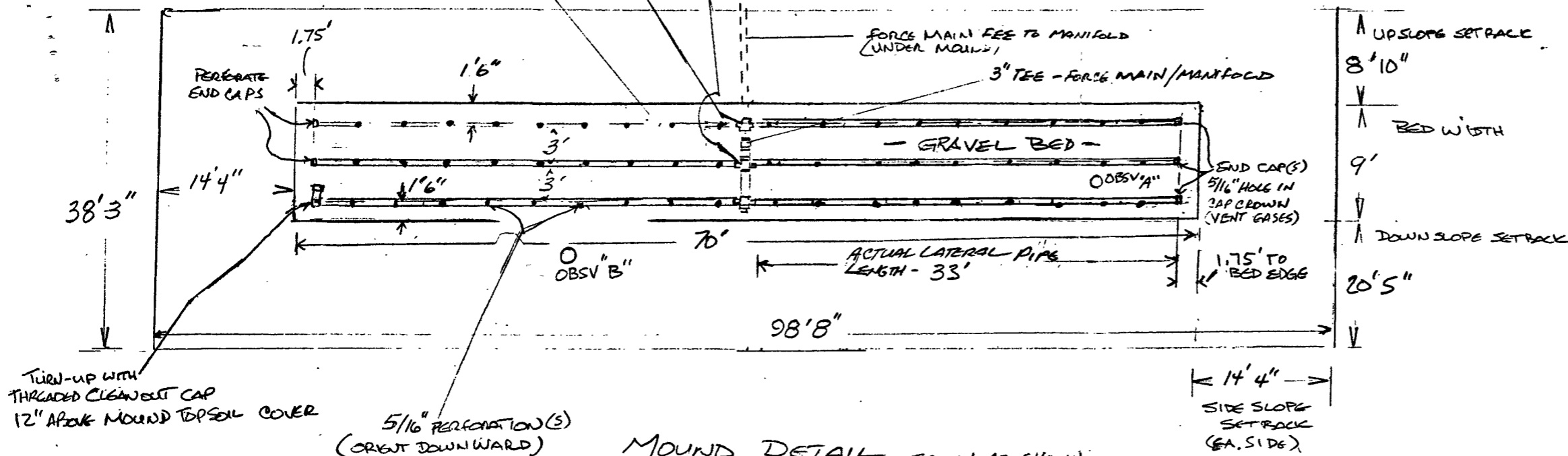
EXISTING EASTBOUND LANE



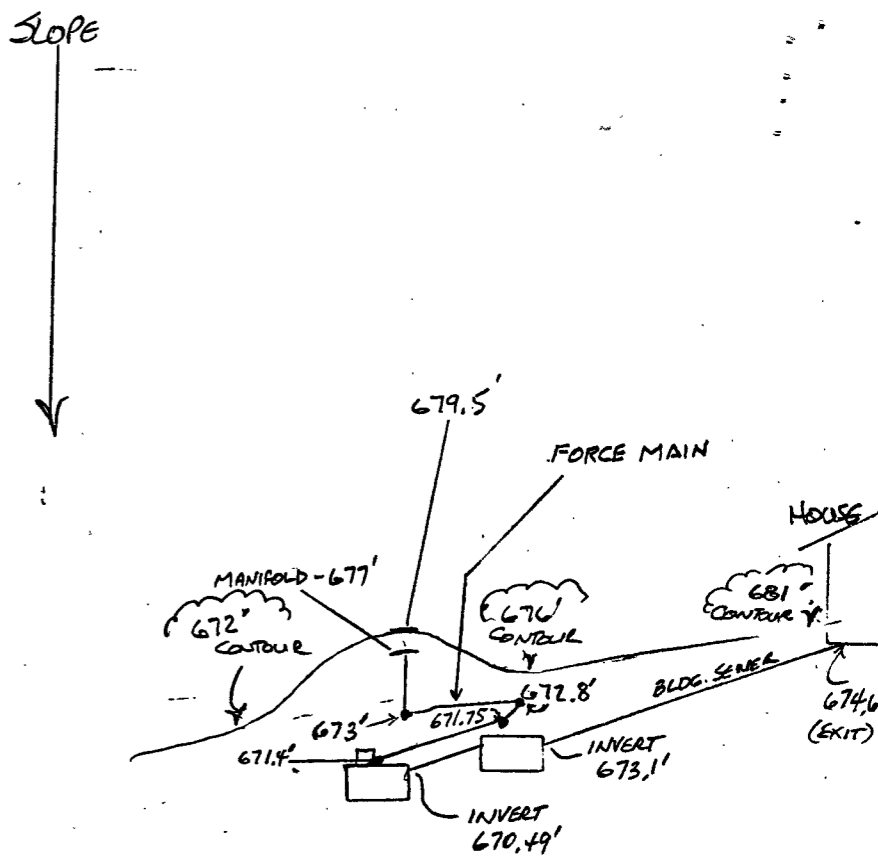
9/7/01  
 House location  
 JOHN A. NEWMAN, ET UX  
 consistent with  
 approved R.P.

REDUCING TEE(2) = (1/4"x1/4"x2" WITH 2"x3" REDUCER BUSHING) - 3" CENTER FEED MANIFOLD

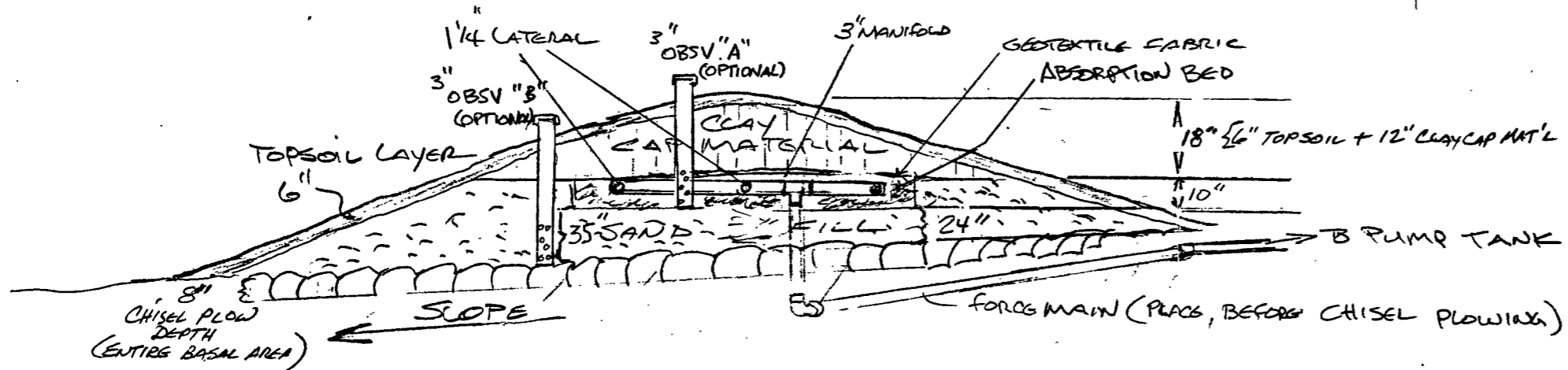
LATERALS - 1/4" (PVC SCH 40)  
 REDUCING CROSS (1) (PVC SCH 40)  
 3X3X1/2 X 1/2 REDUCE TO 1/4"



MOUND DETAIL PLAN VIEW SCALE: AS SHOWN

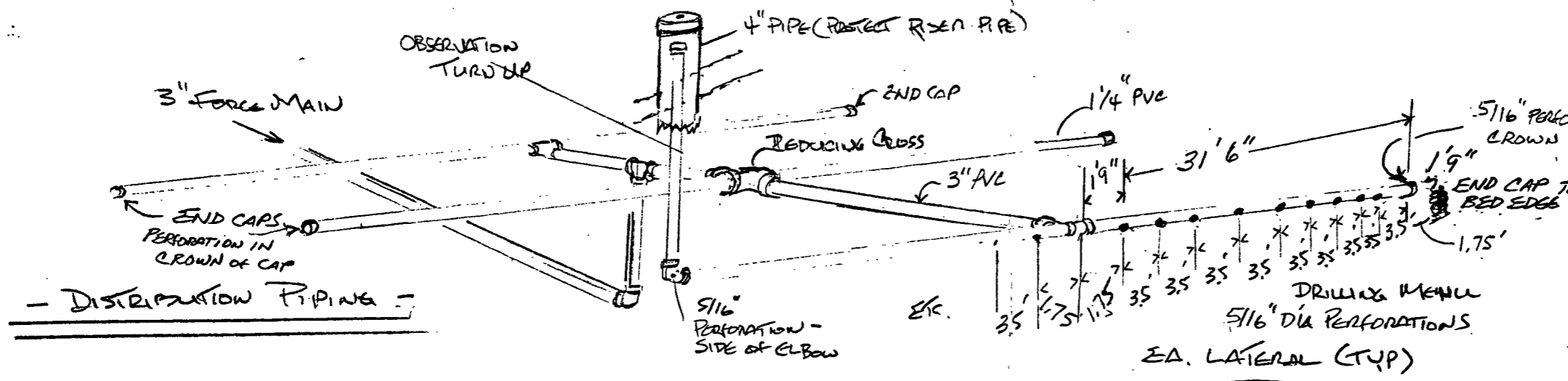


SYSTEM ELEVATION PROFILE



MOUND DETAIL PROFILE VIEW SCALE: AS SHOWN

NOTE: OPTIONAL 3" OBSERVATION PORTS  
 DRILL 1/2" PERFORATIONS - WRAP WITH  
 SPUN GEOTEXTILE TO PREVENT SAND CLOS.



INNOVA LTD  
 STARR PROPERTY  
 BEEBE ROAD - HOWARD COUNTY  
 WASTEWATER DISPOSAL SYSTEM (2001)

HOWARD COUNTY  
 FILE # A1

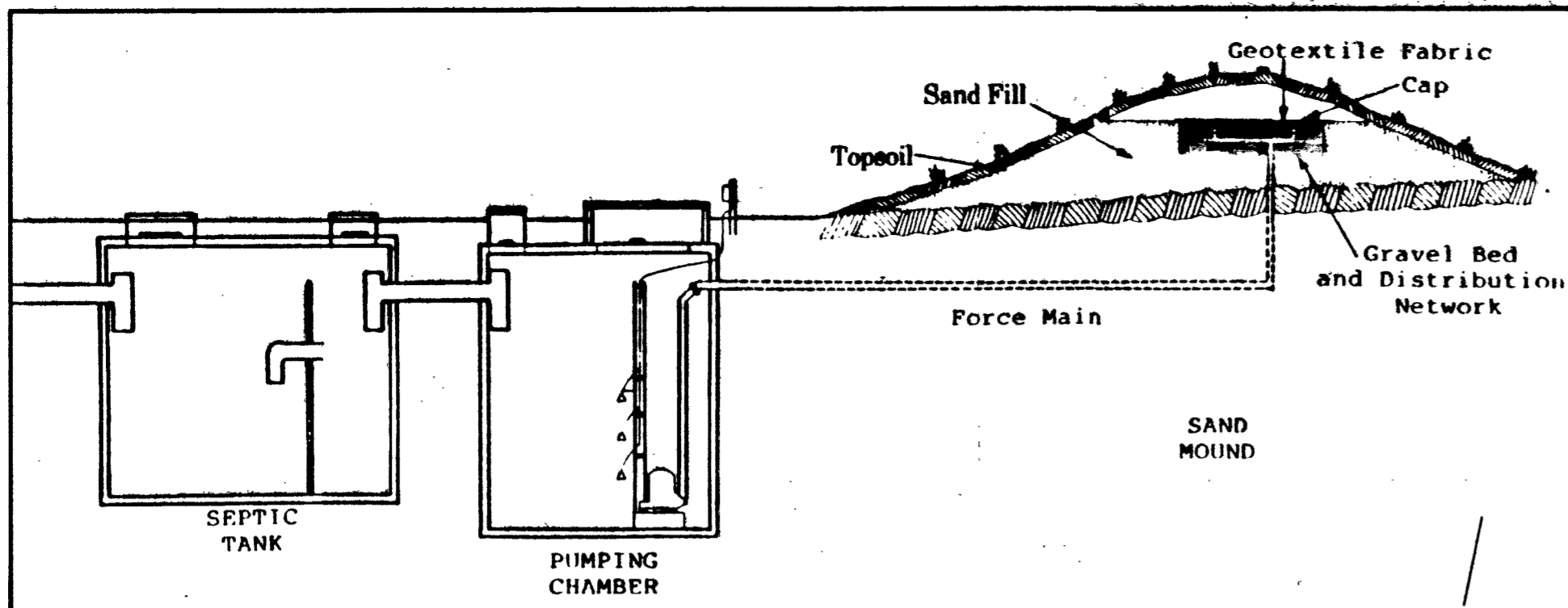
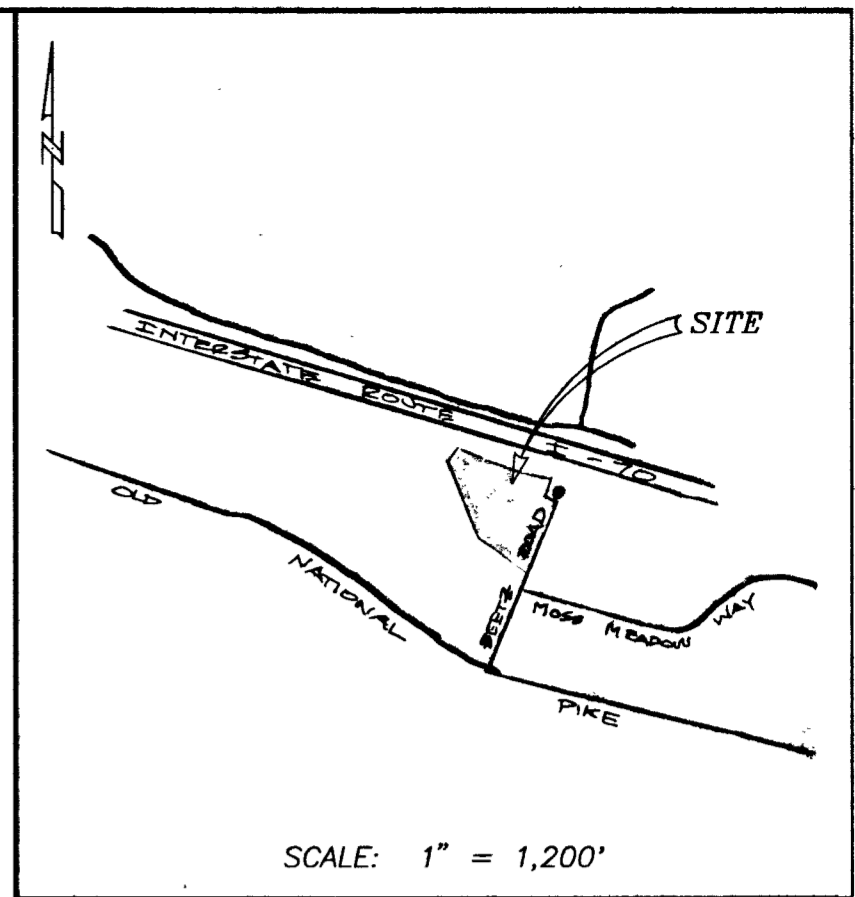
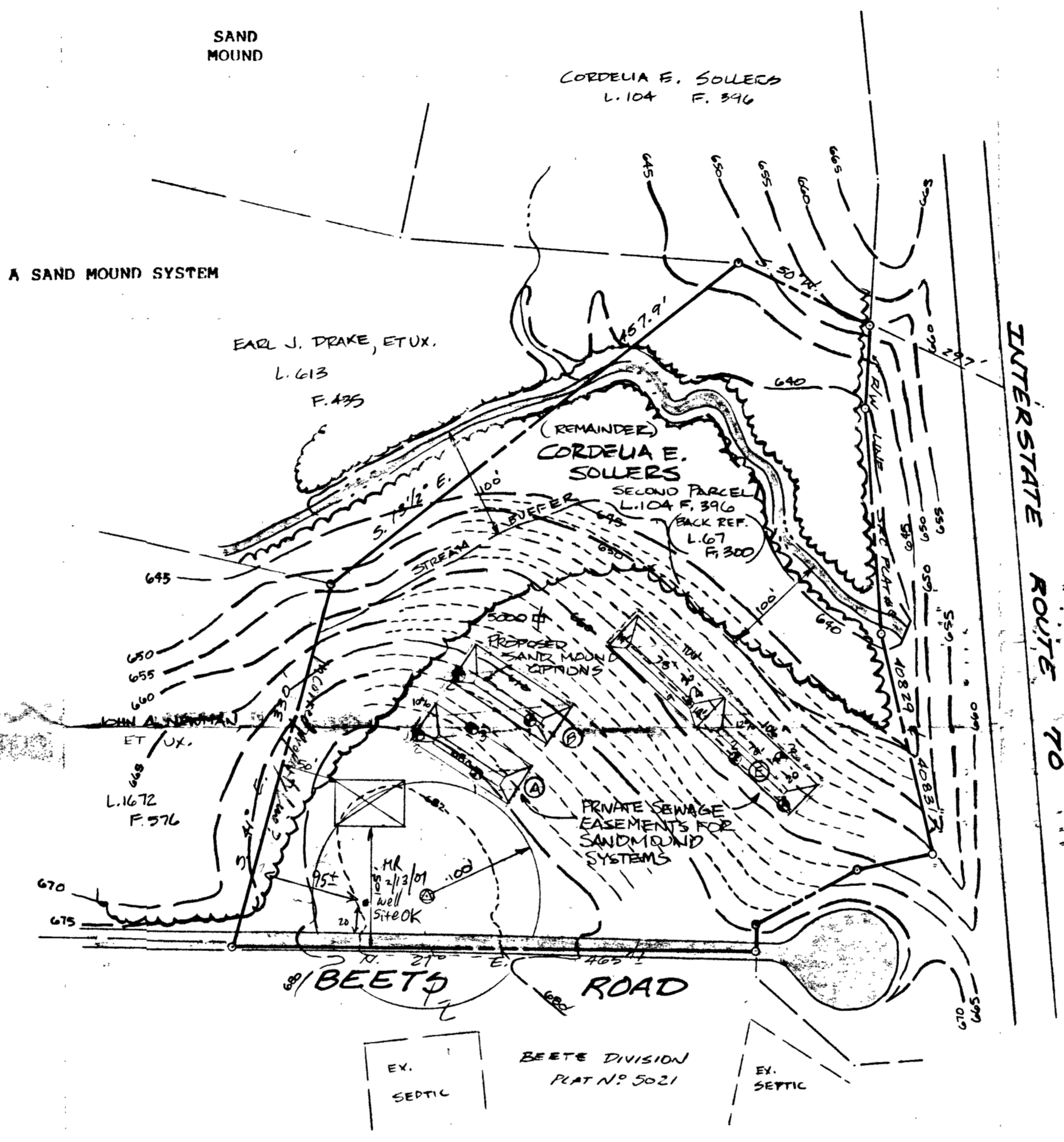


FIGURE 1.1 - TYPICAL CROSS SECTION OF A SAND MOUND SYSTEM  
(not to scale)



VICINITY MAP  
TAX MAP: 2 & 7 BLOCK: 20 PARCEL: P/O #12



1. SAND MOUNDS ARE BASED ON A PROPOSED 5 BEDROOM HOUSE, 4 ACRES SIZED FOR OVERALL PLAN APPROVAL. A MORE THOROUGH & DETAILED DESIGN WILL BE REQUIRED FOR HEALTH DEPARTMENT REVIEW AND APPROVAL PRIOR TO ISSUANCE OF BUILDING PERMIT.

MND	% SLOPE	# BEDRM/GPD	ABSORP. AREA	MOUND AREA
A	10%	5 / 150 gpd	9 x 70'	40' x 100'
B	12%	5 / 150 gpd	9' x 70'	40' x 100'
E	12%	5 / 150 gpd	4 x 156'	33' x 184'
			3,000 sq ft	39,000 sq ft

THIS AREA DESIGNATES A PRIVATE SEWAGE EASEMENT FOR SAND MOUND TYPE SEPTIC SYSTEMS ONLY AS REQUIRED BY MARYLAND STATE DEPARTMENT OF ENVIRONMENT FOR INDIVIDUAL SEWERAGE DISPOSAL (TOTAL AREA = 20,900 S.F. ±)

IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS. RECORDATION OF A MODIFIED SEWERAGE EASEMENT SHALL NOT BE NECESSARY.

EXISTING PERCOLATION TEST SITE: FAILED PASSED

PROPOSED WELL:

PROPOSED HOUSE SITE:

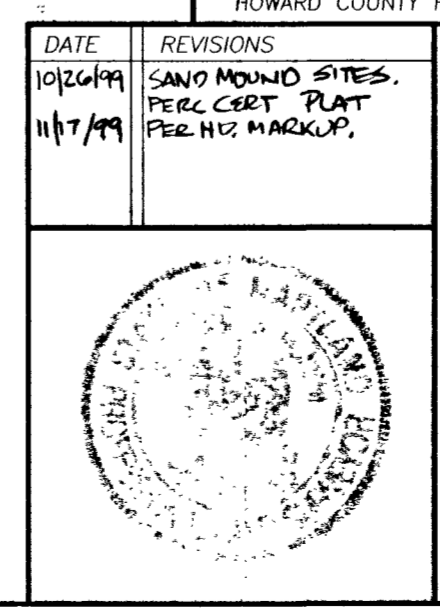
NOTE: THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF ANY PROPERTY BOUNDARIES UNLESS OTHERWISE SHOWN HEREON.

APPROVED:  
FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.  
HOWARD COUNTY HEALTH DEPARTMENT

*Dina Klatarski* 11/30/99  
HOWARD COUNTY HEALTH OFFICER DATE

I CERTIFY THAT THE PERCOLATION TEST HOLE LOCATIONS SHOWN HEREON HAVE BEEN ACCURATELY STAKED OUT ACCORDING TO THIS PLAN, IF PROPOSED, OR HAVE BEEN ACCURATELY FIELD LOCATED IF EXISTING, UNLESS OTHERWISE SHOWN HEREON.

*Sourabh Munshi* 2-9-99  
SOURABH G. MUNSHI, PROF. L. S., MD. REG. # 10770 DATE



PERCOLATION CERTIFICATION  
PLAT  
**SOLLERS PROPERTY**

SITUATED ON BEEZ ROAD  
TAX MAP: 2 & 7, BLOCK N: 20, PARCEL: P/O #12  
FOURTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: 1" = 100' FEBRUARY, 1999

VANMAR ASSOCIATES, INC.  
Engineers Surveyors Planners  
310 South Main Street P.O. Box 328 Mount Airy, Maryland 21771  
(301) 829-2890 (301) 851-5015 (410) 548-2751

E1=100.76

E1=101.35 E1=101.35 E1=101.18

E1=100.95 E1=100.95 E1=100.85

E1=100.15

Plan to scale

APPROVED

WALK-THRU BUILDING PERMIT  
BP# 600152559 A# 511334-E  
APP. SAN Lucy Thomas DATE: 3-9-05  
DESC. OF WORK: Inground pool

FUSE  
PANEL

HOUSE

6' PRIVACY  
FENCE

SPLIT RAIL  
FENCE w/  
WIRE COVERING

E1=100.85

E1=98.91

E1=97.44

E1=99.16

ELEV =  
99.0

PUMP/FILTER

E1=100.14

DECK  
ELEV. = 99.0

RETAINING  
WALL  
ELEV = 100.00

BENCH

E1=97.936

FUTURE  
DECK

E1=100.44

E1=99.53

FUTURE  
PATIO

E1=99.7

VOLLEYBALL NET  
POST ANCHOR

E1=99.53

E1=99.73

E1=98.29

780'

E1=98.38

E1=97.5876

E1=97.01

23'

E1=99.21

E1=97.90

E1=95.54

E1=94.87

20' SEPTIC SETBACK

Tri-County Pools, Inc.  
13410 Moser Road  
Thurmont, Maryland 21788  
(301) 898-3030

SCALE 1' = 10'

Inground Pool 20' x 39' 6 1/2"  
3'-8" Deep

House - 10'  
Left - 65'  
Right - 480'  
Front - 145'  
Back - 2050'  
Sundr mound - 23'  
well - 140'

STAR R POOL DESIGN  
RICH & LYNN STAR R  
830 BEET Z RD  
MT AIRY MD 21771  
410.489.2728 hmn  
443.812.4685

2050'