

Setting Tanks
8/2/01
ALL DAY

Need Pump Test

PERMIT

P 515953-D

SEWAGE DISPOSAL SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
410-313-2640

A 511469

ISSUE DATE 7/24/2001

04-364988

APPROVAL DATE 9/17/01

INDEXED

~~9/14/01 2:00~~
CANCELLED

9/17/01
1:00

Fogles Septic Clean, Inc IS PERMITTED TO INSTALL ALTER

ADDRESS 580 Obrecht Road, Sykesville, MD 21784 PHONE 410-795-5670

SUBDIVISION Carwithen Property LOT NUMBER 2 ADDRESS 1853 Long Corner Road

PROPERTY OWNER Stephen Wolfrey PROPERTY OWNER'S ADDRESS Same

SEPTIC TANK CAPACITY 1500 GALLONS

PUMP CHAMBER CAPACITY 1500 GALLONS

NUMBER OF BEDROOMS 3

SQUARE FEET PER BEDROOM See Sand Mound Design Plan

LINEAR FEET OF TRENCH REQUIRED See Sand Mound Design Plan

TRENCHES: Trenches to be feet wide. Inlet feet below original grade. Bottom maximum depth feet below original grade. feet of stone below distribution box.

LOCATION: - SEE APPROVED SAND MOUND DESIGN PLANS - 9/13/01

PLANS APPROVED Ronald J Pinkley DATE 9/13/01

PERMIT VOID AFTER 2 YEARS

NOTE: CONTRACTOR RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION INSPECTION FOR ALL INSTALLATIONS

NOTE: TOP OF SEPTIC TANKS ARE TO BE NO DEEPER THAN 3.0 FEET BELOW FINISH GRADE

NOTE: WATERTIGHT SEPTIC TANKS REQUIRED

NOTE: CLEANOUT REQUIRED EVERY 70 FEET OF SEWER LINE AND/OR AT 90° SWEEPS IN LINES FROM HOUSE TO DRAIN FIELDS, 90° ELBOWS ARE NOT ACCEPTABLE

NOTE: ALL PARTS OF SEPTIC SYSTEMS (I.E. TANK, DISTRIBUTION BOX, DRAINFIELDS) TO BE 100 FEET FROM ANY WATER WELL UNLESS OTHERWISE SPECIFICALLY AUTHORIZED

NOTE: NO ABSORPTION TRENCH TO EXCEED 100 FEET IN LENGTH UNLESS SPECIFICALLY AUTHORIZED **BUILDING PERMIT SIGNED**

NOTE: ALL PIPE FROM HOUSE TO SEPTIC TANK MUST BE CAST IRON OR SCHEDULE 35/40 PVC OR ABS **AND RETURNED 61202**

NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS

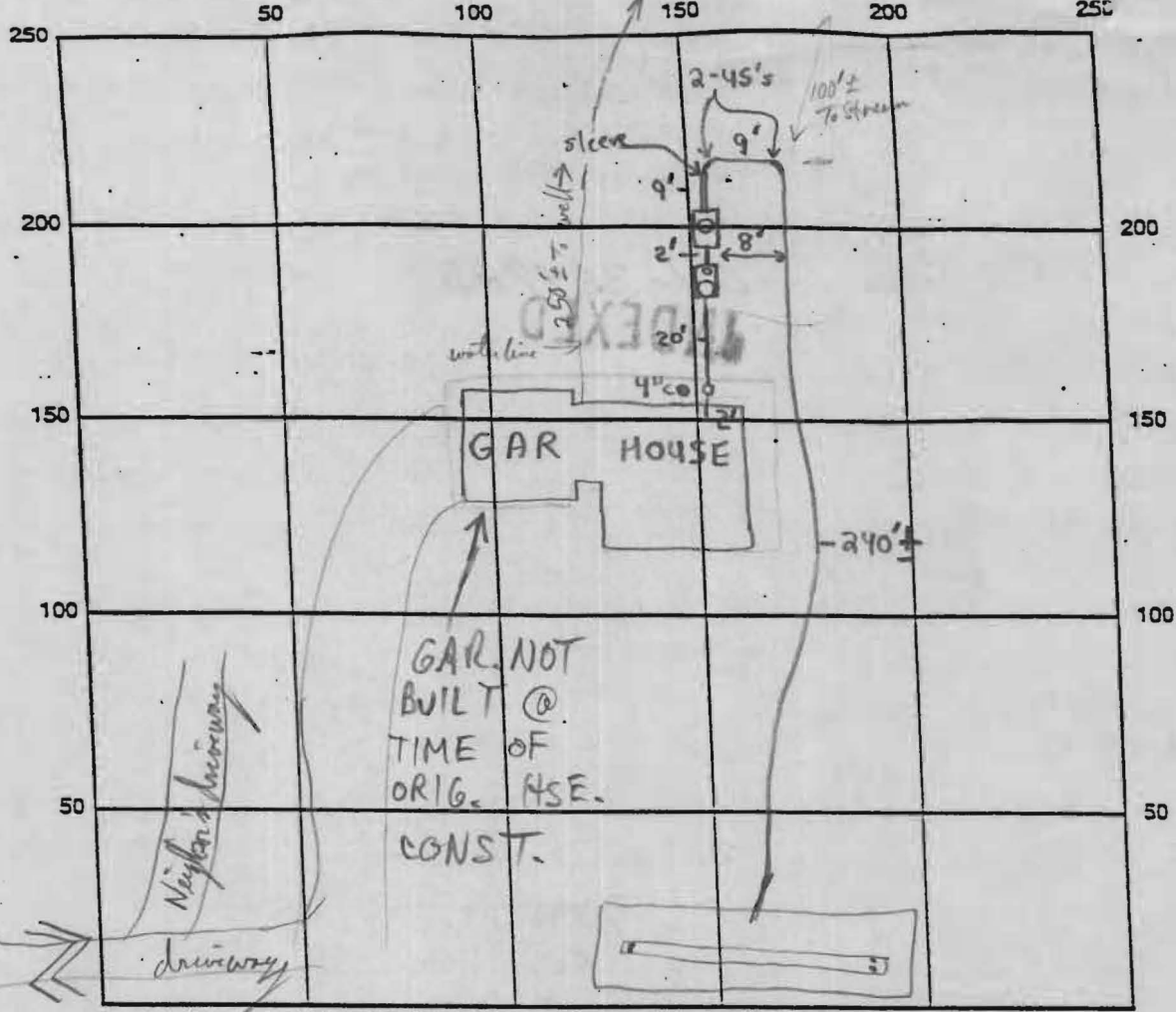
NOTE: DISTRIBUTION BOXES MUST HAVE BAFFLES

NOTE: IF PUMPED SEPTIC SYSTEM REQUIRED, (1) SEPTIC PUMP DETAIL TO BE PROVIDED BY INSTALLER PRIOR TO ISSUANCE OF SEPTIC PERMIT (2) PUMP PERFORMANCE TEST IS NECESSARY PRIOR TO HEALTH DEPARTMENT APPROVAL OF SEPTIC PERMIT

600136857-8 BALAGE
600134857-A-JECK STAMP

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
CALL 410-313-2640 FOR INSPECTION OF SEPTIC SYSTEM

P 515953-D



2 Compartment 1500 F.S.S.T. INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE
 SEPTIC TANK LEVEL 1500 F.S. Pump Tank Baffles in 4" at house, ST = Manhole front 6" rear
 CLEANOUTS P.O.T. = Manhole center

REMARKS: 7/31/01 - NO INSP. T/C WITH KURT FROM FOGLE, OK TO SET TANKS TO BE INSP.

AT LATER DATE (SRK)
 8/2/01 P.M. I called installer - installation of septic tanks and force main complete - I approved covering w/o inspection. (MR unable to make inspection) (DILL) 8/3/01 - OK TO COVER TANKS, BED BEING CONSTRUCTED OK TO CONTINUE, WELL LINE MAY NOT CROSS PUMPED SEWER LINE (SRK)

Send Hand + gravel bed formed, laterals all pre drilled perforations size + spacing OK, OK to proceed P/P 8/6/01
 Send Hand bring covered with typical. OK P/P 8/6/01 (Needs solving of Sand Hand + pump Test yet) P/P 8/6/01
 Pump Test OK, on/off switches and alarm flat work OK, have at least 2 ft head in lateral turnings, OK. P/P 9/17/01

DATE SYSTEM APPROVED 9/17/01 INSPECTOR P/P Puhby



LEGEND

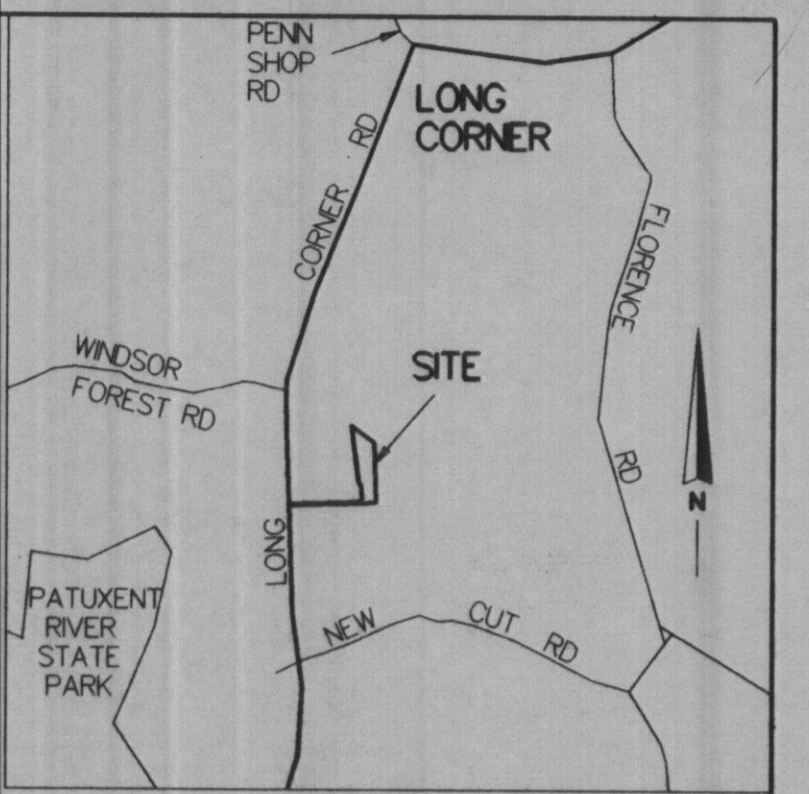
- EXISTING CONTOUR 4.18
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION 42.83
- PROPOSED SPOT ELEVATION 99+0
- SEWAGE DISPOSAL AREA

ABBREVIATIONS

- BF BASEMENT FLOOR
- BRL BUILDING RESTRICTION LINE
- CL CENTERLINE
- CO CLEANOUT
- EFF. EFFLUENT
- EX. EXISTING
- FF FIRST FLOOR
- FUT. FUTURE
- GAR GARAGE
- INV. INVERT
- PROP. PROPOSED
- R/W RIGHT OF WAY
- IPF IRON PIPE FOUND
- S.F. SQUARE FEET
- XFMR TRANSFORMER

NOTES

1. LOT RECORDED IN PLAT No. 14467 TITLED "CARWITHEN PROPERTY LOT 1 AND LOT 2".
2. ZONE RCDEO
3. EXISTING CONDITIONS AND TOPOGRAPHY ARE BASED ON A FIELD RUN SURVEY BY CIVIL DESIGN SYSTEMS DURING JANUARY 2001.
4. VERTICAL DATUM IS ASSUMED.



VICINITY MAP

SCALE: 1"=2000'
HOWARD COUNTY, MARYLAND

NOTE

FOR LOCATION OF UTILITIES CALL "MISS UTILITY" 24 HOURS A DAY 1-800-257-7777 48 HOURS IN ADVANCE OF ANY WORK IN THIS VICINITY.



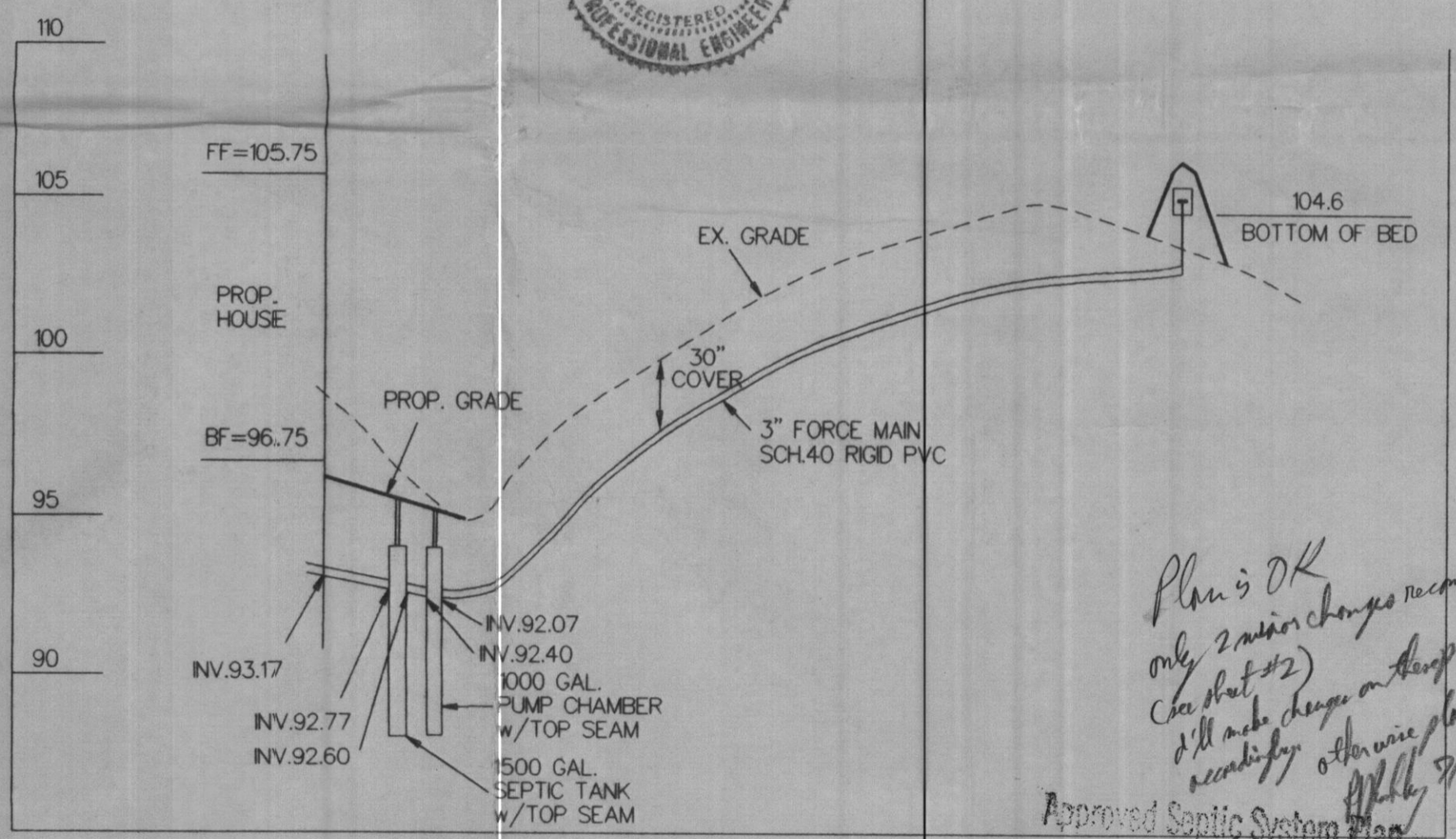
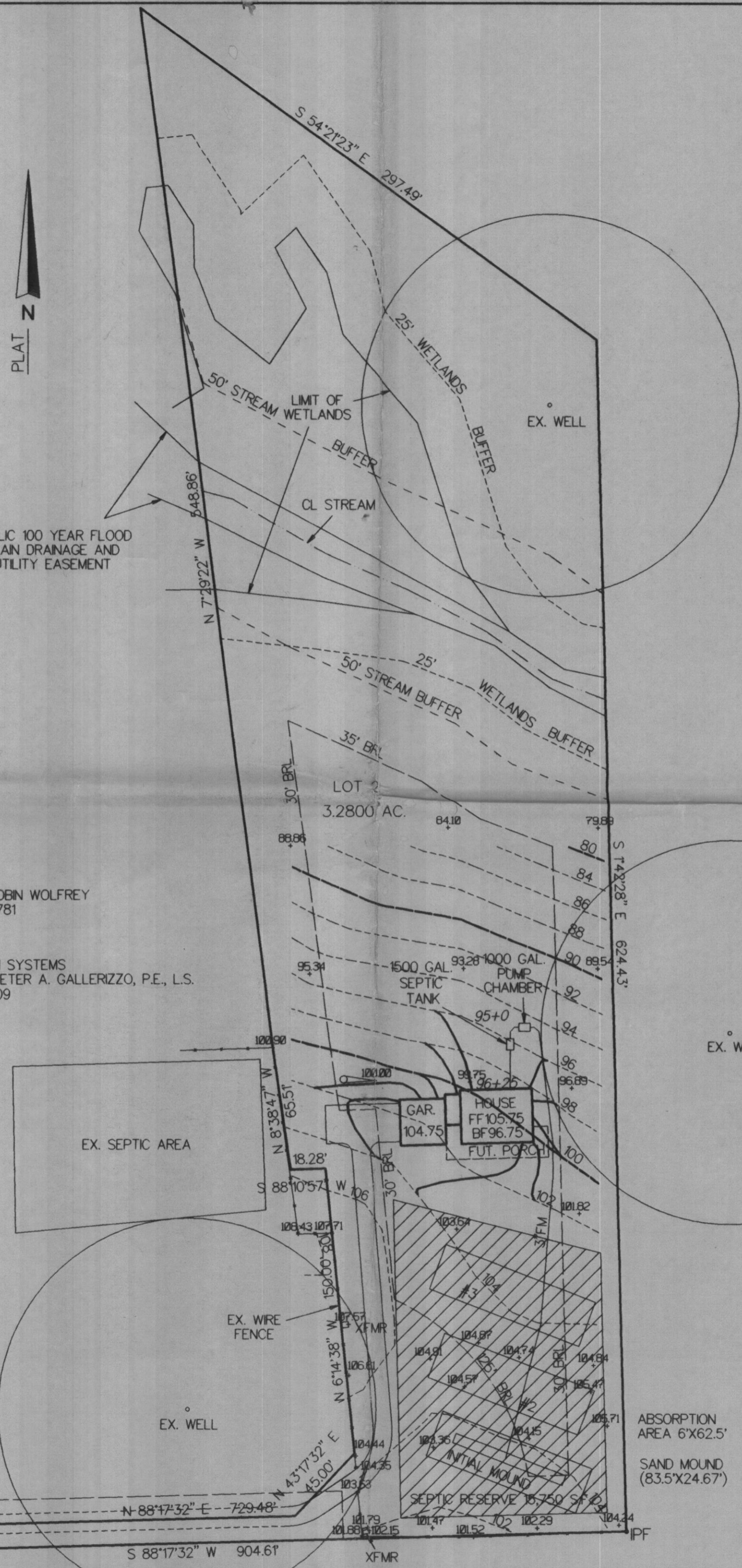
PUBLIC 100 YEAR FLOOD PLAIN DRAINAGE AND UTILITY EASEMENT

OWNER / BUILDER: STEVE & ROBIN WOLFREY
301-879-3781

ENGINEER / SURVEYOR: CIVIL DESIGN SYSTEMS
CONTACT: PETER A. GALLERIZZO, P.E., L.S.
301-921-9109

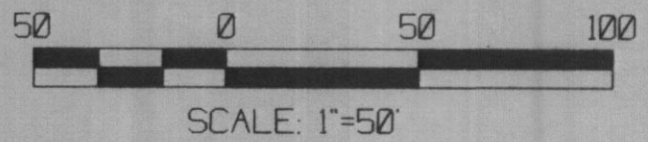
LONG CORNER ROAD
N 0°54'18" W (60' R/W)
12.50'

PLAN
SCALE: 1"=50'



SANITARY PROFILE

SCALE: H: 1"=50'
V: 1"=5'



SCALE: 1"=50'

Plan is OK only 2 minor changes recommended (see sheet #12) I'll make changes on the plans accordingly after we plan is approved. P. Gallerizzo 7/10/01

Approved Septic System Plan
Howard County Health Department

Small P. Gallerizzo
Signature 7/10/01

PROJECT: LOT 2 PLAT 14467
CARWITHEN PROPERTY
WOLFREY RESIDENCE
1853 LONG CORNER ROAD
MT. ARY, MARYLAND 21771

TITLE: Sand Mound Design Plan
SITE PLAN

DATE: 03/28/01
JOB: RSF01001
DWG: 011010
SCALE: 1"=50'

CDS (301) 921-9109
CIVIL DESIGN SYSTEMS
CIVIL ENGINEERING & LAND SURVEYING
19645 MUNCASTER ROAD
ROCKVILLE, MARYLAND 20855

SHEET: **C-1**
PAGE: 1 OF 3

C:\WOLFREY\WOLF

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.
- 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 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 (ie., 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.

DESIGN CRITERIA:

Design Flow = 450 gpd *OK*
 Sand - Must have an effective size between 0.25 and 0.5 mm with a uniformity coefficient no greater than 3.5.
 Hydraulic Loading Rates - Sand = 12 gpd/sq.ft. *OK*
 Soil = 0.75 gpd/sq.ft. *OK*

Dimensions - The following dimensions are calculated based on a 5.0 % slope:

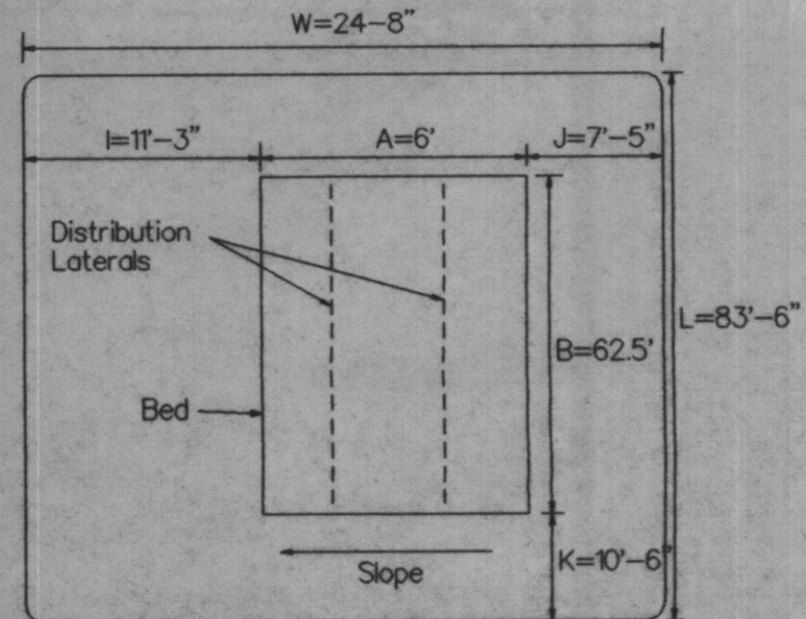
Absorption bed area = 375 sq.ft. *OK*
 Absorption bed length = 62'-6" *OK*
 Absorption bed width = 6' *OK*
 Upslope sand fill depth = 12" *OK*
 Downslope sand fill depth = 16" *OK*
 Sideslope setback = 10'-6" *OK*
 Downslope setback = 11'-3" *OK*
 Total mound width = 24'-8" *OK*
 Total mound length = 83'-6" *OK*
 Distribution System -

Center feed distribution system
 Number of laterals = 4 *OK*
 Length of laterals = 30'-9" *OK*
 Diameter of laterals = 1 1/4" *OK*
 Distance between laterals = 3'-0" *OK*
 Distance between lateral and edge of bed = 1'-6" *OK*
 Diameter of perforations = 5/16" *OK*
 Distance between perforations = 42" *OK*
 Perforations per lateral = 9 *OK*
 Distance to first perforation = 1'-7 1/2" = 1.625' *OK*
 Discharge rate per perforation = 163 gpm *OK*
 Discharge rate per lateral = 1467 gpm *OK*
 Total discharge rate = 5868 gpm *OK*
 Pump must deliver 59 gpm at design head of 20.9 ft.
 Dose = larger of (5 X volume of laterals) + volume of manifold + volume of the force main OR design flow divided by six (75)
 Dose = 142.1 gal. *OK*
 Diameter of the force main = 3" *OK*
 Diameter of the manifold = 3" *OK*

CALCULATE SAND MOUND DIMENSIONS

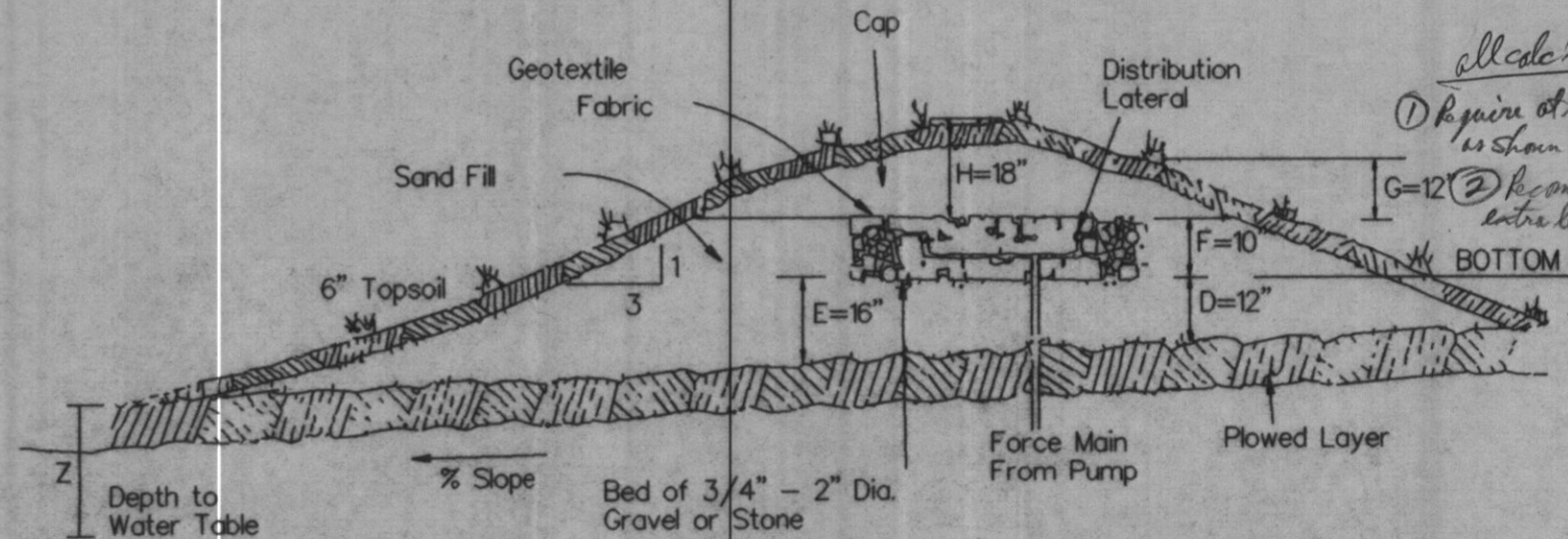
Absorption bed sq.ft. (A X B) = $\frac{450 \text{ gpd}}{12 \text{ gpd/sq.ft.}} = 375 \text{ sq.ft.}$ *OK*
 Bed length (B) = 62.5 ft. (21 ft. to 101 ft. dependent on site) *OK*
 Bed width (A) = $\frac{375 \text{ sq.ft.}}{62.5 \text{ ft.}} = 6 \text{ ft.}$ (15 ft. or less) *OK*
 Upslope sand fill depth (D) = 48 in. - Z in. = 12 in. (12 in. min.) *OK*
 Downslope sand fill depth (E) = $[\frac{12 \text{ A X } \% \text{ slope}}{100}] + D \text{ in.}$ = $[\frac{12 \times 6 \times .05}{100}] + 12 = 16 \text{ in.}$ *OK*
 Cap + topsoil at bed center (H) = 18 in. *OK*
 Cap + topsoil at bed edge (G) = 12 in. *OK*
 Total bed depth (F) = 10 in. *OK*
 Sideslope setback (K) = $[(D + E) + 28 \text{ in.}] \times 3 = 126 \text{ in.}$ or 10'-6" *OK*
 Upslope setback (J) = $(22 \text{ in.} + D) \times 3 \times \text{upslope corr. factor}$ = $(22 + 12) \times 3 \times .875 = 89 \text{ in.}$ or 7'-5" *OK*
 Downslope setback (I) = $(22 \text{ in.} + E) \times 3 \times \text{downslope corr. factor}$ = $(22 + 16) \times 3 \times .118 = 135 \text{ in.}$ or 11'-3" *OK*
 Total width of mound (W) = 12 A + J + I = $(12 \times 6) + 89 + 135 = 296 \text{ in.}$ or 24'-8" *OK*
 Total length of mound (L) = 12 B + K + K = $(12 \times 62.5) + K + K = 1002 \text{ in.}$ or 83'-6" *OK*
 Basal area required = $\frac{450}{0.75} = 600 \text{ sq.ft.}$ *OK*
 Basal area provided = $(6' + 11'-3") \times 62.5' = 1078 \text{ sq.ft.}$ *OK*

NOTE
 FOR LOCATION OF UTILITIES
 CALL "MISS UTILITY"
 24 HOURS A DAY
 1-800-257-7777 48 HOURS
 IN ADVANCE OF ANY WORK
 IN THIS VICINITY.



- A = Bed Width
- B = Bed Length
- K = Sideslope Setback
- J = Upslope Setback
- I = Downslope Setback
- W = Total Width of Mound
- L = Total Length of Mound

FIGURE 3.2 - DESIGN WORKSHEET - PLAN VIEW



- D = Upslope Sand Fill Depth (in.)
- E = Downslope Sand Fill Depth (in.)
- F = Bed Depth (in.)
- G = Cap & Topsoil Height at Bed Edges (in.)
- H = Cap & Topsoil Height at Bed Center (in.)
- Z = Depth to Water Table (in.)

FIGURE 3.1 - DESIGN WORKSHEET CROSS-SECTION

If you prefer you may cut off the 1/4" stub of lateral at the seventh lateral perforation
 Use central fed manifold distribution network *preferred*
 length of bed = 62.5'
 length of lateral = $(62.5 - 1) / 2 = 30.75'$
 width of bed = 6' use 2 rows of laterals
 distance between laterals = $6 / 2 = 3'$
 use 5/16" dia. perforation
 spacing of perforation = 42" o.c.
 use 1-1/4" dia. laterals (table) $23 < 30.75 < 36$
 number of perforations per lateral = $0.5 \times 62.5 / 3.5 = 9$
 distance between manifold and first perforation
 $\frac{(0.5 \times 62.5) - [(9 - 1) \times 3.5]}{2} = 1'-7 1/2"$

PUMPING SYSTEM
 calculate dose: design flow = 450 gpd / 6 = 75 gal. *OK*
 OR
 force main = 242 ft. of 3" SCH40 rigid PVC
 + manifold = 3 ft. of 3" SCH40 rigid PVC
 245 ft. of 3" X 3.84" = 94.1 gal. *OK*
 + laterals 123 ft. of 1 1/4" X .078" = 9.6 gal. X 5 = 48 gal. *OK*
 Total Volume = 94.1 + 48 = 142.1 gal. > 75 gal. *OK*
 Use 142.1 gal. dose ($119 \text{ ft.} \times 1.2 \text{ gal./ft.} = 142.8 \text{ gal.}$) = 9.28 X 5 = 46.4

PUMPING CHAMBER
 one day storage capacity = 450 gal.
 + dose = 142.1 gal. *OK*
 Total = 592.1 gal. *OK*
 area of pumping chamber = 90" L X 64" W = 5760 sq.in. *OK*
 distance from inlet elev. to high water alarm:
 design flow = 450 gal. X 2.31 cu.in./gal = 18" *OK* (11.00")
 5760 sq.in.
 distance from pump on to pump off:
 one dose = 142.1 gal. = 142.1 X 2.31 = 6" (5.988") = 5.7" *OK*
 5760

PUMP SIZING
 flow = 36 perforations X 163 gpm = 5868 gpm *OK*
 static head = top of absorption bed - pump off
 = 106' - 89' = 17.0 ft. *OK*
 friction head: (2) 45' ELL @ 3" dia. = 12' *OK*
 (2) 90' ELL @ 3" dia. = 20' *OK*
 (1) 90' Side Tee 3" = 15' *OK*
 (1) gate valve = 2' *OK*
 Equivalent pipe length = 49' *OK*
 = 245' + 49' = 294' *OK*
 flow = 5868 gpm *OK*
 loss = 0.81 per 100 ft. *OK*
 total friction loss = 2.94 X 0.81 = 2.4 *OK*
 Design Head = Static head (ft.) + Friction head (ft.) plus
 2 ft. of head at distal end of laterals
 = 17.0 + 2.4 + 2.0 = 21.4 ft. *OK*
 Pump needs to deliver 5868 gpm @ 21.4 ft. of head. *OK*
 Use WE07, 3/4 HP.

Approved Septic System Plan
 Howard County Health Department
 Signature: *Handwritten Signature*
 Date: *7/19/01*

PROJECT: LOT 2 PLAT 14467 CARWITHEN PROPERTY WOLFREY RESIDENCE 1853 LONG CORNER ROAD MT. ARY, MARYLAND 21771	DATE: 03/28/01 JOB: RSF01001 DWG: 011011 SCALE: AS SHOWN	CDS (301) 921-9109 CIVIL DESIGN SYSTEMS CIVIL ENGINEERING & LAND SURVEYING 19645 MUNCASTER ROAD ROCKVILLE, MARYLAND 20855	SHEET: C-2 PAGE: 2 OF 3
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C. WOLFREY

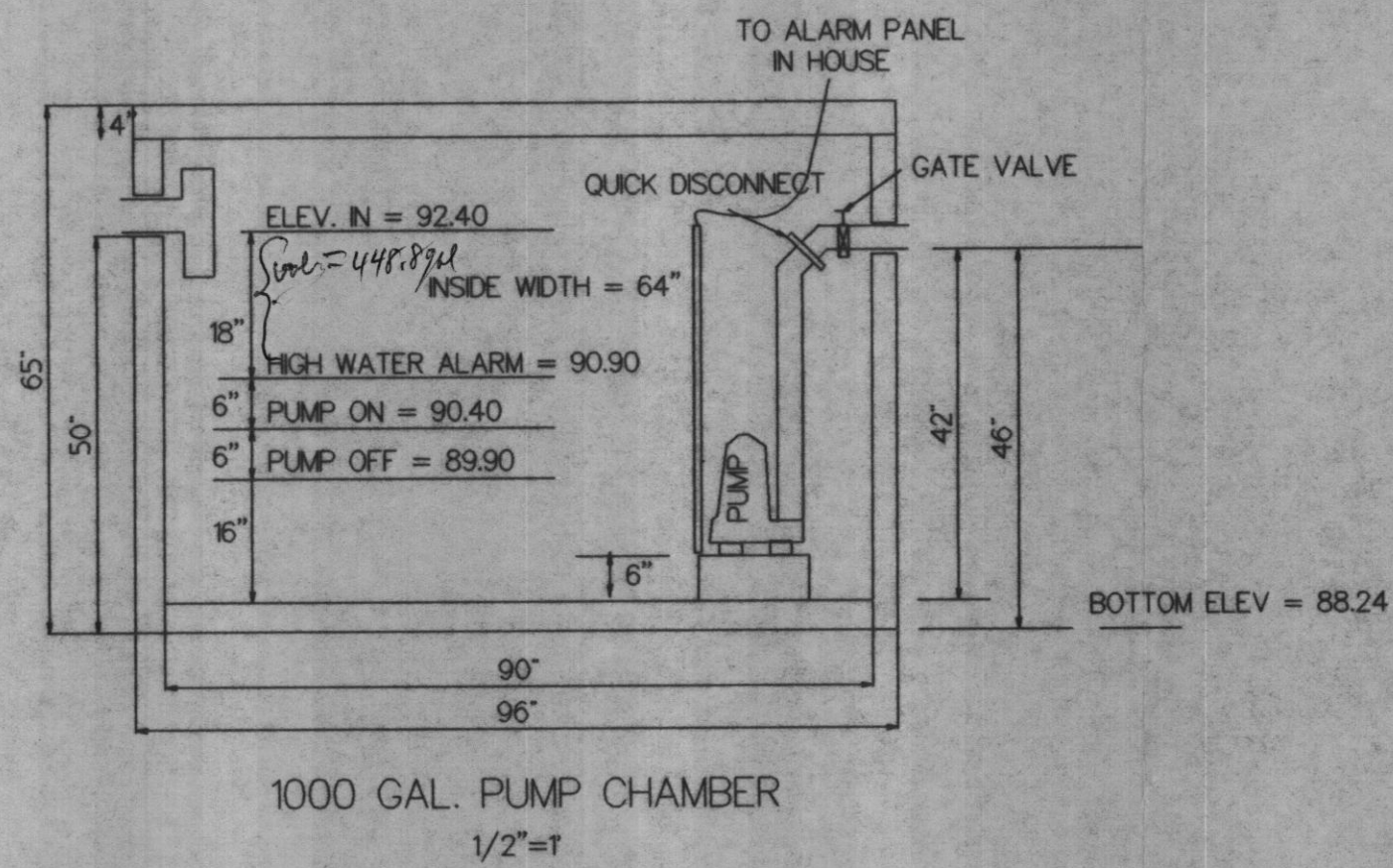
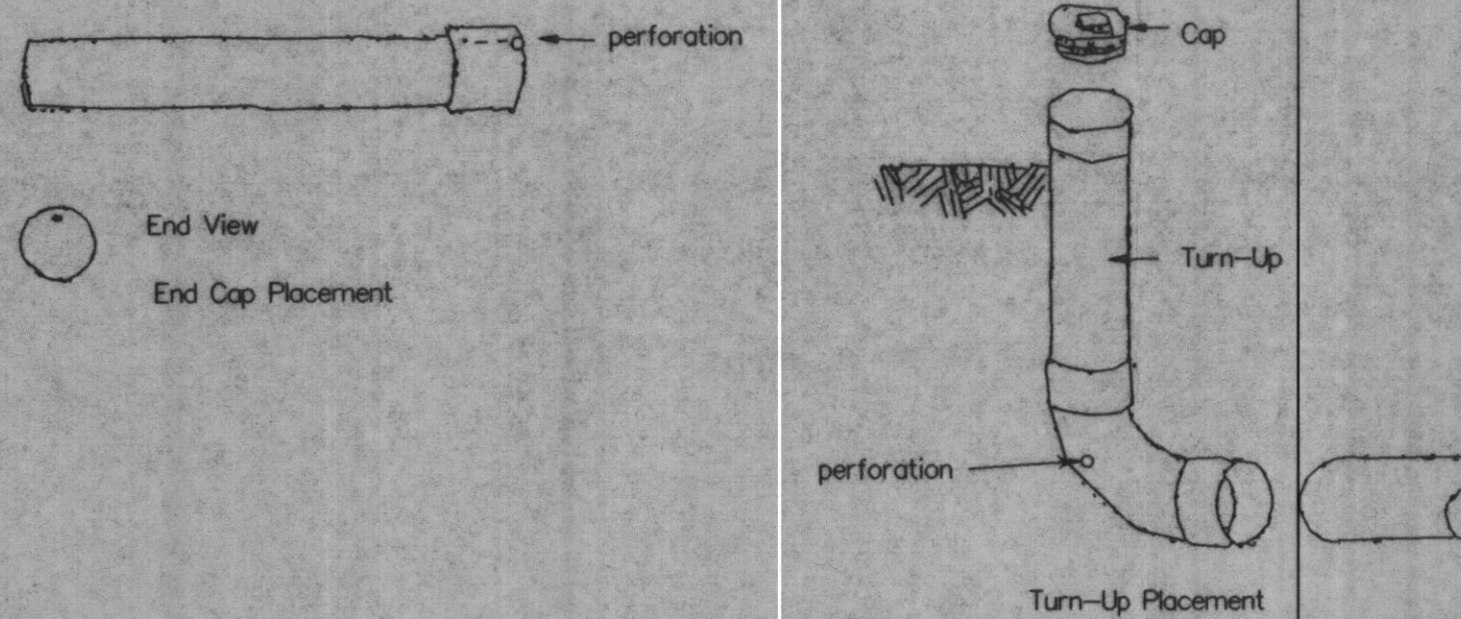
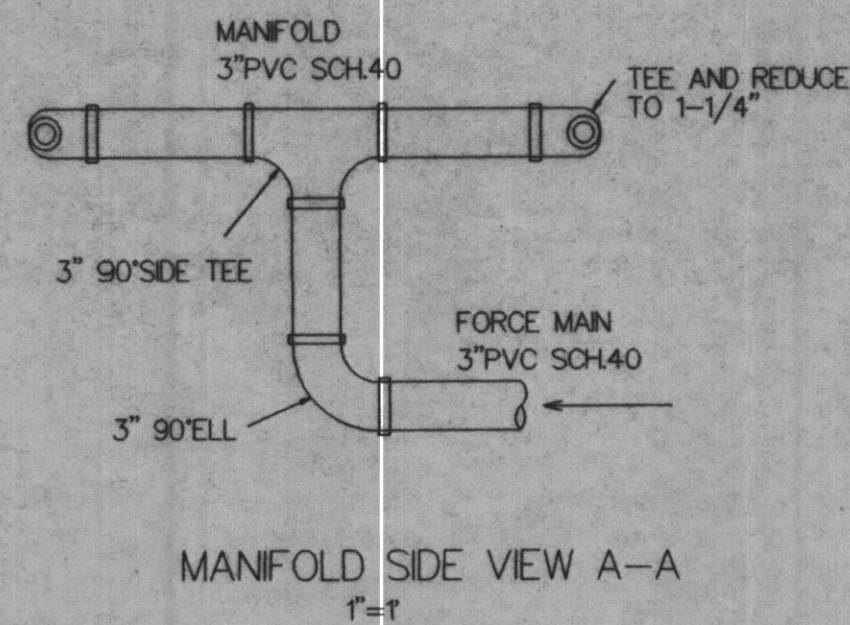
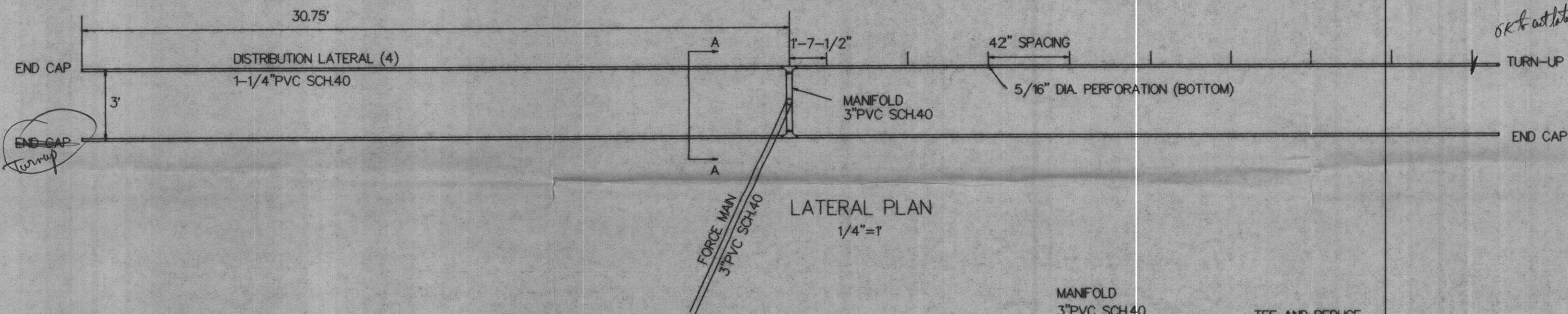


FIGURE 4.5 - PLACEMENT OF THE END PERFORATION IN A DISTRIBUTION LATERAL



NOTE
 FOR LOCATION OF UTILITIES
 CALL "MISS UTILITY"
 24 HOURS A DAY
 1-800-257-7777 48 HOURS
 IN ADVANCE OF ANY WORK
 IN THIS VICINITY.



OK to cut lateral at last perforation

PUMP SCHEDULE

MANUFACTURER: GOULDS PUMPS - ITT INDUSTRIES		
MODEL	DESCRIPTION	QUANTITY
WE0712H	3/4 HP. PUMP 1 PHASE; 230V	1
S10020NI	CONTROL PANEL 1 PH, NEMA 1, 20 A	1
A2-3M	MERCURY SWITCH	3
A9-2BPT	2" PLASTIC BALL CHECK VALVE	1



Approved Septic System Plan
 Howard County Health Department

Robert W. Kelly
 Signature Date 7/10/01

PROJECT: LOT 2 PLAT 14467
 CARWITHEN PROPERTY
 WOLFREY RESIDENCE
 1853 LONG CORNER ROAD
 MT. AIRY, MARYLAND 21771

TITLE: SAND MOUND DESIGN PLAN

DATE: 03/28/01
 JOB: RSF01001
 DWG: 011012
 SCALE: AS SHOWN

CDS (301) 921-9109
 CIVIL DESIGN SYSTEMS
 CIVIL ENGINEERING & LAND SURVEYING
 19645 MUNCASTER ROAD
 ROCKVILLE, MARYLAND 20855

SHEET: **C-3**
 PAGE: 3 OF 3

C:\WOLFREY\MOUND2